GENERAL INFORMATION

WELL:	MZII-1
AREA:	MAZAMA
COUNTY:	KLAMATH
STATE:	OREGON
LOCATION:	SECTION 13, T32S, R6E
KETTLEMAN NUMBER:	66-13
ELEVATION:	APPROX. 4665' GL
DATE STARTED:	11-5-86
DATE COMPLETED:	9-8-89
TOTAL DEPTH:	2844'
STATUS:	SUSPENDED
DRILLING RIG:	LONGYEAR HD600
DRILLING ENGINEER:	G. GOLAN
ROTARY DRILLING:	0' - 485'
CORE DRILLING:	485' - 2844'

HOLE SIZE & CASING

HOLE SIZE:		CASING SIZE:
8" HOLE:	0' - 212'	4 1/2": 0'-484'
7 7/8" HOLE:	212'-485'	1 1/2": 0'-2844'
3.782" HOLE:	485'-2844'	

SURVEYS

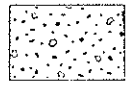
TEMPERATURE & PRESSURE SURVEYS
PRUETT INDUSTRIES 9/24/89

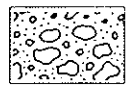
LOST CIRCULATION

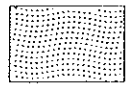
600' NO RETURNS

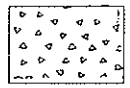
LITHOLOGY SYMBOLS

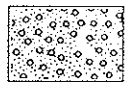

SOIL HORIZION


VOLCANICLASTIC SEDIMENTS

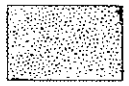

DEBRIS FLOW

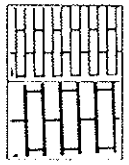

ASH FLOW

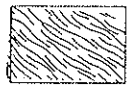

CRYSTAL LITHIC TUFF

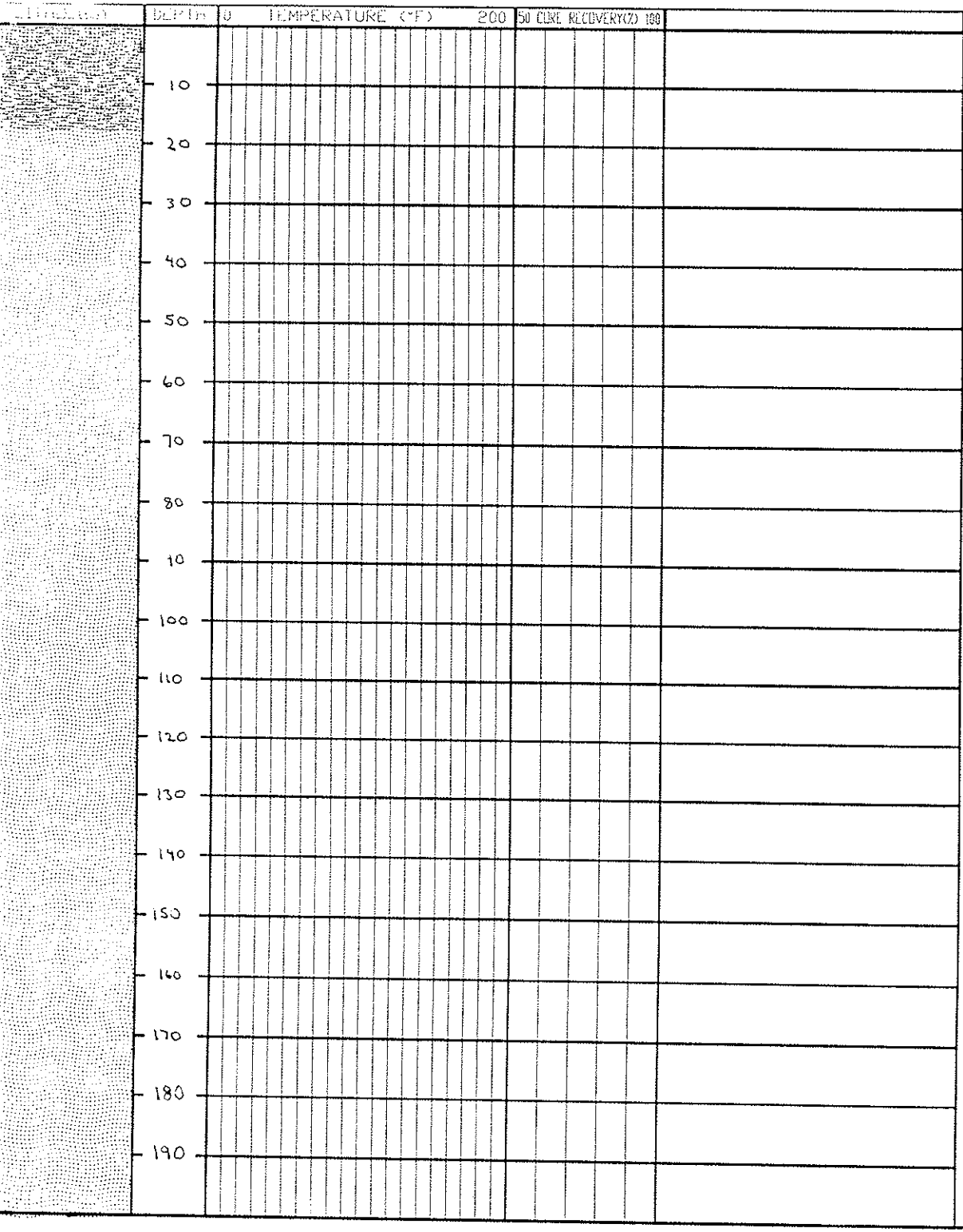

PALAGONITE LITHIC TUFF


