FIGURE 73

'LT 700A RUN 87 Co on steamed, 72hr acid washed Y–Zeolite

6531–186 w/8.91% Co via aq. impreg 2:1 H_2:CO in feed

13g active in 160g quartz sand

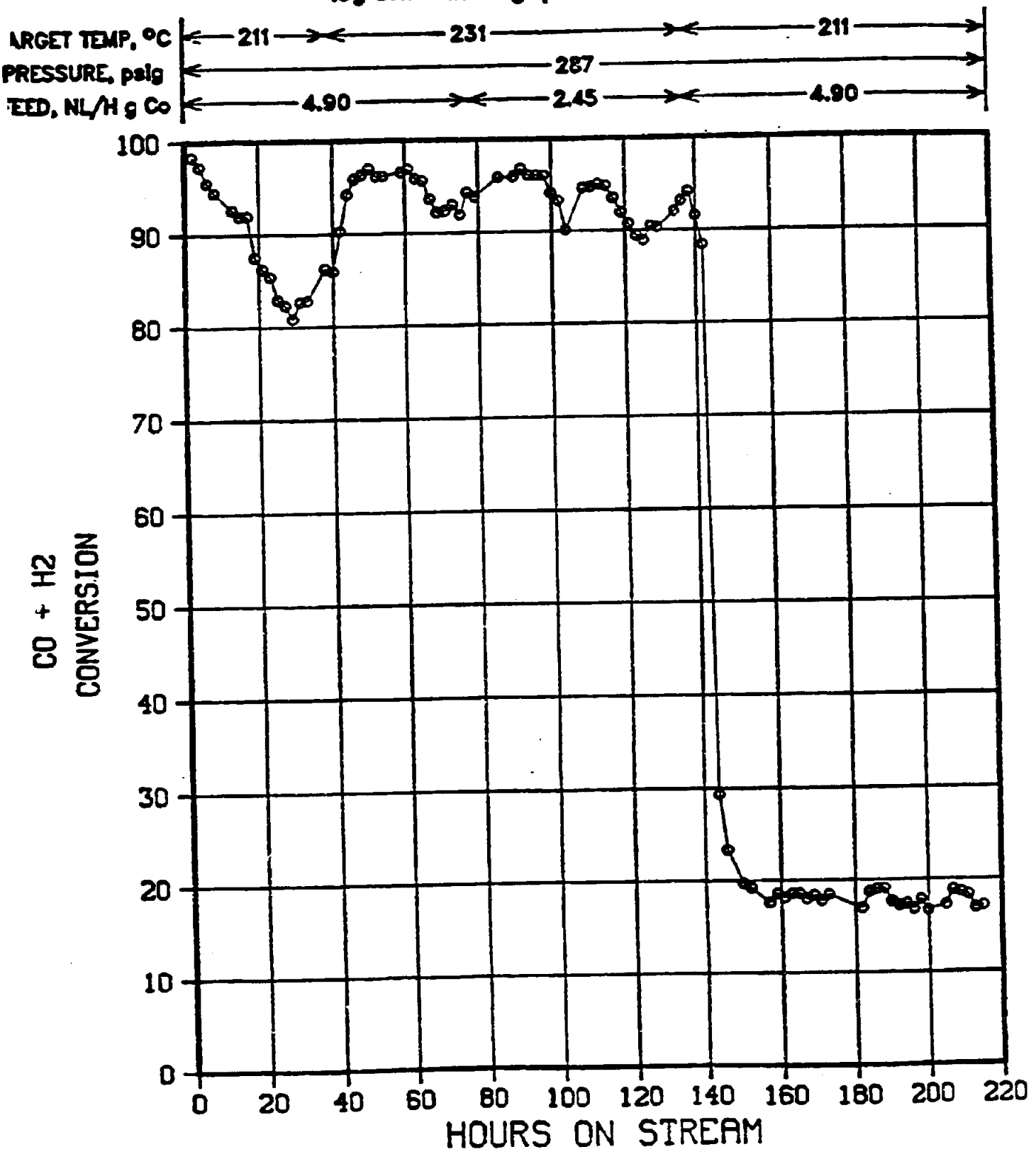


FIGURE 74

PLT 700A RUN 87 Co on steamed, 72hr acid washed Y-Zeolite

6531-186 w/8.91% Co via aq. impreg 2:1 H_2:CO in feed

13g active in 160g quartz sand

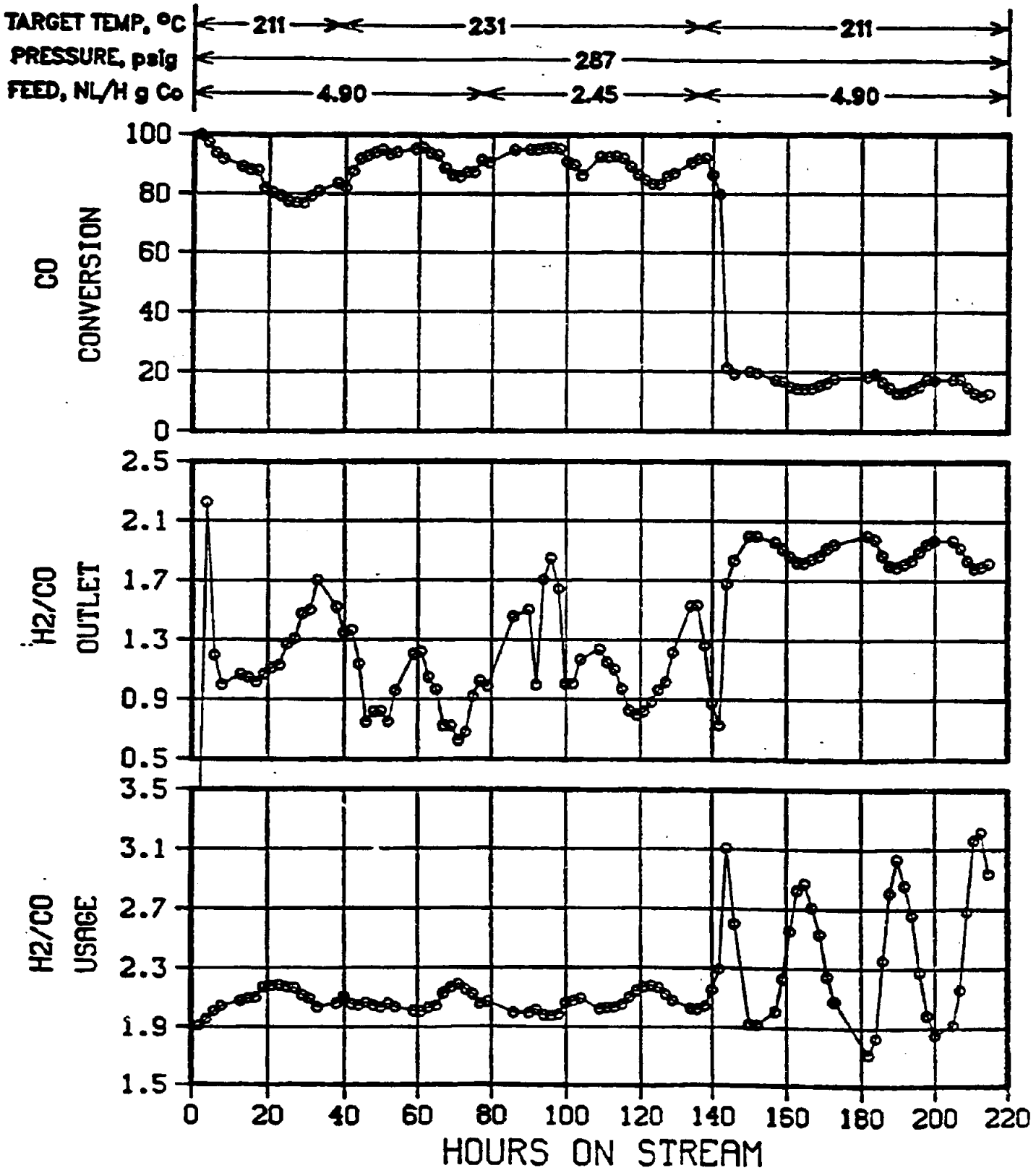


FIGURE 75

PLT 700A RUN 87 Co on steamed, 72hr acid washed Y-Zeolite

6531-186 w/8.91% Co via aq. impreg 2:1 H_2:CO in feed
13g active in 160g quartz sand

