Apx. 10 Assay Results of Ore at Trench-1 in the Jehuamaca Area

Apx.10 Assay Results of Ore at Trench-1 in The Jehuamarca Area

Sample No.	Length (m)	Rock Name	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)
T-101	1.00	fng arg diss(py>sp>gn) lp tf (foot wall)	4.00	29.0	0.13	0.05	0.35
T-102	1.00	weath arg dr py-sp ore	1.30	1875.0	1.65	0.19	14.94
T-103	1.00	massive py-sp ore	1.60	177.0	0.19	0.11	7.08
T-104	1.00	〃	1.70	138.5	0.14	0.08	0.35
T-105	0.80	〃	0.75	222.0	0.24	0.20	0.42
T-106	1.20	〃	0.65	772.5	0.98	1.52	7.68
T-107	1.00	〃	0.75	267.0	0.22	1.89	15.26
T-108	1.00	limo leached py-sp ore	nd	242.0	0.18	1.26	16.24
T-109	1.00	〃	0.35	278.5	0.13	0.65	16.06
T-110	0.90	〃	0.70	303.5	0.20	1.59	16.00
T-111	1.20	〃	0.55	443.0	0.05	0.16	4.64
ave.	10.1		0.83	483.9	0.41	0.77	9.85
T-112	0.80	csg arg diss(sp-py) lp tf (hanging wall)	0.45	56.0	0.02	0.50	3.32
average	11.90		1.07	416.9	0.4	0.7	8.6

Apx. 11 Assay Results of Geochemical Samples in the Jehuamaca Area

Apx. 11 Assay Results of Geochemical Samples in Jehuamarca Area

	Sample No.	Rock Name	Au (ppb)	Ag (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
1	R 72101	wht dr bre sil	162	3.0	39	428	6
2	R 72104	gry dr bre sil	26	99.0	44	508	38
3	R 72105	wht dr bre sil med arg	84	16.5	49	1140	90
4	R 72106	wht dr bre sil wk arg	130	4.0	66	2660	90
5	R 72107	wht dr bre sil med arg	52	1.5	2	1500	42
6	R 72108	wht arg bre sil	208	13.0	77	498	22
7	R 72109	dr bre sil wk arg	31	0.5	31	48	2
8	R 72110	gry dr bre sil w/py	117	196.5	10	300	2
9	R 72301	wk arg wk sil wk chl lp tf	4	3.5	3	8	8
10	R 72303	wk arg wk sil wk chl lp tf	9	1.5	24	70	56
11	R 72401	wht dr arg sil	89	< 0.5	160	68	32
12	R 72403	gry-wht arg sil	89	1.5	69	760	16
13	R 72404	wht arg bre sil	4	5.0	13	56	< 2
14	R 72405	wht arg bre sil	28	12.5	135	12	8
15	R 72502	arg bre wk sil wk chl lp tf	22	2.0	5	64	< 2
16	R 72503	arg wk sil wk chl tf w/py, sp	12	4.0	9	1935	2710
17	R 72504	arg chl diss lp tf	38	1.5	322	1120	9480
18	R 72505	arg wk sil wk chl lp tf w/py, sp	24	2.5	1065	54	210
19	R 72506	gry med sil wk arg lp tf	5	1.0	22	122	52
20	R 72601	qtz v	544	100.0	748	5130	74
21	R 72602	arg chl lp tf	7	1.0	12	52	156
22	R 72604	arg med sil wk chl lp tf	5	0.5	3	22	10
23	R 72605	rhyo	2	0.5	4	12	6
24	R 72607	banded rhyo w/py	1	0.5	3	18	32
25	R 72702	wht arg wk sil lp tf	7	0.5	58	98	38
26	R 72704	dr bre sil	28	3.0	36	266	16
27	R 80101	dr bre sil	71	< 0.5	28	24	4
28	R 80102	limo dr qtz v	2130	>200.0	350	2170	44
29	R 80103	dr por bre sil	15	1.0	14	48	74
30	R 80104	por bre sil	77	3.5	46	626	28
31	R 80105	limo diss qtz v	231	194.5	37	124	6
32	R 80106	gry bre sil	55	23.0	11	64	2
33	R 80201	gry bre sil	82	162.5	79	472	8
34	R 80202	arg sil lp tf	290	11.5	47	34	8
35	R 80203	pale reddish gry qtz v	14	2.5	58	422	16
36	R 80204	chl lp tf	14	2.0	5	196	6
37	R 80301	limo net wk arg bre sil	3	18.0	82	1830	310
38	R 80303	wk arg bre sil	15	2.0	36	34	8
39	R 80304	gry cherty bre sil	31	2.5	13	98	4
40	R 80305	med bre sil	37	2.0	8	32	4
41	R 80306	med bre sil	289	24.5	65	122	12
42	R 80307	wht arg med bre sil	3	0.5	8	26	< 2
43	R 80309	qtz v	83	>200.0	6	58	< 2
44	R 80310	limo dr qtz v	373	30.5	251	2740	38
45	R 80312	arg bre sil wk chl lp tf	111	96.0	480	1425	36
46	R 80313	bre sil	4	< 0.5	108	46	10
47	R 80314	arg wk sil tf	5	0.5	30	24	6
48	R 80401	arg chl lp tf	2	0.5	5	142	170
49	R 80402	dark gry dr qtz v	463	60.0	118	3130	380
50	R 80403	sil w/py	26	1.0	19	114	52

Abbreviations arg:argillized, bre:brecciated, chl:chloritized, csg:coarse grained, diss:disseminated, dr:drusy, fng:fine grained, gn:garena, ho:hornblende, limo:limonitezed, lp:lapilli, med:medium, net:network, por:porous, py:pyrite, qtz:quartz, rhyo:rhyolite, sh:shale, sil:silicified, sp:sphalerite, tf:tuff, v:vein, wk:weak, wht:white, w/:with

	Sample No.	Rock Name	Au (ppb)	Ag (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
51	R 80404	arg sil chl lp tf w/py	36	6.5	131	476	1545
52	R 80602	black dr qtz v	41	5.5	7	262	12
53	R 80604	limo net bre sil	654	7.0	512	230	30
54	R 80605	limo diss med bre sil	596	>200.0	248	2830	282
55	R 80606	chl lp tf	17	4.5	54	404	224
56	R 80607	chl lp tf	28	1.5	58	28	28
57	R 80608	chl wk sil tf	6	7.5	93	234	96
58	R 80609	dr bre sil	11	1.0	10	444	14
59	R 80610	chl wk sil lp tf	2	< 0.5	9	326	22
60	R 80611	gry sil	68	19.0	81	144	10
61	R 80701	sil tf	4	0.5	7	48	34
62	R 80703	csg chl wk sil lp tf	1	< 0.5	7	40	242
63	R 80801	weath chl wk sil hb andesite	< 1	< 0.5	48	16	8770
64	R 80802	med sil wk dr lp tf w/py, sp	2	7.0	110	30	222
65	R 80804	med sil wk dr lp tf	17	40.0	32	214	320
66	R 81402	wk sil sh	1	< 0.5	9	40	14
67	R 81403	banded rhyo	44	< 0.5	229	72	32
68	R 81406	black stratified wk sil sh	16	1.0	12	98	4
69	R 81502	qtz v	124	138.0	59	314	54
70	R 81602	dr bre sil	69	>200.0	513	1655	28
71	R 81702	dr qtz v	1570	19.0	56	356	22
72	R 81703	banded rhyo	58	117.5	15	110	< 2
73	R 81704	bre sil	47	1.0	129	72	6
74	R 81705	bre sil	71	10.5	429	122	12
75	R 82101	black wk sil sh w/py, gn	4	0.5	144	294	70
76	R 82301	gry wk dr bre sil	14	5.0	6	24	38
77	R 82302	banded rhyo dike	58	34.0	10	220	44
78	R 82401	stratifiel med sil wk chl tf w/py, gn	286	5.5	81	4380	6990
79	R 82402	fng med sil wk chl lp tf	6	1.0	11	260	86
80	R 82403	arg tf v w/py, gn	91	2.5	48	2460	1890
81	R 82501	gry qtz v	48	6.0	6	472	98
82	R 82503	dr bre sil	141	8.5	186	114	22
83	R 82601	stratified compact bre sil	119	< 0.5	8	152	6
84	R 82602	dr diss sil	32	33.5	243	586	56
85	R 82701	por sil	39	0.5	199	22	8
86	R 82802	med sil wk chl andesite	2	< 0.5	39	88	1320
87	R 82803	chl lp tf	3	< 0.5	2	4	22
88	R 83001	dr bre sil w/py, sp, gn	92	37.5	168	3000	>10000
89	R 83002	med sil wk chl lp tf	5	2.0	11	862	272
90	R 83003	bre sil	137	8.5	55	320	64
91	R 100501	dr bre arg sil	3	< 0.5	18	122	6
92	R 100601	black sh	3	< 0.5	17	168	8
93	R 100602	black sh-lp tf alternation	1	< 0.5	25	68	8
94	R 100603	wk sil tf	< 1	< 0.5	92	2	14
95	R 102101	arg wk chl lp tf	2	< 0.5	13	40	332
96	R 102401	csg bre sil arg tf w/py	27	>200.0	92	644	24
97	R 102802	wk sil wk chl tf w/py, sp	55	14.0	79	3270	3900
98	R 102803	banded rhyo	< 1	2.5	3	30	38
99	R 102804	banded rhyo	< 1	1.0	2	6	10
100	R 102902	laminated med sil arg wk chl lp tf	1	1.0	4	30	56
		Rock Type (Numbers of Sammples)	Average Grades for the Rock types				
		Brecciated Silicified Rock (38)	96	36.1	102	580	299
		Quartz Vein (12)	435	79.9	145	1470	220
		Rhyolite (7)	24	22.4	38	7	23
		Andesite (2)	2	0.5	44	52	5045
		Shale (5)	5	0.6	41	134	21
		Chloritezed Rock (4)	16	2.1	30	158	70
		Argilezed Silicified Rock (32)	37	5.4	95	487	850
		Grand Average (100)	88	21.0	71	413	933

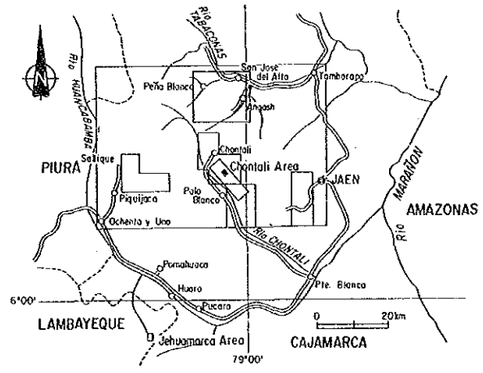
Apx. 12 Geological Drilling Log in the Chontali Area

THE MINERAL EXPLORATION IN THE PACHAPIRIANA AREA, REPUBLIC OF PERU

(PHASE Ⅲ)

Core Log (MJPC-1)

Chontali Area



JAPAN INTERNATIONAL COOPERATION AGENCY
METAL MINING AGENCY OF JAPAN
FEBRUARY 1991
prepared by MINDECO

0 10 20m

Location : 9°370.609 N, 716.071E
Elevation : 1,822.55 m
Direction : 230° Inclination −15°

LEGEND

Symbol

- shale
- tuff
- lapilli tuff
- tuff breccia
- andesite
- brecciated rock
- fault breccia
- sheared zone
- quartz zone
- missing zone

Intensity of alteration and mineralization

- — weak
- + moderate
- ++ strong
- ( ) sporadically

-15 intersected angle of vein

∠50 intersected angle of bedding plane

sh — shale
tf — tuff or tuffaceous
lp-tf — lapilli tuff
tf-bre — tuff breccia
Sil — silicification
Arg — argillization
chl — chloritization
ep — epidotization
oth — others
wk — weak

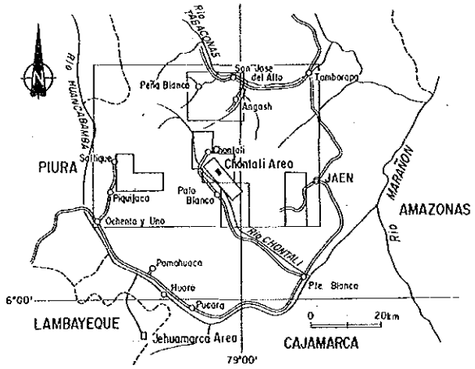
py — pyrite
Cp — chalcopyrite
Trh — tetrahedrite
Sp — sphalerite
Gn — galena
cc — chalcocite
Bn — bornite
limo — limonite or limonitized
Hm — hematite
Hb — hornblende
Qtz — quartz

dr — drusy
v — vein

THE MINERAL EXPLORATION
IN
THE PACHAPIRIANA AREA, REPUBLIC OF PERU

(PHASE Ⅲ)

Core Log (MJPC-2)
Chontali Area



JAPAN INTERNATIONAL COOPERATION AGENCY
METAL MINING AGENCY OF JAPAN
FEBRUARY 1991
prepared by MINDECO

0 10 20m

Location : 9'370.610N, 716.073E
Elevation : 1,822.11m
Direction : 230° Inclination −40°

LEGEND

Symbol

- shale
- tuff
- lapilli tuff
- tuff breccia
- andesite
- brecciated rock
- fault breccia
- sheared zone
- quartz zone
- missing zone

Intensity of alteration and mineralization

- — weak
- + moderate
- # strong
- ( ) sporadically

15 intersected angle of vein
50 intersected angle of bedding plane

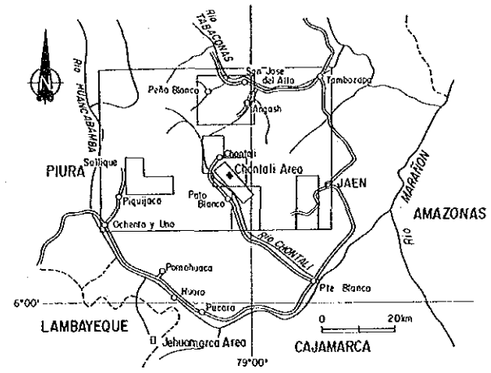
sh — shale	py — pyrite	dr — drusy
tf — tuff or tuffaceous	Cp — chalcopyrit	v — vein
lp-tf — lapilli tuff	Trh — tetrahedrite	
tf-bre — tuff breccia	Sp — sphalerite	
Sil — silicification	Gn — galena	
Arg — argillization	cc — chalcocite	
chl — chloritization	Bn — bornite	
ep — epidotization	limo — limonite or limonitized	
oth — others	Hm — hematite	
wk — weak	Hb — hornblende	
	Qtz — quartz	