CINDER DEPOSIT


SCORIACEOUS ZONE

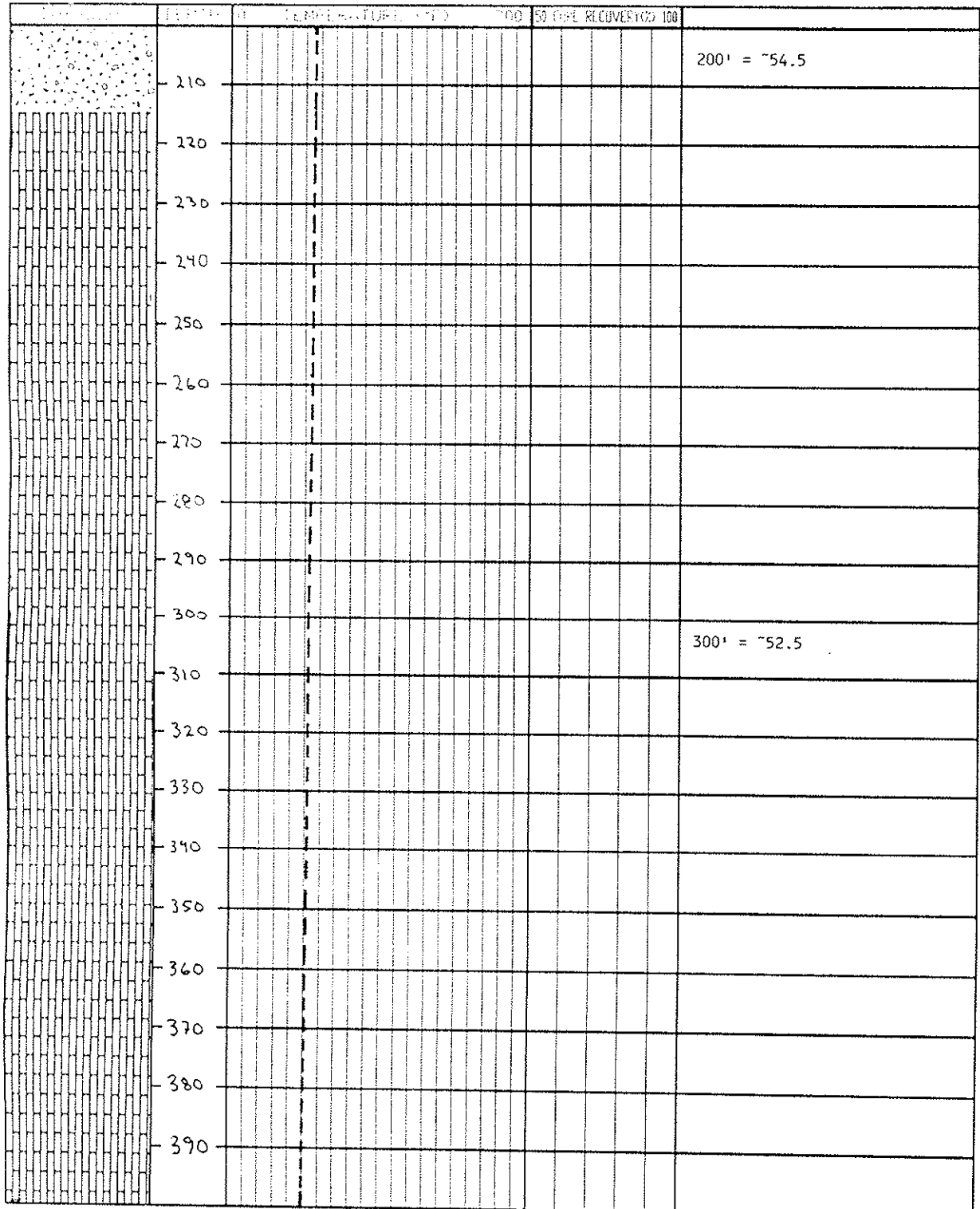

BASALTIC LAVA FLOWS & SILLS


FLOW BRECCIA & RUBBLE ZONES



REMARKS

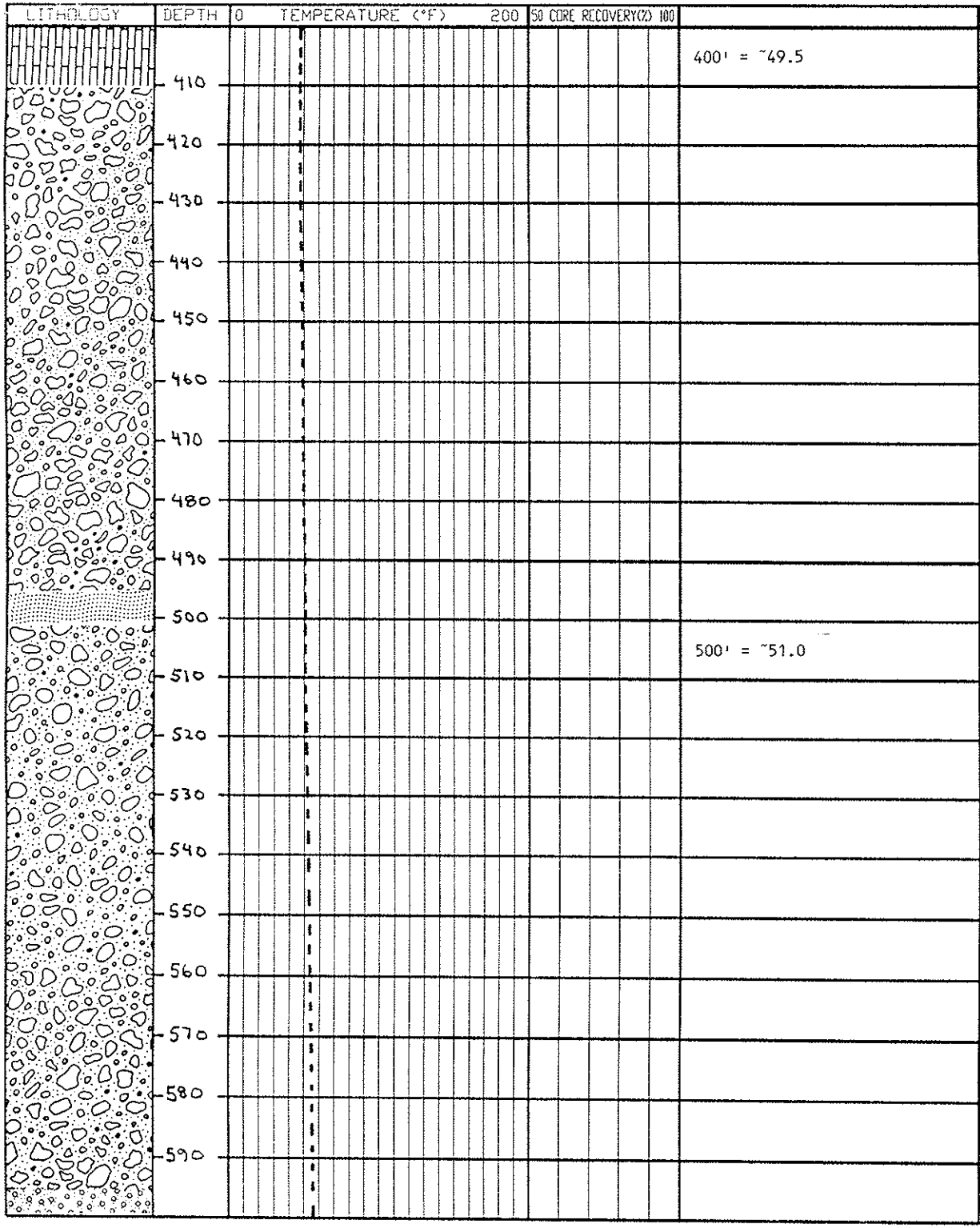
0-20′	PUMICEOUS SOIL: Light brown, poorly sorted, silt -lapilli sized angular fragments, minor organic fragments, unconsolidated, minor basalt and breccia fragments.
20′-200′	ASH FLOW TUFF: Light brown grading to very light brown below 100′. Poorly to moderately sorted and unconsolidated. Silt to lapilli sized pumice fragments are crystal rich with phenocrysts of quartz, plagioclase, hornblende, and iron oxides. Slight hematite stain is observed on larger pumice fragments below 120′ and increases with depth. Rare basaltic fragments increase with depth.



REMARKS

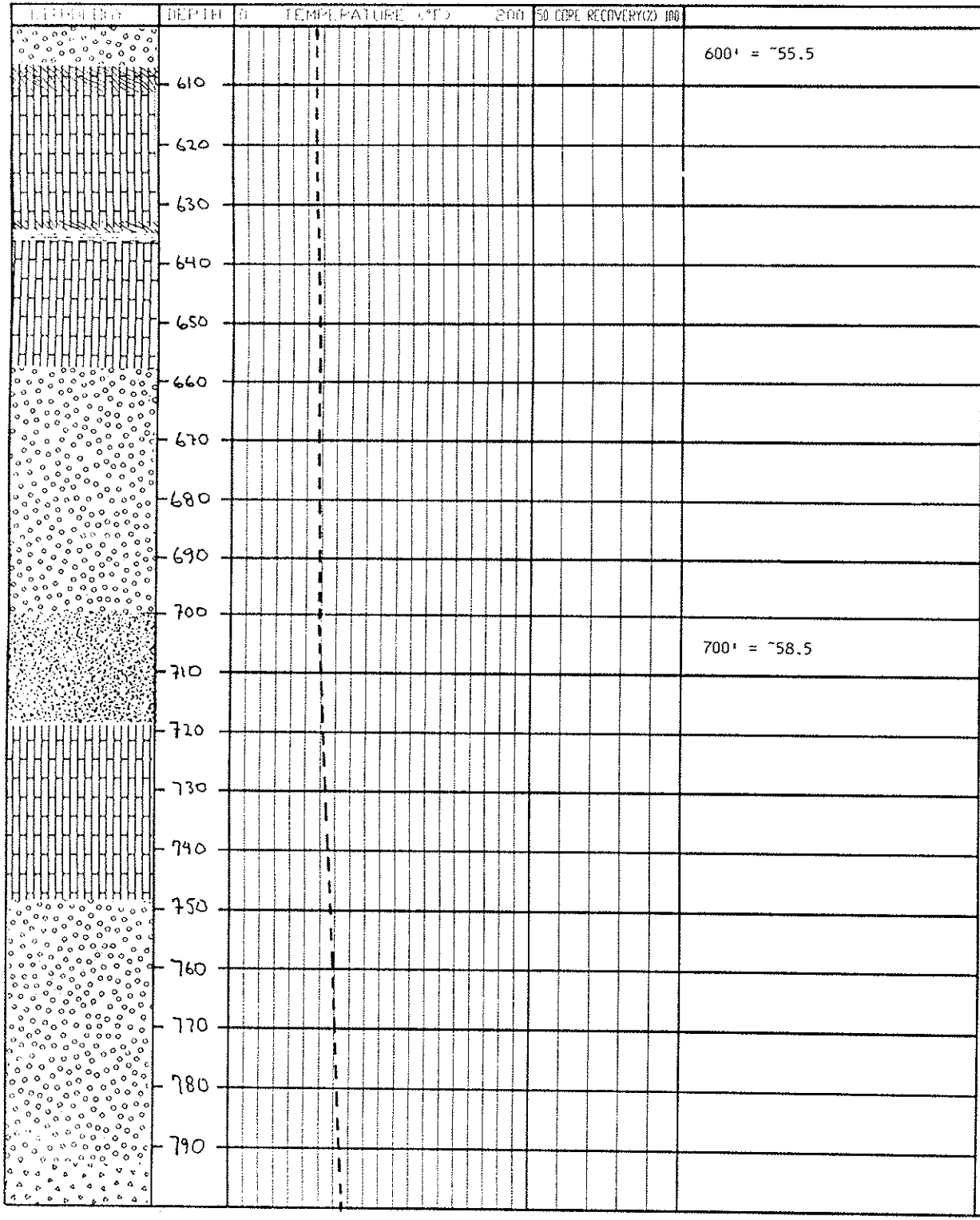
200'-215' VOLCANICLASTIC SEDIMENT: Moderately to well sorted pebble to sand sized grains. Subangular to subrounded grains. Abundant subrounded basaltic fragments and minor rounded pumice and sedimentary fragments. Trace pyrite in sedimentary fragments and mi-minor hematite or limonite stain.