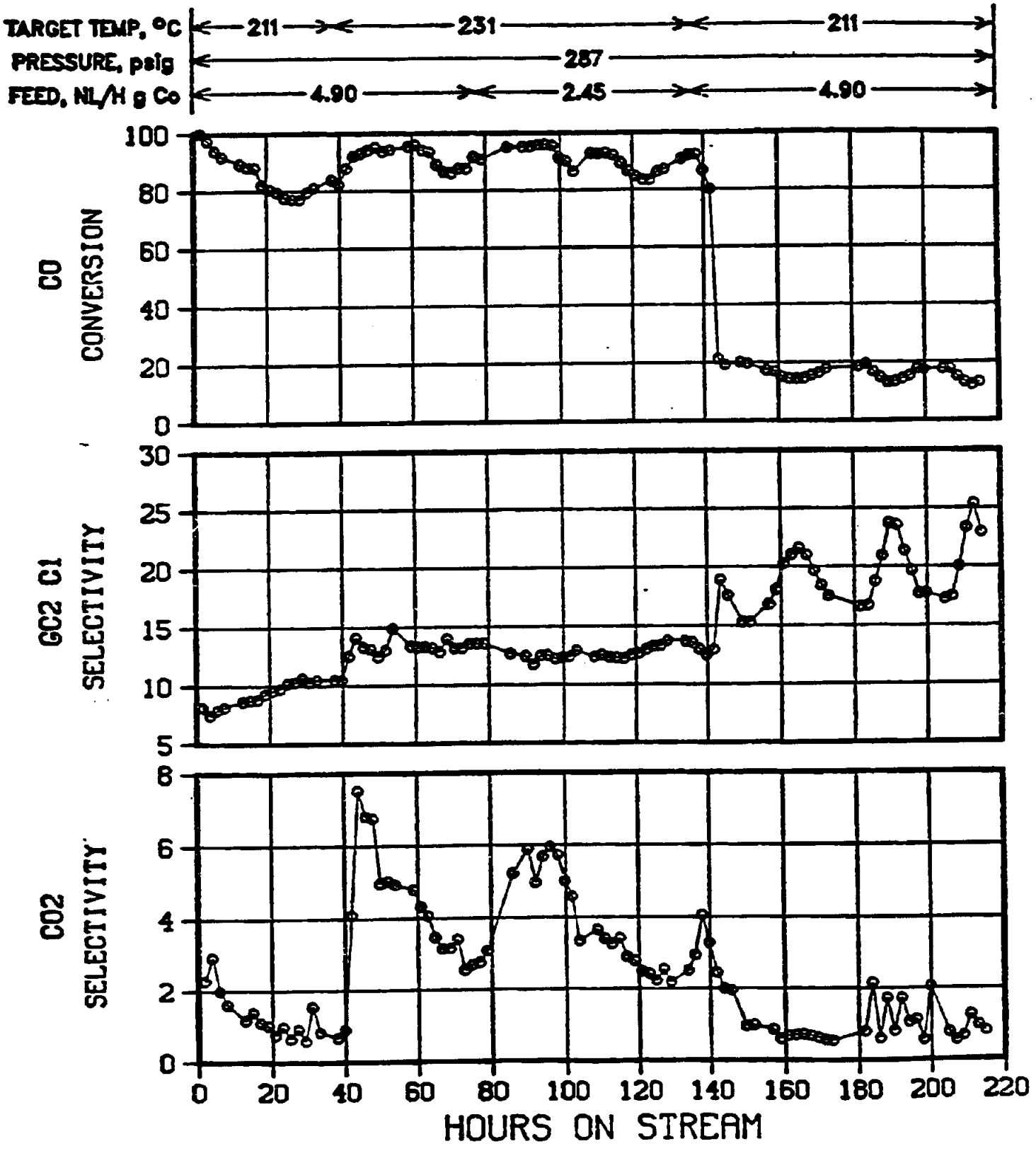


FIGURE 76

PLT 700A RUN 87 Co on steamed, 72hr acid washed Y-Zeolite

6531-186 w/8.91% Co via aq. impreg 2:1 H_2:CO in feed

13g active in 160g quartz sand

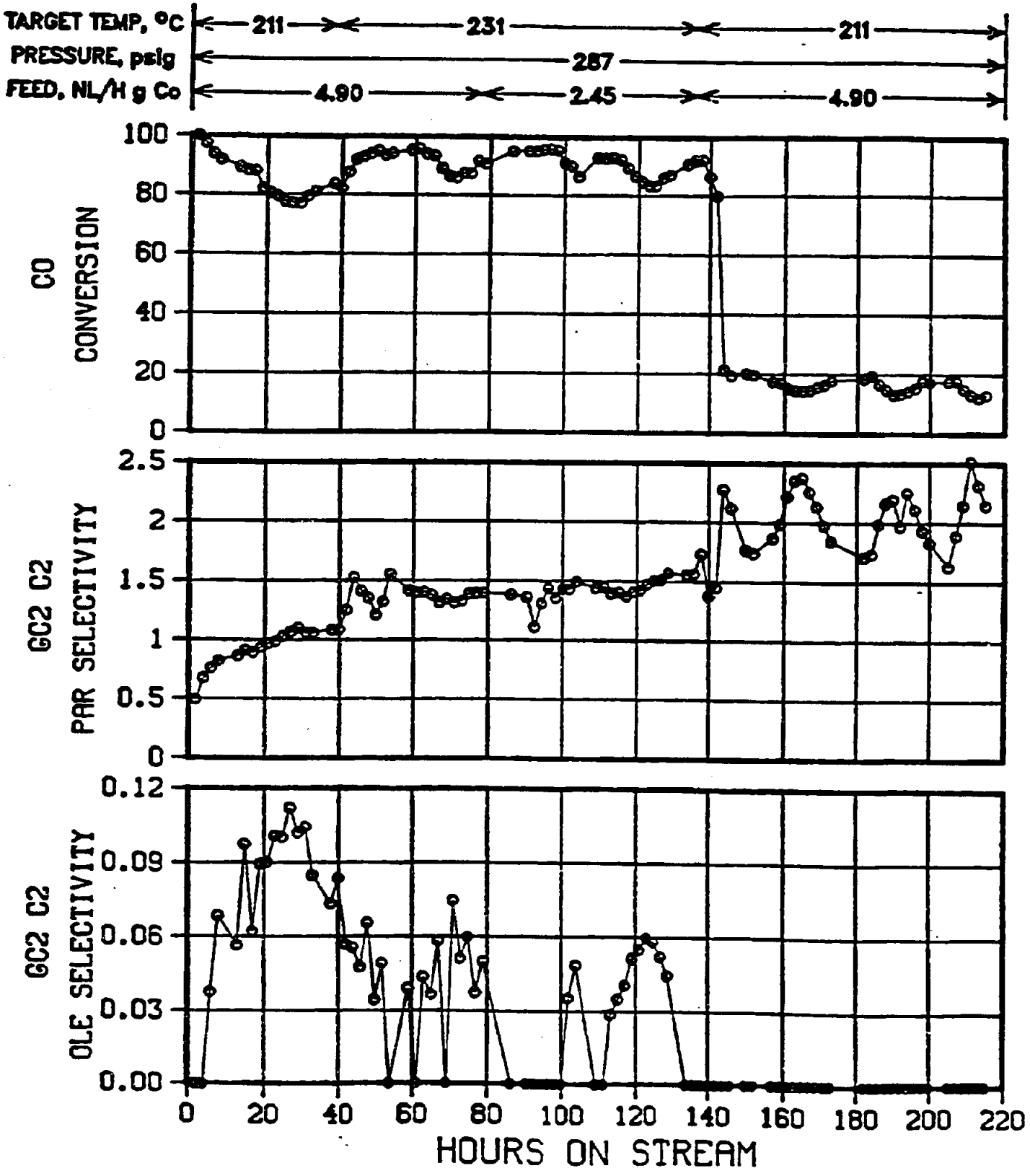


FIGURE 77

"LT 700A RUN 87 · Co on steamed, 72hr acid washed Y–Zeolite

6531–186 w/8.91% Co via aq. impreg 2:1 H_2:CO in feed

13g active in 160g quartz sand

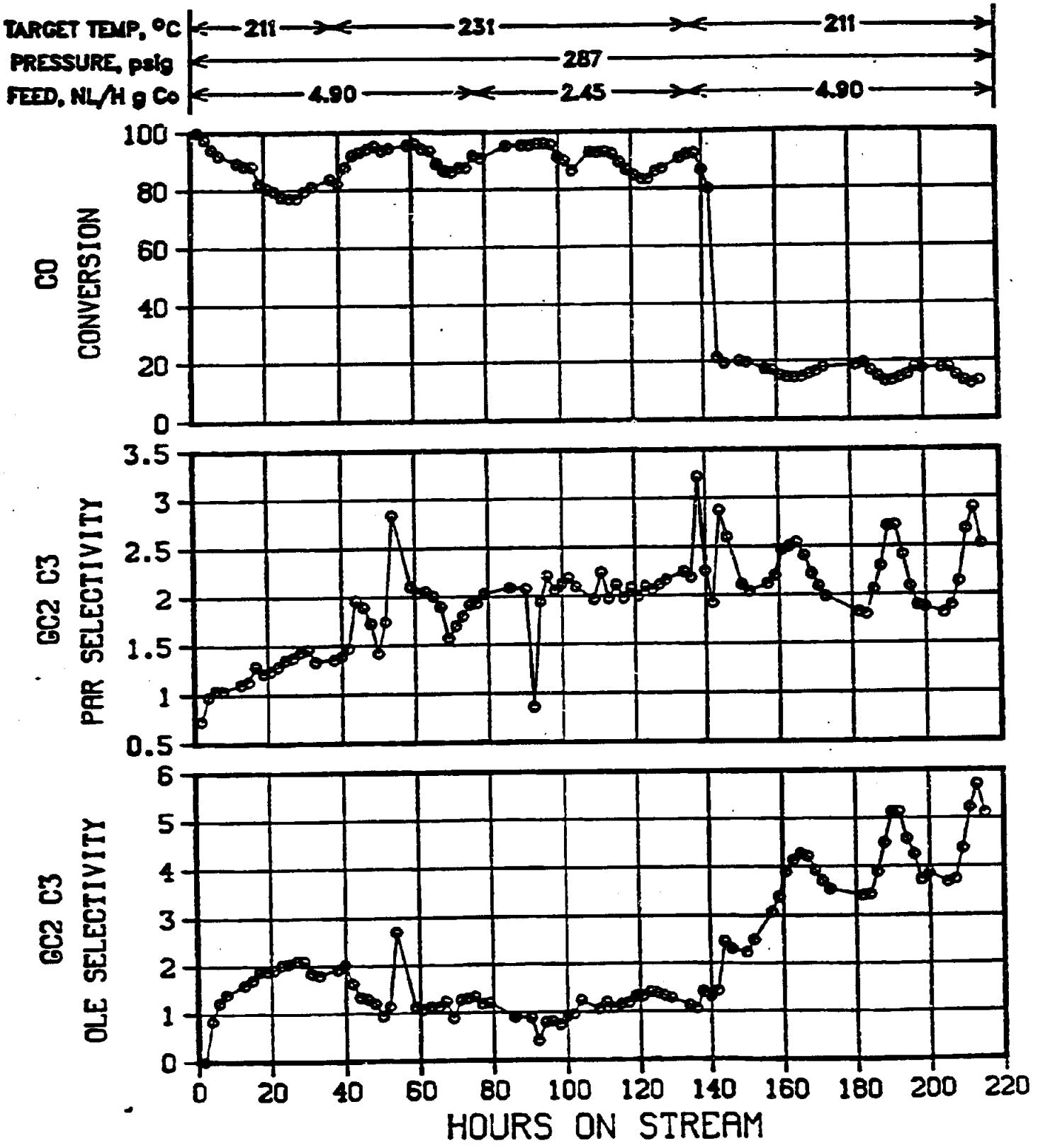
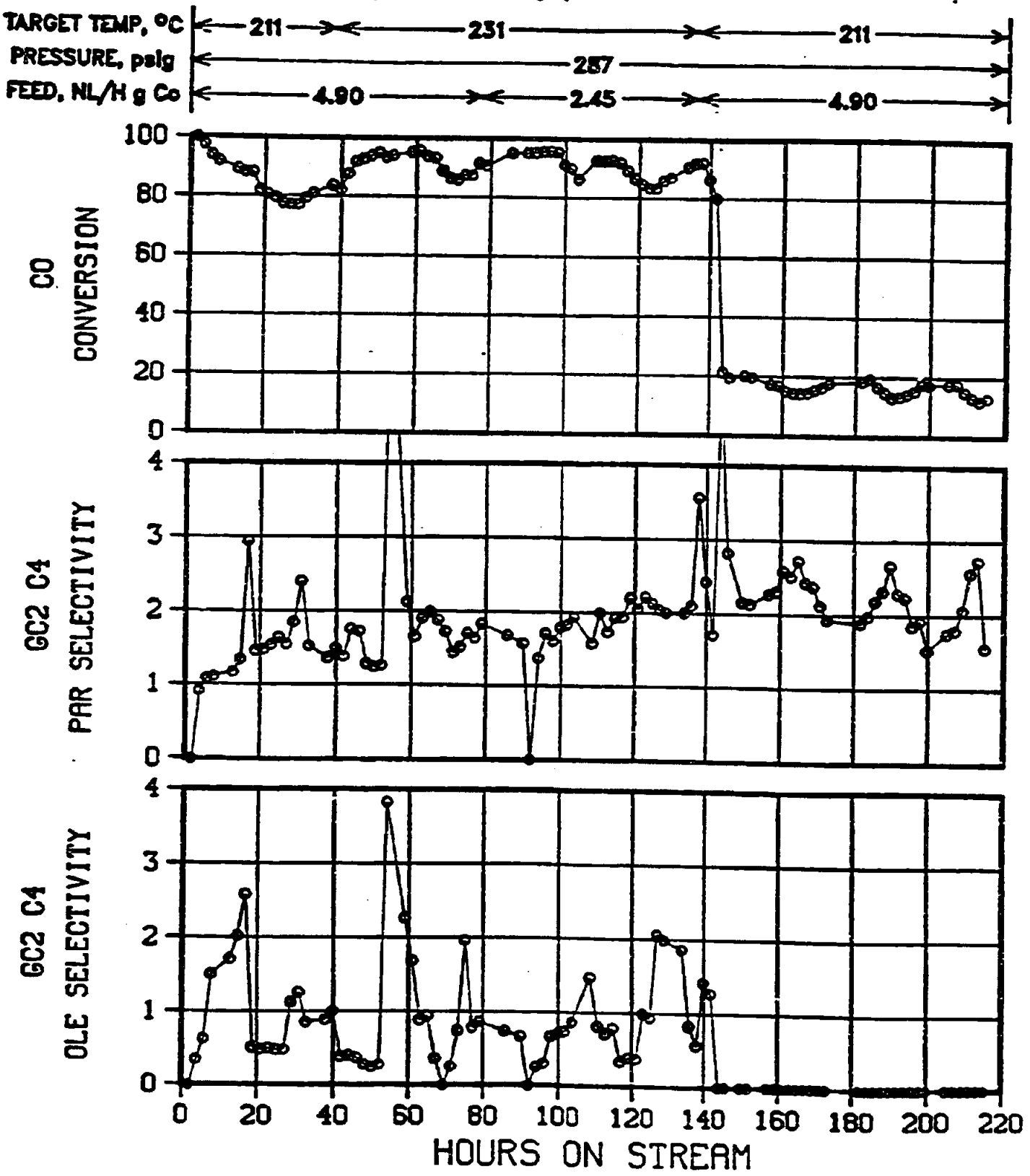