THE MINERAL EXPLORATION IN THE PACHAPIRIANA AREA, REPUBLIC OF PERU

(PHASE Ⅲ)

Core Log (MJPC-3)

Chontali Area



JAPAN INTERNATIONAL COOPERATION AGENCY
METAL MINING AGENCY OF JAPAN
FEBRUARY 1991
prepared by MINDECO

0 10 20m

Location : 9'370.278 N, 715.829 E

Elevation : 1,947.36 m

Direction : 50° Inclination −50°

LEGEND

Symbol

- shale
- tuff
- lapilli tuff
- tuff breccia
- andesite
- brecciated rock
- fault breccia
- sheared zone
- quartz zone
- missing zone

Intensity of alteration and mineralization

- — weak
- + moderate
- ++ strong
- ( ) sporadically

15 intersected angle of vein

50 intersected angle of bedding plane

sh — shale
tf — tuff or tuffaceous
lp-tf — lapilli tuff
tf-bre — tuff breccia
Sil — silicification
Arg — argillization
chl — chloritization
ep — epidotization
oth — others
wk — weak

py — pyrite
Cp — chalcopyrite
Trh — tetrahedrite
Sp — sphalerite
Gn — galena
cc — chalcocite
Bn — bornite
limo — limonite or limonitized
Hm — hematite
Hb — hornblende
Qtz — quartz

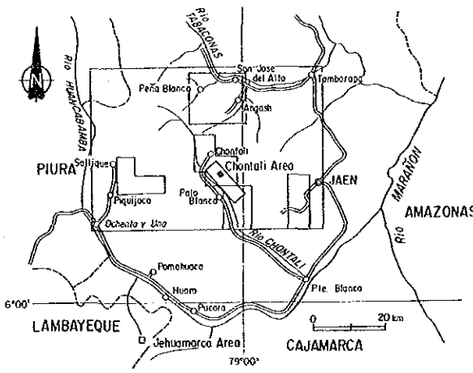
dr — drusy
v — vein

THE MINERAL EXPLORATION IN THE PACHAPIRIANA AREA, REPUBLIC OF PERU

(PHASE Ⅲ)

Core Log (MJPC－4)

Chontali Area



JAPAN INTERNATIONAL COOPERATION AGENCY

METAL MINING AGENCY OF JAPAN

FEBRUARY 1991

prepared by MINDECO

0 10 20m

Location : 9'370.277 N ; 715.828E

Elevation : 1,947.26 m

Direction : 50° Inclination － 70°

LEGEND

Symbol

- shale
- tuff
- lapilli tuff
- tuff breccia
- andesite
- brecciated rock
- fault breccia
- sheared zone
- quartz zone
- missing zone

Intensity of alteration and mineralization

－ weak
＋ moderate
＃ strong
( ) sporadically

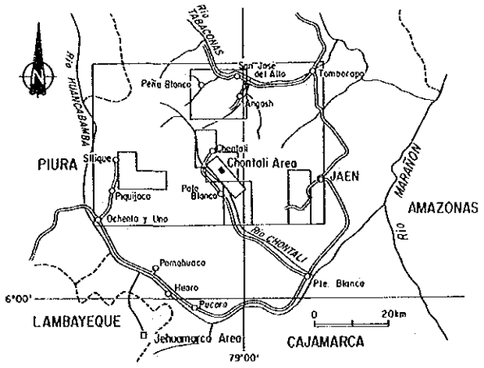
L15 intersected angle of vein

∠50 intersected angle of bedding plane

sh — shale	py — pyrite	dr — drusy	
tf — tuff or tuffaceous	Cp — chalcopyrite	v — vein	
lp-tf — lapilli tuff	Trh — tetrahedrite		
tf-bre — tuff breccia	Sp — sphalerite		
Sil — silicification	Gn — galena		
Arg — argillization	cc — chalcocite		
chl — chloritization	Bn — bornite		
ep — epidotization	limo — limonite or limonitized		
oth — others	Hm — hematite		
wk — weak	Hb — hornblende		
	Qtz — quartz		
	cal — calcite		

THE MINERAL EXPLORATION
IN
THE PACHAPIRIANA AREA, REPUBLIC OF PERU
(PHASE Ⅲ)

Core Log (MJPC－5)
Chontali Area



JAPAN INTERNATIONAL COOPERATION AGENCY
METAL MINING AGENCY OF JAPAN
FEBRUARY 1991
prepared by MINDECO

0 10 20m

Location : 9'370.233 N ; 716.190 E
Elevation : 1,744.53 m
Direction : 230° Inclination －15°

LEGEND

Symbol

- shale
- tuff
- lapilli tuff
- tuff breccia
- andesite
- brecciated rock
- fault breccia
- sheared zone
- quartz zone
- missing zone

Intensity of alteration and mineralization

- — weak
- + moderate
- ＃ strong
- ( ) sporadically

－15 intersected angle of vein
∠50 intersected angle of bedding plane

sh — shale
tf — tuff or tuffaceous
lp-tf — lapilli tuff
tf-bre — tuff breccia
Sil — silicification
Arg — argillization
chl — chloritization
ep — epidotization
oth — others
wk — weak

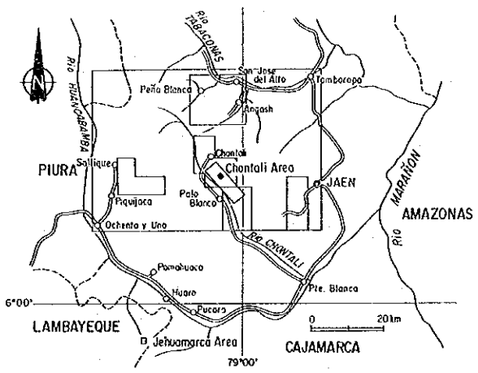
py — pyrite
Cp — chalcopyrit
Trh — tetrahedrite
Sp — sphalerite
Gn — galena
cc — chalcocite
Bn — bornite
limo — limonite or limonitized
Hm — hematite
Hb — hornblende
Qtz — quartz

dr — drusy
v — vein

THE MINERAL EXPLORATION
IN
THE PACHAPIRIANA AREA, REPUBLIC OF PERU

(PHASE III)

Core Log (MJPC – 6)
Chontali Area



JAPAN INTERNATIONAL COOPERATION AGENCY
METAL MINING AGENCY OF JAPAN
FEBRUARY 1991
prepared by MINDECO

0 10 20m

Location : 9'370.234 N ; 716.191 E
Elevation : 1,773.60 m
Direction : 230° Inclination – 40°

LEGEND

Symbol

- shale
- tuff
- lapilli tuff
- tuff breccia
- andesite
- brecciated rock
- fault breccia
- sheared zone
- quartz zone
- missing zone

Intensity of alteration and mineralization

- – weak
- + moderate
- ++ strong
- ( ) sporadically

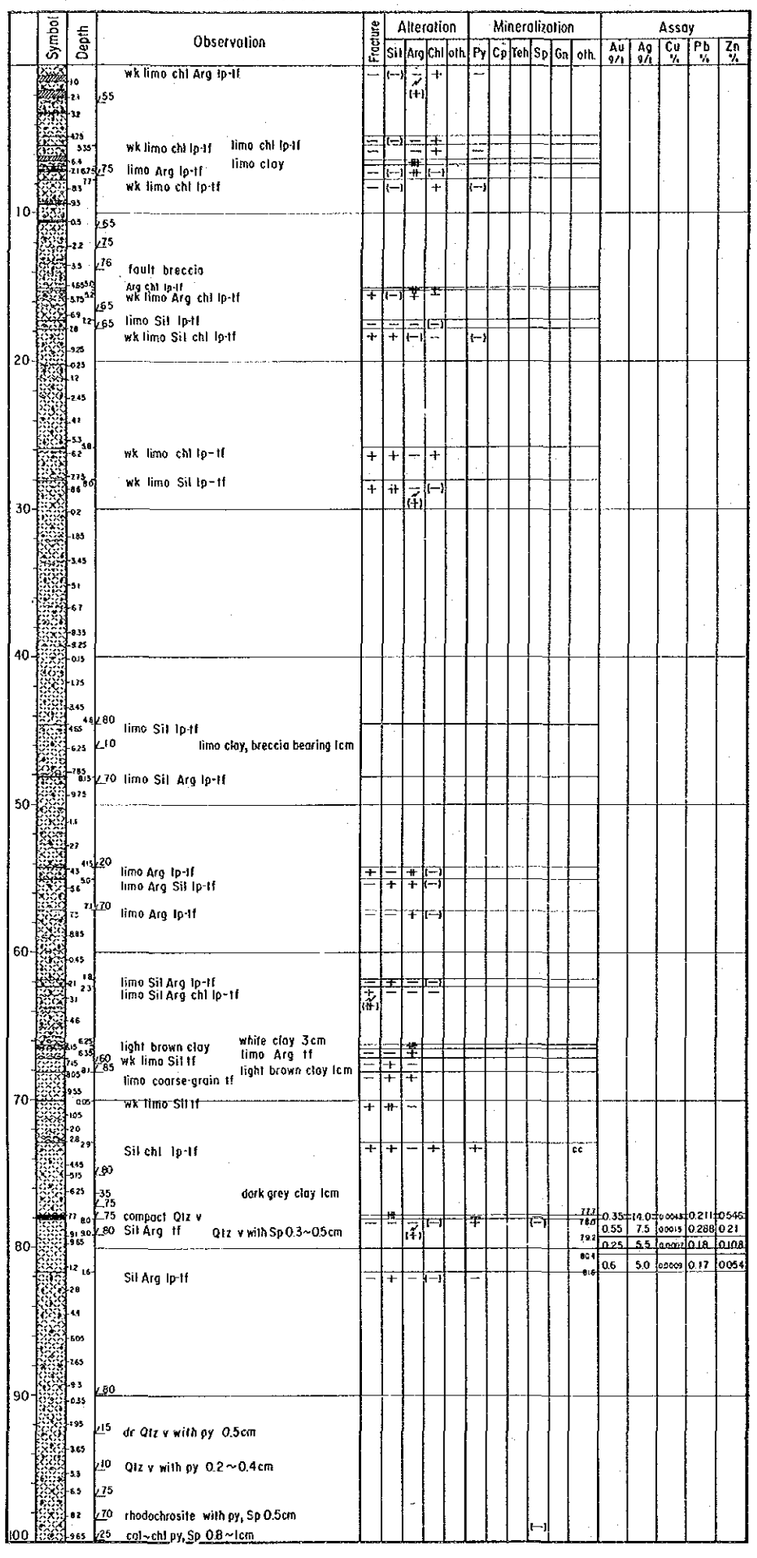
-15 intersected angle of vein
∠50 intersected angle of bedding plane

sh — shale
tf — tuff or tuffaceous
lp-tf — lapilli tuff
tf-bre — tuff breccia
Sil — silicification
Arg — argillization
chl — chloritization
ep — epidotization
oth — others
wk — weak
py — pyrite
Cp — chalcopyrite
Trh — tetrahedrite
Sp — sphalerite
Gn — galena
cc — chalcocite
Bn — bornite
limo — limonite or limonitized
Hm — hematite
Hb — hornblende
Qtz — quartz
dr — drusy
v — vein

Apx. 13 Geological Drilling Log in the Jehuamaca Area

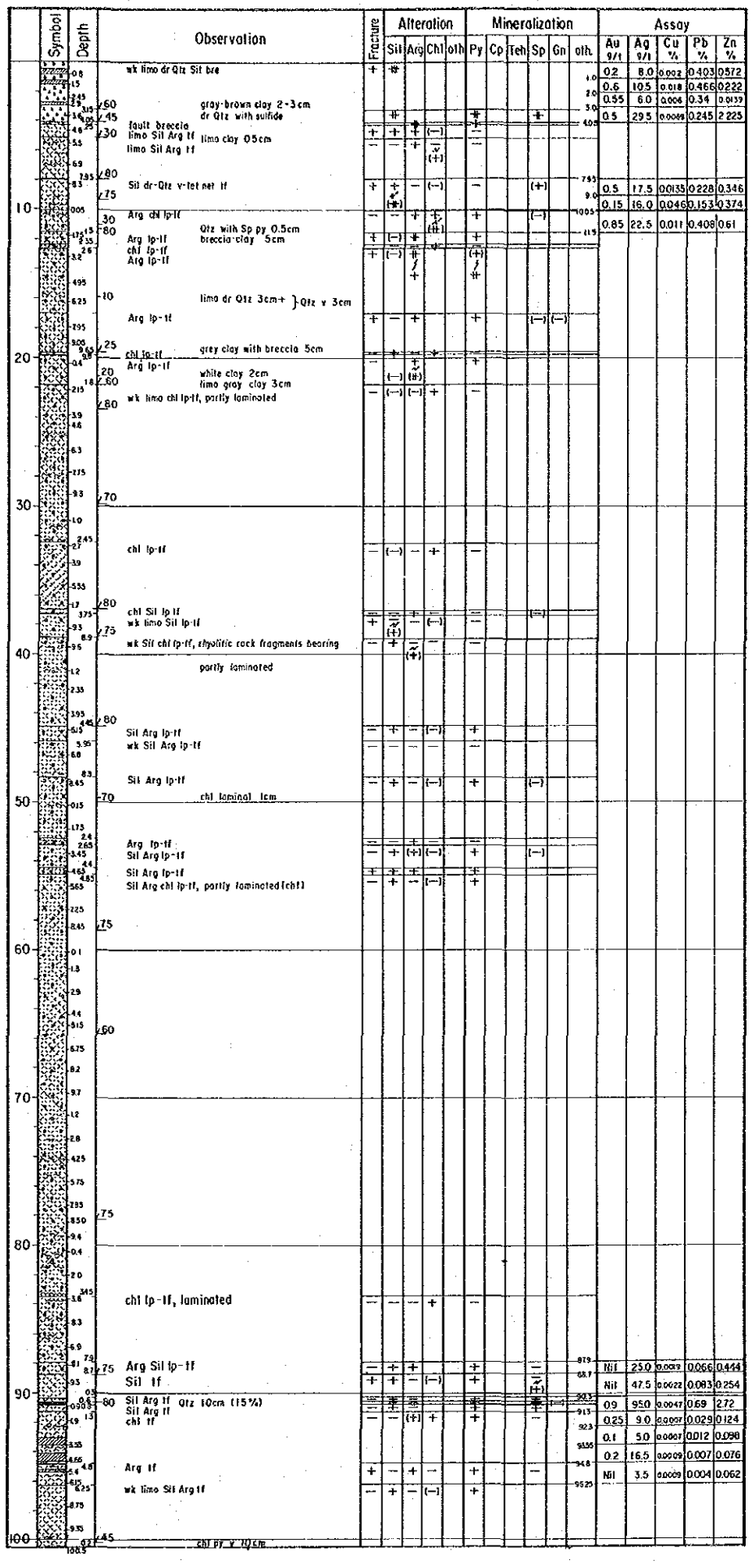
MJPJ-4

Location : 9'326.776 N, 694.594 E
Elevation : 3,195.28 m
Direction : — Inclination -90°