215'-410' BASALT: Light gray, moderately hard aphanitic with microinsertal textur microphenocrysts of plagioclase and ilmenite or magnetite. Predominately fresh and unaltered. Varibly vesicular with rare breccia and scoria fragments. Local clay altered plagioclase and fragments with slight hematite stain.



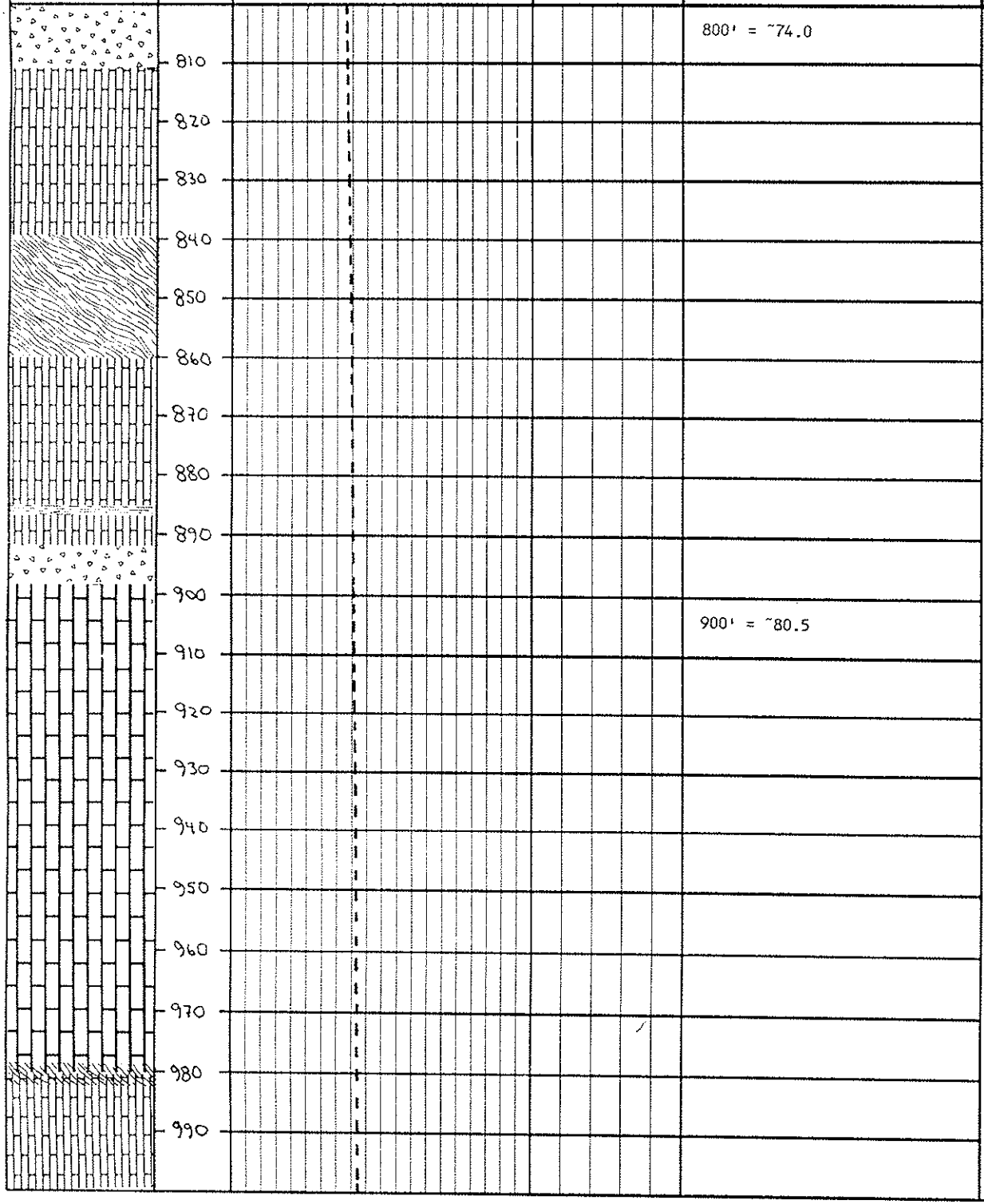
REMARKS CE-MZII-1

410'-497'	DEBRIS FLOW: Light brown, gray, and tan. Angular clasts in ash matrix with lithic blocks up to 10 cm across. Lithic blocks predominately red scoria, basalt, and pumice fragments.
497-501'	ASH FLOW: Light tan, abundant clay alteration - ie. devitrified, lapilli sized fragments common in clay altered ash matrix.
501'-596'	DEBRIS FLOW: Brown, blocks and lapilli sized clasts in sand sized matrix. Lava blocks greater than 10 cm in size and variably vesicular.
596'-609'	PALOGNITE LITHIC TUFF SEQUENCE: Light yellow brown, devitrified ash and sand matrix with lapilli sized clasts. Appears to be clast supported. Upper zone shows an oxidized flow top and possible water reworking.