FIGURE 78

PLT 700A RUN 87 Co on steamed, 72hr acid washed Y–Zeolite

6531–186 w/8.91% Co via aq. impreg 2:1 H_2:CO in feed

13g active in 160g quartz sand



CATALYST PRECURSORS: SUPPORTED OXIDES ON STEAMED/ACID-WASHED Y ZEOLITES

SUPPORT PROPERTIES			CATALYST NO./ RUN NO.	CATALYST METALS, AAS WT%		
TRTMNTS	SA[1]/PV[2]	Al[3]		Co	Mn	Zr
STMD	591/0.51	5.24	6531-176/80	7.5		
	591/0.51	5.24	6531-167/81	8.1	0.4	1.0
	591/0.51	5.24	6531-166/82	7.3	0.6	1.0
STMD/ HNO_3[4]	562/0.49	4.83	6531-178/83	7.7		
	562/0.49	4.83	6531-180/84	8.5	1.7	1.1
STMD/ HNO_3[5]	586/0.51	3.86	6531-182/85	9.4		
STMD/ HNO_3[6]	596/0.54	2.94	6531-188/86	9.1		
	596/0.54	2.94	6531-186/87	8.9		
	574/0.51	4.01	6827-79/95[7]	9.4	1.9	0.47

1. m^2/g
2. cc/g
3. wt %
4. WASH 36 HOURS WITH 2M HNO_3.
5. WASH 36 HOURS WITH 3M HNO_3.
6. WASH 72 HOURS WITH 3M HNO_3.
7. THIS CATALYST ALSO CONTAINED 0.43 wt% RHENIUM.