MJPJ-5

Location : 9'326.663 N, 694.804 E
Elevation : 3,274.87 m
Direction : — Inclination -90°



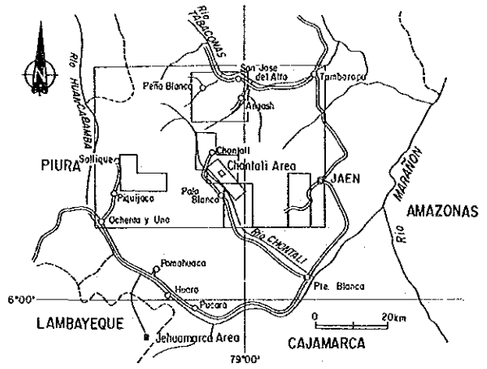
Apx 13-1

THE MINERAL EXPLORATION
IN
THE PACHAPIRIANA AREA, REPUBLIC OF PERU

(PHASE Ⅲ)

Core Log (MJPJ-4,5)

Jehuamarca Area



JAPAN INTERNATIONAL COOPERATION AGENCY
METAL MINING AGENCY OF JAPAN
FEBRUARY 1991
prepared by MINDECO

0 10 20m

LEGEND

Symbol

- shale
- tuff
- lapilli tuff
- tuff breccia
- andesite
- brecciated rock
- fault breccia
- sheared zone
- quartz zone
- missing zone

Intensity of alteration and mineralization

- — weak
- + moderate
- ++ strong
- ( ) sporadically

15 intersected angle of vein
50 intersected angle of bedding plane

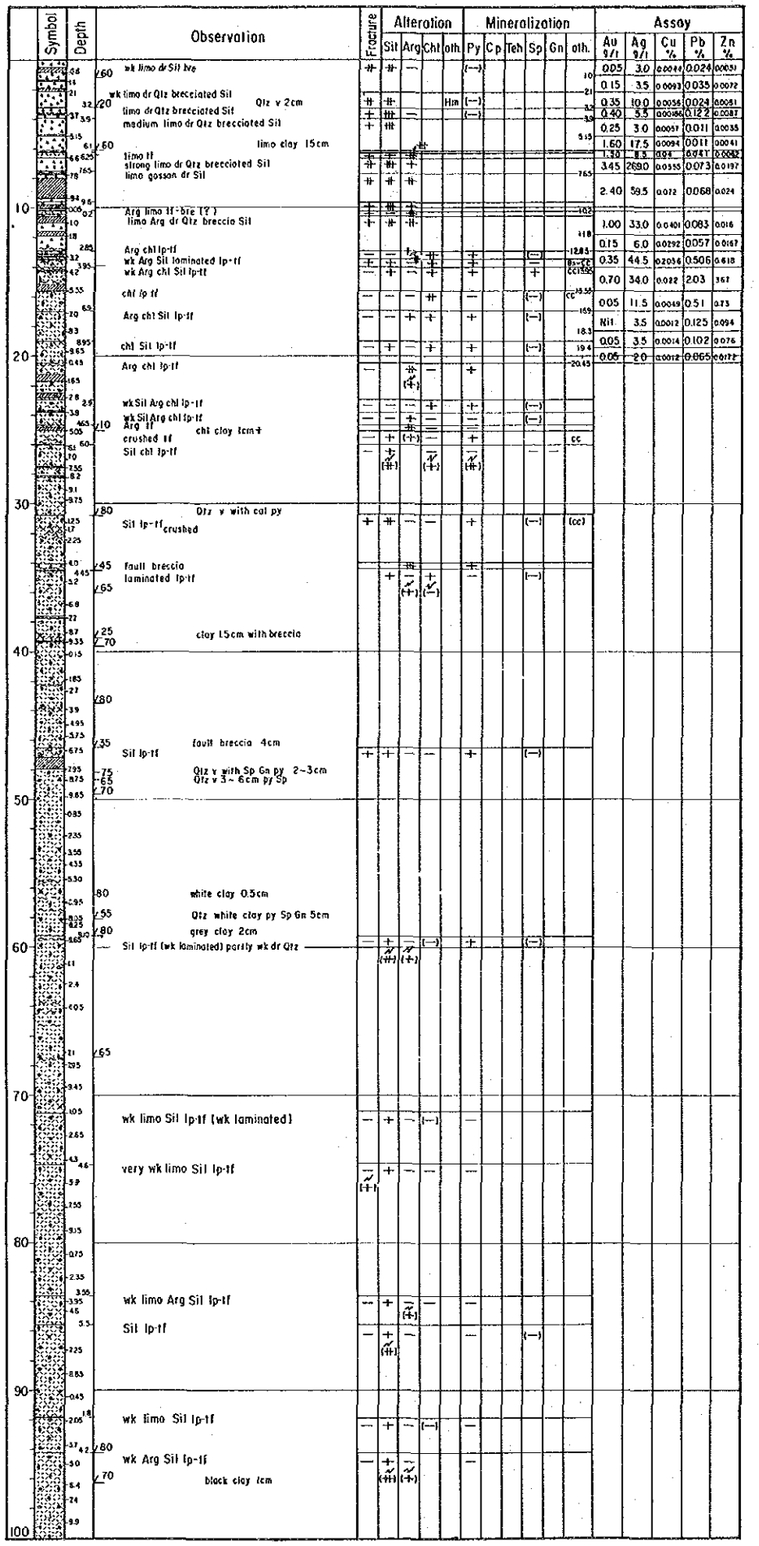
sh — shale
tf — tuff or tuffaceous
lp-tf — lapilli tuff
tf-bre — tuff breccia
Sil — silicification
Arg — argillization
chl — chloritization
ep — epidotization
oth — others
wk — weak

py — pyrite
Cp — chalcopyrite
Trh — tetrahedrite
Sp — sphalerite
Gn — galena
cc — chalcocite
Bn — bornite
limo — limonite or limonitized
Hm — hematite
Hb — hornblende
Qtz — quartz

dr — drusy
v — vein

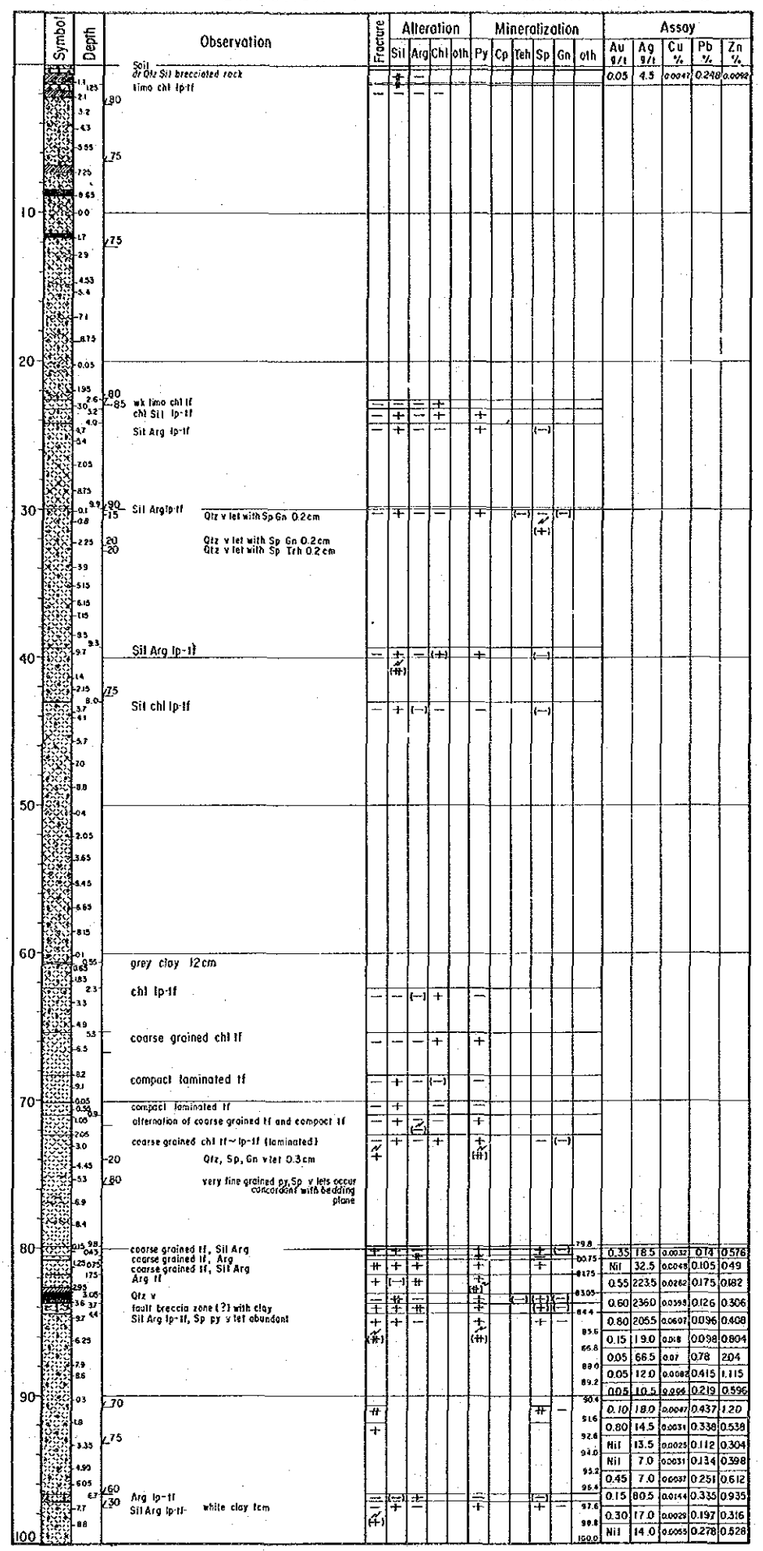
MJPJ – 6

Location : 9'326.540 N, 695.080 E
Elevation : 3,351.21 m
Direction : — Inclination –90°



MJPJ – 7

Location : 9'326.364 N, 694.987 E
Elevation : 3,259.87 m
Direction : — Inclination –90°

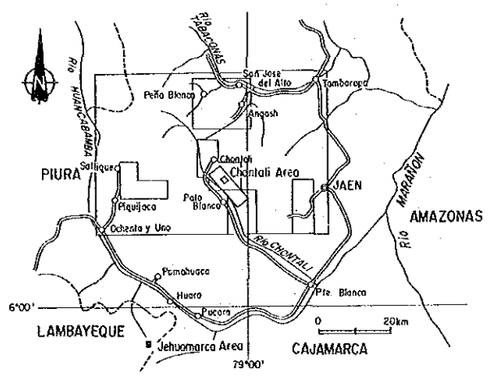


Apx 13-2

THE MINERAL EXPLORATION
IN
THE PACHAPIRIANA AREA, REPUBLIC OF PERU

(PHASE Ⅲ)

Core Log (MJPJ – 6, 7)
Jehuamarca Area



JAPAN INTERNATIONAL COOPERATION AGENCY
METAL MINING AGENCY OF JAPAN
FEBRUARY 1991
prepored by MINDECO

0 10 20m

LEGEND

Symbol

- shale
- tuff
- lapilli tuff
- tuff breccia
- andesite
- brecciated rock
- fault breccia
- sheared zone
- quartz zone
- missing zone

