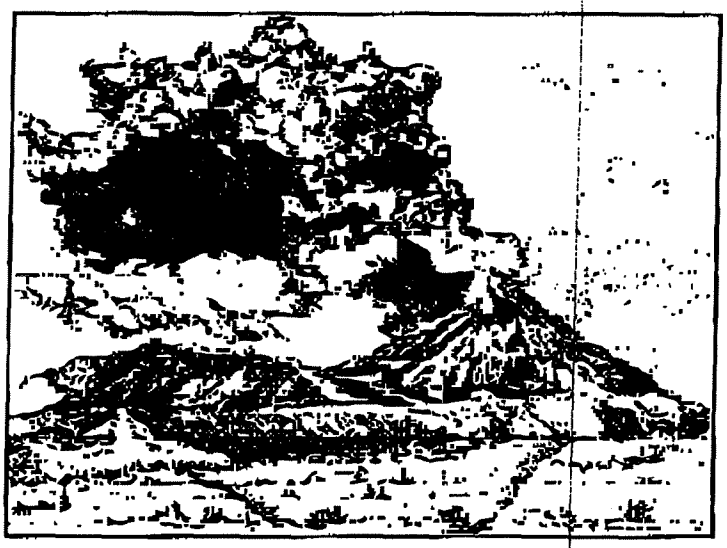
THE GEYSERS CORING PROJECT

COMPLETED GEOLOGIC LOGS

UNCLASSIFIED

GL04326

Los Alamos National Laboratory



Outgoing Facsimile Transmittal

EES-1
Geology/Geochemistry
P. O. Box 1663, MS D462
Los Alamos, NM 87545

Telecopier Number
505-665-3285

Confirmation Number
505-667-7590

TO: Jeff Hulen
ESRI
Salt Lake City, UT 84112
FAX: 801-585-3540

FROM: Fraser Goff, Los Alamos Nat'l Lab *Frase*
c-mail: fraser@lanl.gov

RE: Jeff -Enclosed is the list of samples you sent. Talk to you soon. - Frase

Number of pages including cover sheet: 2 **Date:** 6/26/96

This Message Contains Unclassified Information Only

Operator's Signature **Phyllis**

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Sample List SB15-D
Recd 26 June 96

1. 1432.9 Vein
2. 1507 Vein
3. 1065 (29-2) Vein
4. 1132.1 – 1132.5 Greywacke w/ Pyrite-rich Frac.
5. 881 Fragments
6. 1006.3 Vein Fragments
7. 1348.9 Vein Fragments
8. 1017.2 Vein
9. 1107.0 Vein Fragments
10. 1033 Vein Fragments
11. 1370.4 Vial of Illite Concentrate

802-296-8333

APPROXIMATE WT. %

	BULK:	QUARTZ	PLAGIOCLASE	K-FELDSP	CALCITE	EPIDOTE	ACTINOLITE	WAIRAKITE	FERROAXINITE	SPHENE	ILMENITE	PYRITE	CHALCOPYR.	SPHALERITE	COARSE MICA (detrital)	ILLITE	M.L. ILLITE/SM	CHLORITE	ORGANIC DEBRIS	% MICROFRACS	% VUGS	% VEINLETS *	
	SB-15-D																						
MGW	1245.5'	46	22	TR	2	TR				1	1	TR	TR		2		16	10	1	0.3	0.1	0.3 h	
AR	1492.4'	28	3	5		TR		TR		1	1	4			2	31		19	2	0.8		1m 4h	
AR/MGW	1558.5'	27	12	3	1	TR				1	1	3			1	26		16	2	0.5	0.1	10m 0.5h	← 10m ← 0.5h
MGW	1587.5'	40	26	1	3	2				1	1	TR	TR	TR	2	14		9	1		0.2		
	NEGU-17																						
AR	8531.8'	26	16	8		2	TR		TR	1	1	TR	TR	TR	2	18		24	2	0.5	TR	1m 4h	
	<5μ FRACTION																			% SM in IL or		IL/SM ↓	
	SB-15-D																						
	1245.5'																62	38		5-8		0.50	
	1492.4'															65		35		≤5		0.42	
	1558.5'															74		26		≤5		0.48	
	1587.5'																			≤5		0.49	
	NEGU-17																						
	8531.8'															46		54		0		0.33	

WIDTH OF 10Å PEAK @ ½ HEIGHT (GLYCOL) ↑

MINERALOGIC/PETROGRAPHIC SUMMARY

JBH 05/22/96

ILLITE: ≤5% SMECTITE INTERLAYERS
IL/SM: >5% " "

+ >10μ

* m = metamorphic
h = hydrothermal

SAMPLE: Geysers corehole SB-15-D, depth 1245.5 ft (379.6 m)

ROCK TYPE: Chert-rich **Lithic metagraywacke**, fine-grained, poorly to moderately sorted, massive. About one-fourth of the section is slightly darker and more brownish than the rest. In this dark part of the section, the matrix of the metagraywacke is richer in illite and chlorite, poorer in silt-size clastic debris, and probably slightly richer in organic material. About 70% clastic grains, dominantly subangular to angular, 0.02-0.90 mm in diameter, embedded in an argillaceous "rock flour" matrix. Grains comprise, in decreasing order of abundance, chert, quartz, intermediate- to basic-composition metavolcanic rock, plagioclase (albite), and argillite (metashale) with a trace of quartz-mica schist, and coarse detrital mica (muscovite and chloritized biotite). Matrix consists of a mixture of illite, chlorite, and microgranular "rock flour" -- clastic debris compositionally identical to the larger clastic grains.

HYDROTHERMAL ALTERATION AND MINERALIZATION: Very weak. The original metamorphic character and mineralogy of the rock have been retained nearly intact. Illite and chlorite partially replace plagioclase; chlorite totally replaces original (premetamorphic) mafic minerals. Calcite weakly to rarely wholly replaces albite grains. Sphene occurs as microgranular clots disseminated throughout the matrix and averaging about 0.1 mm in diameter. Trace of hydrothermal epidote replacing plagioclase grains. Trace of hydrothermal potassium feldspar replacing plagioclase adjacent to (also-rare) potassium feldspar microveinlets. Trace disseminated pyrite, as disseminated grains less than 0.1 mm in diameter.

VEINLETS AND VUG-FILLINGS: 0.3% discontinuous, wispy, irregular potassium feldspar microveinlets <10 microns in width. No apparent vug-fillings.

FRACTURES, VUGS, AND OTHER OPEN SPACES: About 0.3% microfractures (two; en echelon). These have irregular courses, are 2-10 microns wide, and together traverse the entire section. Also 0.1% disseminated, irregular vugs <0.1 mm in diameter, in plagioclase and in the argillaceous rock-flour matrix. There is also a "microporosity" -- visible as a pinkish stain -- developed in layer silicate aggregates in the matrix and in some clastic grains (see comments for the sample from 1587.5 ft).

JBH 05/22/96

SAMPLE: Geysers corehole SB-15-D, depth 1492.4 ft (454.9 m)

ROCK TYPE: Metashale ("argillite"), dark gray, obviously pyritic and abundantly criss-crossed by pyritic hydrothermal veins. No obvious laminations but distinct alignments of layer silicate flakes and fibers. The rock has been intensely sheared during metamorphism, and as a result has a "mottled" appearance resulting from shear domains within which the aligned layer silicates have slightly different orientations. About 12% silt grains 0.01-0.3 mm in diameter, angular to subangular, exclusively quartz and plagioclase. About 2% flaky-appearing disseminated, clay- to silt-size black organic debris. About 1% disseminated microgranular sphene, and a trace of disseminated ilmenite.

HYDROTHERMAL ALTERATION AND MINERALIZATION: Weak, even though hydrothermal veinlets are relatively abundant (see below). Minor alteration of plagioclase to potassium feldspar immediately adjacent to potassium feldspar-bearing veinlets. 3% disseminated, microcrystalline ($\leq$ 0.02 mm) pyrite grains, the concentrations of which bear no obvious relationship to the pyritic veins.

VEINLETS AND VUG-FILLINGS: Relatively abundant, accounting for 5% of the total rock volume. Three generations of veinlets. (1) Metamorphic quartz veinlets with minor chlorite and illite. These, like the rock itself, are sheared-appearing; they consist mostly of microgranular quartz aggregates, have a common lenticular habit, and range in width (they "pinch and swell" prominently) from 0.1 to 1.0 mm. They are also commonly refractured along strike, and remineralized hydrothermally by the minerals forming the veins of stages 2 and 3. (2) Hydrothermal quartz-illite-pyrite microveinlets. These average about 0.05 mm wide. They are randomly oriented, and account for about 1% of the rock. The pyrite in these veinlets is discontinously distributed, tending to occur in isolated clots along the vein strike. (3) Hydrothermal quartz-potassium feldpar-wairakite-pyrite veinlets. These account for about 3% of the rock. They are randomly oriented, but interconnected to form a "stockwork". They range from 0.02 to 0.10 mm in width (avg. 0.06 mm wide). Much of the pyrite in these veinlets is nearly continuous, forming what presumably would be an electrically conductive network.

FRACTURES, VUGS, AND OTHER OPEN SPACES: About 1% latest-stage, open, microfractures which are randomly oriented, but commonly occur within or at the margins of hydrothermal veinlets. Some "microporosity" manifested as a pinkish stain (of the injected epoxy) in layer silicate aggregates (see comments for 1587.5 ft).

JBH 05/22/96

SAMPLE: Geysers corehole SB-15-D, 1553.5 ft (473.5 m)

ROCK TYPE: Metamorphic shear breccia, a dense, medium to dark brownish gray, highly sheared "micromelange" of fine-grained lithic metagraywacke (40%), graywacke metasiltstone (20%), black metashale (30%), and metamorphic vein quartz (10%).

HYDROTHERMAL ALTERATION AND MINERALIZATION: Weak. Clastic plagioclase grains in metagraywacke and metasiltstone are locally partially to completely altered to potassium feldspar. Also 3% disseminated pyrite, commonly associated with the secondary potassium feldspar. The pyrite grains are irregular, and range in diameter from 20 microns to 1.2 mm, averaging about 0.15 mm. There are also traces of <0.1 mm-diameter chalcopyrite and sphalerite.

VEINLETS AND VUG FILLINGS: About 10% metamorphic vein fragments in this sheared rock. These consist predominantly of quartz with minor calcite and moderately abundant illite. The illite clots have the same form as the calcite clots in these veins, and very probably could be hydrothermal in origin, filling hydrothermal carbonate-dissolution vugs. The rock is laced with <10 micron wide "shear veinlets" of black opaque material, which could be organic material, ilmenite, or a combination of the two substances. About 0.5% hydrothermal veinlets, consisting dominantly of potassium feldspar with minor quartz and pyrite (also locally with <5 micron-wide selvages of the dark opaque material). These veinlets are <20 microns to 0.14 mm in width. The pyrite in them is discontinuously distributed, occurring as local clots wider in general than the average width of the veins.

FRACTURES, VUGS, AND OTHER OPEN SPACES: 0.5% microfractures, randomly oriented, both within/along and crosscutting veinlets. The microfractures are mostly 2-10 microns in width; they traverse the entire plug sample. About 0.1% vugs in veinlets -- vugs are irregular, occur within metamorphic quartz masses. They appear to represent hydrothermal dissolution of metamorphic carbonate. The largest of these vugs is 0.4 X 0.2 mm in diameter, and contains one euhedral hydrothermal potassium feldspar crystal. Also some "microporosity" manifested as a diffuse pinkish stain of the injected epoxy in layer silicate aggregates.

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SAMPLE: Geysers Corehole SB-15-D, depth 1587.5 ft (483.8 m)

ROCK TYPE: Lithic metagraywacke, fine-grained, moderately sorted, massive. 75% clastic grains, dominantly subangular to angular, 0.02-1.05 mm (avg. 0.15-0.20 mm) in diameter (except rare argillite grains which reach 3.2 mm in diameter), embedded in an argillaceous "rock flour" matrix. Grains comprise, in decreasing order of abundance, quartz, chert, intermediate- to basic-composition metavolcanic rock, plagioclase (albite), and argillite, with trace to minor amounts of coarse detrital mica (muscovite and chloritized biotite), and felsic porphyritic metavolcanic rock. 1-1.5% anomalously large, elongate, labile argillite grains (see above), deformed around rigid clastic grains. Matrix is a dominantly microcrystalline aggregate of illite and chlorite with varying amounts of silt-size "rock flour" compositionally identical to the larger clastic grains.

HYDROTHERMAL ALTERATION AND MINERALIZATION: Weak. The rock preserves much of its original metamorphic mineralogy and texture. Illite partially replaces plagioclase as disseminated microcrystalline flakes and fibers and clots of these up to 0.3 mm in diameter; the illite may be partially metamorphic in origin. Chlorite very sparsely replaces plagioclase, totally replaces orginal mafic minerals; chlorite may also be largely metamorphic. Calcite weakly to (rarely) nearly completely replaces plagioclase; most of the calcite appears to be metamorphic in origin. Metamorphic sphene occurs as disseminated microgranular clots up to 0.2 mm in diameter and concentrated in the matrix. Hydrothermal epidote (2%) occurs as disseminated anhedral grains and grain aggregates, concentrated in plagioclase grains, up to 0.15 mm in diameter. Hydrothermal potassium feldspar (0.5%) sparsely replaces plagioclase grains as irregular masses up to 0.05 mm in diameter. A trace of pyrite occurs as disseminated grains up to 0.1 mm in diameter.

VEINLETS AND VUG-FILLINGS: No veinlets. Vug-fillings very rare. About 0.5% disseminated polycrystalline hydrothermal quartz clots up to about 0.2 mm in diameter.

FRACTURES, VUGS, AND OTHER OPEN SPACES: No microfractures. About 0.2% disseminated, irregular vugs, up to 0.2 mm in diameter, in matrix layer-silicate aggregates and plagioclase. Also minor "microporosity" in layer silicate aggregates. This microporosity is manifested as a pinkish stain of the fluorescent epoxy with which the section has been impregnated; its contribution to total porosity cannot be reliably determined from examination of the thin section alone.

JBH 05/22/96

DEPTH	VEINS AND OTHER OPEN-SPACE FILLINGS																		VUGS		ALTERATION INTENSITY								
	INTENSITY		ORIENTATIONS, CONFIGURATIONS	MINERALOGY															(%)	RANGE OF DIAMETERS OR WIDTHS (mm)	BULK ROCK								
	W	M	S	Quartz 1	Quartz 2	K-Feldspar	Epidote	Actinolite	Pyroxene	Fe-Axinite	Tourmaline	Chlorite	Sericite	Biotite					1 2 3 >3 (Specify)	1 2 3 4 >4 (Specify)	W	M	S	W	M	S	W	M	S

GEYSERS CORING PROJECT . . . SB-15-Deepening

(Sheet 2 of 2 for this interval)

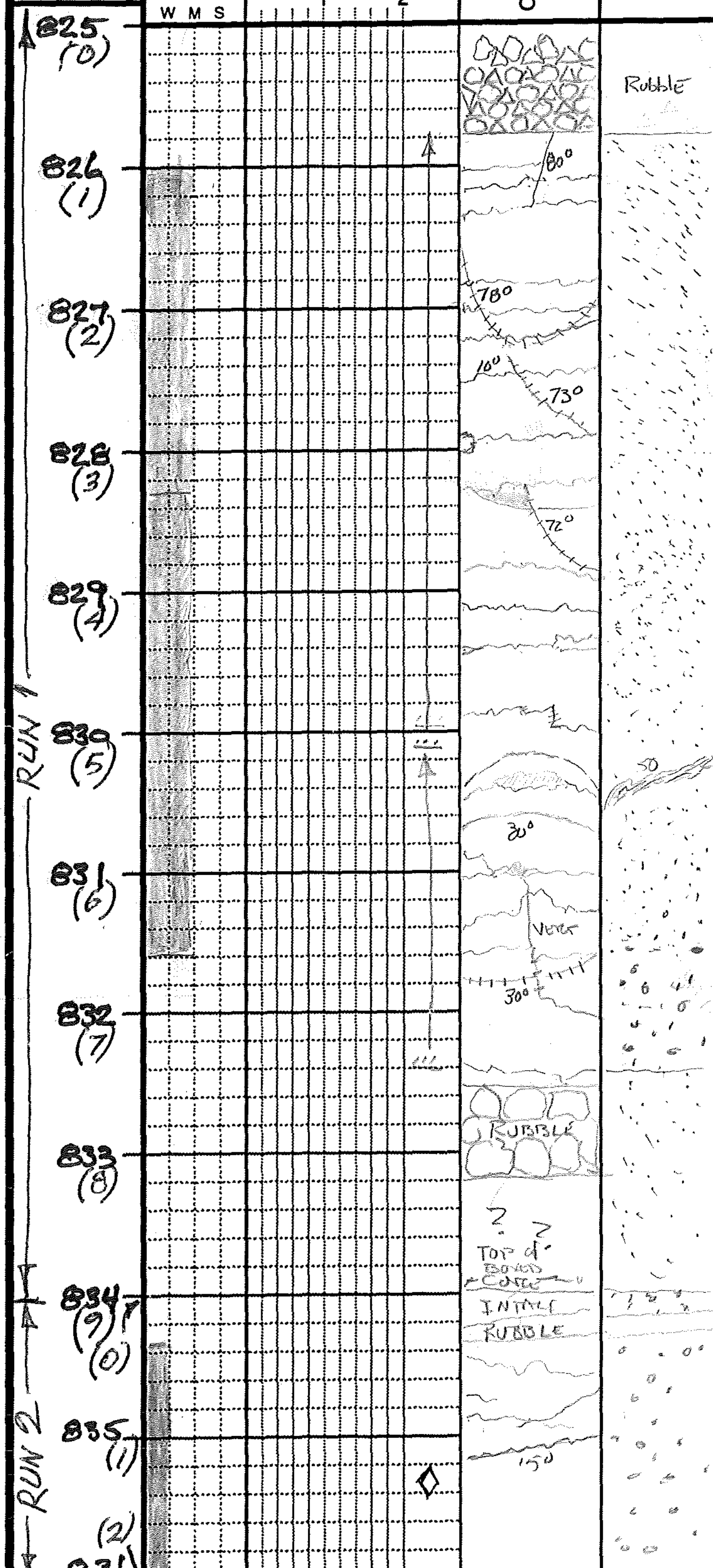
Depth Interval (ft) _____ Run No. (s) _____

Logged by _____ Date _____

Page _____ of _____

DEPTH	FRACTURES: INTENSITY (W M S)	RANGE OF APERTURES (mm) 1 2 >2 (Specify)	ORIENTATIONS	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)

see "initial fracture log"



Rubble, some rounded, graywacke

hackly Artificial fracs ⊥ to core axis

Gray med-grnd graywacke - fractures cemented by bladed calcite, fracture parted @ qtz + minor calcite veins sealed color N-6

bedding varies 20°-30° to core axis

frac follows earlier calcite vein

Frac follows earlier calcite vein

hackly artificial fracs ⊥ to core axis

opaline qtz vein w/ assoc. bladed cal, dk brn clay/organic w/ abundant py

silicfd. 3.2-4.0 vein ("locked up") - bldd cal, py, qtz - sheared arg. w/ 1-2 mm

hackly artificial fracture ⊥ to core axis

828-5' normal grdd fr crs-fine gr.

Abu. py assoc w/ bladed cal

Carbonaceous argillite - bedding dips 50° to core axis

minor shearing in argillite bed

Artificial hackly fracs @ (lo?) Angle to core axis

grdd m-fgr.

Run #1 - 9' drilled, ~8' recovered. Uncertain where loss occurred, rubble @ top and bottom of run.

artificial hackly frac @ lo angle to core axis

Cal + Py [illegible] fracture

Graywacke - grey (N-6) med grnd, poorly sorted med grdd bddg ~ 10°-20° to core axis

1 mm. wide, 2 mm! open sp.

in G hydroth Vn.

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) RUN 1: 825-834' RUN 2: 834-836'

Run No.(s) 1 & 2

Logged by DL Nielson

Date 9/18-19/94

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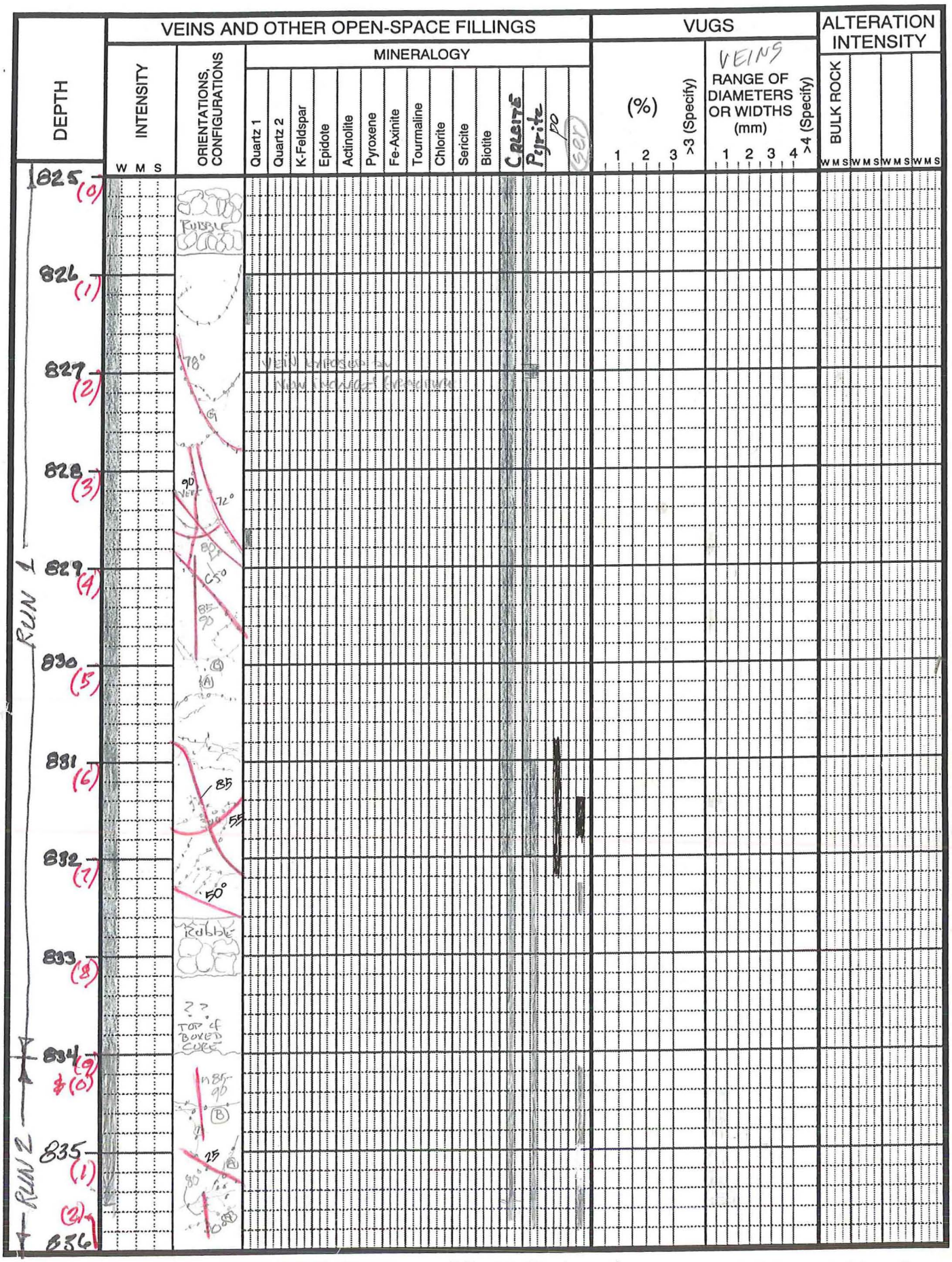

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 2 of 2 for this interval)

Depth Interval (ft) RUN 1: 825-834'; RUN 2: 834-856' Run No. (s) 1+2

Logged by DL Nielsen Date 9/18-19/94

/ = hydrothermal veins

Page 2 of _____

see "initial fracture log"

DEPTH (ft)	FRACTURES: INTENSITY (W M S)	FRACTURES: RANGE OF APERTURES (mm) (1, 2, >2 Specify)	FRACTURES: ORIENTATIONS	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
836 (0)			SEE FRACTURE SHEET	GW	GWKE = MED LT GRY (N6), V FN GR - UP MED GR, V HD, INDIST QTZ GR BOUNDRIES, GEN GOOD LITHIC GR BOUNDRIES, PR SORT, GEN MASSIVE LOC BLEACHED, ABNT FNLY DISM PYR
837 (1)			FIRST OCCURANCE OF ARG →	GW	COMMON CRISS-CROSS QTZ CALC 1 & 2 1 PYR VEINLETS, COM EUHEDRAL CUBIC PYR, THIN 1 mm ARG BED @ 836.9' PERP TO CORE LENGTH.
838 (2)				GW	
839 (3)				GW	ARGILLITE = MED DK GR (N4) SLI HD V BRTL, EASILY BROKEN INTO PLATY CHIPS GD PARTING LINEATION, 5 CM THICK VERTICAL BED RUNNING 2 FT ALONG LENGTH OF CORE, V CONTORTED / STREAKY APPR, THERMAL SHOCK FRACTURED, COM EXTRM FN DISM PYR, MNR CALC VNG.
840 (4)			slix @ ARG/GW contact rake 30°		LENTICULAR BEDDING
841 (5)			30° 70		ARGILLITE = a/a HIGHLY CONTORTED W/ SLUMP DEFORMATION f/ 841-42 CONTORTED CALC VNG FILL ALONG GW-ARG CONTACT CONT EXTRM FN DISM PYR THROUGHOUT SLI GREENISH TINT IN THIS SECTION PROB
842 (6)			2 cm dilational ↔ cmtd w/ cal-py		DUE TO CHLOR. GW = a/a PATCHY BLEACHED AREAS DUE TO INCR SERICITIZATION, GLC RANDOMLY ORIENTED OLDER? SILICIC VEIN/VUG FILL @ 842.5 ← DRY COLOR
843 (7)			ABUND. SER		ARGILLITE = MED DK GRY (N4) HD V BRTL, ABNT "THERMAL SHOCK" AND/OR EXPANSION (PRESS RELEASE) FRACTURES PEICES, COM FLAT TABULAR PIECES DUE TO PARTING LINEATION OF LAMINATION PLANES,
844 (8)			intensely slicken-sided. abund sulfide	DRY	HIGH PYR MNRLZN THRUGHOUT, EXTRM PYR MNRLZN FRACTURED SURFACES, V MNR CALC IN ARG ZONE V HIGH PYR MNRLZ @ GW-ARG CONTACT, POSS CARBONACEOUS CONTENT, BUT NO BLK FLECKS SEEN.
845 (9)				GW	GW = CONT AS f/ 837-839 W/ COM CRISS-CROSS WHITE CALC/PYR VEINLETS UP TO 5 mm
846 (10)					NOTE: NEXT 10' RUN WERE LOSING 25% RETURNS FOR ABOUT 2 hrs in MIDDLE OF RUN, THEN CAME BACK

SUBANG GRS

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 836-845.5' Run No. (s) 3

Logged by D. Serr Date 09/18/94

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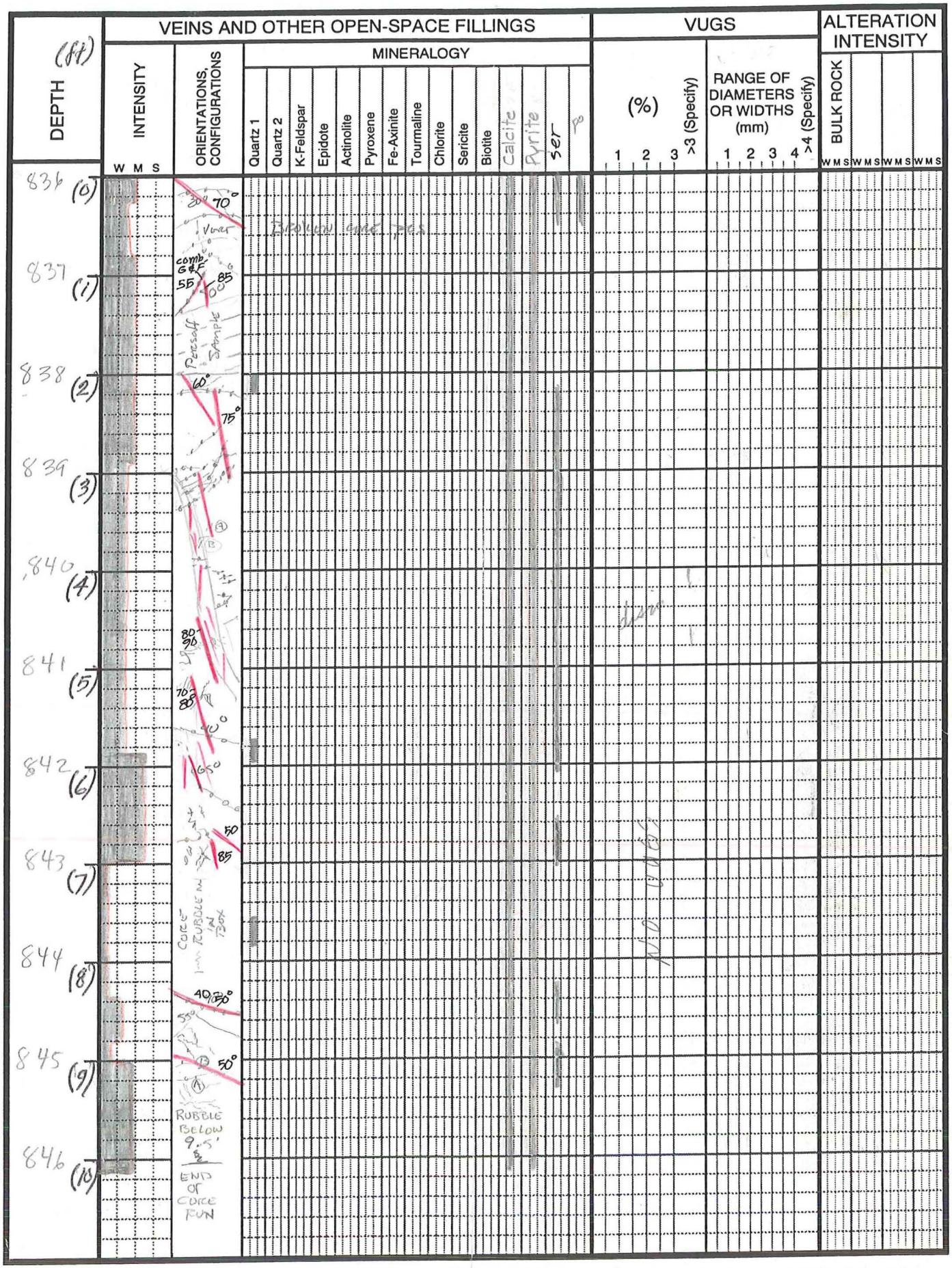

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 2 of 2 for this interval)

Depth Interval (ft) 836-846 845.5' Run No. (s) 3

Logged by D-SERR Date 9-18-94

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/ = HYDROTHERMAL VEINS

see "initial fracture log"

DEPTH	FRACTURES: INTENSITY (W M S)	FRACTURES: RANGE OF APERTURES (mm) (1, 2, >2 Specify)	FRACTURES: ORIENTATIONS	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
(845.5') 0				Rubble Core	Graywacke - med lt gray (N-6) w/ thin laminae of Arg @ ~60° to core axis, f-m-med grnd poorly sorted poorly rnd qtz (--sparse) & lithic frags
1			46		
★			abund fract. veins w/ disseminated py		IRREG, VUGS UP TO 2 cm ø
2					Arg stringers - med dk gray (N-3) flip-up text @ top of zone. Mineralized w/ disseminated pyrite. Bedding ~40° to core axis
			48		
3					
			49		
4					Gw - c/a incr Arg & lithic frags below 3.5' bedding incr to 70° to core axis on rt side of core - massive gw to lft side of core separated by thin Arg interbeds. Comm disseminated pyr on finely calcite filled frac zones.
			50		
5					Arg - med dk gray (N-3) fm 5-5.5' at hi angle to core axis, disseminated pyrite mineralization throughout.
			51	1 to 2 mm	Gw - c/a incr lithics below 5.4
6					
			52		Argillite laminae @ 60° to core axis
7				60°	
			53		Gw - c/a med lt gray (N-6)
8					Flip-up(?) clasts of gw surrounded by Arg
			54		incr lithic content below ~8.2'
9					Apparent bedding ~ 60-70° to core axis
			55		Gw - c/a Apparent bedding ~ 30° to core axis
(855.5') 10				END OF RUN	

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 845.5 - 855.5' Run No. (s) 4

Logged by Jeff Hulen, Richard Dickerson Date 09/18/94

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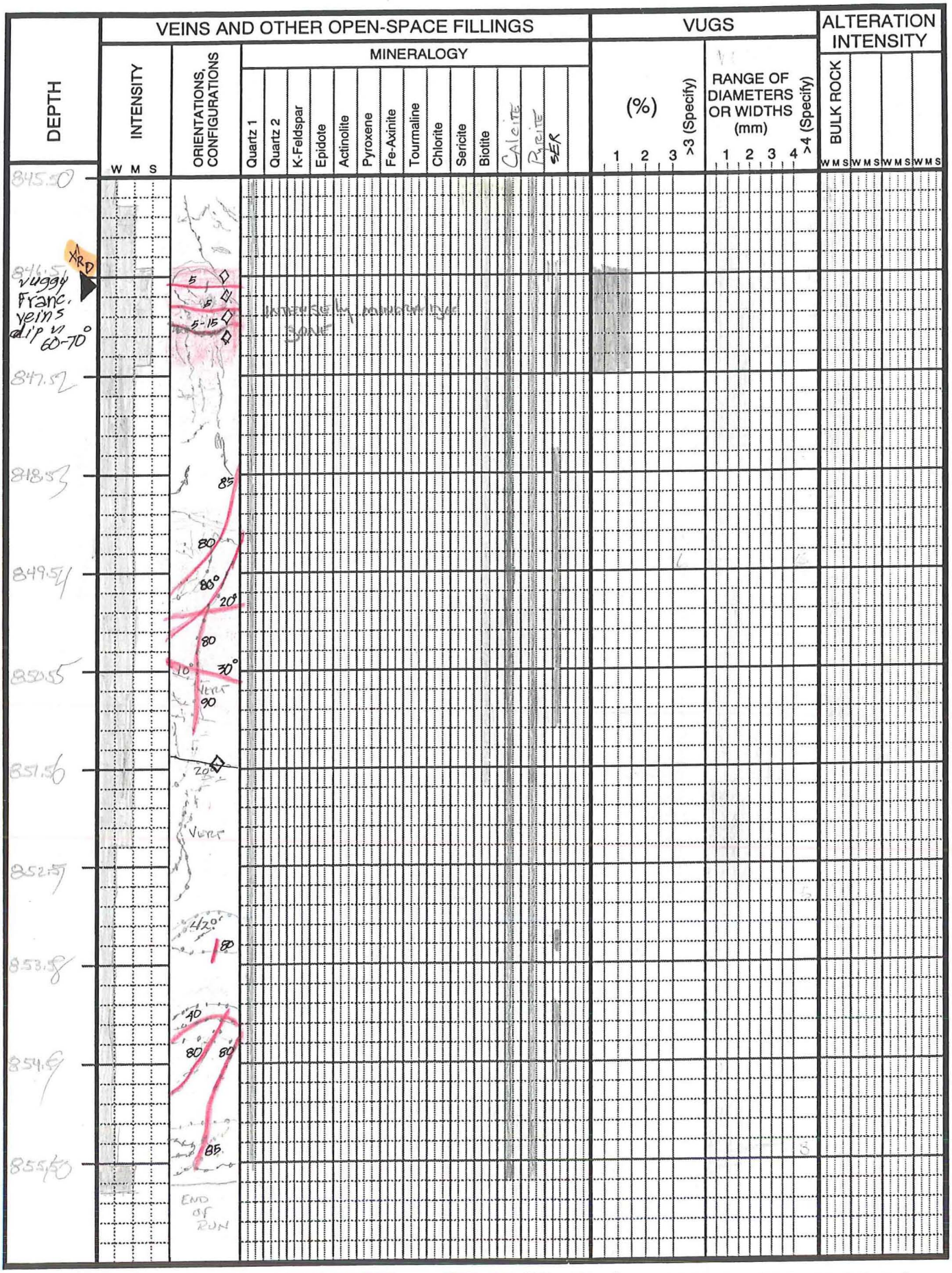

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 2 of 2 for this interval)

Depth Interval (ft) 845.5 - 855.5 Run No. (s) 4

Logged by JH, DS Date 09/10/94

= HYDROTHERMAL VEINS

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see "initial fracture log"

DEPTH	FRACTURES: INTENSITY (W M S)	FRACTURES: RANGE OF APERTURES (mm) 1 2 >2 (Specify)	FRACTURES: ORIENTATIONS	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
855.5 0					GW, , fg, msv, w/ vagu. wispy bedding (?) ⊥ (poss. shearing; rk. is v. dense & app. nearly impermeable
856.5 1			-56		
			-57		
857.5 2					2.0–3.3 ft fract. inter/am. GW & arg., sheared-appearing; est. 15-20% arg.; mod. vng. w/ shearing post-dating some qtz-cal. veining (vein clasts in argillite)
858.5 3			-58		poss. sheared lenticular bdd zone,
			-59		3.3–7.0 ft GW, as above exc. poss. grading from silt to med. sand size 3 ft to ~4 ft; fr. 4' to 7.5' consple. anom. large argillite clasts up to ~2 mm. dia.; stkwk
859.5 4					
			-60		
860.5 5					
			-61		ART. "hairline hydroth. veinlets
861.5 6					
			-62		
862.5 7					qtz-cal-py stkwk
			55° dip: STRIKE-SLIP w/ smeared sulfides		intensely sheared & slickensided 7.0–8.6 ft same as 2.0–3.3 ft w/ strong pre-shearing qtz-cal. veining in GW component; prom. slix & carb. material along lower contact
			-63		
863.5 8					8.6–9.7': GW, as above upper fg, msv
			-64		
864.5 9					9.7–9.9': same as 2.0–3.3 ft upper contact; slix & carb. material also abund. late-stage pyrite as filmy x/n crusts & rubble
			-65		STRIKE-SLIP
865.5 10					some slix at 9.7 ft are horizontal

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 855.5 - 865.5 Run No. (s) 5

Logged by JH, RD Date 09/19/94

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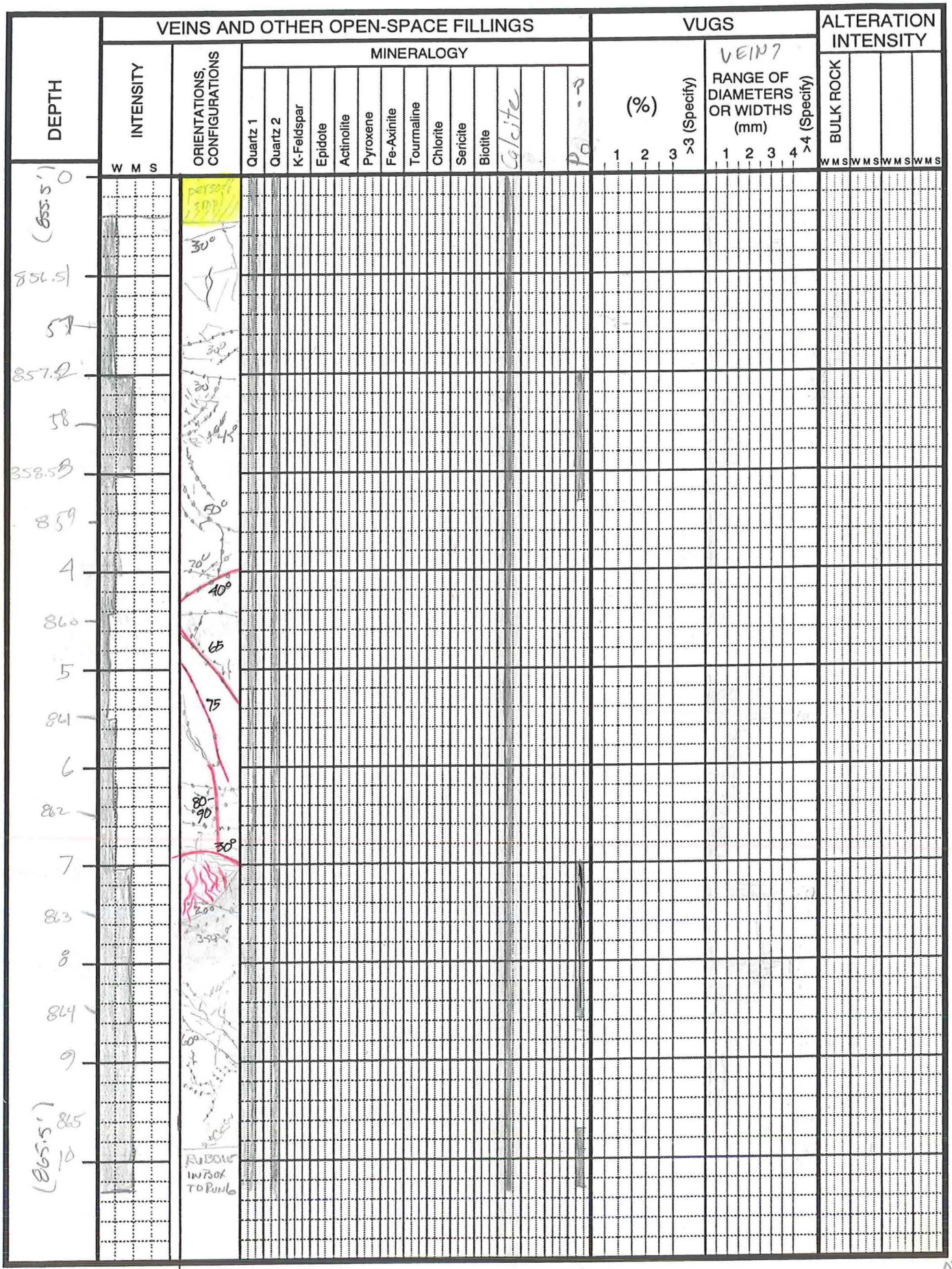

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 2 of 2 for this interval)

Depth Interval (ft) 855.5 - 865.5 Run No. (s) 5

Logged by JH, RD Date 09/18/94

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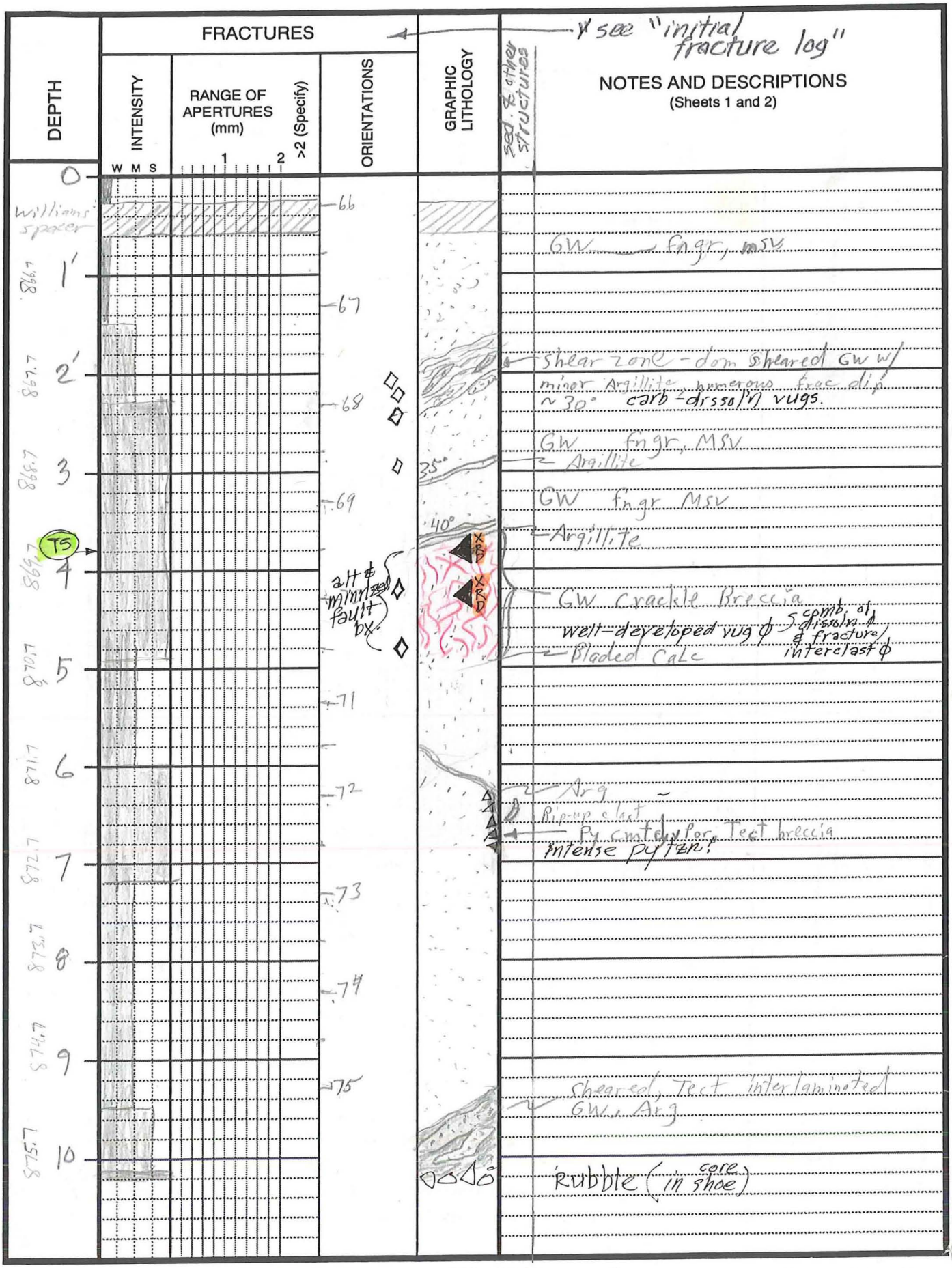
HYDROTHERMAL VEINS



GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 865.7 – 875.9' Run No. (s) 6

Logged by Hulen, Dickerson Date 09/18/94

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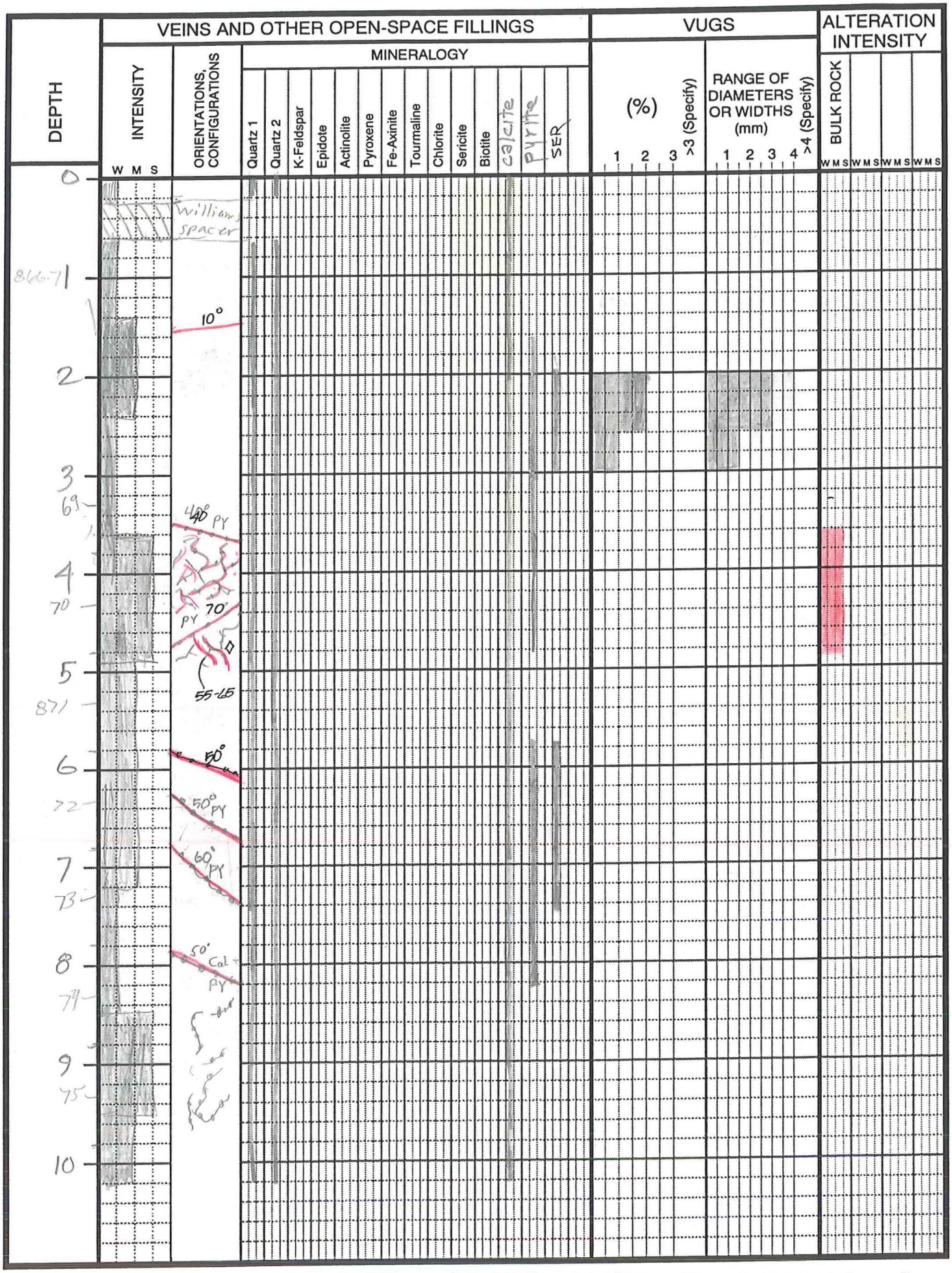

GEYSERS CORING PROJECT . . . SB-15-Deepening

(Sheet 2 of 2 for this interval)

Depth Interval (ft) 865.7-875.9'

Run No. (s) 6

Logged by Hulen, Dickerson

Date 09/18/94

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HYDROTHERMAL VEINS

DEPTH	FRACTURES: INTENSITY (W M S)	FRACTURES: RANGE OF APERTURES (mm) (1, 2, >2 Specify)	FRACTURES: ORIENTATIONS	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
0					sealed sample for Brian Bonner, LLL
1					collected in seamless HI fluke — O-ring capped upon retrieval to surface.
2					
3					
4					
4.7					

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 875.9 - 880.6' Run No. (s) 7

Logged by NA Date 09/18

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DEPTH	VEINS AND OTHER OPEN-SPACE FILLINGS																		VUGS		ALTERATION INTENSITY							
	INTENSITY			ORIENTATIONS, CONFIGURATIONS	MINERALOGY														(%)	RANGE OF DIAMETERS OR WIDTHS (mm)	BULK ROCK							
	W	M	S		Quartz 1	Quartz 2	K-Feldspar	Epidote	Actinolite	Pyroxene	Fe-Axinite	Tourmaline	Chlorite	Sericite	Biotite				1 2 3 >3 (Specify)	1 2 3 4 >4 (Specify)	W	M	S	W	M	S	W	M	S
0																												
1				sealed																								
2																												
3																												
4																												
4.7'																												

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 2 of 2 for this interval)

Depth Interval (ft) 875.9 - 880.6' Run No. (s) 7

Logged by _____ Date 09/18/94

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DEPTH	FRACTURES: INTENSITY (W M S)	FRACTURES: RANGE OF APERTURES (mm) 1 2 >2 (Specify)	FRACTURES: ORIENTATIONS	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
880.6 0			81 XRD		0-4.5': GW, N4 (wet), ufgr-mgr, msv, no obvious grading — intense but subtle dk, gray vein stockwork — origin uncertain.
881.6 1			82		
882.6 2			83		slix post-date illite vein. illite vn up to ~~15~~ 20 mm. wide
883.6 3			84		
884.6 4			85 dip-slip slix XRD	~30°-45°	4.5-7.25': intensely frx & bxtd. ARG; poss. some interbdd. slty ARG. artificial bx?
885.6 5			86		py & ill locally present along disc. frx.
886.6 6			87		
887.6 7			88	50°	here IL/SM predate bldd. cc vug not dissolv.
					7.25-9.7 GW, fmg-ufgr; obvious grdd. bddng but overall msv aspect
888.6 8			89	ARG	ARG stringer
889.6 9			90		
890.6 10			91		9.7-10.5 GW (as above) but rubble. intensely veined

FRACTURES ← see "initial fracture log"

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 880.6-890.2'

Run No. (s) 8

Logged by Hulen

Date 09/18/94

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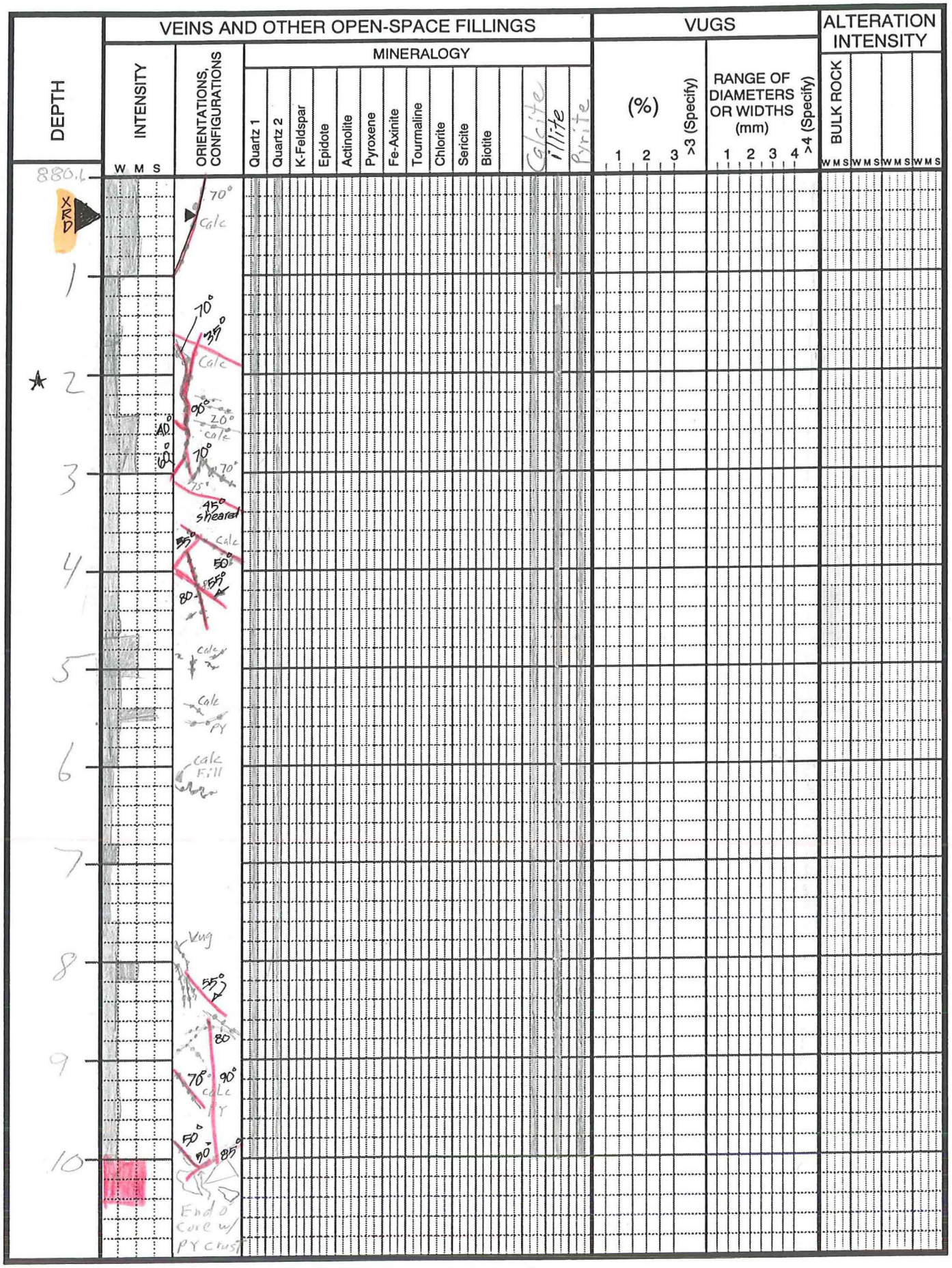
@ ~885', acc. to A. Sattler, began to lose returns (partial loss)



GEYSERS CORING PROJECT . . . SB-15-Deepening

(Sheet 2 of 2 for this interval)

Depth Interval (ft) 880.6 – 890.2

Run No. (s) 8

Logged by Dickerson

Date 9-18-94

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HYDROTHERMAL VEINS

see "initial fracture log"

DEPTH	FRACTURES: INTENSITY (W M S)	FRACTURES: RANGE OF APERTURES (mm) 1 2 >2 (Specify)	FRACTURES: Sedimentary Structures ORIENTATIONS	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
890.2 0					GW - med gry, v fn to upper fn; massive sme fn gr arg. clasts slix on arg surfs. sme GW sheared off
TS 891.2 1			91 XRD fractures ~60°		
892.2 2			calc. vein w/GW 92		ARG - dk gry, contains steep fractures at ~65° w/sme convoluted calc vein w/ GW debris clasts w/in arg shear zone → calc. veining clearly pre-dates shearing here.
893.2 3			93		GW as above
			~45?		Rip off clasts
894.2 4			94 ~45 convolute		~Convolute bedding w/in GW
895.2 5			95 XRD		GW bedding upper mass below beginning at 4'
896.2 6			96		
897.2 7			97		
898.2 8			98		
899.2 9			99		
900.2 10					

★ @ 890' possible limonite on pyrite vein? slow inflow of fresh water & oxdn?

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 890.2 - 898.6 Run No. (s) 9

Logged by Hulen, Dickerson Date 9/18/94

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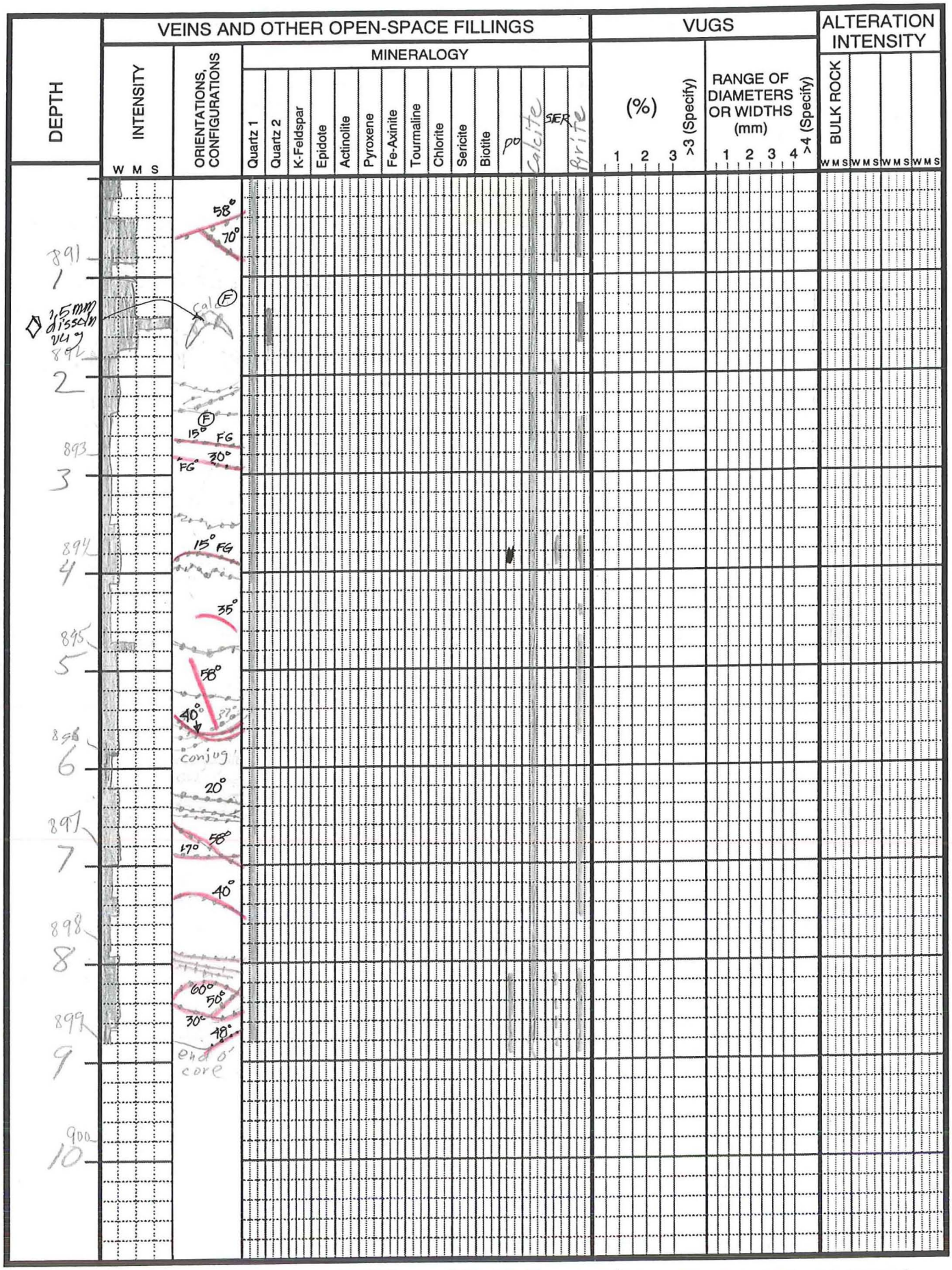

GEYSERS CORING PROJECT . . . SB-15-Deepening

(Sheet 2 of 2 for this interval)

Depth Interval (ft) 890.2 - 898.6 ft

Run No. (s) 9

Logged by Hulen, Dickerson

Date 09/18/97

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\ = HYDROTHERMAL VEINS

SEE INITIAL FRAC LOG

DEPTH	FRACTURES: INTENSITY (W M S)	FRACTURES: RANGE OF APERTURES (mm) 1 2 >2 (Specify)	FRACTURES: ORIENTATIONS	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
898.6				PERSOFF SAMPLE	
0					GW = MED LT GRY (N6), VHD, V INDIST GR BOUNDRIES, ABNT SILIC OVER-GROWTHS, NO SHEARING OR CATA TEX V. SILIC W/ COM INTERSTITIAL CALC FAIRLY STRONG REACTION IN HCL ON FRESH RX SURFACE W/ NO VEINING PRESENT, MNR AMTS LITHIC GRS 4R EXTRM FINE DISM PYR, NO OTHER SEC MNRLS
899.6					NOTE: See fracture log - all fracs in core interpreted to result from stress release. Uncertain any contribute to permeability @ depth
1					
900.6					
2					
901.6					ARGILLITE = MED DK GRY - DK GRY (N4-5), HD, SLI BRTL; GEN MASS UNDER SCOPE W/ MNR LOC MICROLAMNS; LOC COLOR VARIATIONS PROB DUE TO CARBONACEOUS
3					CONTENT, CONVOLUTE BEDDING W/ COLOR STREAKS, GEN INDIST BEDDING W/ VAGUE PARTING LINEATION, 60 TR DISM SULFIDES (PYR + CALCO + MARCASITE) (NEAR BRASS COLORS) LOC AEGR PYR
902.6					XTL CLUSTERS, WK-MOD REACTION IN HCL
4					
903.6					
5					
904.6					
6					Argillite, lamn internal laminations, fracturing @ upper contact - dip ~ 65-70°
905.6					
7					Argillite, thinly laminated. Argillite bed concentrates fractures
906.6					
8					GW = AS LAST ABOVE
907.6					
9					
908.6					Fractured along pre-existing cal veins, <1% by
10					

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 898.6 - 908.6 Run No. (s) 10

Logged by Nielson, Serr Date 09/19/94

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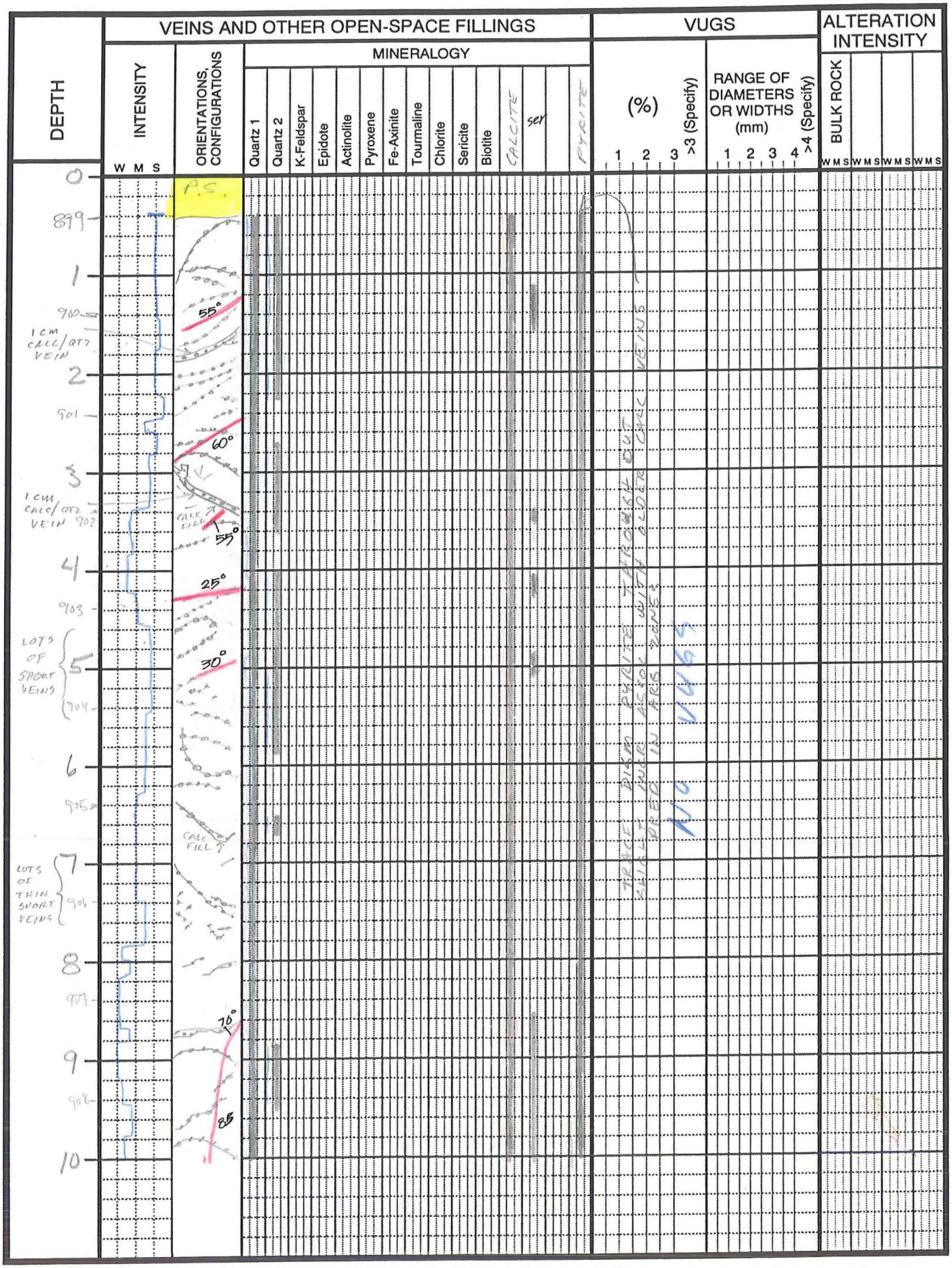

GEYSERS CORING PROJECT . . . SB-15-Deepening

(Sheet 2 of 2 for this interval)

Depth Interval (ft) 898.6-908.6

Run No. (s) 10

Logged by Nielson, Serr

Date 9/18/94

HYDROTHERMAL VEINS

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DEPTH	FRACTURES: INTENSITY (W M S)	FRACTURES: RANGE OF APERTURES (mm) 1 2 >2 (Specify)	FRACTURES: ORIENTATIONS	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
908.6					SEE FRAC LOG @ 908.7' ← dissol'n vug in (F) cal. vein
0					DIFFERENT THAN GW @ 899' GW = MED GRY (N5) HD, MASSIVE, VFN - MED GR, MOD SORT, GOOD SHARP GR BOUNDRIES, MASSIVE NO SMEARING OF GRS OR CATA TEX, COM DK GRY LITHICS
1					NON-CALC, RR DISM PYR, TR PALE GRN DETRITAL GRS (PROB GREENSTONE) NO OTHER SEC MNRLS COM "THERMAL SHOCK" OR PRESSURE RELEASE FRACTURES
2					
3					VUG (see fract. log note) CALCITE = WHT CALCITE W/ TRANSLUCENT QTZ INCLUSIONS ARG = 1 - 5 cm CONTORTED ARG INTER - BEDS
4					OLD DK. FRACTURES PROB ORIGINAL SED STRUCTURES BLDD CAL w/ late ser on (F) vein surf SCOUR MARKS @ TOP OF BED INTENSE CONTORTED VEINING
5					ARGILLITE = MED DK GRY - DK GRY (N4-3) HD, BRITTLE, SOFT & BRITTLE AT BASE OF UNIT, CURVED COLOR BANDING, DARKER AREAS PROB DUE TO INCR CARBONACEOUS MAT.
6					BEDDING PLANE FRACTURES AT TOP AND BOTTOM OF UNIT, NON-CALC IN MASSIVE ARG, MINOR THIN CALC VEINS TR FINE DISM PYR
7					"films" po along frx, bdding planes
TS 8					GW a/a w/ CONTORTED VEINS ser infilling pass. dissol'n vugs in (F) veinlets LOND THIN CONTORTED ARG INTERBED
9					
10					FLAME STRUCTURES

intense Franc, veining imm. adjacent to MGW arg in MGW

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 908.6-918.3 Run No. (s) 11

Logged by Nielsen + Serr Date 9/19/94

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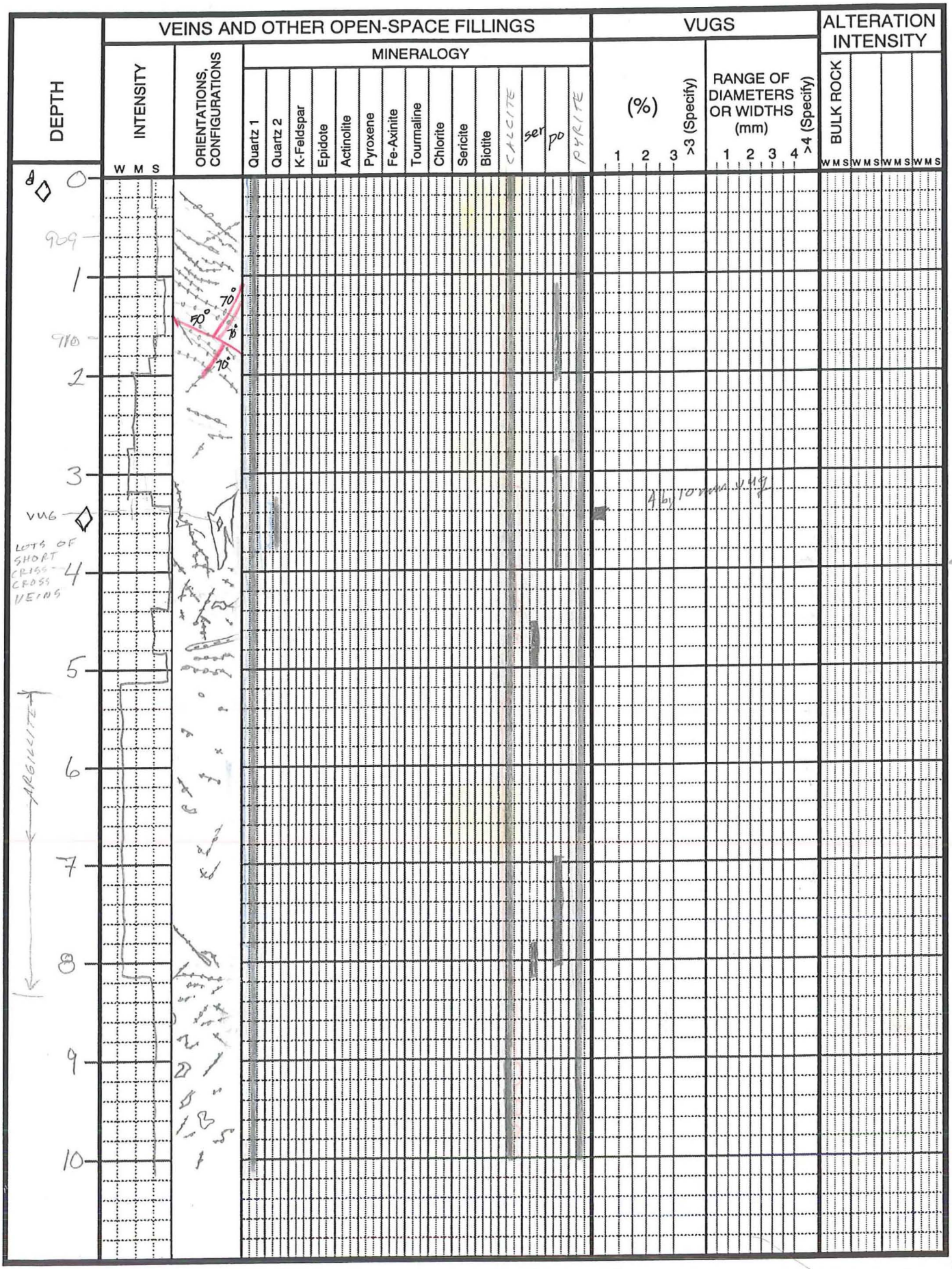

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 2 of 2 for this interval)

Depth Interval (ft) 908.6 - 918.3 Run No. (s) 11

Logged by Nielson, Serr Date 9/19/94

HYDROTHERMAL VEINS

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SEE FRACTURE LOG.