FIGURE 79

FIGURE 80

PLT 700A RUN 95 Co,Mn,Zr,Re ON HCl Washed Y

6827–79 w/9.4% Co via eth–glycol pore fill

13g unreduced active in 160g quartz sand

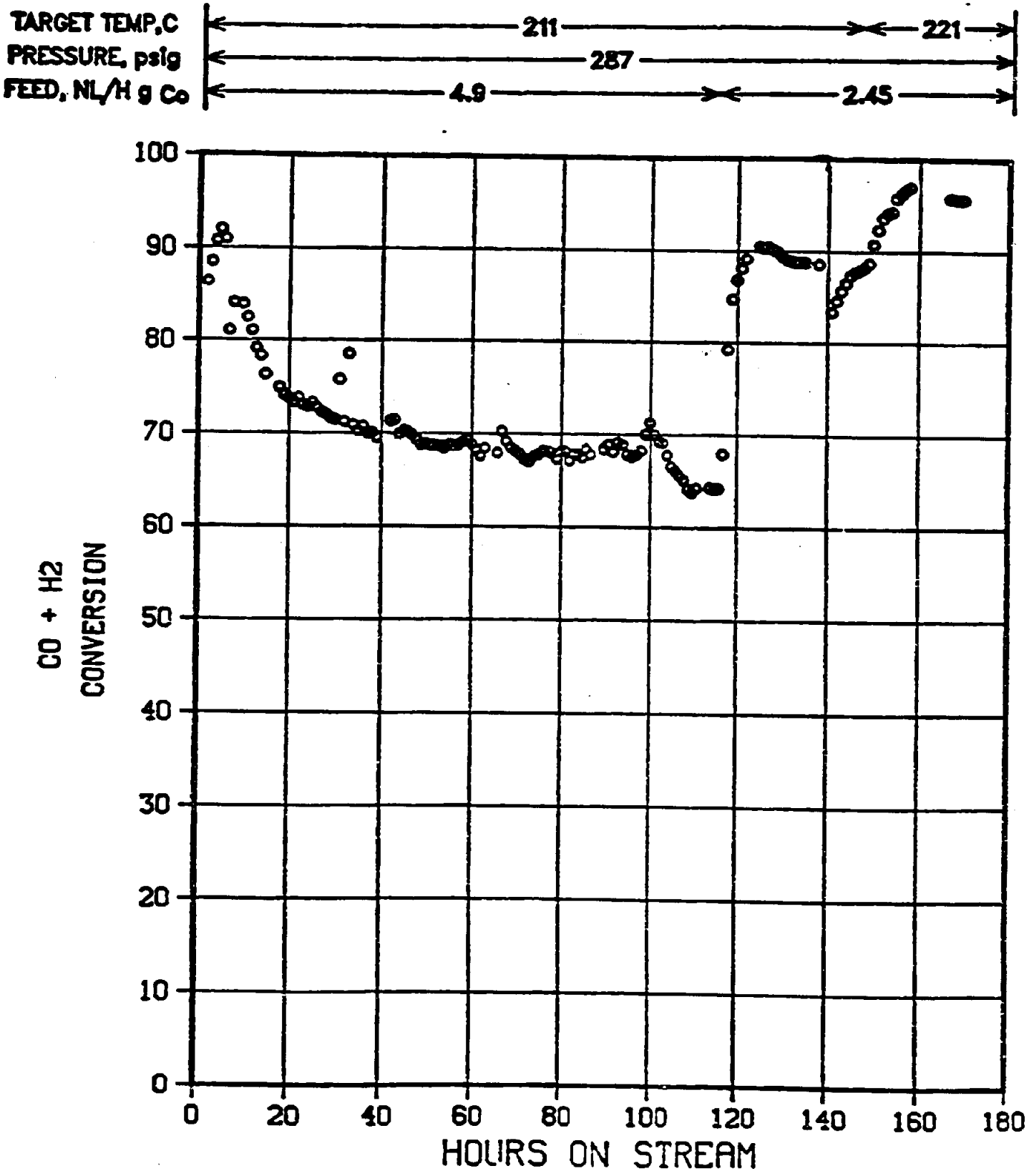


FIGURE 81

PLT 700A RUN 95 Co,Mn,Zr,Re ON HCl Washed Y

6827-79 w/9.4% Co via eth-glycol pore fill

13g unreduced active in 160g quartz sand

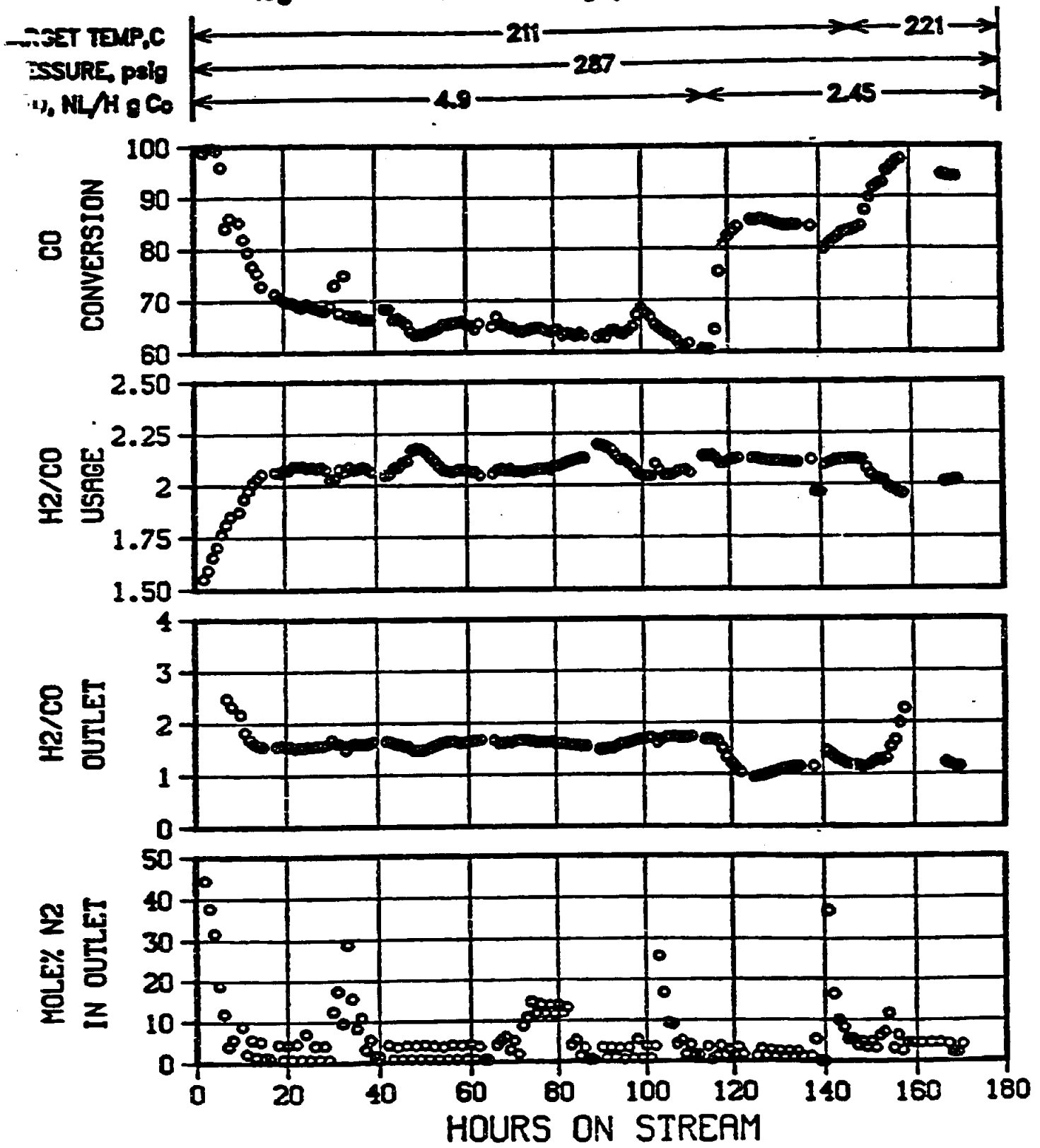


FIGURE 82

PLT 700A RUN 95 Co,Mn,Zr,Re ON HCl Washed Y

6827-79 w/9.4% Co via eth-glycol pore fill

13g unreduced active in 160g quartz sand

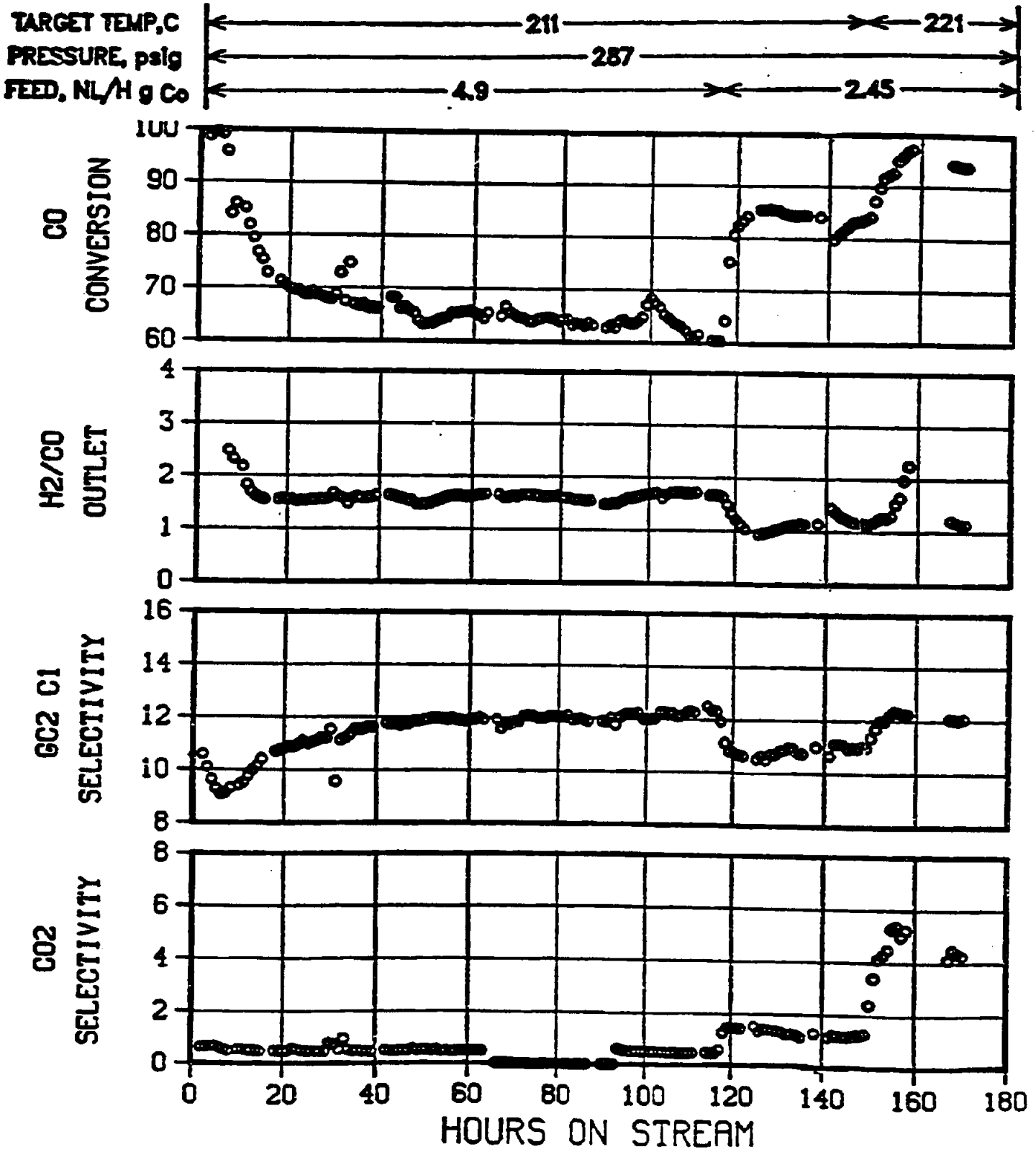


FIGURE 83

PLT 700A RUN 95 Co,Mn,Zr,Re ON HCl Washed Y

6827-79 w/9.4% Co via eth-glycol pore fill

13g unreduced active in 160g quartz sand

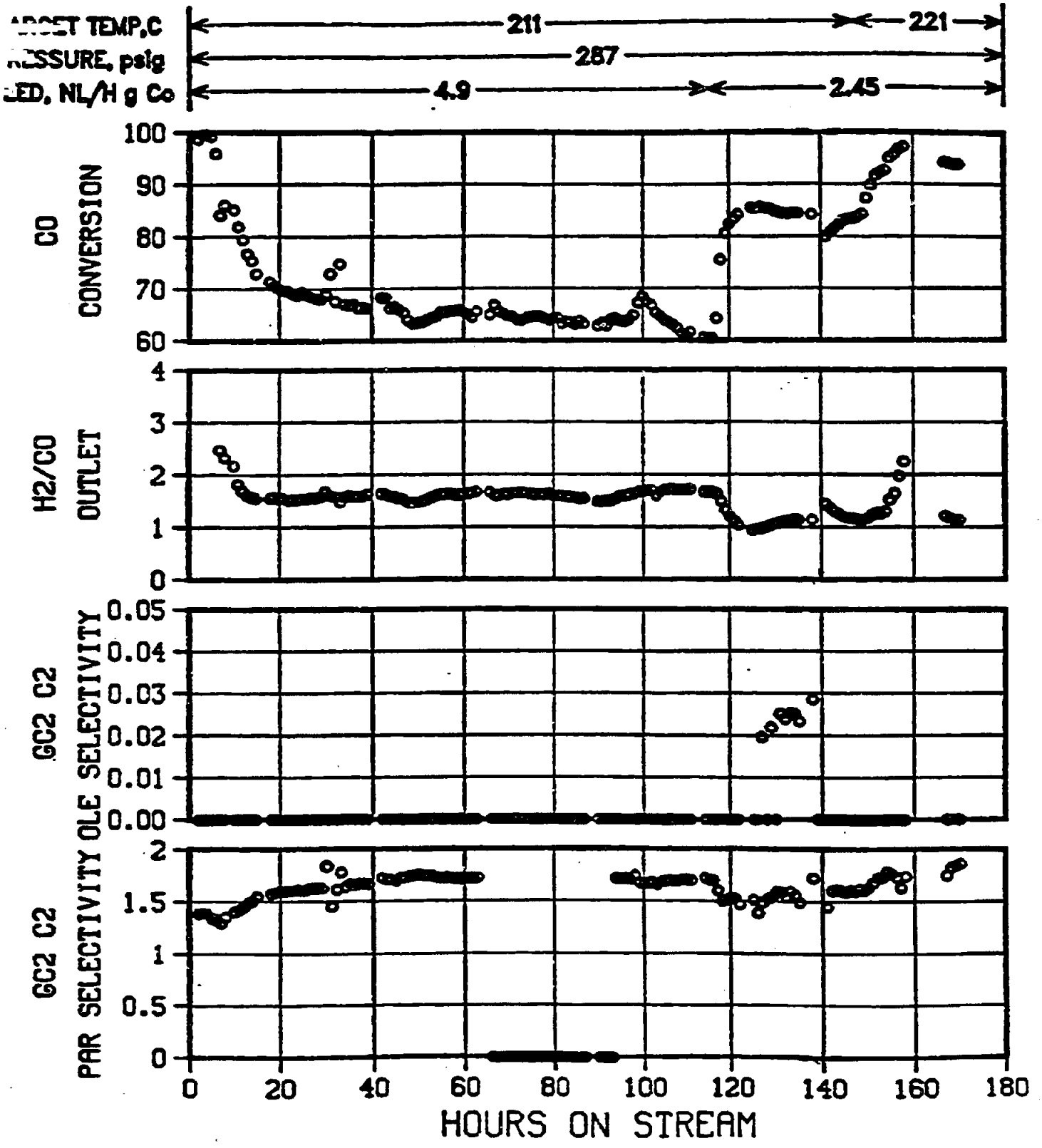


FIGURE 84

PLT 700A RUN 95 Co,Mn,Zr,Re ON HCl Washed Y

6827-79 w/9.4% Co via eth-glycol pore fill

13g unreduced active in 160g quartz sand

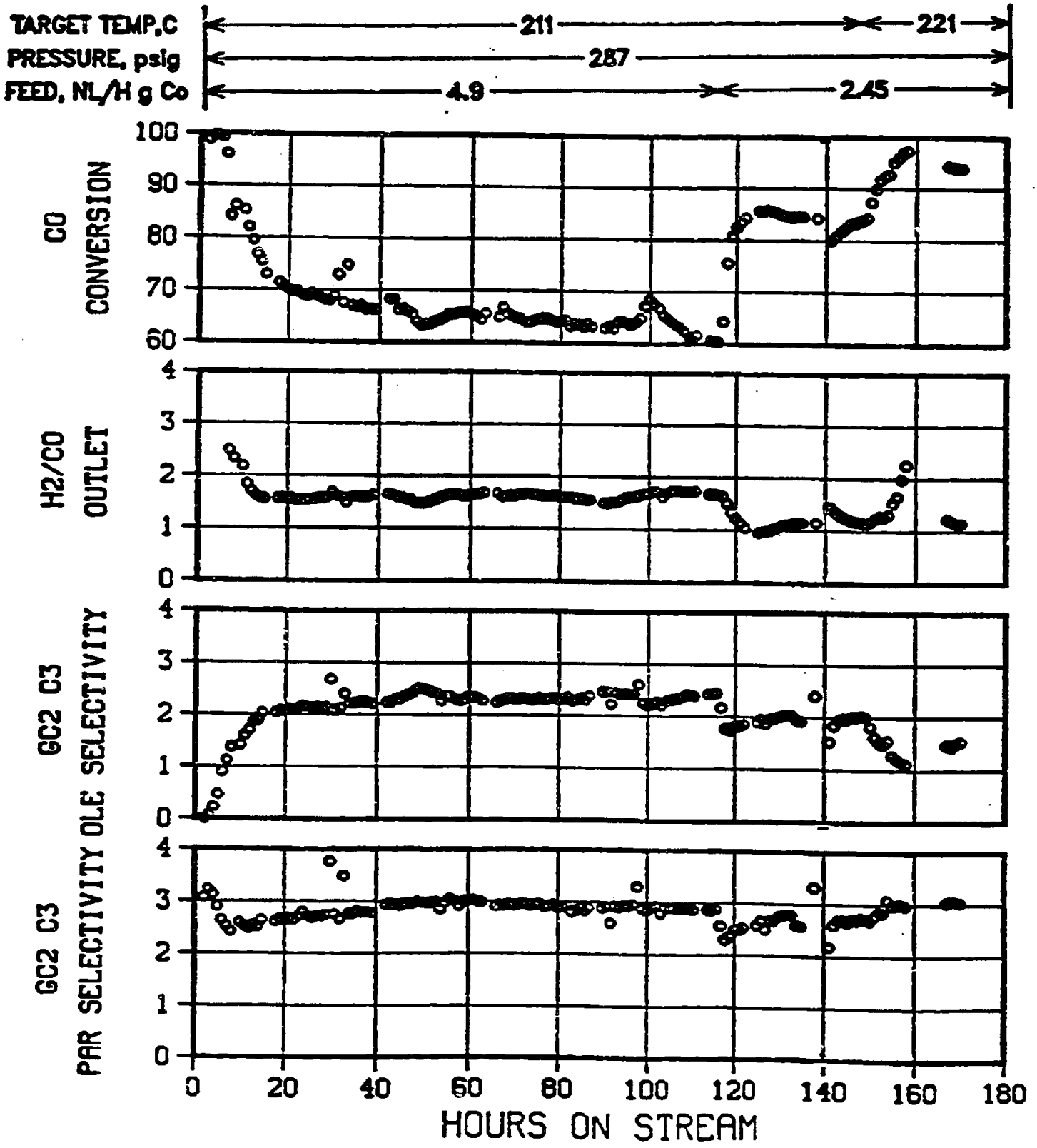
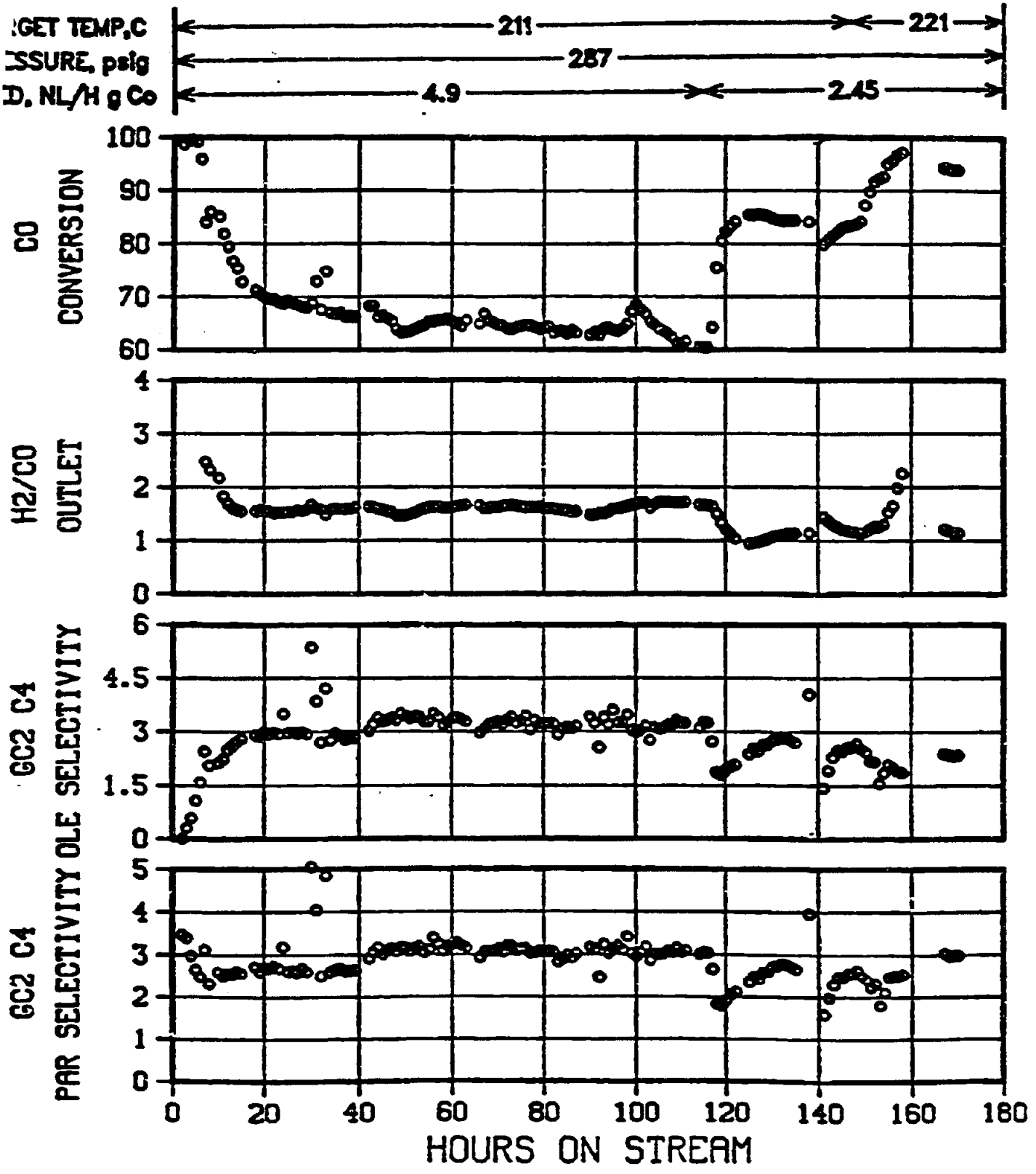


FIGURE 85

PLT 700A RUN 95 Co,Mn,Zr,Re ON HCl Washed Y