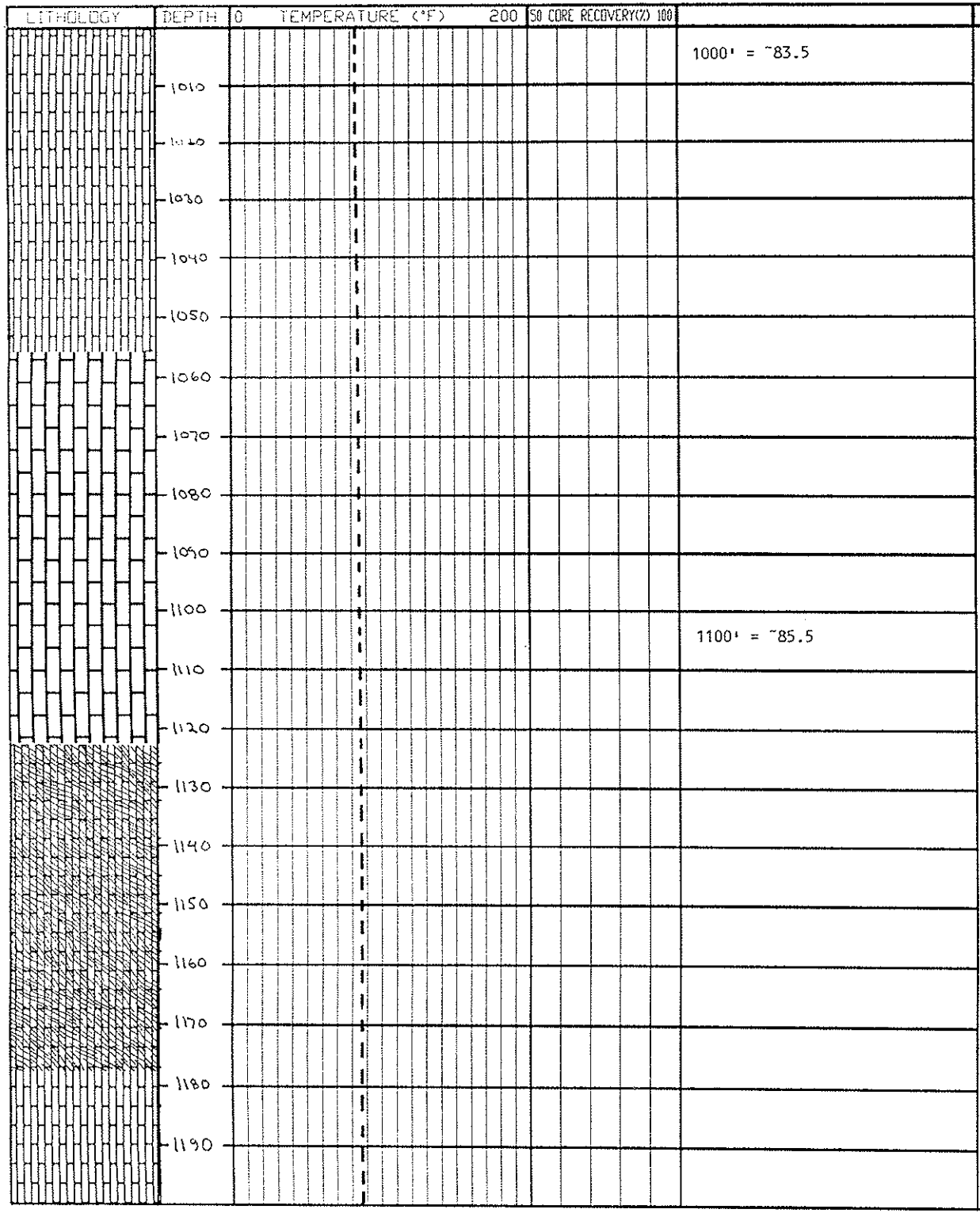
REMARKS

609'-626'	BASALT: Gray, varibly vesicular lava. Basal and flow top breccia is present.
626'-637'	BASALT: Gray, variably vesicular lava flow - with flow top rubble zone and basal breccia.
637'-657'	BASALT: Gray, with local red brown internal flow breccia zone. Flow is vesicular with possible thermally baked red brown soil horizon at 636'-637'.
657'-700'	PALOGNITE LITHIC TUFF: Upper reddish oxidized zone possibly reworked by water. Tuff is predominately very light brown, tan. Abundan lapilli sized fragments in palognite/ash matrix.
700'-718'	CINDER DEPOSIT: Reddish brown, minor blocks of cinder up to 10 cm in size in devitrified matrix. Local basal rubble zone from 713'-718'.
718'-748'	BASALT: Gray, variably vesicular. Fractures predominately coated with submm white coating of clay mineral(?). Rare-occasional fractures coated with soft gray black layer of clay mineral.
748'-793'	PALOGNITE LITHIC TUFF SEQUENCE: Orange brow - light yellow brown, scoriaceous, well cemented with a unidentified fine grain crystalline material (zeolite?). Locally the scoria and lithic fragments are lightly welded. From 763.5'-768.5' a grading is observed from poorly sorted lapilli (< 1 cm) and ash to moderately sorted fine lapilli (<0.5cm) and ash, with depth. Lithic fragments are predominantly basalt. Bedding and bedding features are observed with depth. Rare irregular vugs with a coating of micro druse morphology (square-tabular), clear zeolite @ 764'.



REMARKS CE-MZII-1

793'-811'	CRYSTAL LITHIC TUFF: Gray- light gray, lithic fragments predominantly basalt, lithic fragments greater than 5 cm. Possible welding(?) with depth, ash matrix generally altered to clay. Thin basaltic lava flow , 18" thick from 794'-795.5'.
811'-840'	BASALT LAVA FLOW: Gray, flow banded, variably vesicular. Upper flow top rubble zone from 811'-817'. Vesicles coated with dark brown green clay/colloid which is overlain by submm coating of light gray clay. Local minor zeolite occurs on light gray clay. One observed vesicle possiblely contains trace sulfide (sample collected).
840'-860'	FLOW BRECCIA ZONE: Possible flow boundary between 848'-856.5'.
860'-887.5'	BASALT: Glassy, gray - dark gray, fractured and brecciated. Tectonic brecciation increases below 881'. Green brown clay alteration is commonly present on the faces of the breccia fragments.
887.5'-888'	SOIL HORIZON(?): Rock shows brick red thermal alteration.
888'-893'	BASALT: Light gray - light brown, vesiculated.
893'-898'	MAFIC TUFF: Light brown, unsorted.
898'-980.5'	BASALT: Gray, locally orange gray, aphanitic flow banded,predominantly fresh. Local intense zones of vesiculation, and common flow breccia. Fracture related brecciation occurs at 979.5'-981.5'. Common light gray coating of clay mineral on vesicle and fracture surfaces. Light gray clay mineral shows local botryodial form. Local fracture brecciated zones with minor hematite followed by minor light green smectite(?). From 904'-912' a local zone with local very soft reddish brown submm clusters of an unidentified mineral (dark gray to brown streak).