Intensity of alteration and mineralization

- — weak
- + moderate
- ++ strong
- ( ) sporadically

15 intersected angle of vein
∠50 intersected angle of bedding plane

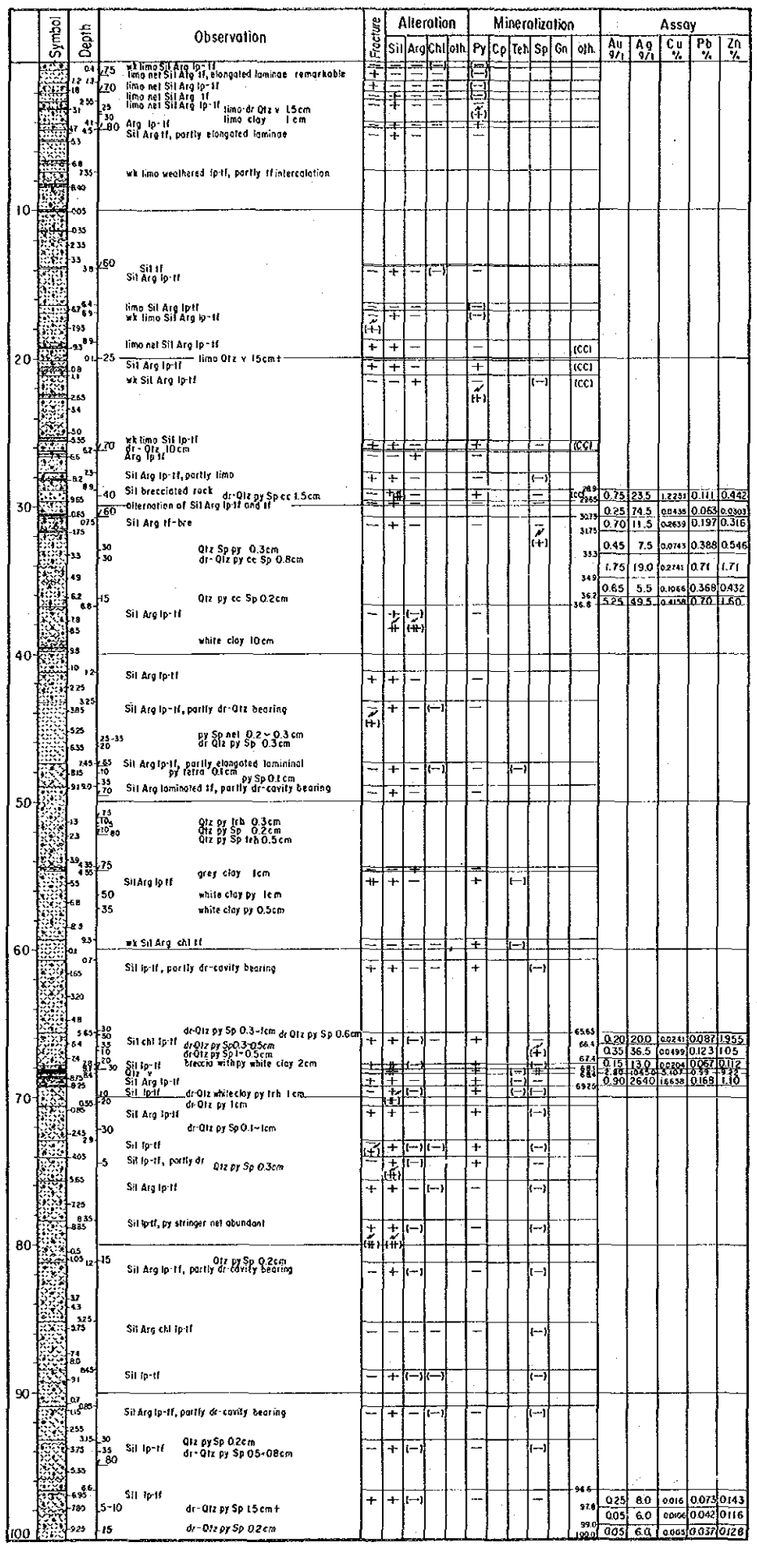
sh — shale
tf — tuff or tuffaceous
lp-tf — lapilli tuff
tf-bre — tuff breccia
Sil — silicification
Arg — argillization
chl — chloritization
ep — epidotization
oth — others
wk — weak

py — pyrite
Cp — chalcopyrite
Trh — tetrahedrite
Sp — sphalerite
Gn — galena
cc — chalcocite
Bn — bornite
limo — limonite or limonitized
Hm — hematite
Hb — hornblende
Qtz — quartz

dr — drusy
v — vein

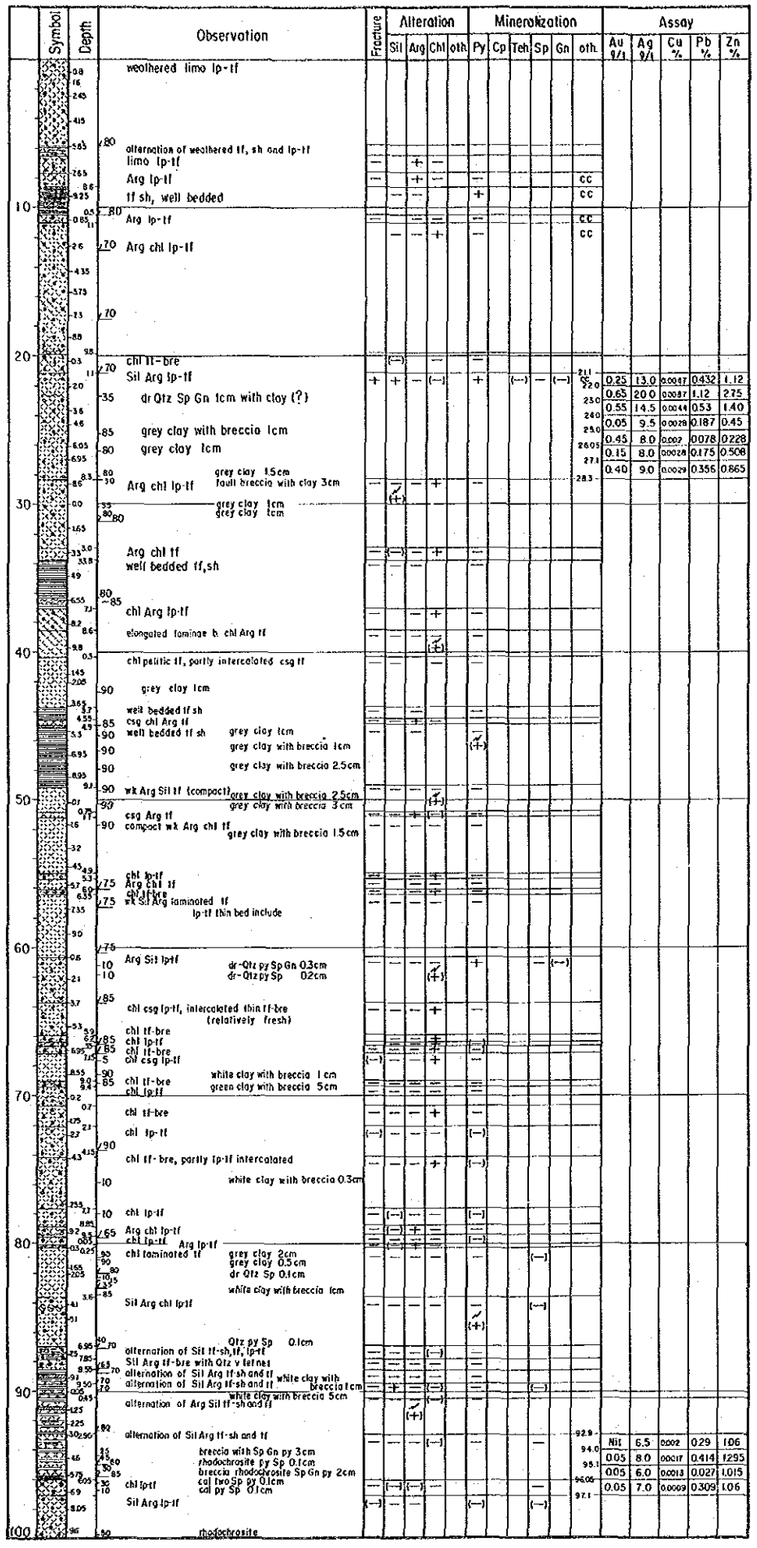
MJPJ – 8

Location : 9'326,159 N, 695.124 E
Elevation : 3,211.70 m
Direction : — Inclination –90°



MJPJ – 9

Location : 9'326.146 N, 695.406 E
Elevation : 3,280.40 m
Direction : — Inclination –90°

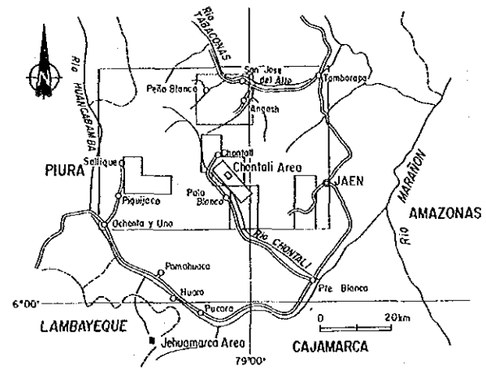


THE MINERAL EXPLORATION
IN
THE PACHAPIRIANA AREA, REPUBLIC OF PERU

(PHASE Ⅲ)

Core Log (MJPJ – 8 , 9)

Jehuamarca Area



JAPAN INTERNATIONAL COOPERATION AGENCY
METAL MINING AGENCY OF JAPAN
FEBRUARY 1991
prepared by MINDECO

0 10 20m

LEGEND

Symbol

- shale
- tuff
- tapilli tuff
- tuff breccia
- andesite
- brecciated rock
- fault breccia
- sheared zone
- quartz zone
- missing zone

Intensity of alteration and mineralization

- — weak
- + moderate
- ++ strong
- ( ) sporadically

15 intersected angle of vein
50 intersected angle of bedding plane

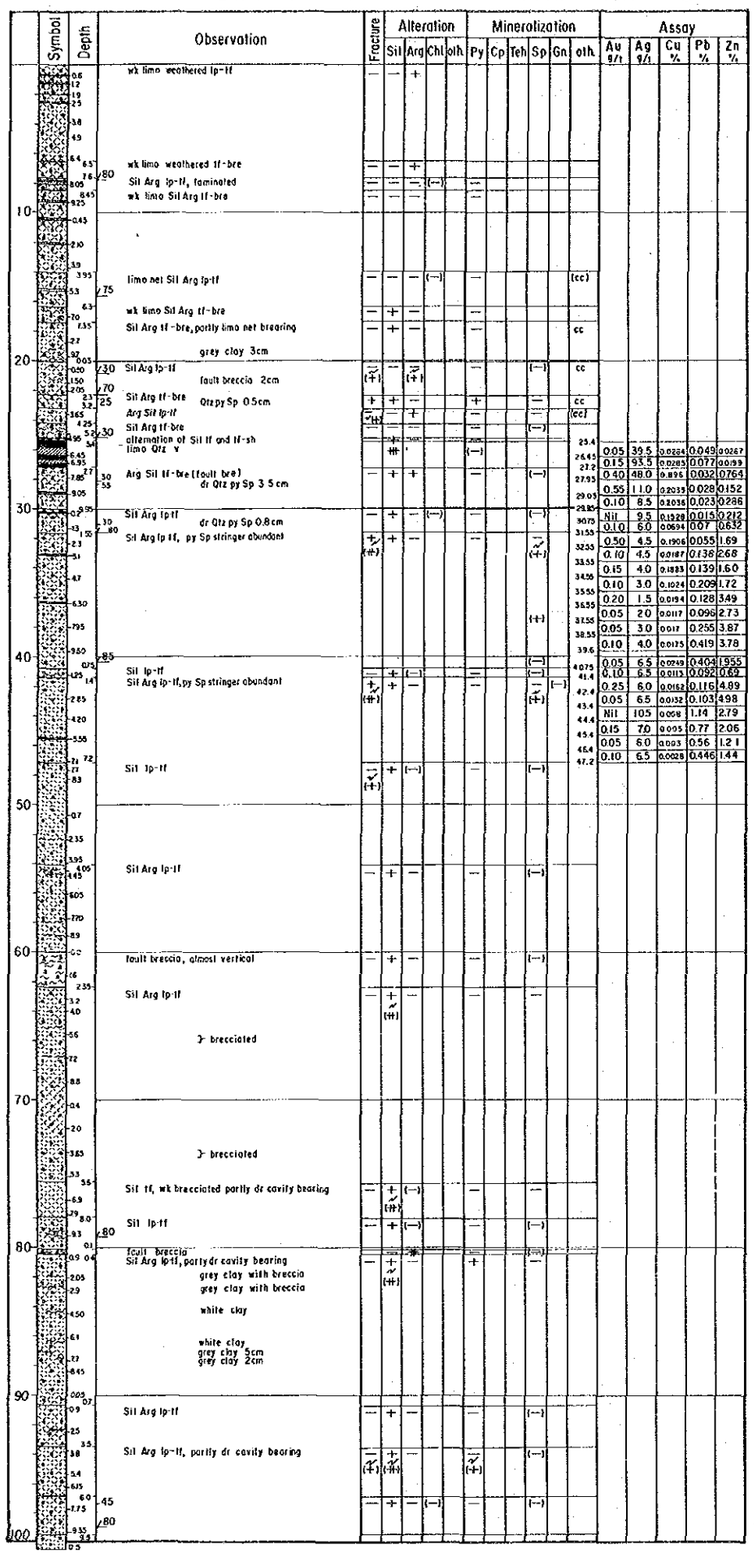
sh — shale
tf — tuff or tuffaceous
lp-tf — lapilli tuff
tf-bre — tuff breccia
Sil — silicification
Arg — argillization
chl — chloritization
ep — epidolization
oth — others
wk — weak

py — pyrite
Cp — chalcopyrite
Teh — tetrahedrite
Sp — sphalerite
Gn — galena
cc — chalcocite
Bn — bornite
limo — limonite or limonitized
Hm — hematite
Hb — hornblende
Qtz — quartz

dr — drusy
v — vein

MJPJ-10

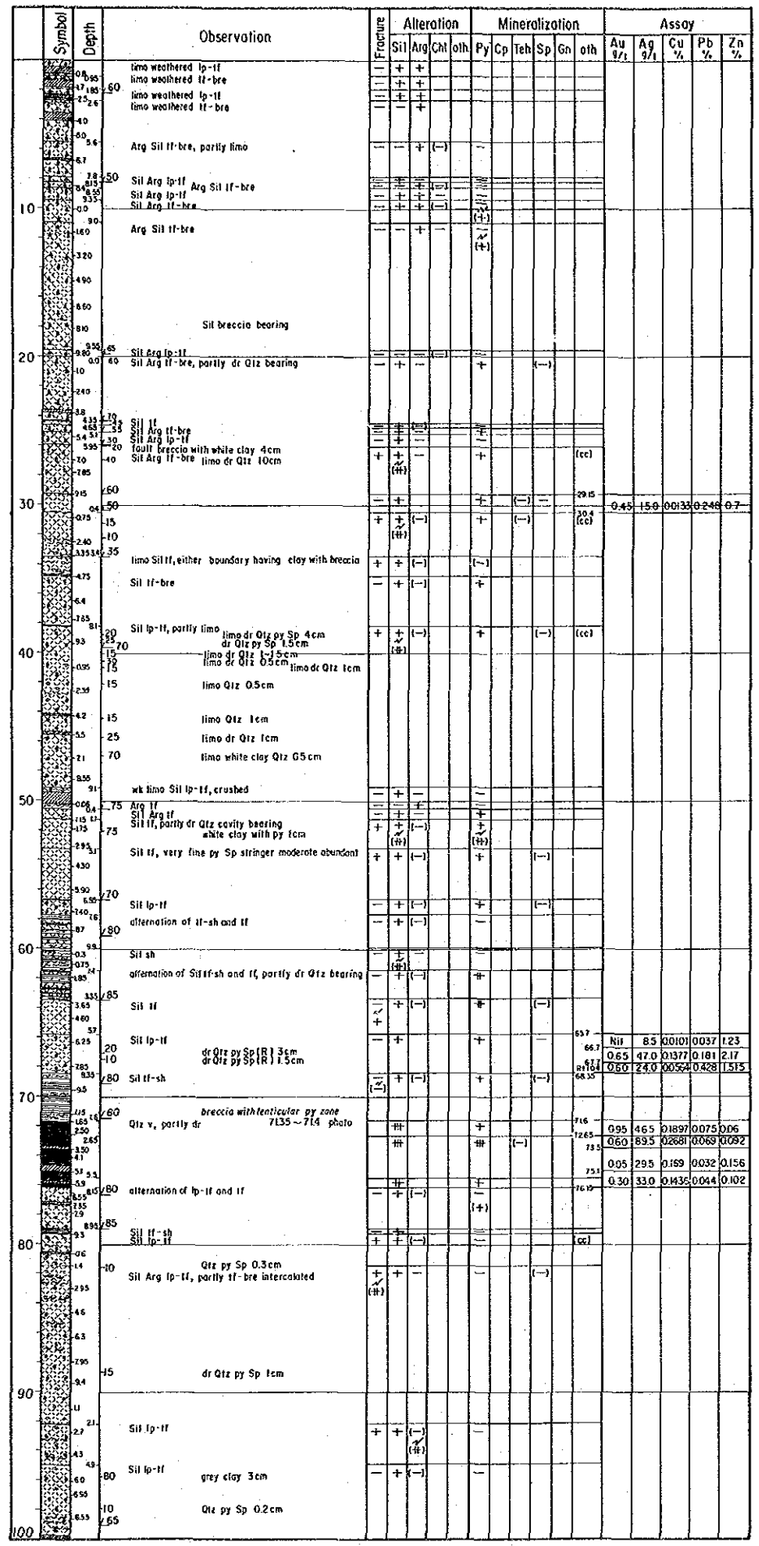
Location : 9'325.858 N, 695.132 E
Elevation : 3,178.62 m
Direction : — Inclination −90°