6827-79 w/9.4% Co via ath-glycol pore fill

13g unreduced active in 160g quartz sand



CATALYST PRECURSORS: SUPPORTED OXIDES ON STEAMED/ACID-WASHED Y ZEOLITES

SUPPORT PROPERTIES				CATALYST NO./ RUN NO.	CATALYST METALS, AAS WT%			
TRTMNTS	X-RAY[1]	SA[2]/PV[3]	Al[4]		Co	Mn	Zr	Ru
STMD	86.3 ± 0.3	591/0.51	5.24	6531-176/80	7.5			
		591/0.51	5.24	6531-167/81	8.1	0.4	1.0	
		591/0.51	5.24	6531-166/82	7.3	0.6	1.0	
STMD/ HNO_3[5]		596/0.54	2.94	6531-188/86	9.1			
		596/0.54	2.94	6531-186/87	8.9			
	86.6 ± 0.3	574/0.51	4.01	6827-79/95[6]	9.4	1.9	0.47	
STMD/ HCl[7]	84.2 ± 0.3	582/0.56	0.46	6827-81/97	17.6	2.0	1.6	1.0
	84.5 ± 0.3	574/0.54	0.48	6827-95/101	27.4	1.1	1.6	0.3
		561/0.54	0.37	6827-123/110	26.8	2.3	1.0	0.4
	84.5 ± 0.3	574/0.54	0.48	6827-99/102, 104	18.5	2.2	2.0	1.3

1. ABSOLUTE INTENSITY VS. LZ 210 (UNSTEAMED Y ZEOLITE) WHICH = 99.7 ± 1.7.
2. m^2/g
3. cc/g
4. wt %
5. WASH 72 HOURS WITH 3M HNO_3.
6. THIS CATALYST ALSO CONTAINED 0.43 wt% RHENIUM.
7. WASH 3 HOURS WITH 4M HCl.