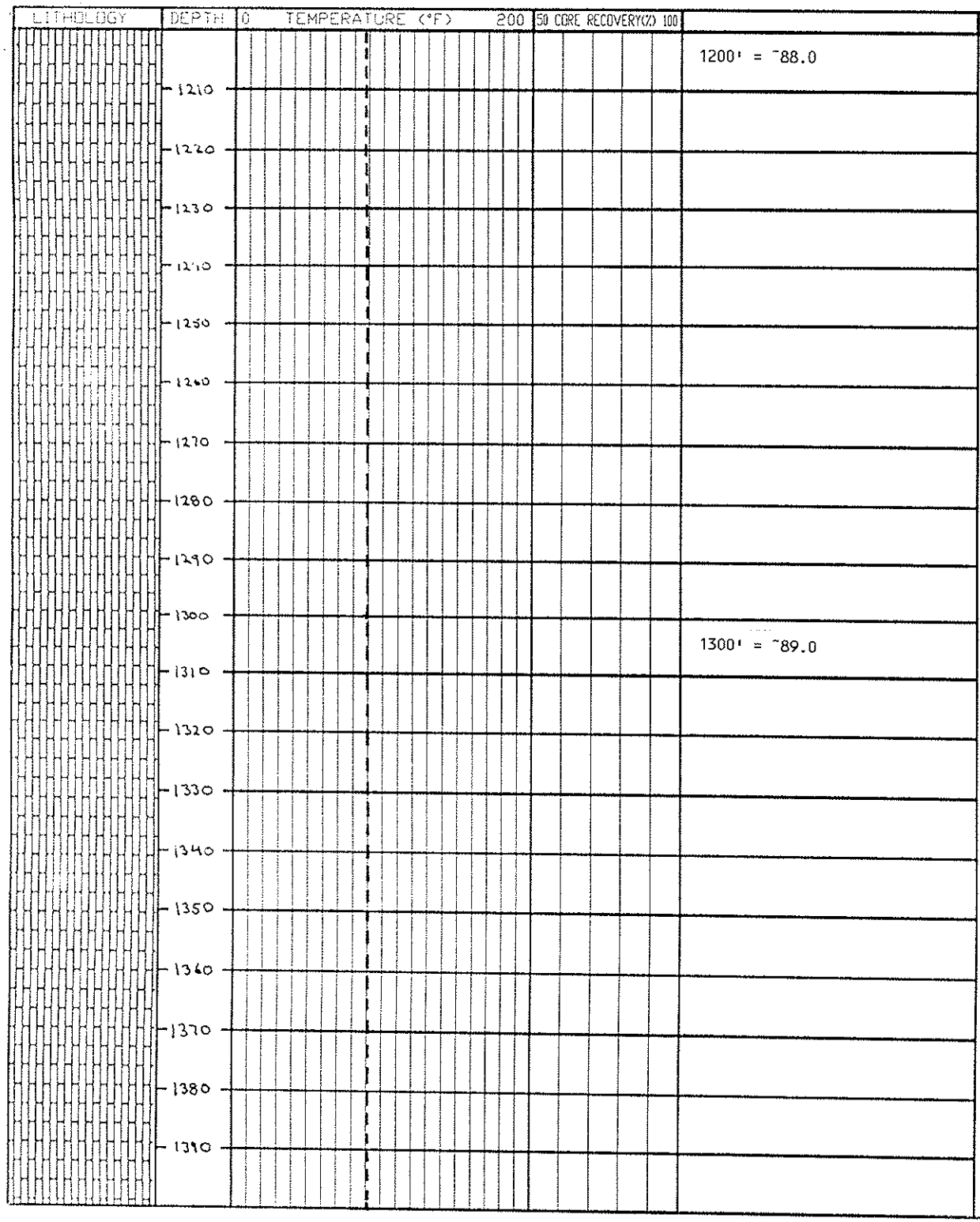
REMARKS CE-MZII-1

980'-1055' BASALT: Red gray, variably vesicular, microporphyritic with microcrystals of augite + olivine + plagioclase laths. Local flow breccia increasingly welded with depth. Very fine disseminated hematite stain. Minor blue gray clay mineral coating on vesicle surfaces.

1055'-1122' BASALT: Glassy to microporphyritic, grades from glass rich to glass poor with depth. Commonly rubbly with flow breccias. Microphenocrysts range from fresh to hematite altered.

1122'-2479' BASALT: Thick continous lava flow or sill.

1122'-1175' Upper Rubble Flow Top: Common flow breccia, variably vesicular. At 1175'rock begins to produce comptent core. Predominantly glassy.



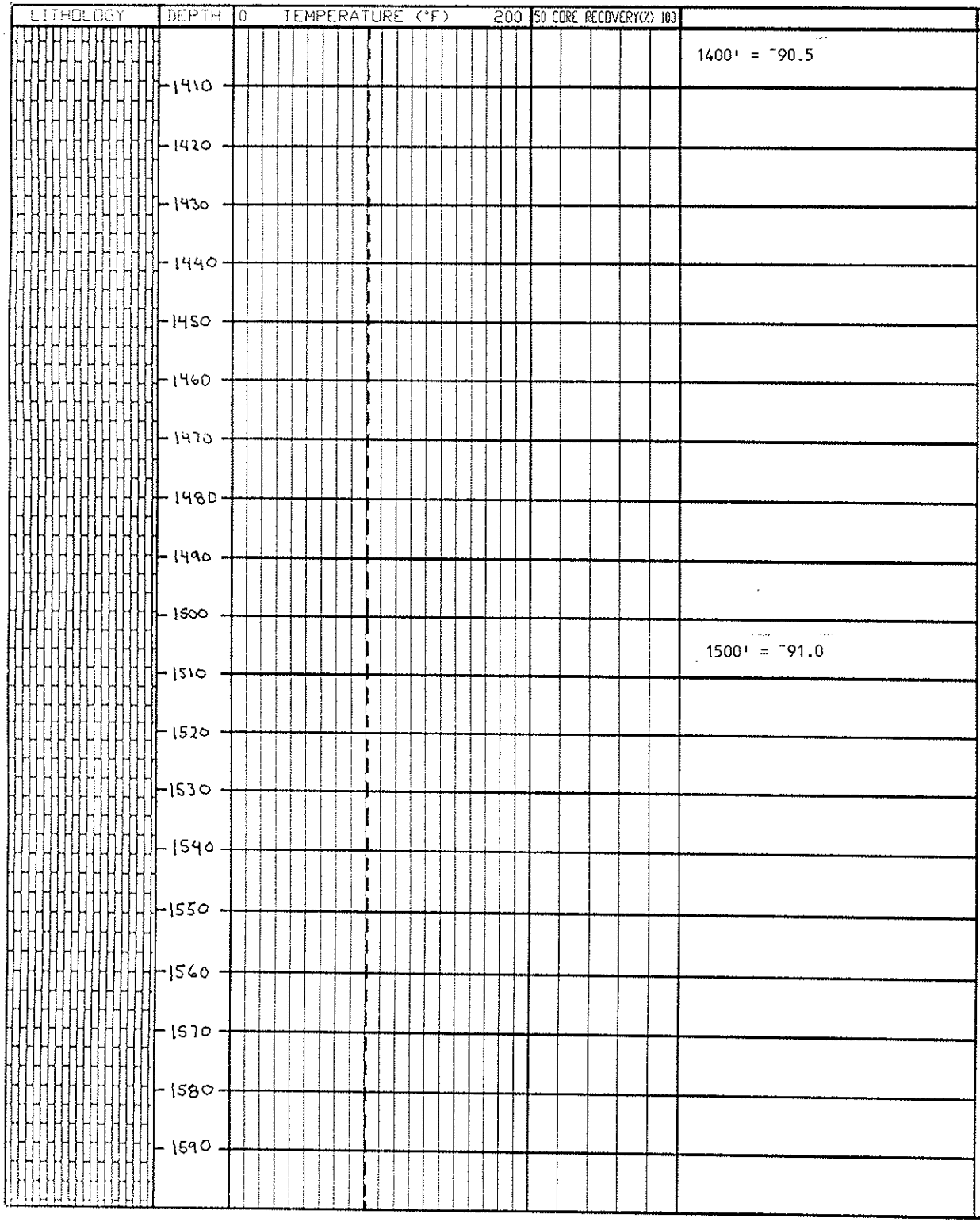
REMARKS CE-MZII-1

1175'-1300' Basalt: Light gray, commonly flow banded, glassy to microcrystalline with sucrosic texture. Porphyritic with crystals submm in size of anhedral pyroxene and opaque mafic mineral (magnetite?). Opaque mafics appear to be a primary phase mineral. Grades gradually to a microholocrystalline rock by 1300'.

1122'-2479' BASALT: Thick continous lava flow or sill.

1300' Basalt: Light gray, mottled and flow banded, predominantly flow banded rock with sucrosic texture.

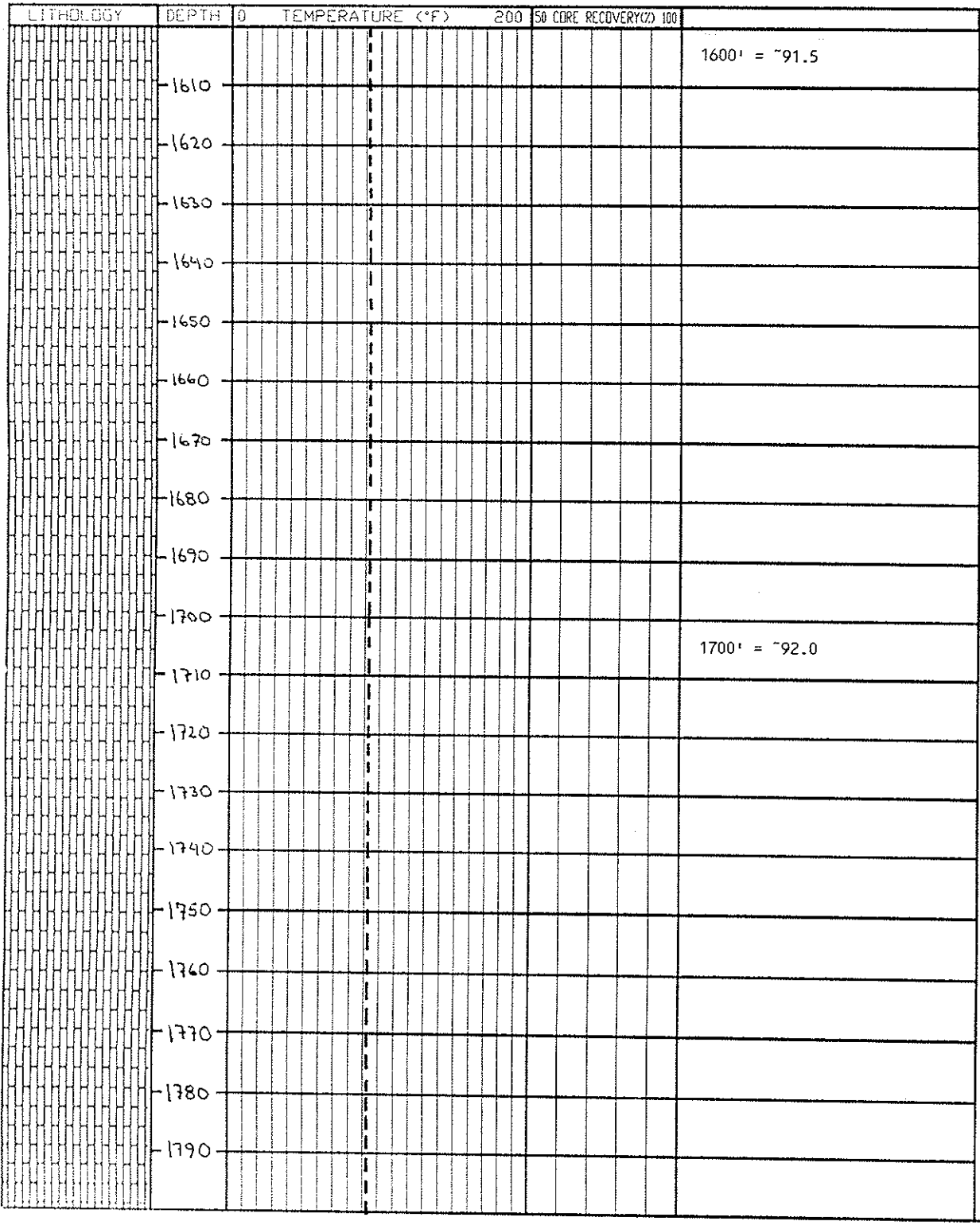
1340' a/a: Rare trace calcite and bladed zeolite i.e. helundinite in flat vugs. Sample taken.