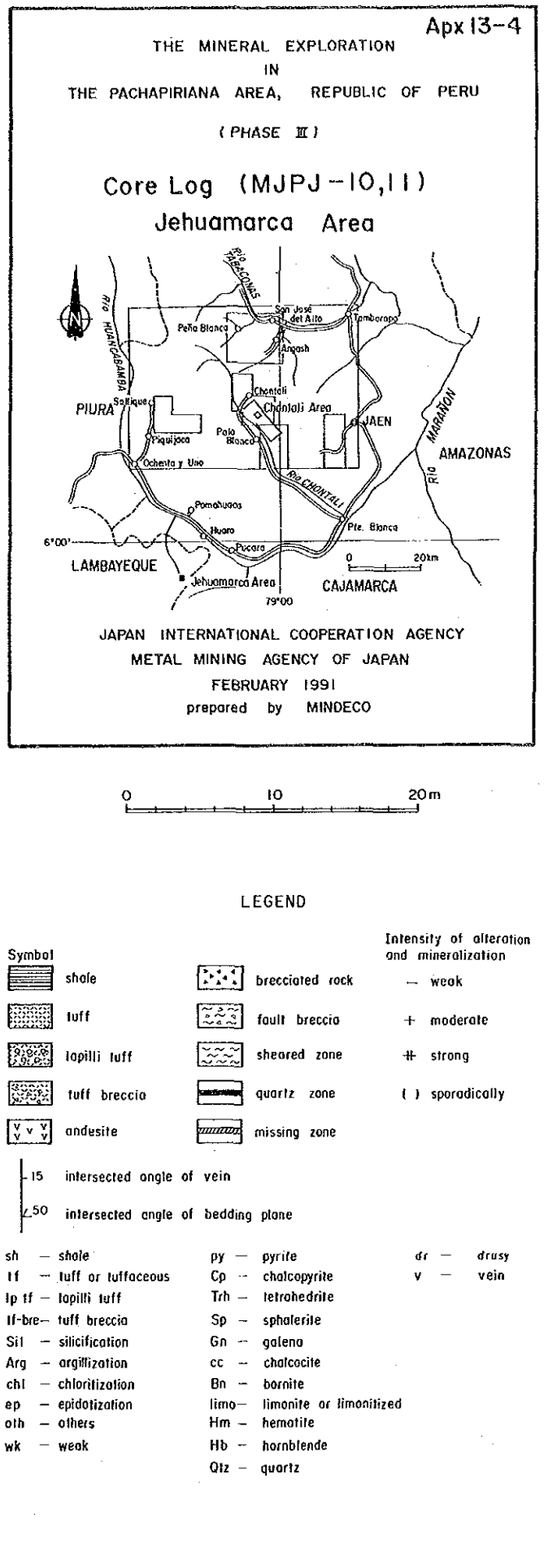
Au g/t	Ag g/t	Cu %	Pb %	Zn %
0.05	39.5	0.0224	0.049	0.0267
0.15	93.5	0.0285	0.077	0.0139
0.40	48.0	0.896	0.032	0.764
0.55	11.0	0.2035	0.028	0.152
0.10	8.5	0.2016	0.023	0.286
Nil	9.5	0.1328	0.015	0.212
0.10	6.0	0.0694	0.07	0.632
0.50	4.5	0.1906	0.055	1.69
0.10	4.5	0.0187	0.138	2.68
0.15	4.0	0.1833	0.139	1.60
0.10	3.0	0.1024	0.209	1.72
0.20	1.5	0.0194	0.128	3.49
0.05	2.0	0.0117	0.096	2.73
0.05	3.0	0.011	0.255	3.87
0.10	4.0	0.0175	0.419	3.78
0.05	6.5	0.0249	0.404	1.955
0.10	6.5	0.0115	0.092	0.69
0.25	6.0	0.0152	0.116	4.89
0.05	6.5	0.0132	0.103	4.98
Nil	10.5	0.058	1.14	2.79
0.15	7.0	0.005	0.77	2.06
0.05	6.0	0.003	0.56	1.21
0.10	6.5	0.0028	0.446	1.44

MJPJ-11

Location : 9'325.820 N, 695.420 E
Elevation : 3,239.81 m
Direction : — Inclination −90°



Au g/t	Ag g/t	Cu %	Pb %	Zn %
Nil	8.5	0.0101	0.037	1.23
0.65	47.0	0.1377	0.181	2.17
0.60	24.0	0.0554	0.428	1.515
0.95	46.5	0.1897	0.075	0.06
0.60	89.5	0.2681	0.069	0.092
0.05	29.5	0.159	0.032	0.156
0.30	33.0	0.1436	0.044	0.102
0.45	15.0	0.0133	0.246	0.7



0 10 20m

LEGEND

Symbol

- shale
- tuff
- lapilli tuff
- tuff breccia
- andesite
- brecciated rock
- fault breccia
- sheared zone
- quartz zone
- missing zone

Intensity of alteration and mineralization

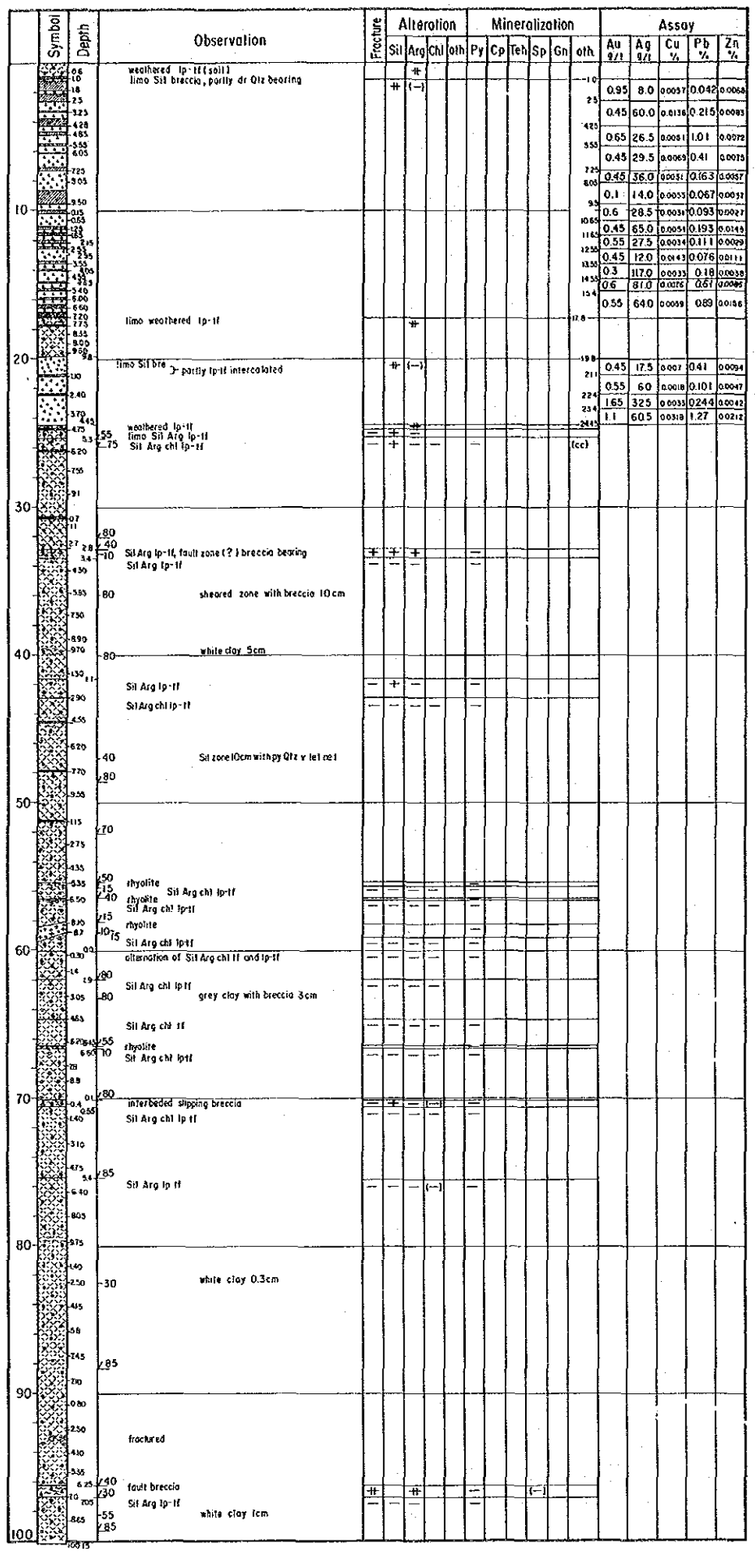
- — weak
- + moderate
- ++ strong
- ( ) sporadically

- 15 intersected angle of vein
- 50 intersected angle of bedding plane

sh	— shale	py	— pyrite
tf	— tuff or tuffaceous	Cp	— chalcopyrite
lp tf	— lapilli tuff	Trh	— tetrohedrite
tf-bre	— tuff breccia	Sp	— sphalerite
Sil	— silicification	Gn	— galena
Arg	— argillization	cc	— chalcocite
chl	— chloritization	Bn	— bornite
ep	— epidotization	limo	— limonite or limonitized
oth	— others	Hm	— hematite
wk	— weak	Hb	— hornblende
		Qtz	— quartz
		dr	— drusy
		v	— vein

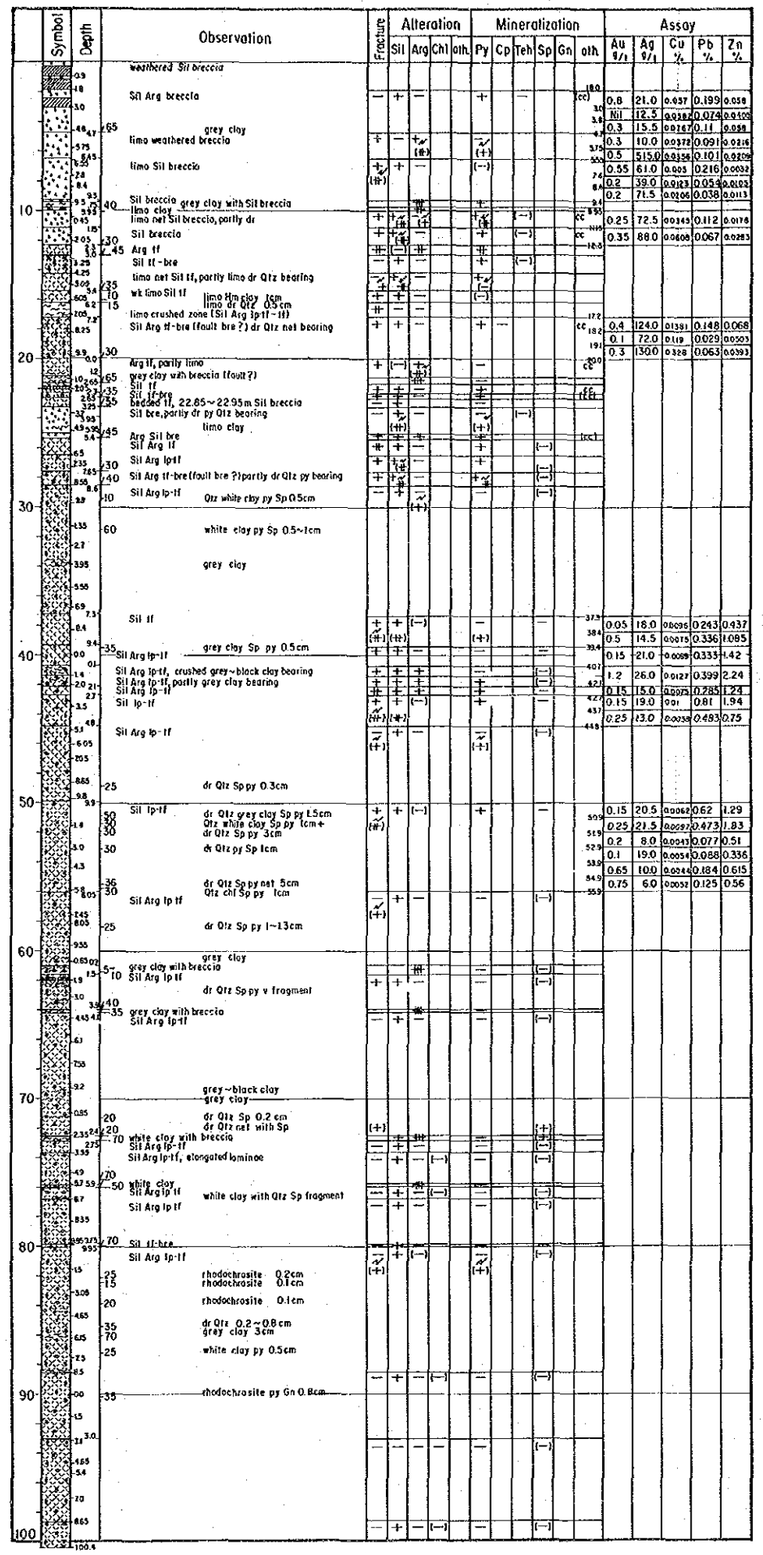
MJPJ – 12

Location : 9'326.608 N, 695.172 E
Elevation : 3,402.11m
Direction : — Inclination – 90°