FIGURE 86

FIGURE 87

PLT 700A RUN 97 Co,Mn,Zr,Ru on HCl washed Y

6827–81 w/17.6 % Co via eth–glycol pore fill

13g unreduced active in 160g quartz sand

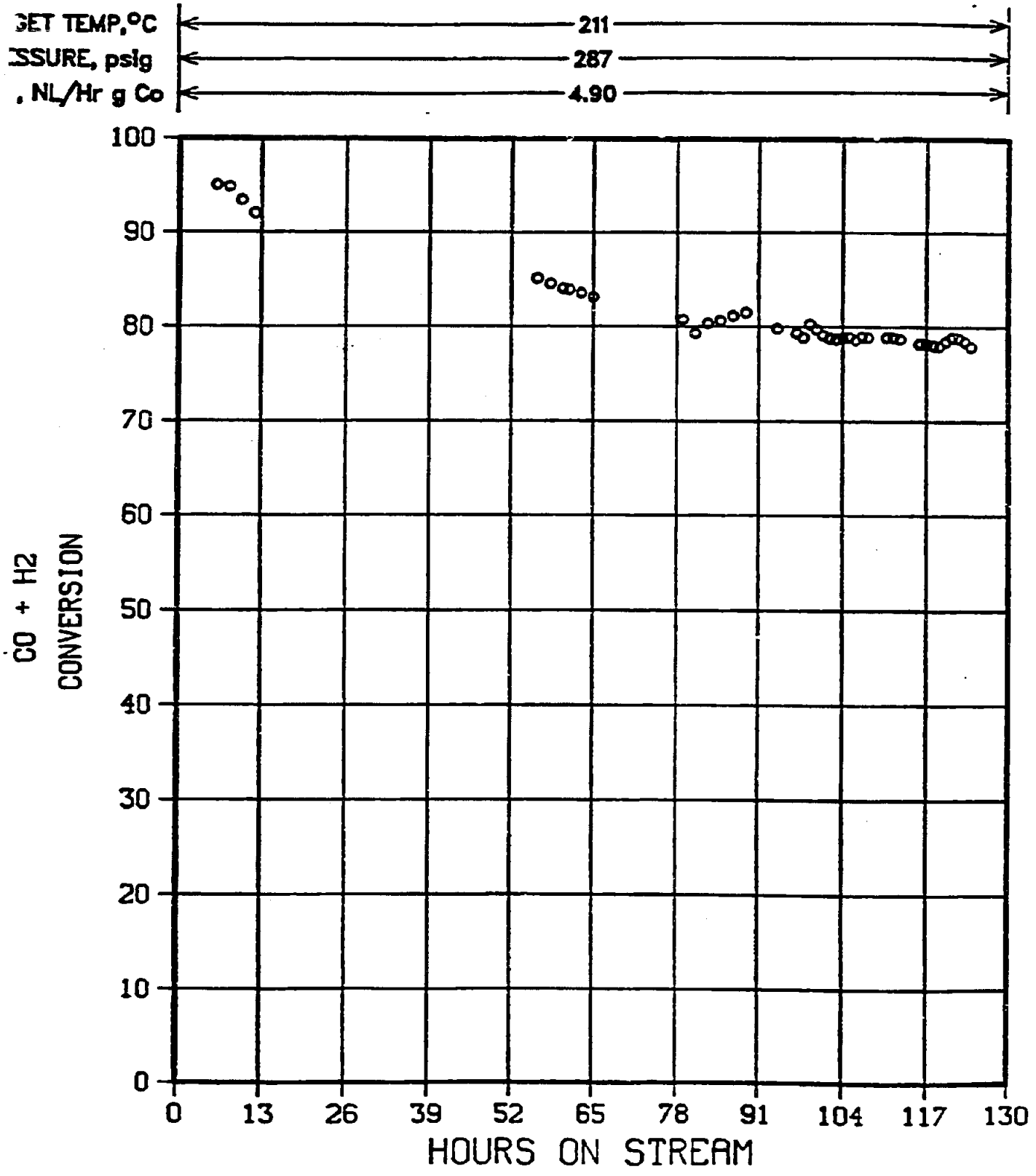


FIGURE 88

PLT 700A RUN 97 Co,Mn,Zr,Ru on HCl washed Y

6827–81 w/17.6 % Co via eth–glycol pore fill

13g unreduced active in 160g quartz sand

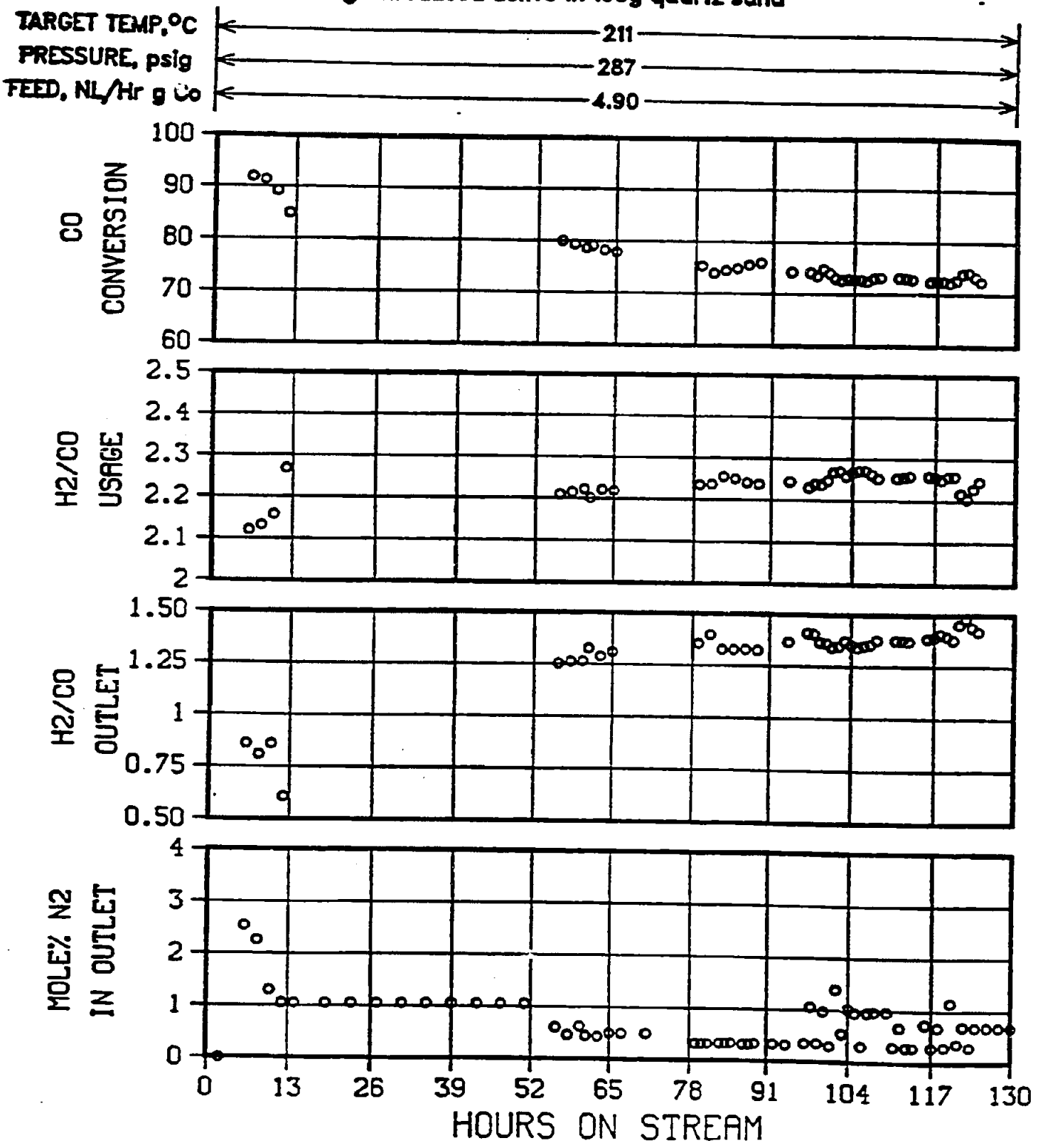


FIGURE 89

PLT 700A RUN 97 Co,Mn,Zr,Ru on HCl washed Y

6827–81 w/17.6 % Co via eth–glycol pore fill

13g unreduced active in 160g quartz sand

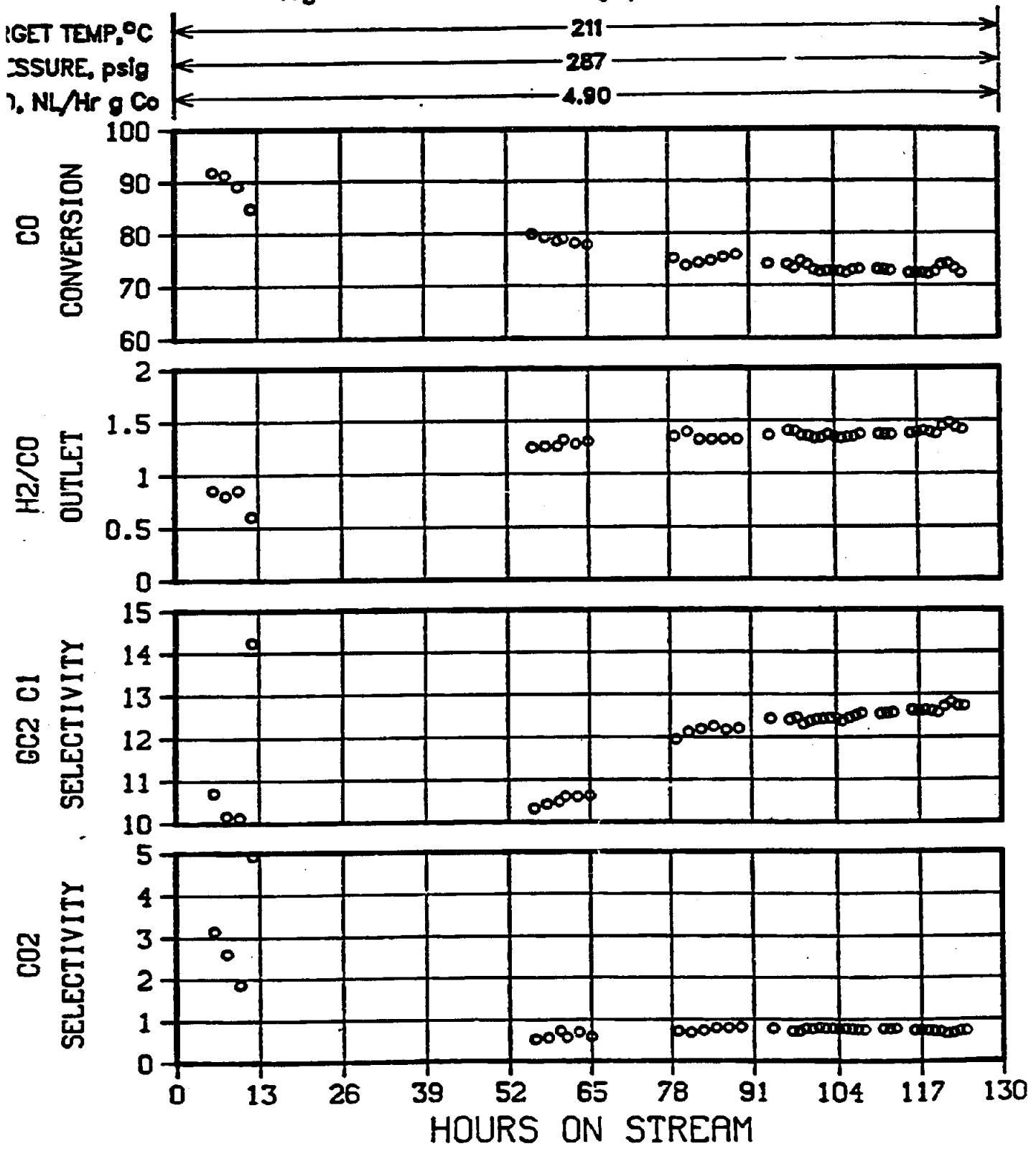


FIGURE 90

PLT 700A RUN 97 Co,Mn,Zr,Ru on HCl washed Y

6827–81 w/17.6 % Co via eth–glycol pore fill

13g unreduced active in 160g quartz sand

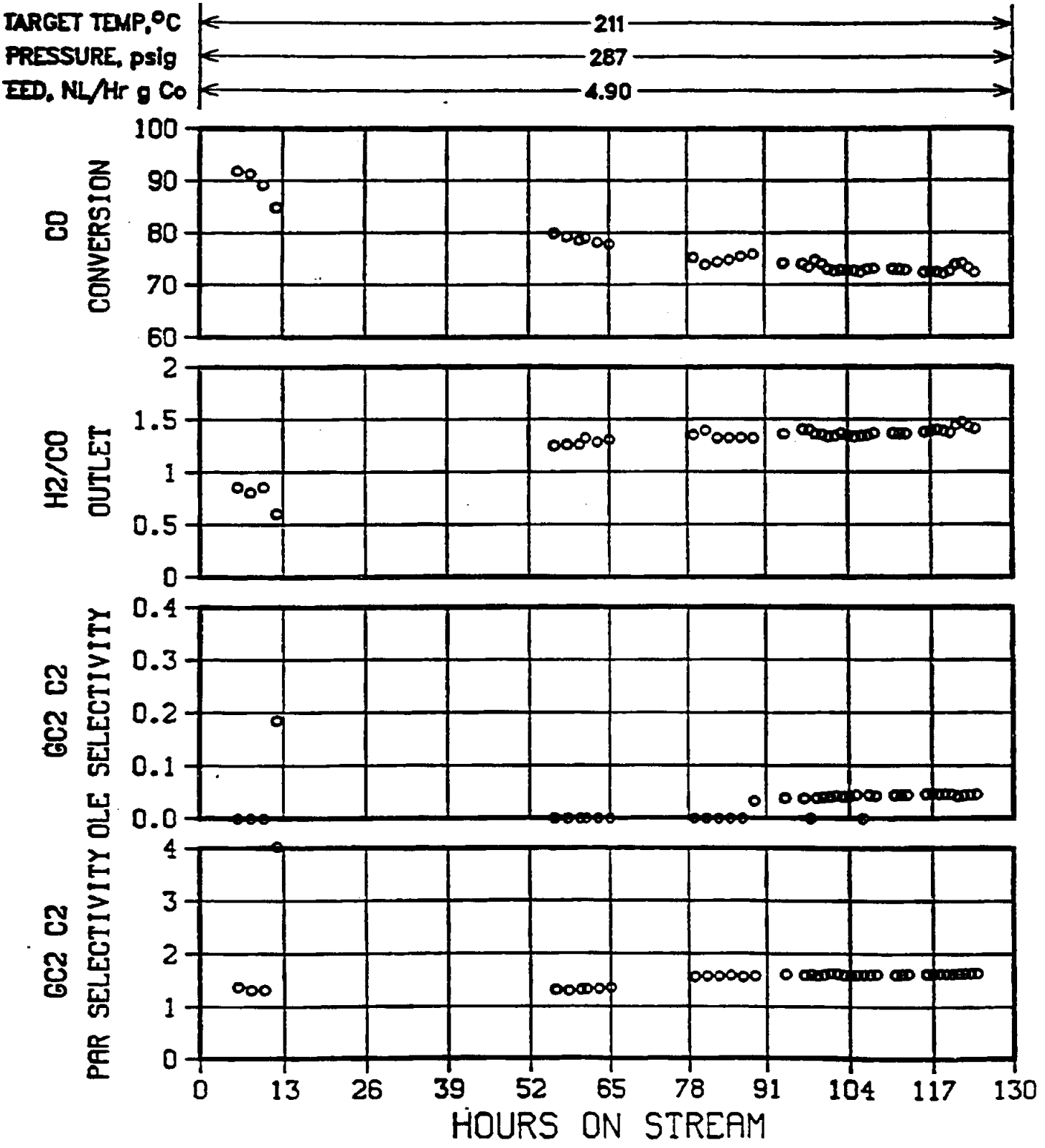


FIGURE 91