DEPTH	FRACTURES: INTENSITY (W M S)	FRACTURES: RANGE OF APERTURES (mm) 1 2 >2 (Specify)	FRACTURES: ORIENTATIONS	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
0			919	Rotary Sample	
1			920	Rotary Sample	
2			921	Core Sample	GW = MED GRY (N5) HD, MASSIVE SLI PLANAR ORIENTATION, V FN - MED GR, MOD SORT, GEN GD GR BOUNDRIES LOC INDIST QTZ GR BOUNDRIES W/ QTZ OVERGROWTHS, COM DK GRY LITHICS TR INTERSTITIAL CALC, INCR DISM SULFIDES F/ ABOVE INCLUDING MARCASITE.
3			922		- FLAME STRUCTURE
4			923		BRECCIA ZONE (MAYBE CAUSED BY ~~CORE BARREL~~ TORQUE) /GW INCLUSION IN ARG BED
5			924		VERY CONTORTED LAMINATIONS AROUND GW INCLUSION.
6			925	Rotary Sample	BEDDING PLANE FRACTURE
7			926		ARGILLITE = MED DK GRY - DK GRY (N4-3) HD, BRITTLE & CRUMBLY PLATY & TABULAR PIECES, COLOR BANDING DUE TO SILTY INTERBEDS DARKER PATCHES
8			927		DUE TO INCR CARB MAT, BEDDING PLANE FRACTURE AT TOP OF UNIT NON-WELD INTERSTITIAL CALC, MINOR THIN CALC VEINS 1-2 mm, TR FINE DISM PYR.
ORG 9			928		
10					

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 918.3 - 928.3 Run No. (s) 12

Logged by Serr + Nielson Date 9/19/94

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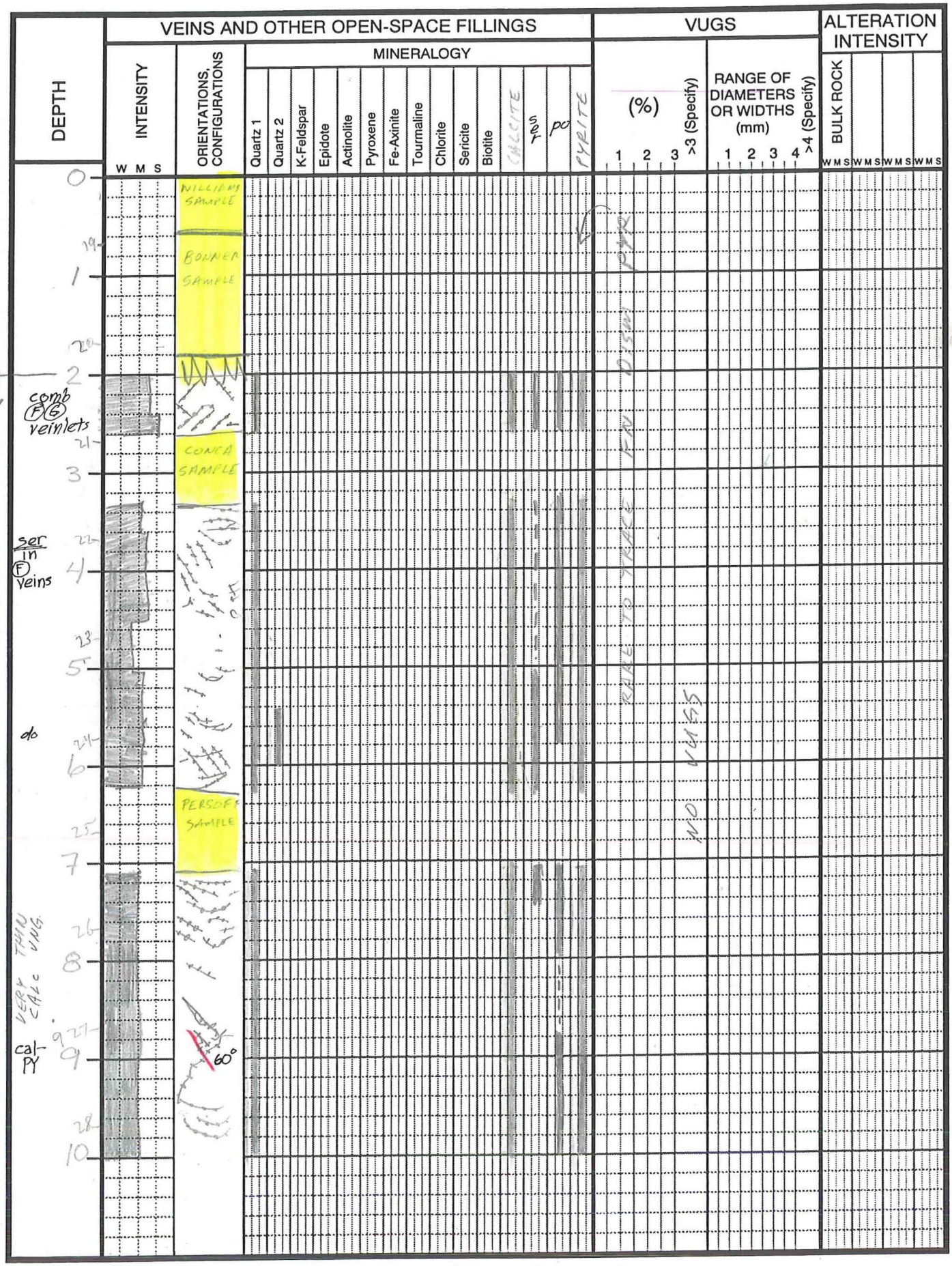

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 2 of 2 for this interval)

Depth Interval (ft) 918.3 - 928.3 Run No. (s) 12

Logged by Nielson + Serr Date 9/19/94

HYDROTHERMAL VEINS

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DEPTH	FRACTURES: INTENSITY (W M S)	FRACTURES: RANGE OF APERTURES (mm) 1 2 >2 (Specify)	FRACTURES: ORIENTATIONS	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
0			929		ARGILLITE CONT AS LAST ABOVE
1			930		
2			931		Zone of intense fracturing, related to washing of carb sh - see frac log description of process.
3			932		BRECCIA W/ CARBONACEOUS RICH SOFT SHALE ZONES HIGHLY PYRITIZED W/ PYRRHOTITE GW ZONES INBETWEEN HIGHLY CALCAREOUS & SILICEOUS VEINED, BLADED CALCITE
4			933		H_2S SMELL LOOSE RUBBLE W/ FORMATION CLAY WASHED OUT HIGH MOTTLED GW W/ CALCITE
5			934	XRD	CONSPICUOUS CPY!
6			935		THIN LAMINATED ARGILLITE W/ SULFIDE VEIN ACROSS ENTIRE CORE APPEARS LIKE VARVES
7			936		TURBIDOTITE FLOW GW = MED GRY (N5) HD, MASSIVE, V FN-MED GR, GEN GD GR BOUNDRIES, COM DK GRY LITHICS, TR INTERSTITIAL CALC, TR DISM PYR IN MASSIVE GW, MNR SHORT OLDER CALC/SILIC VEINS, IMPERMEABLE
8			937		
9			938		
10					

"artif. bx" w/ washouts between GW

3 TURBIDITES SEQUENCES

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 928.3 - 938 Run No. (s) 13

Logged by Nielson + Serr Date 9/19/94

high piece no. 13-24

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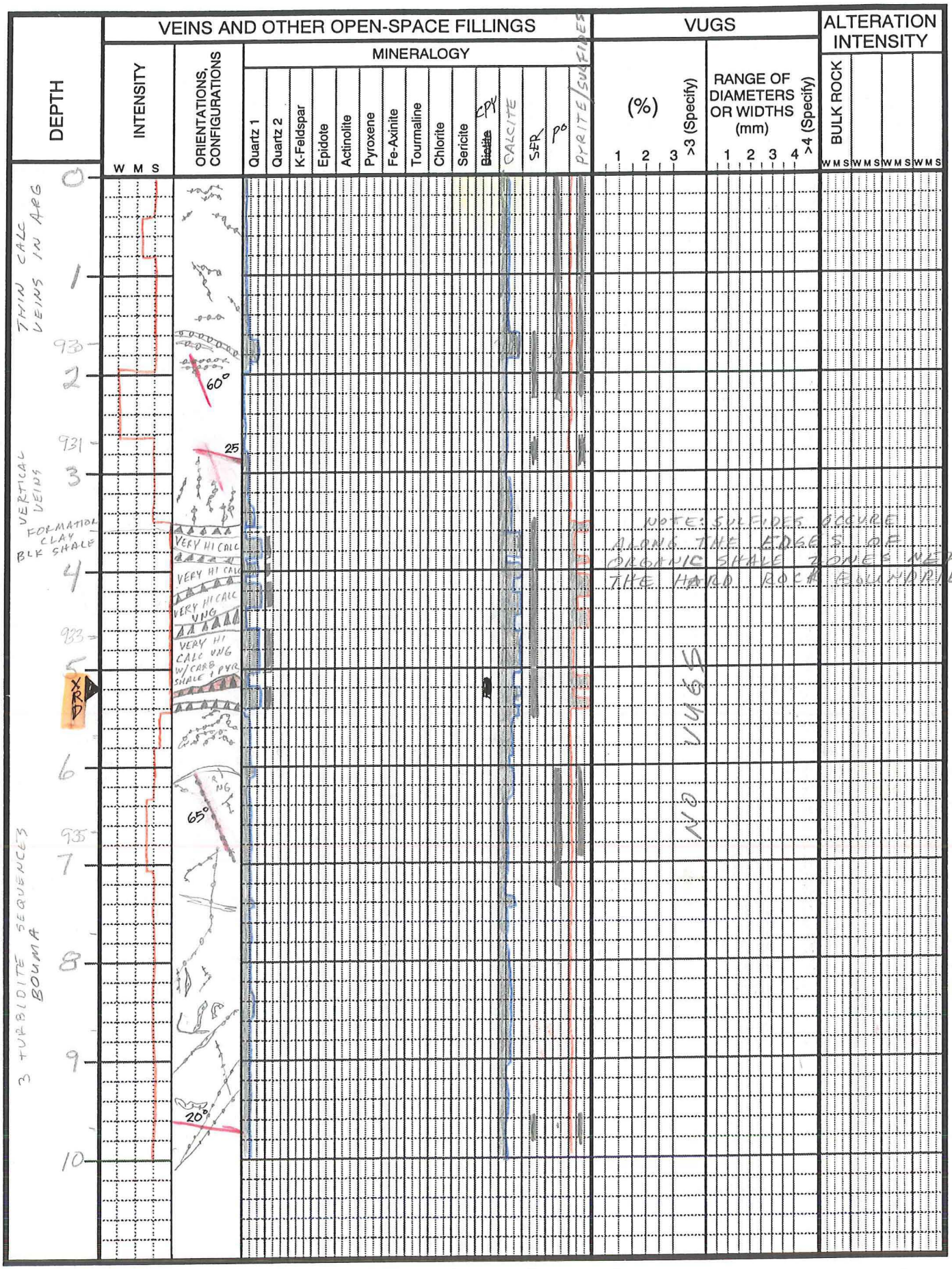

GEYSERS CORING PROJECT . . . SB-15-Deepening

(Sheet 2 of 2 for this interval)

Depth Interval (ft) 928.3 - 938

Run No. (s) 13

Logged by Nielson + Serr

Date 9/19/94

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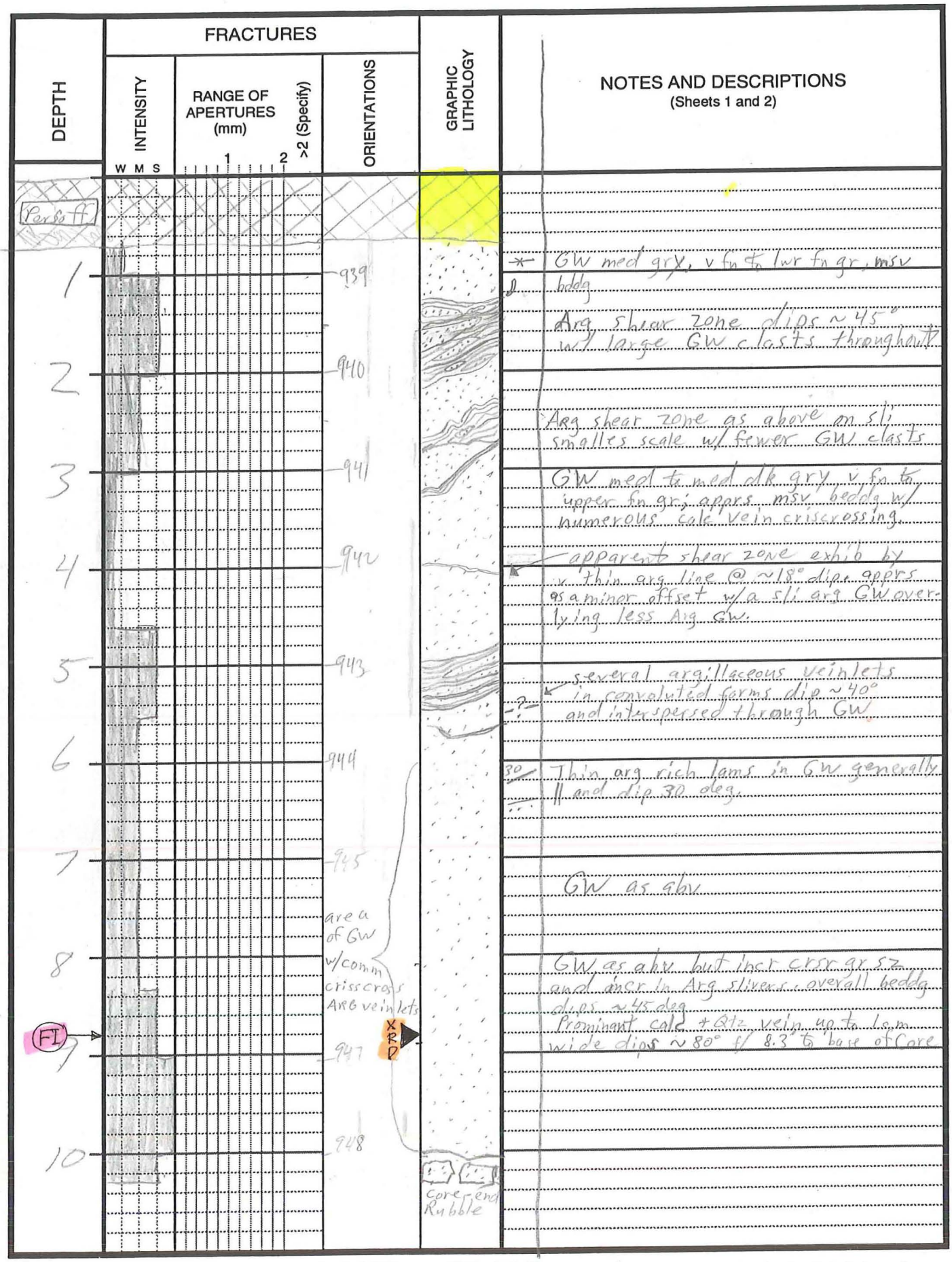
X HYDROTHERMAL VEINS



GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 938-948 Run No. (s) 14

Logged by Helen Dickerson Date 9/19/94

high piece no. 14-21b

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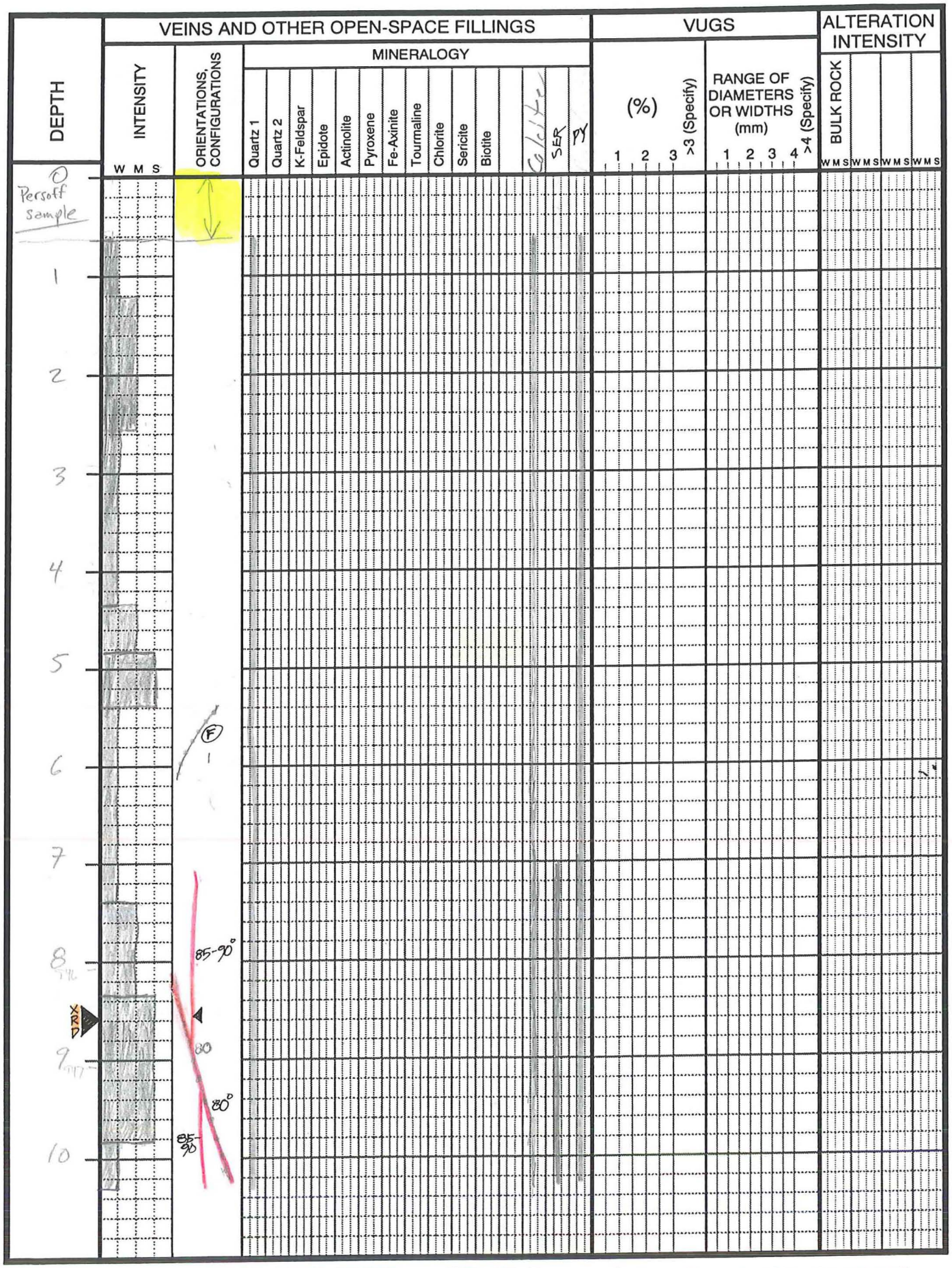

GEYSERS CORING PROJECT . . . SB-15-Deepening

(Sheet 2 of 2 for this interval)

Depth Interval (ft) 938-948

Run No. (s) 14

Logged by PD, JH

Date 09/19/97

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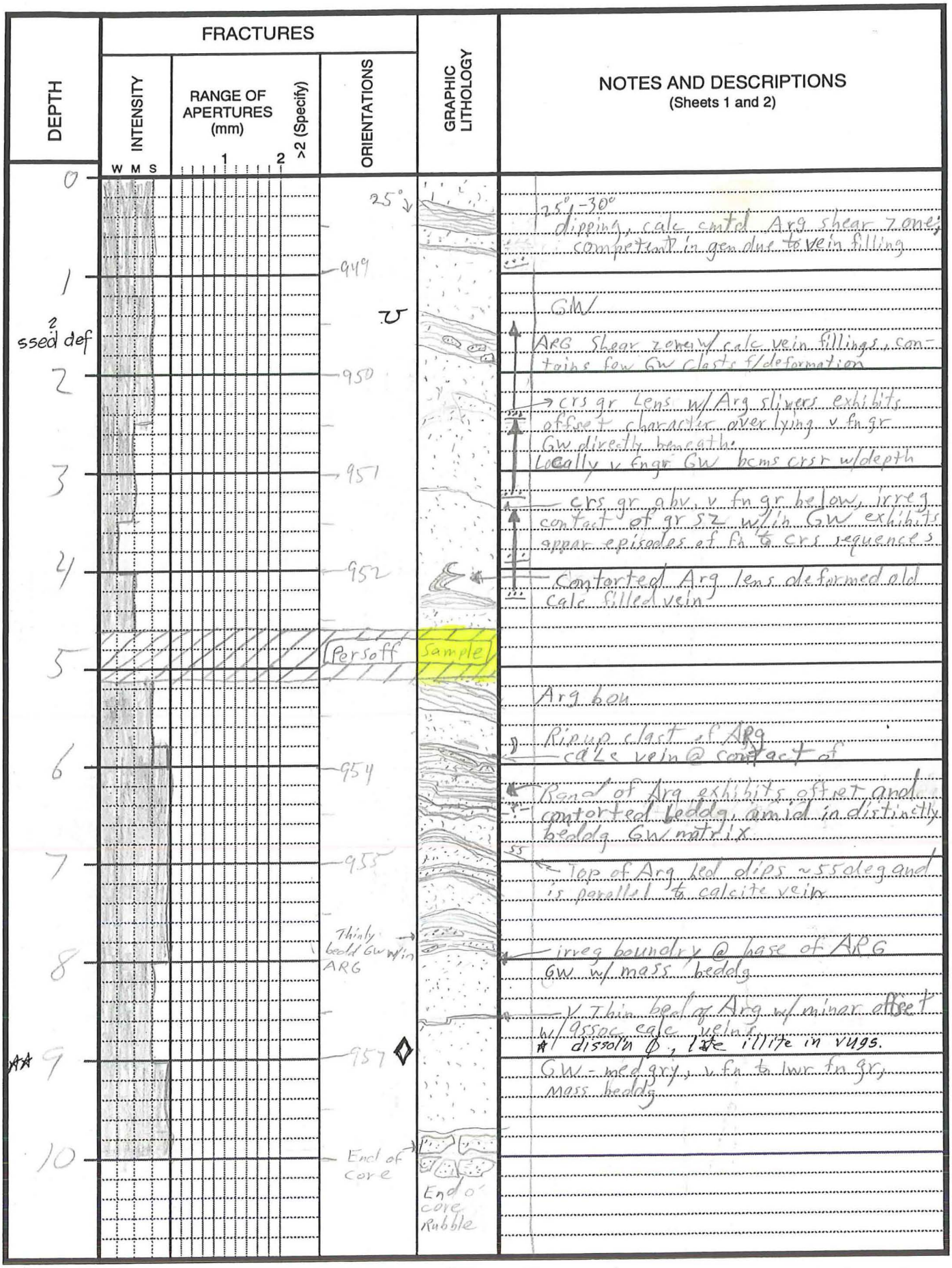
HYDROTHERMAL VEINS



GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 948 - 957.7 Run No. (s) 15

Logged by PO, JH, RD Date 9/19/94

high piece no:→ 15-31d

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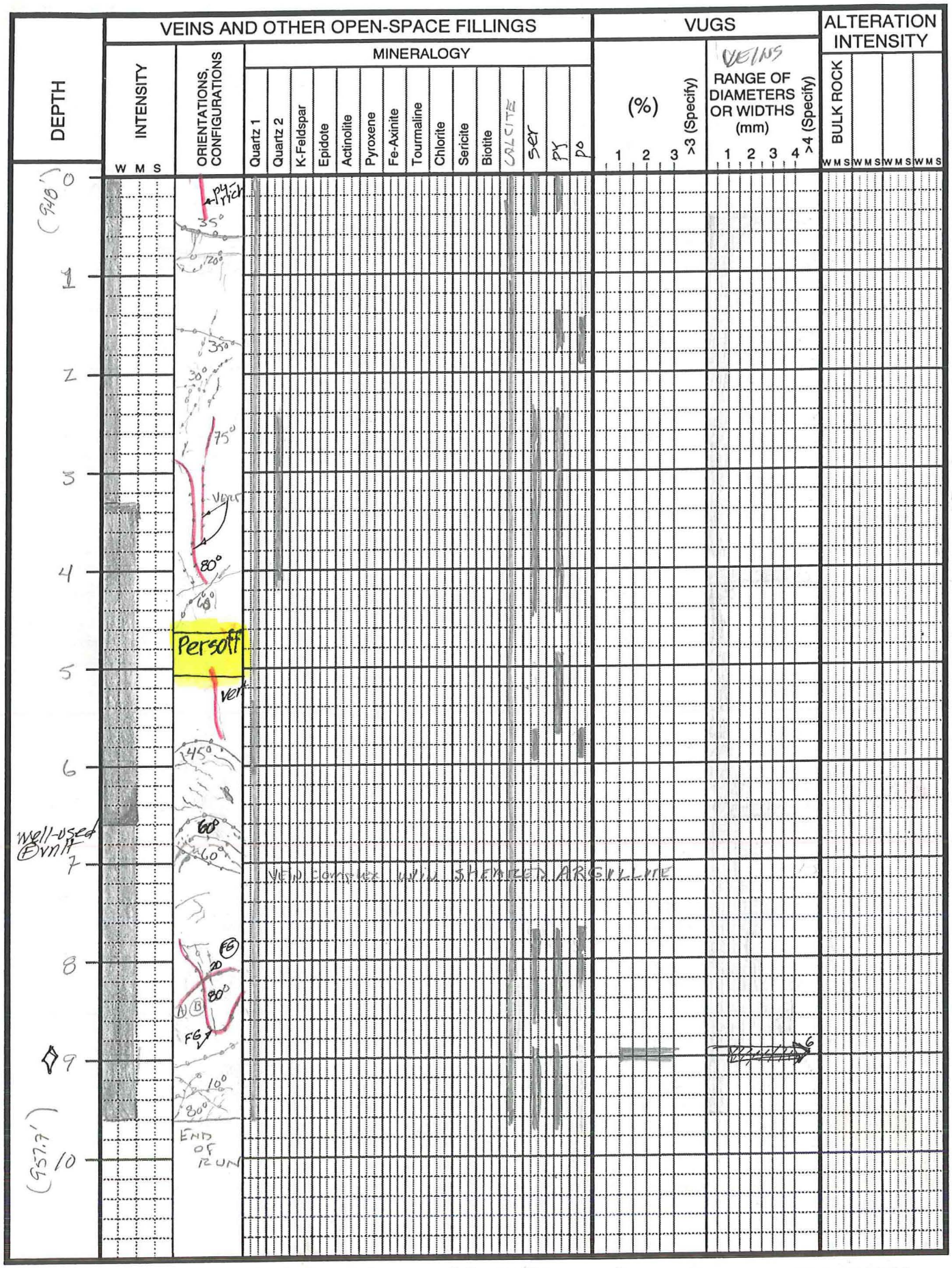

GEYSERS CORING PROJECT . . . SB-15-Deepening

(Sheet 2 of 2 for this interval)

Depth Interval (ft) 948-957.7

Run No. (s) 15

Logged by Dobson, Hulen

Date 09/19/94

HYDROTH VEINS

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DEPTH	FRACTURES: INTENSITY (W M S)	FRACTURES: RANGE OF APERTURES (mm) (1, 2, >2 Specify)	FRACTURES: ORIENTATIONS	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
0			958 crs abv vfn below		GW - med gry, normally graded feldspar w/ criscrossing calcite veins (w/sme Pyr)
1			959 crs abv v fn below		many illite-rich ⓖ hydroth. vnlts (mostly illite-py)
2			960	movement here; vnlt conc.	GW - med gry, locally msv bedding; com irreg calc veins. ↓ do - these vnlts up to 2 mm. wide - app. "gash" veins.
3			961		Arg initially in v thin beds to lams
4			962		Arg w/ mm-b contorted bedding and inconsistant dip angles ranging from 15° to 50° com m GW clasts and thin beds
5			963		v convoluted ARG w/ v com contorted calc veins
6			964		Arg w/ less contorted bedding than abv., dips range from 10-20 deg., com interspersed calc veins
7			965		crs GW abv fn GW below
8				End of core	Vug along vein w/ calc & qtz xtals interxln vug (10 mm) in dia. BLDD CC

py partly oxdzd ?

compl.

fi (TS)

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 957.7 – 965.7 Run No. (s) 16

Logged by PD, RD Date 9/19/94

high piece # → 16-28

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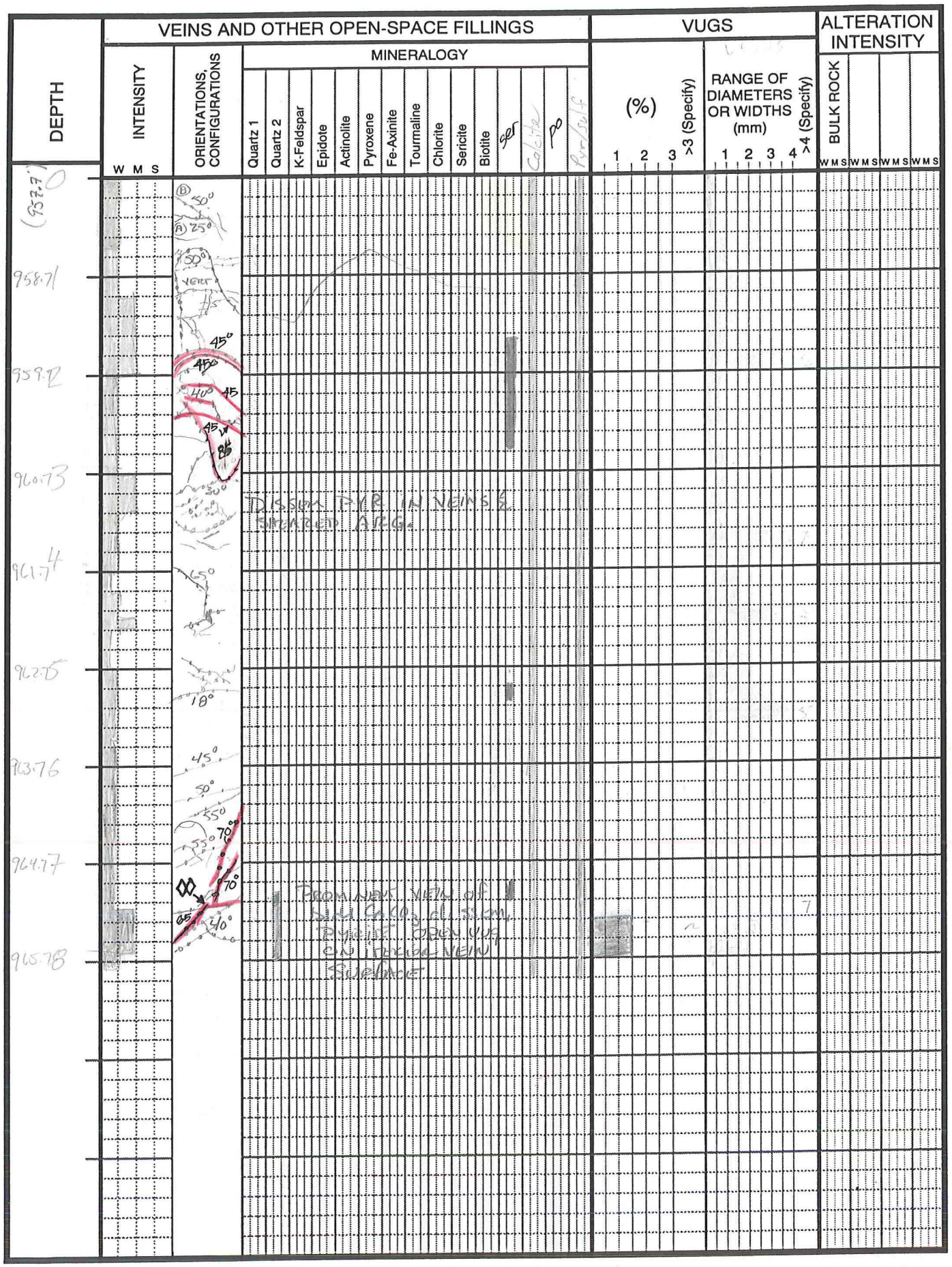

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 2 of 2 for this interval)

Depth Interval (ft) 957.7'-965.7' Run No. (s) 16 1

Logged by PED, RD Date 9/19/94

HYDROTH. VEINS

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DEPTH	FRACTURES: INTENSITY (W M S)	FRACTURES: RANGE OF APERTURES (mm) 1 2 >2 (Specify)	FRACTURES: ORIENTATIONS	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
1			966	Persoff / Williams	GW - med gry, m.sd, occ to com veins
			967		Arg - dk gry to blksh gry, thinly bedd w/ ~ 20° dip angle, contains some contorted GW clsts.
2			968		GW clast Abd Franciscan veining Arg zone - overturned(?) VG "Amber-colored" material w/ 5"
3			969		Oblate form of Arg vein (?) around GW - prob v steep angle Arg shear zone
4			970		
5		971	xtrmly contorted interval of GW, Arg + abd calc vein fillings		GW - med lt gry, w/ abd Franciscan veins arranged in chaotic patterns
6		972			Contorted Arg beddg w/ bizarre VG patterns intermingle w/ convoluted GW clasts and numerous calc veins.
7		973			
8			974		GW w/ graded beddg struct appar over a limited interval
9					
10	TS		975 XRD		End of core End of Core Rubble

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 965.7 - 975.6 Run No. (s) 17

Logged by PD, RD Date 9/19/94

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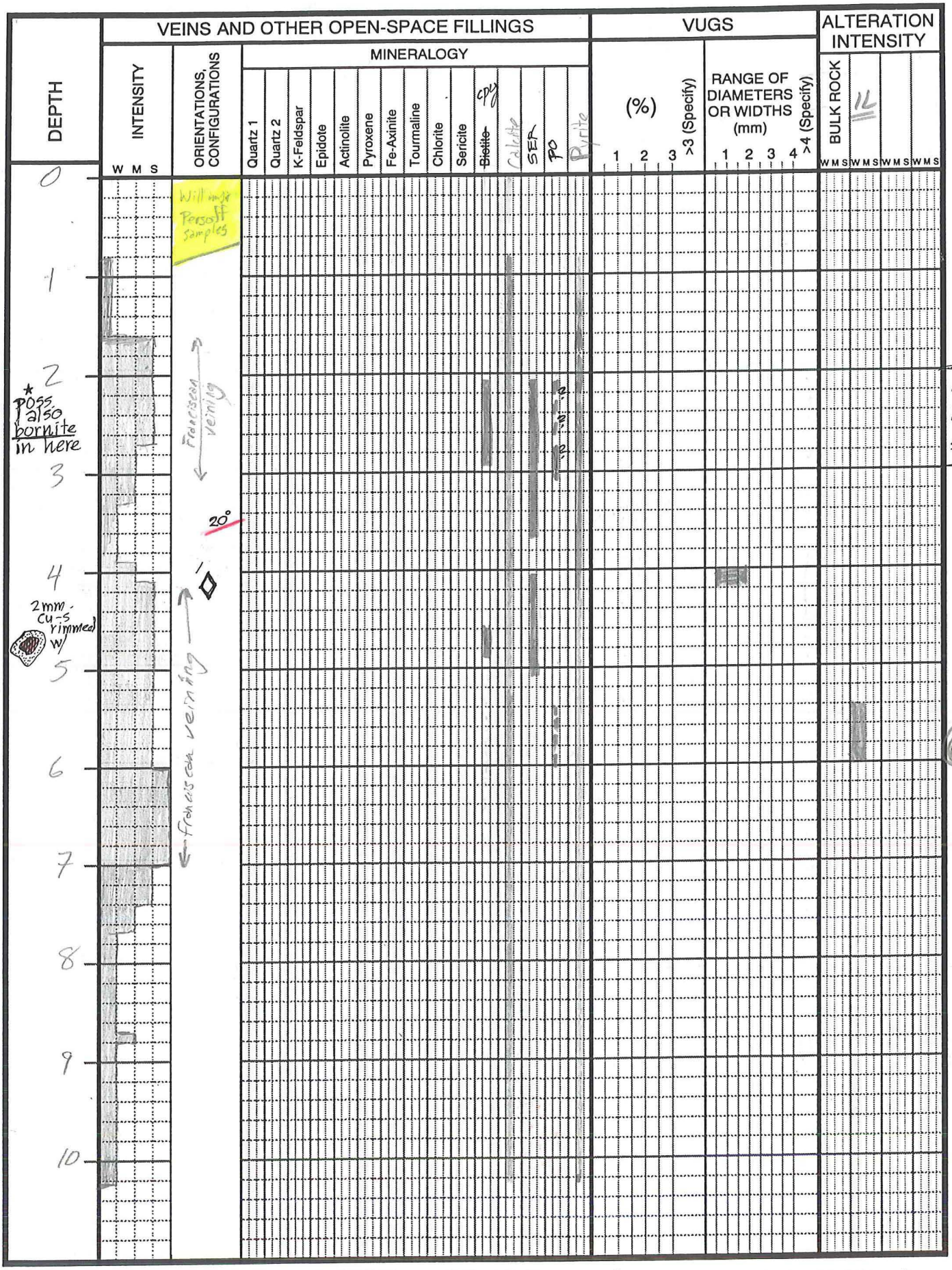

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 2 of 2 for this interval)

Depth Interval (ft) 965.7 - 975.6 Run No. (s) 17

Logged by PFD, RD Date 9/19/94

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DEPTH	FRACTURES: INTENSITY (W M S)	FRACTURES: RANGE OF APERTURES (mm) 1 2 >2 (Specify)	FRACTURES: ORIENTATIONS	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
1			976		GW - med gry; mass bedding; com calc veins
					* Mass bedding dips 40°
			977		Remnant shear zone of Franciscan age (?); dips ~35° in GW. displays incr in veins below line relative to abv.
2					*
			978		Thick prominant calc veins w/ traces of v fn pyr exist w/in strongly contorted ARG shear zone
3			xtrmly contorted Franciscan vein interval		
			979		GW - med lt gry, w/ gen consistant gr sz; mass bedding; homo appearance; crisscrossed w/ thin calc veins
4					* and one thick one from 4' to 4.6'
			980		
5					
			981		
6					
			982		Arg shear zone; v brkn up in core
7			983 Arg zone assoc w/calc vein		
					GW as abv
8					
			984		
9					Crs gr contorted GW w/a med to lt gry color abuts to argillaceous GW abv and contorted ARG below
			985 XRD XRD		* Note: Core cracked @ 2053 with audible snap. *
10			End of core	End core	Note: catcher rubble is GW, friable, wet w/ fluid and softer than all preceding GW

intense illitizn. dissoln Φ

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 975.6 – 985.6 Run No. (s) 18

Logged by JH, RD Date 9/19/94

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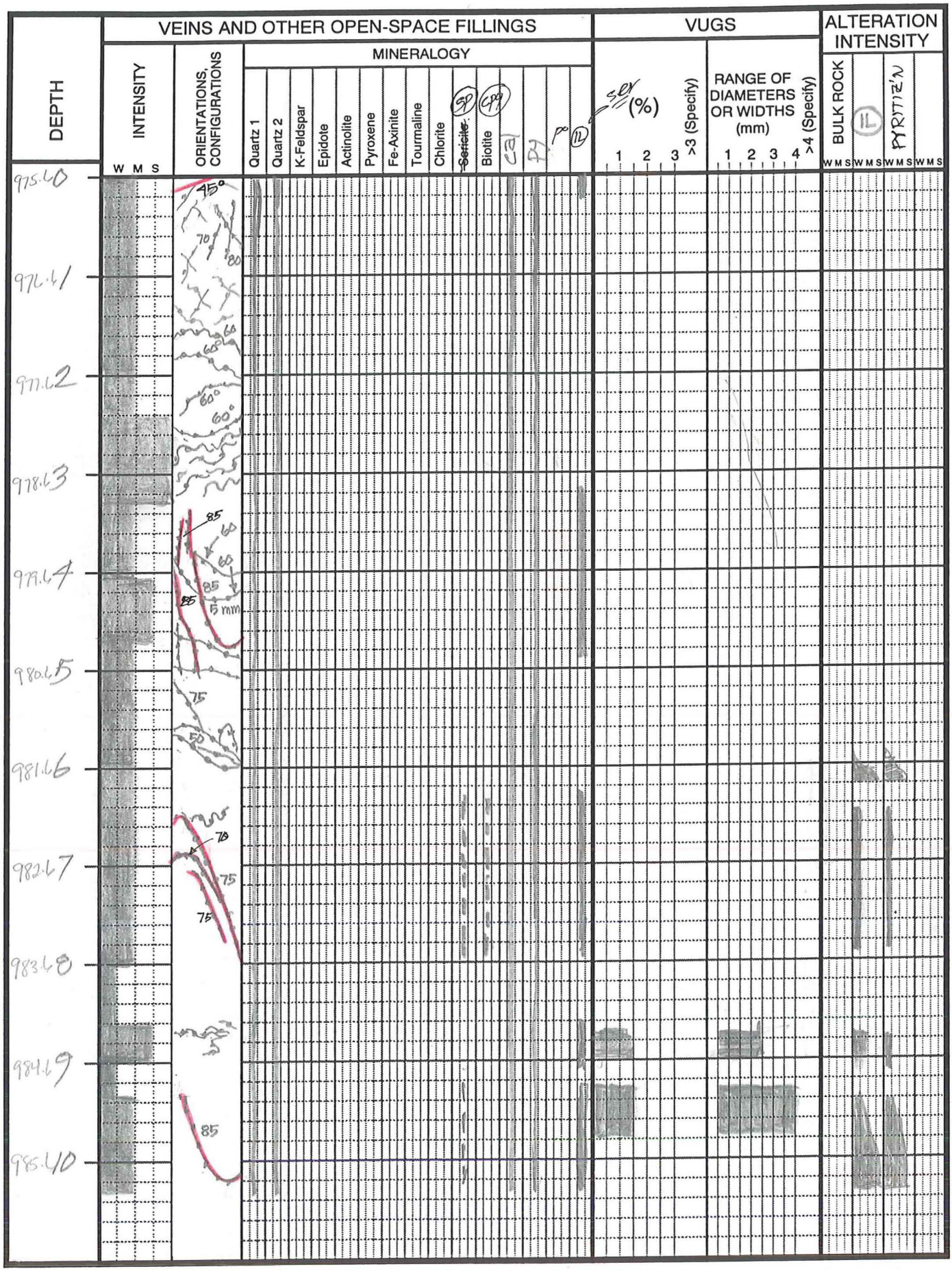

GEYSERS CORING PROJECT . . . SB-15-Deepening

(Sheet 2 of 2 for this interval)

Depth Interval (ft) 975.6 - 985.6

Run No. (s) 18

Logged by JH

Date 09/19/24

HYDROTH. VEINS

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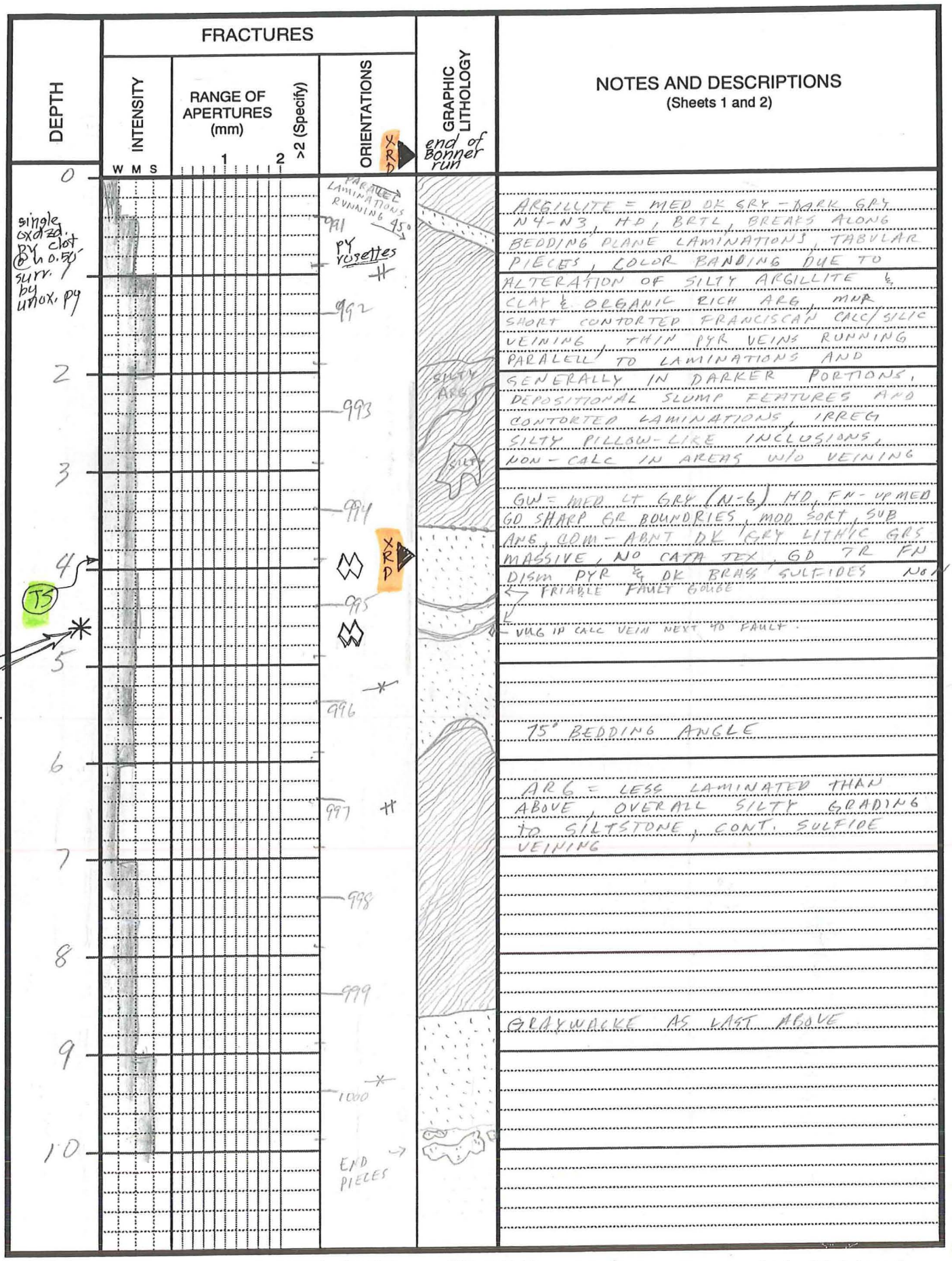

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 990.6 - 1000.6 Run No. (s) 20

Logged by NIELSON & SERR Date 9/20/94

NOTE: BONNER SAMPLE 985.6-990.6' (SEALED, AT TUBING)

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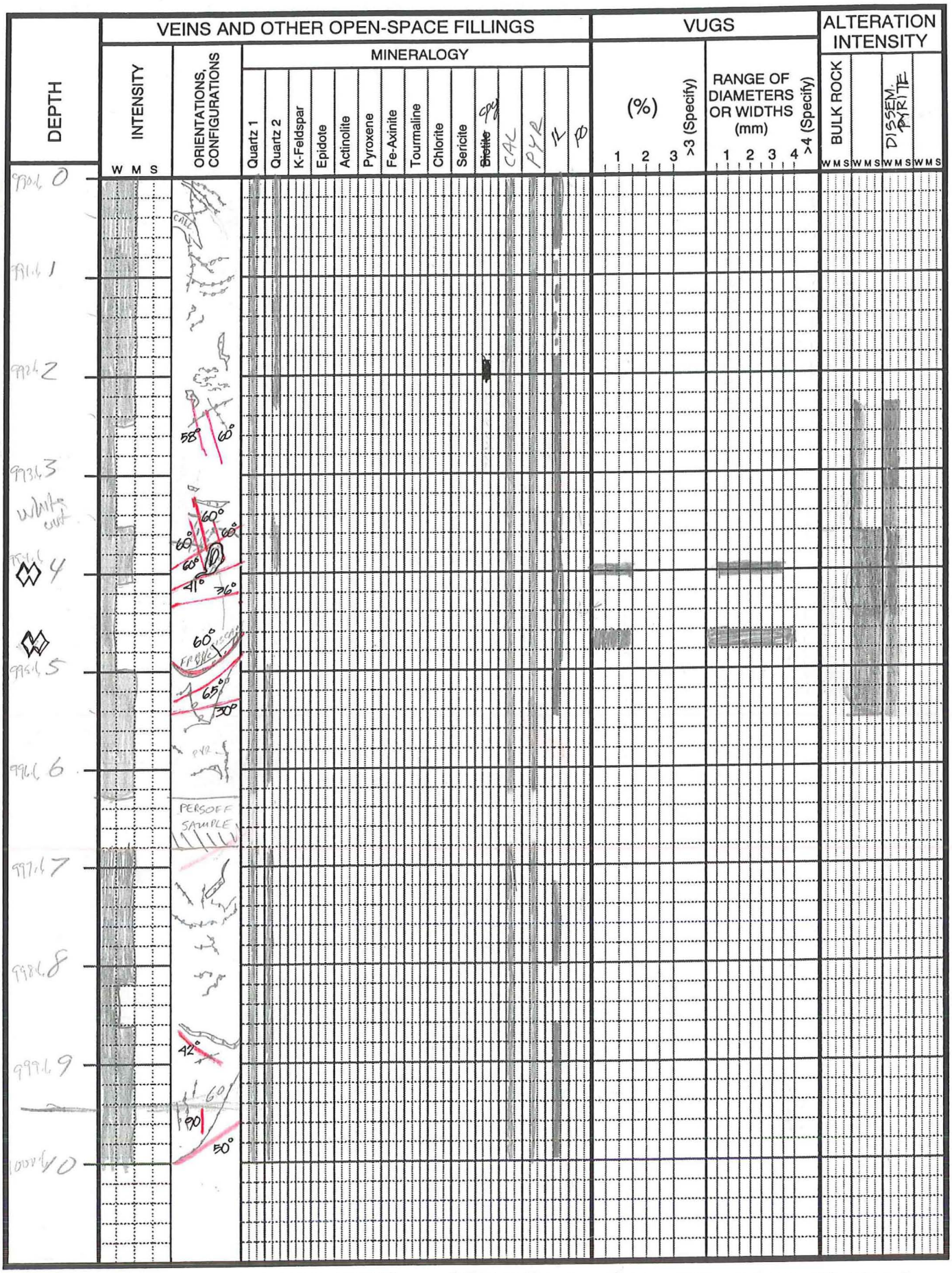

GEYSERS CORING PROJECT . . . SB-15-Deepening

(Sheet 2 of 2 for this interval)

Depth Interval (ft) 990.6 - 1000.6

Run No. (s) 20

Logged by NIELSON & SERR

Date 9/20/94

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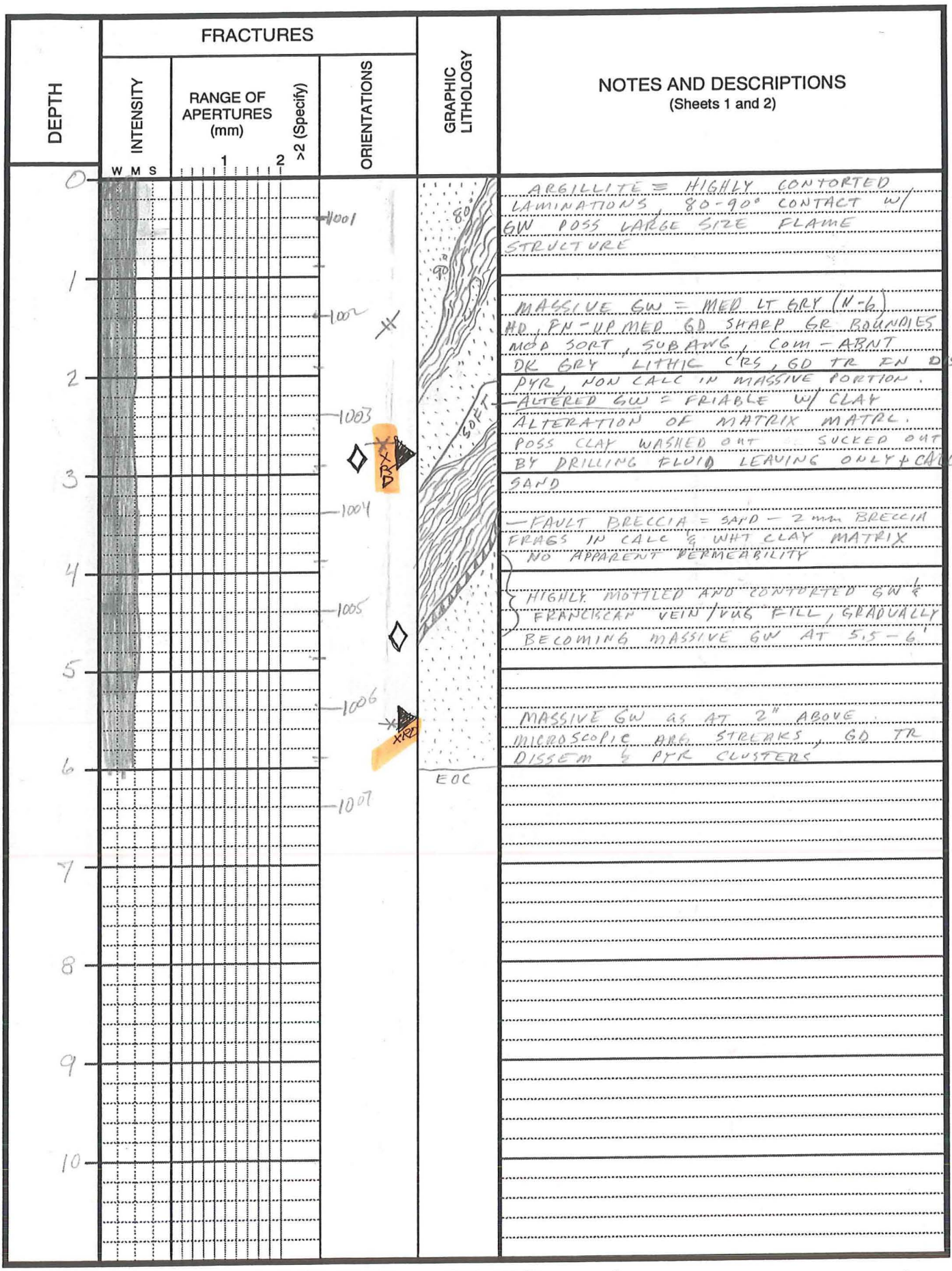
HYDROTH. VEINS



GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 1000.6 - 1006.6 Run No. (s) 21

Logged by Nielson + Serr Date 9/20/94

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DEPTH	VEINS AND OTHER OPEN-SPACE FILLINGS																	VUGS		ALTERATION INTENSITY								
	INTENSITY	ORIENTATIONS, CONFIGURATIONS	MINERALOGY															(%)	RANGE OF DIAMETERS OR WIDTHS (mm)	BULK ROCK								
	W M S		Quartz 1	Quartz 2	K-Feldspar	Epidote	Actinolite	Pyroxene	Fe-Axinite	Tourmaline	Chlorite	Sericite	Biotite					1 2 3 >3 (Specify)	1 2 3 4 >4 (Specify)	W M S	W M S	W M S	W M S					

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 2 of 2 for this interval)

Depth Interval (ft) _____ Run No. (s) _____

Logged by _____ Date _____

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DEPTH	FRACTURES: INTENSITY (W M S)	FRACTURES: RANGE OF APERTURES (mm) 1 2 >2 (Specify)	FRACTURES: ORIENTATIONS	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
		NA			gw, med. gr. mod. gray, msv, dense 2 princ. vnlts — bldd. cal, py, ~~g~~
0.5					
1.0					

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 1006[2] – 1006[9] Run No. (s) 22

Logged by JH, DLN Date 12/89/94

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DEPTH	VEINS AND OTHER OPEN-SPACE FILLINGS																	VUGS		ALTERATION INTENSITY
	INTENSITY W M S	ORIENTATIONS, CONFIGURATIONS	MINERALOGY: Quartz 1	Quartz 2	K-Feldspar	Epidote	Actinolite	Pyroxene	Fe-Axinite	Tourmaline	Chlorite	Sericite	~~Biotite~~		cal	py		(%) 1 2 3 >3 (Specify)	RANGE OF DIAMETERS OR WIDTHS (mm) 1 2 3 4 >4 (Specify)	BULK ROCK W M S W M S W M S W M S
		85 40 60																		

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 2 of 2 for this interval)

Depth Interval (ft) 10066 – 10069 Run No. (s) 22

Logged by JH, DLN Date 12/9/94

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DEPTH	FRACTURES			GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
	INTENSITY (W M S)	RANGE OF APERTURES (mm) 1 2 >2 (Specify)	ORIENTATIONS		

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) _____ Run No. (s) _____

Logged by _____ Date _____

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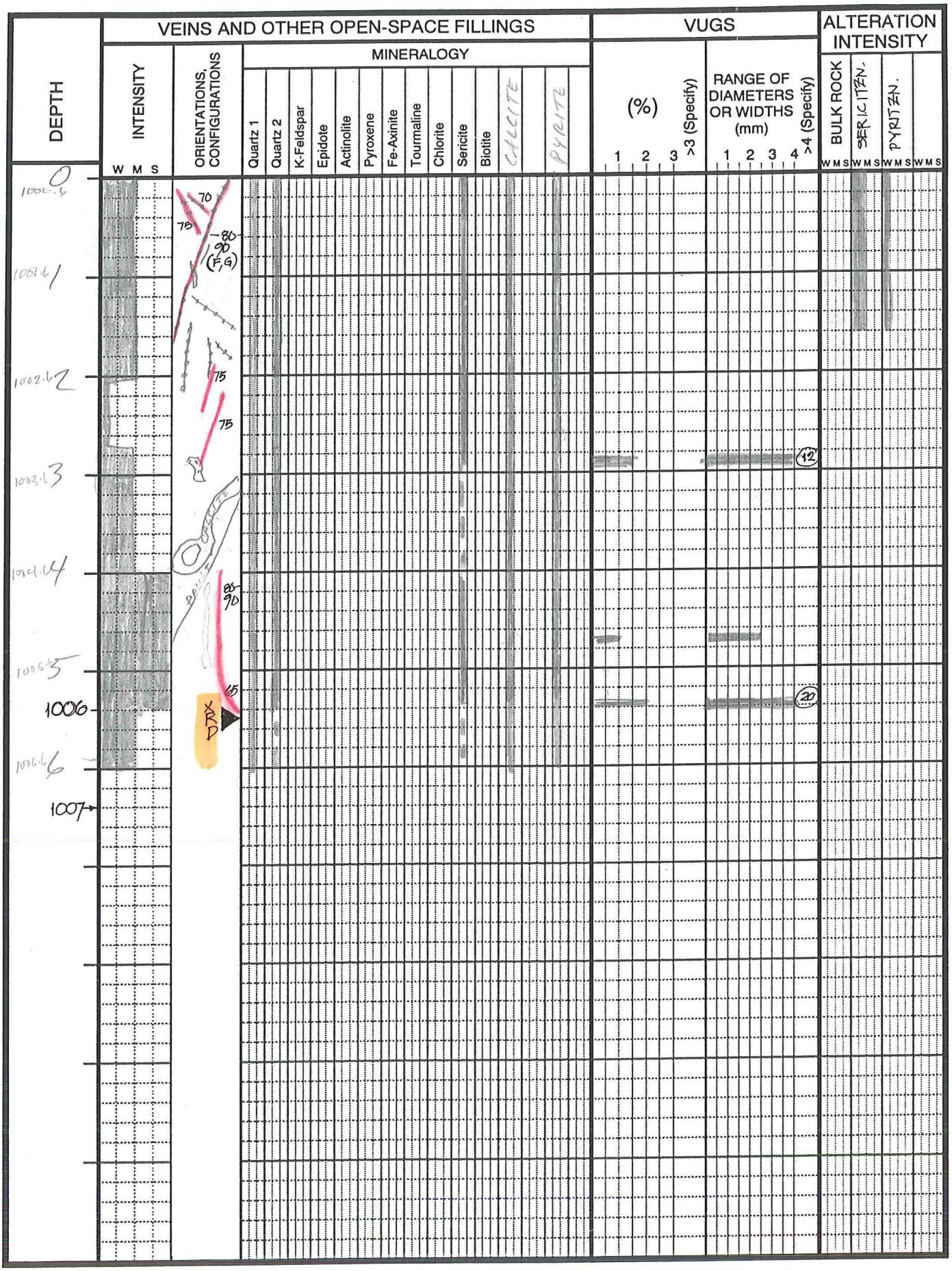

GEYSERS CORING PROJECT . . . SB-15-Deepening

(Sheet 2 of 2 for this interval)

Depth Interval (ft) 1000.6 - 1006.6

Run No. (s) 2/

Logged by NIELSON & SERR

Date 9/20/94

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SLAGIATT

DEPTH	FRACTURES: INTENSITY (W M S)	FRACTURES: RANGE OF APERTURES (mm) (1, 2, >2 (Specify))	FRACTURES: ORIENTATIONS	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
1			1007		GW rubble at very Top
			1008		GW host rock w/ V complex Franciscan age brecciated structure of ARG, calc veins and GW debris, totally fractured at 1.6-1.7
					* abund illite & py along GW-ARG contact and in numerous 40-65° vnlts, terminating against this frx
2			Rubble Zone 1009		GW w/ frac along old, contorted calc vein & wispy ARG structures ABUND ILLITE
3			1010		GW w/ indistinct bedding & abd calc veins
					ARG shear (fractured)
4			1011		GW as abv w/ locally higher density of calc veins ABUND IL-PY GASH VNLTS
5			1012		ARG dipping 60°, relatively continuous major deformation until base of contact
6			1013		GW w/ numerous calc veins ABUND IL-PY GASH VNLTS contorted ARG zone w/ small pc's of Argillaceous GW and GW
7			1014		
** 8			1015 FLT		ARG highly frac, ~~rubble~~ ABUND ILLITE IN FLT abund IL-PY veins
					GW med gry, mass bedding, V com rel thin (±1mm) thick calc veins;
9			1016		ARG dips ± 30° INTENSELY ALT'D (SER, PY) GOUGE GW Rubble on bottom
			Core end		
10			XRD	Rubble	

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 1006.9 - 1016.7 Run No. (s) 23 (22 = bit chg)

Logged by PD, RD Date 9-20-94

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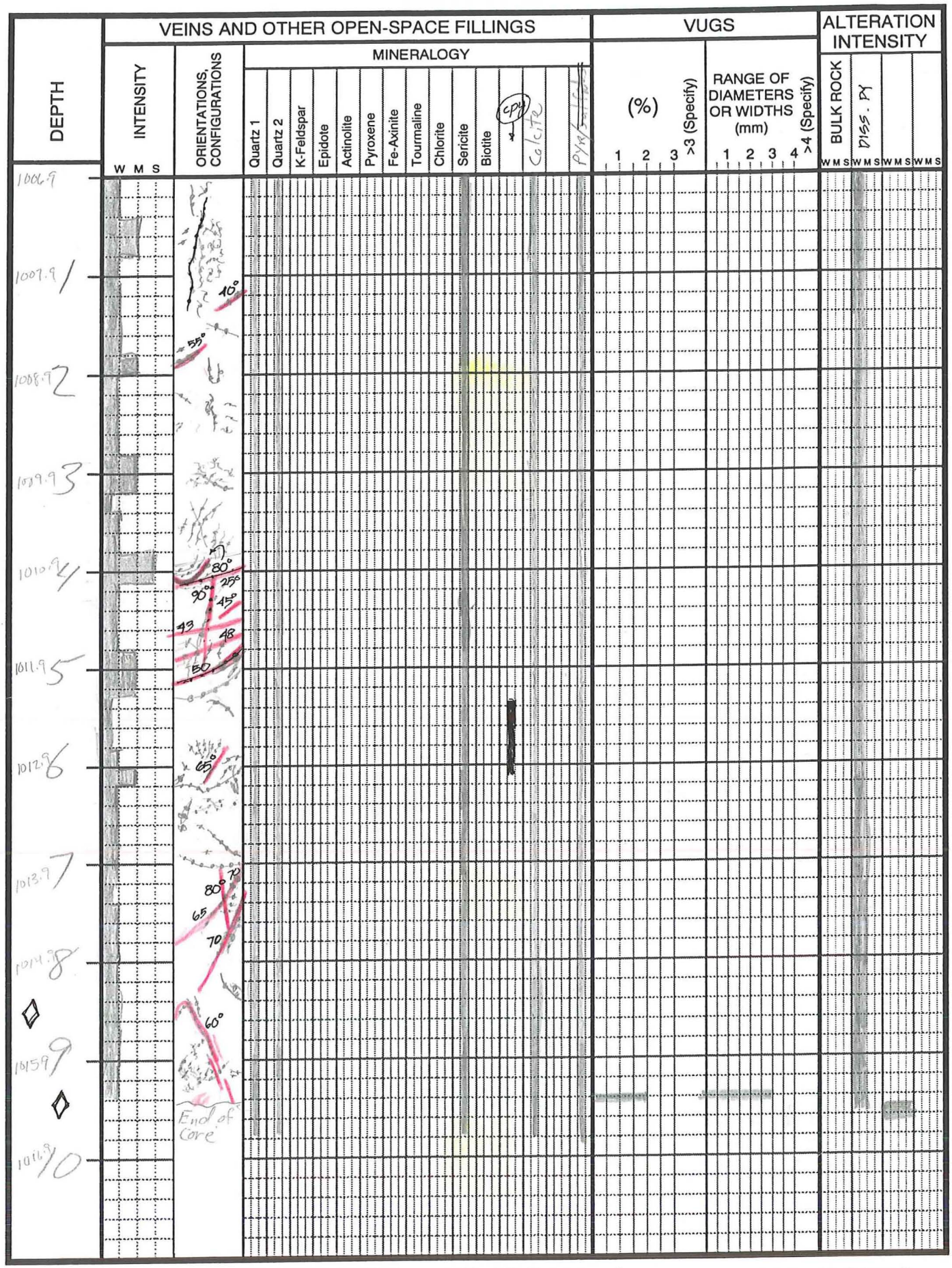