MJPJ – 13

Location : 9'326.196 N, 694.687 E
Elevation : 3,167.56 m
Direction : — Inclination – 90°



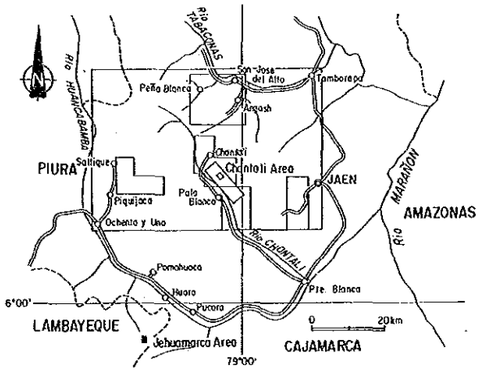
Apx13-5

THE MINERAL EXPLORATION
IN
THE PACHAPIRIANA AREA, REPUBLIC OF PERU

(PHASE Ⅲ)

Core Log (MJPJ – 12, 13)

Jehuamarca Area



JAPAN INTERNATIONAL COOPERATION AGENCY
METAL MINING AGENCY OF JAPAN
FEBRUARY 1991
prepared by MINDECO

0 10 20m

LEGEND

Symbol

- rhyolite
- shale
- tuff
- lapilli tuff
- tuff breccia
- andesite
- brecciated rock
- fault breccia
- sheared zone
- quartz zone
- missing zone

Intensity of alteration and mineralization

- — weak
- + moderate
- ++ strong
- ( ) sporadically

15 intersected angle of vein
50 intersected angle of bedding plane

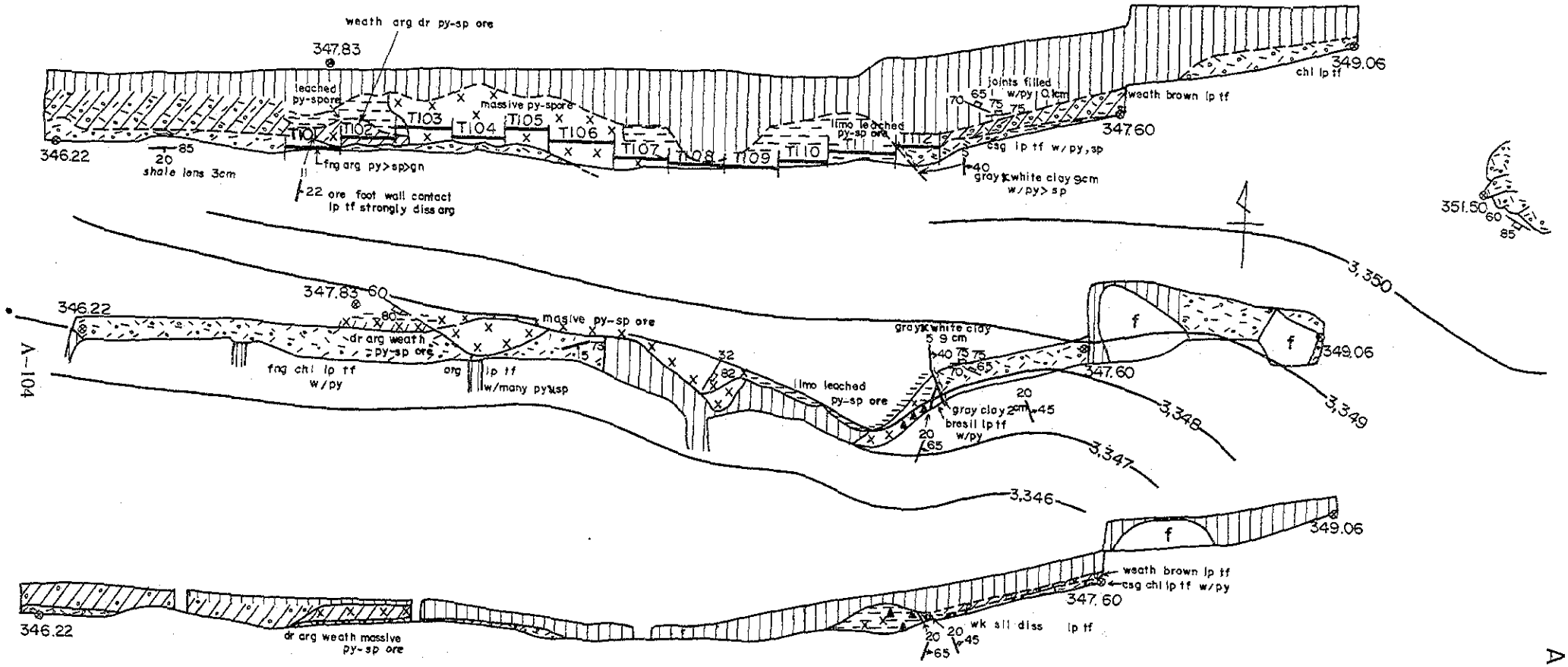
sh — shale
tf — tuff or tuffaceous
lp-tf — lapilli tuff
tf-bre — tuff breccia
Sil — silicification
Arg — argillization
chl — chloritization
ep — epidotization
oth — others
wk — weak

py — pyrite
Cp — chalcopyrite
Teh — tetrahedrite
Sp — sphalerite
Gn — galena
cc — chalcocite
Bn — bornite
limo — limonite or limonitized
Hm — hematite
Hb — hornblende
Qtz — quartz

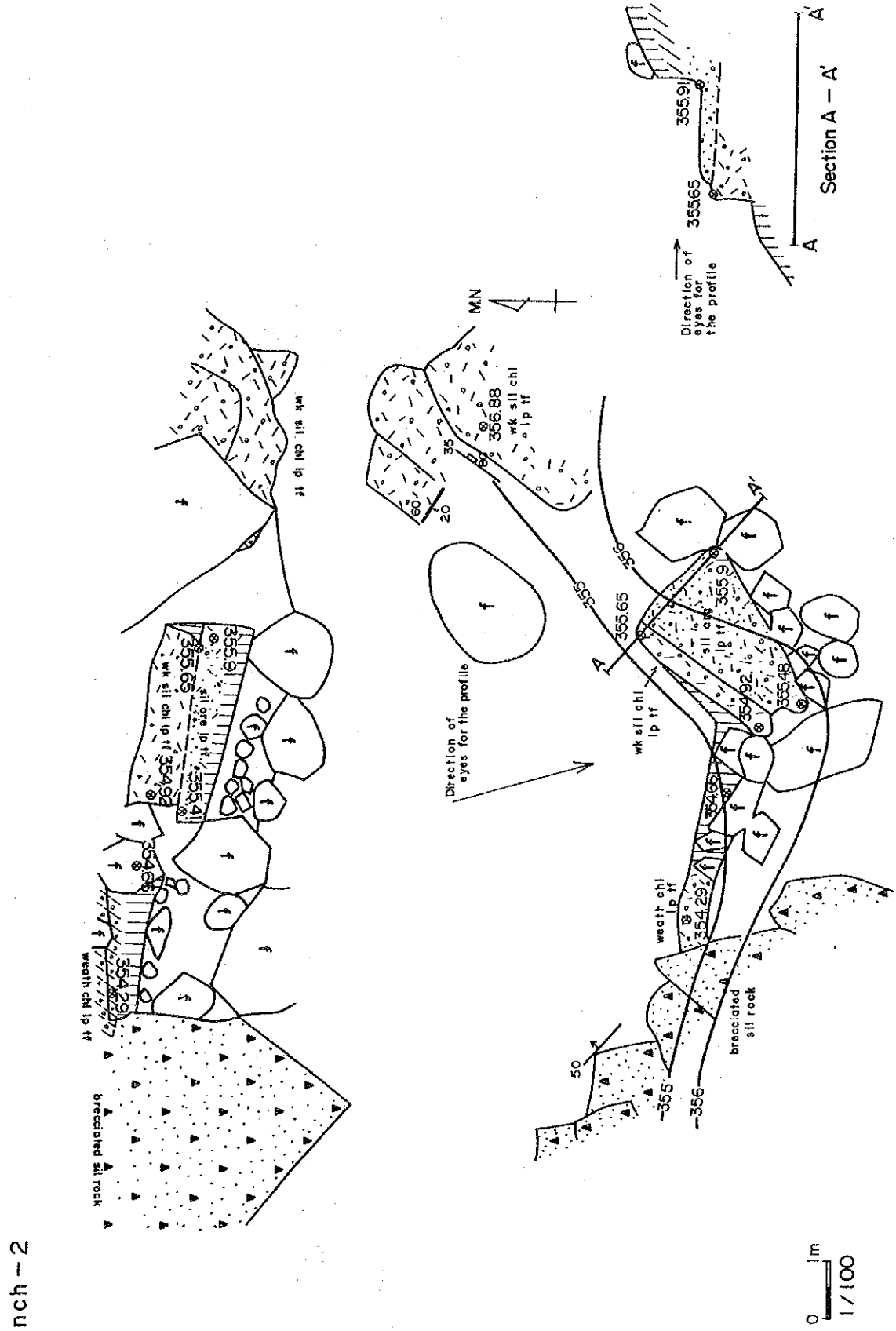
dr — drusy
v — vein

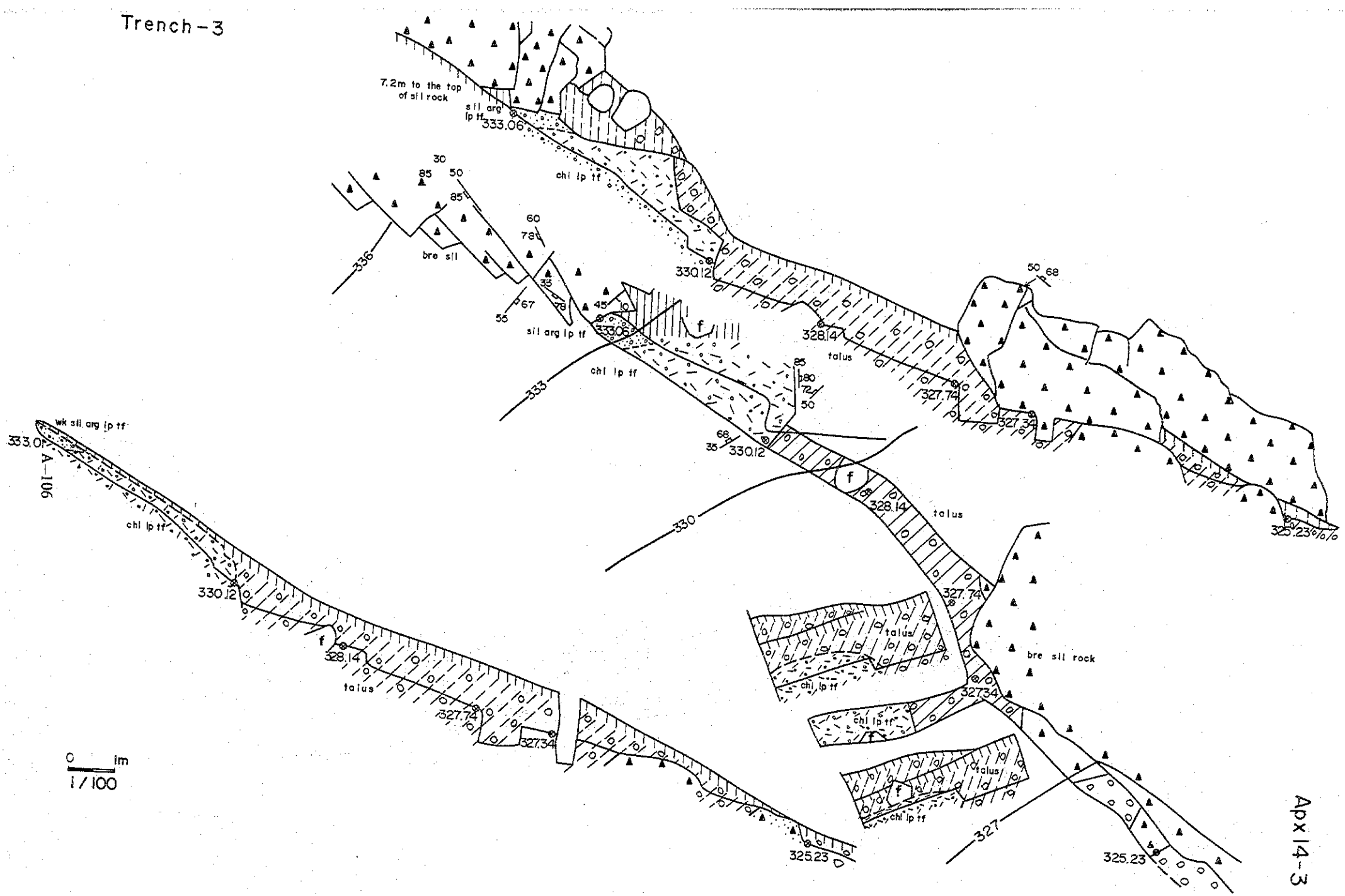
Apx. 14 Geological Sketches of Trenches in the Jehuamaca Area