PLT 700A RUN 97 Co,Mn,Zr,Ru on HCl washed Y

6827–81 w/17.6 % Co via eth–glycol pore fill

13g unreduced active in 160g quartz sand

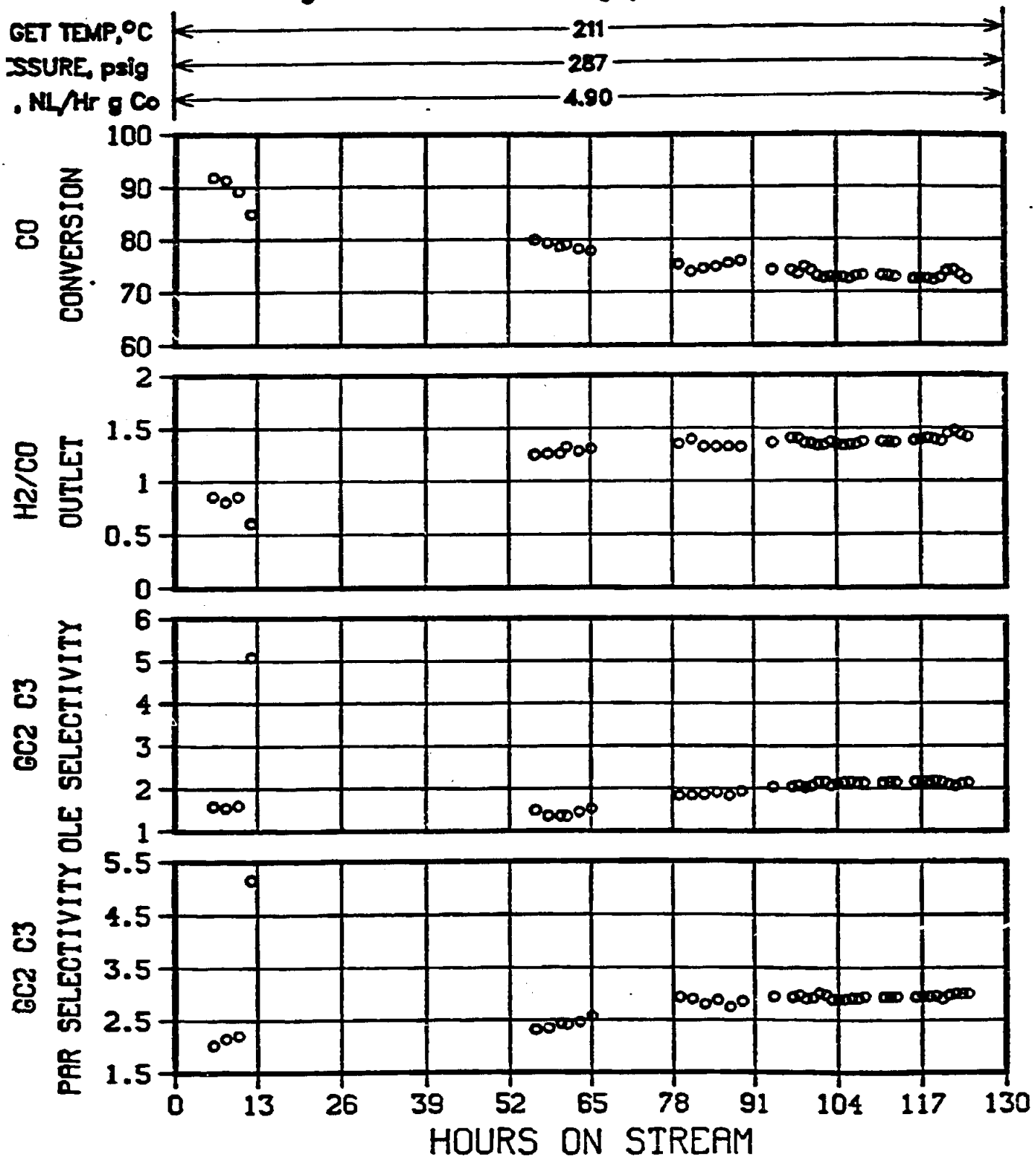


FIGURE 92

PLT 700A RUN 97 Co,Mn,Zr,Ru on HCl washed Y

6827–81 w/17.6 % Co via eth–glycol pore fill

13g unreduced active in 160g quartz sand

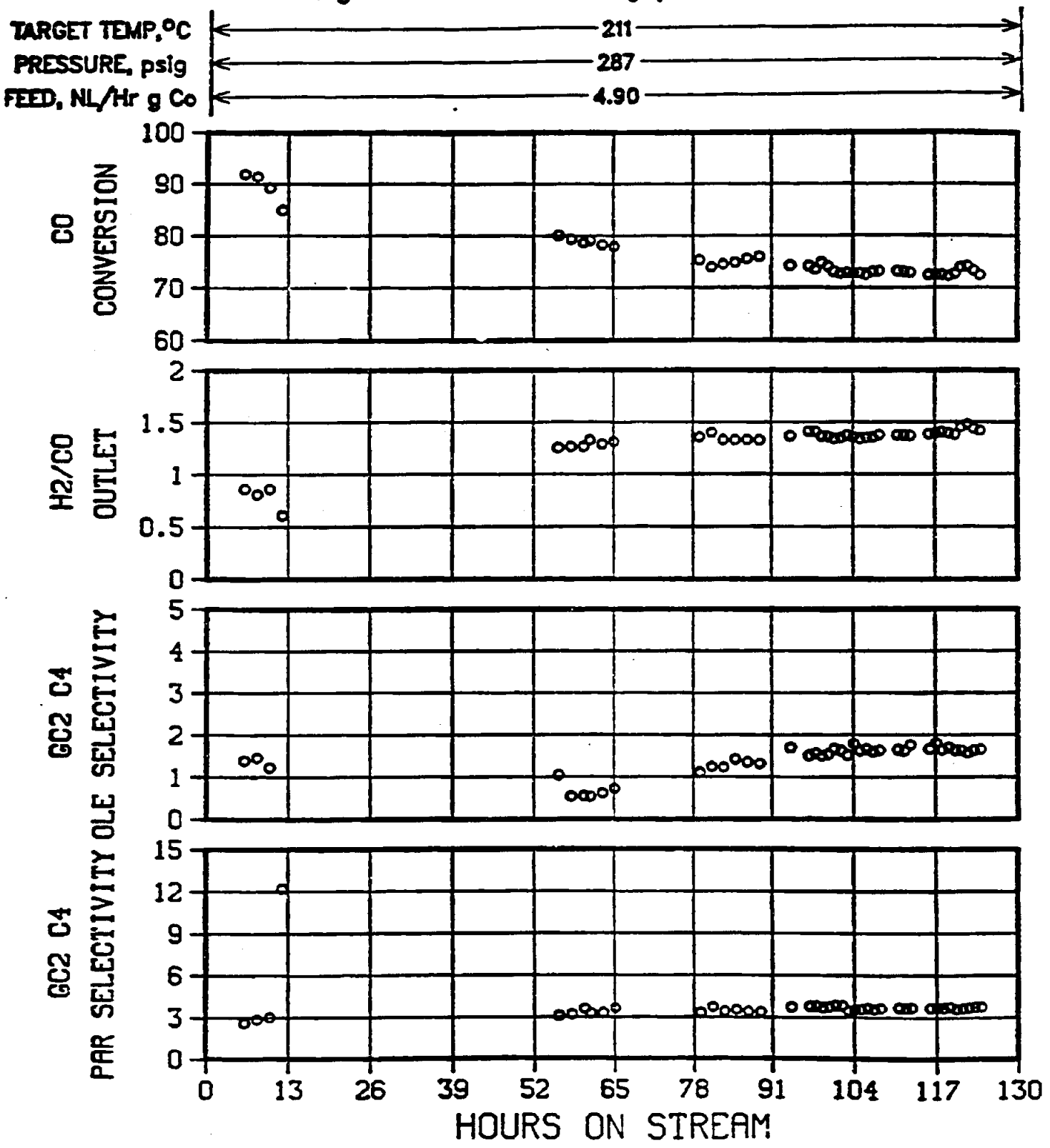


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FIGURE 93

PLT 700A RUN 97 Co,Mn,Zr,Ru on HCl washed Y

6827–81 w/17.6 % Co via eth–glycol pore fill

13g unreduced active in 160g quartz sand

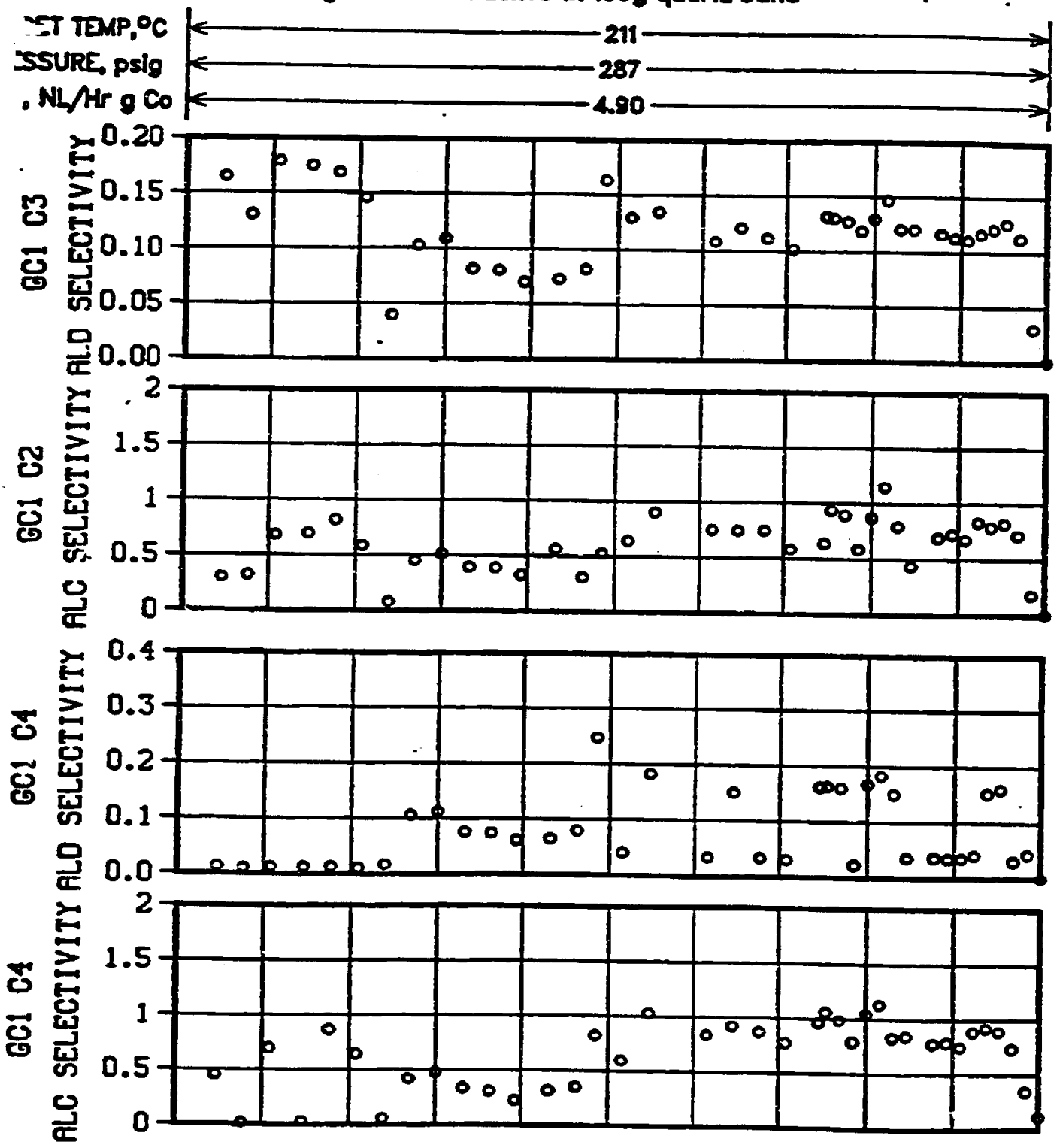
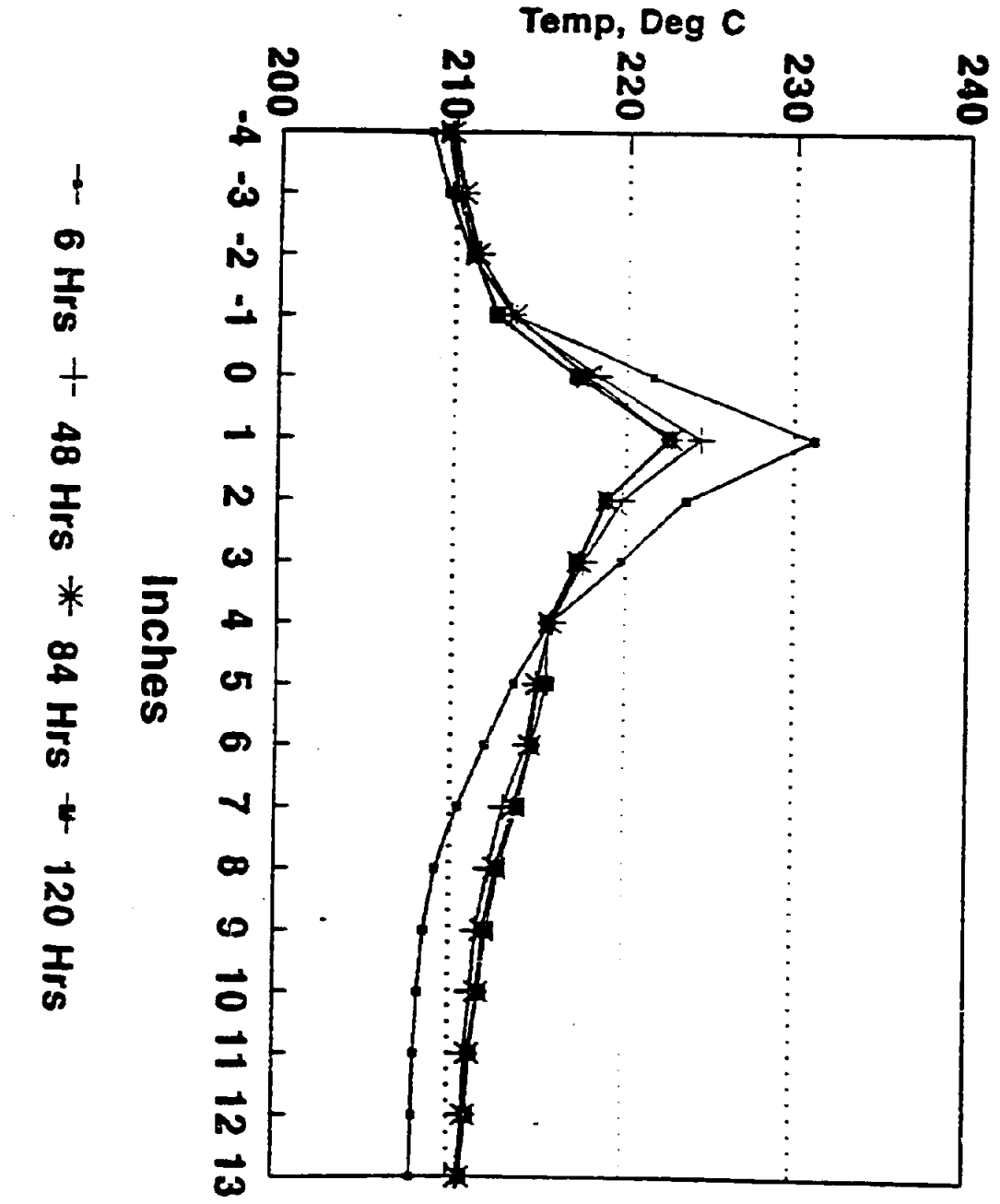


FIGURE 94


Temp Profiles RUN 97
Temp, Deg C
200
210
220
230
240
-4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9 10 11 12 13