REMARKS

CE-MZ11-1

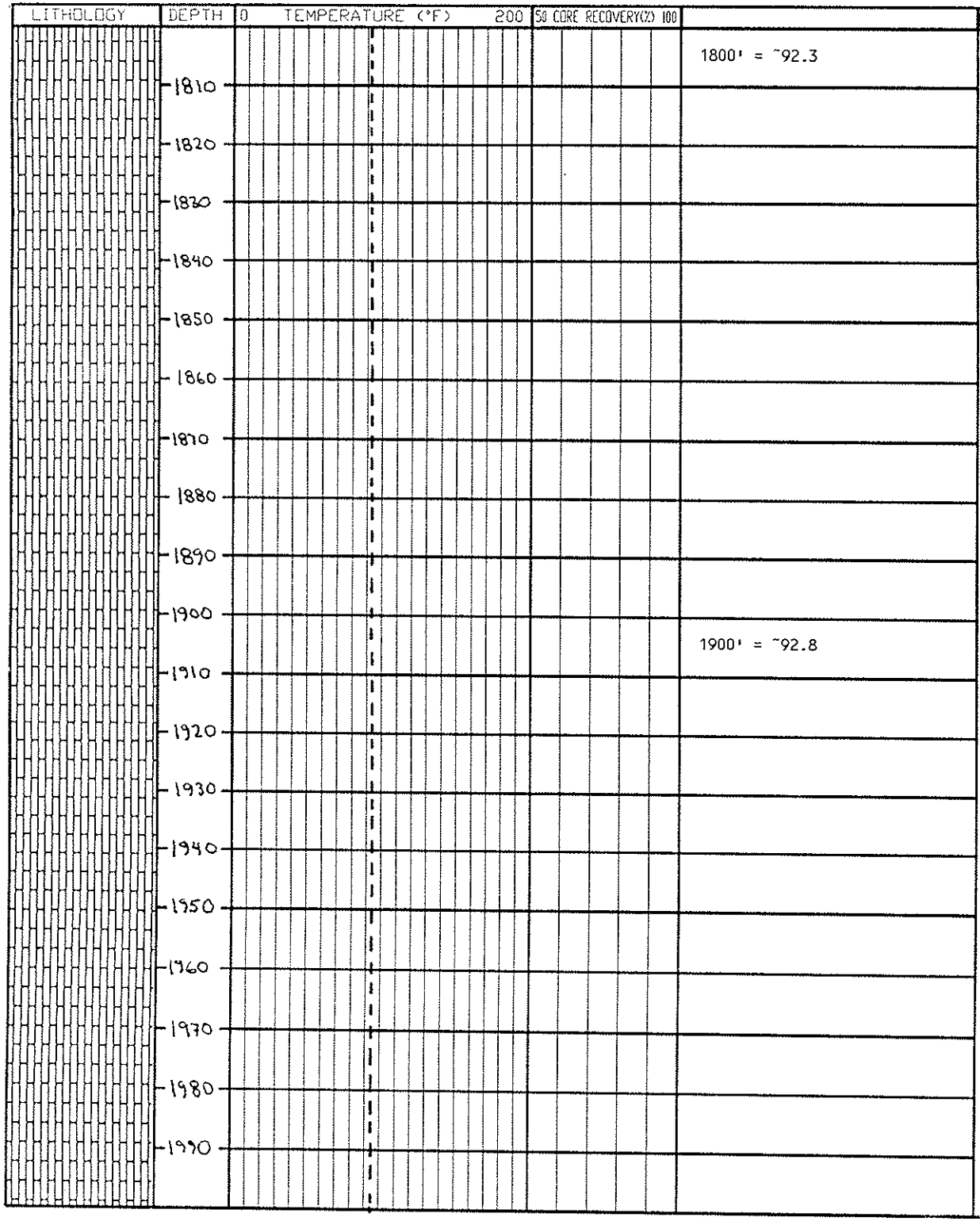
1122'-2479' BASALT: Thick continous lava flow or sill.



REMARKS

CE-MZII-1

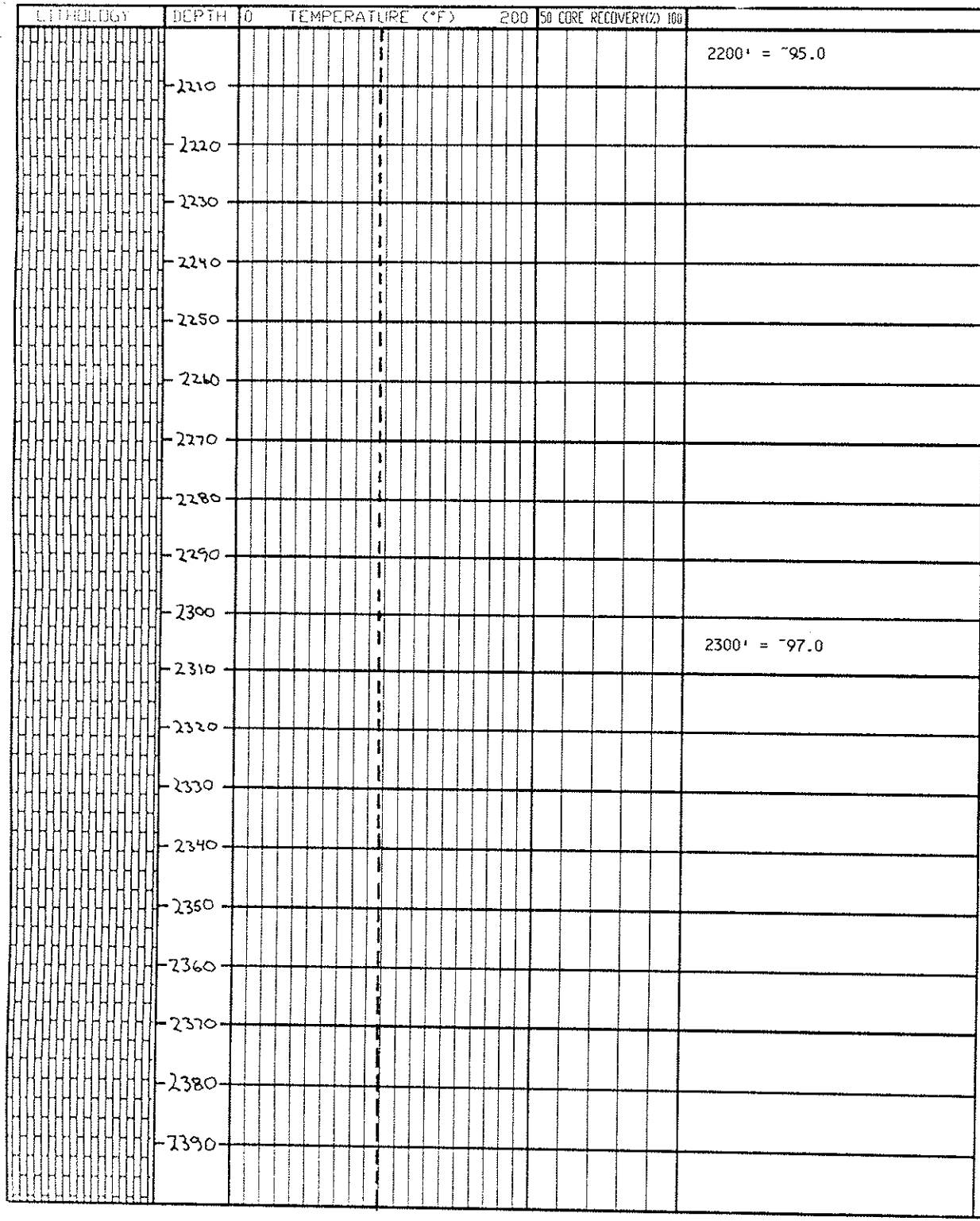
1122'-2479' BASALT: Thick continous lava flow or sill.