GEYSERS CORING PROJECT . . . SB-15-Deepening

(Sheet 2 of 2 for this interval)

Depth Interval (ft) 1006.9 - 1016.7

Run No. (s) 23

Logged by PD, RD

Date 9/20/94

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Don't use

DEPTH	FRACTURES: INTENSITY (W M S)	FRACTURES: RANGE OF APERTURES (mm) 1 2 >2 (Specify)	FRACTURES: ORIENTATIONS	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
1			1017 Artificial void space (f/transport)		0-1.0': int. hyd. veining w/ qtz-py-cal-il — il app. both pre-dates & post-dates qtz & cal.
			1018		Top of core broken along prominant Fmn vein; has Arg specs along frac face
					← Separation of core along qtz + calc mineraliz. fracture zone; also contains pyr. encrust. euh qtz, calcite blades
					* GW - med lt gry(wb) mass bedding, HD, Fn to upper med gr; sharp gr boundaries; appear impermy; scat blk marls and pyr dissem throughout.
2				Williams	
			1019	Bonanza	
3			1020		
					abund KSP in vnlts
4			60		Local melange of Arg, GW and calc veins of Franciscan age in a highly contorted, chaotic pattern. THIS IS A QTZ-ADULARIA ± CAL STKWK superimposed.
			1021		
5			DRF?		GW - med gry, w/ indistinct bedding; silty and variably argil, present as packets of differing gr sz in between Arg patterns - sme crs, sme fn gr.
			1022		
6					
			1023		
7					Highly contorted interval ← Contact to shear zone, melange abv; mass GW below
			1024	CONCA	
8					Heavily veined GW - med gry as abv
			1025		
9			TS XRD		Melange type rock similar to abv at +4' to +5'
			1026		
10				Hosoff	

stkwk KSP bearing unit

GEYSERS CORING PROJECT . . . SB-15-Deepening

(Sheet 1 of 2 for this interval)

Depth Interval (ft) 1016.7 - 1026.2

Run No. (s) 24

Logged by PB, RD

Date 9/20/94

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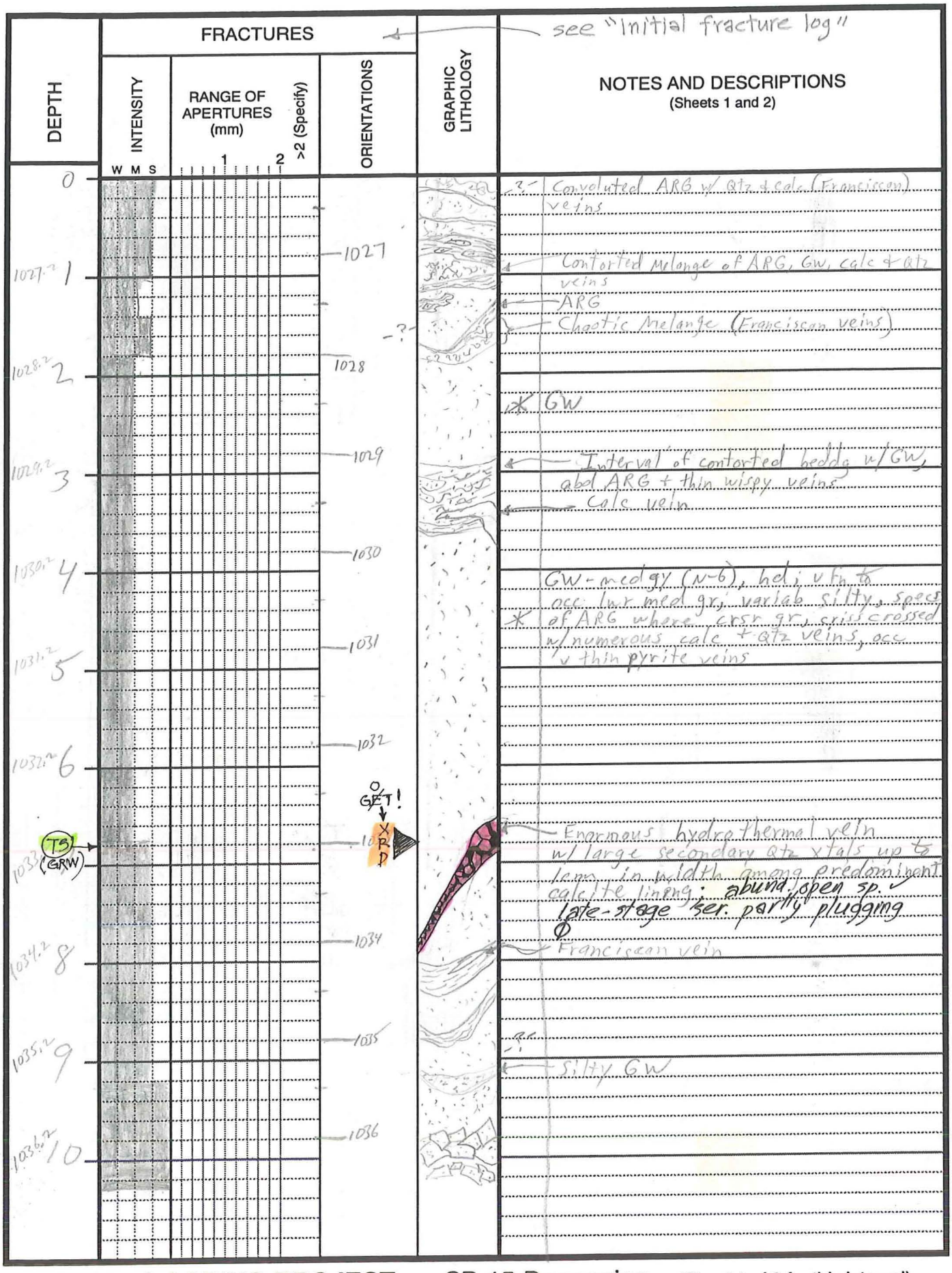

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 1026.2 - 1036.4 Run No. (s) 25

Logged by JBH, RD Date 9/20/94

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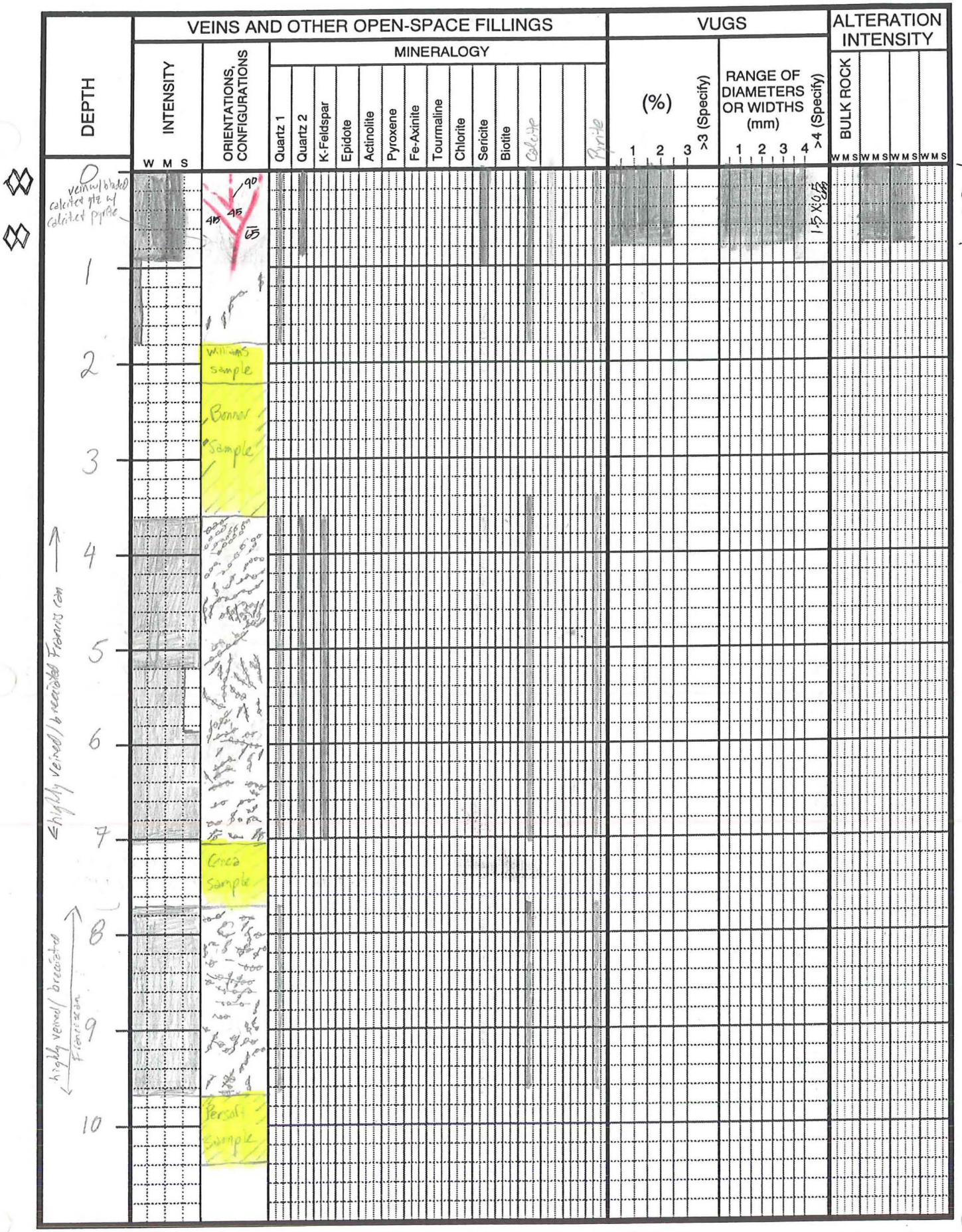

GEYSERS CORING PROJECT . . . SB-15-Deepening

(Sheet 2 of 2 for this interval)

Depth Interval (ft) 10167 – 10262

Run No. (s) 24

Logged by PFD + RD

Date 9/20/94

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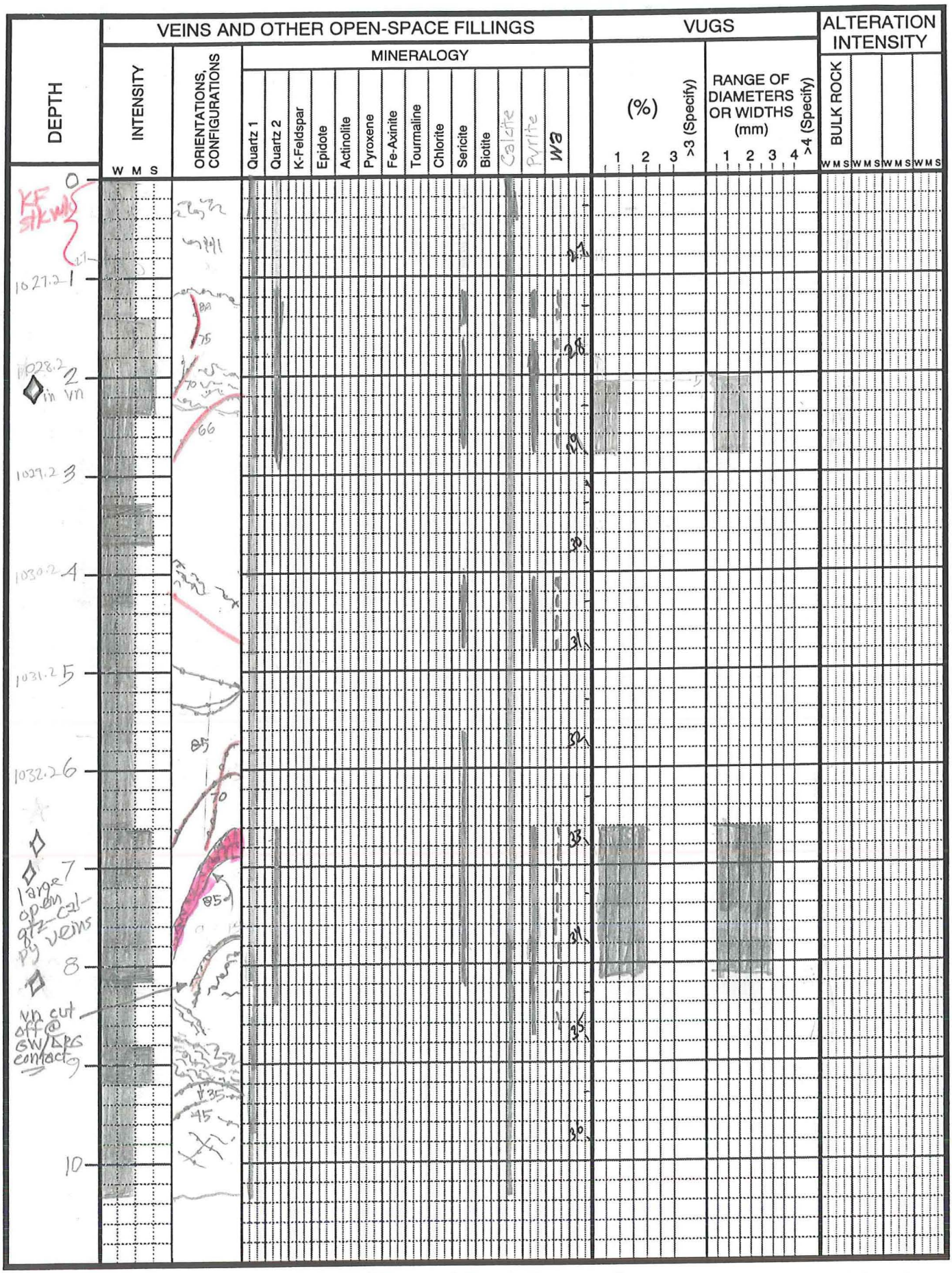

GEYSERS CORING PROJECT . . . SB-15-Deepening

(Sheet 2 of 2 for this interval)

Depth Interval (ft) 1026.2 – 1036.4

Run No. (s) 25

Logged by JBH, RD

Date 09/20/94

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DEPTH	FRACTURES: INTENSITY (W M S)	FRACTURES: RANGE OF APERTURES (mm) 1 2 >2 (Specify)	FRACTURES: ORIENTATIONS	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
0 / 1037.4			1037		GW - med gry (N-6) v fn to fn gr, hdy, mass bedd'g, predom qtz, sat pyr + blk mnrls, silty w/ 3 large lin. exhibiting vein-like appearance; criss crossed w/ predom white calc veins, sme qtz veins.
1 / 1038.4			1038		
2 / 1039.4			1039		
3 / 1040.4			1040		GW as abv
4 / 1041.1			1041		
5 / 1042.4			1042		GW/ARG contact ARG shear zone arranged in a very contorted manner, has numerous add shaped GW clasts and assoc Franciscan veins. ← Intensly veined melange structure of GW, ARG + very numerous calc and qtz veins
6 / 1043.4			Lg pyr clots Lwr contact dips 45° 1043		← Lwr contact of melange structure w/ mass GW below.
7 / 1044.4			70° → 1044 50° →		
8 / 1045.4			40°		Narrow band of contorted ARG adjac to wht calc vein GW abv in contact w/ fairly thick calc vein
9 / 1046.4			1045 1046		
10				Poorsoft	

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 1036A - 1046.4 Run No. (s) 2L

Logged by JBH, RD Date 09/19/94

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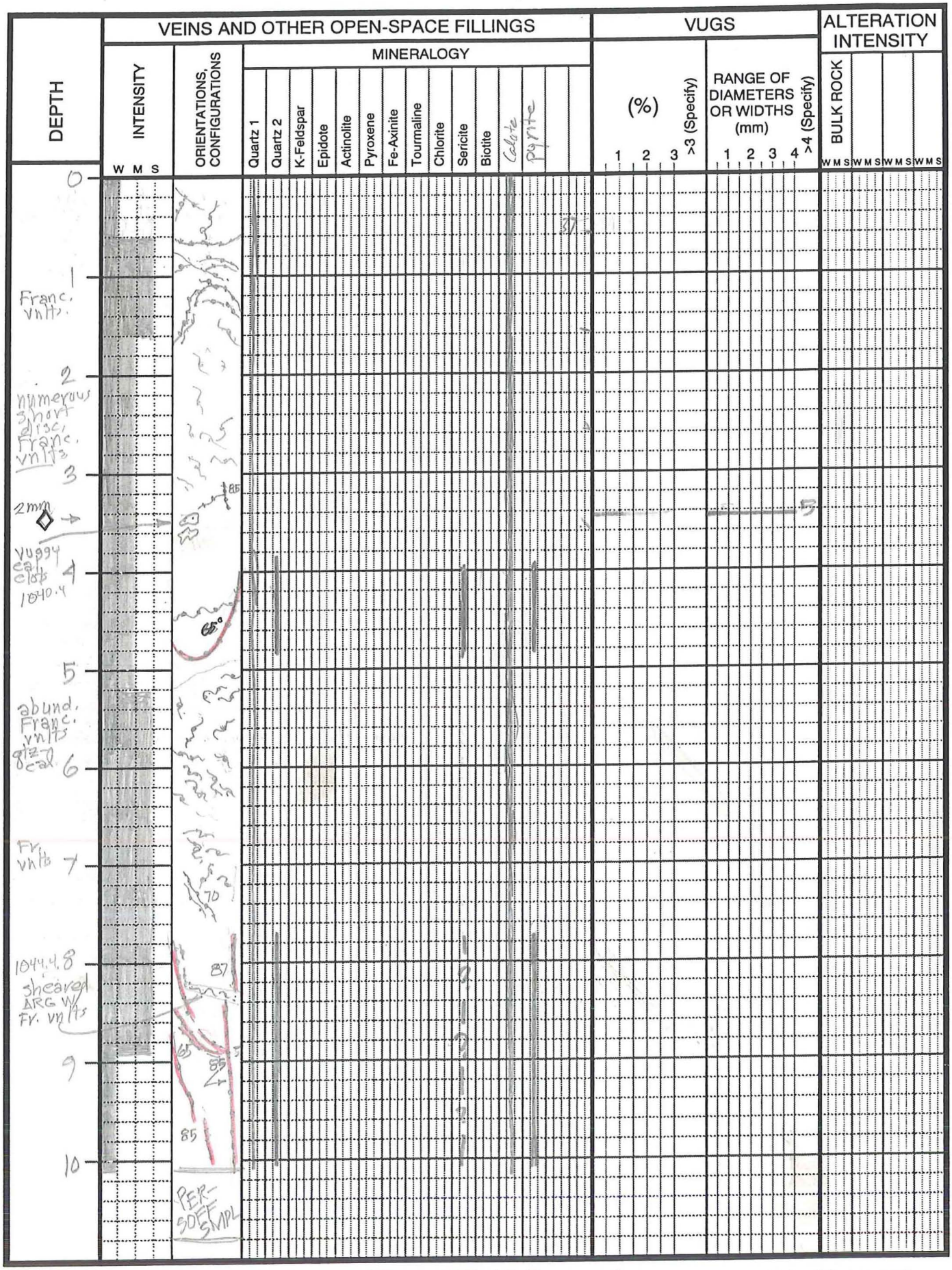

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 2 of 2 for this interval)

Depth Interval (ft) 1036.4 - 1046.4 ft

Run No. (s) 26

Logged by Hulen, Dickerson

Date 09/20/94

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NOTE: WHILE DRILLING LOST CIRC @ 1052' FOR 4 MIN. THEN CAME BACK - TOOK A DRINK!

DEPTH	FRACTURES: INTENSITY (W M S)	FRACTURES: RANGE OF APERTURES (mm) (1, 2, >2 Specify)	FRACTURES: ORIENTATIONS	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
0			1047 SILTY ARG (LIGHT COLOR) ARG		SILTY ARGILLITE = LT GRY (N5) HD, DENSE, OVERALL MASSIVE W/ A FEW AREAS W/ THIN LAMINATIONS SCAT SW GRS, MNR SHORT WHT FRANCISCAN CALC/SILIC VEINS RARE PYR IN MASSIVE PART COM PYR ON PARTING SURFACES WHERE FINELY LAMINATED, AND OCC PYR VEINS
1			1048		
2			1049 LARGE VUG ON BACK SIDE		GW = MED LT GRY (N-6) HD, V FN-UP MED GR, P SORT, GD GR BOUNDRIES SLI VAGUE QTZ GR BGND (V SIM TO DISCPT @ 6-10')
3			FAULT ZONE 1050 TAN-BRN TINT		GW = LT GRY TO LIGHT BROWNISH GRY (N-7 TO 5YR 6/1) FIRM-SLI HD, SIMI FRIABLE READILY ABSORBS WATER, APPEARS AS IF MATRIX ALTERED TO TAN CLAY NON-CALC WHT POWDERY CLAY ON DRY SURFACES, FNLY DISM PYR TR DRUSY QTZ ABRUPTLY CHANGES TO SILTY ARGILLITE BELOW RUBBLE ZONE AS SILTY ARG ABOVE
4					
5			1051 V. CONVOLUTED ARG SHEAR ZONE		VERY CONTORTED & MOTTLED W/ ABNT CALC/SILIC VEIN FILL APPEARS AS NORMAL TURBIDITE DEPOSIT FROM HERE ON DOWN. HIGH AMT CARBONACEOUS DETR
6			BLEACHED AREA 1052		GW = MED LT GRY - LT GRY (N-6-5) HD, VFN-UP MED GR, P SORT GD GRN BOUNDRIES, SLI VAGUE QTZ GR BOUNDRIES W/ SILIC OVERGROWTHS, LOC MICRO ARG STREAKS, COM AREAS W/ DK MATRIX, VAR AMTS DK LITHIC FRAMEWORK GRS, MASS, NO APPEARENT SMEARING OF GRS OR LINEATION, ABNT CRISS-CROSS THIN FRANCISCAN CALC/SILIC VEINS, GD TR DISM PYR, COM DISM PYR ALONG VEIN SURFACES WHERE BROKEN. SLUFFING CONVOLUTED ARG RIP UP CLASTS F/ 5'-10'
7			1053 ARG RIP UP CLASTS IN GW 1054		
8			1055 SLUFFING ZONE		
9			SMALL RIP-UP CLASTS 1056		
10				EOC	

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 1046.4 – 1056.4 Run No. (s) 27

Logged by DLN/DS Date 09/20/99

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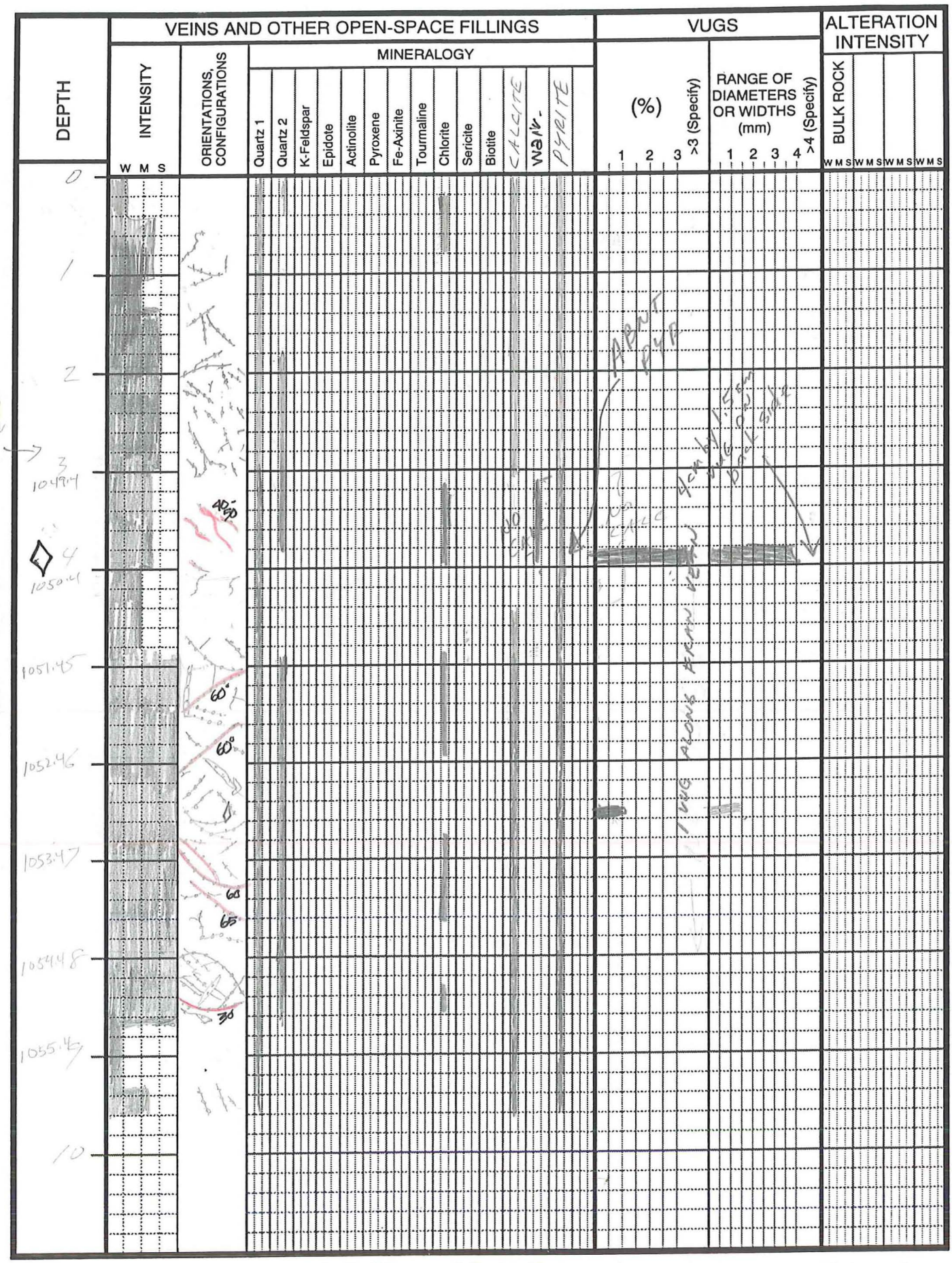

GEYSERS CORING PROJECT . . . SB-15-Deepening

(Sheet 2 of 2 for this interval)

Depth Interval (ft) 1046.4 – 1056.4

Run No. (s) 27

Logged by DN, DS

Date 9/20/94

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DEPTH	FRACTURES: INTENSITY (W M S)	FRACTURES: RANGE OF APERTURES (mm) (1, 2, >2 Specify)	FRACTURES: ORIENTATIONS	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
0			57 HIGHLY CONVOLUTED INTERCAL ARG/GW		OVERALL HIGHLY CONTORTED & MOTTLED APPEAR - COM 1- 3 cm ANG FRAGS OF SILTSTONE & GW WITH OLDER CALC/SILIC VEINING FLOATING IN BLK ARGILLITE SECONARY PYR VEINS THEN CUT THROUGH ARG AND BRECCIA FRAGS
1			58 SHEARED ZONE		ARGILLITE = DK GRY - BLK (N-3 - N1) HD, MASSIVE NON-LAMINATE WHERE INBETWEEN BRECCIA FRAGS
(TS) 2			XRD		
			59		FINELY LAMINATED BLK ARG CUTTING ACROSS CORE W/ SULFIDE VEINS
3					GW = MED GRY - MED DK GRY (N5-4) HD, SILICIC, VAQUE - INDIST GR BOUNDRIES, LOC V. ARGILLACEOUS W/ MICRO STREAKS OF ARG MATR & PROB CARBONACEOUS MATR, HIGHY MOTTLED W/ WHT OLDER CALC/SILIC VEINING & VUG FILL
4			60		
			61		
5					VERY SIMILAR TO TOP 2.5' EXCEPT MORE BRECCIATED APPR. SOLID BRECCIA TO 6.8' THEN APPEARS SOFT CARBONACEOUS CLAY MATRIAL HAS BEEN WASHED OUT BY DRILLING ACTION
			62		
6					
			63		INTENSE WAVY SULFIDE VEINS AT 5.5'
7			SOFT CRUMBLY	BLACK ARG CLAY	
			64		
8					

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 1056.4 - 1064.4

Run No. (s) 28

Logged by DLN/DS

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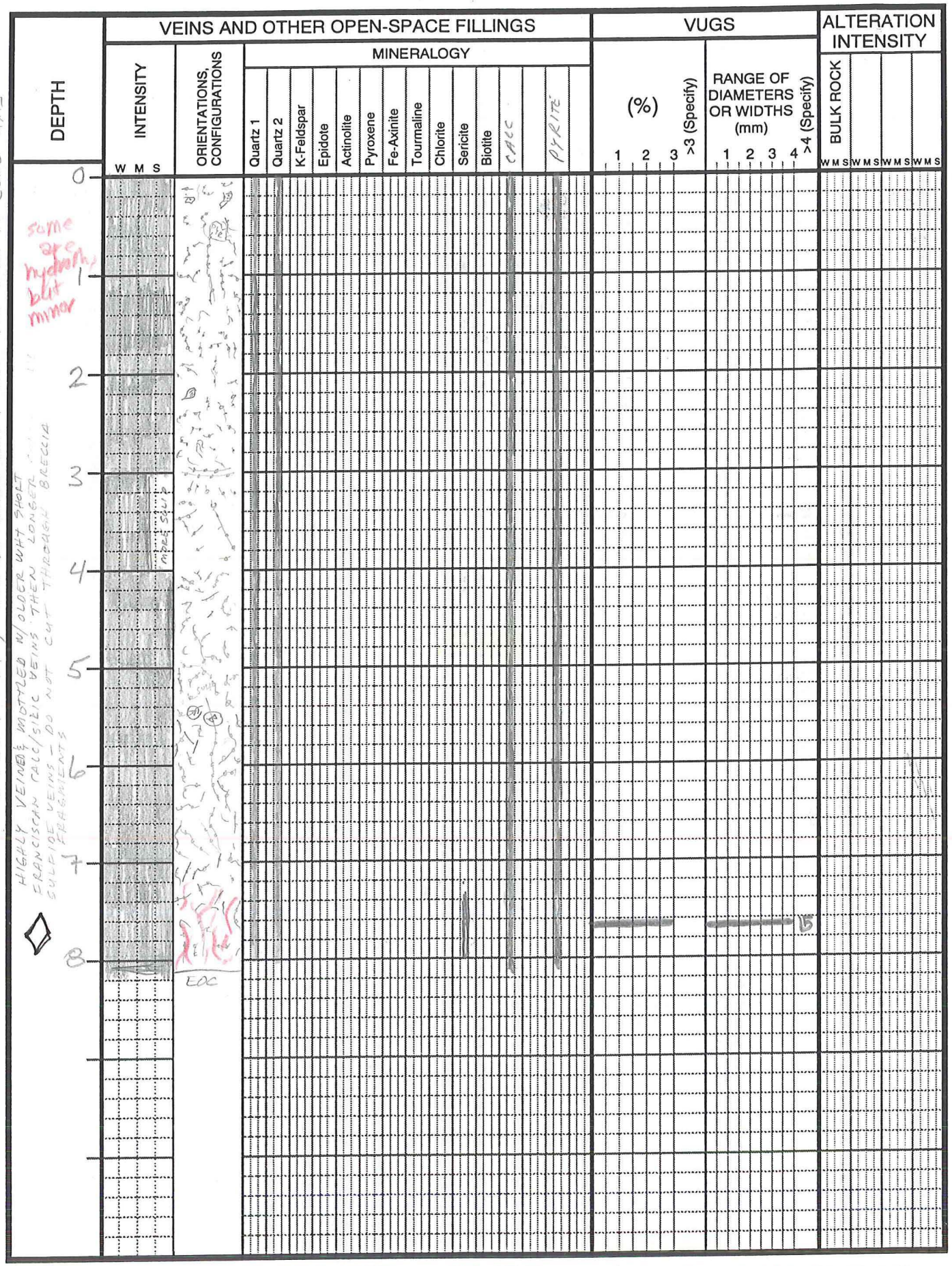

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 2 of 2 for this interval)

Depth Interval (ft) 1056.4 - 1064.4 Run No. (s) 28

Logged by DLN/DS Date 9/21/94

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DEPTH	FRACTURES: INTENSITY (W M S)	FRACTURES: RANGE OF APERTURES (mm) 1 2 >2 (Specify)	FRACTURES: ORIENTATIONS	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
0				get XRD smpl. PUBBLE	
F.I					CONTINUED HIGHLY MOTTLED W/ WHT OLDER CALC/SILIC VEINS
TS			65		ARG = DK GRY, HD, BRTL, PLATY
1			3 THIN ARG INTERBEDS 30°		PIECES, WAVY FINE LAMINATIONS DIPPING 30° W/ CARB MATL & PYR VEINING THIN WISPY ARG STRUCTURES.
			66		
2					MASSIVE GW ⇒ MED GRY - MED DK GRY (N5-N4) HD, V FN - LO MED, MOD SORT, SUBANG, GO GR BOUNDRIES, SLI LOC SILIC OVERGROWTHS, MASSIVE W/ SLI FOLIATION, FLATENING OF ARG LITHIC GRS, MICRO STREAKS
			67		
3					OF ARG MATERIAL AND/OR CARB MATR, MOD - HIGHLY MOTTLED W/ WHT FRANCISCAN CALC/SILIC VEINING & IRREG VUG FILL FNLY DISM PYR
			68		
4					THIN ARG BEDS = DK GRY - BLK, COM PYR VEINS
			69	PERSOFF SAMPLE	
5				EOC	GW AS LAST ABOVE WITH NUMEROUS CALC/SILIC VEINS AND CLATS OF CALC

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 1064.4 - 1069.6 Run No. (s) 29

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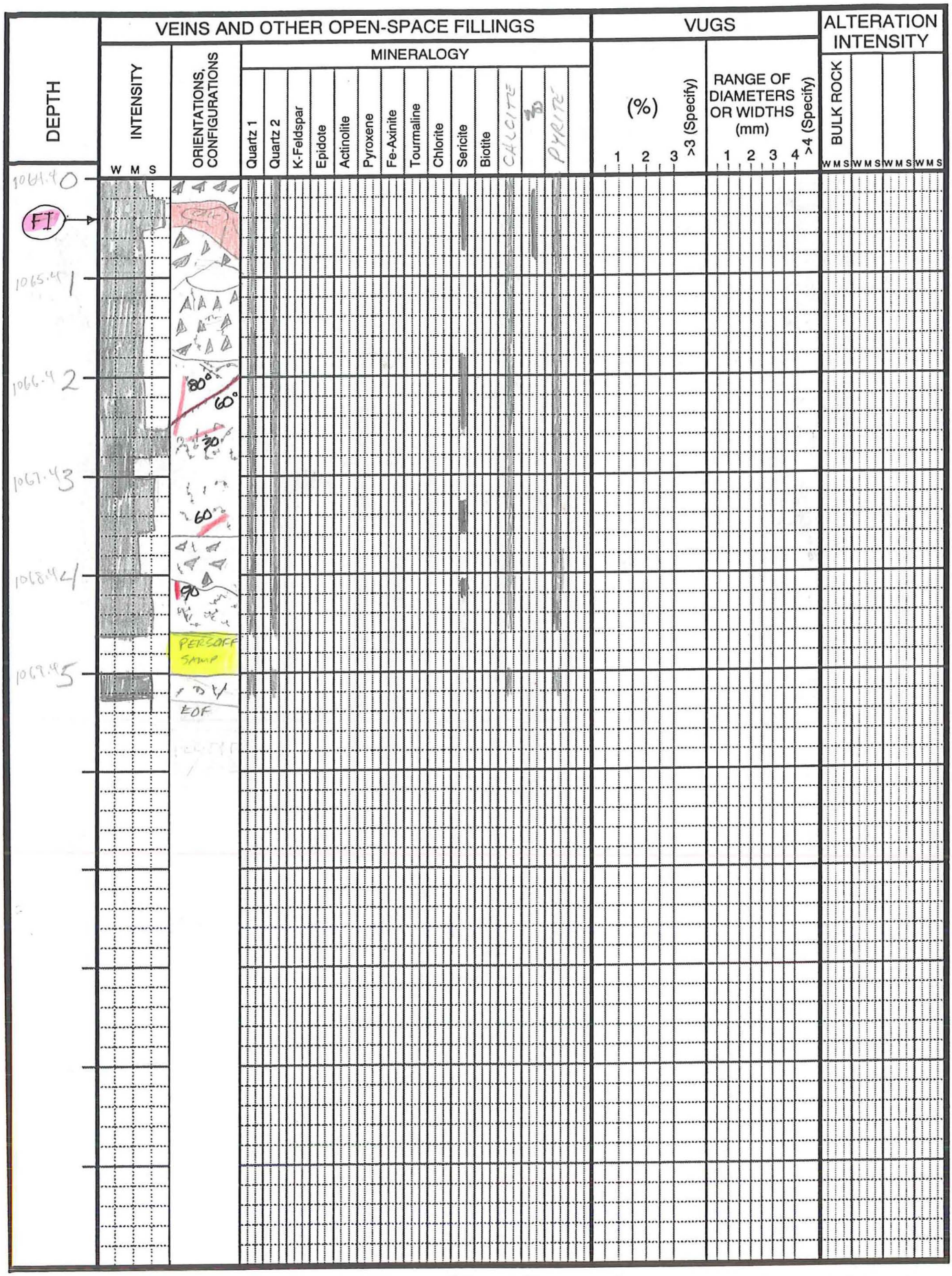

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 2 of 2 for this interval)

Depth Interval (ft) 1064.4 - 1069.6

Logged by DLN/DS

Run No. (s) 29

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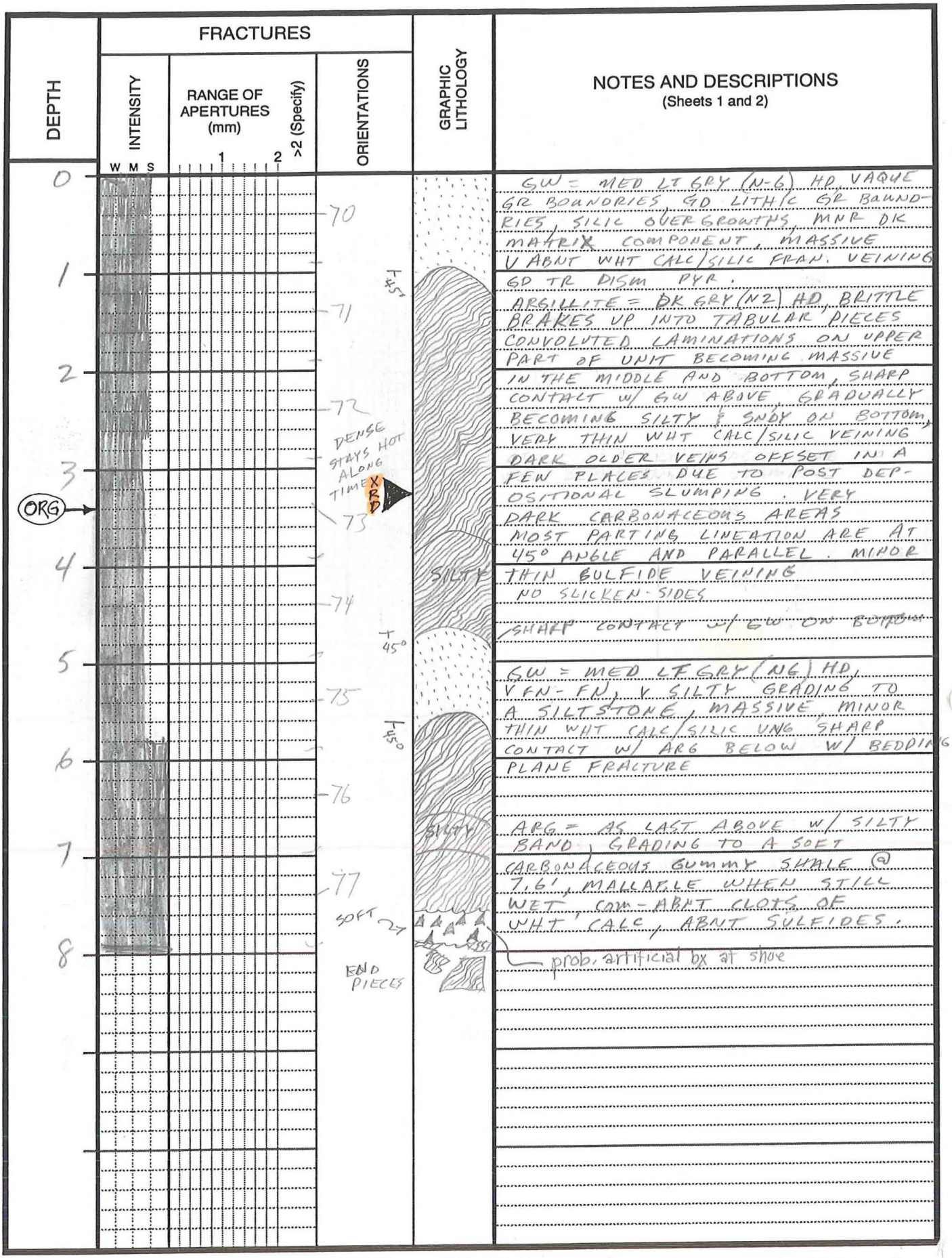

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 1069.6 – 1077.6 Run No. (s) 30

Logged by DLM/DS Date 9/21/94

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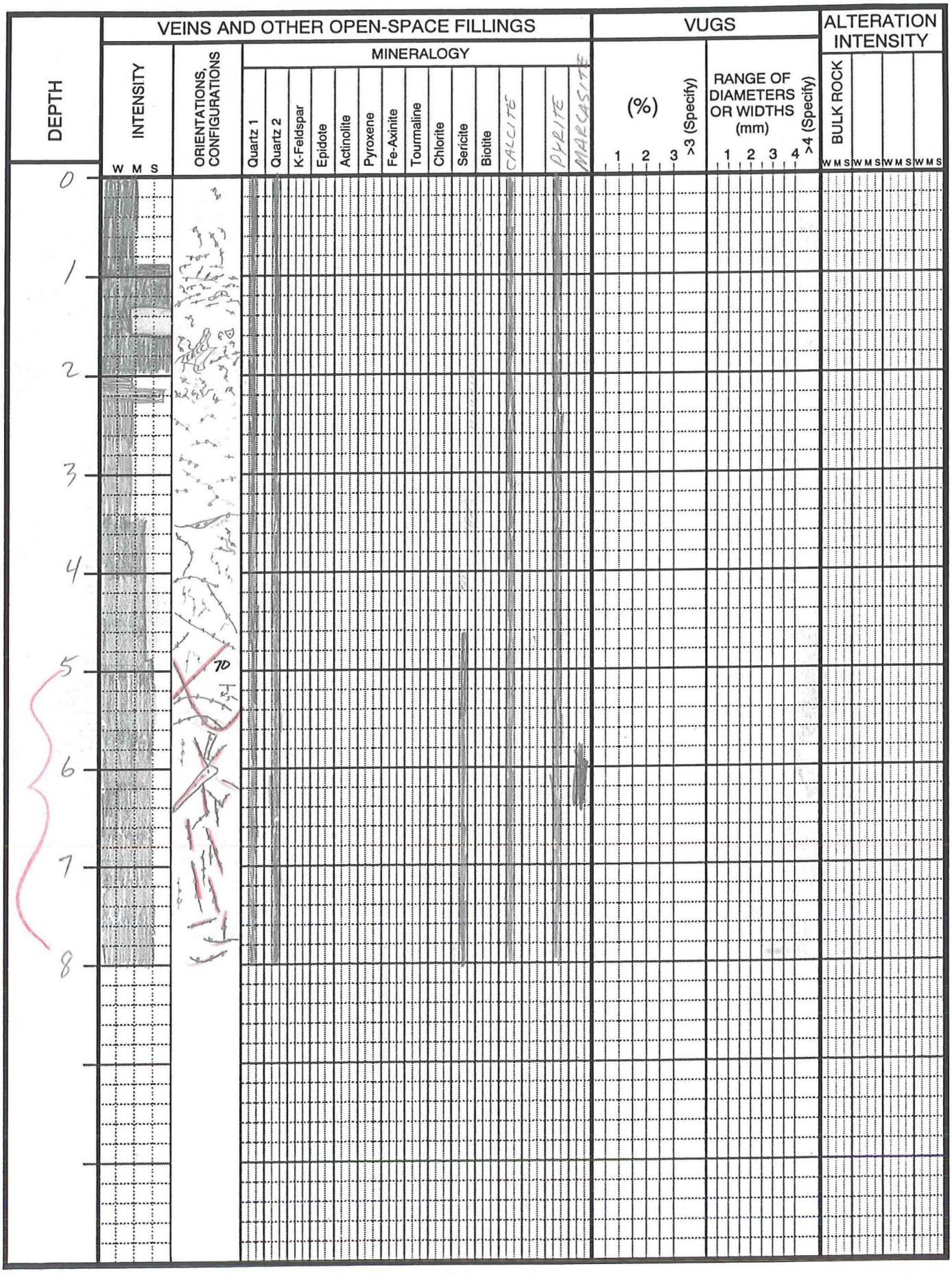

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 2 of 2 for this interval)

Depth Interval (ft) 1069.6 - 1077.6 Run No. (s) 30

Logged by DLN / DS Date 9/21/94

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DEPTH	FRACTURES: INTENSITY (W M S)	FRACTURES: RANGE OF APERTURES (mm) (1, 2, >2 Specify)	FRACTURES: ORIENTATIONS	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
0			78		GW Rubble - w/ argillaceous fractured borders - contain large pyrite XLS
					- Steeply dipping contorted sed. beds - numerous Fransican calcite & quartz veins
1			79		~55° dip
					floating GW within steeply dipping sed. bed
2			80		- high density of Fransican calcite > pyrite veins
					- slightly darker, more silty GW
3			81		(INTENSE BX ZONE - JH)
					- slightly brecciated zone w/in GW
					- high density of Fransican cc, qtz, py veins in GW
					Argillite bounded at top/bottom by pyrite shear zones
4			82		- large Fransican calcite, qtz, pyrite veins
					small, concave upwards texture (infilled scour?)
					- silty argillite w/ lenses of more argillite material
5			83		- finer grained, laminated bedding texture with more massive GW
					GW Rubble - flecked w/ py, cc, qtz
6			89		has argillaceous fractured top w/ pyrite
7					

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 1077.6 - 1084.0 Run No. (s) 31

Logged by PFD, RD Date 9/21/94

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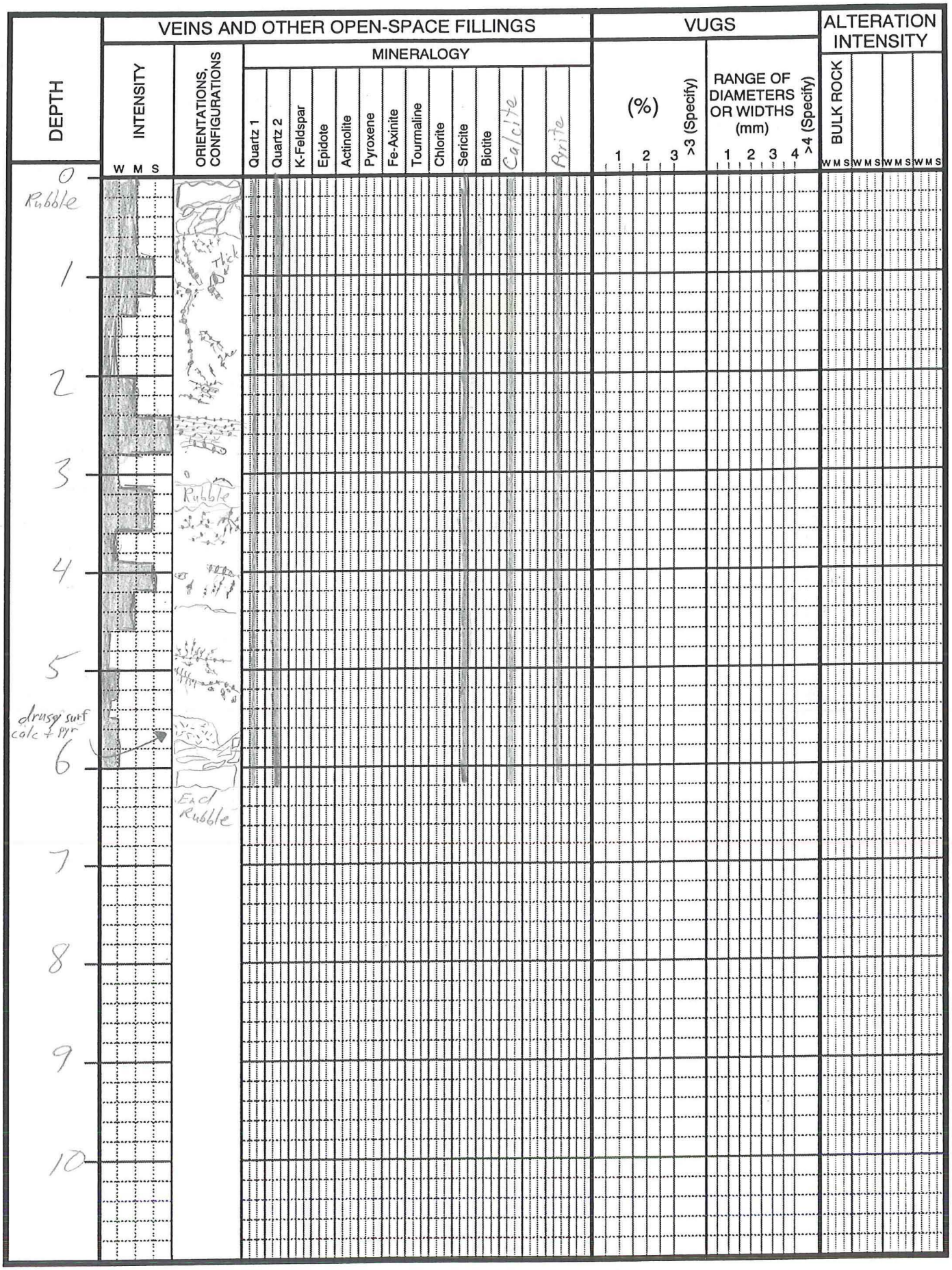

GEYSERS CORING PROJECT . . . SB-15-Deepening

(Sheet 2 of 2 for this interval)

Depth Interval (ft) 1077.6 → 1084.

Run No. (s) 31

Logged by JH, RD

Date 9-21-94

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DEPTH	FRACTURES: INTENSITY (W M S)	FRACTURES: RANGE OF APERTURES (mm) 1 2 >2 (Specify)	FRACTURES: ORIENTATIONS	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
0 / 1085			Top Rubble		-? Blk ARG @ Top
1					* Thin mass bed of GW bounded by ARG, Lwr ARG contains flow fragments
					-? of GW
				Williams	
1086 2					← Silty GW w/variegated ARG veinlets running steeply thru formation
					← Rig Calc vein
1087 3					← Hydrothermal calc vein w/ numerous shattered GW remnants
					← Melange
					← Hydrothermally shattered zone w/ thick vug calcite veins surrounding broken GW fragments
1088 4					ARG w/ contorted calc veins
					← Calc veins
1089 5					50° Dip @ Top of Arg
					~35° Dip Angle Arg contact
1090 6					← Thick calc vein w/sme qtz xtals
					GW - lt to med gry (N-6 to N-7), v fnt, lwr med gr; hdy, dns, mass to thick bedding
1091 7					25°
					hyd, bx zone
1092 8			20°		? ARG - appears to be thin bedded horizontally but is not perfectly clear as to orientation, contains GW fragments.
1093 9				Rubble	
					shear zone @ contact
1094 10				Rubble	

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 1084 → 1094.0 Run No. (s) 32

Logged by JH, RD Date 9/21/94

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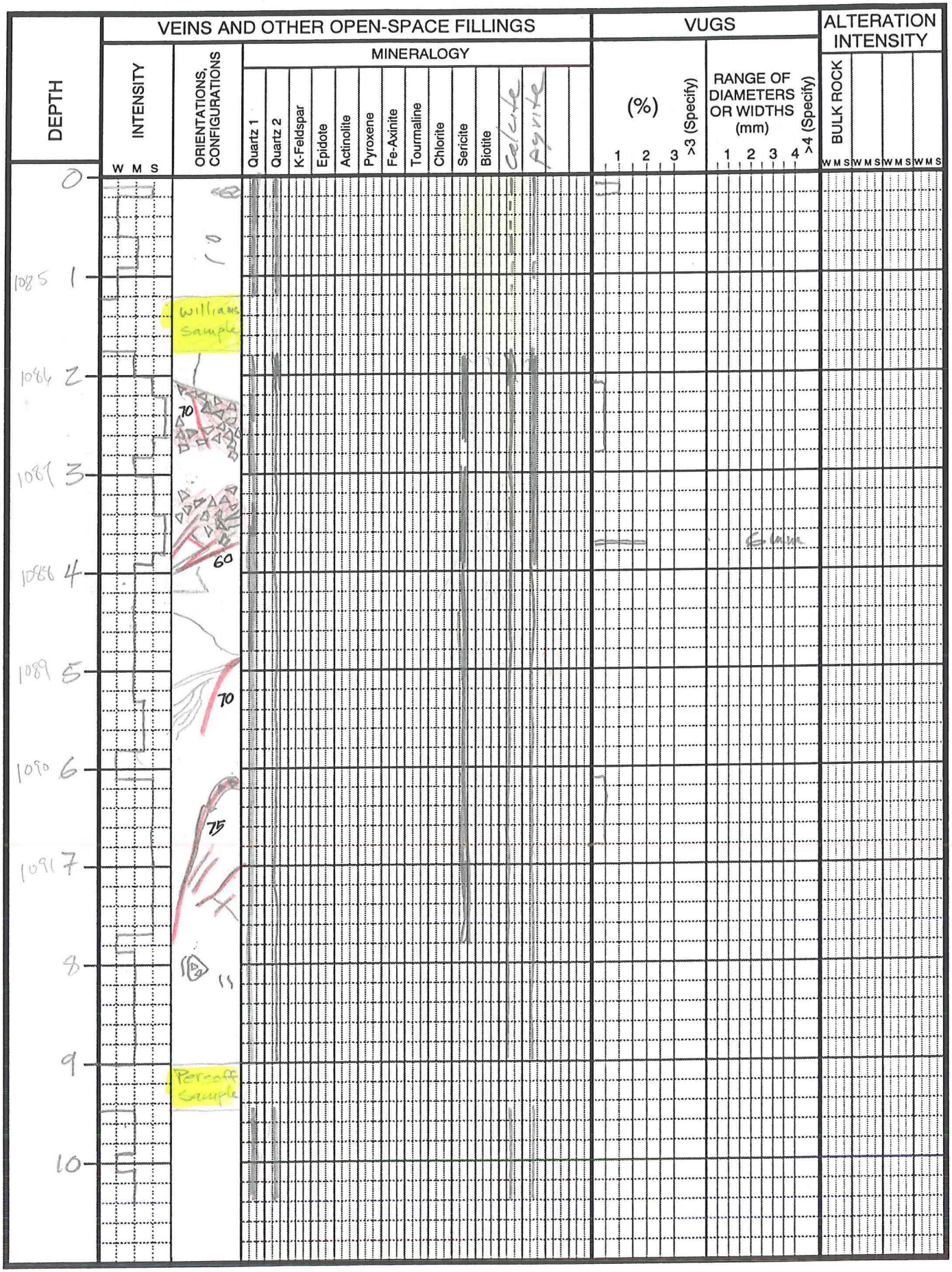

GEYSERS CORING PROJECT . . . SB-15-Deepening

(Sheet 2 of 2 for this interval)

Depth Interval (ft) 1084 – 1094

Run No. (s) 32

Logged by T. Powell

Date 9/21/94

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DEPTH	FRACTURES: INTENSITY (W M S)	FRACTURES: RANGE OF APERTURES (mm) (1, 2, >2 Specify)	FRACTURES: ORIENTATIONS	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
0				BONNER SAMPLE — sealed in seamless Al tube.	
1					
5				XRD	
ORG					
T5					

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 1094-1099' Run No. (s) 33

Logged by _____ Date 09/21/94

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DEPTH	VEINS AND OTHER OPEN-SPACE FILLINGS																	VUGS		ALTERATION INTENSITY								
	INTENSITY			ORIENTATIONS, CONFIGURATIONS	MINERALOGY													(%)	RANGE OF DIAMETERS OR WIDTHS (mm)	BULK ROCK								
	W	M	S		Quartz 1	Quartz 2	K-Feldspar	Epidote	Actinolite	Pyroxene	Fe-Axinite	Tourmaline	Chlorite	Sericite	Biotite			1 2 3 >3 (Specify)	1 2 3 4 >4 (Specify)	W	M	S	W	M	S	W	M	S
0				← BONNER SAMPLE																								
5																												

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 2 of 2 for this interval)

Depth Interval (ft) 1094-1099 Run No. (s) 33

Logged by _____ Date 09/21/94

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DEPTH	FRACTURES: INTENSITY (W M S)	FRACTURES: RANGE OF APERTURES (mm) 1 2 >2 (Specify)	FRACTURES: ORIENTATIONS	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
1099 0				Perssff	
1100 1			00		Thinly bedd ARG., few fracs., mod dense towards base.
1101 2			1 25° contact		* Alteration zone in GW GW – lt gry (N-7), v frm., more silic ftr than all prev Graywacke., calc-kaolin matrix., mass bedd., atz., Arg slivers, dissem w/ v 3% Pyr w/in matrix. GW immed beneath bd below intense alteration zone, drker gry.
1102 3			2		* punky
1103 4			3		GW – med lt gry (N-6) w/ sli ltr hue than prev GW except altd zone directly abv, calc present in matrix, tr pyr dissem throughout.
1104 5			4		GW as abv
1105 6			5		*
1106 7			6		
1107 8			7 XRD WR	hyd vein	Fault gauge @ 35° in Arg ← XRD SHOWS ONLY 57% QTZ
1108 9			8		* GW – altd as abv alteration zone.
1109 10			9 v large calc vein w/embedded euhedral atz xtals	Rubble End	

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 1099 – 1109 Run No. (s) 34

Logged by RD, PH Date 09/21/94

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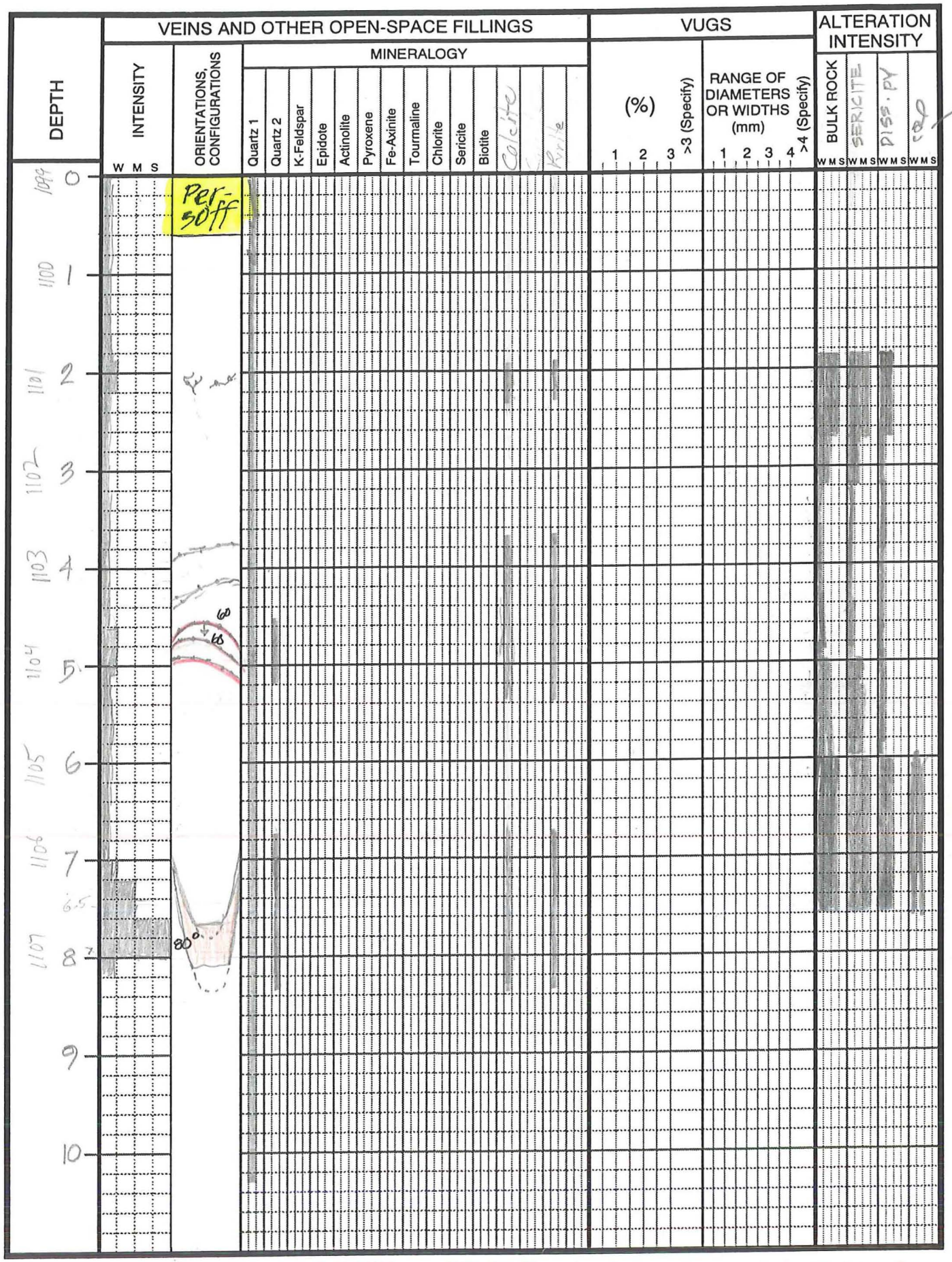

GEYSERS CORING PROJECT . . . SB-15-Deepening

(Sheet 2 of 2 for this interval)

Depth Interval (ft) 1099 - 1109

Run No. (s) 34

Logged by JBH, RD

Date 09/21/94

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DEPTH	FRACTURES: INTENSITY (W M S)	FRACTURES: RANGE OF APERTURES (mm) 1 2 >2 (Specify)	FRACTURES: ORIENTATIONS	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
1109 0			Alt'd GW zone		GW - med gxr w/ some med lt gry, altd in part w/ kadl-calc., some v fn pyr in matrix.
			70°-80°		2 lrg faces of steeply dipping calc & Qtz mnrlzd vein dips ~70° to 80°
1110 1			10		
			70°		Contact of fn Silty GW abv and Crs mottled GW below
1111 2			11		Note: open spaces "○" represent calc/qtz mnrlzd veins or vein faces at steep angles.
1112 3			12		
					Open mnrlzd face of Calc & Qtz (tr euhedral Qtz) present as a vertical angle.
1113 4			13		Angles to other veins represented are not readily apparent due to chaotic patterns
1114 5			14		
					GW - med gy, hd, mass, v fn to fn gr
1115 6			15	End pc of core	
7					
8					
9					
10					

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 1109 - 1115.2 Run No. (s) 35

Logged by Dickerson Date 9/21/94

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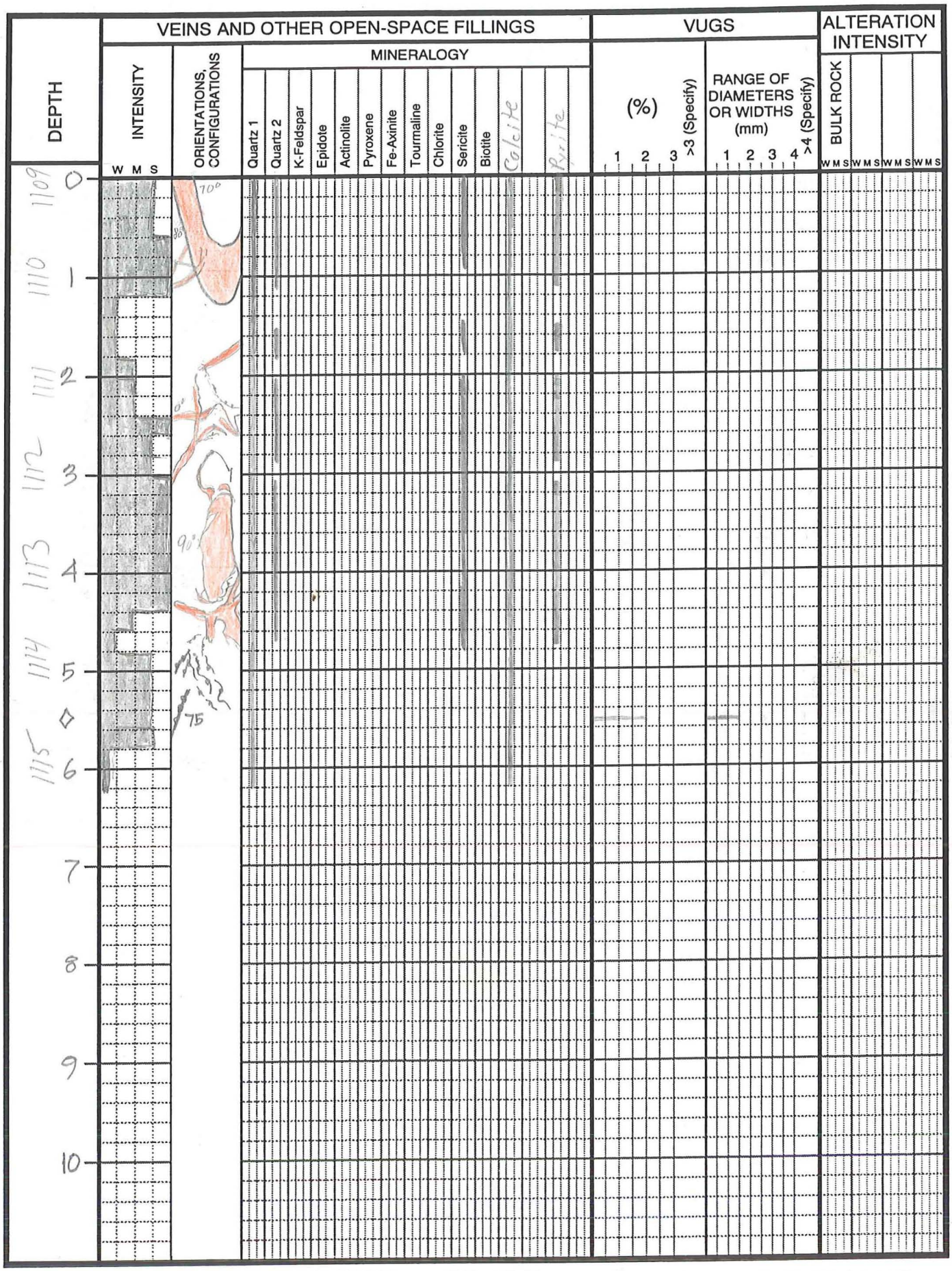

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 2 of 2 for this interval)

Depth Interval (ft) 1109-1115.2

Run No. (s) 3B

Logged by JH, RD

Date 09/21/91

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see "initial frac. log"

DEPTH	FRACTURES: INTENSITY (W M S)	FRACTURES: RANGE OF APERTURES (mm) (1, 2, >2 Specify)	FRACTURES: ORIENTATIONS	GRAPHIC LITHOLOGY (Bottom)	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
0					GW = LT MED GRY (N6) HD VFN - LO MED GR, MOD SORT, SUBANG, GEN MASSIVE W/ V SLI FOLIATION / FLATENING OF DK LITHIC GRS, GOOD - VAGUE GR BOUNDRIES, SILIC OVERGROWTHS, SHARP LITHIC GR BOUNDRIES, TR MICRO ARG STREAKS AND OR/ CARB MATRL COMMON WHT FRANCISCAN CALC // SILIC VEINS, 60 TR FINE DISM PYR & / PYR VEINS.
1			16	GW	
2			17	SILTY	BECOMING SILTY - VFN GR GW @ 1.8' THEN GRADES INTO A V THINLY LAMN & CONVOLUTED ARG.
3			18		ARG = MED DK GRY (N3) HD, BRTL CRUMBLY WHEN DRY, VARIABLE SHADES OF BLK GRY PROB DUE TO ORGANIC CONTENT, SULFIDE RICH, W/ CUBIC PYRITE UP TO 1 mm., MINOR THIN CALC / SILIC VEINS. SHARP CONTACT W/ GW BELOW.
4			19	3mm by 1cm VUG IN CALC VEIN ON OTHER SIDE	
5			20	GW	MASSIVE GW AS ABOVE — NO OBSERVED BEDDING PLANES. CRISS-CROSS OLDER FRANCISCAN VEINS / TR PYR VEINS
6			21	T 30	1 cm THIN LAMINATED ARG BED W/ PYRITE
7			22	GW	GW = AS GW @ 3-6'
8			23	Conca	DARKER PATCH OF SILTY GW
9			24	SILTY	WISPY ARGILLITE STRUCTURE W/ CONVOLUTE LAMN.
10			25	EOC	

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 1115.2 — 1125.2 Run No. (s) 36

Logged by GENE S. / DAVE S. Date 9/21/94

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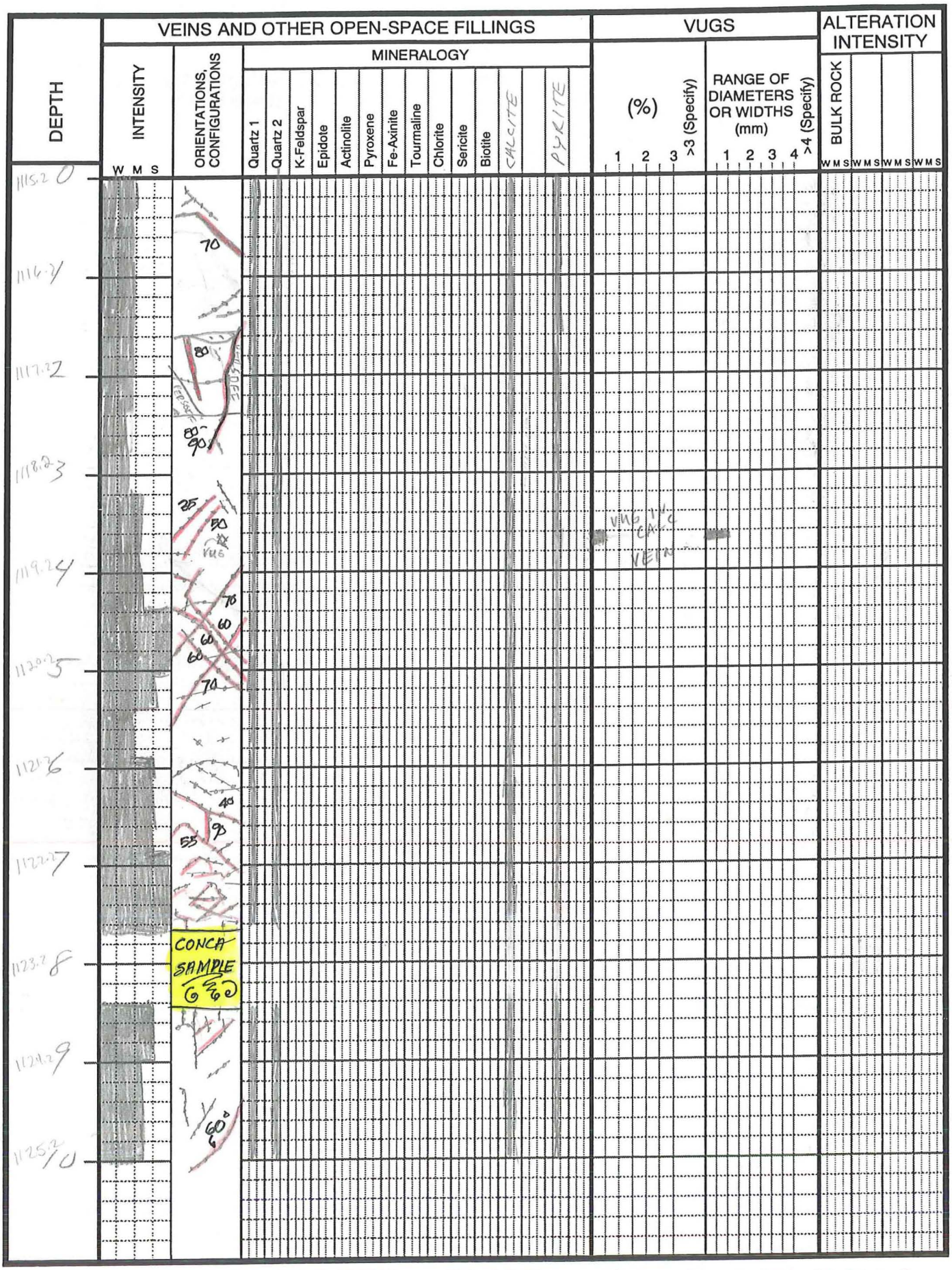

GEYSERS CORING PROJECT . . . SB-15-Deepening

(Sheet 2 of 2 for this interval)

Depth Interval (ft) 1115.2 - 1125.2

Run No. (s) 36

Logged by GENE S. / DAVE S.