Trench-1

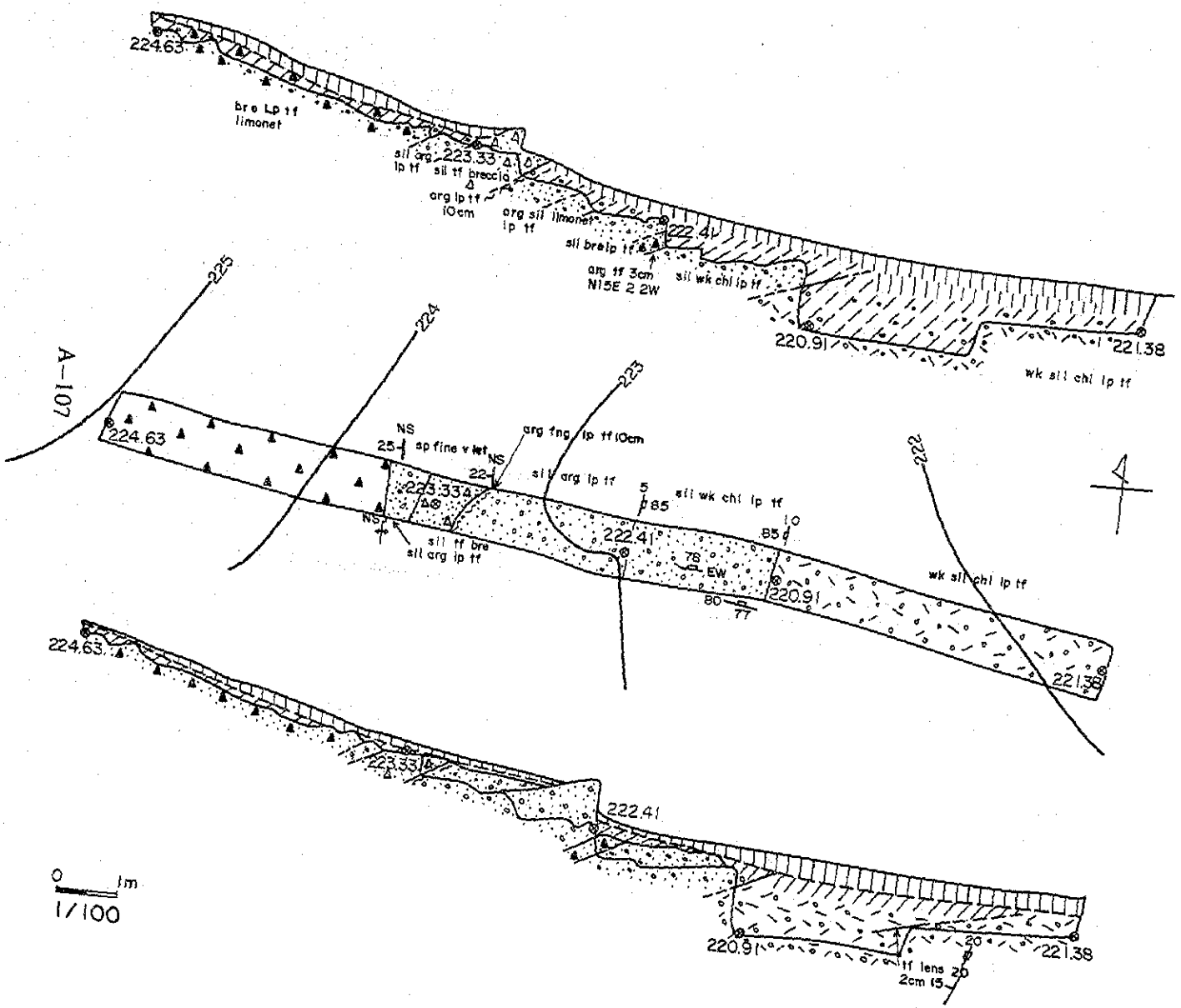


Apx 14-1

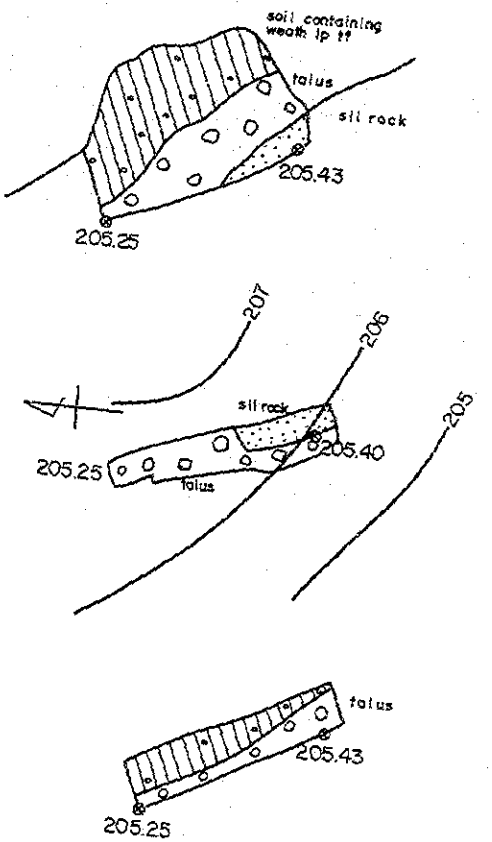

Trench - 2
Section A - A'
A
A'
M.N
Direction of eyes for the profile
wk sil chl lp tf
weath chl lp tf
brecciated sil rock
0
1m
1/100


Trench-3
7.2m to the top of sil rock
sil arg lp tf
333.06
chl lp tf
330.12
talus
328.14
327.74
327.34
325.23
bre sil
bre sil rock
wk sil arg lp tf
333.0
A-106
0 1m
1/100
Apx 14-3