REMARKS CE-MZII-1

1122'-2479' **BASALT:** Thick continous lava flow or sill.

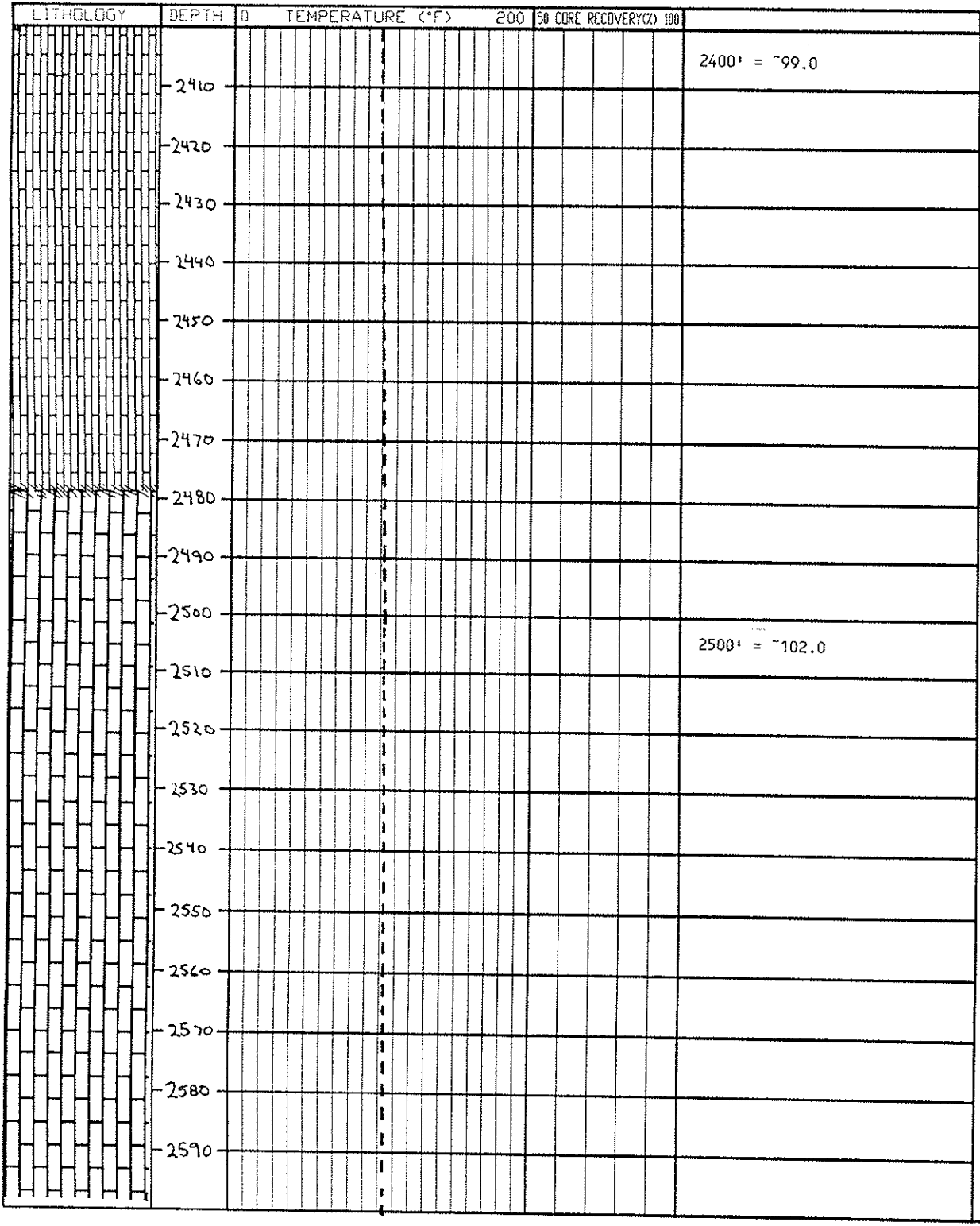
LITHOLOGY	DEPTH	0 TEMPERATURE (°F) 200	50 CORE RECOVERY(%) 100		REMARKS	CE-MZ11-1
	2010			2000' = ~93.0		
	2020					
	2030					
	2040					
	2050					
	2060					
	2070					
	2080					
	2090					
	2100			2100' = ~94.0	1122'-2479' BASALT: Thick continous lava flow or sill.	
	2110					
	2120					
	2130					
	2140					
	2150					
	2160				2169' Basalt: Light gray, porphyritic with microcrystals of black opaque mineral and green gray pyroxene and olivine, moderately flow banded. Rock is fresh.	
	2170					
	2180					
	2190					



REMARKS

CE-MZII-1

1122'-2479' **BASALT:** Thick continous lava flow or sill.