Date 9/21/94

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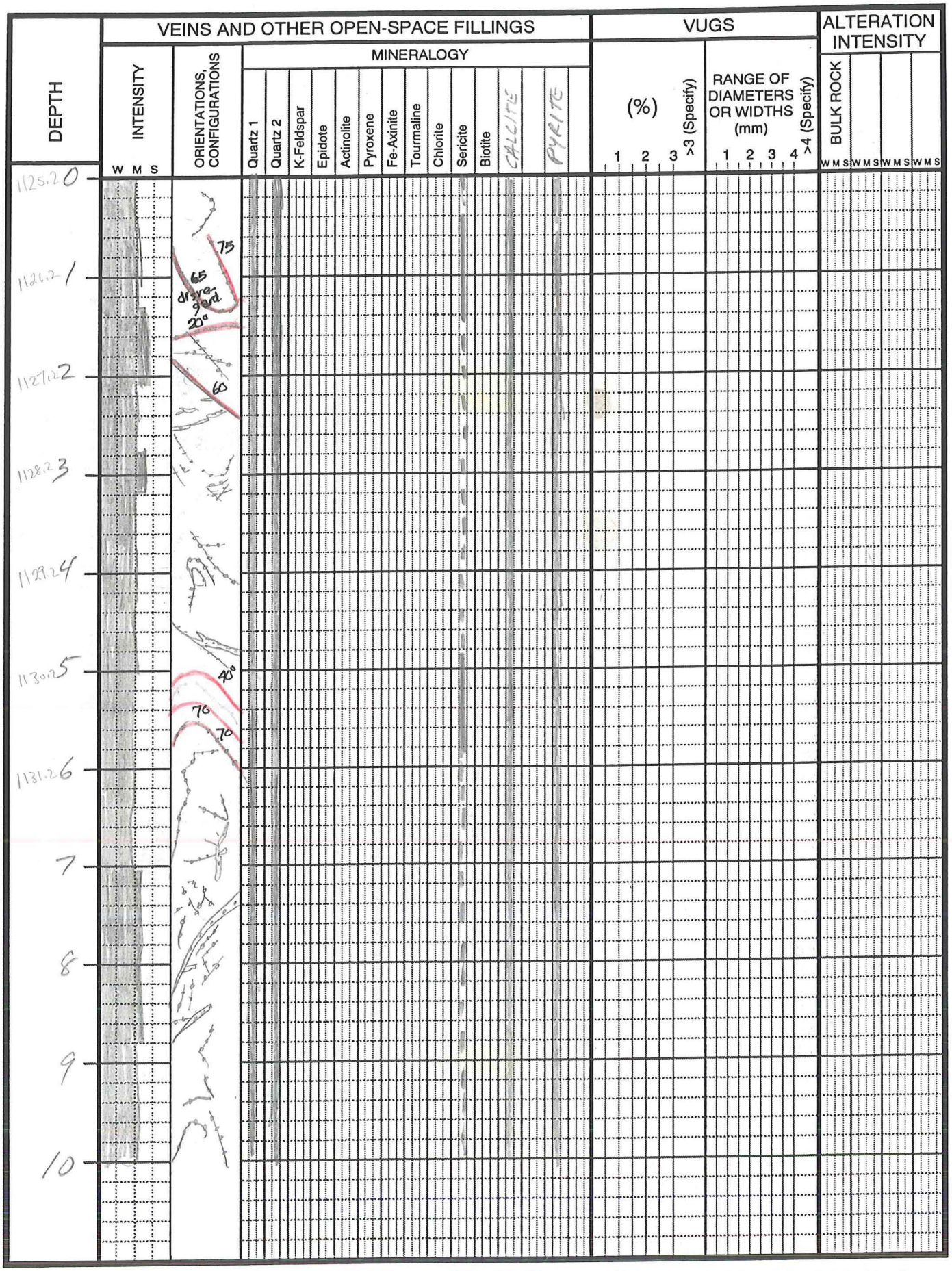
DEPTH	FRACTURES: INTENSITY (W M S)	FRACTURES: RANGE OF APERTURES (mm) 1 2 >2 (Specify)	FRACTURES: ORIENTATIONS	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
1125					MASSIVE GW = LT MED GRY (N6) HD, VFN - LO MED, P SORT, SUBANG PRIMARILY QTZ & FSPR FRAMEWORK GRS, TR DETRITAL EPIDOTE OCC LG LITHIC GRS OF GREENSTONE? V SLI FOLIATION W/ FLATENING OF ARG LITIC GRS, MATRIX APPEARS INHOMOGENEOUS WITH SILICA-CLAY CMT, LOC VERY ARGILLACEOUS MIXT W/ STREAKS OF ARG AND/OR CARB MATRL. MATRIX ALSO INCLUDES CRUSHED INCOMPETENT LITHIC FRAGS
0					
1126			26		
1					
1127			27		
2					
1128			28		
3					
1129			29		
4				GW	GEN GD BR BOUNDARIES, QTZ GR BOUNDRIES SOMETIMES VAGUE W/ SILIC OVERGROWTHS DETRITAL BIOTITE, OVERALL MASSIVE, FEW WISPY ARG STRUCTURE AT BASE OF CORE
1130			30		
5					
1131			31		
6					
1132			32		
7				DRX	(STRONG ALTN, NO PLAGIOCL.)
T5					
1133			33		
8					
DRX					
1134			34		
9					
1135			35		
10				EOC	

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 1125.22 – 1134.9 Run No. (s) 37

Logged by GENE S., DAVE S. Date 9-22-94



GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 2 of 2 for this interval)

Depth Interval (ft) 1125.22 - 1134.9 Run No. (s) 37

Logged by GENE S, DAVE S. Date 9-22-94

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DEPTH	FRACTURES: INTENSITY (W M S)	FRACTURES: RANGE OF APERTURES (mm) 1 2 >2 (Specify)	FRACTURES: ORIENTATIONS	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
				BOTTOM	IN PHOTOS
0			35	GW	GW = LT MED GRY (N-6) HD, VFN - LO CRS GR, V. P. SORT, SUBANG, GEN GD GR BOUNDRIES SERCTZD + CAL + KAOLINITE MATRIX ENORMOUS CALC / QTZ / PYRITE VEINS CUTTING AT 60° AT 1', 1.8', 3.8', 4.1' V ABNT DISM PYR XTLS CONCENTRATED ABOVE THESE VEINS
1			36	Hi Pyr Calc Silic Vein	
2			37	WILLIAM SAMPLE	BEDDING PLANE (POSS GRADED) AT 40°
3			38 60°		SMALL BITS OF ARG INCLUSION IN GW (FLIP-UP clasts) SPALLING OF GW AS INCLUSIONS IN VEIN VEIN MATERIAL HAS BRECCIATED GW & ARG 1cm by 2cm TRANSPARENT QTZ (HYDRO THERMAL QTZ) IN VEIN
4			39 60°	Breccia on	
5			40		ARGILLITE = DK GRY (N2) HD BRTL, PLATY PIECES, THINLY LAMINATED, W/ GOOD PARTING LINEATION SULFIDE VEINS RUNNING PARALELL TO LAMINATIONS DENSE
6			41	ABNT PYR. IN RUBBLE	
7			42		BOTH THESE ARG UNITS LOOK THE SAME INTENSE WAVY SULFIDE VEINS
8			43 MASSIVE GW		HYDROTHERMAL FRACTURE FACE = INCIPIENT VCLAY MNRLZN, PYR ALTERING TO LIMONITE
9			44	PERSOFE	GW = LT MED GRY (N6) HD, VFN - LO MED P SORT, SUBANG, MASSIVE W/ V WEAK FOLIATION AND FLATENING OF LITHIC GRS, SLI VAGUE QTZ GR BOUNDRIES BD LITHIC GR BOUNDRIES, CLAY ALTN OF MATRIX MATERIAL ESPECIALLY NEAR FRACTURES, FEW LARGE CALC SILIC VEINS, ABNT DISM PYRITE ESPECIALLY NEAR VEINS,
10			45		

XRD

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 1134.9 - 1144.9 Run No. (s) 38

Logged by GENE S/ DAVE S. Date 9/22/94

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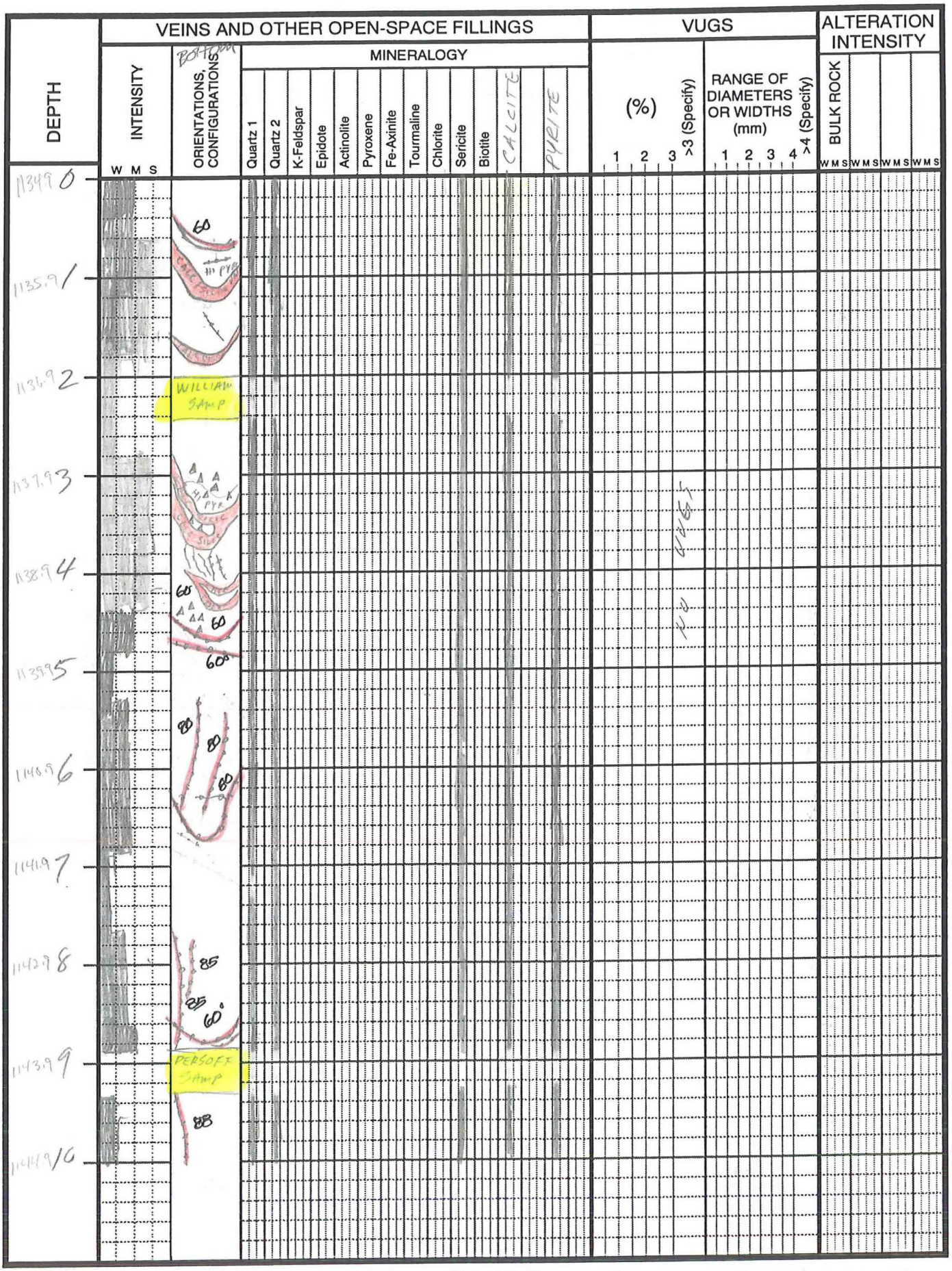

GEYSERS CORING PROJECT . . . SB-15-Deepening

(Sheet 2 of 2 for this interval)

Depth Interval (ft) 1134.9 - 1144.9

Run No. (s) 38

Logged by GENE S. / DAVE S.

Date 9/22/94

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DEPTH	FRACTURES: INTENSITY (W M S)	FRACTURES: RANGE OF APERTURES (mm) 1 2 >2 (Specify)	FRACTURES: ORIENTATIONS	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
0			45		
1			46	1.5' ↑ BONNER SAND	GW CONT AS ABOVE
2			47	GW	
3			48		
4			49		MASSIVE GW = LT MED GRY (N6) HD VFN-LO MED, P SORT, SUBANG, MASSIVE, AREAS W/ WEAK FOLIATION W/ FLATTENING OF LITHIC GRS, SOLID (NO CLAY ALT OR SERICITE IN THIS SECTION) COM THIN CRISS-CROSS CALC SILIC VEINS, COM-ABNT DISM PYRITE, ESPECIALLY NEAR VEINS.
5			50		
6			51	GW	
7			52		
8			53		GW = A/A
9			54		
10			55		

WAVY CORE NOT DRILLING STRAIGHT FRACS ARE TENSION CRACKS

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 1144.9 – 1154.58 Run No. (s) 39

Logged by GENE S., DAVE S. Date 9/22/94

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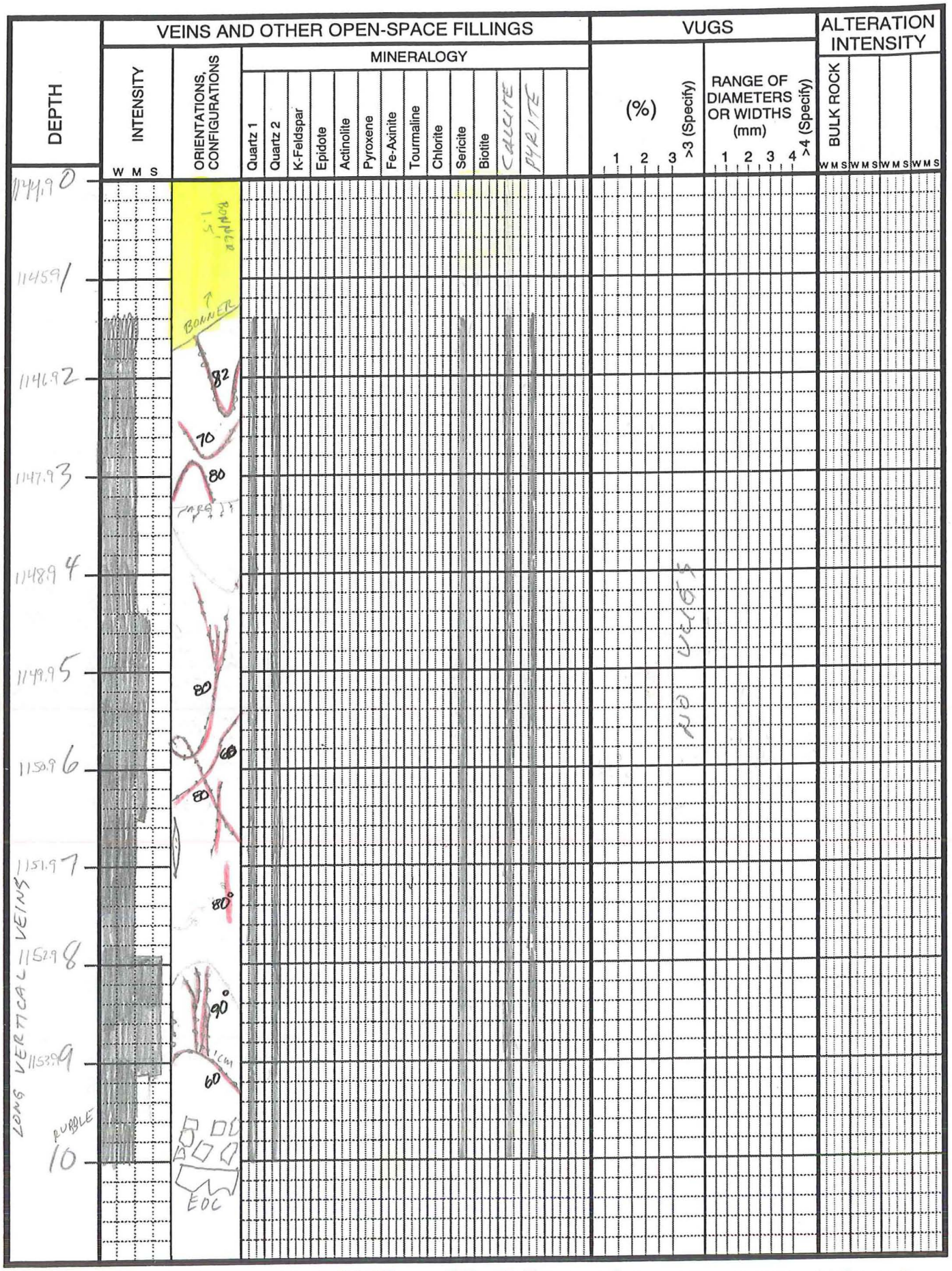

GEYSERS CORING PROJECT . . . SB-15-Deepening

(Sheet 2 of 2 for this interval)

Depth Interval (ft) 1144.9-1154.58

Run No. (s) 39

Logged by GENE S, DAVE S.

Date 9/22/94

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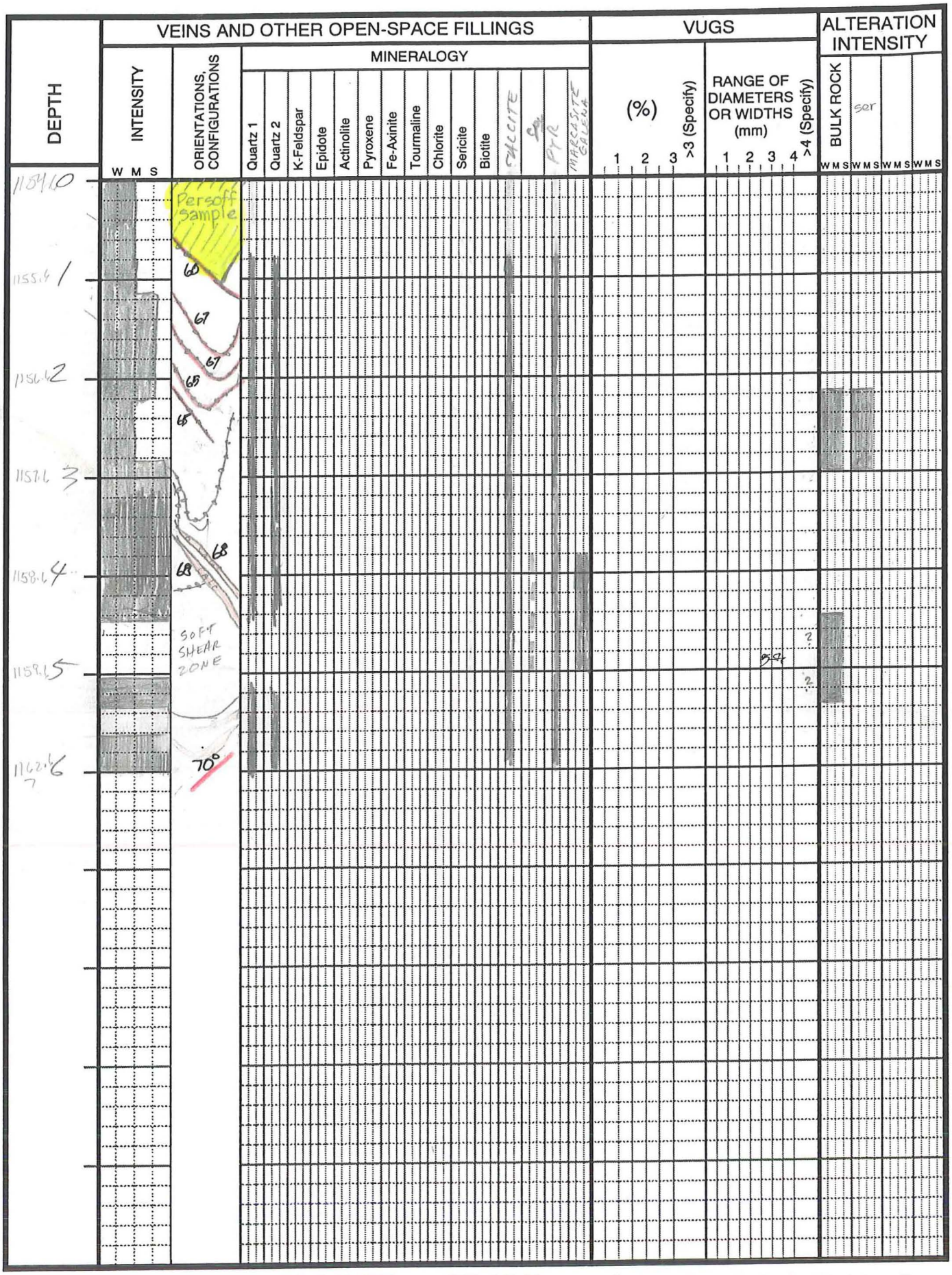
SEE "INITIAL FRACTURE LOG"

DEPTH	FRACTURES: INTENSITY (W M S)	FRACTURES: RANGE OF APERTURES (mm) 1, 2, >2 (Specify)	FRACTURES: ORIENTATIONS	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
0			55	Persoff Sample	
1			56		GW = A/A
2		XRD (TS)	57	PUNKY FRIABLE GW	PUNKY GW = LT MED GRY (N-6) SOFT-FRM, FRI, CRUMBLY, V FN- UP MED GR P. SORT, MASSIVE, SUBANG, PRIMARILY QTZ & FSPR FRAMEWORK GRS, V SLI FOLIATION W/ FRATENING OF ARG LITHIC GRS, MATRIX APPEARS CLAY ALTERED, SERICITE ALTD ABND DISM PYR.
3			58		
4			59	gouge & bx	SHEARED BRECCIA ZONE PROB FAULT V ABNT CALC, V. STRONG REACTION IN HCL, BLADED CALC, POSS GYPSUM/ANHYDRITE, V SULFIDE RICH W/ PYR + MARCASITE POSS GALENA, V. CONTORTED ARGILLITE CALCITE FLOODED FAULT ZONE FINE CLAY MATERIAL SUCKED OUT BY DRILLING ACTION. ~~KAOLINITE~~
5 (TS)		XRD	60	bx formed dom. of vein material; ARG stringer; EOC	
6			61		
			62		

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 1154.58 - 1162.58 Run No. (s) 40

Logged by GENE S, DAVE S. Date 9-22-94



GEYSERS CORING PROJECT . . . SB-15-Deepening

(Sheet 2 of 2 for this interval)

Depth Interval (ft) 1154.58 – 1162.58

Run No. (s) 40

Logged by GENE S, DAVE S.

Date 9-22-94

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DEPTH	FRACTURES: INTENSITY (W M S)	FRACTURES: RANGE OF APERTURES (mm) (1, 2, >2 Specify)	FRACTURES: ORIENTATIONS	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
1162.6 0			63 Beddg 30°		GW - med gry (N-5), hd, vfn to fn grn, silty, sli Argillaceous, appar thin beddg based on Argil horizons dipping at ~30°, fn Qtz, tr calc scattered, rr pyr in matrix, few Arg slivers (1mm)
1163.6 1			64		
1164.6 2			65		GW as abv but less silty, + more typical of GW in upper core (in gen)
1165.6 3			66 45°		Void from core rotating in tube during coring process on a 20 deg vein
1166.6 4			45° Beddg 67		GW - med grey (N-6) w/ appar thick beddg (based on thin Argillaceous horiz zons) spaced ± thick beddg at 45°
1167.6 5			68		GW a/a
1168.6 6			69		
1169.6 7			70		
1170.6 8			71		GW a/a
1171.6 9			72 30°		
1172.6 10			~30° 73	End pc	Calc Hyd Vein mottled w/ laminar ARG Silty/sli ARG GW

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 1162.6 → 1172.3 Run No. (s) 41

Logged by JH, RD Date 9/22/94

High core piece no. = 41-28

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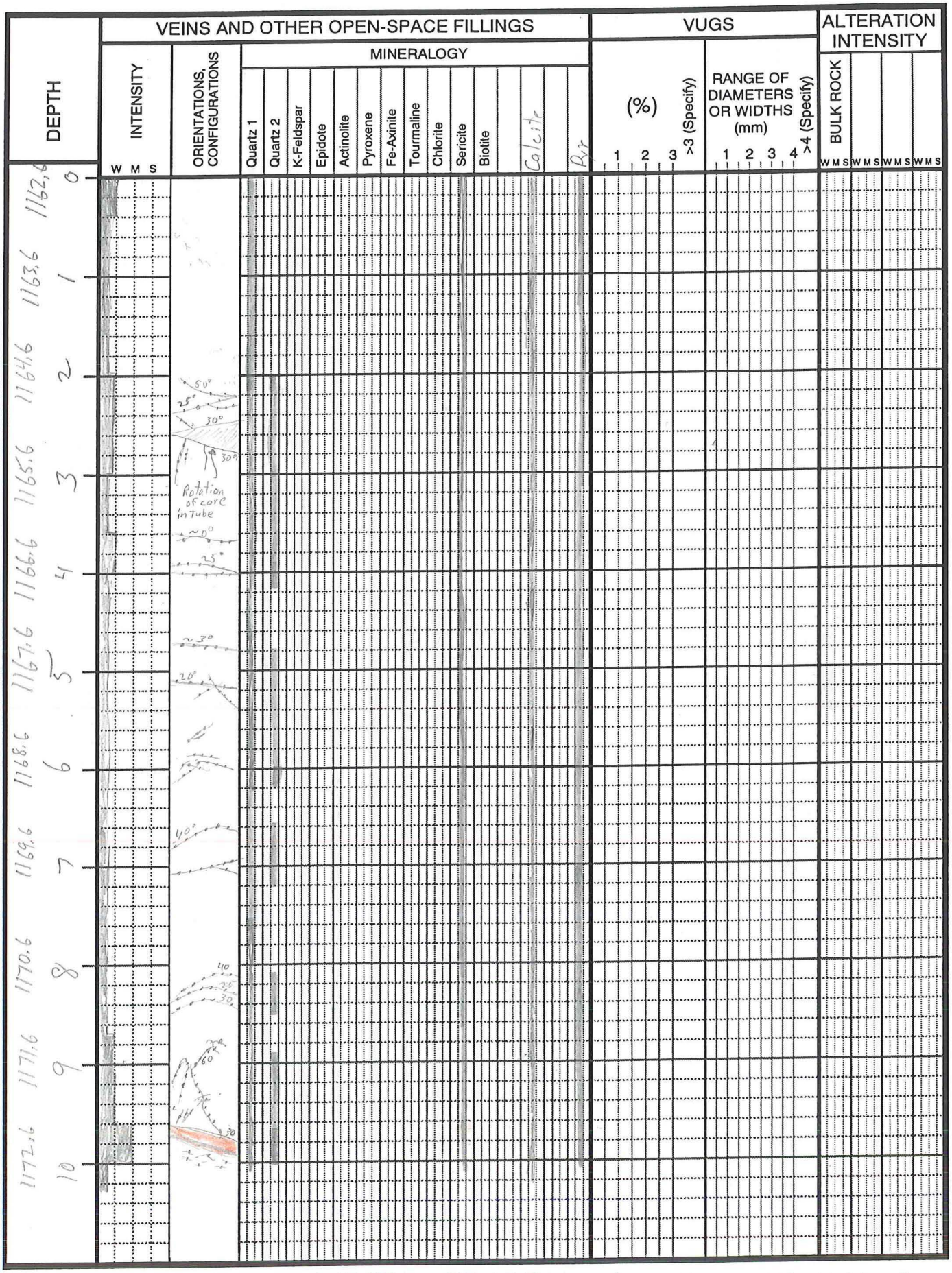

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 2 of 2 for this interval)

Depth Interval (ft) 1162.6 – 1172.3

Run No. (s) 41

Logged by JH, RD

Date 9/22/94

transcribe veins from fraclog

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DEPTH	FRACTURES: INTENSITY (W M S)	FRACTURES: RANGE OF APERTURES (mm) 1 2 >2 (Specify)	FRACTURES: ORIENTATIONS	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
11723 0			73		GW - med gry (N-6), v fn to lwr med gr, hd, homogeneous, largest gr are qtz or calc, otherwise prob fspr, blk slivers Arg, (v fn pyrx?), Vein Surfs prodom bladed calc w/ tr euhedral qtz xtals.
11733 1			74		
11743 2			75		
11753 3					GW as abv
11763 4			76		
			15°		← Bedding plane contact - v fn gr on top / crsr mtrl below
11773 5			77		→ Prob channel of crs gr mtrl bounded on top + bottom w/ gr mtrl
			30°		
11783 6			78		
11793 7			71		
			20°		
11803 8			80		
					GW - med gry but sl. darker, siltier than above.
			Top 25° Btm 40°		
11813 9			81		XRD
					GW as above top of core
11823 10			82		

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 1172.3 - 1182.6 Run No. (s) 42

Logged by TH, RD Date 9/22/94

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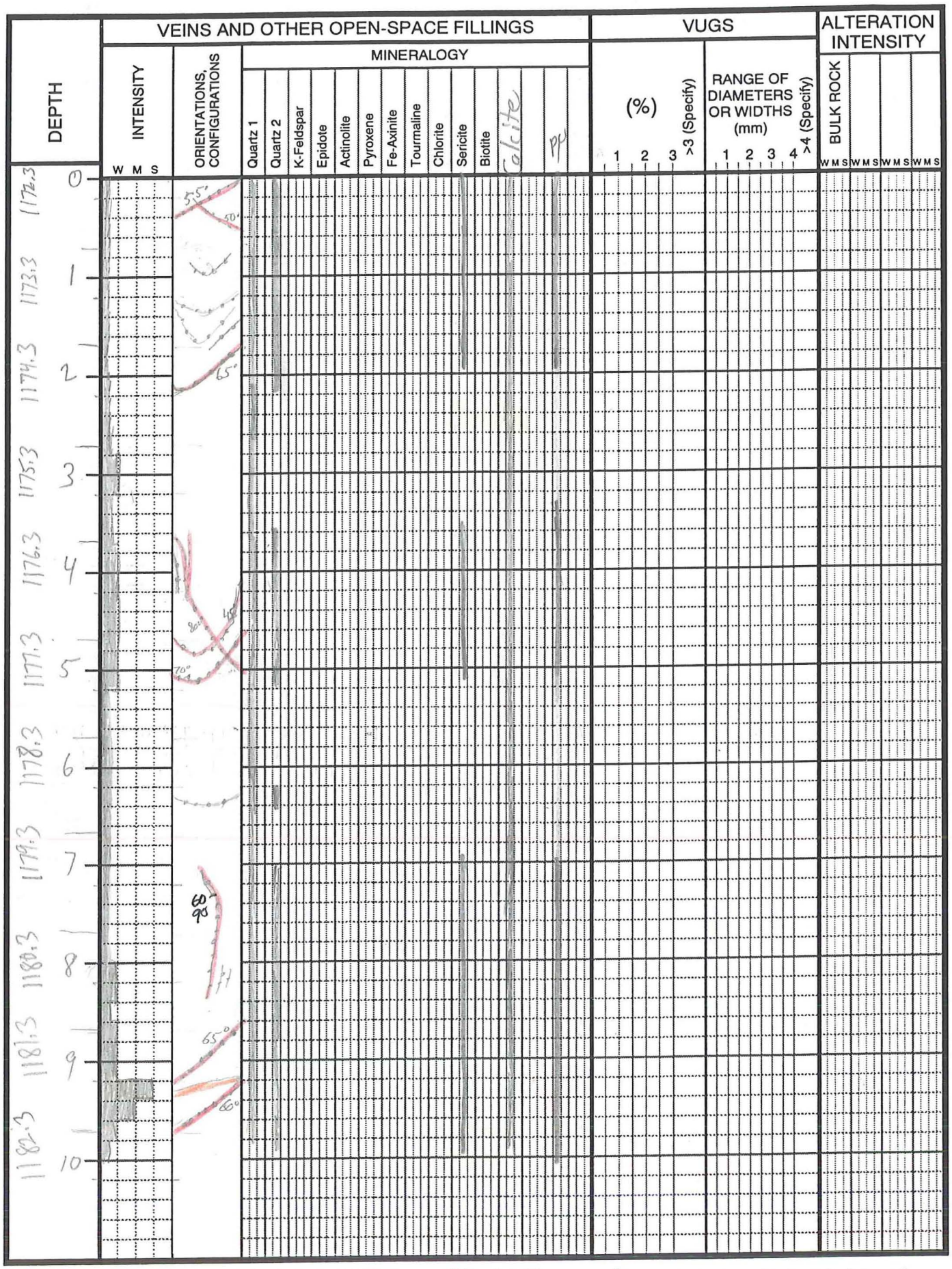

GEYSERS CORING PROJECT . . . SB-15-Deepening

(Sheet 2 of 2 for this interval)

Depth Interval (ft) 1172.3 - 1182.6

Run No. (s) 42

Logged by JH, RD

Date 9/22/94

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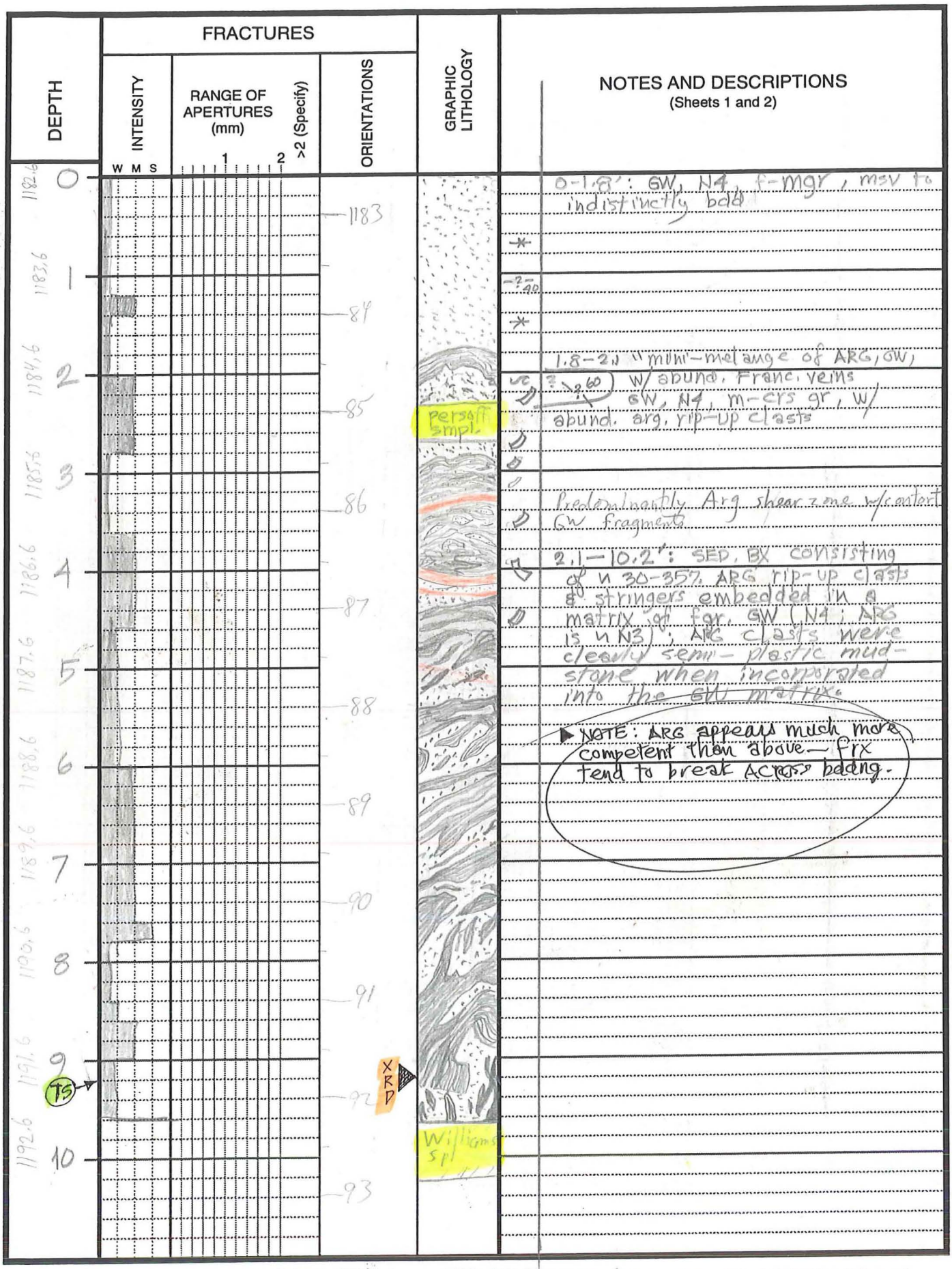

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 1182.6 – 1192.7'

Run No. (s) 43

Logged by RD, JH

Date 09/22/94

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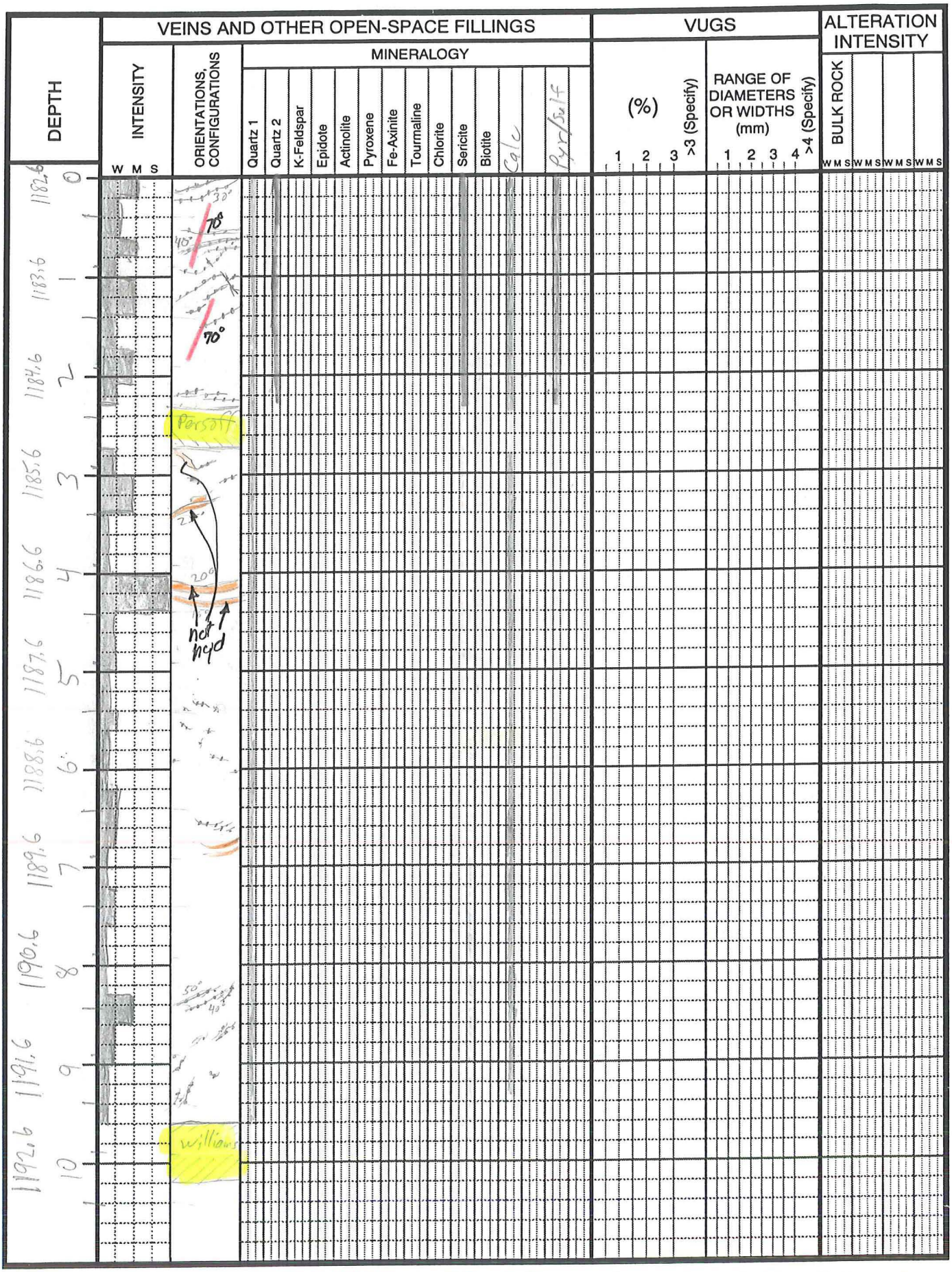

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 2 of 2 for this interval)

Depth Interval (ft) 1182.6 – 1192.7 Run No. (s) 43

Logged by PH, RD Date 9/22/94

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see "initial fracture log"

DEPTH	FRACTURES: INTENSITY (W M S)	FRACTURES: RANGE OF APERTURES (mm) (1, 2, >2 Specify)	FRACTURES: ORIENTATIONS	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
0					0-0.70' ARG rubble
					0.70-7.7 = Sed. bx consisting of GW and ARG, same as prior run
1			93		ANG. RIP-UP CLASTS WELL SEALED IN GW, COMMON SMALL FRAGMENT 2 CM. THE ARG CLAST HAVE FINE LAMINATION, FRANCISCAN VEINS AT FIRST DON'T APPEAR TO CUT INTO THE ARG CASTS BUT IN A FEW PLACES THEY DO EXCEPT THEY ARE MUCH THINER DUE TO DENSER MATERIAL. THE GW HAS ABNT SMALL BLEBS OF CALCITE WHICH ARE INTERSTITIAL TO THE ARG CLASTS. RARE FINE DISM PYR (HARD TO FIND ANY PYR IN THIS CORE).
2			94 NOTE: WAVY CORE! NOT STRAIGHT AND PERPENDICULAR PROB CAUSING FRACS.		
3			95		
4			96		
5			97		
6			98		Perssht = mp'
7			99		ARG = DK GRY (N3-2) HD DENSE, BRTL W/ HACKLEY BREAK, CRUMBLY IN PART WHEN DRY, FINE LAMINATIONS MINOR WHT CALC/SILIC VNG RARE DISM PYR.
8			1200		
9			1		GW/SILTSTONE (N4)
10			2		INTENSE WHT CALC/SILIC VNG
			3		

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 1192.7 – 1202.62 Run No. (s) 44

Logged by DAVE SEAR Date 9-22-94

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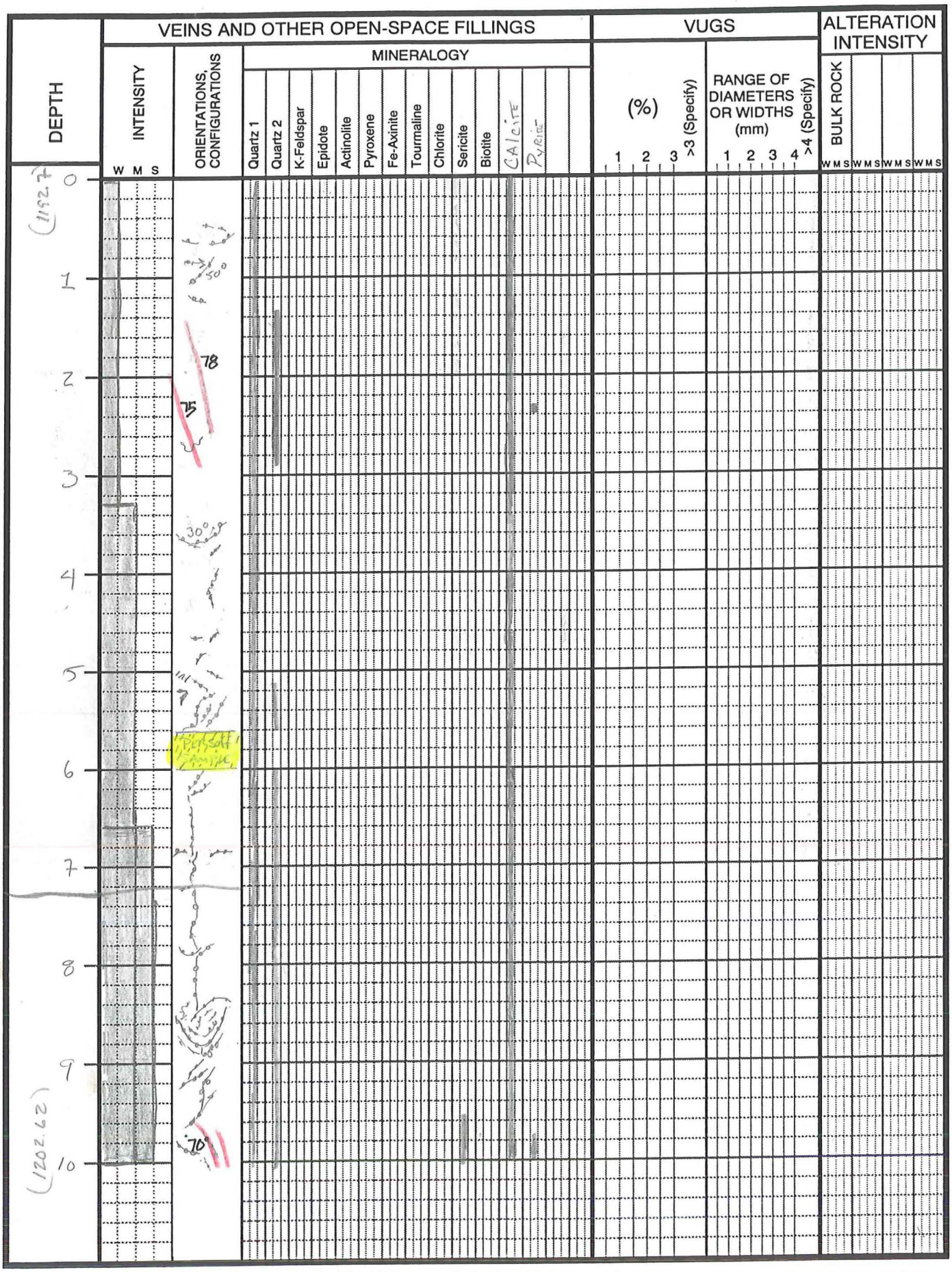

GEYSERS CORING PROJECT . . . SB-15-Deepening

(Sheet 2 of 2 for this interval)

Depth Interval (ft) 1192.7 - 1202.62

Run No. (s) 44

Logged by DS GS

Date 9/22/94

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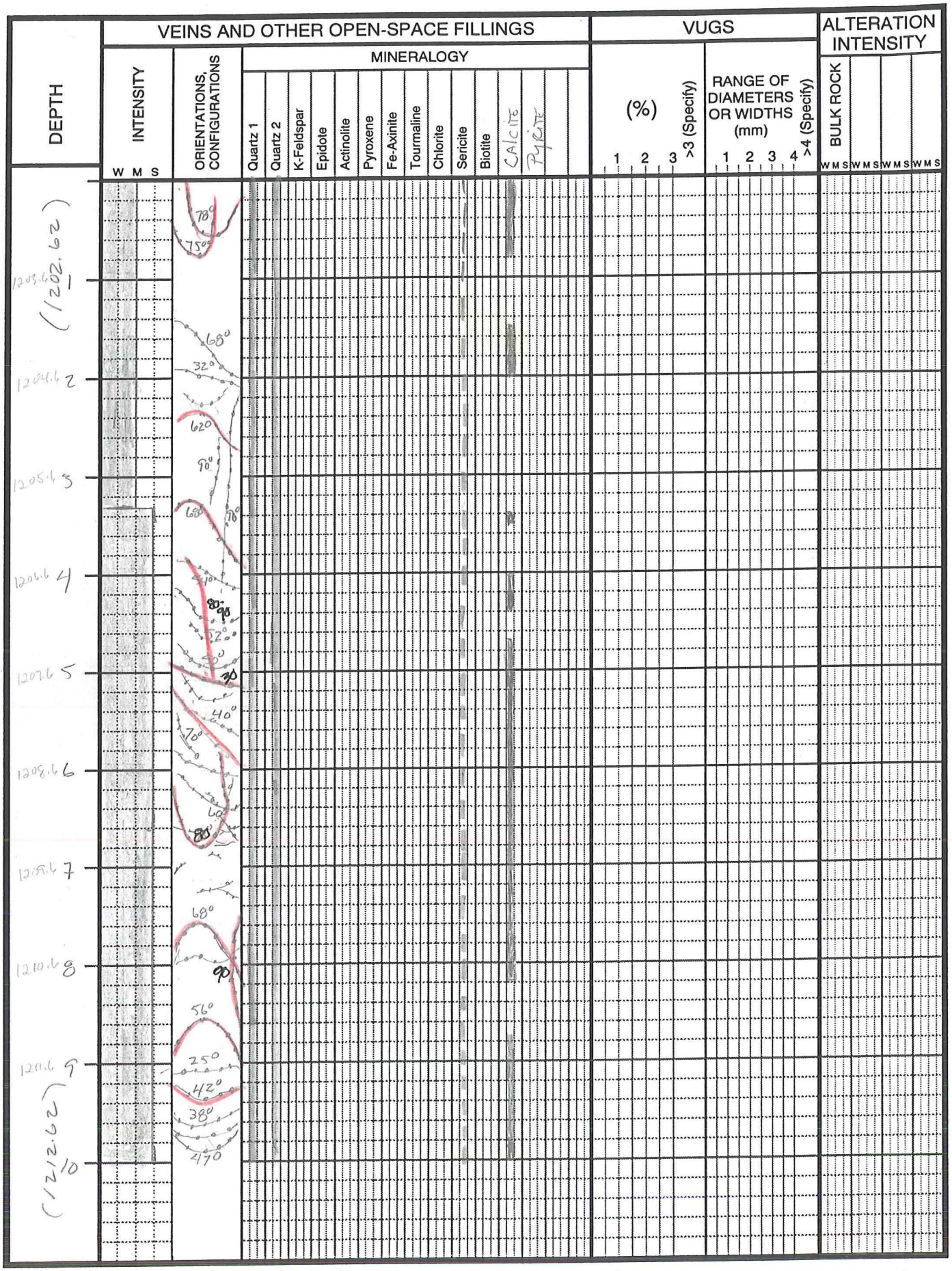
DEPTH	FRACTURES: INTENSITY (W M S)	FRACTURES: RANGE OF APERTURES (mm) (1, 2, >2 Specify)	FRACTURES: ORIENTATIONS	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
1202 0			-03		NOTE: NO PYR SEEN.
1203 1			-4		
1204 2			-5		MASSIVE GW = MED GRY (N4) HD, V.FN-UP MED GR, P SORT SUBANG, OCC LG GRNISH LITHIC GRS, GEN MASSIVE V SLI FOLIATION APPARENT FROM FLATTENING OF MALLEABLE
1205 3			-6	GW	ARG LITHIC GRS AND STREAKS OF ARG MATERIAL QTZ & FSPR FRAMEWORK
1206 4			-7		GRS, SILIC/CLAY MATRIX GR/ LITHIC GR BOUNDRIES VAQUE QTZ GR BOUNDRIES W/ SILICIC OVERGROWTHS SCAT BLEBS OF INTER
1207 5			-8		STITIAL CALC (i.e. MICRO-SCOPIC) V. TINY MICRO-SCOPIC FRACTURES THAT FIZZ W/ HCL, LOC VARIABLE AMTS / ARG MATRIX
1208 6			-9		GIVING PATCHES OF DK GRY UNDERSCOPE, TR DK BRN STREAKS (POSS RELIC BIOTITE FLAKES?) NONE - V. RARE DISM PYR, WISPY NON-LAMINATE, ARGILLITE STRUCTURES @ 7-7.2'
1209 7			-10		VAGUE GRADED BEDDING PLANES DUE TO SILTY / FN
1210 8			-11		GR AREAS AND MED GR AREAS I.E. GRADED BEDDING IN LOWER 2' OF CORE.
1211 9			ooo T 80	GW	MOD AMTS WHT CALC/SILIC FRANCISCAN VEINS 2mm TO 1cm THROUGH OUT CORE COM ART. FRACS PERP. TO CORE PROB CAUSED WHEN DRILLING
1212 10			-12	EOC	

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 1202.62 - 1212.62 Run No. (s) 45

Logged by DAVE SEPR Date 9/22/94



GEYSERS CORING PROJECT . . . SB-15-Deepening

(Sheet 2 of 2 for this interval)

Depth Interval (ft) 1202.62 – 1212.62

Run No. (s) 45

Logged by DS, GS

Date 9/22/94

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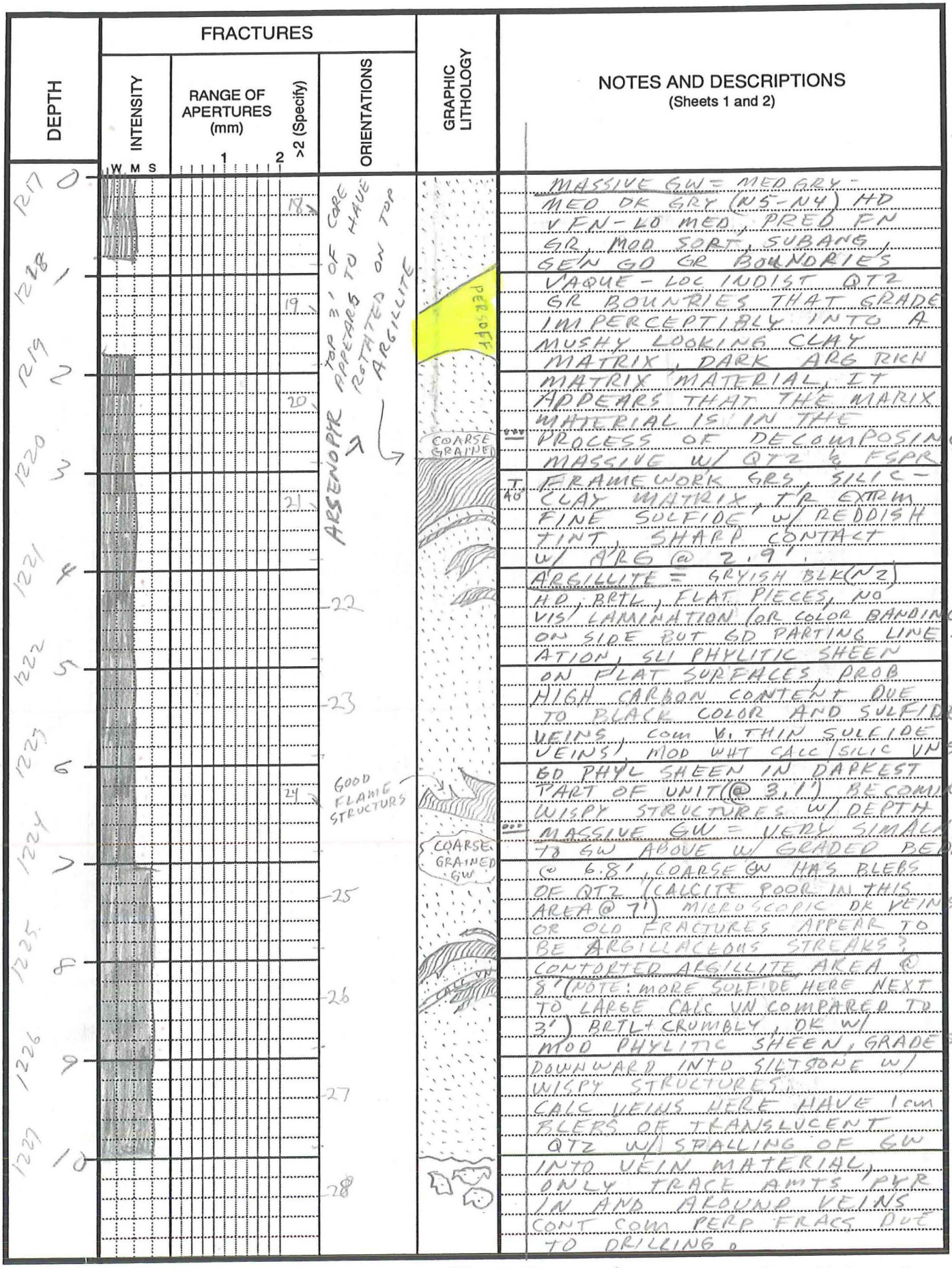

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 1217.6' – 1227.6' Run No. (s) 47

Logged by DAVE SERA Date 5/23/94

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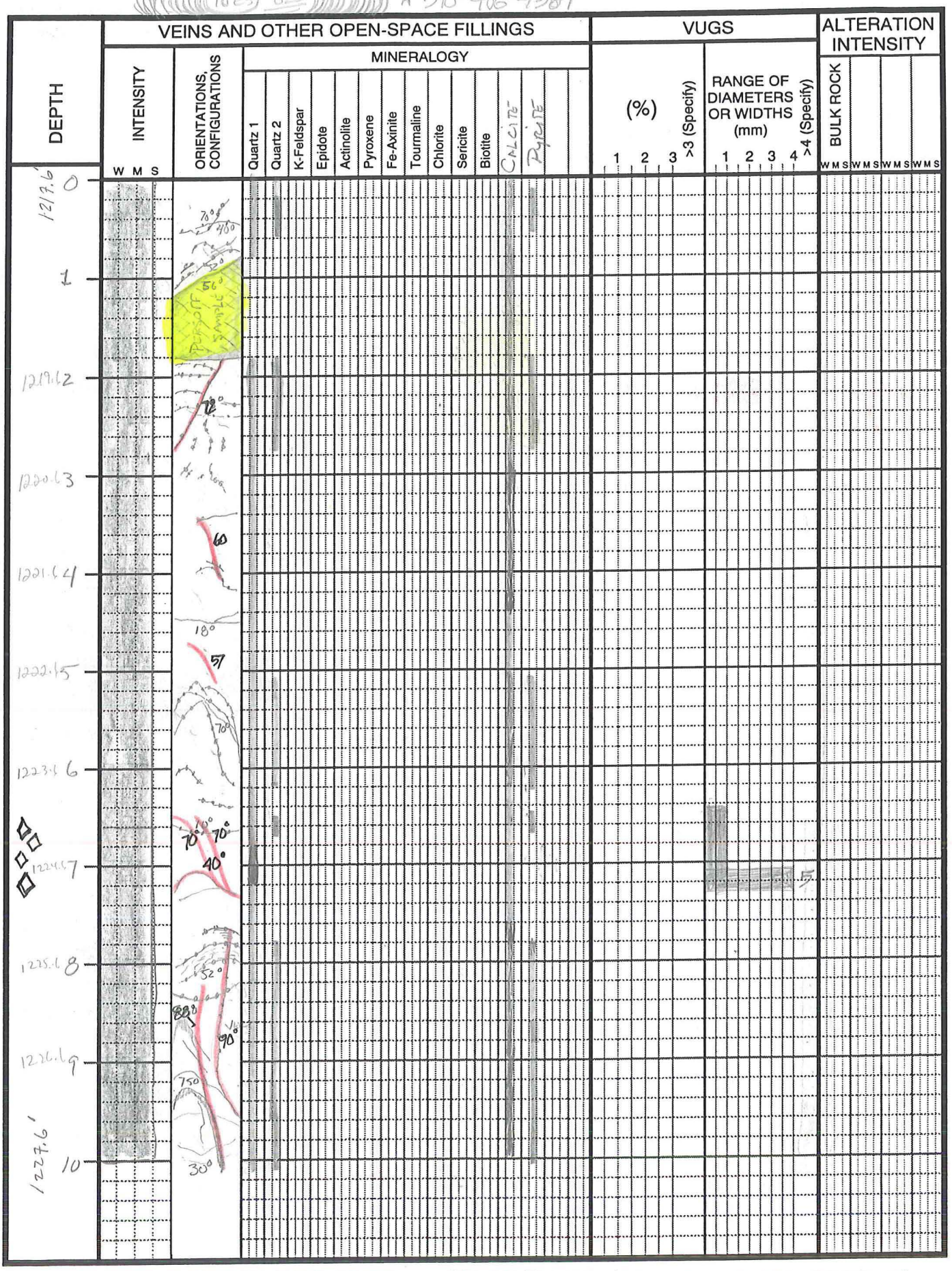
5' BONNER SAMPLE RUN# 46

(Tues) 825 * 516-486-4584



GEYSERS CORING PROJECT . . . SB-15-Deepening

(Sheet 2 of 2 for this interval)

Depth Interval (ft) 1217.6' – 1227.6'

Run No. (s) 47

Logged by DS/GS

Date 9/23/94

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DEPTH	FRACTURES: INTENSITY (W M S)	FRACTURES: RANGE OF APERTURES (mm) (1, 2, >2 Specify)	FRACTURES: ORIENTATIONS	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
(1227.6') 1227			28	GW	MASSIVE GW = MED DK GRY (N-4) V-FN-LO MED GR, DOM FN HD MOD SORT, SUBANG, GD ER BOUNDRIES, FA-VAGUE QTZ GR BOUNDRIES, NOT MUCH SILIC OVERGROWTHS, ARG-ILACEOS MATRIX (INCR COMPARED TO ABOVE) COM MICROSCOPIC ARG STREAKS MASSIVE W/ QTZ & FSPR FRAMEWORK GRS, RX MASS IS HIGHLY CALC TING INTERSTITIAL BLEBS OF CALC (WILL FIZZ ON FRESHLY BROKEN SURFACE THAT IS NOT NEAR A VEIN) SILICIC-CLAY MATRIX, TR EXTRM FINE PYR (INCR TO ABNT NEAR VEINS 2-4 cm CALC VEINS W/ RECENT FRACTURES IN THE CENTER W/ TRANSLUCENT QTZ COMMON DK STREAKS OLDER FRACTURES?
1228			29	CONCA SAMPLE	
1					
1229			30	CALCITE/QTZ VN RECENT FRAC	
2 TS XRD	W	1 ND		HULEN SAMPLE	
1230					
3			31		
1231					
4			32		
1232					
5			33		
1233					MASSIVE GW W/ NO GRADED BEDDING OBSERVED
6			34	GW	
1234					
7 VN XRD			35		
1235					
8			36		CONT MASSIVE GW A/A
1236					
9			37		
1237					
(1237.6') 10				EOC	

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 1227.6' – 1237.6' Run No. (s) 48

Logged by DAVE SERR Date 9/23/94

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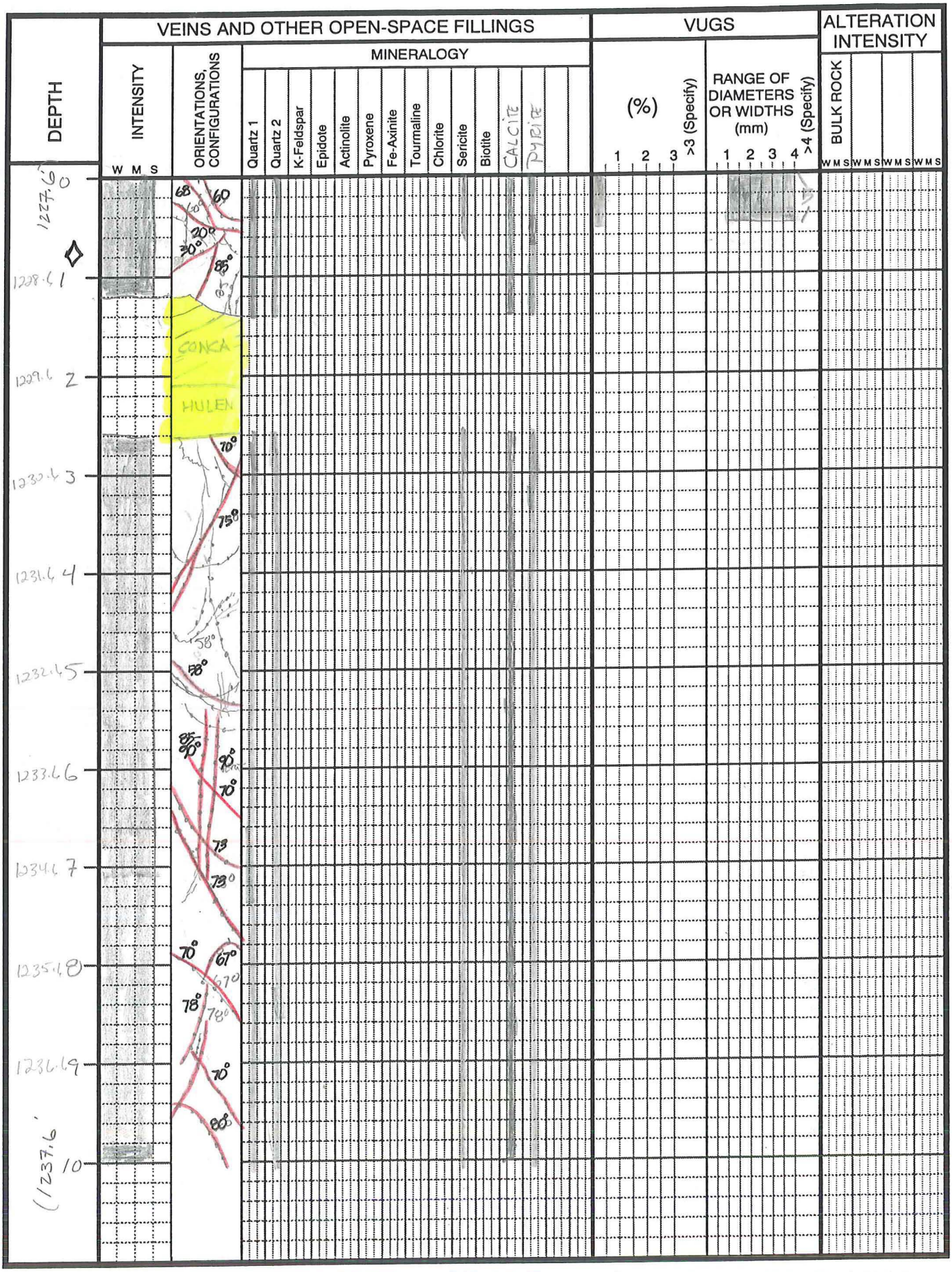

GEYSERS CORING PROJECT . . . SB-15-Deepening

(Sheet 2 of 2 for this interval)

Depth Interval (ft) 1227.6' - 1237.6'

Run No. (s) 48

Logged by

Date 9/23/94

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hydroth. veins

DEPTH	FRACTURES: INTENSITY (W M S)	FRACTURES: RANGE OF APERTURES (mm) 1 2 >2 (Specify)	FRACTURES: ORIENTATIONS	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
0			38		GW, NA, ufgr - lmgr, msv w/ wispy, indistinct bdng — dense, v competent — no ARG (actually quite monotonous) ("hungry" rock)
1			39		numerous frx developed along existing high ∠ veinlets
2			40		
3			41		
4			42		
5			43		
6			44		rare untractured pc.
7			45		
8			46		ARG stringer
9			47		PERSOFF SMPL
10					

1238 1239 1240 1241 1242 1243 1244 1245 1246 1247

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 1237.6 - 1247.8'