Inches
6 Hrs
48 Hrs
84 Hrs
120 Hrs

DESCRIPTIONS OF UNBOUND AND BOUND COBALT CATALYSTS

SUPPORT	**STEAMED, HCl-WASHED[1] Y ZEOLITE**	
SA, m^2/g	582	
PV, cc/g	0.46	
XRD, % Abs Int	84.2 ± 0.3[2]	
CATALYSTS	**UNBOUND**	**BOUND**
BINDER/WT%	NONE	LUDOX/25
METALS, AAS WT%		
Co	17.6	12.7
Mn	2.0	1.5
Zr	1.6	1.4
Ru	1.0	0.7

1. BEFORE ACID WASH: 591 m^2/g, 0.5 cc/g, XRD = 86.3 ± 0.3
2. ABSOLUTE COMPARED TO LZ-210 = 100

FIGURE 95

FIGURE 96

PLANT 700 RUN 99 Co,Mn,Zr,Ru on HCl washed Y

6827–83 w/12.7 % Co via eth–glycol pore fill

18g unreduced active in 160g quartz sand

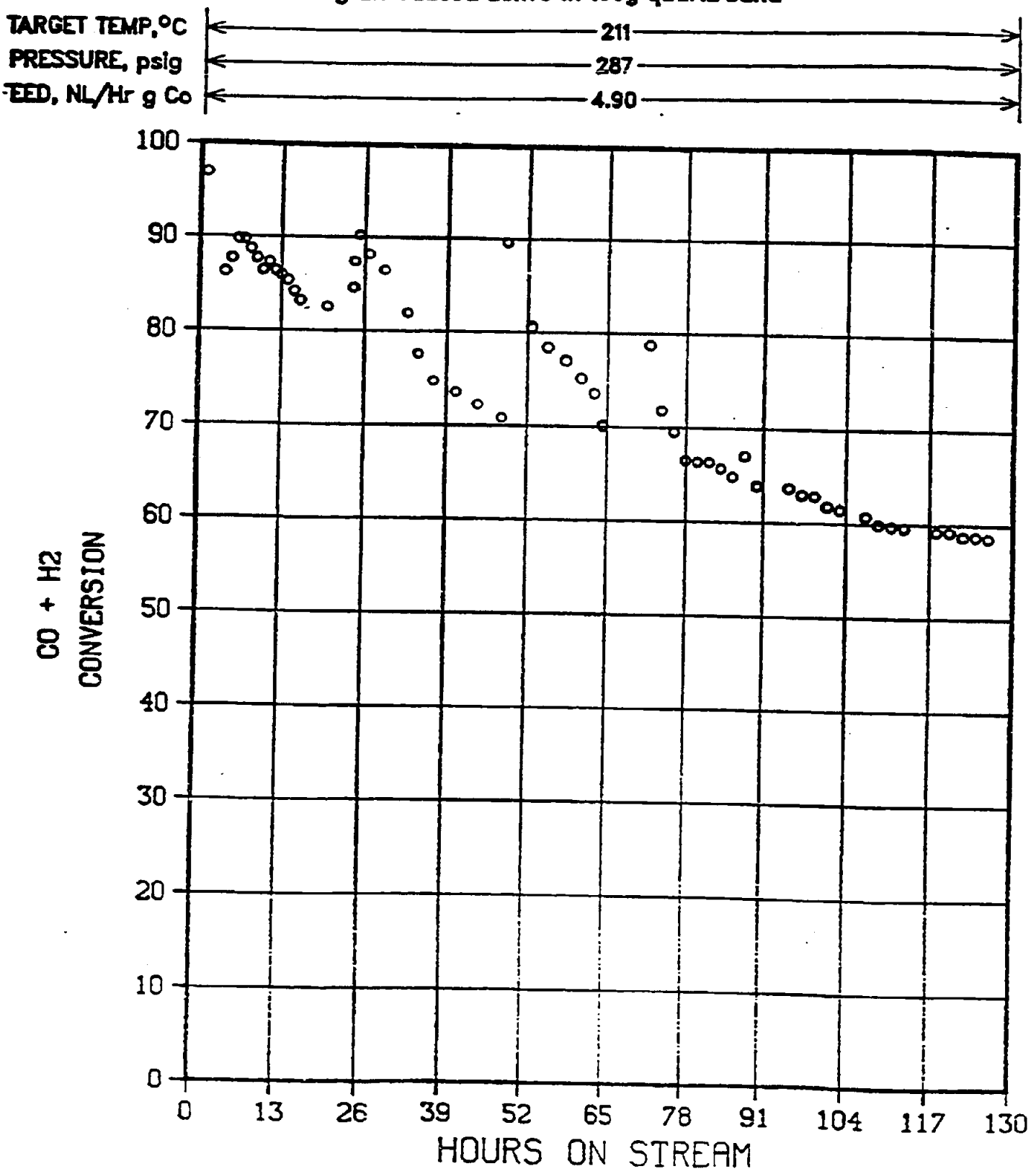


FIGURE 97

PLANT 700 RUN 99 Co,Mn,Zr,Ru on HCl washed Y

6827-83 w/12.7 % Co via eth-glycol pore fill

18g unreduced active in 160g quartz sand