REMARKS CE-MZII-1

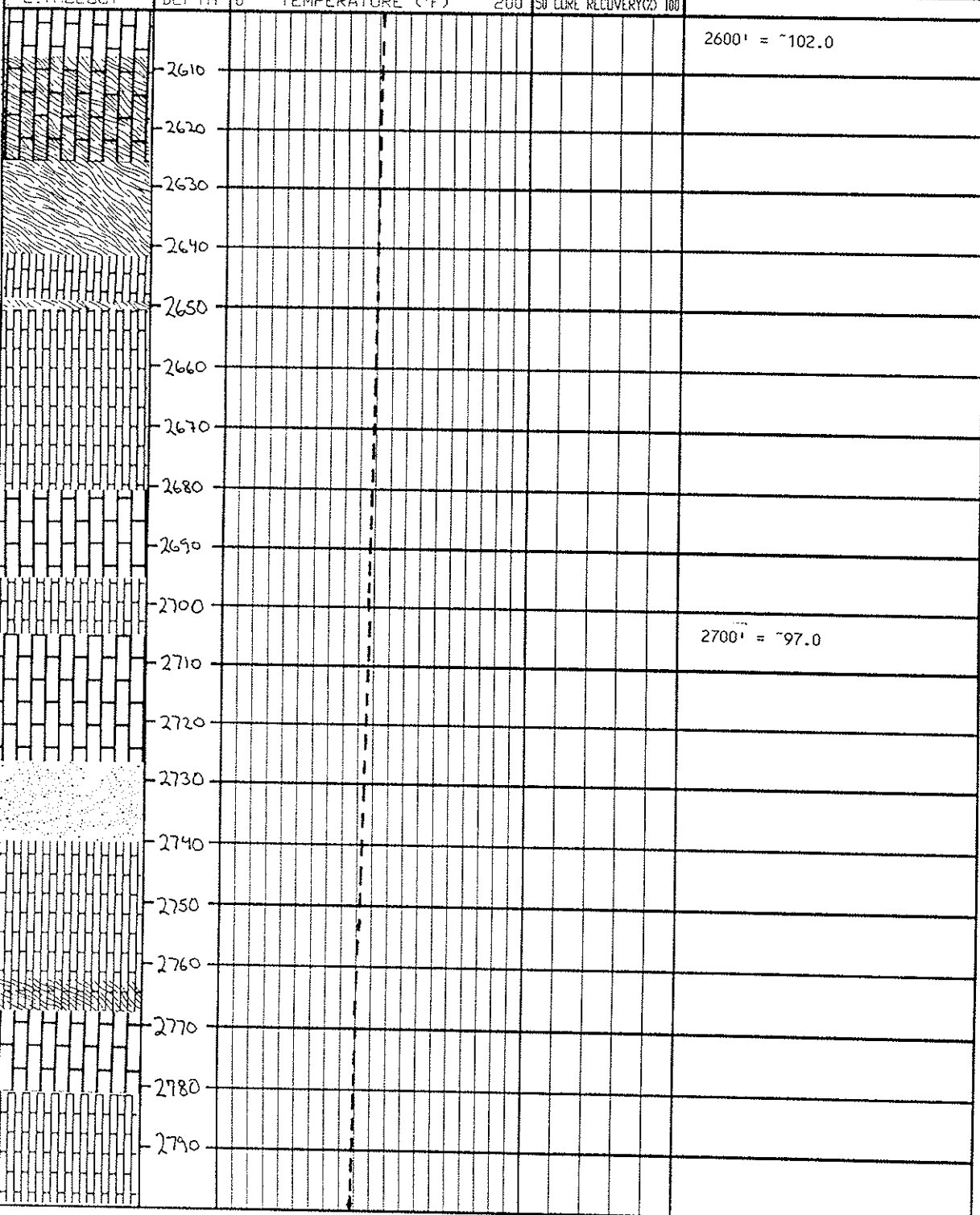
1122'-2479' BASALT: Thick continous lava flow or sill.

2428' Basalt: Light gray, fresh, porphyritic, olivine and pyroxene phenocrysts, flow banded. Varible submm coating of zeolite on fracture surfaces.

2479' Basal Breccia Fragments: variably vesicular, grading to dark to medium gray.

2479'-2633' INTERCALATED BASALT LAVA FLOWS: medium - dark gray, varibly vesiculated, predominately fresh.

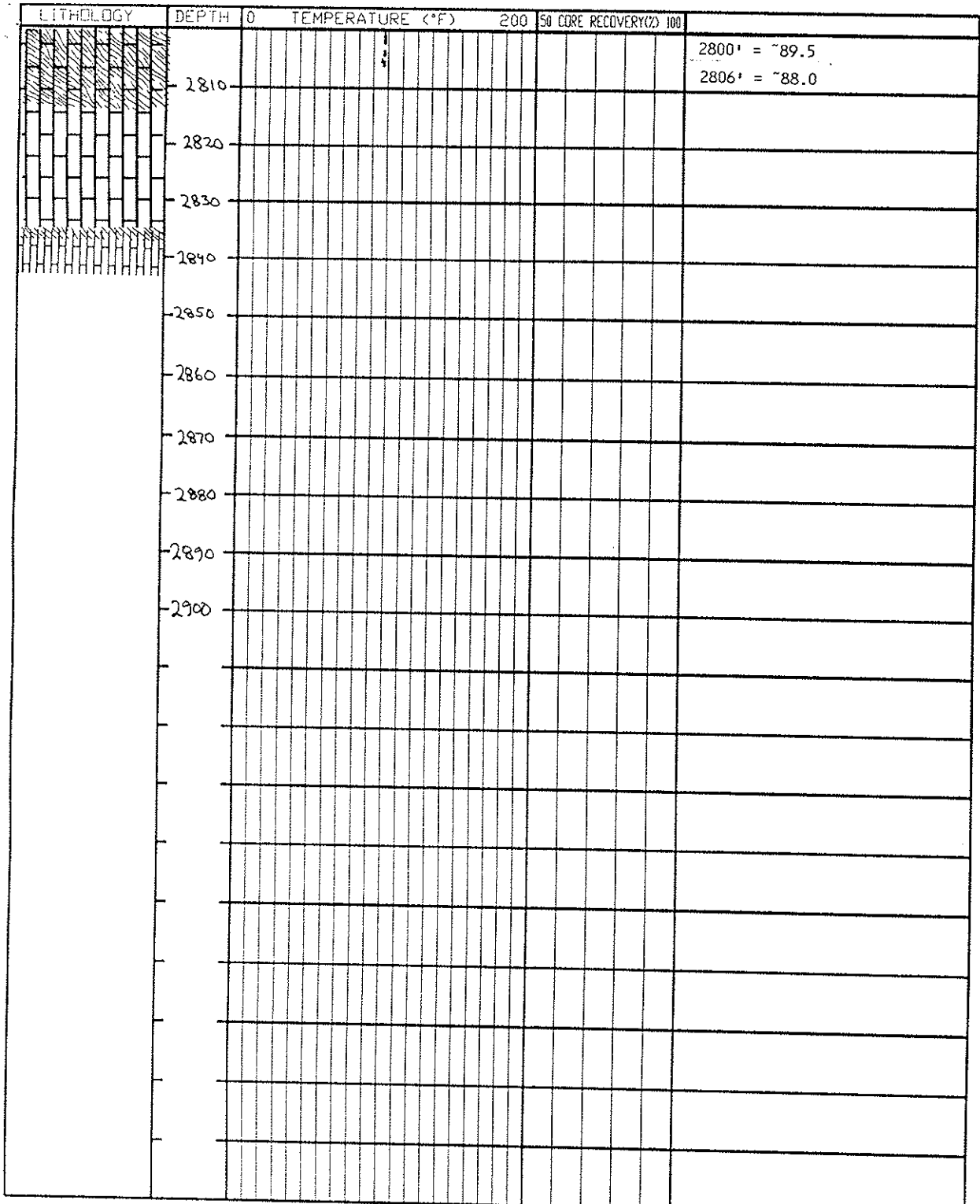
2539' a/a: Brown orange - brown collidal clay in vesicles, rare trace oxidation of Fe along vug surfaces.



REMARKS

CE-MZII-1

2609'	a/a: Smectite- collidal alteration, rock faces predominantly unaltered, local rare iron alteration. No clay alteration of groundmass.
2609'-2626'	a/a: Yellow brown collidal clay on fracture surfaces of rubble zone.
2633'-2642'	FLOW TOP: Thermally oxidized flow top. Red gray, rubbly, clast supported, abundant lapilli sized fragments, local flow breccia.
2642'-2648'	BASALT LAVA: Gray - brown gray, variably vesicular, common hematite oxidation coating of vesicles.
2648'-2649'	FLOW BRECCIA
2649'-2682'	BASALTIC LAVA FLOW
>2650'	Progressive reddish Fe oxidation alteration along fracture surface and fracture surfaces. With depth alteration occurs in groundmass.
2682'-2696'	BASALTIC LAVA FLOW
2696'-2705'	BASALTIC LAVA FLOW
2705'-2727'	BASALTIC LAVA FLOW
2727'-2740'	SCORIACEOUS ZONE: Orange brown oxidize zone. Vesiculated scoria rubble.
2740'-2767'	BASALTIC LAVA FLOW: Flow grades to red oxidized rubble.
2767'-2782'	BASALTIC LAVA FLOW
2782'-2800'	BASALTIC LAVA FLOW



REMARKS

CE-MZII-1

2800'-2835' BASALTIC LAVA FLOW: Horizontal planes of vesicles. Rock is fresh. Very minor hematite alteration of groundmass and vesicle surfaces. No significant alteration. Very variable thin submm coating of clay precusor. (Note: The indication is that the rock has "alot" of water moving through it, but no alteration beyond the hematite alteration.) Baked Flow Top Rubble from 2800' - 2815' which grades into a gray lava from 2815'-2835'. At 2827' minor hematite alteration & a trace zeolite precusor occurs on fracture surfaces.

2835'-2843.5' BASALTIC LAVA FLOW: Thermally oxidized lava flow top from 2835'-2839'.

TOTAL DEPTH = 2843.5'