Logged by JH, RD

Run No. (s) 49

Date 09/23/94

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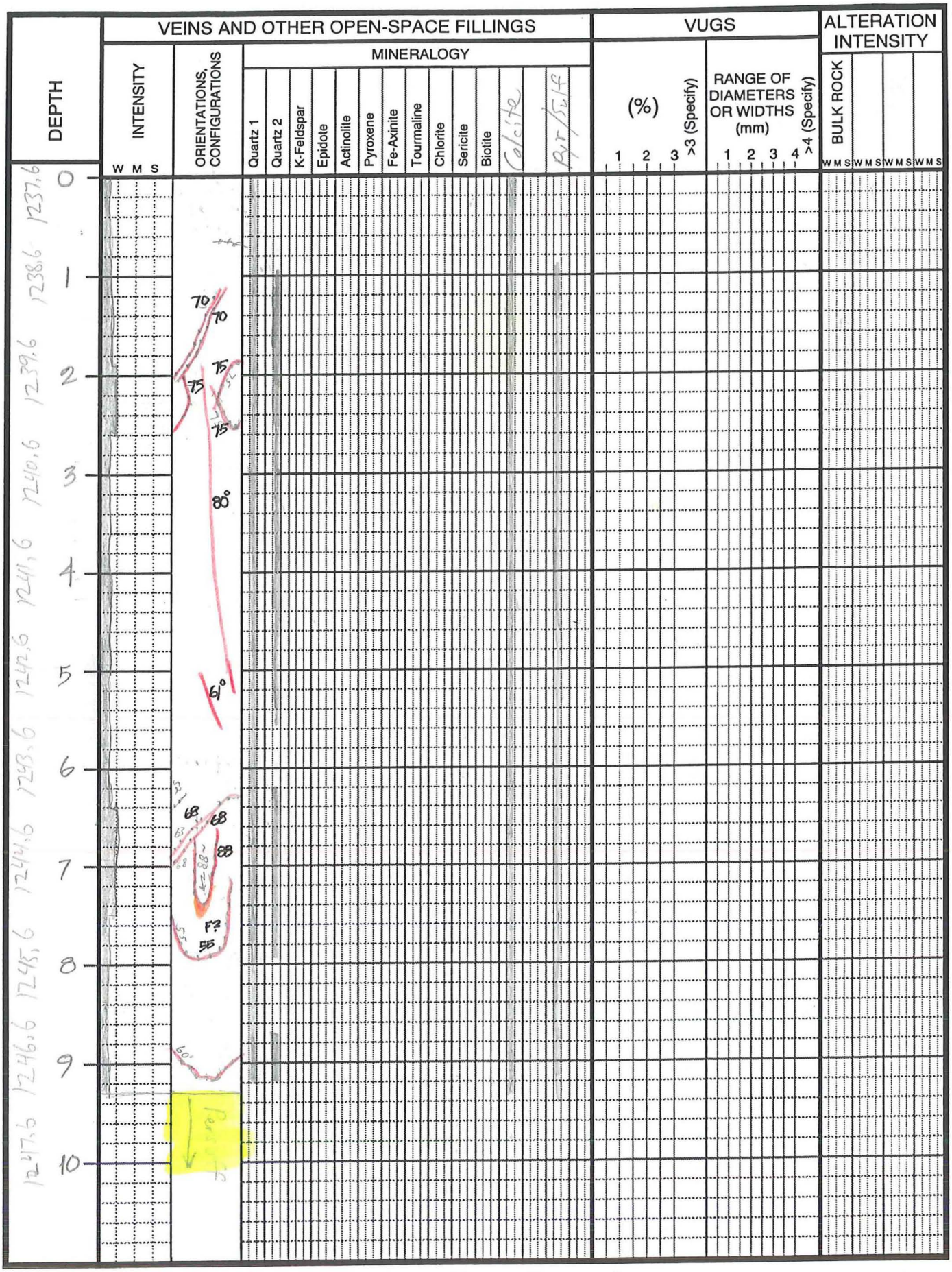

GEYSERS CORING PROJECT . . . SB-15-Deepening

(Sheet 2 of 2 for this interval)

Depth Interval (ft) 1237.6 - 1247.8'

Run No. (s) 49

Logged by JH, RD

Date 09/23/94

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DEPTH	FRACTURES: INTENSITY (W M S)	FRACTURES: RANGE OF APERTURES (mm) 1 2 >2 (Specify)	FRACTURES: ORIENTATIONS	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
1247.8 (TS)			-48 (F1) XRD		GW - med gray (N-5), v fn to med gr, hd, dense, mass bedg w/ drkr silty convoluted lines running sub-parallel to the core axis
1248.8			-49		
1249.8			-50		* GW - as abv w/ occ to rr crsr pockets a couple inches long
1250.8			-51		
1251.8			-52 ~55°		* Convoluted ARGillite
1252.8			-53 ~65°		*
1253.8			-54 45° ~55°		ARG dipping roughly 50° w/ veins + fract along bedg.
1254.8			-55		*
1255.8			-56		GW as abv
1256.8			-57		
1257.8			-58		

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 1247.8 – 1257.8 Run No. (s) 50

Logged by JH, RD Date 9/23/94

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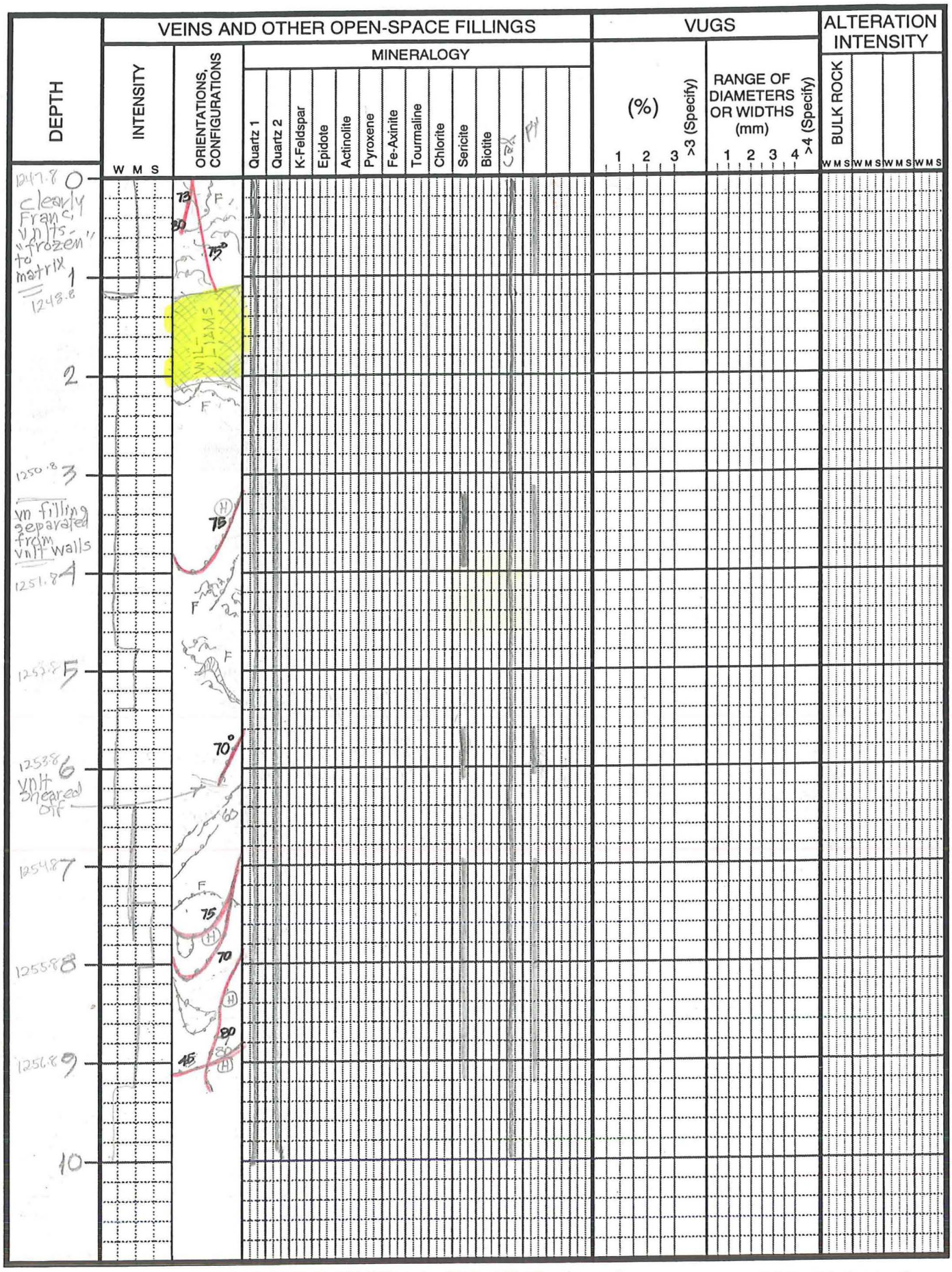

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 2 of 2 for this interval)

Depth Interval (ft) 1247.8 - 1257.8

Run No. (s) 50

Logged by JH

Date 09/23/94

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DEPTH	FRACTURES: INTENSITY (W M S)	FRACTURES: RANGE OF APERTURES (mm) 1 2 >2 (Specify)	FRACTURES: ORIENTATIONS	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
0		(CRG)	58 XRD		
1			59		
2			60		
3			61		
4			62		
5			63		abund. bldd. cal. & prism. qtz. illite mostly pre-dates cal / POSS. FLUID ENTRY
6			(vn) 64 XRD		
7			65		
8			66		
9			67		
10					

(FI) (TS)

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 1257.8 – 1267.8 Run No. (s) 51

Logged by RD, JH (see Jeff) Date 09/23/93

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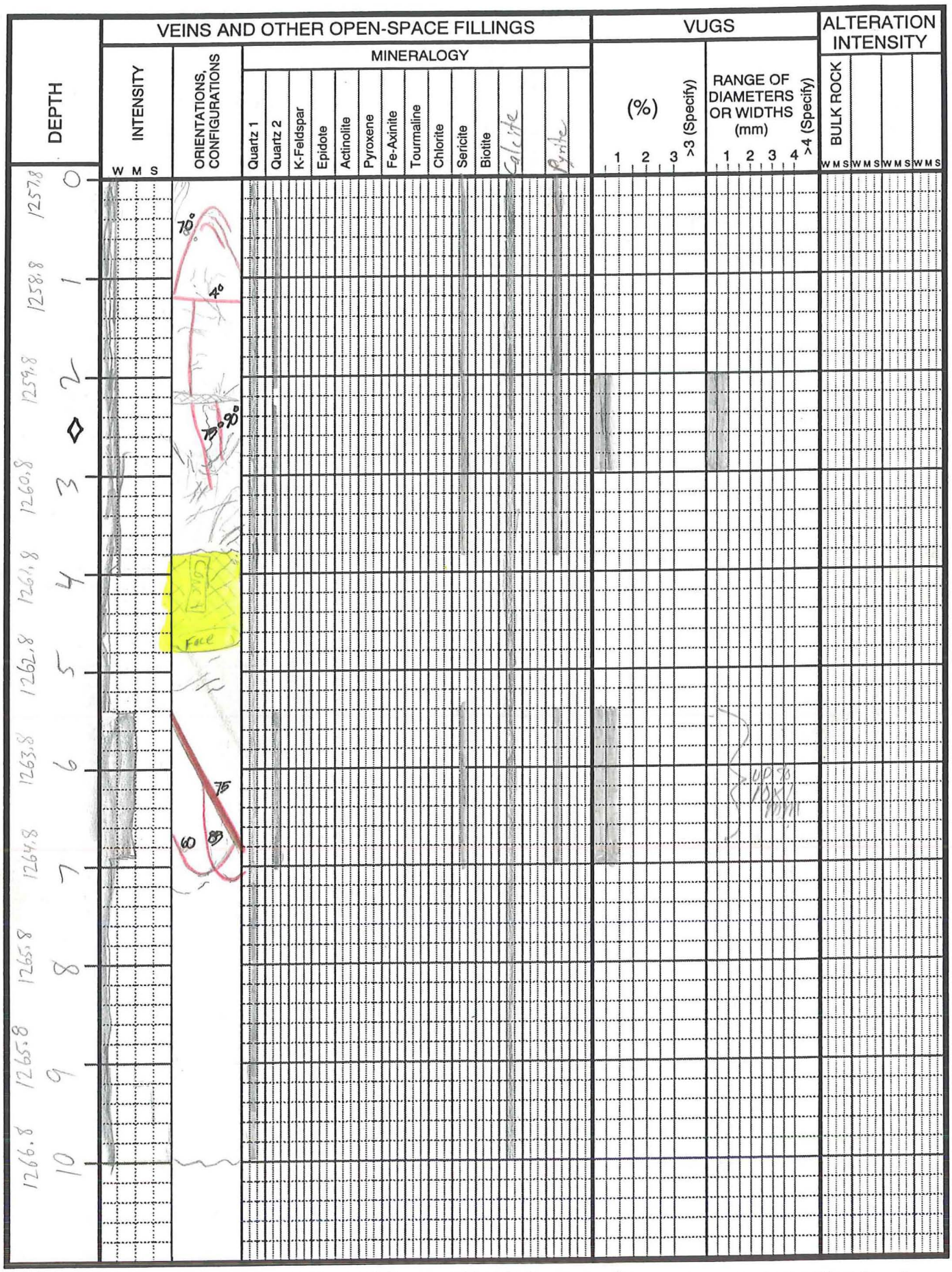

GEYSERS CORING PROJECT . . . SB-15-Deepening

(Sheet 2 of 2 for this interval)

Depth Interval (ft) 1257.8 - 1267.8

Run No. (s) 51

Logged by RD, JH

Date 9-23-94

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DEPTH	FRACTURES: INTENSITY (W M S)	FRACTURES: RANGE OF APERTURES (mm) 1 2 >2 (Specify)	FRACTURES: ORIENTATIONS	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)

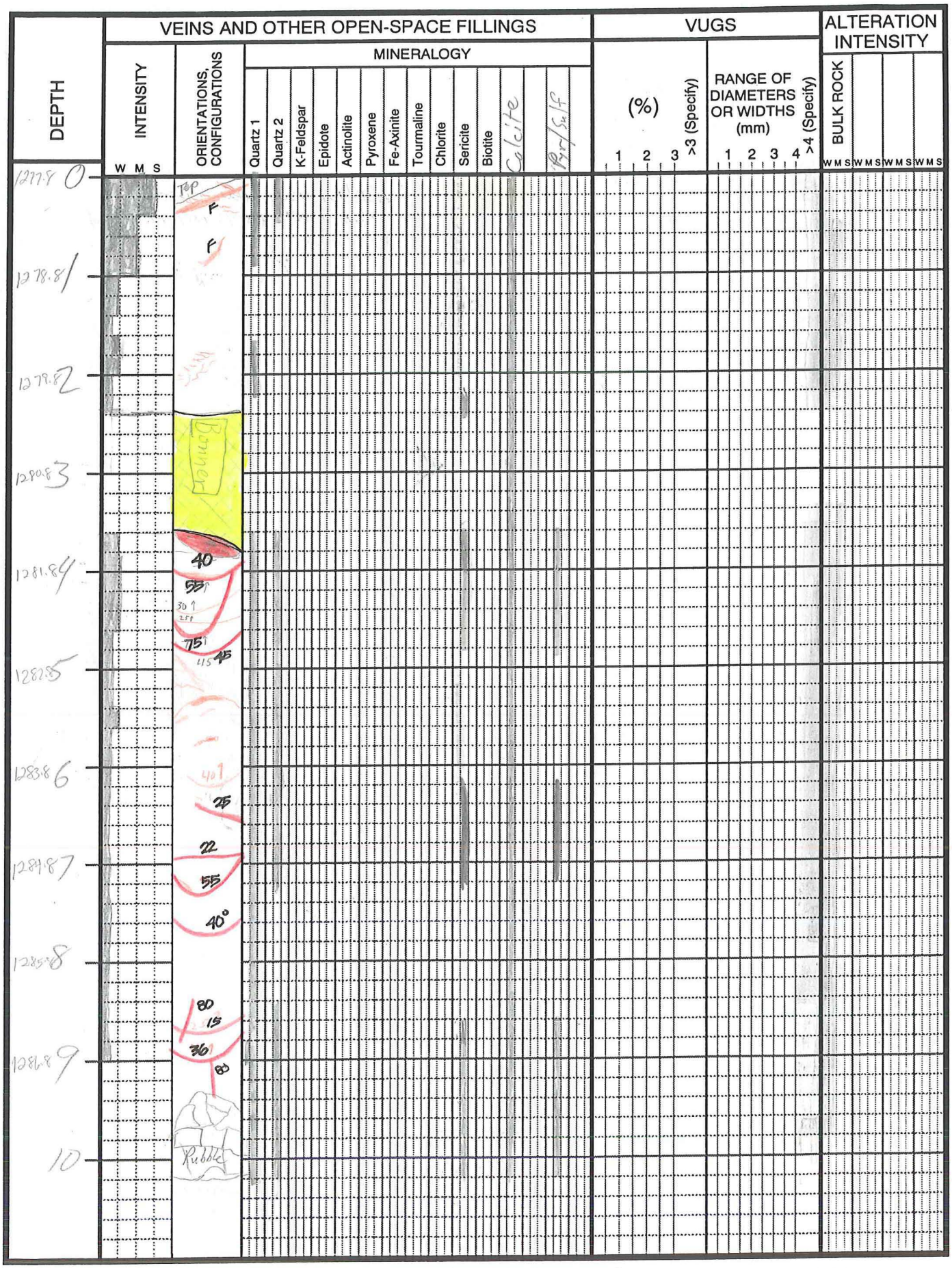
FRACTURES ← see "initial frx log"

Depth	Core depth	Notes and descriptions
0 (1268)	-68	0–0.9': GW intbdd w/ arg, w/ strong Franc. vng. in upper ARG. stringer
1 (1269)	-69	0.9–10L': GW, N4, mostly mgr to vfgr, locally GW SLTS — vague, phantom contortions, mostly indistinct bdding graded bdding. v. common (-?- ∠50°; -?- ∠50)
2 (1270)	-70	vnlts, which along frx have commonly developed; are principally high-∠ hydrothermal cal ± qtz vnlts *
3 (1271)	-71	vc
4 (1272)	-72	
5 (1273)	-73	b, s, & t
6 (1274)	-74	← -?- ∠50
7 (1275)	-75	
8 (1276)	-76	vc
9 (1277)	-77	9.15–9.9' GW, aa, ex; frx surf. smeared w/ arg. & disc. scabby pyr.
TS 10 (1278)	-78	ORG

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 1267.8 – 1277.8 Run No. (s) 52

Logged by JH, RD Date 9-24-94



GEYSERS CORING PROJECT . . . SB-15-Deepening

(Sheet 2 of 2 for this interval)

Depth Interval (ft) 1277.8 – 1287.9

Run No. (s) 53

Logged by RD, JH

Date 9-53-94

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DEPTH	FRACTURES: INTENSITY (W M S)	FRACTURES: RANGE OF APERTURES (mm) 1 2 >2 (Specify)	FRACTURES: ORIENTATIONS	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
1288 0			88	PERSOFF	SIDE 2 IN PHOTOS (06/28/95) vugs developed in crushed GW fract. interleaved w/argillite
1289 1			89		LARGE VUG ON SIDE 1 INTERLAMINATED GW & ARG (N2) BEDDING PLANE FRAC & FILL (W/ VEINLETS SHOOTING UP INTO GW BUT NOT INTO DENSER ARG.
1290 2			90		FRONT SIDE EUHEDRAL QTZ 2mm LONG MASSIVE GW F/ 22 TO END SEE DISCRIPT BELOW.
1291 3			91		HOT BED OF EUHEDRAL QTZ DOWN IN THIS CRACK X R D
1292 4			92		
1293 5			93		MASSIVE GW = MED LT GRY (N6) RD V FN - UP MED GR, P SORT SUBANG VAGUE QTZ GR BOUNDRIES, RD LITHIC GR BOUNDRIES, SLI SILIC OVERGROWTHS, DK ARG MATRIX, COM MICROSCOPIC ARG STREAKS, MASSIVE V SLI FOLIATION W/ FLATENING OF MALLEABLE LITHIC GRS. QTZ & FSPR FRAMWORK GRS, SCAT INTERSTITIAL BLEBS OF WHT CALC ON FRESHLY BROKEN SURFACE NOT NEAR VEINS, TR SCAT PALE GRN LITHIC GRS, TR DISM PYR ONLY ASSOC W/ VEINING, MASSIVE HOMOGENEOUS UNIT F/ 7.2 TO EOC NO GRADED BEDDING OUTER SURFACE OF VEIN HAS PALE GRN TINT FROM THIN COATING OF PREHNITE (MAY BE EPIDOTE) @5' FINE DISM PYR & SCAT PIN POINT DK GRY SPOTS CONTINUED COM WHT CALC / SILIC FRAMESCAN VEINS SOME TIMES VERTICAL.
1294 6			94	GW	
1295 7			95		
1296 8			96		
1297 9			97		
1298 10			98	WILLIAMS	

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 1287.9 - 1298.0 Run No. (s) 54

Logged by DAVE SERR Date 9-23-94

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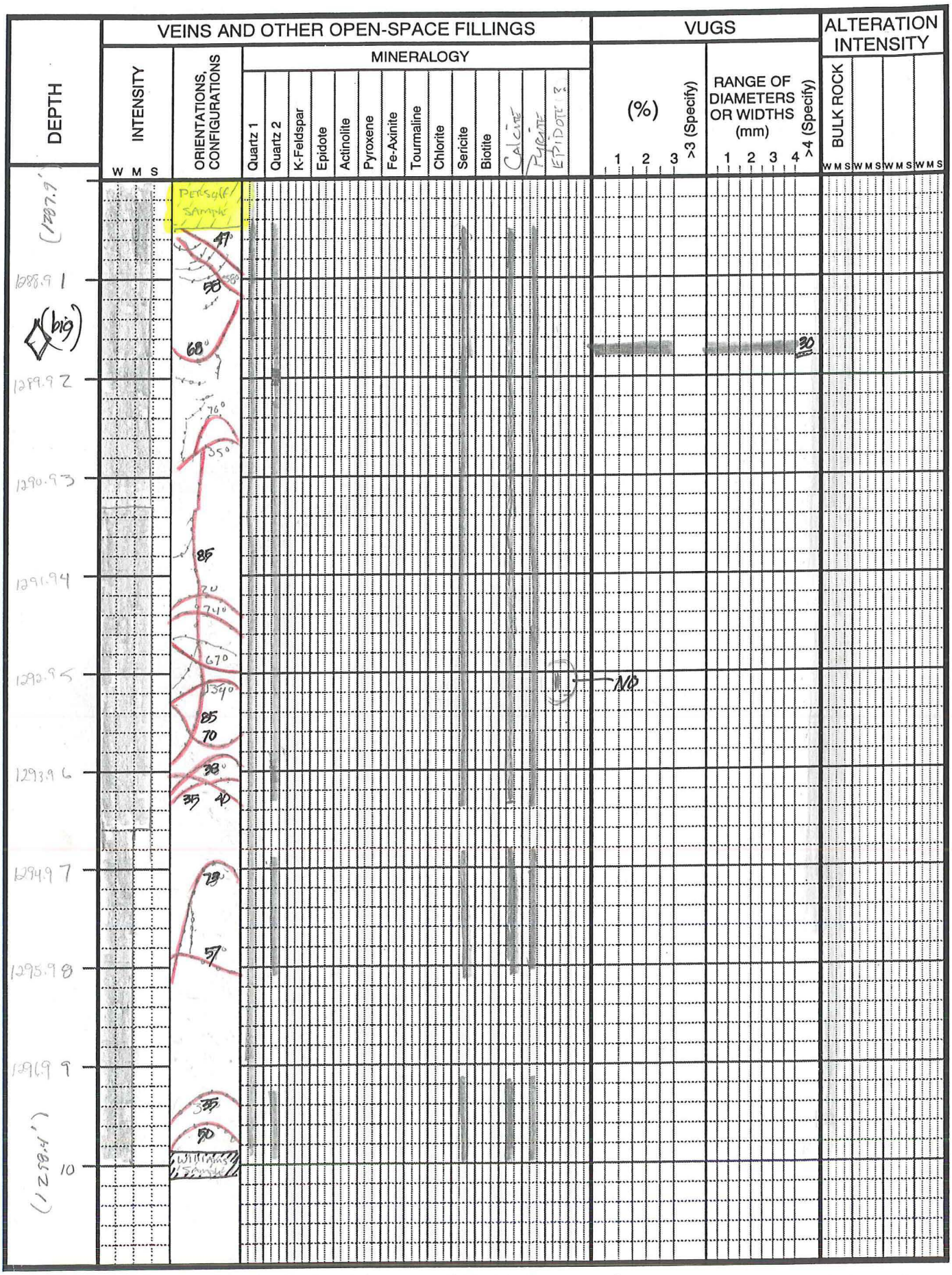

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 2 of 2 for this interval)

Depth Interval (ft) 1287.9 – 1298.4 Run No. (s) 54

Logged by DS/GS Date 9/23/94

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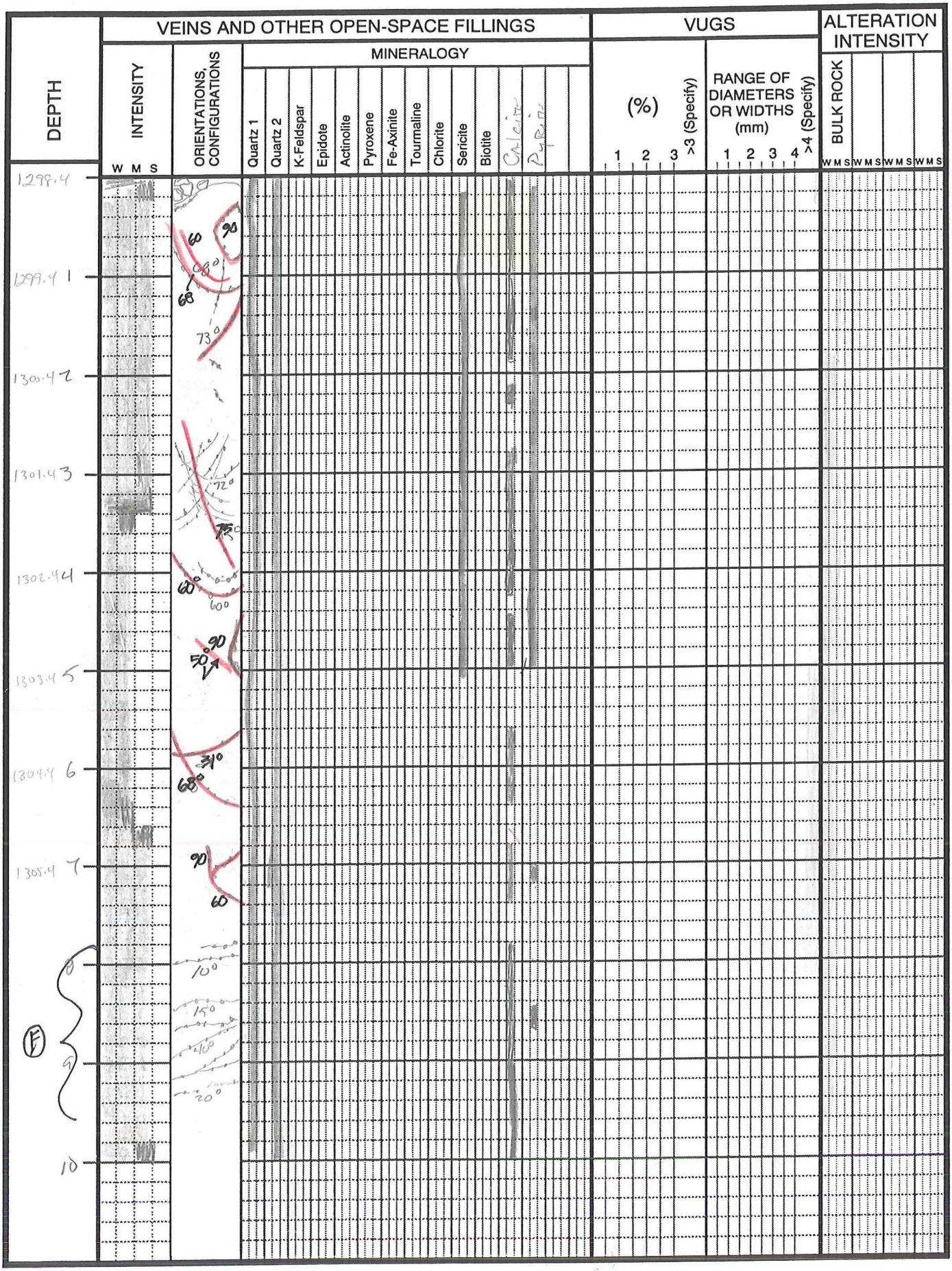
DEPTH	FRACTURES: INTENSITY (W M S)	FRACTURES: RANGE OF APERTURES (mm) (1, 2, >2 Specify)	FRACTURES: ORIENTATIONS	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
0					
			VERY SMALL ARG RIP-UP CLASTS	GW	
1			1300		
					ARGILLITE = DK GRY-GRYISH BLK (N3-2) DARK BAND ON TOP INTERLAMINATED ARG & SILTSTONE TO 2.5' MD, DENSE, BRTL NOT LAMINATED IN DK AREA (POP 1.5") PROB ORGANIC RICH, TR COATING OF PYRRHOTITE ON FRAC SURFACES, ONLY 2 THIN CALC/SILIC VNS
2			1		
3					
			2		
4					
			3		MASSIVE GW = MED LT GRY (N6) MD VEN - LO MED, MOD SORT, SUBANG, GD GR BOUNDARIES, FUZZY QTZ GR BOUNDARIES, SLI SILIC OVERGROWTHS DK ARG-SILIC MATRIX, OCC MICROSCOPIC FRACS W/ CALC FILL, DECR CALC IN ROCK MASS COMPARED TO ABOVE (I.E. NO BLEBS OF CALC AS AT 1294') COM SLI FLATTENED ARG LITHIC GRS, GD TR EXTRM FINE PYR ON FRESH BROKEN SURFACE, INCR IN AND AROUND VEINS, COM VERTICAL WHT CALC/SILIC VEINS W/ V SLI GREENISH TINT (LOCALIZED) FROM PREHNITE, OVERALL V MASSIVE APPEARANCE W/ VAGUE GRADED BEDDING
5			4		
6				GW	
			5		
7					
			6		
8					
			7		
9					
			8		
10					

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 1290.4' – 1308.0 Run No. (s) 55

Logged by DS Date 4/24/94



GEYSERS CORING PROJECT . . . SB-15-Deepening

(Sheet 2 of 2 for this interval)

Depth Interval (ft) 1298.4 — 1300.0

Run No. (s) 55

Logged by GJ

Date 9/24/94

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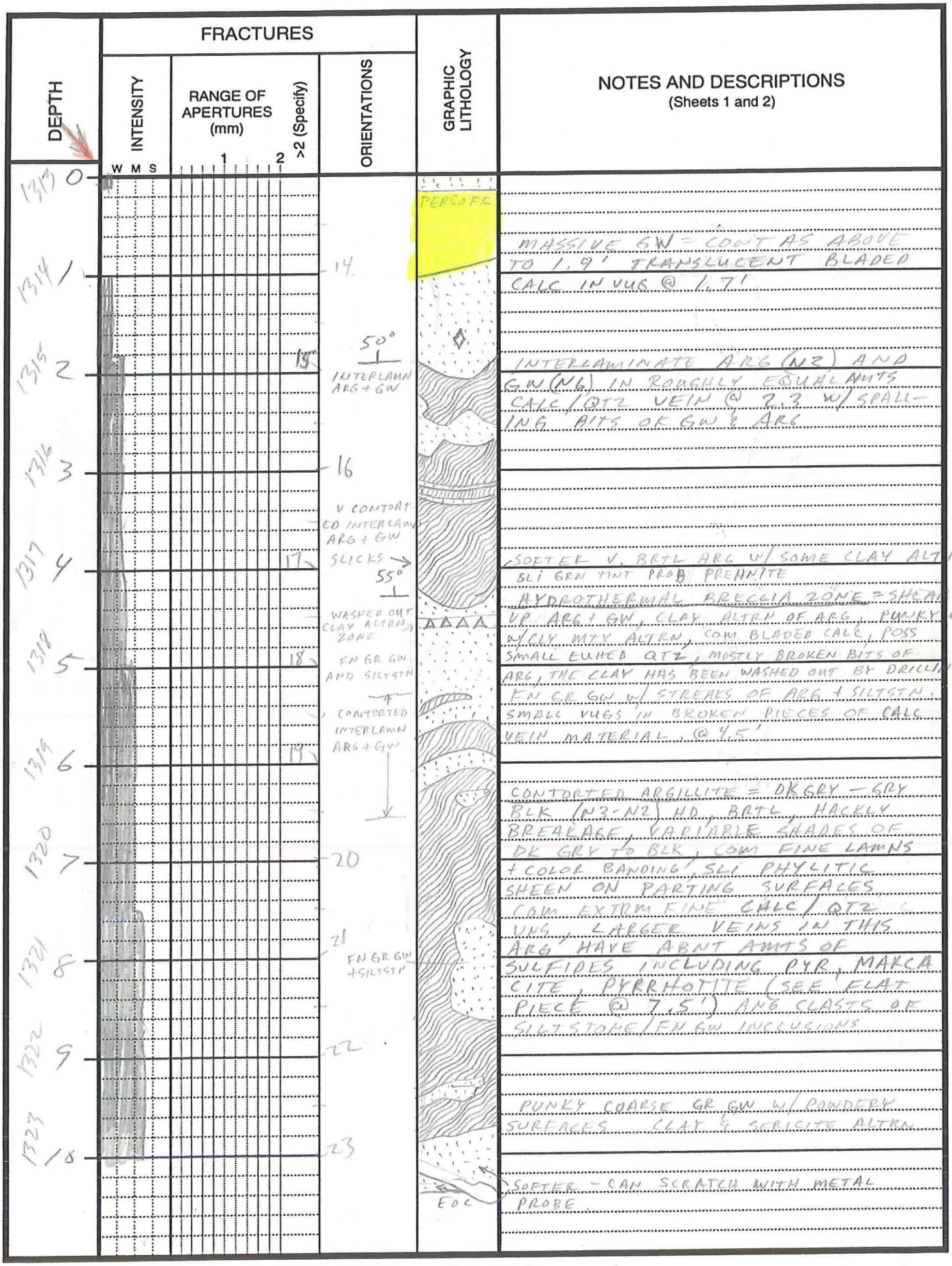
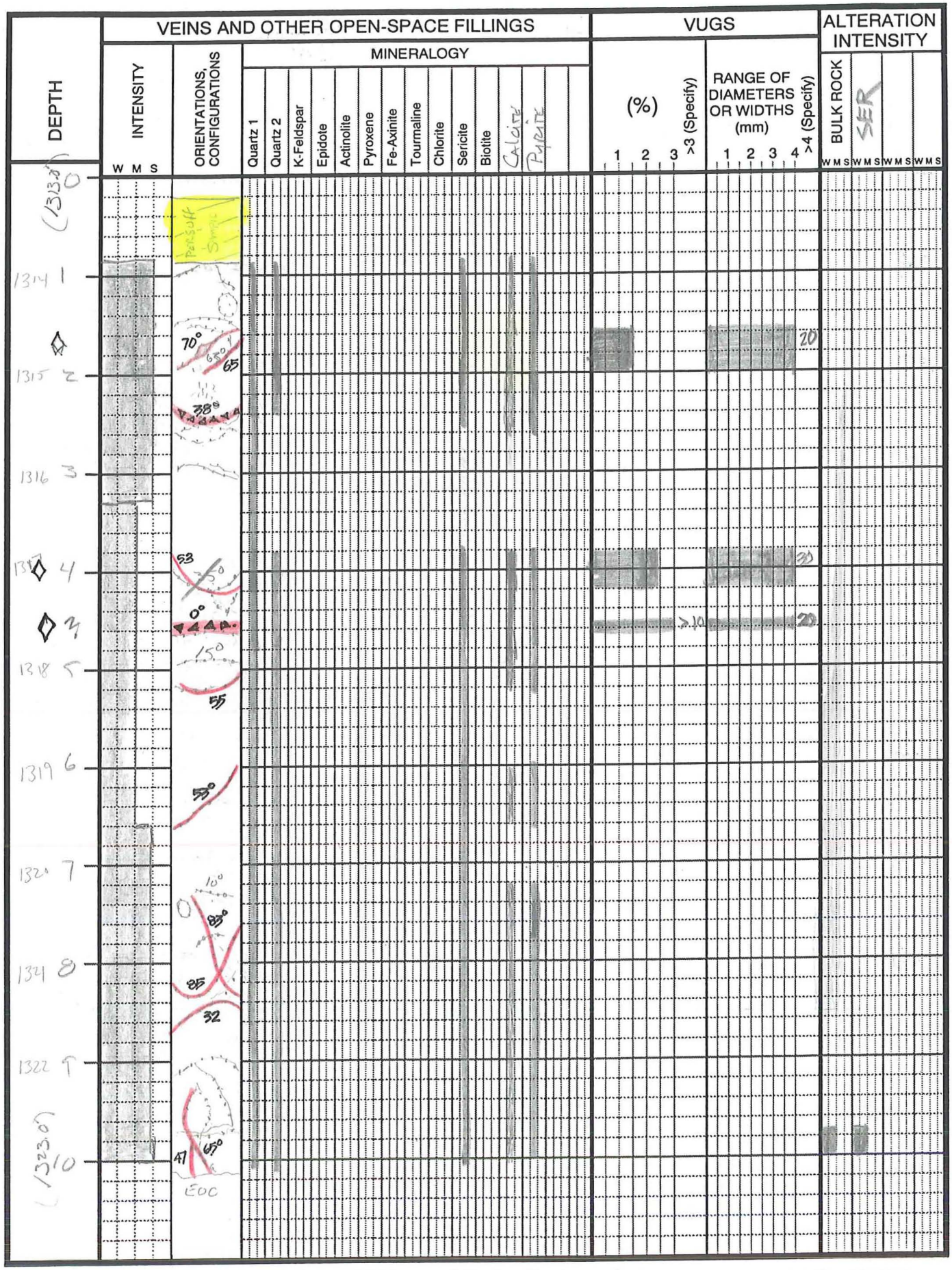


GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 1313.0 – 1323.0 Run No. (s) 57

Logged by D SERR Date 9/24/94

NOTE RUN 56 + BONNER 1308-1313'



GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 2 of 2 for this interval)

Depth Interval (ft) 1313.0 – 1323.0 Run No. (s) 57

Logged by GS Date 9/24

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DEPTH	FRACTURES: INTENSITY (W M S)	FRACTURES: RANGE OF APERTURES (mm) 1 2 >2 (Specify)	FRACTURES: ORIENTATIONS	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
(1323) 0					SEE "INITIAL FRACTURE LOG" (POSS. CHIMSER IN RUBBLE) CORE GOT MUCH LIGHTER COLOR THIS SHOULD BE CLASSIFIED AS A LITHIC GRAYWACKE
(1324) 1			21	CONCA SAMPLE	
(1325) 2			25		COARSE GR. CLAYWACKE = LT GRY TO VERY LT GRY (N7-N8) EN-UP COARSE GR, MD, V.P. SORTED, SUBANG -ANG, LO SPHER, ABNT COARSE LITHIC GRS INCLUDING IRREG AND LATH SHAPED ARG FRAGS, IRREG GREENSTONE FRAGS, CHERT, DETRITAL BIOTITE, DETRITAL PYRITE IN ARG FRAGS, GD SHARP GRAIN BOUNDRIES (EVEN QTZ) LOW AMOUNT OF QTZ GRS GIVING THE ROCK A SURFACE A DULL LUSTER COMPARED TO GW ABOVE ELONG ARG GRS HAVE A PARALLEL ARRANGEMENT, GD TR DISM PYR & PYRR., A FEW THIN WISPY ARG STRUCTURES (NOTE! THICKER VEINS SEEM TO OCCURE AT THESE PLACES), TR LIMONITE STAINED GRS, OCC OLD DK FRACTURE TRACES, NON-CALC ON FRESHLY BROKEN SURFACE NOT NEAR A VEIN APPEARS POWDERY ON DRY SURFACE.
(1326) 3		26	ALL PROMENENT VEINS HAVE COM DISM PYR, PYRRHOTITE, MARCASITE		
(1327) 4		27			
(1328) 5		28		SILTSTONE	
(1329) 6		29			
(1330) 7			30		
(1331) 8			31		
(1332) 9			32 RUBBLE	EOC	
(1333) 10					

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 1323.0' - 1331.56' Run No. (s) 58

Logged by DS/GS Date 9/24/94

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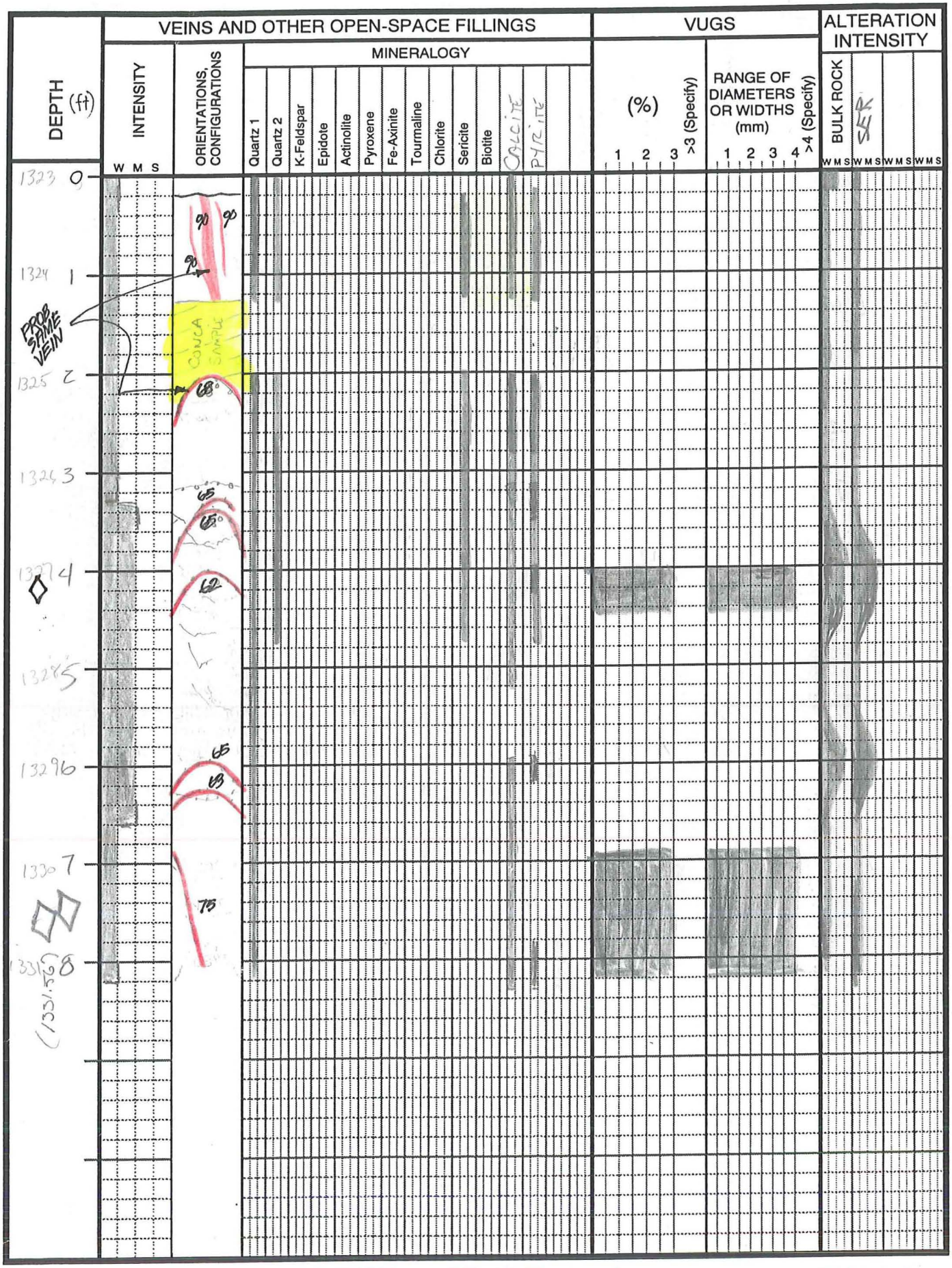

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 2 of 2 for this interval)

Depth Interval (ft) 1323.0 – 1331.56 Run No. (s) 5R

Logged by GS Date 9/24/94

FIELD GEOLOGIC LOG

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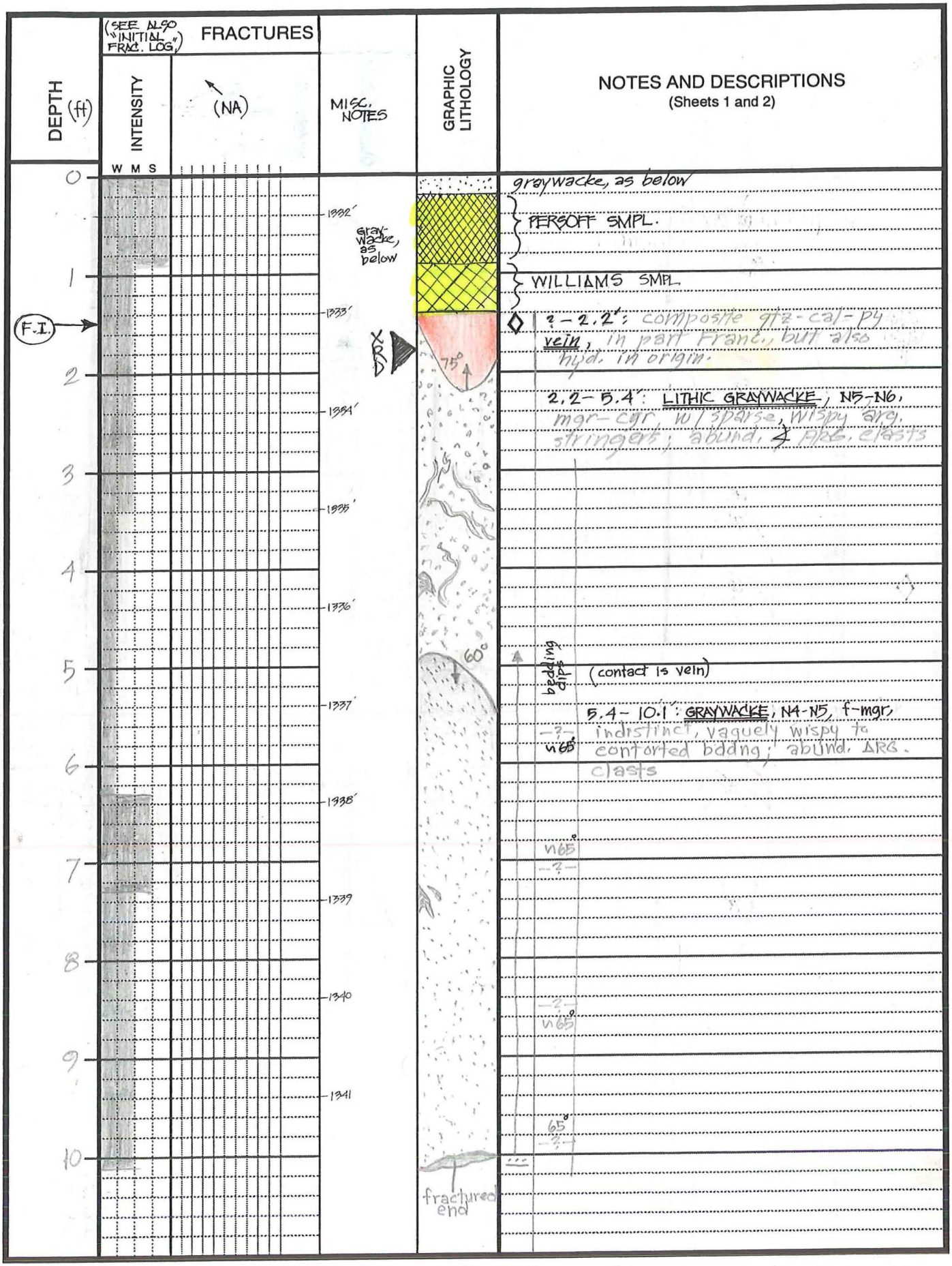
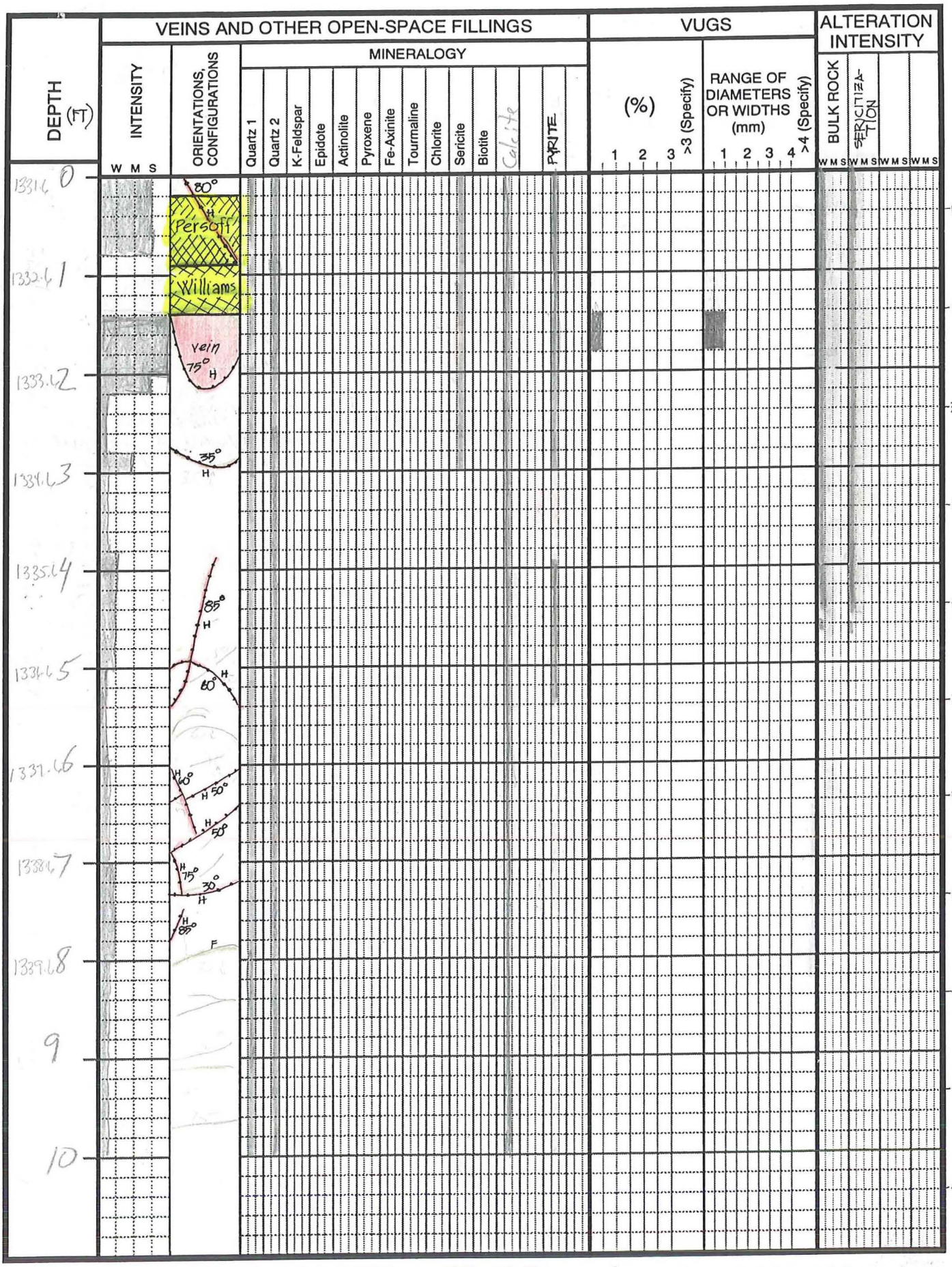


GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 1331.56-1341.56 (1331.6-1341.6') Run No. (s) 59

Logged by RD, JH Date 09/24/94

FIELD GEOLOGIC LOG



GEYSERS CORING PROJECT . . . SB-15-Deepening

(Sheet 2 of 2 for this interval)

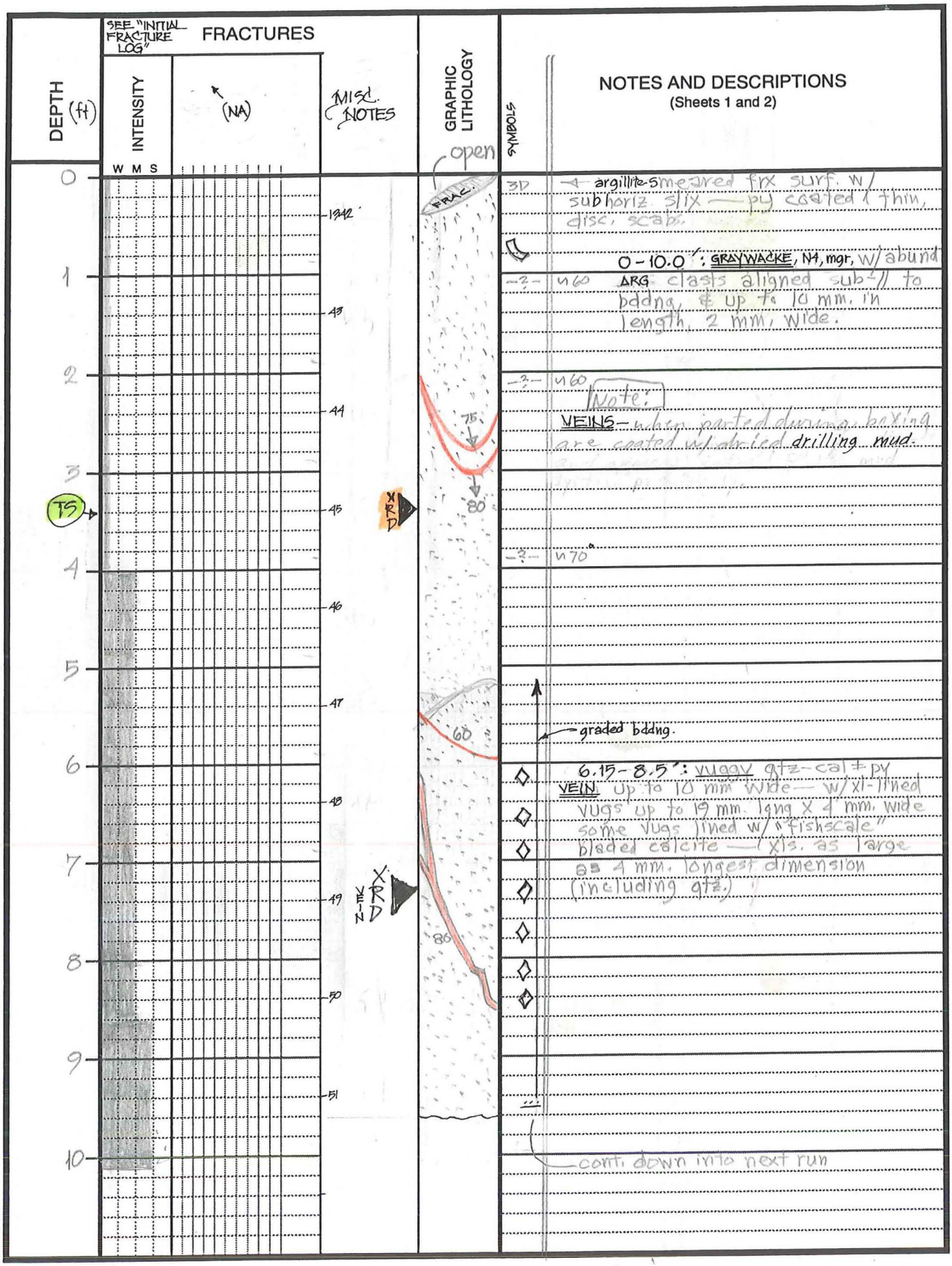
Depth Interval (ft) 1331.56 – 1341.56 (1331.6 – 1341.6')

Run No. (s) 59

Logged by RD, JH

Date 9-24-94

FIELD GEOLOGIC LOG



GEYSERS CORING PROJECT . . . SB-15-Deepening

(Sheet 1 of 2 for this interval)

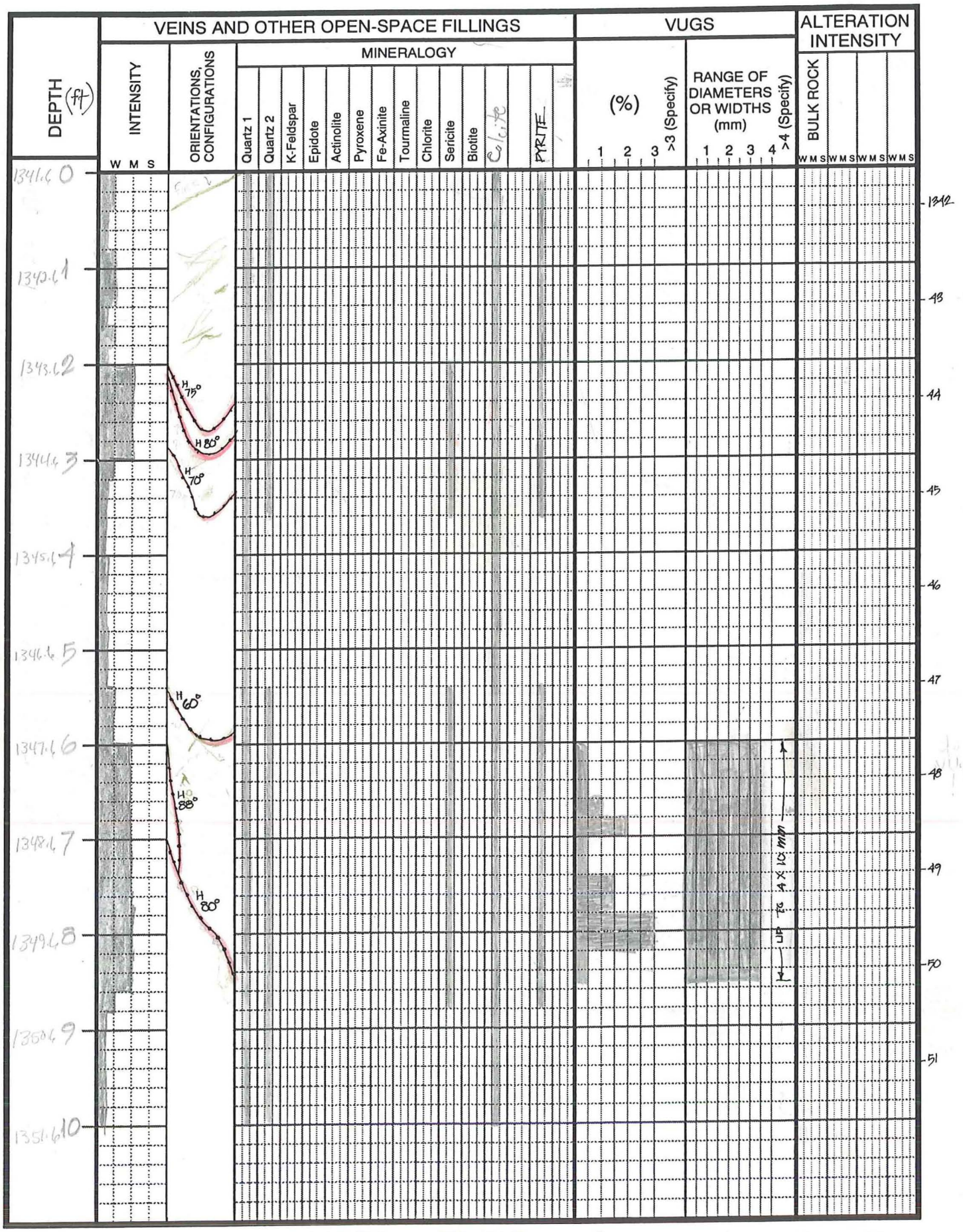
Depth Interval (ft) 1341.6 - 1351.2'

Run No. (s) 60

Logged by RD, JH

Date 09/24/94

FIELD GEOLOGIC LOG



GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 2 of 2 for this interval)

Depth Interval (ft) 1341.6 - 1351.2 Run No. (s) 60

Logged by RD, JH Date 09/24/94

FIELD GEOLOGIC LOG

SEE ALSO "INITIAL FRAC. LOG"

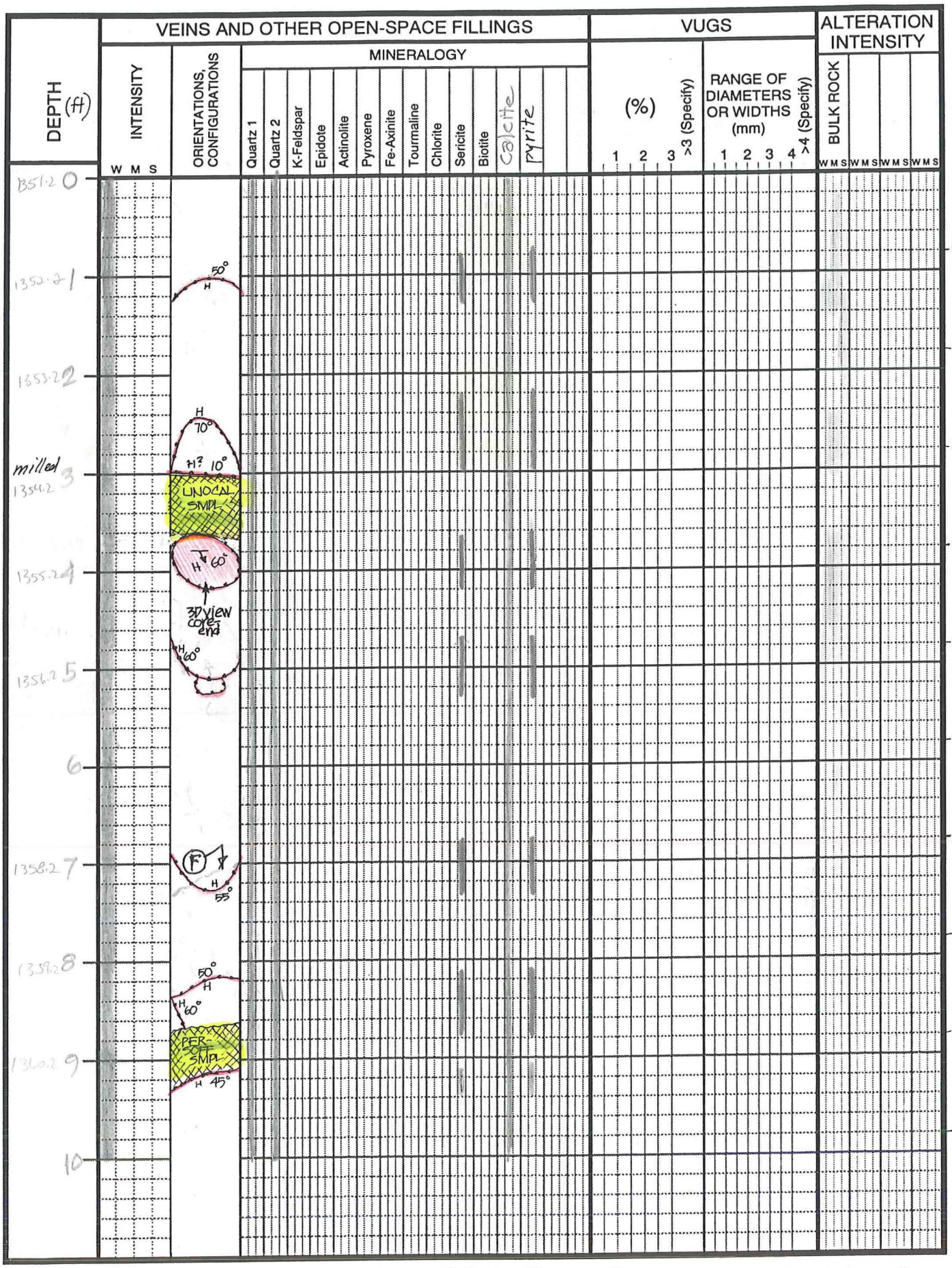
DEPTH (ft)	FRACTURES: INTENSITY (W M S)	FRACTURES: (NA) 1 2	MISC. NOTES	GRAPHIC LITHOLOGY	SYMBOLS	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
0						Graywacke, same as prev. run
					beds dip 70°	Argillite, dk. gray
1			1352			
					60° dip	ARGILLITE STRINGER
						GRAYWACKE, AS ABOVE
2			53			
3			54	UNOCAL SAMPLE		
						Note: sample taken for a Unocal test pc for in situ-freezing in dry ice to compare w/ the frozen core & the dry run pressure test.
4			55		3-D frac face	
						Graywacke, as above.
5			56			
6			57			
						← Subtle grading contact, sl. siltier & finer abv; lt., crs. sd. below, prob. gradational contact
7			58			
					*	Graywacke med. gry (N-6), hd, v. fn to med. crs. gr w/ Arg clasts, Chert clasts & many gr which are sl. grn (sl. chloritic); calc w/ clear faces, bladed xtls cast vein surfs, area w/ calc.
8			59			Persoft sample
9			60	PERSOFT SAMPLE		
						Graywacke as above
10			61			

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 1351.2' – 1361.2' Run No. (s) 61

Logged by RD, JH Date 9/24/94

FIELD GEOLOGIC LOG Page 111 of 164



GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 2 of 2 for this interval)

Depth Interval (ft) 1351.2 - 1361.2 Run No. (s) 61

Logged by RD, JH Date 09/24/91

FIELD GEOLOGIC LOG

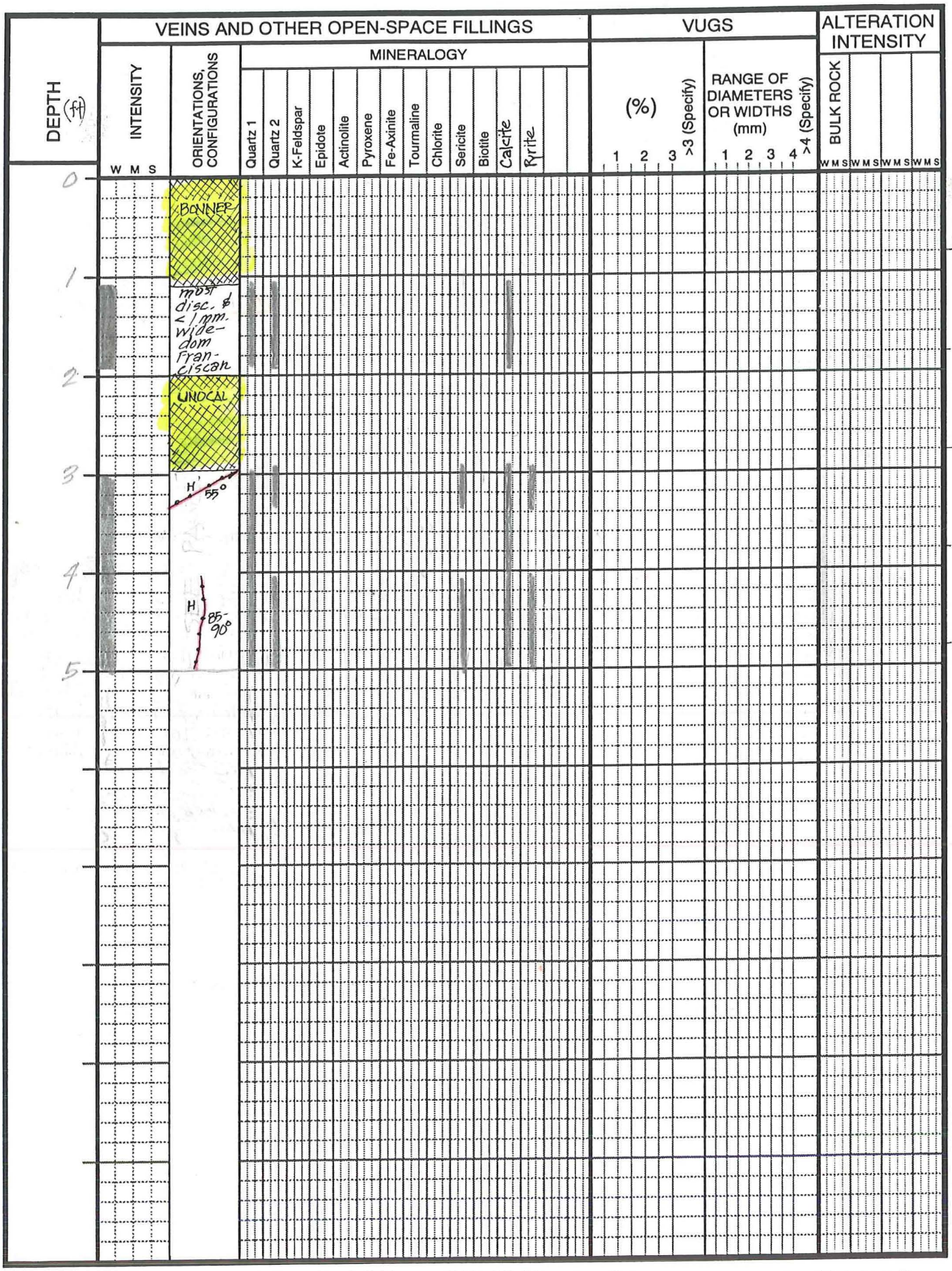
DEPTH (ft)	FRACTURES: INTENSITY (W M S)	FRACTURES: (NA)	MISC. NOTES	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
0				BONNER SMPL	
			13 62 FRACS*		
1					1.1 – 1.9': Graywacke, med. gr., medium gray, massive, dense.
			63		
2				UNOCAL SMPL	
			64		
3					2.95 – 5.0': Graywacke, AA, exc – m to crs. gr & vf 3–5% crs. gr. argillite grains — massive, but vague bdding. dipping ≈ 50°
			50 F		
4			65		
					pc. missing
			66		
5			* NO "INITIAL FRACTURE LOG"	END	Core retrieved into loading chamber which was then removed, and along with contained core, frozen in a dry ice bath — this was a "dry run" for a "pressure coring" experiment to be run 09/25 pm by Unocal

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 1361.2 – 1366.2 Run No. (s) 62

Logged by NA Date 09/24/94

FIELD GEOLOGIC LOG



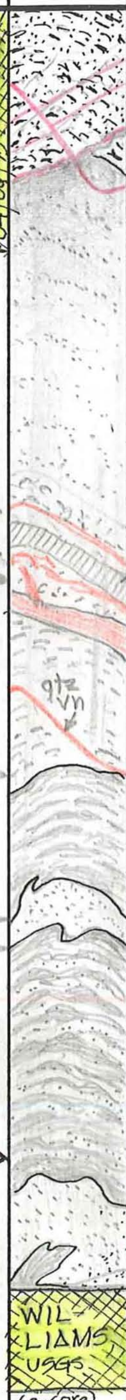
GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 2 of 2 for this interval)

Depth Interval (ft) 1361.2 - 1366.2 Run No. (s) 62

Logged by NA Date 09/24/94

FIELD GEOLOGIC LOG Page 114 of 164

DEPTH (ft)	FRACTURES (SEE ALSO "INITIAL FRAC. LOG") INTENSITY W M S	(NA) 1 2	MISC. NOTES	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2) symbols	
0						0–1.2': GRAYWACKE, N4, c-gr, lithic-rich w/ abund ARG chips sub // to bdding & 2-3 x 1-1.5 mm — numerous hyd. vnlts, sub-//, @ ~50° discordant to bdding
					–?– 50°	
drilled depth 1367; 1 (run depth)						1.2–3.95': GRAYWACKE, N4, f-gr., v. hard, poss. silicified → grdd bddng. grading downward fr. fgr – mgr
1368; 2					bds dip 50-60	
					–?–	
1369; 3					–?–	
			qtz. veins →		◊	vuggy silicified graywacke
1370; 4			3.95' →		◊◊	TOTAL LOSS of CIRC @ ~1369–1370'
TS		XRD	crs-gr GW, aa, w/ ARG clasts	qtz vn	◊◊	Vuggy milky qtz. vein — has undulose margins, irreg. vugs up to at least 10 mm. dia. — vugs lined w/ later-stage euh. qtz. — this same qtz. also forms spongy clots up to 2 cm dia. → some vugs additionally lined/ptly filled w/ bladed calcite. • XRD reveals also minor K-feldspar and wairakite — also abundant (illite)
1371; 5			5.3' →			
1372; 6			6.3' → 6.6' →			3.95–5.3': GRAYWACKE, AS ABOVE 5.3–6.3': Intbdd f-gr graywacke and argillite — lenticular bddng 6.3–6.6': GRAYWACKE, f. gr.
1373; 7						6.6–8.3': intbdd. ARGILLITE & GRAYWACKE lenticular bddng. classic example.
1374; 8			ORG XRD			8.3– GRAYWACKE, AS ABOVE
1375; 9				WILLIAMS USGS (e-core)		
10						

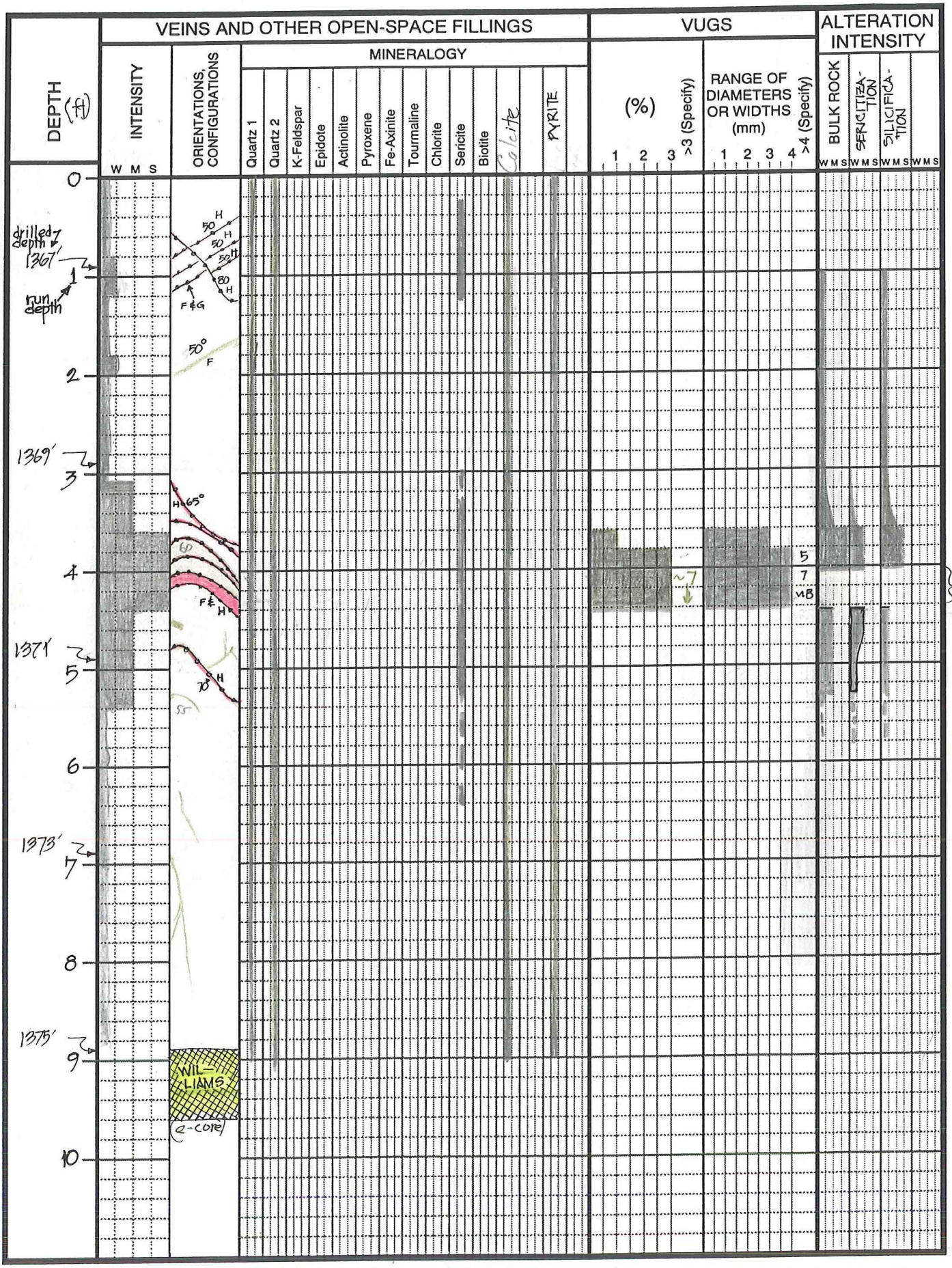


GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 1366.2 – 1375.2 Run No. (s) 63

Logged by RD, JH Date 09/24/94

FIELD GEOLOGIC LOG



GEYSERS CORING PROJECT . . . SB-15-Deepening

(Sheet 2 of 2 for this interval)

Depth Interval (ft) 1366.2 — 1375.2

Run No. (s) 63

Logged by R.D. & J.H.

Date 9/24/94

FIELD GEOLOGIC LOG

SEE ALSO "INITIAL FRAC. LOG"

FRACTURES

DEPTH (FT) | INTENSITY W M S | (NA) 1 2 | MISC. NOTES | GRAPHIC LITHOLOGY

GW = GRAYWACKE
AR = ARGILLITE

NOTES AND DESCRIPTIONS
(Sheets 1 and 2)

0
1
2
3
4
5
6
7
8
9
10'

1376
1378
1379'
1380'
1381'
82'
83'
84
85

WISPY ARG STRUCTURES
PERSOFF SAMPLE
COARSE LITHIC GW
LITHIC GW
GOOD SLICKEN-SIDES
SHOE PIECE

ARGILLITE = DK GRY (N3) HD, BRTL IRREG, MOD PARTING LINEATION, SLI PHYL SHEEN ON FLAT SURFACES REGINING TO GRADE TO SILTSTONE, MNR THIN MILKY WHT CALC/QTZ VEINS, DISM PYR IN AND AROUND MOST VEINS
2 SMALL VUGS (2mm) IN CALC VN
GW = LT GRY (N7) FN-UP CRS GR HD, V.P. SORT, SUBANG-ANG LO SPHER, ABNT COARSE LITHIC GRS, COM LATH SHAPED ARG FRAGS, CONVOLUTED ARG + SILTSTONE (GW)

HIGHLY MOTTLED + VEINED W/ MED WHT CALC/QTZ, FRAC COMMONLY OCCURE IN AREAS OF DK ARG AND AT ARG/GW CONTACTS COM DISM & VN PYR IN AND AROUND VEINS

BLOCKY BREAKAGE POOR PART LINEATION

MASSIVE GW = MED GRY (N5) HD SILT-UP MED GR, MOD SORT, SUBANG, VAGUE QTZ GRAIN BOUNDARIES, GD LITHIC GR BOUNDARIES, V WEAK FOLIATION EVIDENT FROM LINEATION OF MICROSCOPIC ARG STREAKS AND FLATENING AND SMEARING OF MALLEABLE ARG GRS, COM CALC FILLED MICRO FRACS GD TR EXTRM FINE DISM PYR ABNT 1-2mm CRISS-CROSSED MILKY WHT CALC/QTZ VEINS

ARG = GRY OLV (N3) DARK CARB RICH, HD, V. BRITTLE CRUMBY WHEN DRY, HIGHLY FRAC, MOD PHYLLITIC SHEEN GD PARTING LINEATION, ARG/GW BEDDING PLANE FRACS W/ SLICKS

MASSIVE GW = MED GRY (N5) HD, SILTY-LO MED GR MOD SORT SUBANG, VAGUE-INDIST QTZ GR BOUNDRIES, GD LITHIC GR BOUNDRIES, MASSIVE, ABNT 1-3mm CRISS CROSS AND WAVY MILKY WHT CALC/QTZ VNG TR DISM PYR-INER NEAR VEINS

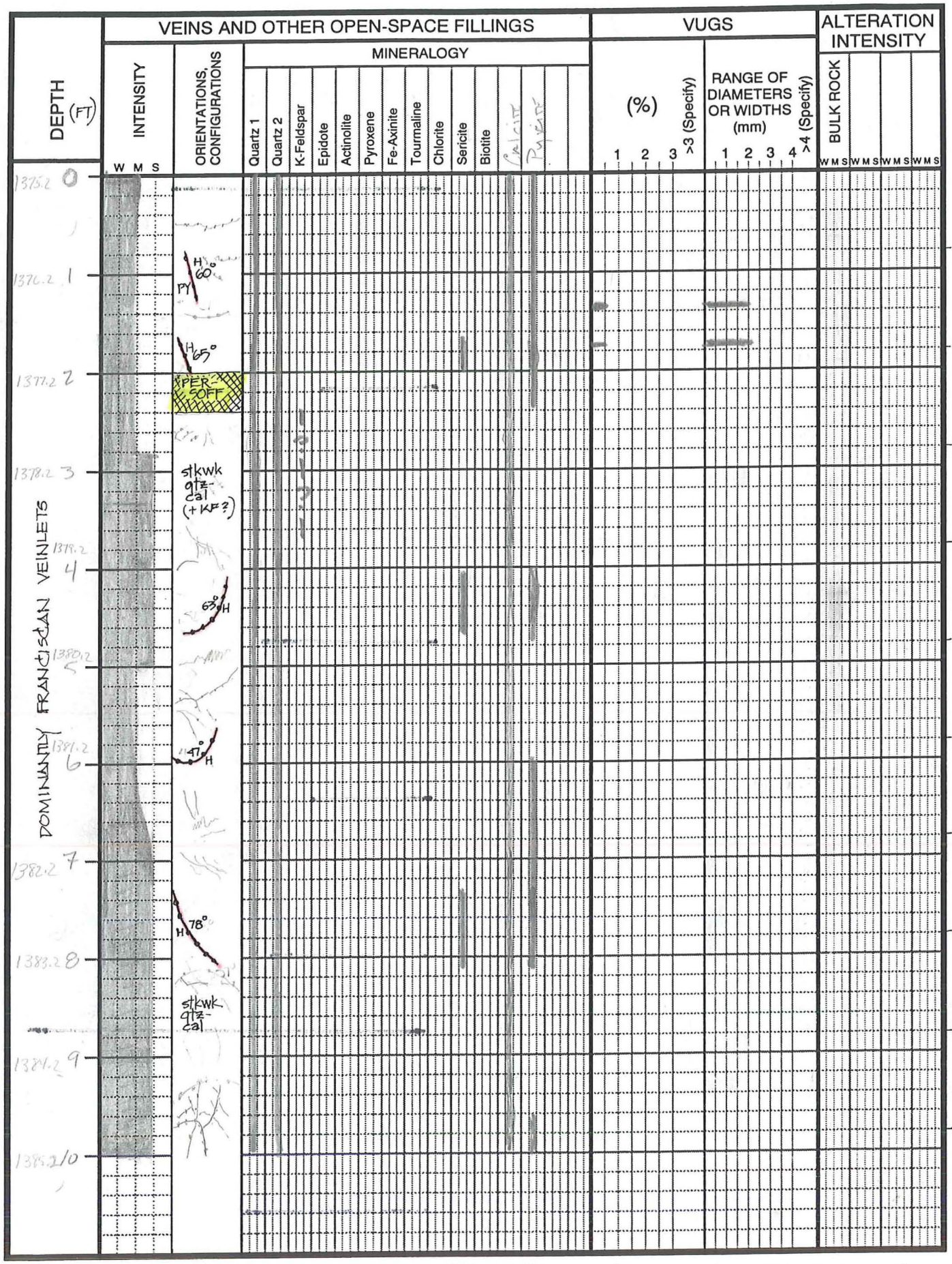
VERTICAL FRACTURE W/ GOOD SLICKS COM OLDER DK GRY FRACTURES.

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 1375.2 – 1385.2 Run No. (s) 64

Logged by DAVE SERR Date 9/24/94

FIELD GEOLOGIC LOG



GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 2 of 2 for this interval)

Depth Interval (ft) 1375.2 – 1385.2 Run No. (s) 6d

Logged by GS Date 9/25/94

FIELD GEOLOGIC LOG

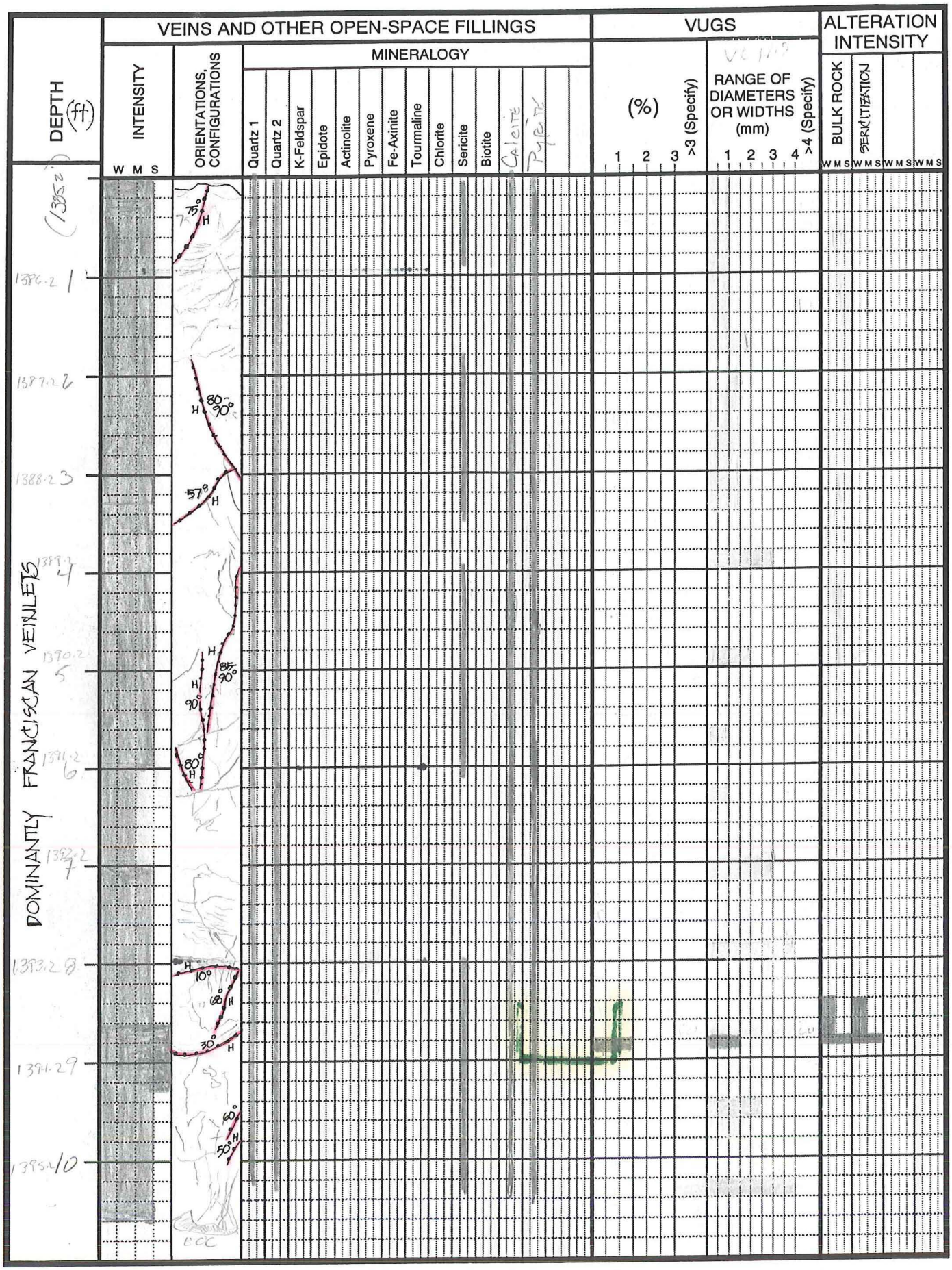
DEPTH (ft)	FRACTURES: INTENSITY (W M S)	FRACTURES: (NA)	MISC. NOTES	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
	SEE ALSO "INITIAL" FRAC. LOG				
0					MASSIVE GRAYWACKE = MED LT GRY (N6) MD, VFN - UP MED GR, P SORT, SUBANG, POOR INDIST QTZ GR BOUNDRIES, GD LITHIC GR BOUNDRIES, SILIC - CLAY MATRIX, FUSED QTZ & LITH MATRIX, MASSIVE, (MICROSCOPIC PATCHES) LT GRN TINT TO VEIN FILL (THICK VEINS EITHER PATCHES OF CHLORITE OR PREHNITE) COM DK GRY OLDER FRACTURES, RR PYR.
1			1386		
2			87		ARGILLITE = GRYISH BLK - DK GR N3-N4, HD, DENSE, BRTT, GEN SILTY AND MASSIVE ON TOP OF UNIT AND BRTL, PLATY, MICRO-LAMN AT BOTTOM @ 5', GD PHY SHEEN WHERE LAMN & DK PROB HIGH CARB CONTENT WHERE DK DUE TO INCR THIN WAVY SULFIDE VEINS THERE @ 4.2-4. MNR WHT CALC/QTZ VEINS IN ARG LARGER VEINS & FRACTURE FILL HAVE LARGE BLADED CALCITE CRYSTALS.
3			88		
4			89	SILTY GW	
5			90		MASSIVE GW = MED LT GRY (N6) MD, VFN - UP MED GR, P SORT, SUBANG, GD LITHIC GRAIN OUTLINES, VAGUE QTZ GRS FUSED W/ MATRIX, SILIC-ARG MATRIX, COM THIN CALC/QTZ VEINS GIVING A SPIDER-WEB APPEARANCE.
6			91		
7			92	SILTY DARK ARG	ARGILLITE = MED GRY → GRYISH BLK N4-N2) MD, LIGHT COL AND SILTY ON TOP OF UNIT, V. DARK W/ CONVOLUTED THIN LAMNS ON BOTTOM, ONLY A FEW V. THIN VEIN, GD PHY SHEEN WHERE DARK PROB HI CARB CONTENT, COM DISM SULFIDES IN AND AROUND VEINS. SLICKS @ CONTACT
8			93		GRAYWACKE = VERY MUCH AS GW @ 5.5 BUT INTENSELY VEINED AND MOTTLED W/ MLKY WHT CALC QTZ, DISM PYR IN AND AROUND VEINS
9			HYDRO-THERMAL ALT ZONE 94	PUNKY GW CLAY CALC VEIN	HYDROTHERMAL ALTERED ZONE = PUNKY SIMI-FRI GW ABOVE 2 cm CALC/QTZ VEIN CLAY ALTRN OF GW MATRIX, WHT KAOLINITE AND/OR SERICITE, CALC VEIN HAS MANY VUGS UP TO 1cm, LG BLADED CALC XTLS & GLOBS OF TRANSLU QTZ, DRUSY QTZ LINING VUGS, ONLY MINOR AMTS OF SULFIDES.
10			95		
			95.5'		MASSIVE GWKY = SAME AS @ 7.5'

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 1385.2 - 1395.48 Run No. (s) 65

Logged by DAVE SERR Date 9/25/94

FIELD GEOLOGIC LOG



GEYSERS CORING PROJECT . . . SB-15-Deepening

(Sheet 2 of 2 for this interval)

Depth Interval (ft) 1385.2 – 1395.48'

Run No. (s) 65

Logged by GS

Date 9/25/94

FIELD GEOLOGIC LOG

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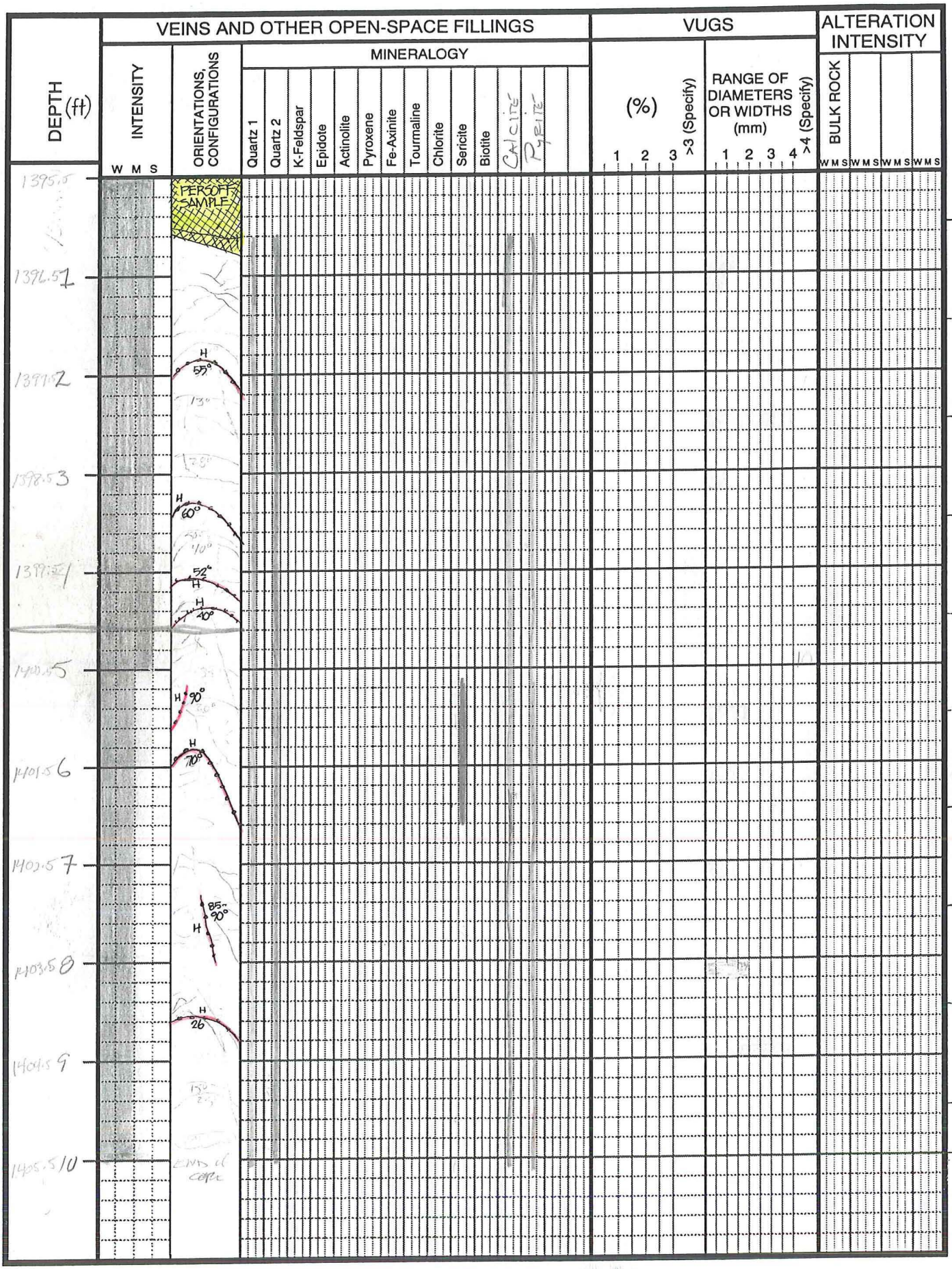
DEPTH (ft)	FRACTURES: INTENSITY (W M S)	FRACTURES: (NA)	MISC. NOTES	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
0			1396	PERCUFF SAMPLE	
1			1397		MASSIVE GRAYWACKE = MED GRY (N5) HD, LOW V. FN – LO MED PRED V FN, MOD SRTD, SUB ANG GD LITHIC & QTZ BOUNDRIES, PR-INDIST QTZ ER BOUNDRIES, SILIC OVERGROWTHS, QTZ GRS & SILIC MATRIX, FUSED TO GEN TIGHT V ARGILLACEOS IN PART, COM MICROSCOPIC ARG STREAKS, LITHIC GRS INCLUDE GREENSTONE AND RELIC BIOTITE
2			1398		
3			1399	G.W.	FLAKES / SCATTERED BROWNISH PATCHES) ABNT THIN "SPIDER-WEB" CALC/QTZ VEINS F/S TO 9', LARGER FRACTURED CALC/QTZ VEINS UP TO 1 CM
4			1400		RARE DISM PYR IN ROCK MASS MNR – COM DISM SULFIDES IN AND AROUND VEINS & FRAC FILL, RARE GRN TINT IN SOME VEIN
5			1401		FILL NEAR RX SURFACE. PREHNITE? SOME MICROSCOPIC FRAC TURES W/CALC, COM BLADED CALC IN LARGER FRAC FILL
6			1402	WISPY	ARGILLITE = MED DK GRY (N4) HD, MASSIVE NON-LAMN AND SILTY ON TOP, BECOMING INTER-LAMN W/GW AND CONTORTED @ 5.5', COM EXTMLY FINE DISM PYR? (TO SMALL TO ID)
7			1403	GW	
8			1404 smpl. G. BOITNOTT N.E.R. 05/30/95		MASSIVE GRAYWACKE = SAME AS ABOVE, BECOMING FINER GRAINED @ 9', V. RARE DISM PYR ON FRESHLY BROKEN SURFACE NOT NEAR A VEIN, DECR THIN SPIDER-WEB CALC/QTZ VNS, LARGER FRACS AT HIGH ANGLES.
9			1405	SILTSTONE	
10					

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 1395.5 – 1405.6 Run No. (s) 66

Logged by DAVE SERR Date 9/25/94

FIELD GEOLOGIST LOG



GEYSERS CORING PROJECT . . . SB-15-Deepening

(Sheet 2 of 2 for this interval)

Depth Interval (ft) 1395.48 - 1405.48'

Run No. (s) 66

Logged by GS

Date 9/25/94

FIELD GEOLOGIC LOG

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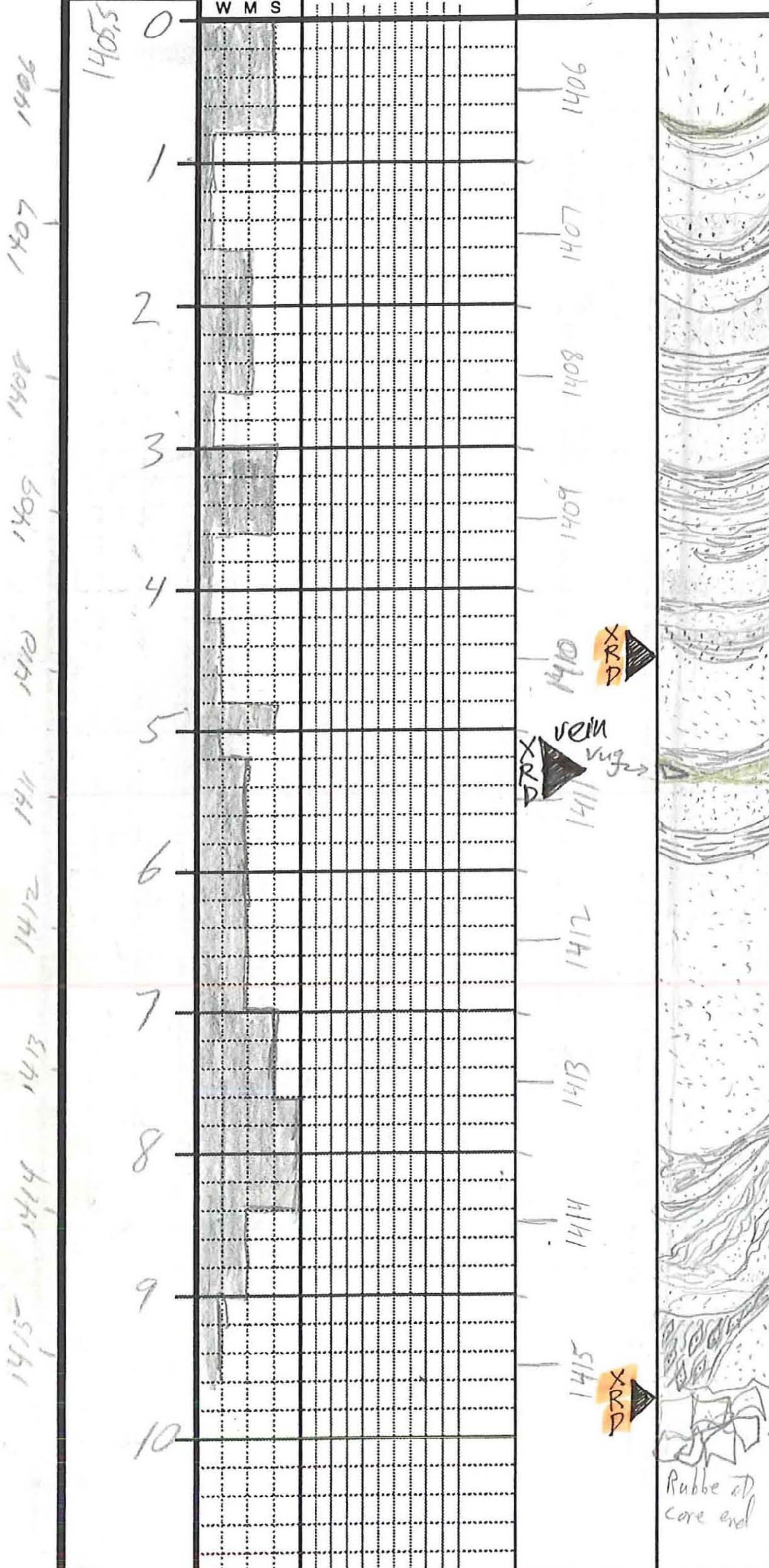
DEPTH	FRACTURES — INTENSITY (W M S)	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)



Combination Vein + Arg material

GW - lt to med gray (N-6 to N-7), v fn to occ med gr, mod srtg, hd, dns, has periodic silty lams spaced 2 to 10+ cm apart, bcms silty @ ± 1.4' GW

← Silty GW

35° ⫲

Interbedded GW w/ Arg

32° ⫲

Silty GW interval w/ thin beds of Arg

40 ⫲

◇ 1½ x 3 cm opening in vein w/ xtln rubble, it is either a vug or xtls (Arg Qtz) have been plucked out during coring

* Med Gry GW, v fn to fn gr, hd, mass, subtle siltier portions, tr Arg clasts, silicic cly mtrx, crossed w/ calc, silica veins

-?- Highly contorted, Arg, GW, calc vein mix over brecciated zone, indistinct bedding in various directions

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 1405.5 – 1415.5

Run No. (s) 67

Logged by JH, RD

Date 9/25/94

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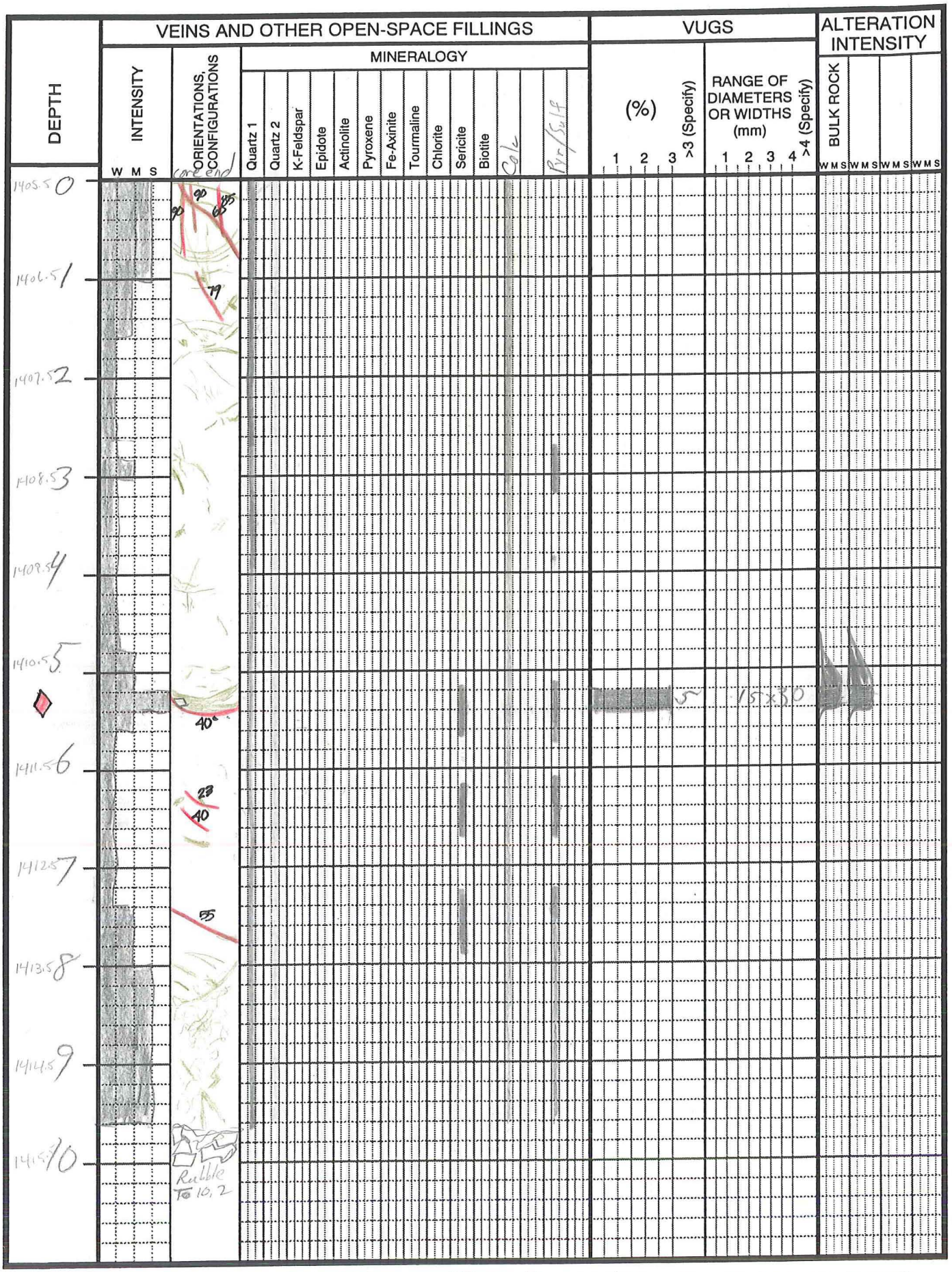

GEYSERS CORING PROJECT . . . SB-15-Deepening

(Sheet 2 of 2 for this interval)

Depth Interval (ft) 1405.5 – 1415.5

Run No. (s) 67

Logged by R.D

Date 9/25/94

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DEPTH	FRACTURES			GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
	INTENSITY (W M S)	RANGE OF APERTURES (mm) 1 2 >2 (Specify)	ORIENTATIONS		
0					
1					
2					
3					
4					
5					

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 1415.5-1420.5 Run No. (s) 68

Logged by NA Date 09/25/94

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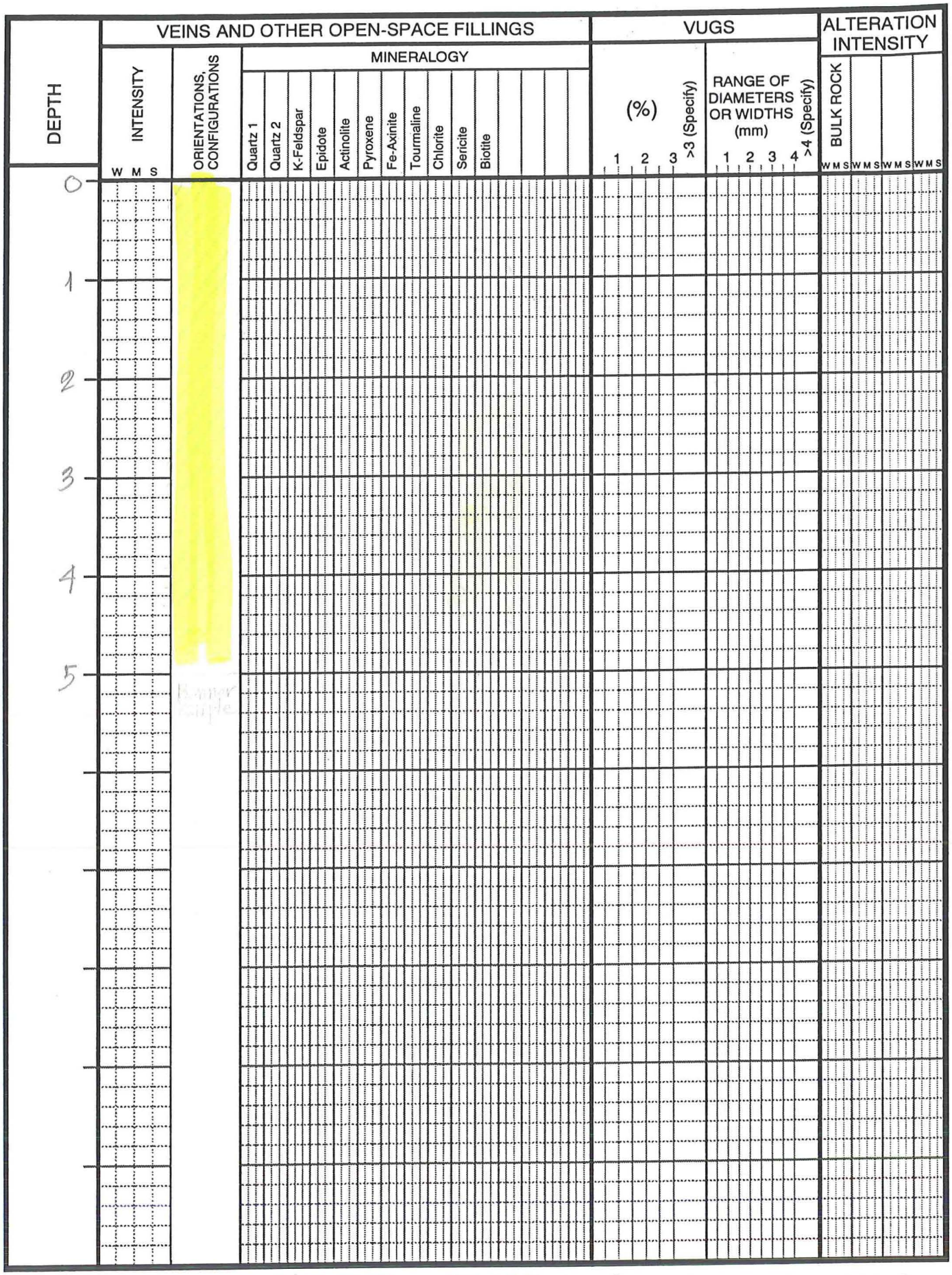

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 2 of 2 for this interval)

Depth Interval (ft) 1415.5-1420.5

Run No. (s) 68

Logged by NA

Date 09/25/94

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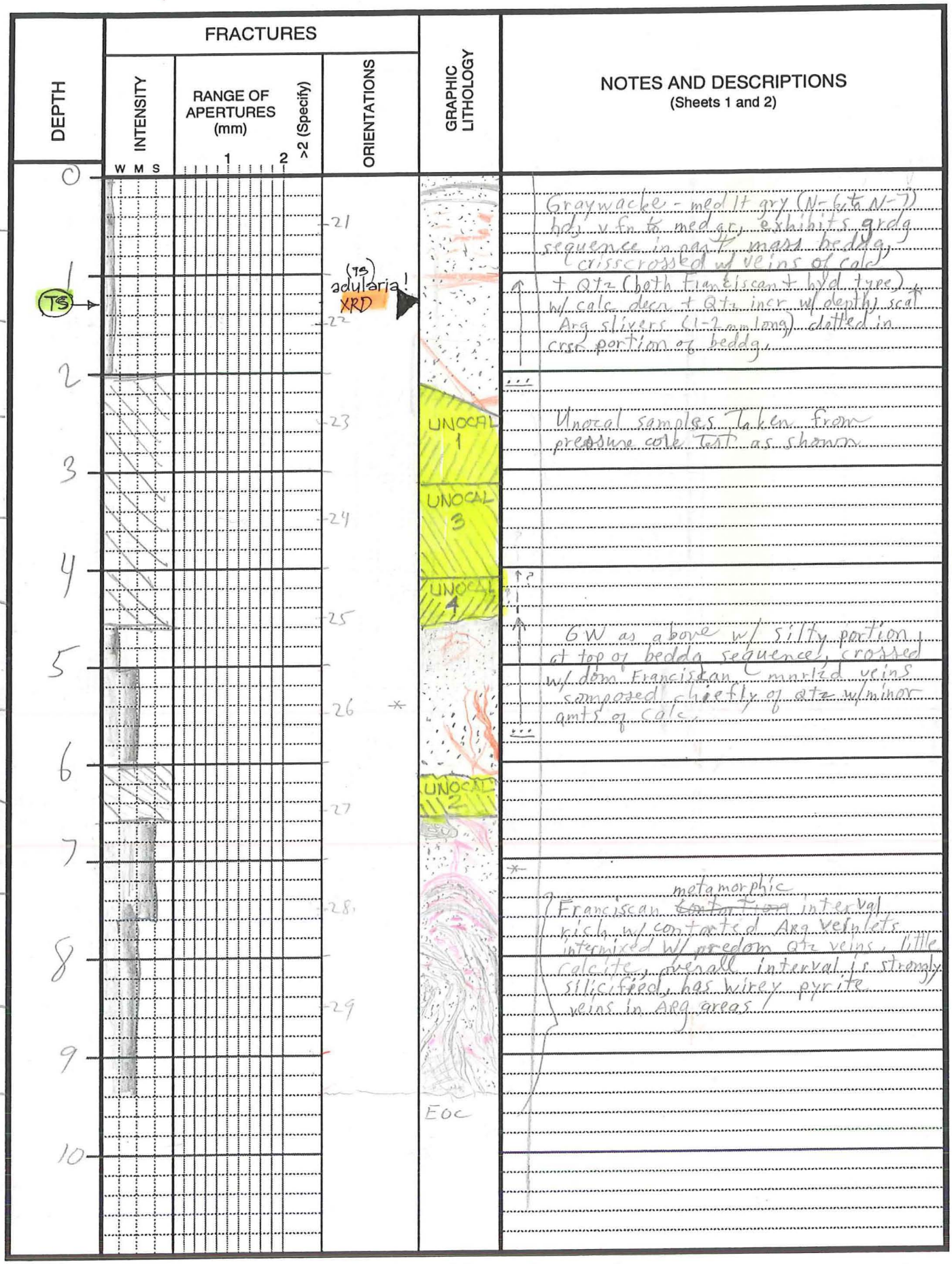

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 14205 - 14292 Run No. (s) 69

Logged by RD, JH Date 09/26/94

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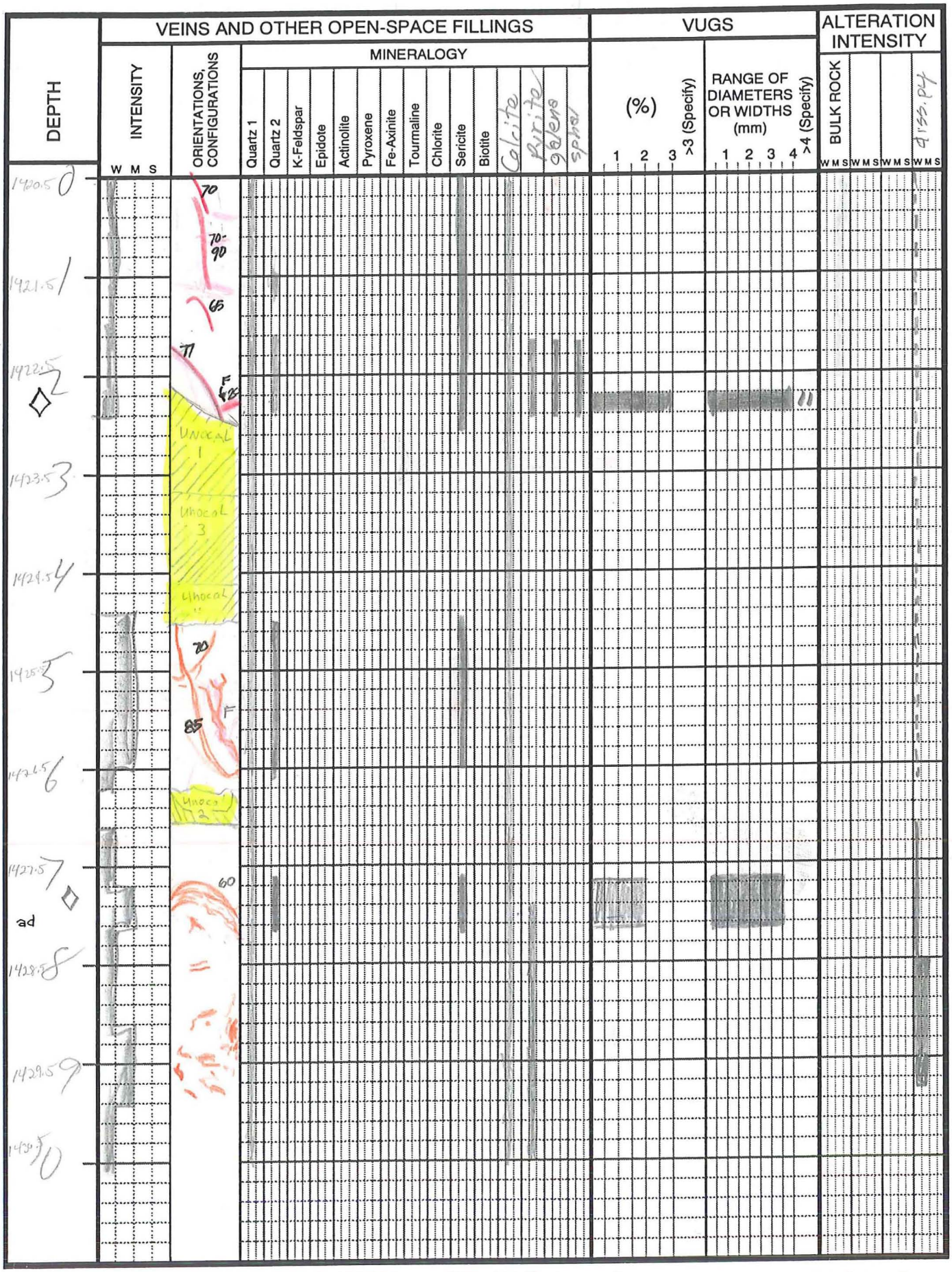

GEYSERS CORING PROJECT . . . SB-15-Deepening

(Sheet 2 of 2 for this interval)

Depth Interval (ft) 1420.5 - 1429.9 (Pressure Core)

Run No. (s) 69

Logged by JH, RD

Date 9/26/94

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FRACTURES

SEE "INITIAL FRACTURE LOG"

DEPTH (ft)	INTENSITY (W M S)	RANGE OF APERTURES (mm) 1 2 >2 (Specify)	ORIENTATIONS	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
0 / 1430'			XRD		0-0.5; GW, N4, fgr. vague bdng
					0.5-1.0; metamorphically sheared lenticular-bdd, interstratified GW & ARG, forming a sort of bx
1 / 1431'			SMPL. TO C. SATIK, STANFORD UNIV 04/07/95		1.0-2.5; same as 0.-0.05, w/ a few stringers of ARG.
2 / 1432'					2.5-3.5 — same as 0.5-1.0
3			FT		XRD 22; NOTE: EPIDOTE APPEARS @ ~1.0 FT, IN HYD. VNS & IN CARBONATE-DISSOLN VOIDS IN FRANCISCAN VEINS

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

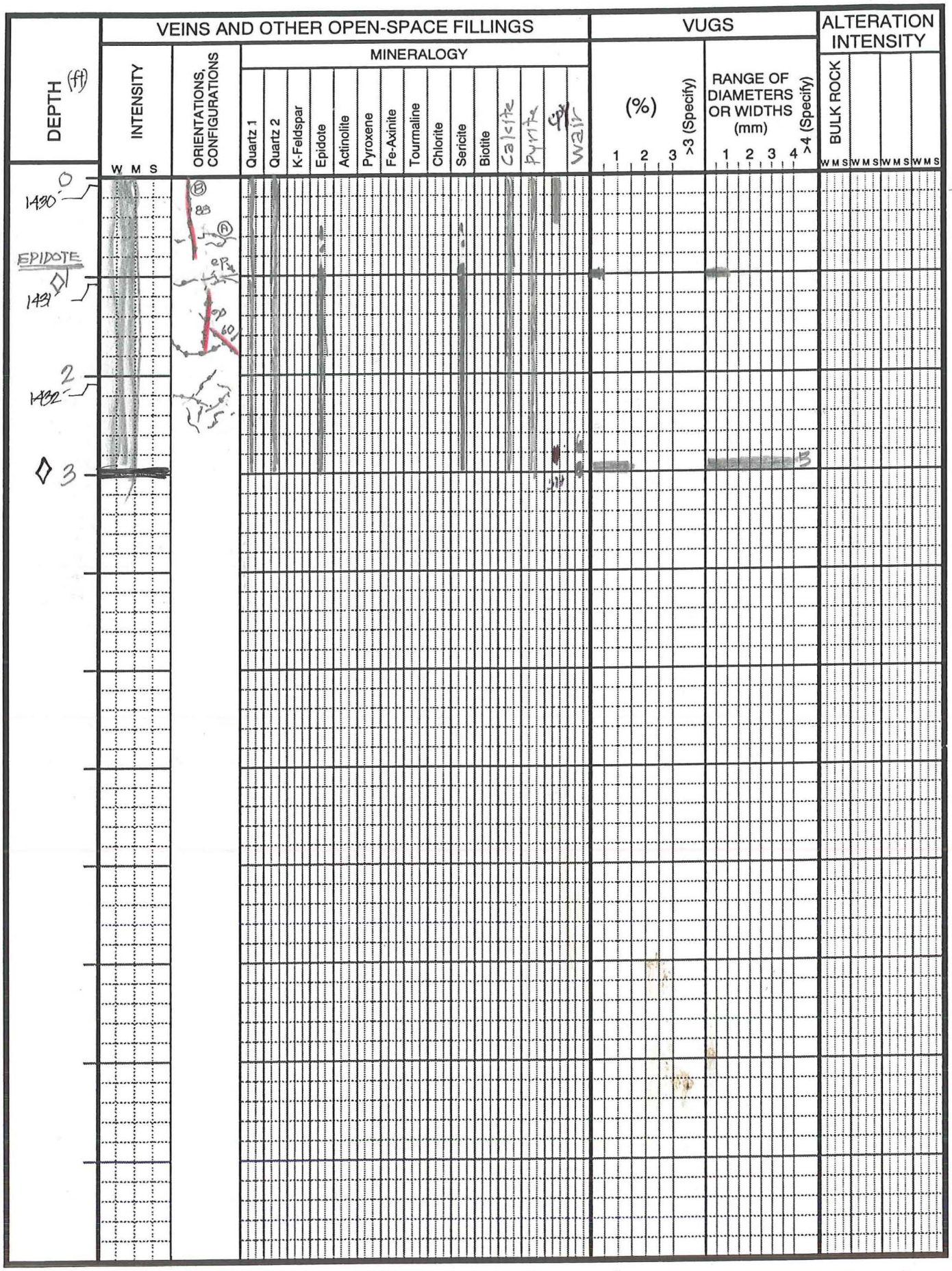
Depth Interval (ft) 1429.9-1432.9 ft

Run No. (s) 70

Logged by JH

Date 09/26/94

FIELD GEOLOGIC LOG



GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 2 of 2 for this interval)

Depth Interval (ft) 1429.9 - 1432.9 ft

Run No. (s) 70

Logged by JH

Date 09/26/97

FIELD GEOLOGIC LOG

DEPTH	FRACTURES: INTENSITY (W M S)	FRACTURES: RANGE OF APERTURES (mm) 1 2 >2 (Specify)	FRACTURES: ORIENTATIONS	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
0			33		GRAYWACKE = MED LIGHT GRY (N6) HD, lo V. FN - lo MED GRY, P-MOD SORT SUBANG, INCLD CLAY ALTERATION OF MATRIX, LIGHT BROWNISH TINT APPEAR TO BE DUE IN PART BE FeOx DETRITAL GRS ALSO BROWNISH PATCHES IN MATRIX INTERSTITIAL CALC, COM QTZ ONLY THIN VEINS W/ DK GRN PATCHES OF CHLORITE THE THICKER VEINS ARE CALCITE W/ ABN DISM PYR CRYSTALS
1			34 XRD		
2			35 BARREL		GRAYWACKE = MED DK GRY (N4) HD, lo V. FN - lo MED, PREP FN, V. ARGILLACEOUS DK GW, GD GR BOUNDARIES P. QTZ. GR BNDRIES, PARALELL LINEAR ARRANGEMENT OF MICROSCOPIC ARG STREAKS FINE SILIC VEINS GD TR DISM PYR.
3			36 TRACES OF YEL-GRN EPIDOTE IN VEIN FILL		ARGILLITE = WISPY STRUCTURES W/ INTERLAMN ARG + SILTSTONE, TR PATCHES OF YEL-GREEN EPIDOTE
4			37	PERSOFF	BLADED CALCITE IN LARGER VEINS, GD TR DISM PYR IN AND AROUND VEIN FILL MASSIVE GRAYWACKE = MED LT GRY (N6) V.FN - MED GR, P SORT, SUBANG, GEN SHARP GR BNDRIES, SLI FUZZY QTZ
5			38		GR BNDRIES, COM DK & FeOx DETRITAL LITHICS, SOLID & MASSIVE, TR EXTRM FN DISM PYR, THIN SILIC VEINS TRANSLUCENT W/ YEL EPIDOTE STAIN & PYR, LARGER CALC VEINS HAVE
6			39 EPIDOTE AND VUGS IN FRANCISCAN VEIN		DISSOLUTION VUGS LINED WITH YEL GRN EPIDOTE, CONT GD TR EXTRM FINE DISM PYR.
7			40		MASSIVE GW = CONT AS ABOVE DRILLED 8.8'.
8			41		
9			GREG BOTNOTT N.E.R.S. 05/30/95		ARGILLITE = MED DK GRY - DK GRY (N4-N3) V. BRITTLE, V. CONVOLUTED TRACE CLASTS OF GRAYWACKE W/ ABNT QTZ VEINS & VUGS, FEWER VEINS IN THE ARGILLITE, WIREY PYRITE
10			XRD QUARTZ VEIN		VEINS IN ARG AREAS, ONLY TRACE AMTS OF CALC IN FILL, ARGILLITE ITSELF HAS MICROSCOPIC QTZ VEINLETS, AND HAS A SILICEOUS APPEARING SURFACE LUSTER, NOT PHYLITIC

ARGILLACEOUS STREAKS

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 1432.9 - 1442.9 Run No. (s) 71

Logged by DAVE CERR Date 9/26/95

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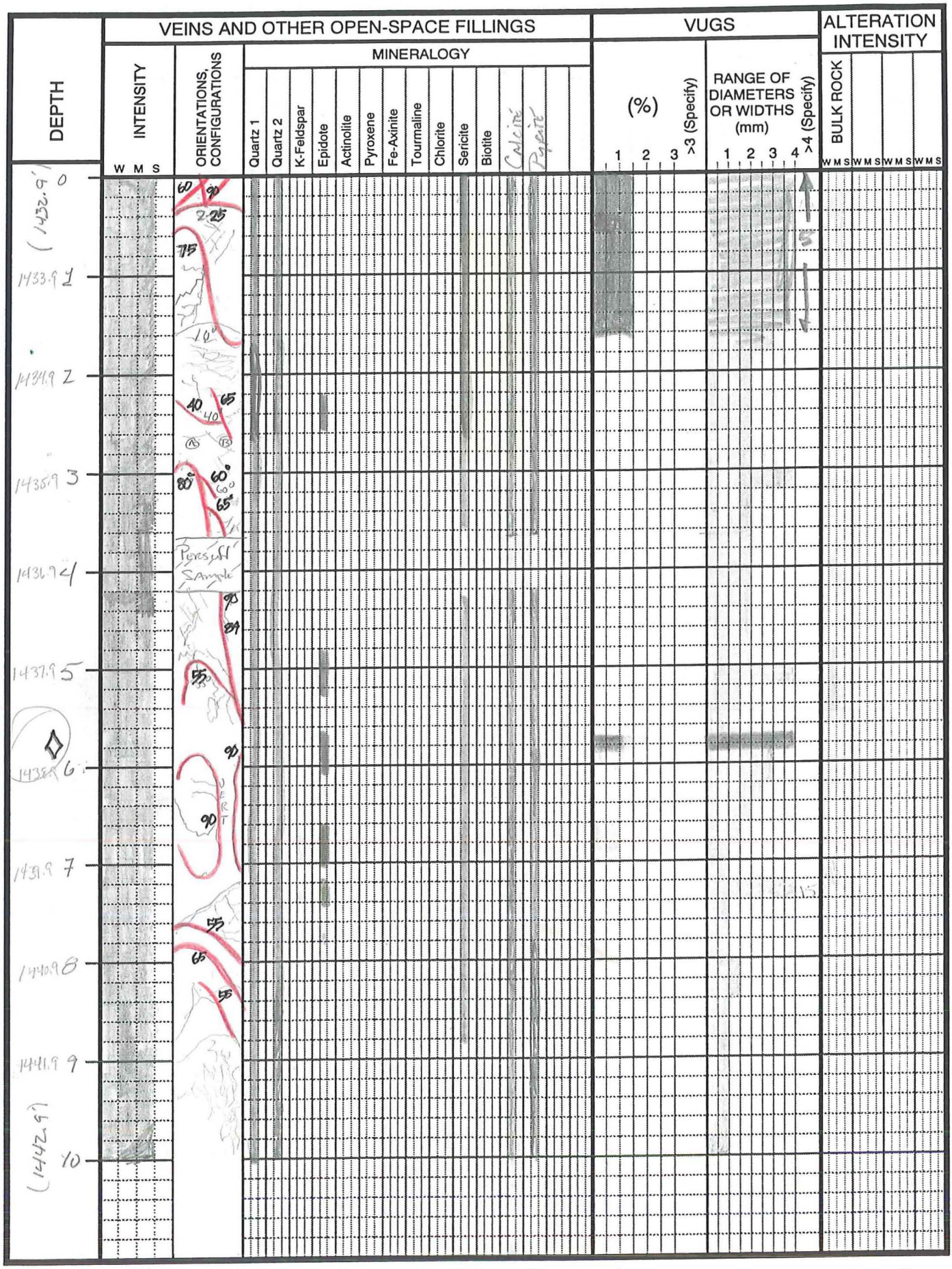

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 2 of 2 for this interval)

Depth Interval (ft) 1432.9 -- 1442.9' Run No. (s) 7L

Logged by GS Date 9/26/94

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DEPTH	FRACTURES: INTENSITY (W M S)	FRACTURES: RANGE OF APERTURES (mm) 1 2 >2 (Specify)	FRACTURES: ORIENTATIONS	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
0		43	VERTICAL GW/ARG CONTACT		ARGILLITE = MED DK GRY → DK GR (N4-3) HD BRIT GD PHYL SHEEN IN DARKEST AREAS, WAVY THIN LAMNS, LOC V. CONTORTED VERTICAL CONTACT WITH GW PIECE MINOR CALC/QTZ VEINS IN ARG.
1		44		CONCA	
				WILLIAMS	
2		45			
				PERSOFF	
3		46	CONTORTED & MOTTLED W/CALC/QTZ VEINS		GW = SAME AS GW IN CONTACT W/ ARG ABOVE, GD TR PYR IN AND AROUND VEINS
				CALC VN	ARGILLITE = MED DK GRY (N4) HD, SILTY NON PHYLITIC, CONVOLUTED INTERLAMINATED SILTSTONE &
4		47	GOOD SLICKS 28° TO THE AXIS OF CORE		ARGILLITE, THICK CALCITE VEIN W BLADED CALC, TR PYR IN VEINS.
					MASSIVE GRAYWACKE = MED DK GRAY (N4) HD, LOW FN - LO MED, PRED FN SR, MOD SORT, SUBANG, VAGUE - INDIST QTZ GR BOUNDRIES
5		48?		GW	SLI FV22 LITHIC GR BOUNDRIES EXCEPT SHALE FRAGS, HI AMT QTZ OVERGROWTH FUSED W SILIC MATRIX, MASSIVE W/ VERY SLIGHT
6		49			FOLIATION EVIDENT FROM FLATTENING OF MORE MALLEABLE ARG GRS, BROWN BIOTITE PATCHES COM MILKY WHT QTZ BLEBS & MICROSCOPIC VEINS, COM - ABUNT LARGER 1-6 mm, CRISS-CROSSED
7		50			QTZ VEINS, NOTE: LOW AMT OF CALCITE IN VEINS F/ 4-7.4', TR FINE DISM PYR, INCR TO COM IN AND
				EOC	AROUND VEINS, NO EPIDOTE OR CHLORITE (LO. MG COLORS) F/4-7.4'
8					
9					
10					

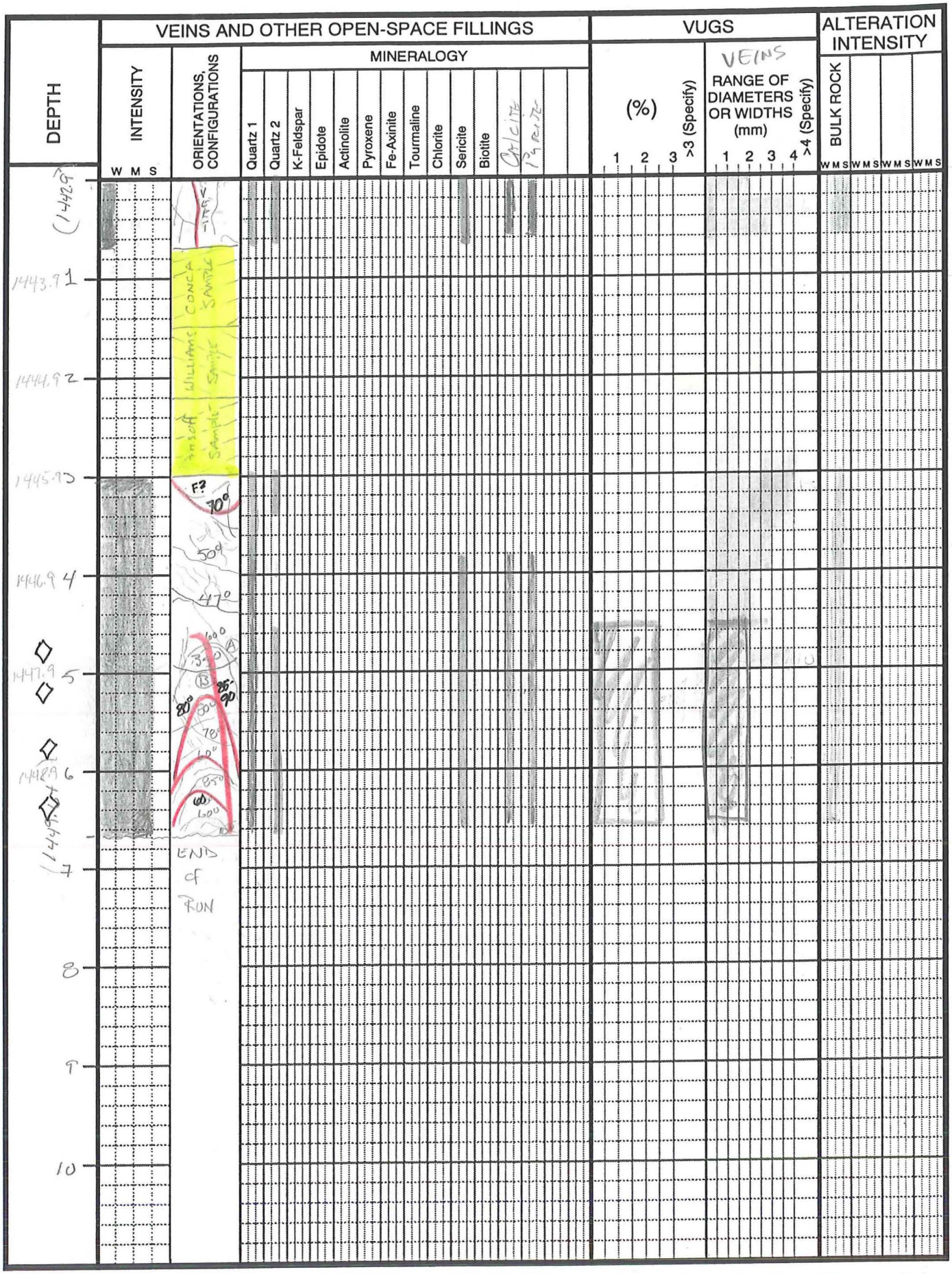
1443 1444 1445 1446 1447 1448 1449 1450 1451 1452 1453

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 1442.9 - 1449.64 Run No. (s) 72

Logged by DAVE SERR Date 9/27/94

FIELD GEOLOGIC LOG



GEYSERS CORING PROJECT . . . SB-15-Deepening

(Sheet 2 of 2 for this interval)

Depth Interval (ft) 1442.9 - 1449.64'

Run No. (s) 72

Logged by GS

Date 9/27/94

FIELD GEOLOGIC LOG

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DEPTH	FRACTURES: INTENSITY (W M S)	FRACTURES: RANGE OF APERTURES (mm) 1 2 >2 (Specify)	FRACTURES: ORIENTATIONS	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
0					QUARTZ RICH SILTY GRAYWACKE:
1					MASSIVE GRAYWACKE = MED DK GRY (N4) HD, lo V FN – lo MED GR, PRED FN GR, MOD SORT, SUBANG, VAGUE – INDIST QTZ GR BOUNDRIES, V SILIC APPEARANCE UNDER SCOPE DUE TO FUSED SILIC MATRIX W/ QTZ GRAINS, LOCALLY V ARGILLACEOS MATRIX
2					GEN GD LITHIC GR BOUNDRIES, COM MICROSCOPIC BLEBS OF QTZ PROB RELIC SAND GRS, V SLIGHT FOLIATION EVIDENT FROM FLATTENING OF ARE
3				GW	LITHIC GRS, COM MICROSCOPIC TO 1cm MILKY WHITE AND SLI TRANSLU QTZ VEINS WITH SMALL PATCHES OF
4					CALC IN THE CENTERS OF THE VEINS, VERY ABUNDANT QTZ VEINS @ 3–4', BROWNISH STAIN ON OUTSIDE OF CORE
5	XRD		BLADED CALC → SLIGHTLY TRANSLUCENT QTZ		ASSUMED TO BE CAUSED BY DRILLING, BLADED CALC IN FRAC @ 4–5'. (NOTE: BLADED CALC IN CENTER OF FRAC FILL SURROUNDED BY QTZ, BLADED
6					CALC MUST BE SECONDARY TO THE QTZ) TR FINELY DISM
7				EOC	PYR, LOCALLY ABNT DISM PYR IN AND AROUND VEINS AND FRAC FILL, NO EPIDOTE SEEN IN THIS CORE RUN. & NO CHLORITE
8					TR DETRITAL GREENSTONE GRS.

1449 1450 1451 1452 1453 1454 1455 1456

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 1449.64 – 1456.32 Run No. (s) 73

Logged by DAVID SERR Date 9/27/94

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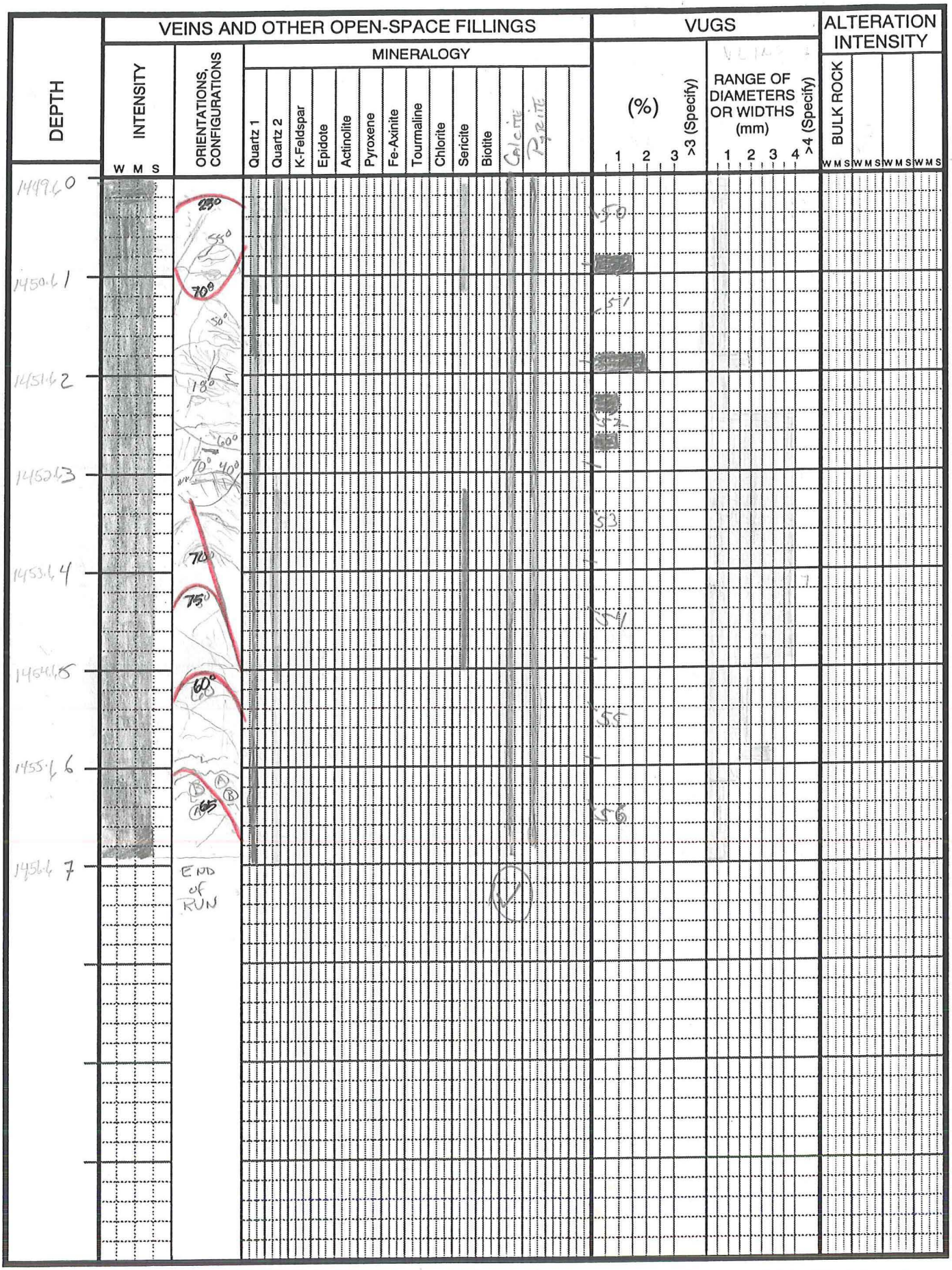

GEYSERS CORING PROJECT . . . SB-15-Deepening

(Sheet 2 of 2 for this interval)

Depth Interval (ft) 1449.6' - 1456.52'

Run No. (s) 73

Logged by GS

Date 9/27/94

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DEPTH	FRACTURES: INTENSITY (W M S)	FRACTURES: RANGE OF APERTURES (mm) (1, 2, >2 Specify)	FRACTURES: ORIENTATIONS	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
0			Rubblized		Overall cored interval is GW w/ drkr, siltier zones periodically over the length of the core, bedding is massive and lacks obvious soft sed def, contortions or other stand-out features other than a few thick Franciscan or Hyd veins
			Galena @ .7' in vein		
1			Rubblized		
			57		
			58		
2					
			59		GW - med dk (N-4) grx, lady, mass bedding lacks variable sedimentary structures, v fn to upper fn gr w/ v rr lwr med gr sz qtz gr; overall rock silicified to some extent; ltr mnrls are qtz gr and Alite, drk fraction of mnrls is chloritized or sli chlorized matic mnrls, semi-flattened Arg slivers and organic debris are scattered throughout the rocky, overall drkr zones appear siltier and more argillaceous in the matrix relative to the lighter grx portions.
3					
			60		
4					
			61		
5					
			62		
6					Note: veins with exposed faces exhibit 1-4(mm) mm bladed calcite xtals.
			63		
7					
			64		GW - as above
8					
			65	Bonner	
9					
			66	Perseff	
10				EOC	

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 1456.3 → 1466.3 Run No. (s) 74

Logged by JH, RD Date 9-27-94

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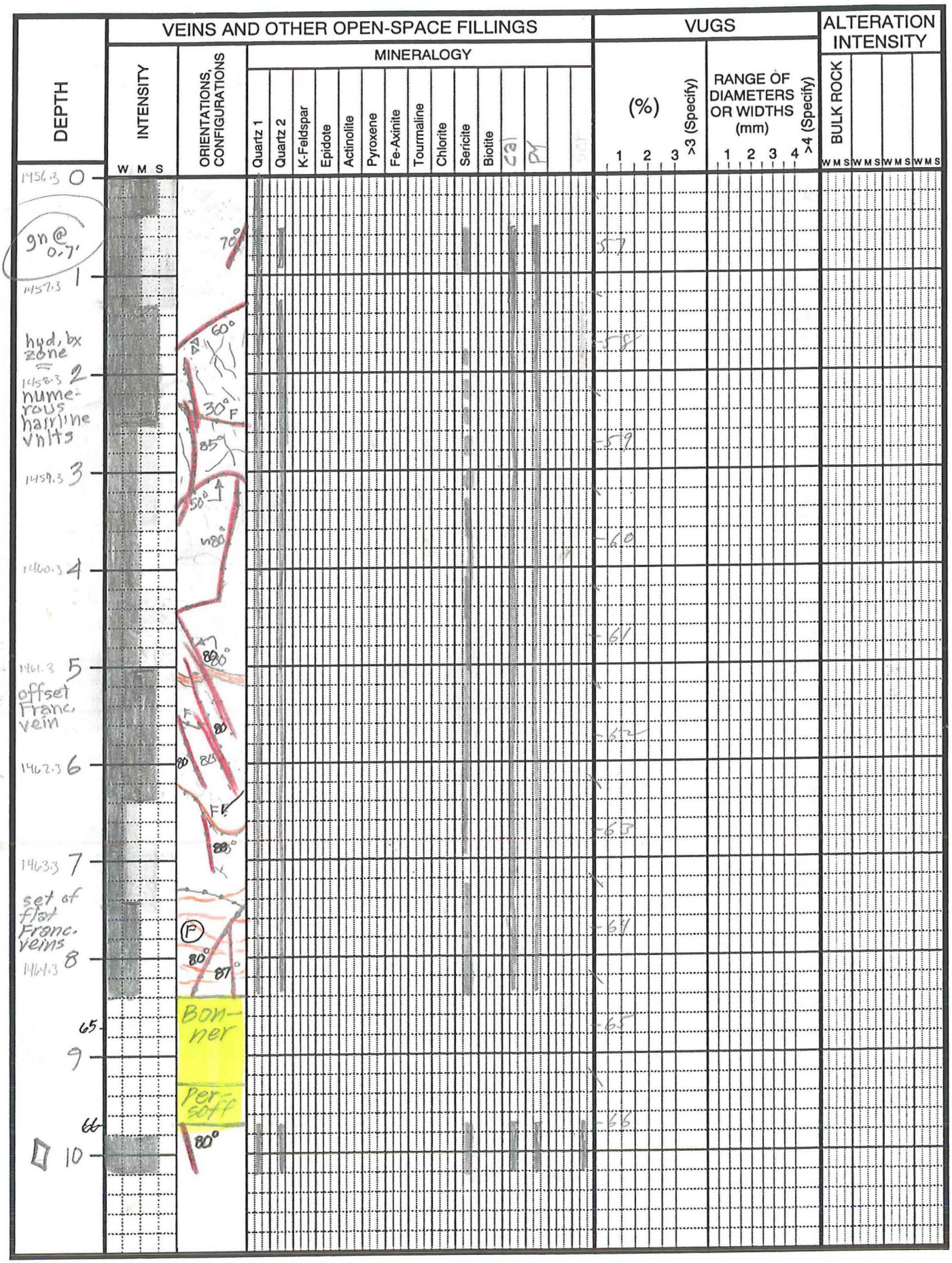

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 2 of 2 for this interval)

Depth Interval (ft) 1456.3-1466.3' Run No. (s) 74

Logged by JBH Date 09/27/94

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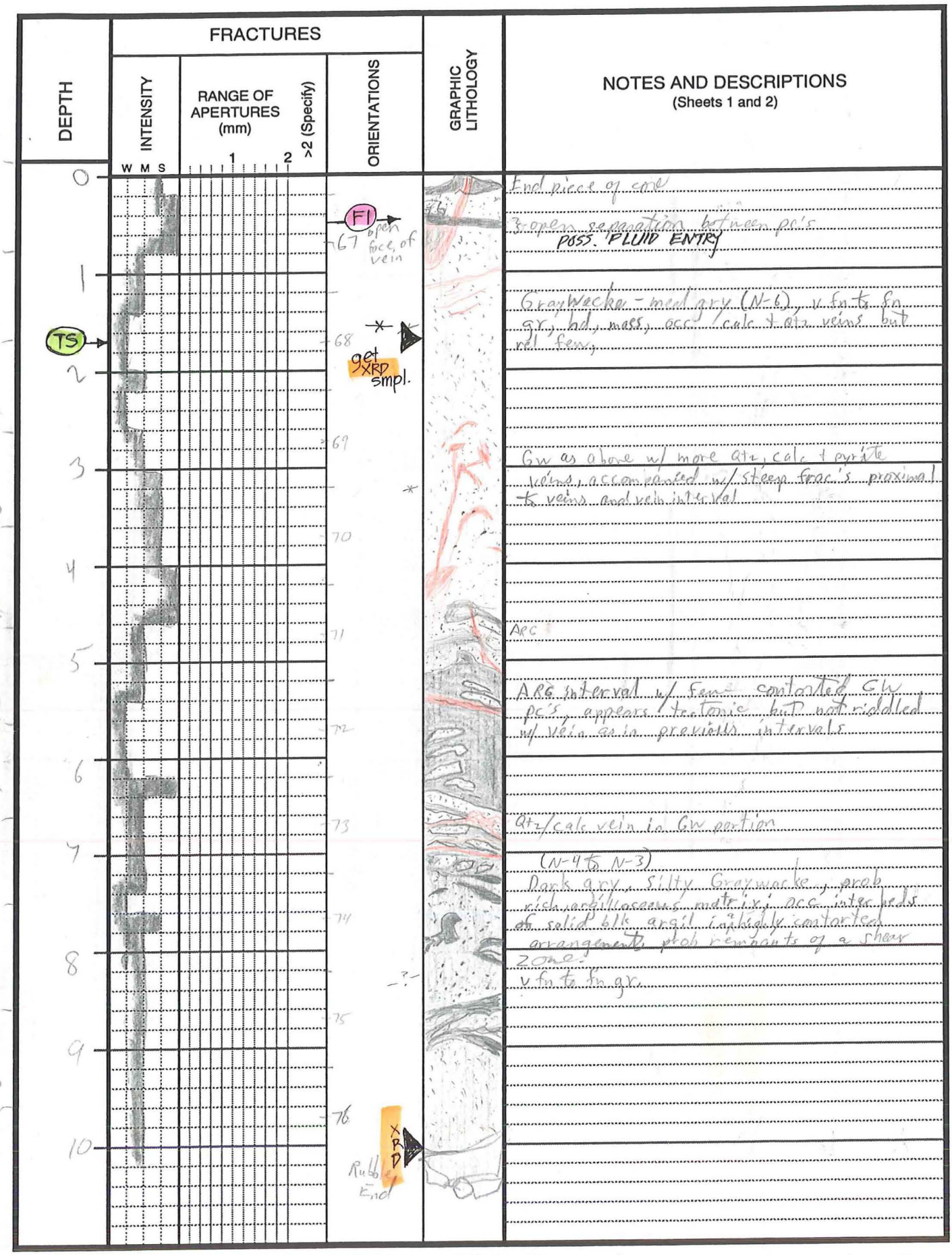

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 1466.3 - 1476.3 Run No. (s) 75

Logged by JBH, RD Date 09/27/94

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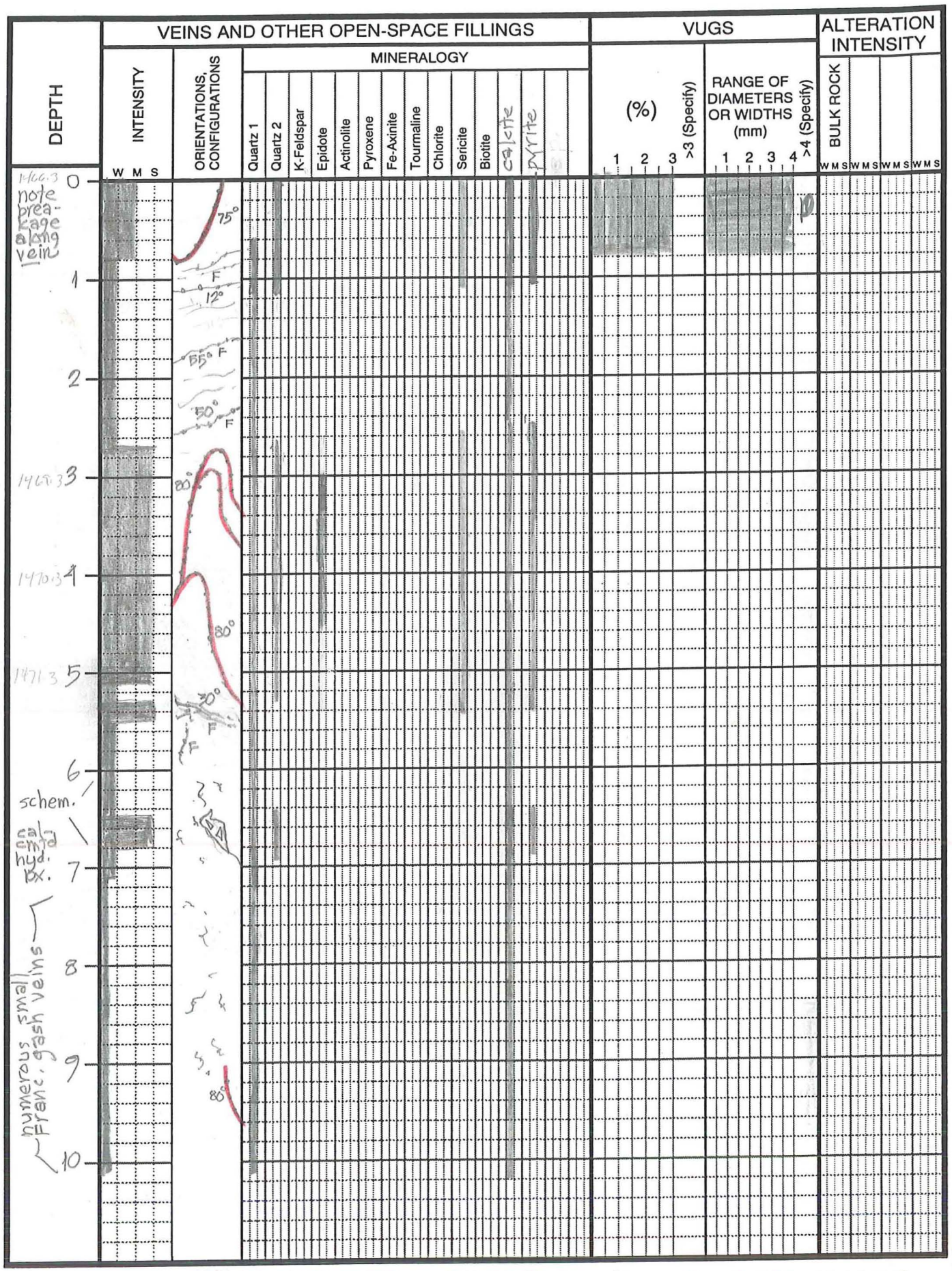

GEYSERS CORING PROJECT . . . SB-15-Deepening

(Sheet 2 of 2 for this interval)

Depth Interval (ft) 1466.3-1476.3'

Run No. (s) 75

Logged by JBH

Date 09/27/94

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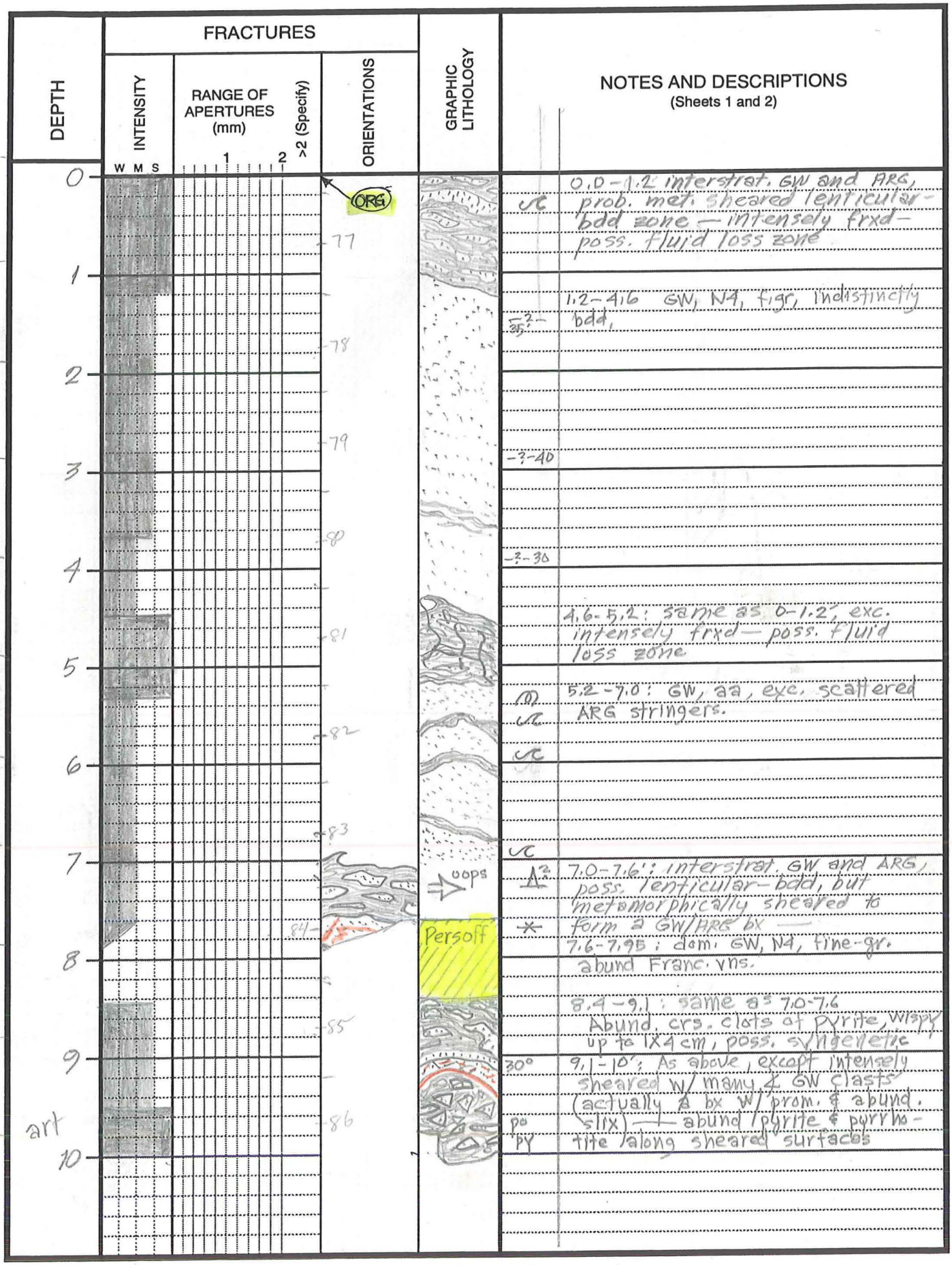

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 1476.3 – 1486.5 Run No. (s) 76

Logged by JBH Date 09/27/94

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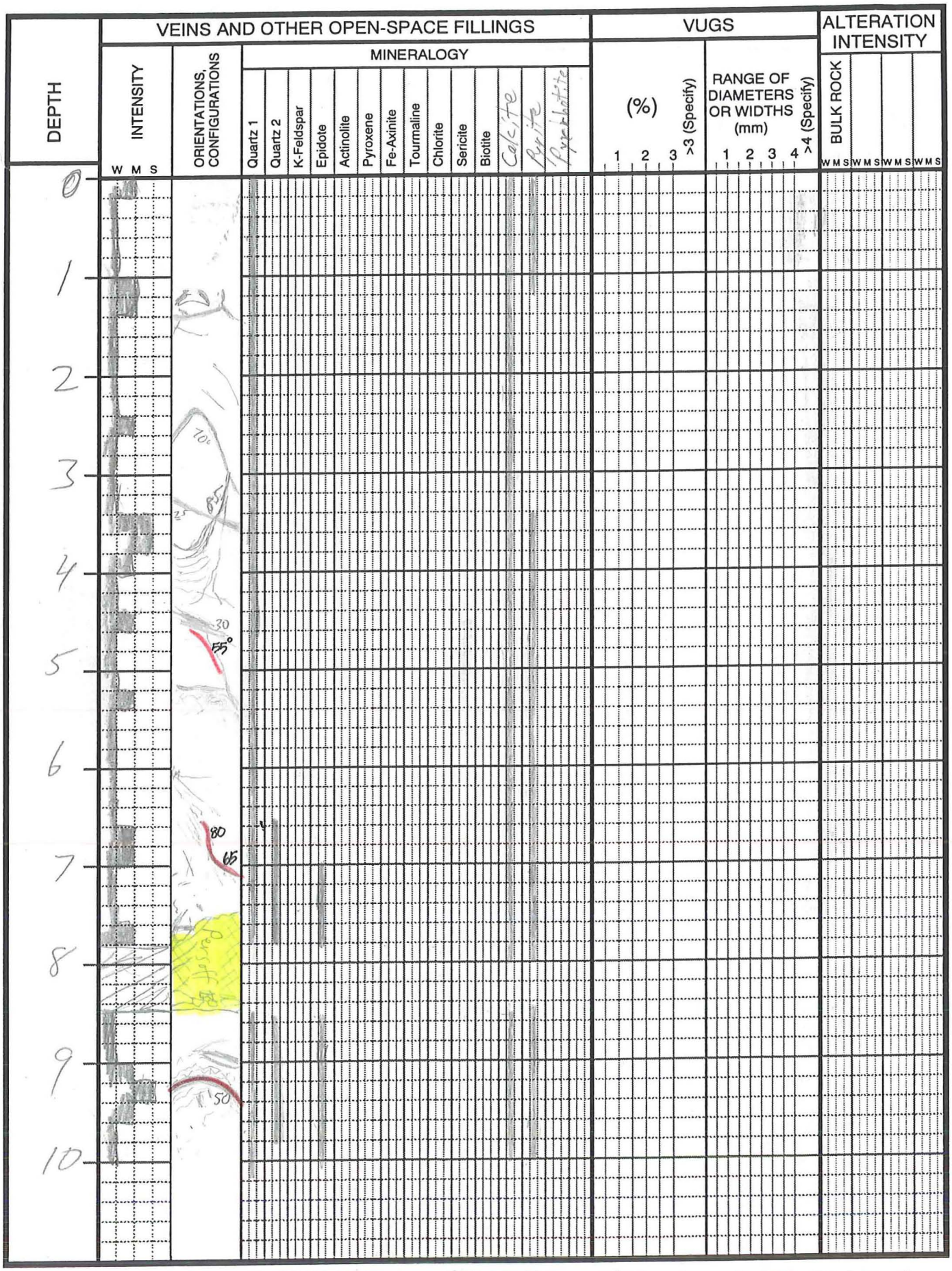

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 2 of 2 for this interval)

Depth Interval (ft) 1476.3 – 1486.5

Run No. (s) 76

Logged by JH, RD

Date 9-27-94

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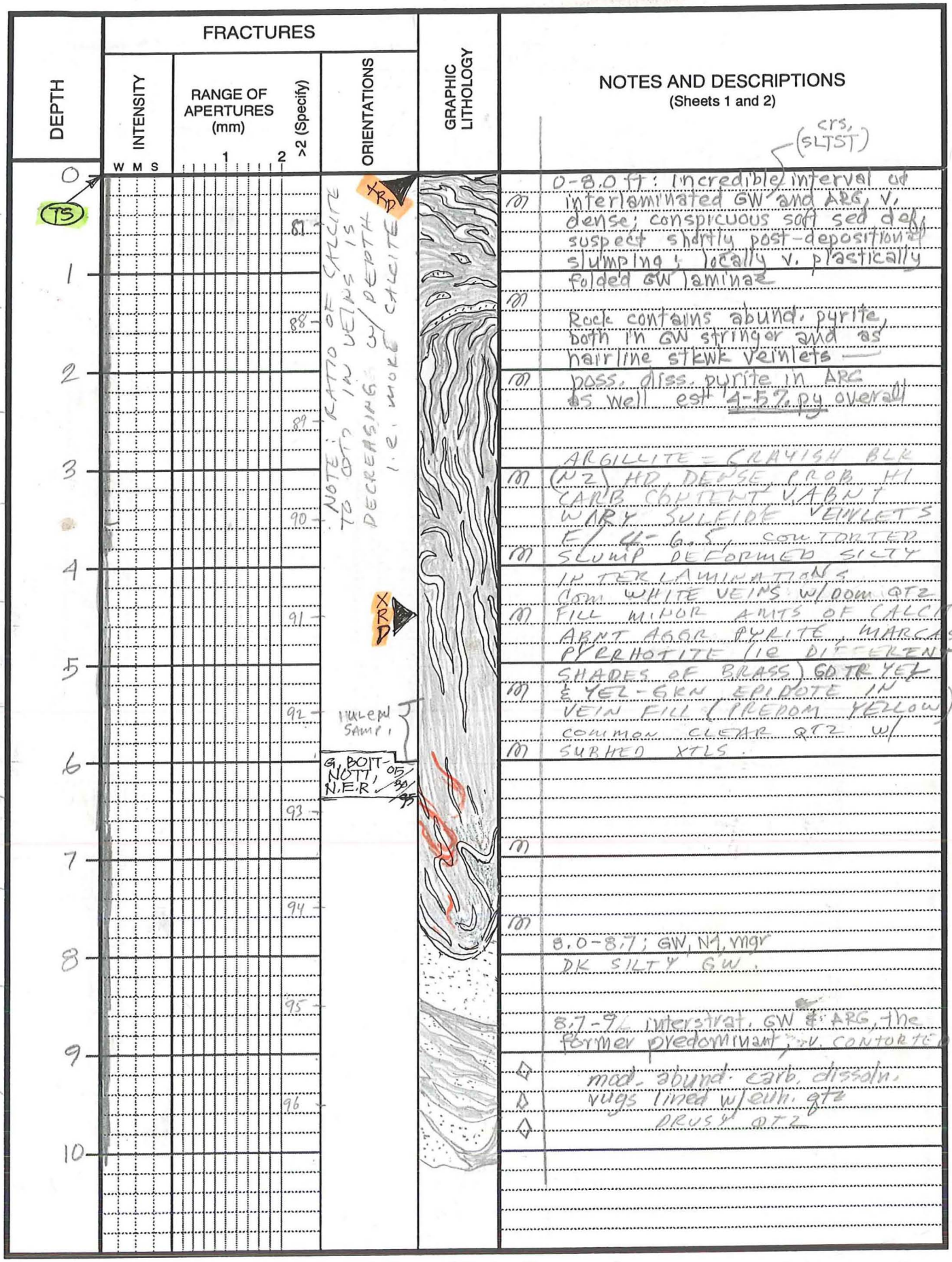

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 1486.5 — 1496.5 Run No. (s) 77

Logged by JH, RD Date 9/27/94

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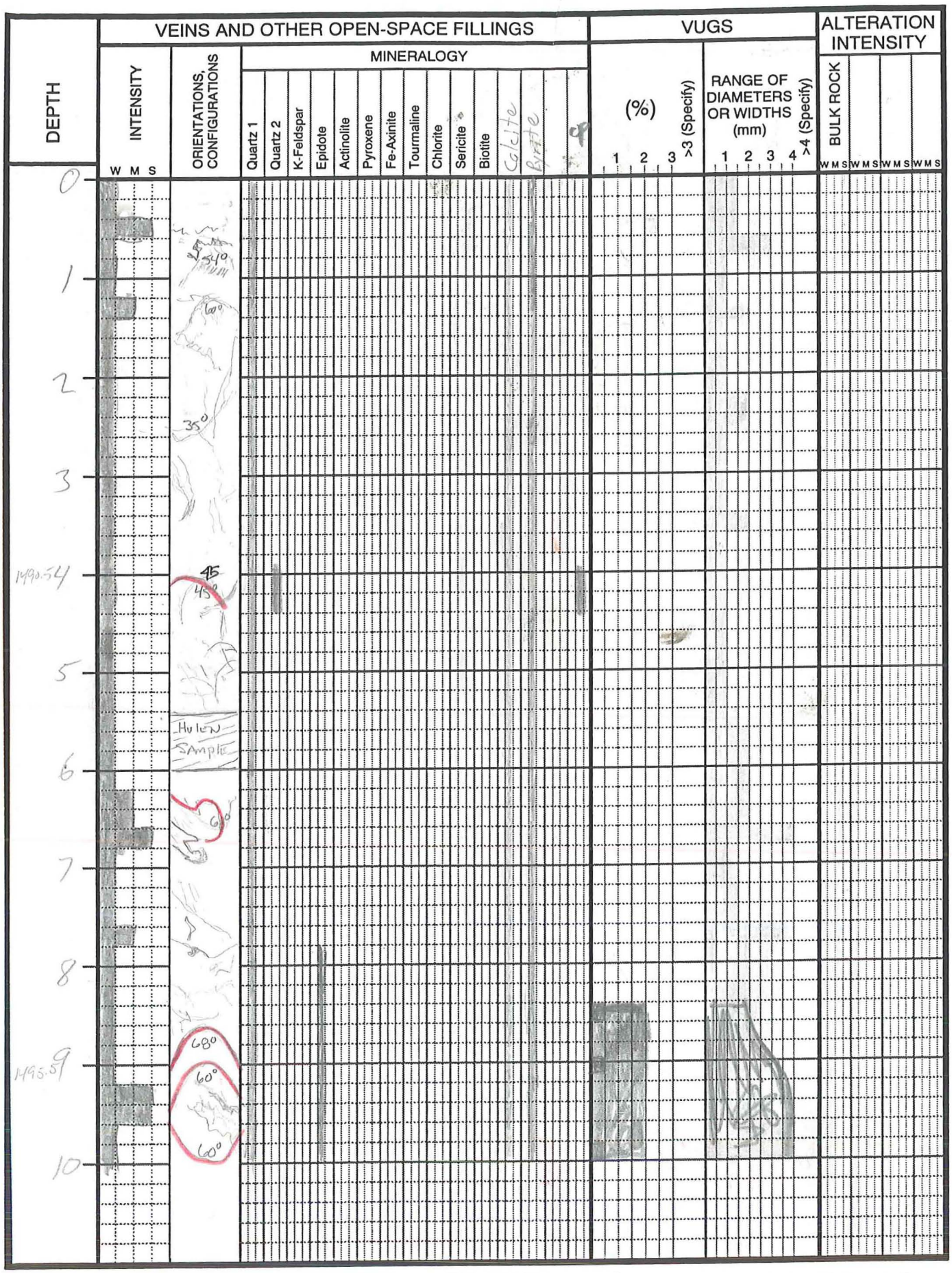

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 2 of 2 for this interval)

Depth Interval (ft) 1486.5 – 1496.5 Run No. (s) 77

Logged by JH, RD Date 9/27/94

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NOTE: STEAM ZONES COULD BE IN THIS PUNKY GW

DEPTH	FRACTURES: INTENSITY (W M S)	FRACTURES: RANGE OF APERTURES (mm) (1, 2, >2 Specify)	FRACTURES: ORIENTATIONS	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
0				SIDE 2 IN PHOTOS	
			97		MASSIVE GW
					LARGE BLADED CALCITE & EUHED RH QTZ IN VEIN,
1					
			98	WILLIAMS	
					ARGILLITE = V BRITTLE AND
2					CRUMBLY, HYDROTHERMAL ATTACKED
					W/ BREAK DOWN OF CLAYS
			99	HYDRO-THERMAL	
				PUNKY GW	PUNKY GW = MED GRY (N5) SLIGHTLY
3				PUNKY	FRIABLE, FN-MED GR, SOFT LT GRY
					TO BUFF COLORED CLAYEY MATRIX
				get XRD	MATRIX MAKING UP 50% OF RX
			1500		MASS, WHITE POWDERY SURFACE WHEN
				LARGE QTZ CALC VEIN	DRY, ABNT DISM PYR CUBES
4					ENORMOUS WHT CALC/QTZ VEIN
					W/ LARGE (UP TO 2cm) BLOBS OF
			1	SOLID GW	TRANSLUCENT QTZ, V. ABNT
					VUGS FROM 1mm to 1x2cm) W.
5					DRUSY QTZ CRYSTALS, COM PYR
					AROUND EDGES NEAR ROCK SURFACE
			2	PERSOFF	BUT NOT MUCH INSIDE
6				SOLID GW	MASSIVE GW = MED LT GR (N6) TYPICAL
					OF SOLID MASSIVE GW SEEN ABOVE
			3		
				PUNKY GW	HYDROTHERMAL BRECCIA ZONE =
7					HIGHLY BROKEN ZONE, THE ORIGINAL
					GW & ARG BEDDING IS STILL
			4	V ABNT PYR	PRESERVED, FILM OF DK GRY
					CLAY ON SURFACE OF CORE
					PROB DUE TO CLAYS BEING SUCKED OUT BY DRILLING ACTION
8				PUNKY GW	ABUNDANT FINE VUGS "LOOKS LIKE
					WORM ROT" HERE
			5	HYDROTHERMAL BRECCIA ZONE	VERY ABNT SULFIDES THROUGHOUT
					ABNT CHUNKS OF WHITE CALCITE
					VEIN PATTERN HAS BEEN
9				SLMLY PUNKY	DISTROYED, HIGH POROSITY
					IN BRECCIA POROSITY, ALL
			6	EPIDOTE IN QTZ VEIN	ANGULAR BRECCIA FRAGS,
				XRD	NO SHEARED OR ROLLED BRECCIA
(TS)		FT			FRAGS?
				EOC	

get TS smpl.

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 1496.52 – 1506.78 Run No. (s) 78

Logged by DAVE SERR Date 9/27/94

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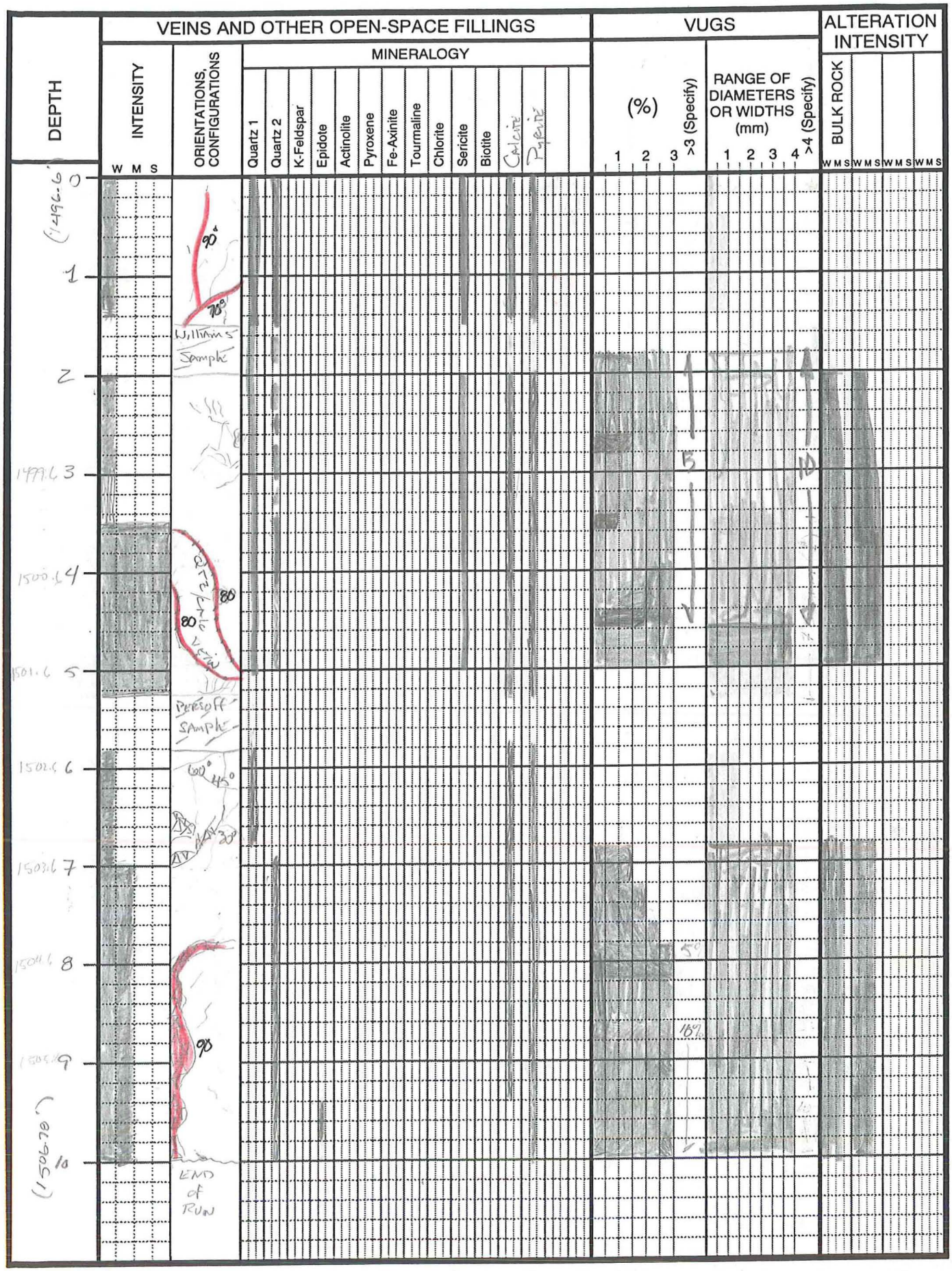

GEYSERS CORING PROJECT . . . SB-15-Deepening

(Sheet 2 of 2 for this interval)

Depth Interval (ft) 1496.6 — 1506.78'

Run No. (s) 78

Logged by DS/GS

Date 9/27/94

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DEPTH	FRACTURES: INTENSITY (W M S)	FRACTURES: RANGE OF APERTURES (mm) 1 2 >2 (Specify)	FRACTURES: ORIENTATIONS	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
					SIDE 2 IN PHOTOS
0			XRD	CALC	CONT SIMI-PUNKY TO 6"
TS			XRD		TS SHOWS ABUNDANT ADULARIA
			T 85°	WHITE CALC/QTZ	2.5 cm THICK WHITE CALC/QTZ VEIN AT 85° FROM PERPENDICULAR TO CORE, ABUT BLADED CALC & LARGE GLOBS OF TRANSLUCENT QTZ, GD TR DISM PYR, NO IDENTIFIABLE VUGS, PIECES MISSING FROM THIS VEIN MAT.
2					ARGILLITE = DK GRY (N3), HD CONTORTED INTERLAMINATED ARG + SILTSTONE BECOMING WISPY
3					F/ 3 – 3.4', COMMON WHT CALC/ SILIC VEINLETS IN SILTSTONE, TR PYR IN AND AROUND VEINS, TR YEL EPIDOTE IN VEIN FILL.
4					MASSIVE GRAYWACKE = MED LT GRY (N6), HD, to V FN – LO MED, PRED FINE GR, FAIR-GD ARG LITHIC GR BOUNDRIES, INDIST QTZ GR BOUNDRIES, QTZ OVERGROWTHS FUSED W/ WHITISH SILIC MATRIX, LT COLORED
5				GW	HOMOGENEOUS MATRIX, FEW SMALL LITHICS INCLUDING SHALE DETRITAL BIOTITE & GREEN COL GRS, TR INTERSTITIAL CALC V. WEAK FOLIATION EVIDENT FROM FLATTENING OF MALLIABLE SHALE GRS, GR TR EXTREM FINE DISM SULFIDES, MINOR CRISS-CROSS THIN FRAC CALC/QTZ VEINS, COMMON DISM CUBIC PYR IN AND AROUND VEINS. NO EPIDOTE SEEN F/ 4 – 10'
6					
7					
8					
XRD 9			ORG		WISPY ARG + SILTSTONE BED.
10					

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 1506.78 – 1516.78 Run No. (s) 79

Logged by DAVE SERR Date 9/28/94

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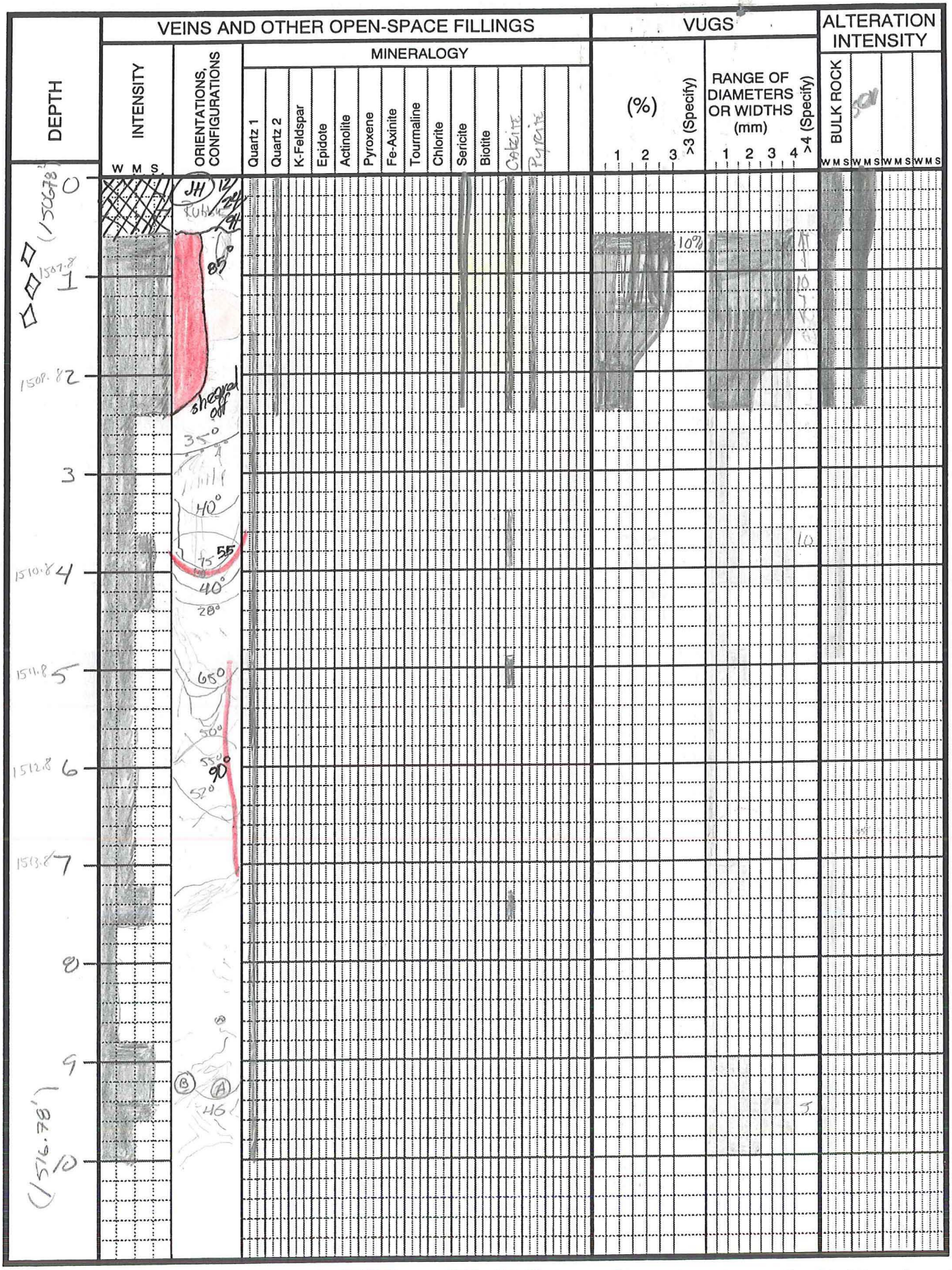

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 2 of 2 for this interval)

Depth Interval (ft) 1506.78 - 1516.78 Run No. (s) 79

Logged by DS/GS Date 9/28/94

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DEPTH	FRACTURES: INTENSITY (W M S)	FRACTURES: RANGE OF APERTURES (mm) (1, 2, >2 (Specify))	FRACTURES: ORIENTATIONS	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
0			17	PERSOFF	
1			18	CONCA	
2			19		MASSIVE GRAYWACKE = MED LT GRY (N6) SAME AS DISCRIBED BELOW. W/ TR HEMATITE (BRICK RED) IN VEIN (MAYBE FROM MUD OR SOMETHING)
3			20 XRD		
4			21		ARGILLITE = DARK GRY (N3) HD FINELY LAMN, BECOMING SILTY W/ DEPTH, SLI MORE PYR COMPARED TO GW, INTERLAMN W/ SILTSTONE, MORE QTZ THAN EPID CALCITE IN VEINS. FAINT YEL TINT.
5			22		MASSIVE GRAYWACKE = MED LT GRY (N6), HD, MOD-LO MED GR, PRED FN GR, P SORT, SUBANG, GD GR BOUNDRIES, FAIR QTZ GR BOUNDRIES, LOC, V ARGILLACEOUS
6			23		MULTICOL LITHICS INCLUDING TR. GRNSTN, BRONZE MICASE, HEM STAINED GRS, DETRITAL EPIDOTE, SLTY MICROLITHS, OCC COARSE SHALE GRS, MASSIVE
7			24		HAS ORIGINAL SED FABRIC, GRADED BEDDING @ 5.5', LOC DARKER SILTY AREAS OCC WISPY ARG STRUCTURES, MINOR THIN CALC/QTZ FRANCISCAN VEINS
8			25		TR YEL EPIDOTE STAIN F/ GR TO LOC, TR-MNR DISM PYR IN VEINS, HIGH PERCENTAGE OF VEIN FILL IS CLEAR QTZ (UNDER SCOPE)
9			26		ARGILLITE = N3, GD PARTING LINEATION, FISS, LOW PHYLITIC SHEEN, INCR PYR IN ARG, DULL LUSTER
10			27 SOME GOOD EPIDOTE HERE	ED	V SILTY WELL INDURATED OR COARSE

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 1516.78 - 1527.0 Run No. (s) 86

Logged by DAVE SERR Date 9/28/94

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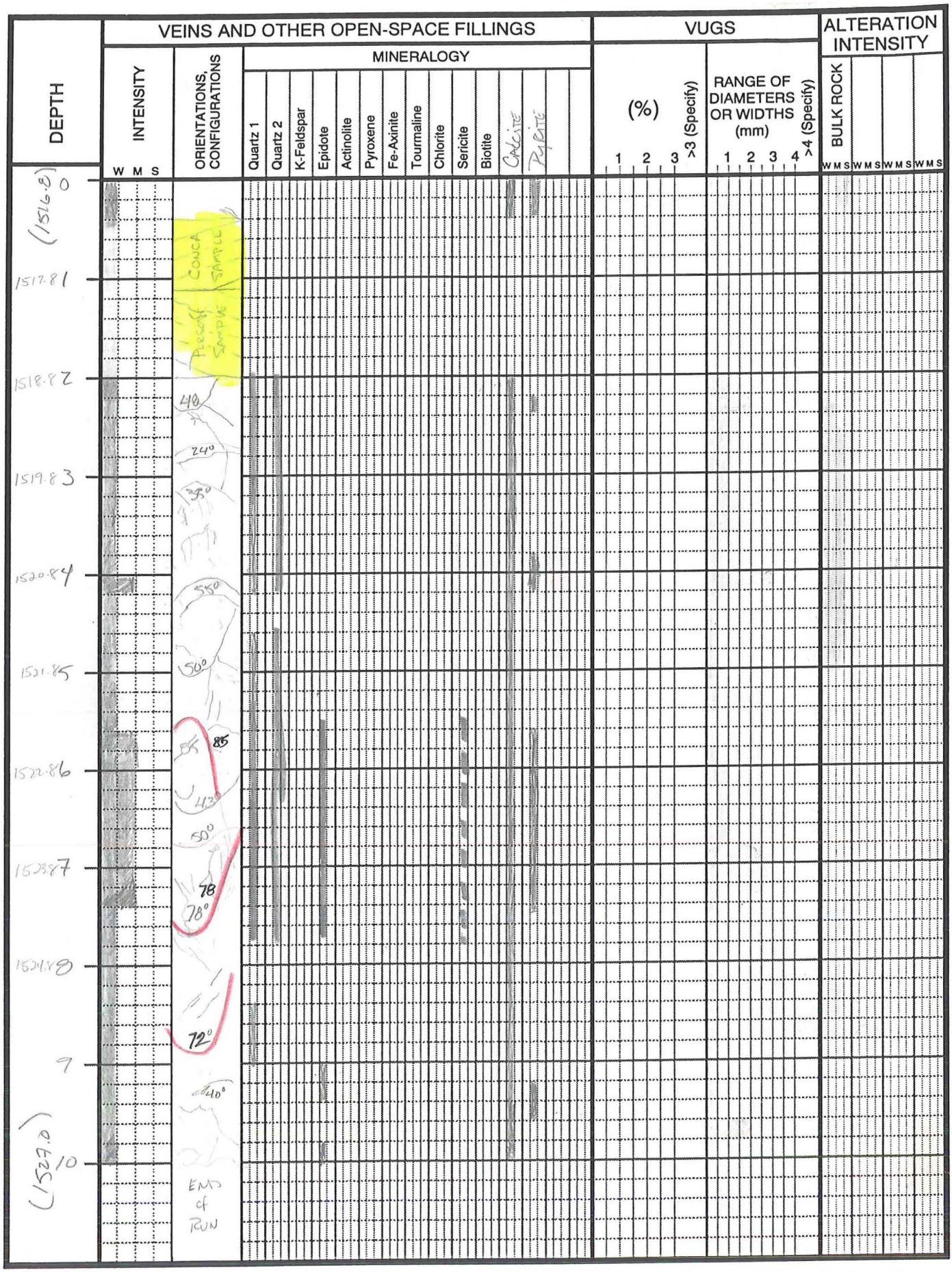

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 2 of 2 for this interval)

Depth Interval (ft) 1516.78 - 1527.0 Run No. (s) 80

Logged by DS/GS Date 9/28/94

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DEPTH	FRACTURES: INTENSITY (W M S)	FRACTURES: RANGE OF APERTURES (mm) (1, 2, >2 Specify)	FRACTURES: ORIENTATIONS	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
0					0-0.7': GW, NA, f-mgr, msv, dense, hard
1			33		0.7-1.15': Interstrat AR & GW, prob. met. sheared lenticular-bdd interval — abund py & qtz-py vnlts < 1 mm wide
2			34		1.5-3.75': same as 0-0.7' — subtle stkwk effect produced by thin, randomly-oriented micro-shear zones
3			35		
4			36	XRD	3.75-4.30': Gouge & bx zone involving cal-qtz± py vn(s) — these are incorp. as clasts — they're also hyd. vns, making this a relatively recent fault.
5			37		ARG stringer with vuggy etched Franc. vein.
6			38		4.3-7.5': Interstrat GW & ARG, GW dom. — GW has vague, indistinct, disturbed-appearing bdding. — local flame & injection structure — local etched, vuggy Franc. veins.
7			39		7.5-10': GW, msv, subtle disturbed bdding & silica? stkwk. — grdd upward fr. mgr to vfgr.
8			40		
9			41		NOTE: RUN #1 WAS A 5' BONNER SAMPLE SEALED IN AN O-RING CAPPED ALUMINUM TUBE.
10			42		

(TS) SHOWS ABUND. PREHNITE (?) & WAIRAKITE

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 1532-1542 Run No. (s) 82

Logged by RD, JH Date 09/28/94

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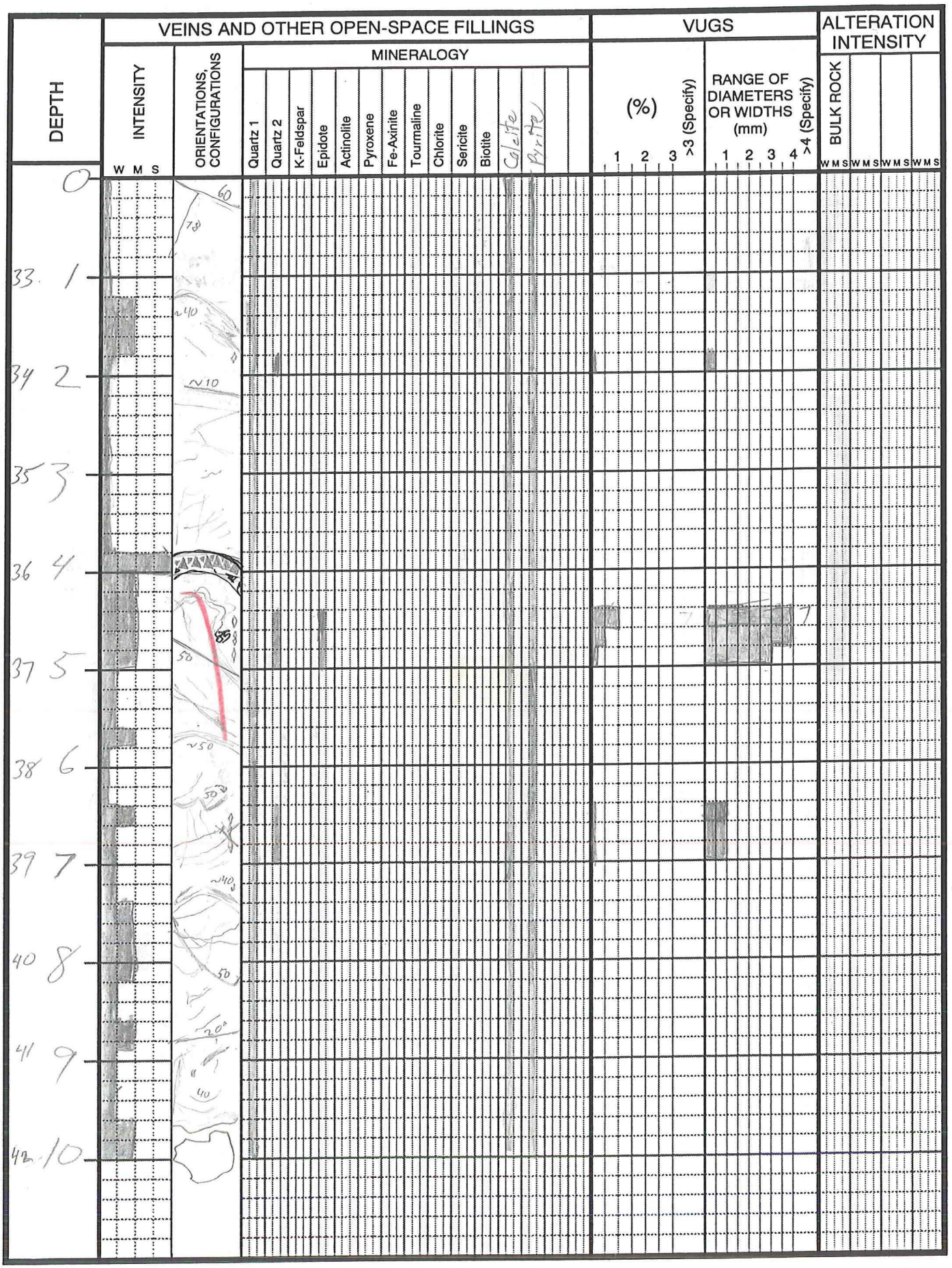

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 2 of 2 for this interval)

Depth Interval (ft) 1532-1542.0 Run No. (s) 82

Logged by JH, RD Date 9/28/94

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Run 81 = 5' sealed Boner sample

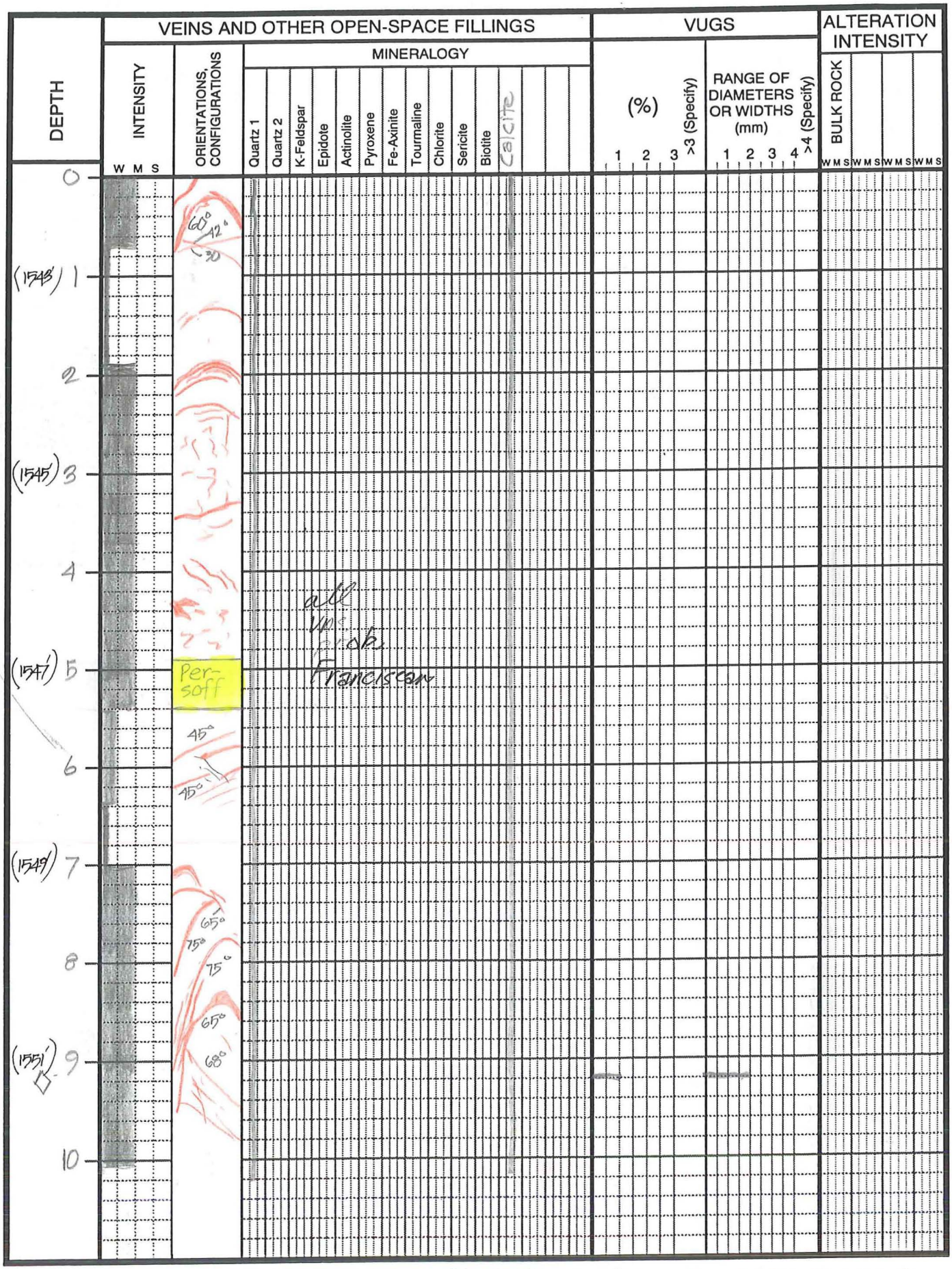
DEPTH	FRACTURES: INTENSITY (W M S)	FRACTURES: RANGE OF APERTURES (mm) (1, 2, >2 Specify)	FRACTURES: ORIENTATIONS	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
0					0-4.9': GW, NA, f-mgr, msv, w/ vague darker gray stkwk apparently made up of randomly-oriented micro-shear zones (ARG concentrations, too?) — v. fracture-free but locally abund Franc. qtz-calcite vnlts.
No frx (1543') 1					
2					
(1545') 3					
4					
(1547') 5			ORG	Per-soft	
					5.4-10= GW, aa, exc. sparse ARG stringers
6					
			SMPL SENT TO C. SETH, STANFORD UNIV. 04/07/95		
(1549') 7					
8					
(1551') 9					
10					

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 1542 - 1552 Run No. (s) 83

Logged by JH, RD Date 9-28-94

FIELD GEOLOGIC LOG

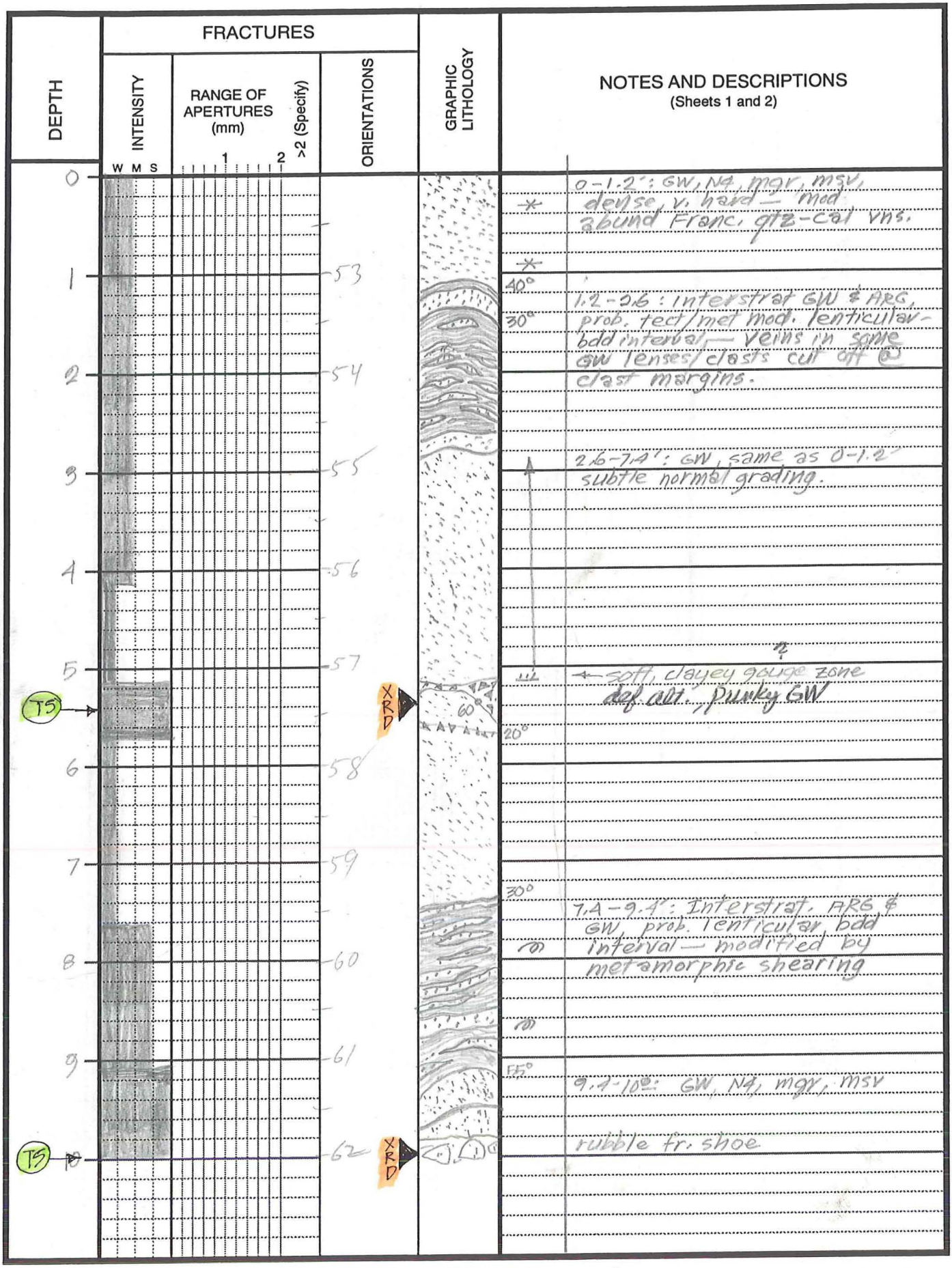


GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 2 of 2 for this interval)

Depth Interval (ft) 1542-1552' Run No. (s) 83

Logged by JH, RD Date 09/28/91

FIELD GEOLOGIC LOG



GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 1552-62' Run No. (s) 84

Logged by JH Date 09/28/94

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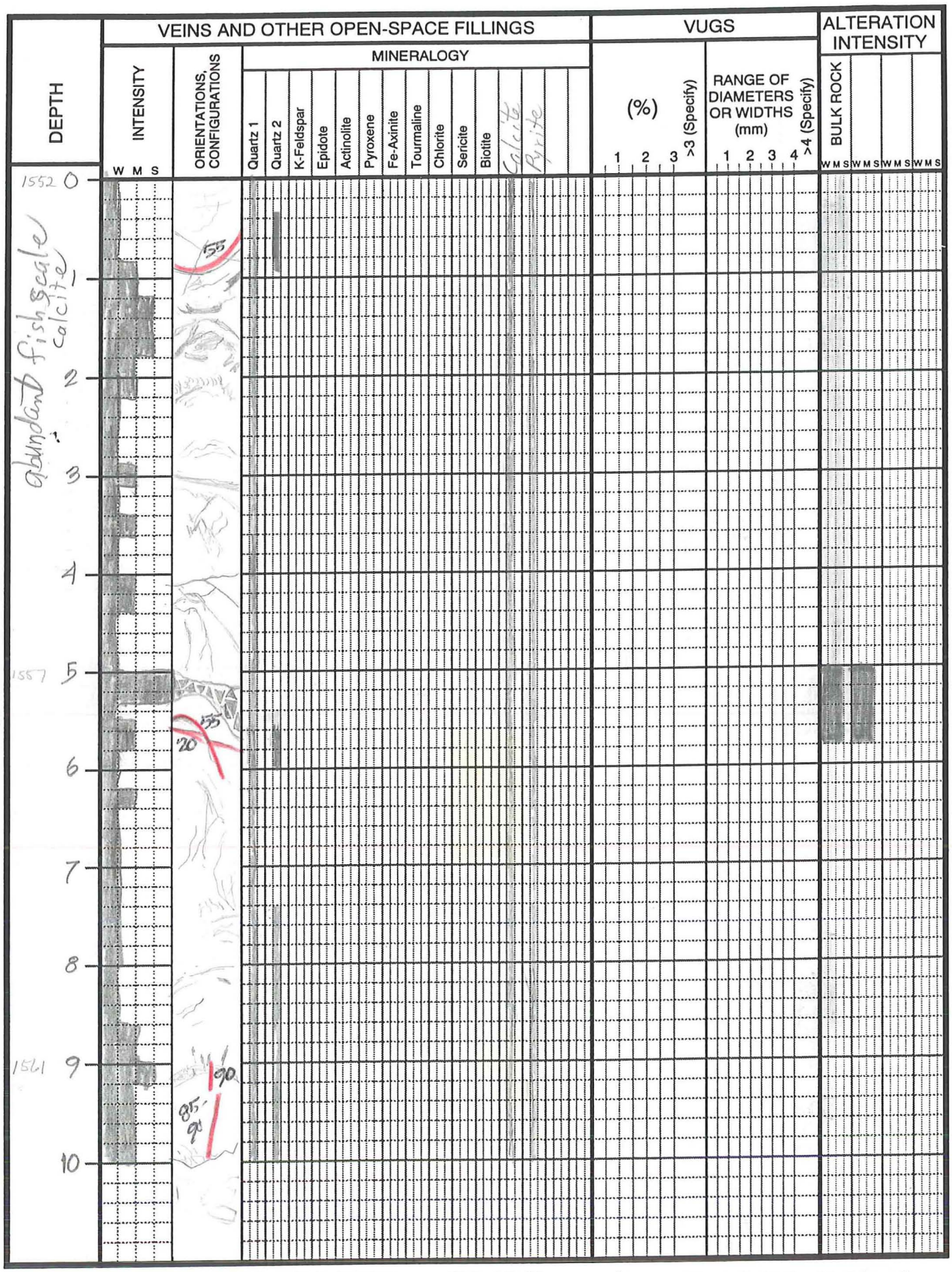

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 2 of 2 for this interval)

Depth Interval (ft) 1552-1562'

Run No. (s) 84

Logged by JH, RD

Date 09/28/94

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DEPTH	FRACTURES: INTENSITY (W M S)	FRACTURES: RANGE OF APERTURES (mm) (1, 2, >2 Specify)	FRACTURES: ORIENTATIONS	GRAPHIC LITHOLOGY (SIDE 2)	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
0					ARGILLITE = DK GR(N3) SOFT - FRM, V BRIT, CRUMBLY, HI CLAY ALTERN, FINE LAMNS STILL PRESERVED, ABNT WIRY SULFIDE VEINS, SERICITIZED MATRIX OF GW HYDROTHERMAL CLAY ALTRN.
1			63		
2			64		MASSIVE GW = MED LG GR (N6) V SLI GRN TINT, HD, lo VF — lo MED GR, FELDSPATHIC GW VAGUE QTZ GR BOUNDIES SLI SILIC OVERGROWTHS, CLAY RICH MATRIX, LT COL MATRIX NON CALC, NO FOL, TR SCAT DETRITAL ?? EPIDOTE SLI CHLORITZD, R DISM PYR.
3			65		
4			66		
5			67		
6			68	BONNER 1.5'	
7			69		
8			70		GW / AS ABOVE
9			71	PERSOFF WILLIAM	
10			72	EOC	

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 1562 - 1572.0 Run No. (s) 65

Logged by DAVE SERR Date 9/28/94

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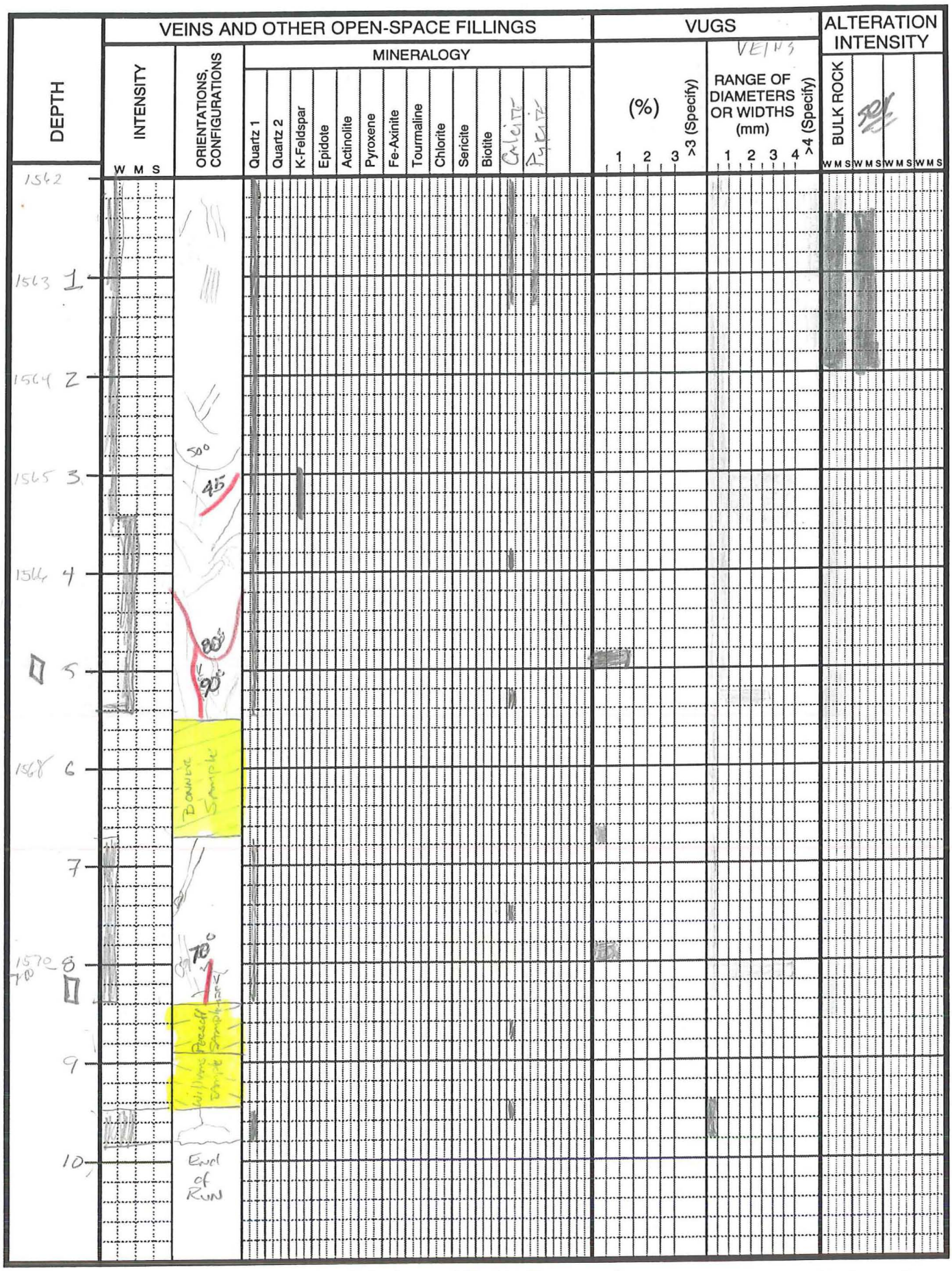

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 2 of 2 for this interval)

Depth Interval (ft) 1562.0 - 1572.0 Run No. (s) 85

Logged by DS/GS Date 9/28/94

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DEPTH	FRACTURES: INTENSITY (W M S)	FRACTURES: RANGE OF APERTURES (mm) (1, 2, >2 Specify)	FRACTURES: ORIENTATIONS	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
10				SIDE 2 IN PHOTOS	
			A LOT OF GREEN-STOONE GRS		
1					MASSIVE GRAYWACKE = MED LT GRY (N6) TO LIGHT OLIVE GRY (5Y 6/1) = HD V FN - MED GRS, PRED
2					MED, V P SORT, SUBANG - SUBRNDD, GD GRAIN BOUNDRIES, SLI FUZZY QTZ GR BOUNDRIES, COMMON EST 10-20% GREENSTONE
3					GRAINS GIVING ROCK A GREENISH CAST, OCC QTZ/ & CALC FILL MICRO FRACS,
				GW	MASSIVE HAS KEPT ITS
4					ORIGINAL SED TEX SD TR SCAT EDIP DETRITAL GRS,
					DETRITAL SHALE GRS W/
5					DETRITAL PYRITE, MASSIVE, LACKS ANY BEDDING OR SEDIMENTARY STRUCTURES.
					MINOR THIN CRISS-CROSSED
6					WHITE FRANCISCAN QTZ & MINOR CALC VEINS, NO VEINS
					GREATER THAN 4 mm (MOST
					ARE 1 mm) THIN BLADED
7					CALCITE IN VEINS GIVING SPARKLING LUSTER ON FLAT VEIN SURFACE. NOTED V.
			-79.5		RARE PYRITE IN SAME
					VEINS (I GUESS BECAUSE OF
8			√2.	PERSOFF	NO ARG IN HERE), RARE LOC GREEN TINT IN VEIN FILL.
					GW = SAME AS ABOVE.
9				GW	
10					

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 1572.0 - 1582.0' Run No. (s) 86

Logged by DAVE SERR Date 9/29/94

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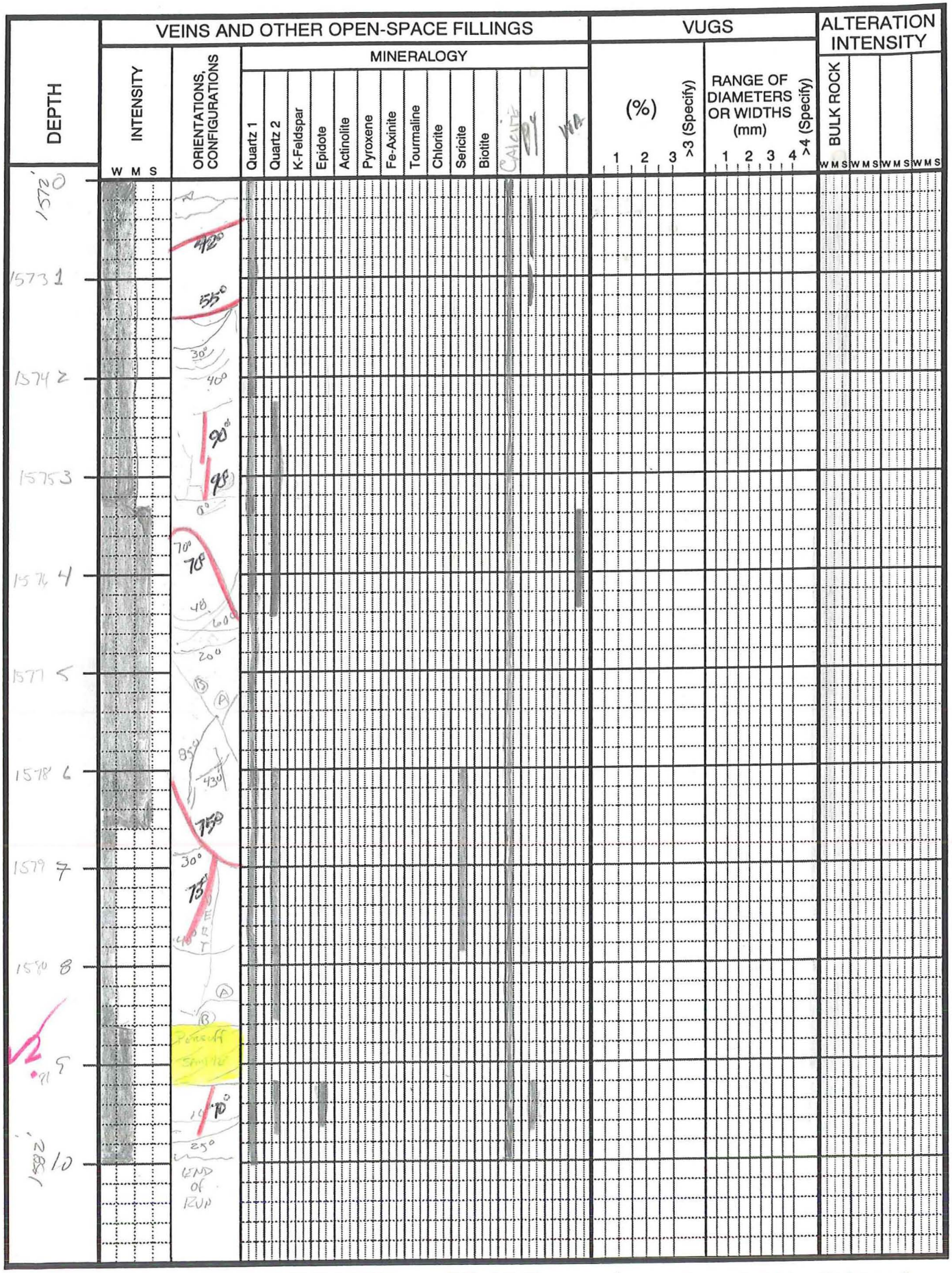

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 2 of 2 for this interval)

Depth Interval (ft) 1572.0 – 1582.0 Run No. (s) 86

Logged by DS/GS Date

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DEPTH	FRACTURES: INTENSITY (W M S)	FRACTURES: RANGE OF APERTURES (mm) 1 2 >2 (Specify)	FRACTURES: ORIENTATIONS	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
0				SIDE 2	√ TO 2.2'
1			FLATTENED ELONGATED ARG CLAST ORIENTED VERTICALLY	1-6 mm ARG CLASTS	GRAYWACKE = LOW V FN - UP CRS GR, MED LT GRY (N6) TO LIGHT OLIVE GRY WHEN WET (5Y 6/1) HD, VP SORT, SUBANG - SUBRNDD, GR/MTRX BOUNDRIES, SLI FUZZY QTZ GR BOUNDRIES, SLI FOLIATION IN VERTICAL DIRECTION, COMMON PALE GRN GREENSTONE GRS OR CHLORITE ATACKED LITHIC GRS, RARE LAVENDER COL GRS, TR VEL DETRITAL EPIDOTE, TR DISM PYR, COM MICROFRAC W/ CALCITE FILL, SILIC CHLORITIC? MATRIX, INTERSTITIAL CALC,
2					
3			MASSIVE		
4			sample	G. BOITNOTT, 5/31/95	MASSIVE GW = MED LT GRY (N6) TO LIGHT OLIVE GRY (5Y 6/1) HD, V FN - MED GR, DDM FN GR, P. SORT, SUBANG, GD GR BOUNDRIES, SLI FUZZY QTZ GR BOUNDRIES, COMMON PALE GRN GREENSTONE GRS
5					GIVING THE ROCK A GREEN CAST WHEN WET, OCC QTZ & CALC FILLED MICROFRACS MASSIVE, TR SCAT DETRITAL? VEL EPIDOTE GRS, MASSIVE
6				GW	VAGUE TO DEGREE BEDDING @ 9-10', MINOR THIN CRISS-CROSS WHITE QTZ & CALC VEINS, THIN BLADED CALCITE IN VEINS, RARE DISSEM PYR, SLI INCR IN AND AROUND VEINS. FRACTURE APPEAR MOSTLY DRILLING INDUCED.
7					
8					
9					
10				EOC	

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 1582.0 - 1592.0 Run No. (s) 87

Logged by DAVE SERR Date 9/29/94

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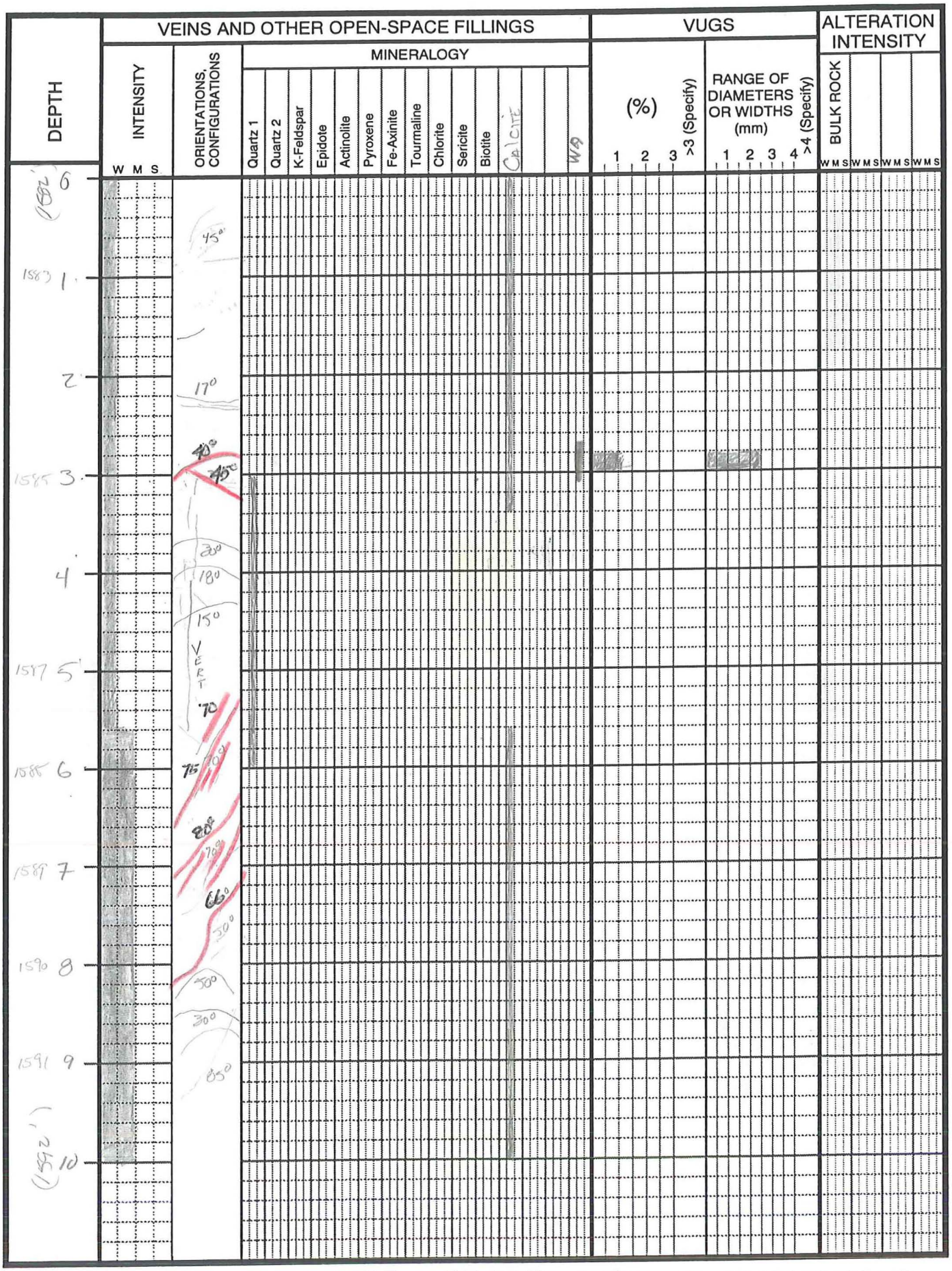

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 2 of 2 for this interval)

Depth Interval (ft) 1582 – 1592 Run No. (s) 87

Logged by DS/GS Date 9/29/94

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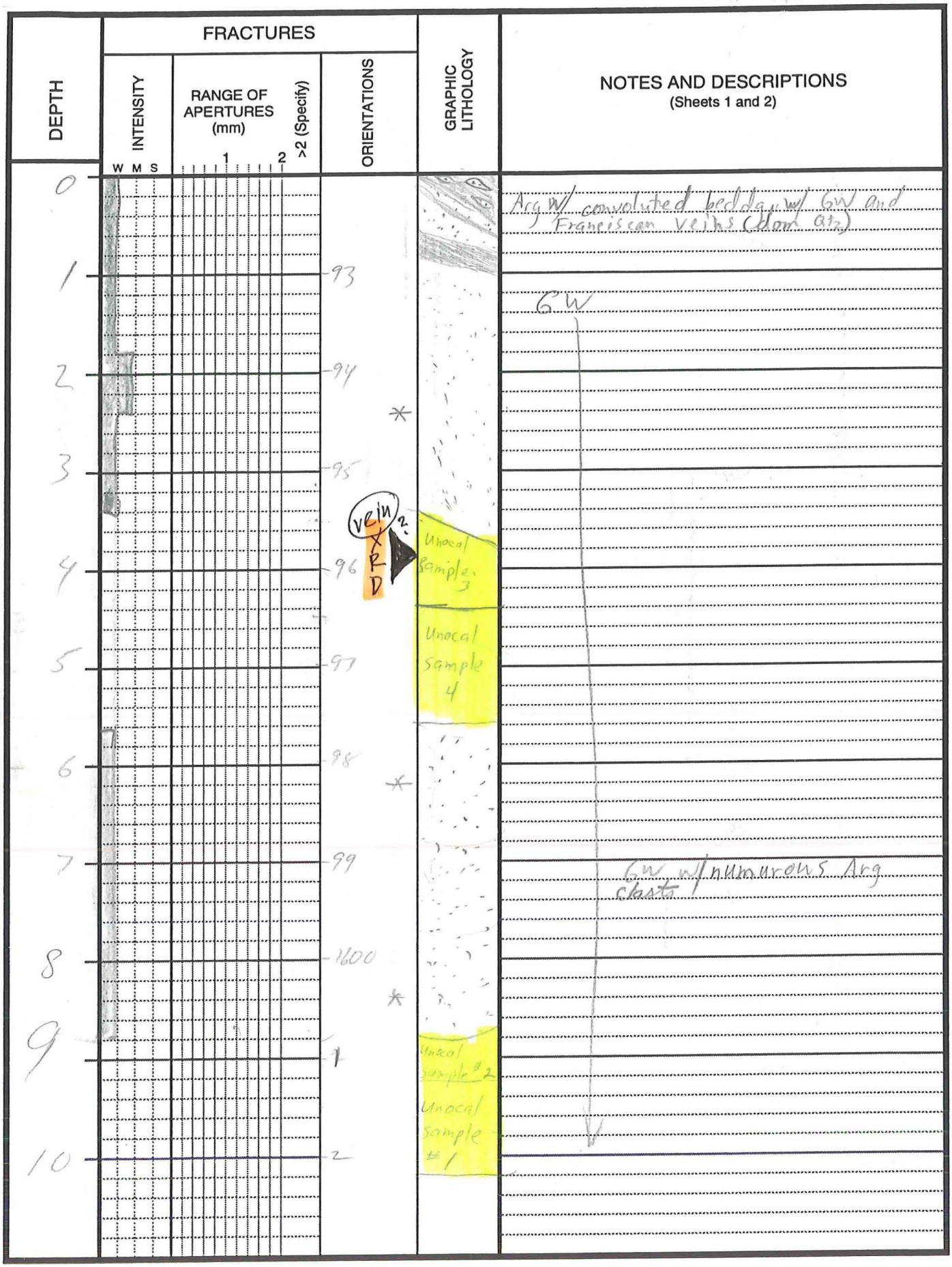

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 1592-1602 Run No. (s) 88

Logged by RD Date 9/29/94

Unocal Pressure Core

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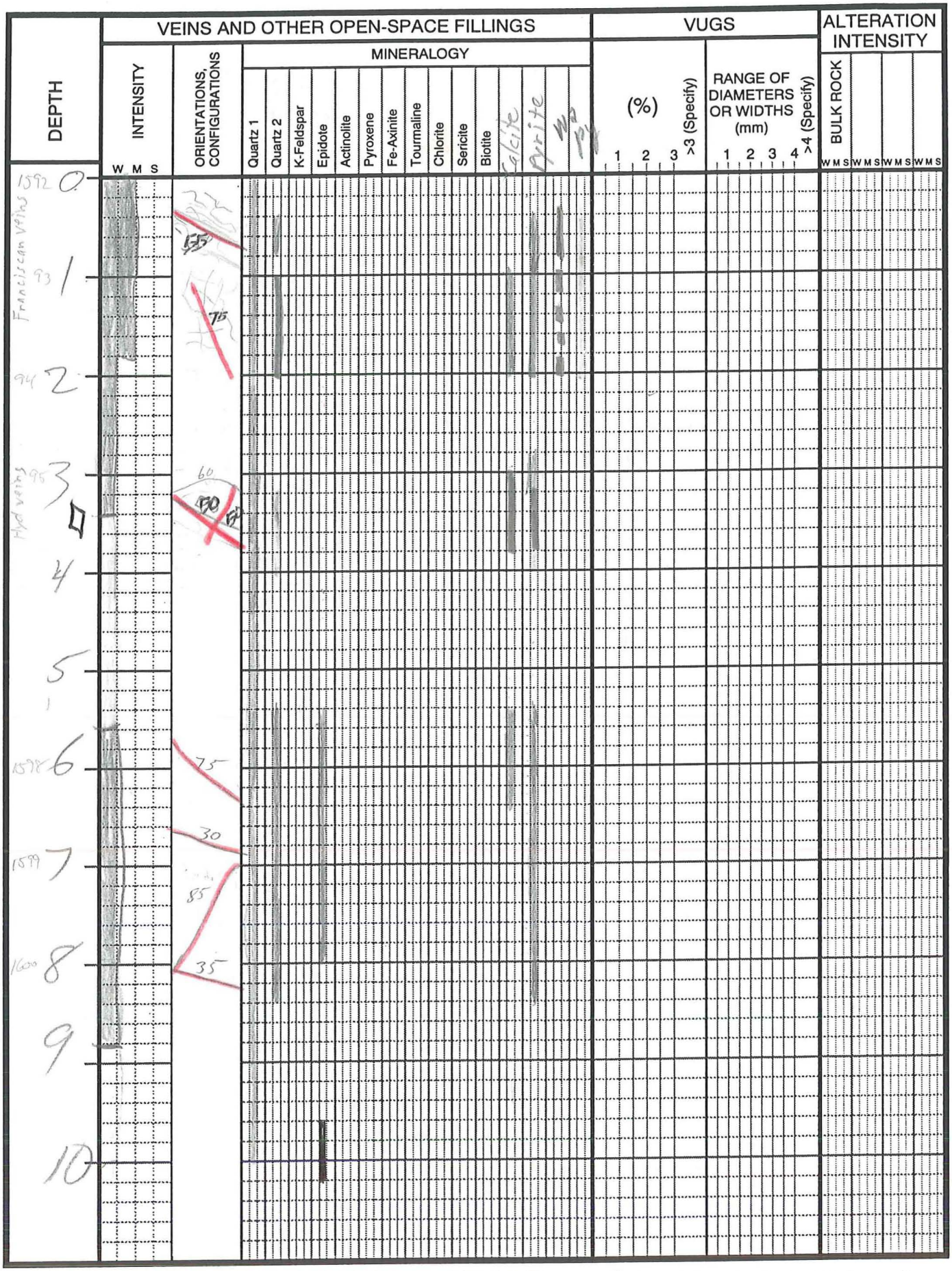

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 2 of 2 for this interval)

Depth Interval (ft) 1592 - 1602 Run No. (s) 88

Logged by RD Date 9/29/94

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Unocal Pressure Core

DEPTH	FRACTURES			GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
	INTENSITY (W M S)	RANGE OF APERTURES (mm) 1 2 >2 (Specify)	ORIENTATIONS		

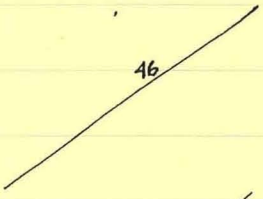
GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) _____ Run No. (s) _____

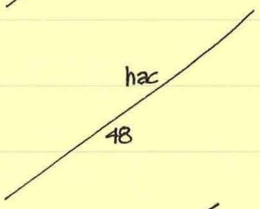
Logged by _____ Date _____

Page _____ of _____

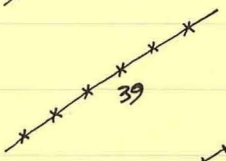
FRACTURES & VEINS



Fracture, showing dip angle*

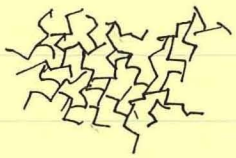


Hackly fracture



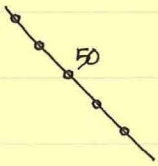
Bedding-plane fracture

Fracture formed along vein

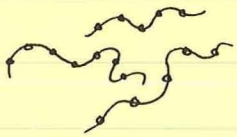


stockwork fractures

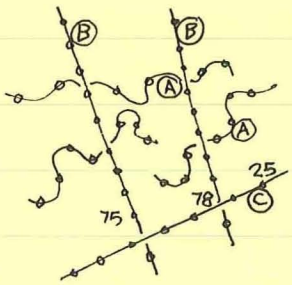
Suspected induced (artificial) fractures



Vein, showing dip angle



contorted veins



Multiple generations of veins
"(A)" = earliest

* Dip angle relative to a plane perpendicular to the core axis

VEIN INTENSITY SCALE

VOL. % VEINS	INTENSITY
< 1	VERY WEAK
> 1 - 2	WEAK
> 2 - 5	MODERATE
> 5 - 15	STRONG
> 15	VERY STRONG

FRACTURE INTENSITY SCALE

FRACTURES PER 1 m (3.3 ft) OF CORE	INTENSITY
< 2	VERY WEAK
>2 – 5	WEAK
>5 – 15	MODERATE
>15 – 30	STRONG
>30	VERY STRONG

ALTERATION INTENSITY

% OF TOTAL ROCK VOLUME COMPLETELY REPLACED BY:							INTENSITY
(BULK ROCK ALTN.) → ALL ALTERATION PHASES	FINE-XLN. QUARTZ (SILICIFICATION)	FINE-XLN KSP ± QTZ (POTASSIC)$_1$	EPIDOTE	CHL*	SER*	BTE (POTASSIC)$_2$	
< 5	< 1	< 1	< 1	< 1	< 1	< 1	Very Weak vw
> 5 - 10	> 1 - 3	> 1 - 3	> 1 - 3	> 1 - 3	> 1 - 3	> 1 - 3	Weak w
> 10 - 20	> 3 - 10	> 3 - 10	> 3 - 10	> 3 - 10	> 3 - 10	> 3 - 10	Moderate m
> 20 - 50	> 10 - 30	> 10 - 30	> 10 - 30	> 10 - 30	> 10 - 30	> 10 - 30	Strong s
> 50	> 30	> 30	> 30	> 30	> 30	> 30	Very Strong vs

* hydrothermal, not regional metamorphic

BEDDING CHARACTERISTICS

20 — Thinly laminated (< 3mm) showing dip angle*

35 — Laminated (3mm – 1cm)

81 — Very thinly bedded (1-3 cm)

64 — Thinly bedded (3–10 cm)

Medium-bedded (10-30 cm)

Thick-bedded (> 30 cm)

Massive bedding

vertical extent

Graded bedding

Reverse graded bedding

Indistinct bedding

SEDIMENTARY & MISC. EPIGENETIC STRUCTURES

Load casts

Flame structures

Convolute bedding

Vugs

Rip-up clasts

* Dip ∠ relative to a plane perpendicular to the core axis

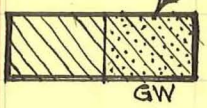
ROCK SYMBOLS
AND ABBREVIATIONS

FEL (felsite)

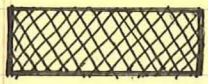
RHY	DAC	AND	
			porphyry (PPY)
			non-porphyritic
Rhyolite	Dacite	Andesite	

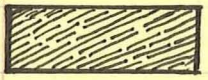
GR	GRD	DIOR.	
			porphyry (PPY)
			non-porphyritic
Granite	Granodiorite	Diorite	

(e.g. hornfelsic graywacke)



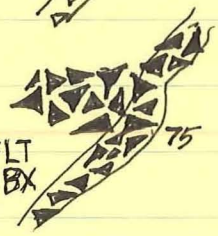
Hornfelsic recrystallization — parent rock still recognizable

HF  Hornfels

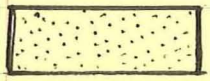
ARG  "Argillite" (metashale & metamudstone)

 "Argillite" (silty argillite)

Hydrothermal breccia zone (with dip* if measureable)

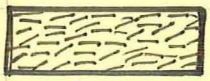


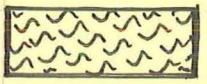
As above, except fault breccia zone

GW  Graywacke (metasandstone)

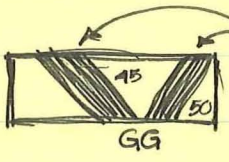
GS  "Greenstone" (metabasalt)

CHT  Chert

BSCH  "Blueschist"

SERP  serpentinite

ML  Melange (identify components if possible)



Fault gouge or shear zone (with dip* angle)

* relative to plane ⊥ to core axis

TEXTURES, STRUCTURES, CHARACTERISTICS (ABBREVIATIONS)

acicular – acic.
anhedral – anh.
angular – ang., ∢
ball & pillow – B&P
bedding – bddng
bedded – bdd
bladed – bldd
brecciated – bxtd
breccia – bx
cavity – cav
contorted – conttd.
common – cmn
comminuted – comtd.
convolute – conv.
cross – X
crushed – crshd
coarse – crs, c
cast – cst
cubic – cbc
discontinuous – disc.
disseminated
dissolution – dissol'n.
drusy – drsy
elongate – elong.
equant – eqnt
equal – =
euhedral – euh
fine – f
flaser – flsr
flooded – fldd
flooding – fldng
flame – flm
folded – fldd
fault – flt
faulted – fltd
fracture(d) – frx(d)
graded – grdd
grain(ed) – gr
hexagonal – hex
hydrocarbon – HC
joint(ed) – jnt(d)
juxtaposed – jxtp
milled – mld
organic – org
laminated – lam
laminae
lenticular – lent.
patchy – ptchy
prismatic – psm(tc)
replaced – repl.
replacement – rplmt
round(ed) – rnd(d)
ripple – rpl
rubble – rbl
scratched – scrchd
selvage – selv.
shale – sh
sheared – shd
slickensides – slx
stockwork – stkwk
thin(ly) – thn(ly)
thick(ly) – thk(ly)
subhedral – subh.
vein(ed) – vn(d)
vug – vug
wavy – wvy

AFTERTHOUGHTS

massive – msv

ALTERATION, MINERALIZATION — ABBREVIATIONS

alteration — altn
altered — altd
argillic — argic
argillization — argzn.
cemented — cmtd.
chloritized — chltzd
chloritization — chltzn
flooded — fldd
indurated — ind.
mineralized — minr/zd.
mineralization — minr/zn.
potassic — ptsc.
propylitic — prop.
pyritized — pyrtzd.
pyritization — pyrtzn.
sericitized — serctzd.
sericitization — serctzn.
serpentinization — serpentzn.
serpentinized — serpentinized
silicified — silicfd.
silicification — silicfn.
vein (ed) (ing) — vn (d) (ng)

crystal — xl
crystallized — xlzd
hydrothermal — hyd.
metamorphic — met.
recrystallized — rexlzd.
selvage — sel
stockwork — stkwk

COLORS, VALUES
(ABBREVIATIONS)

black	blk
brown	brn
blue	blue
green	grn
gray	gry
orange	or
olive	olv
pink	pnk
purple	ppl
red	red
yellow	yel
white	wht

add "sh" as modifier

dark	dk
light	~~med~~ lt
medium	med

GENERAL — abbreviations

artifact — art

bottom — btm

centimeter — cm

commonly — comm

coarse — c, crs

especially — esp

except — exc

generally — gen

millimeter — mm

miscellaneous — misc.

meter — m

moderate — mod.

probably — prob.

strong — str

typically — typ

top — tp

with — w/

without — wo/

MINERALS – ABBREVIATIONS

albite — ab
actinolite — act
amphibole — amph
bornite — bn
biotite — bte
calcite — cal
chlorite — chl
chalcopyrite — cpy
datolite — dat
epidote — ep
feldspar — fsp
FeAx — ferroaxinite
galena — gn
glaucophane — glauc
K-feldspar — ksp
pyrite — py
pyrrhotite — po
pyroxene — pxn
quartz — qtz
sericite — ser
serpentine — serp
sphalerite — sp
tourmaline — tour
wairakite — wair

GCP REFERENCE CORE SET

ROCK TYPE	GOOD EXAMPLE IN CORE:
GW (weakly metamorphosed graywacke)	Ⓐ-Ⓖ
ARG (argillaceous metasiltstone)	Ⓐ, Ⓑ
ARG (metashale, metamudstone)	Ⓒ, Ⓔ

VEIN MINERAL	
"Quartz 1" – milky translucent to opaque metamorphic quartz	Ⓐ, Ⓒ-Ⓕ
"Quartz 2" – colorless, transparent to translucent, hydrothermal quartz, comm. euh	Ⓐ-Ⓖ
Ksp – white, transl., vfxln, comm euh. (SUBTLE)	Ⓐ², Ⓒ Ⓓ, Ⓕ², Ⓖ
"Calcite 2" – colorless to white, transp. to transl., f-crs. xln, comm. euh.	Ⓖ
Epidote – Pistachio green, anh-euh, f-mlxn	Ⓐ, Ⓒ, Ⓔ, Ⓕ

GCP REFERENCE CORES

VEIN MINERAL	GOOD EXAMPLE IN CORE:
Ferroaxinite — Pale pink, transp to translucent anh-euh, f-mx/n	(A), (C)
Tourmaline — Black to brownish-black, anh-subh, v.f.-fx/n comm. crude rosettes	(B), (D),
Pyrite	(A), (D), (E),
Chalcopyrite	(A)
Sphalerite	(A)?

TEXTURE, STRUCTURE, OR FEATURE	
load casts (?) flame structures (?)	(A), (C), (G)
carbonate-dissolution vugs	(A), (C), (E), (F)
hackly fracture	(B)

DEPTH	VEINS AND OTHER OPEN-SPACE FILLINGS																VUGS		ALTERATION INTENSITY								
	INTENSITY		ORIENTATIONS, CONFIGURATIONS	MINERALOGY													(%)	RANGE OF DIAMETERS OR WIDTHS (mm)	BULK ROCK								
	W	M	S	Quartz 1	Quartz 2	K-Feldspar	Epidote	Actinolite	Pyroxene	Fe-Axinite	Tourmaline	Chlorite	Sericite	Biotite			1 2 3 >3 (Specify)	1 2 3 4 >4 (Specify)	W	M	S	W	M	S	W	M	S

SEE FOLLOWING PAGES

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 2 of 2 for this interval)

Depth Interval (ft) _____ Run No. (s) _____

Logged by _____ Date _____

Page _____ of _____

DEPTH	FRACTURES: INTENSITY (W M S)	FRACTURES: RANGE OF APERTURES (mm) 1 2 >2 (Specify)	FRACTURES: ORIENTATIONS	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
3748'		NA	40, 85, hac. for		◇ 3748-48.6 ft: GW and ARG (slty); sheared & fract. jxtp → GW is 5 Y 2/1, fgr, w/abund dk. gray arg. grains (some anom. ers) — GW is app. msv, v. dense — slty ARG is 5 YR 2/1, w/abund. sheared lent. masses of silt-free ARG which are mod. contorted — ARG also incorporates GW "lithons" up to 8 X 3 cm, which host qtz veinlets truncated at lithon margins
		NA	70		◇ → VNLTS are of three types, from oldest to youngest: (A) vague, diffuse, stkwk qtz. vnlts; <1 mm wide, randomly oriented, 1-5% of TRV discontinuous, comm. contorted; (B) "milky" opaque white qtz comm. conv. & randomly oriented but many sub-// to GW-ARG contact; up to 2 cm wide; <1% of TRV; local, irreg., xl-lined vugs up to (22 mm) in dia — these vugs lined to heavily filled w/ subhedral qtz, Fekx, ksp?, tr. py, cpy, sp; vugs are very irreg, appear to be minrlzd. dissoln cavities (C) qtz-ep Fekx ksp(?)-py-cp veinlets; high-<, <1 mm wide, straight-sided <1% of TRV — some of these appear to lead into the large dissoln. voids
3748.6'		NA	50, 20		→ NOTE: Type (A) & (B) veinlets are in part pre-shearing in origin
3749'					

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 3748 - 3748.6 ft Run No. (s) 1

Logged by MH Date AUG. 27, 1994

CORE "A" GCP Reference Core Set

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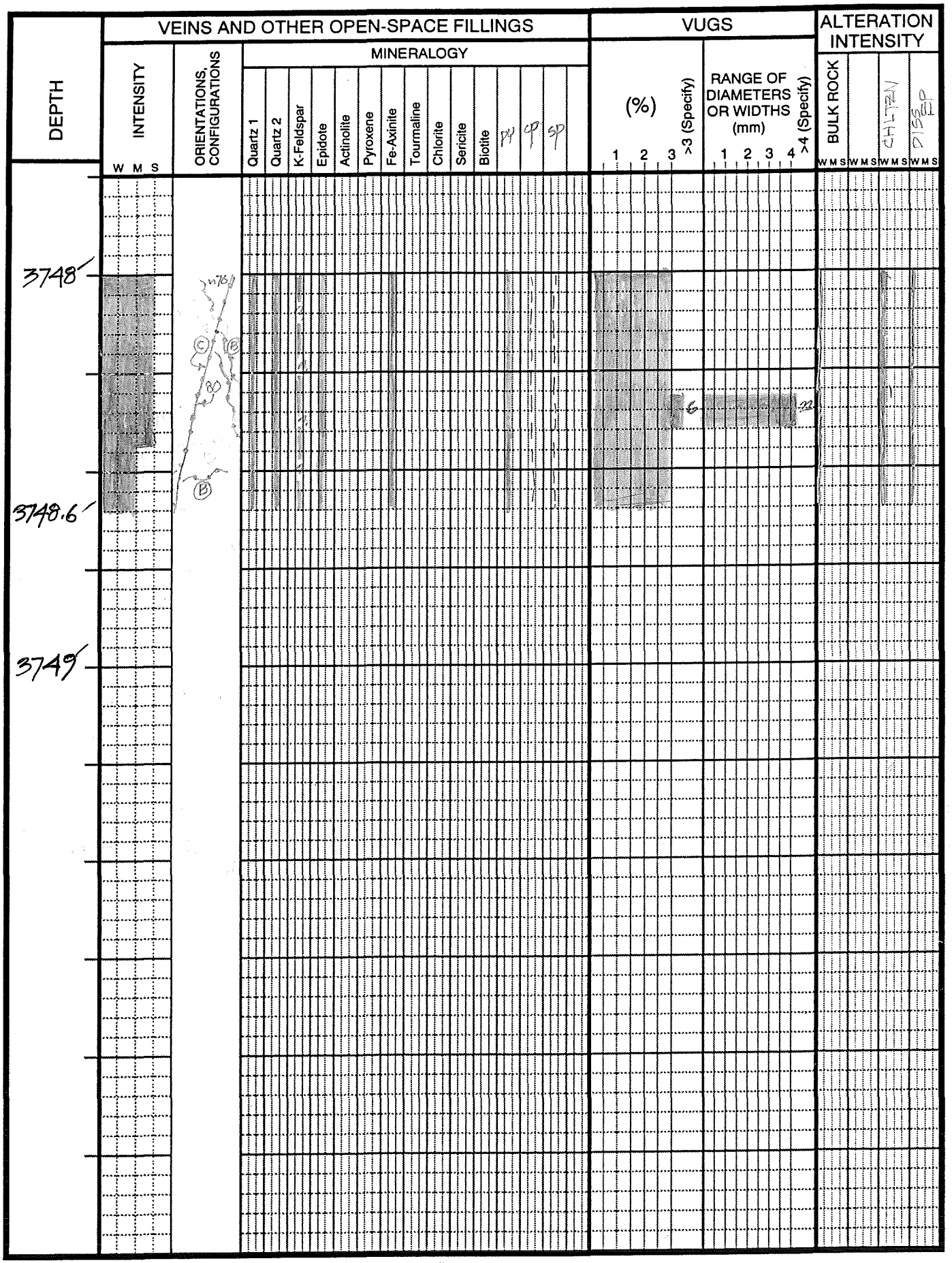

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 2 of 2 for this interval)

Depth Interval (ft) 3748 - 3748.6 ft

Run No. (s) 1

Logged by HT

Date AUG. 27, 1994

CORE "A" GCP Reference Core Set

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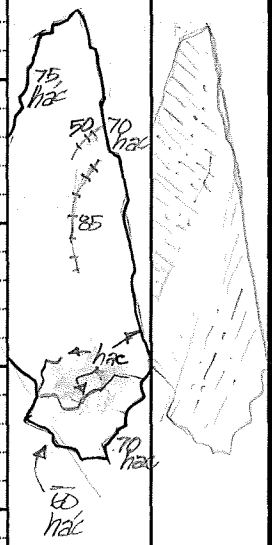
DEPTH	FRACTURES: INTENSITY (W M S)	FRACTURES: RANGE OF APERTURES (mm) 1 2 >2 (Specify)	FRACTURES: ORIENTATIONS	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
XX19'					
XX19.65'					19.65-20.40': Altd. sltY ARG, poss. (hn-Hac) 5Y & 5G, 4/1 to 6/1, somewhat mottled v. dense, porcellaneous appearance +VNLTS: Abund. qtz-ksp-ep (Tour) veinlets, which are irreg, discontinuous up to 2 mm. wide, but gen < 1 mm. wide — these vnlts have lt. greenish-gray selvages up to several mm in dia which are prob. mostly qtz-ksp w/ minor hp & chl. The selvages coalesce so that much of the rock is so altered ALTN: — see "VNLTS" above — also, w 3% diss < 1.5 mm (Tourm) clots or crude rosettes, also assoc. w/ the ksp-qtz "flding" noted above
XX20'					
XX20.40'					

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) XX19.65 – 20.4' Run No. (s) 2

Logged by JH Date 08/27/94

CORE "B", GCP Reference Core Set

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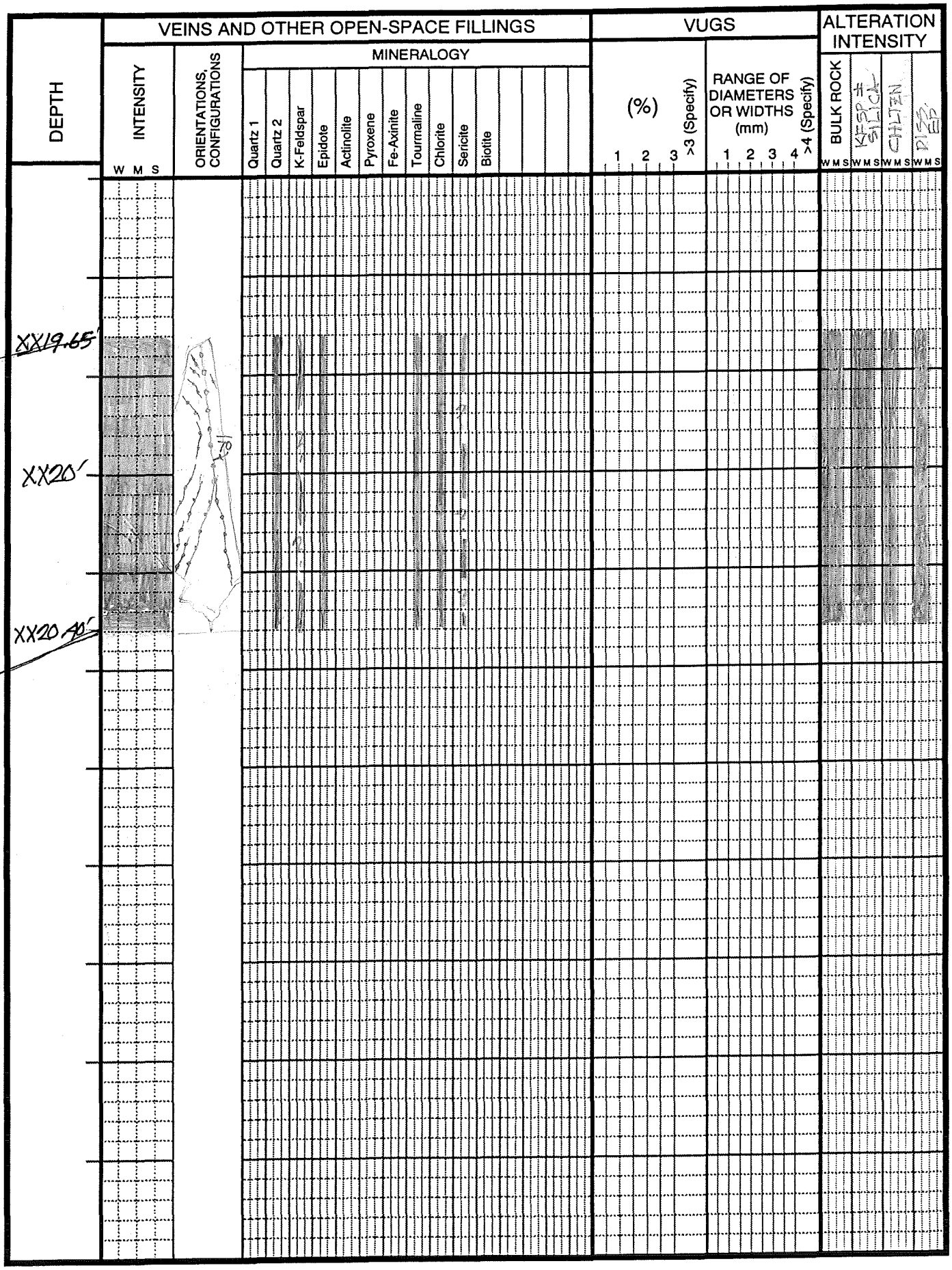

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 2 of 2 for this interval)

Depth Interval (ft) XX19.65 - 20.40'

Run No. (s) 2

Logged by JH

Date 08/28/94

CORE "B" GTP Reference Core Set

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DEPTH	FRACTURES: INTENSITY (W M S)	FRACTURES: RANGE OF APERTURES (mm) 1 2 >2 (Specify)	FRACTURES: ORIENTATIONS	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
XXXX.0		NA			◇ XXXX.0 - .38 Interstratified ARG and GW, intensely veined w/ many of the veins conspicuously vuggy ◇ → ARG is 5 YR 2/1 (wet); sheared aspect — GW is 5 Y 4/1 UC? → the GW/ARG contact appears ◇ to have load casts & flame structures, but these have been modified by shearing
XXXX.38		NA			VNLTS: 2 types — earlier (A) are vuggy milky qtz vnlts, comm. colloform, 0.1 - 10 mm. wide, w/ scattered vugs up to 2.5 mm. wide, v. irregular; also scattered qtz-ep-Fe-Ox clots — these early vnlts. are concentrated in the GW and are comm. truncated at GW/ARG contacts. Younger (B) vnlts are straight, open, retrac-fixed, lined w/ drusy qtz & Kfsp crystals.

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) XXXX.0 – XXXX.38 Run No. (s) 3

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CORE "C" GTP Reference Core Set

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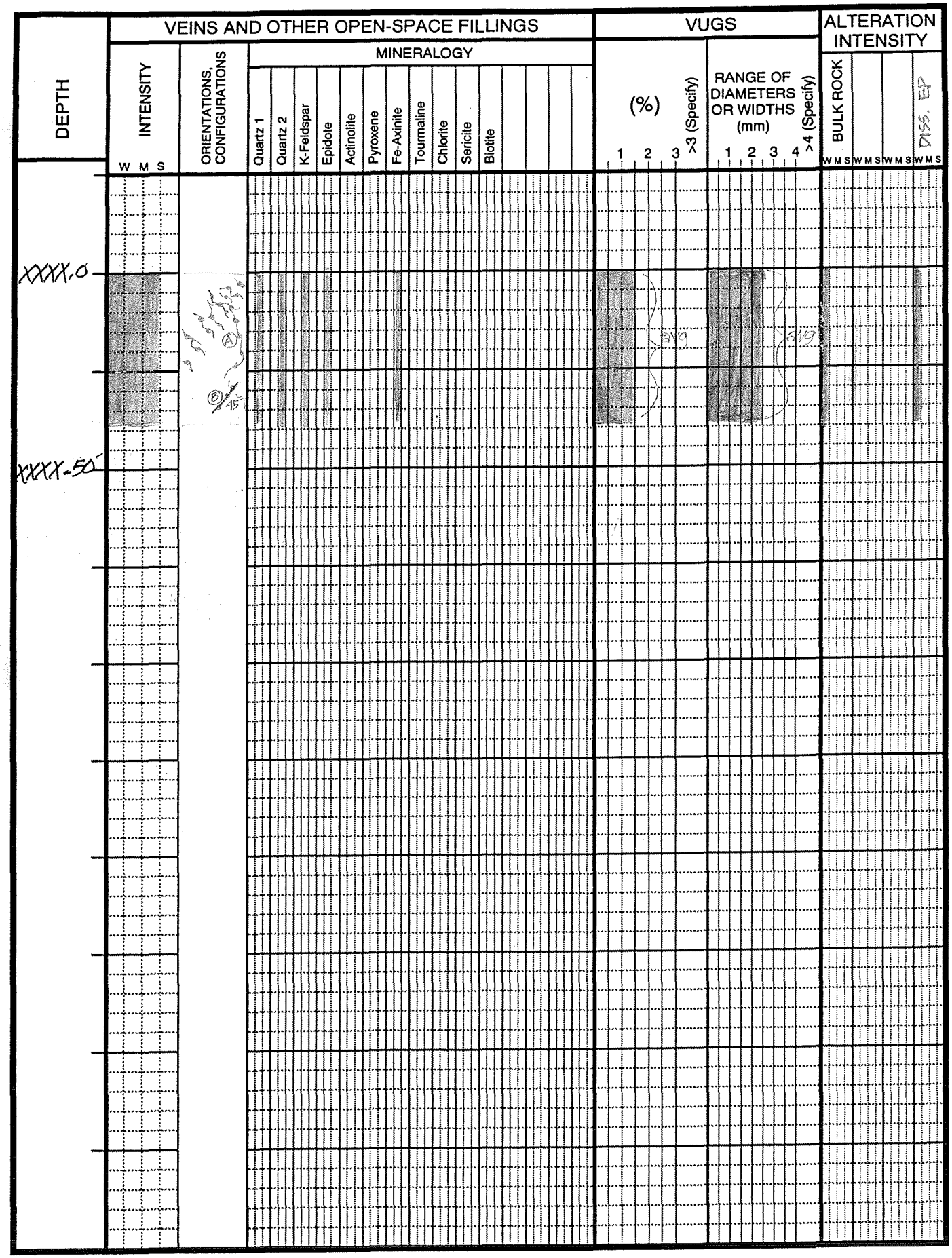

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 2 of 2 for this interval)

Depth Interval (ft) XXXX.0 – XXXX.38 Run No. (s) 3

Logged by JH Date 08/28/94

CORE "C" GCP Reference Core Set

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DEPTH	FRACTURES: INTENSITY (W M S)	FRACTURES: RANGE OF APERTURES (mm) (1, 2, >2 (Specify))	FRACTURES: ORIENTATIONS	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
XX36.0'					
XX36.6'			80 / 65 hac; 80 hac; 10		XX36.6-XX37.0': GW, 5 GY 5/1, mgr to crs-gr, msv VNLTS: abund, 0.5-1.5 mm-wide black tour. vnlts w/ pale greenish chl-qtz-ep (?)-fld selvages - these locally coalesce to form altn. zones up to 10 mm. wide. → a prominent steep frx have formed along these apparently high ∠ tourm. veinlets
XX37.0'					

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) XX36.6-XX37.0 ft — Run No. (s) 3 4

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CORE "D" GTP Reference Core Set

DEPTH	VEINS AND OTHER OPEN-SPACE FILLINGS																		VUGS		ALTERATION INTENSITY			
	INTENSITY	ORIENTATIONS, CONFIGURATIONS	MINERALOGY																(%)	RANGE OF DIAMETERS OR WIDTHS (mm)	BULK ROCK			
	W M S		Quartz 1	Quartz 2	K-Feldspar	Epidote	Actinolite	Pyroxene	Fe-Axinite	Tourmaline	Chlorite	Sericite	Biotite	PY					1 2 3 >3 (Specify)	1 2 3 4 >4 (Specify)	W M S	W M S	W M S	W M S
XX36.0'																								
XX36.6'		65-90																						
XX37.0'																								

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 2 of 2 for this interval)

Depth Interval (ft) XX36.6—XX37.0 ft

Run No. (s) 4

Logged by MT

Date 08/28/94

CORE "D" GCP Reference Core Set

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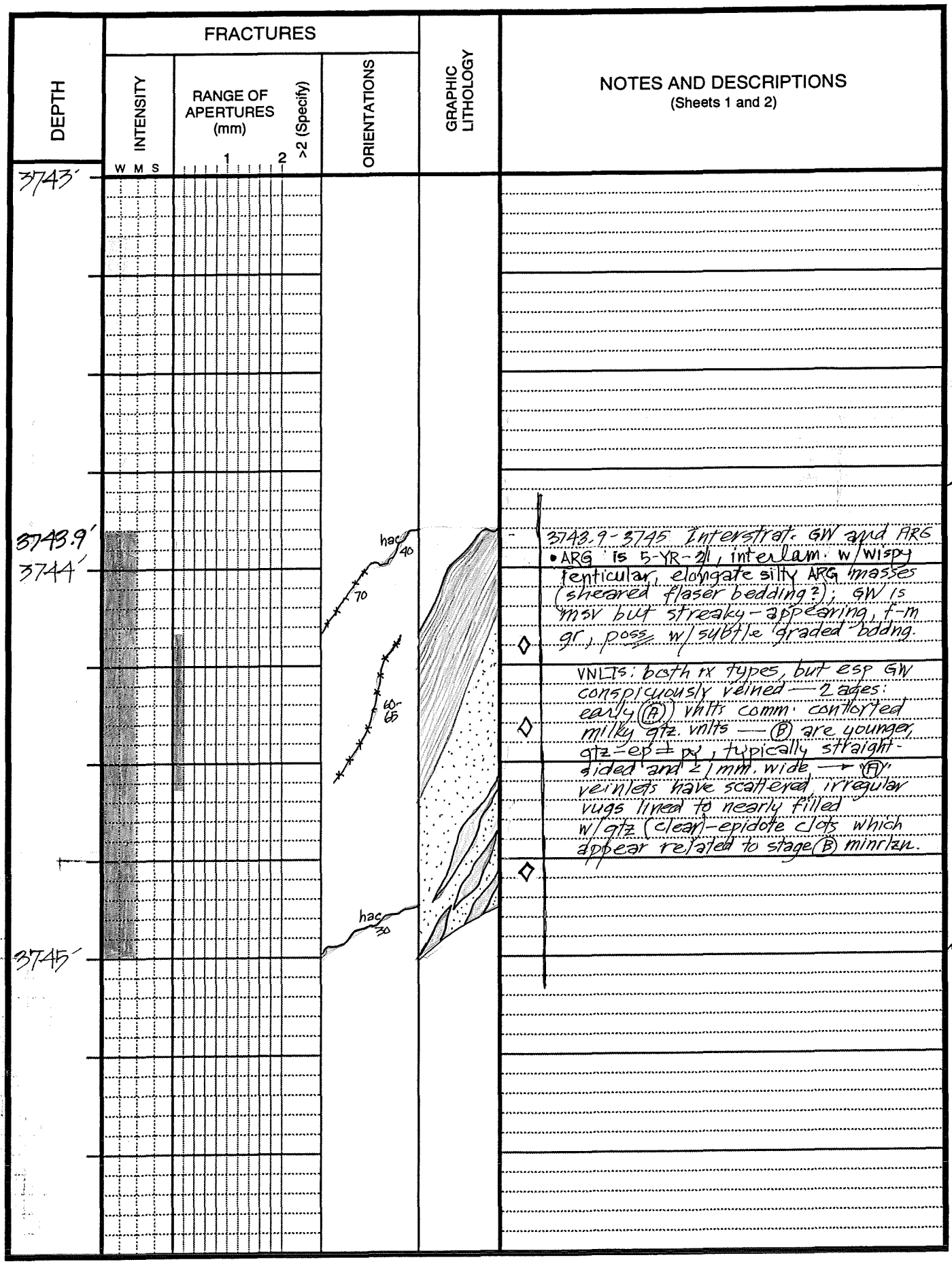

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) 3743.9-3745' Run No. (s) 5

Logged by JH Date 08/28/94

CORE "(E)" GCP Reference Core Set

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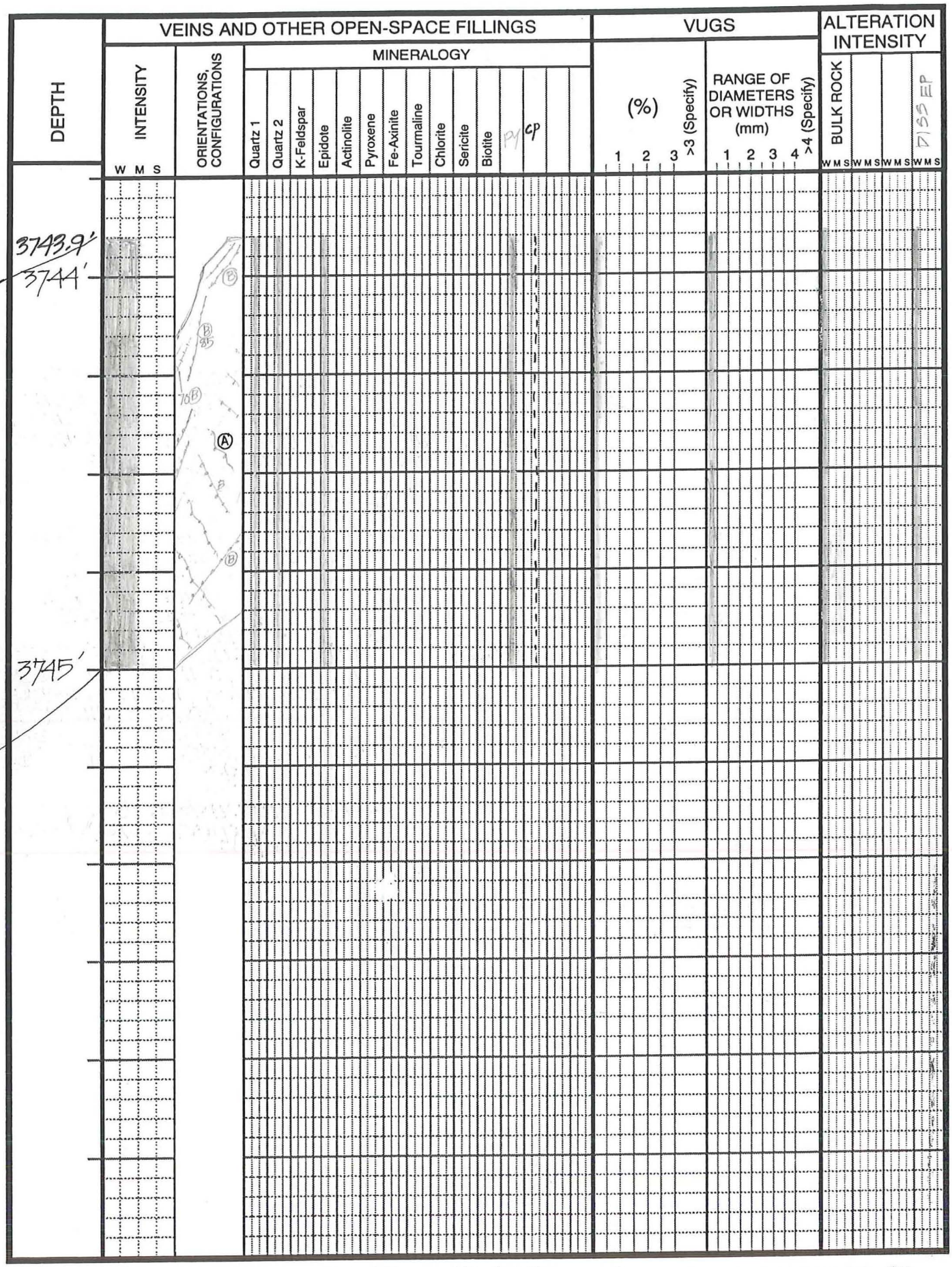

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 2 of 2 for this interval)

Depth Interval (ft) 3743.9 – 3745 ft

Run No. (s) 5

Logged by JH

Date 08/28/94

CORE "E" ect. Reference Core Set

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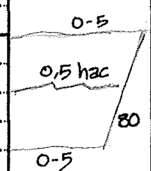
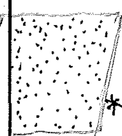
DEPTH	FRACTURES: INTENSITY (W M S)	FRACTURES: RANGE OF APERTURES (mm) (1, 2, >2 (Specify))	FRACTURES: ORIENTATIONS	GRAPHIC LITHOLOGY	NOTES AND DESCRIPTIONS (Sheets 1 and 2)
XX63'					
XX63.2'					
XX64'					





63-63.2': GW, 5-Y-2/1 to 3/1 but color in part due to surficial coating of drilling-fluid (?)/rust residue; m-crs-gr; msv, intensely veined, vuggy; w/ vugs conc. in vns;

VNLTS: 2 types: (A) early milky qtz, comm. cont.; tend to be randomly oriented; vugs in these are lined w/ clear qtz, epidote, prob ksp; (B) much less common, straight-sided, <1 mm, same comp. as vug linings

- vugs in earlier veins highly irregular, almost cert. represent sites where calcite has been dissolved away

- ALTN: — diss. ep repl. clastic plag.

- FRX curiously ⊥ to core axis — suspect core "discing" (artifacts).

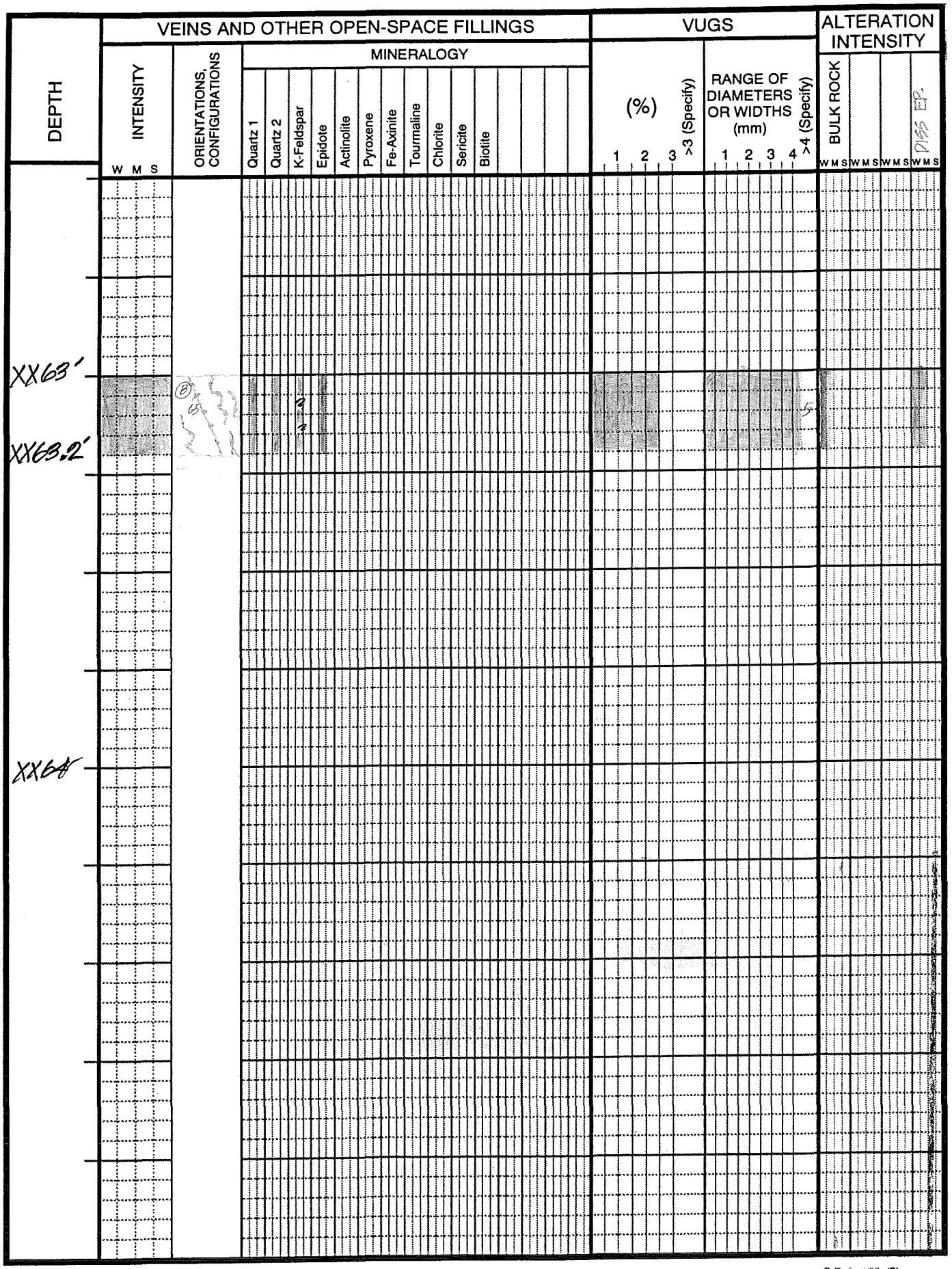
* frac.

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) XX63–XX63.2 Run No. (s) 6

Logged by JH Date 08/28/94

CORE "(F)" GCP Reference Core Set Page 11 of ____



GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 2 of 2 for this interval)

Depth Interval (ft) XX63.0–XX63.2'

Run No. (s) 6

Logged by JH

Date 08/28/94

CORE "F" GCP Reference Core Set

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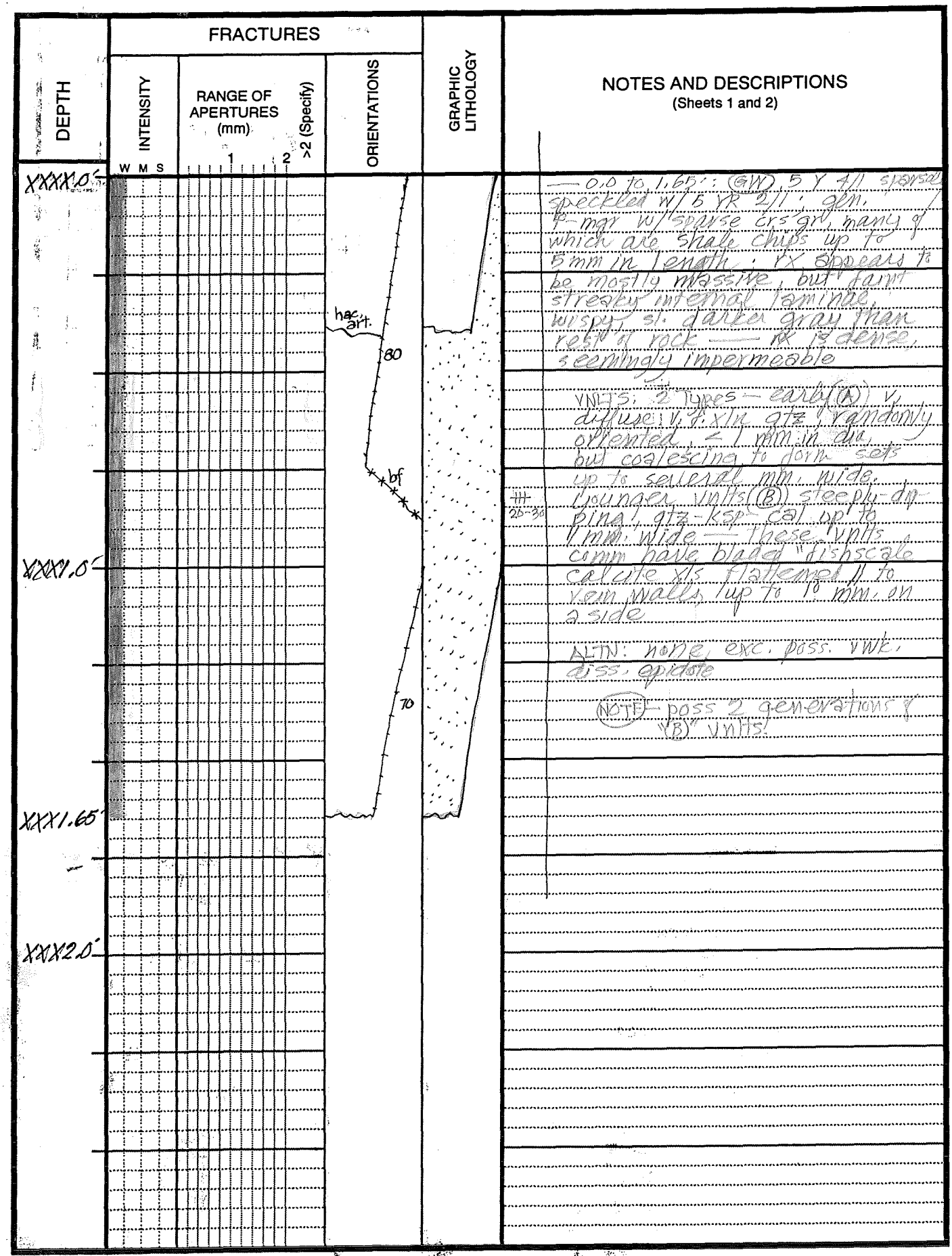

GEYSERS CORING PROJECT . . . SB-15-Deepening (Sheet 1 of 2 for this interval)

Depth Interval (ft) XXX0.0 – XXX1.65 Run No. (s) 7

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CORE "G" — Geysers Coring Project Reference Core Set