Trench – 4



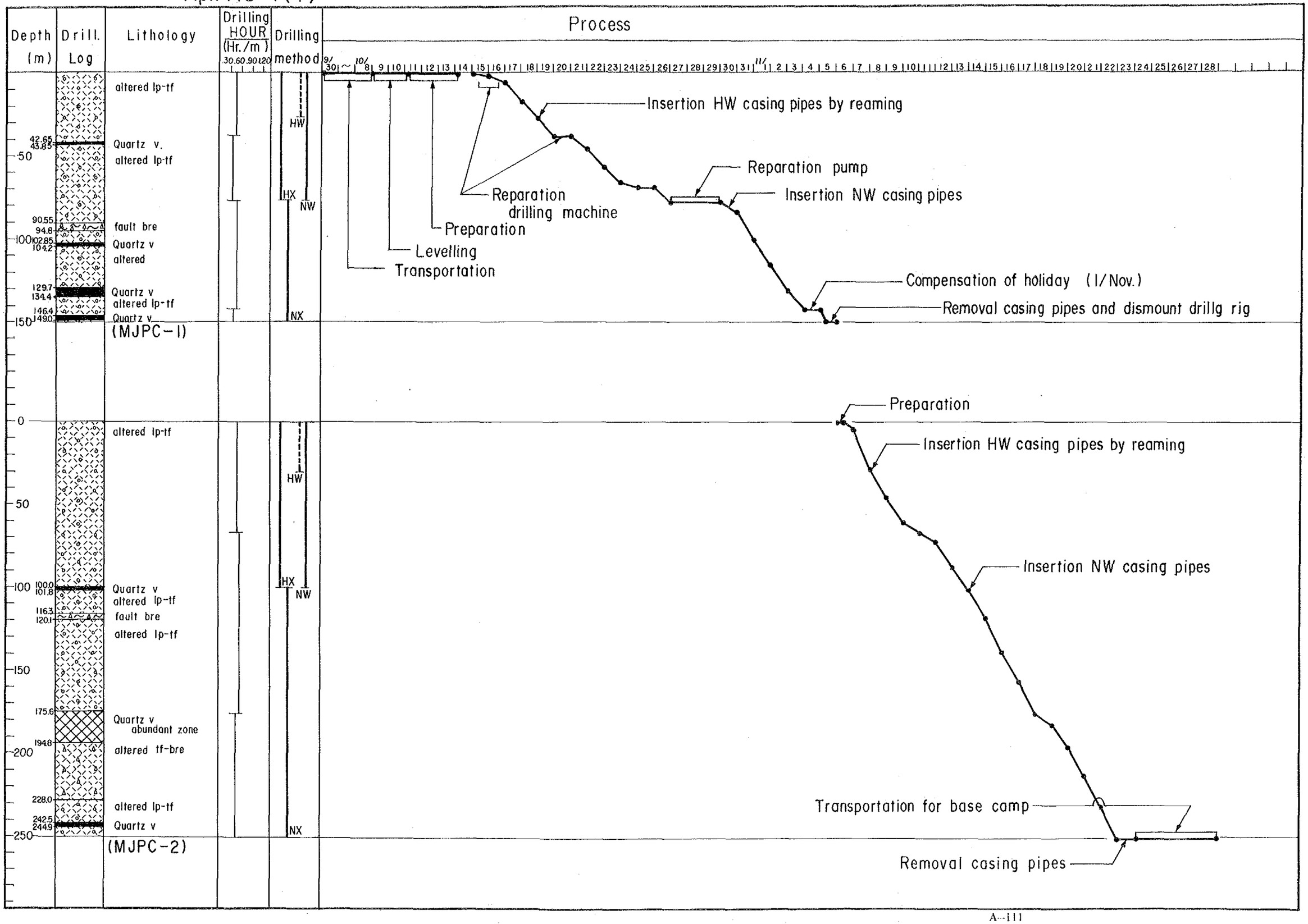
Trench – 5



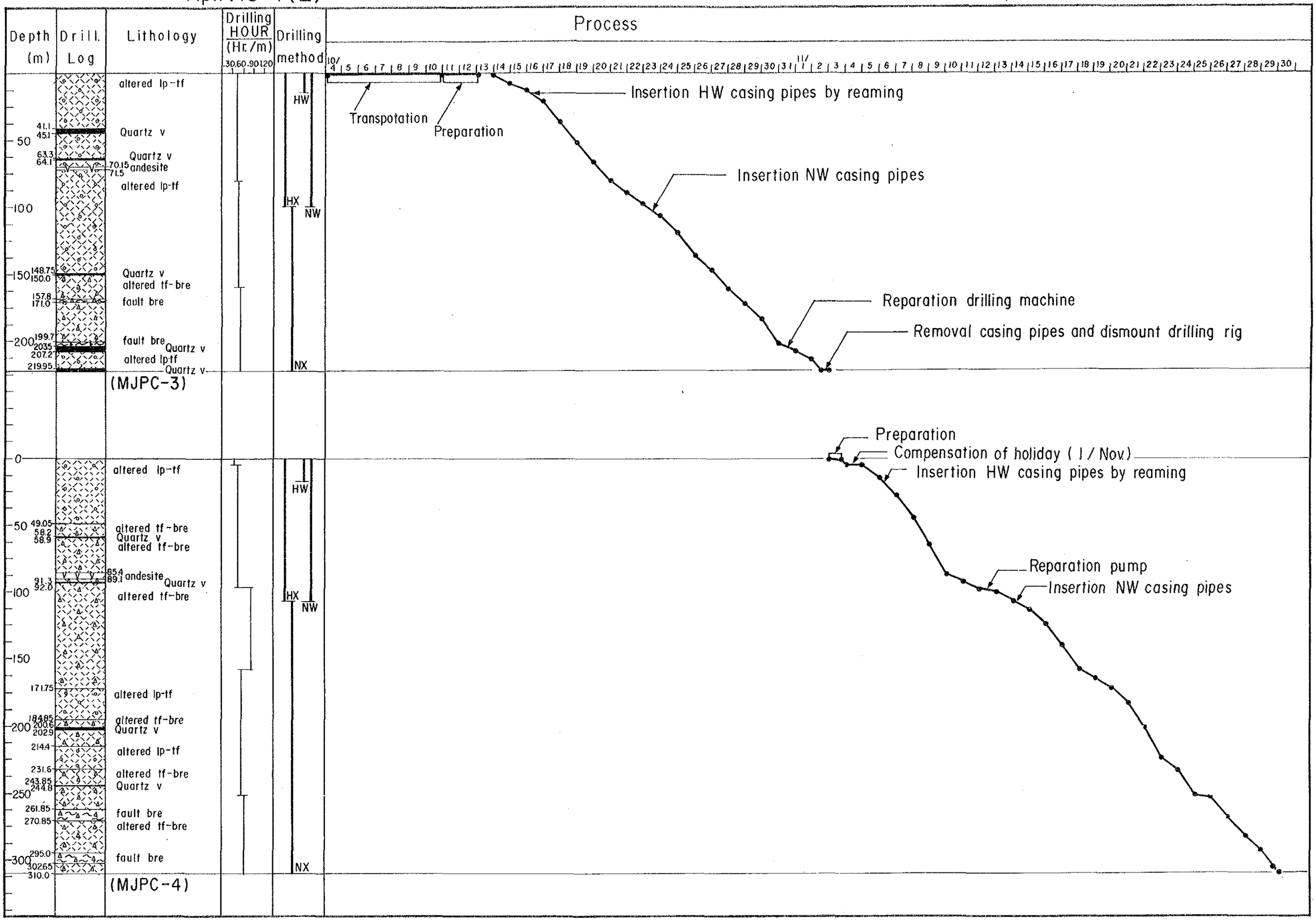
Apx14-4

Apx. 15 Miscellaneous Data for the Drilling Survey

Apx. 15-1(1) PROGRESS RECORD OF DIAMOND DRILLING MJPC-1, 2

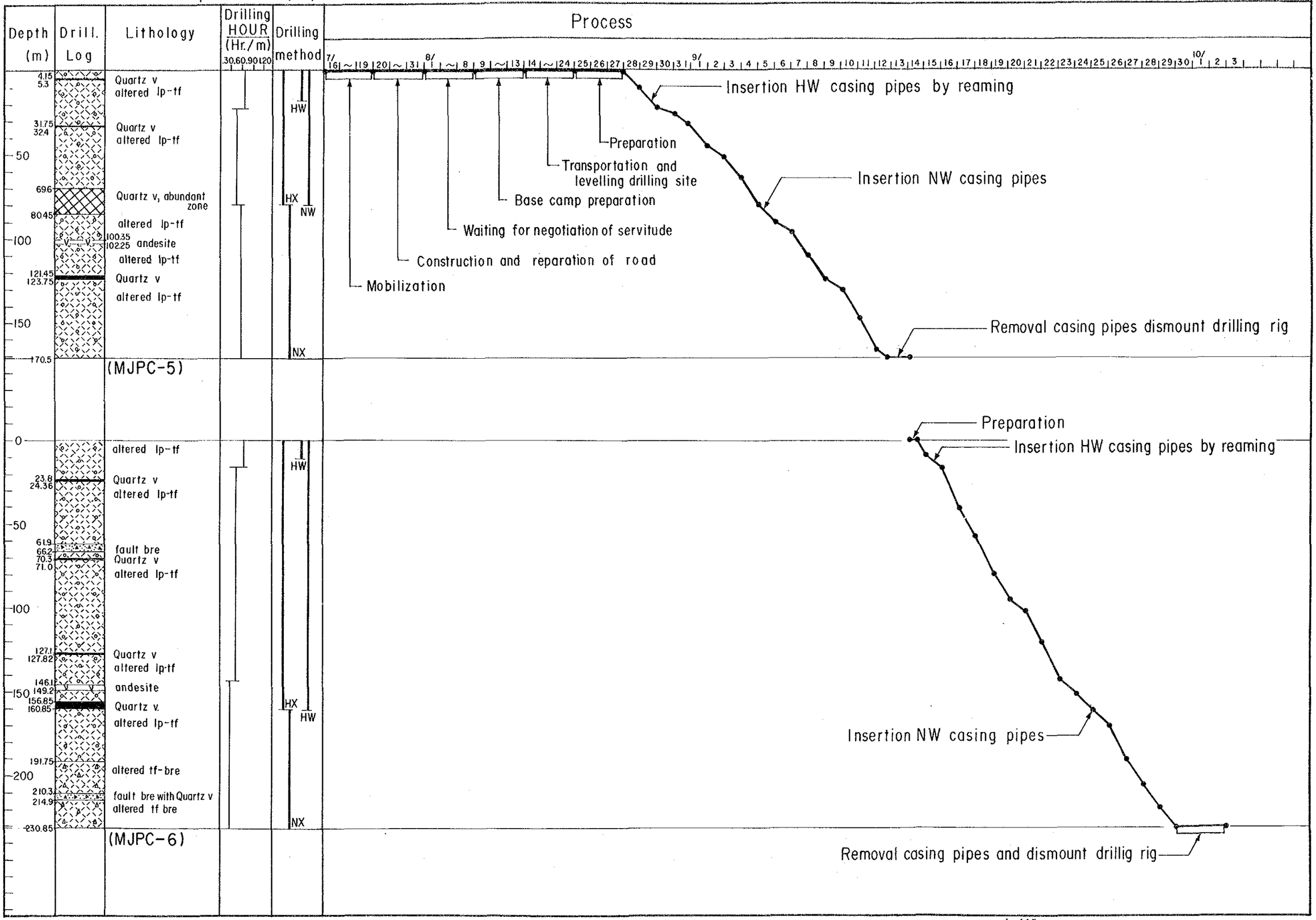


Apx. 15-1(2) PROGRESS RECORD OF DIAMOND DRILLING MJPC-3, 4

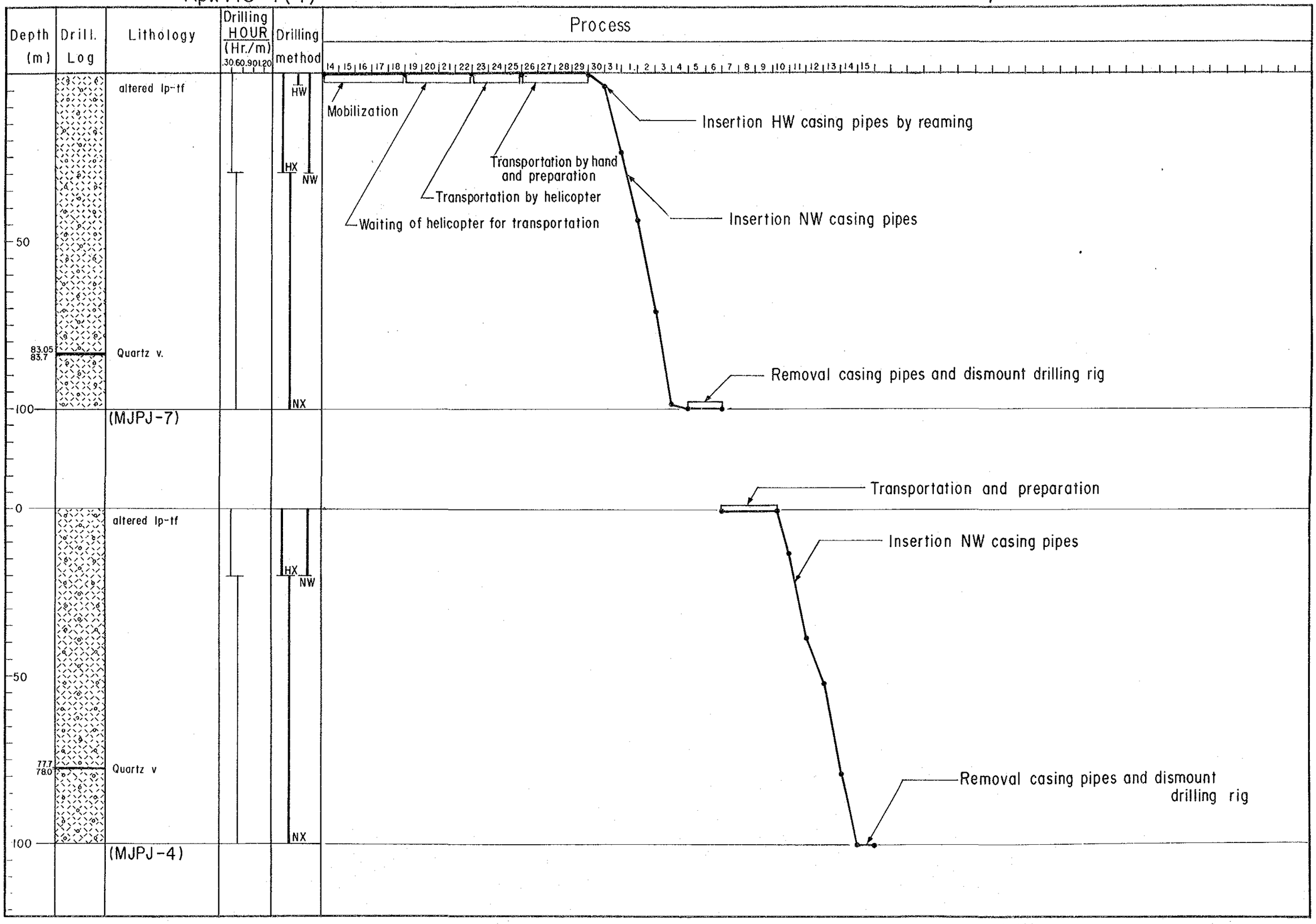


Apx. 15-1(3)

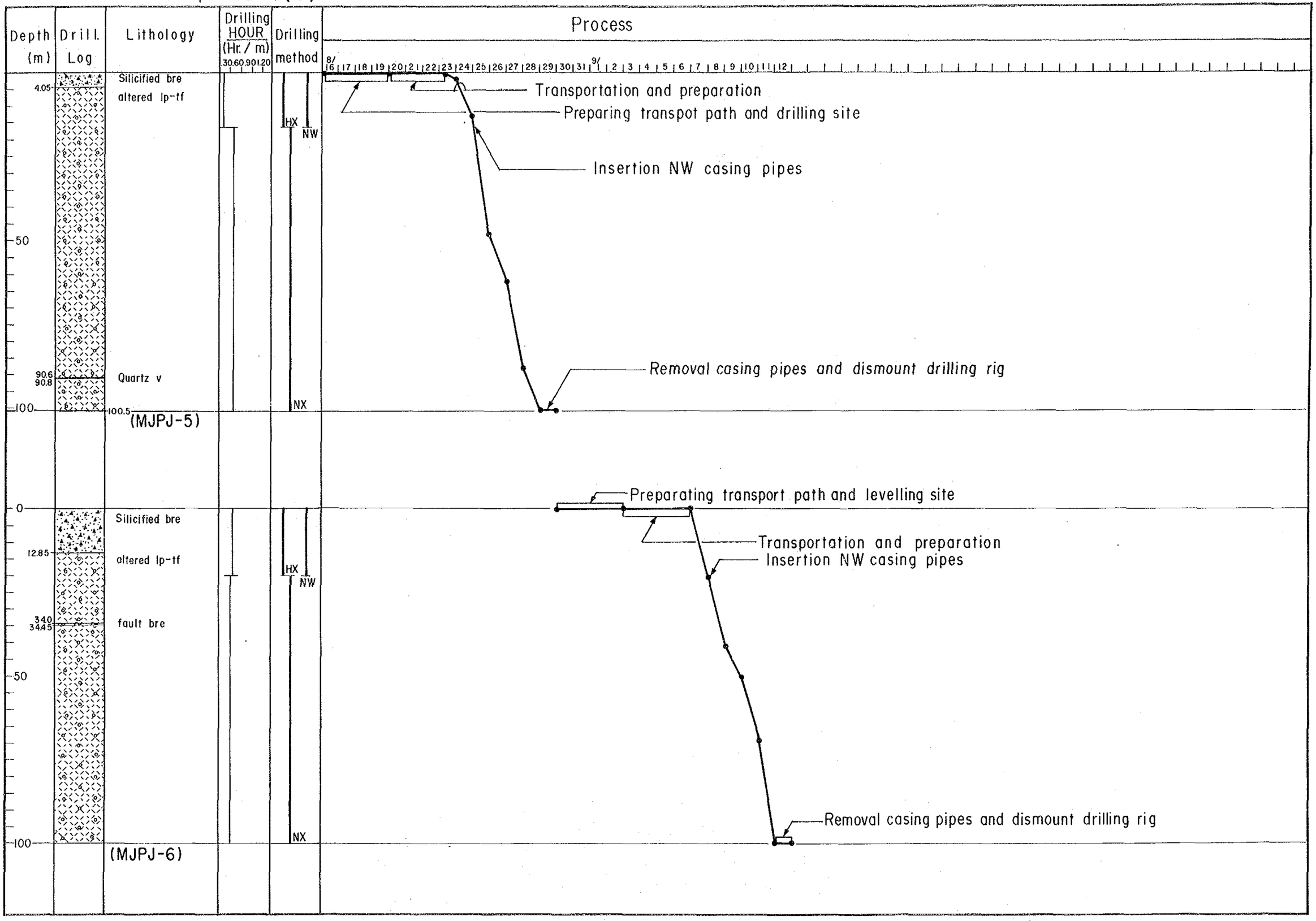
PROGRESS RECORD OF DIAMOND DRILLING MJPC-5, 6



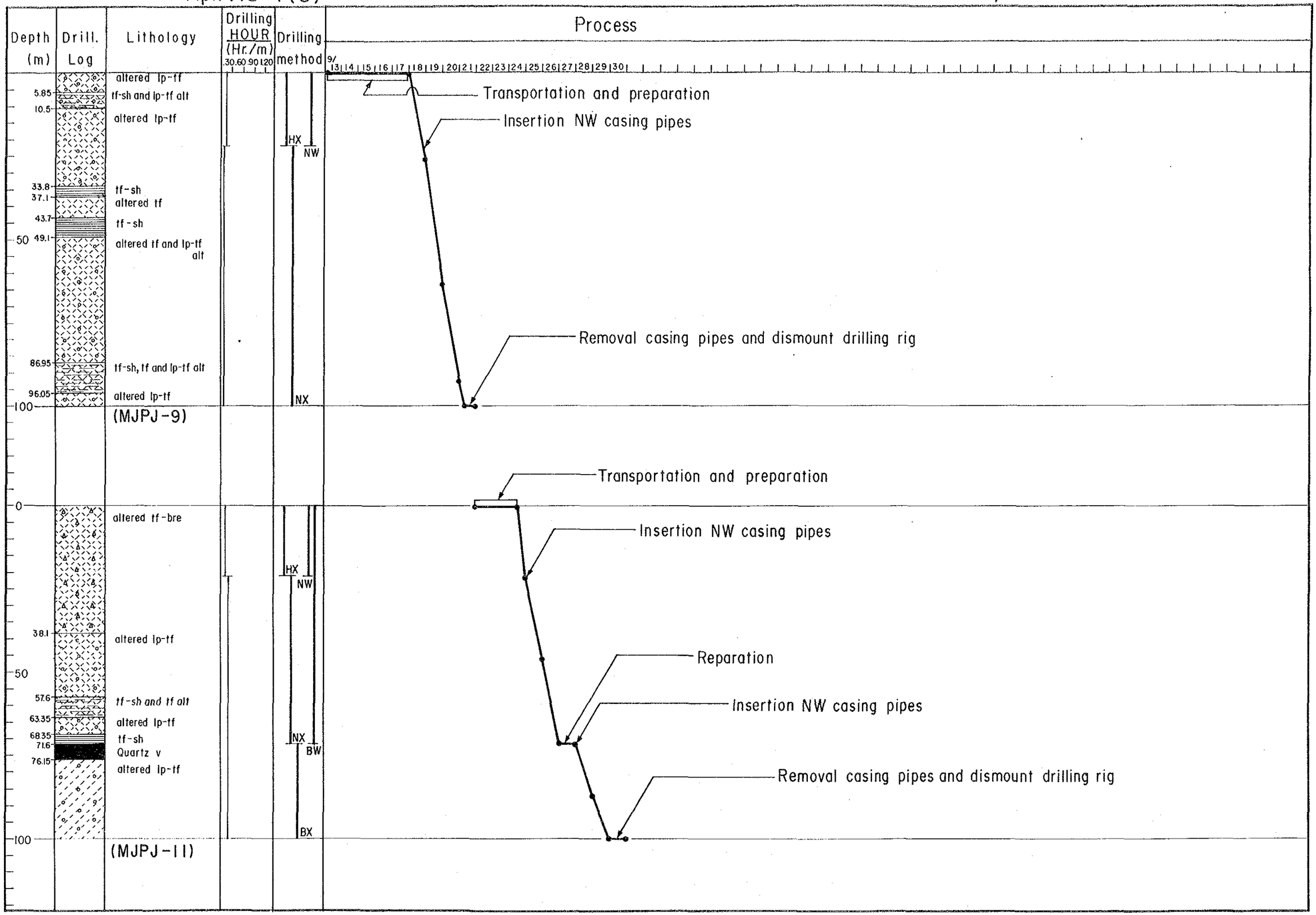
Apx. 15-1(4) PROGRESS RECORD OF DIAMOND DRILLING MJPJ-7, 4



Apx. 15-1(5) PROGRESS RECORD OF DIAMOND DRILLING MJPJ-5, 6

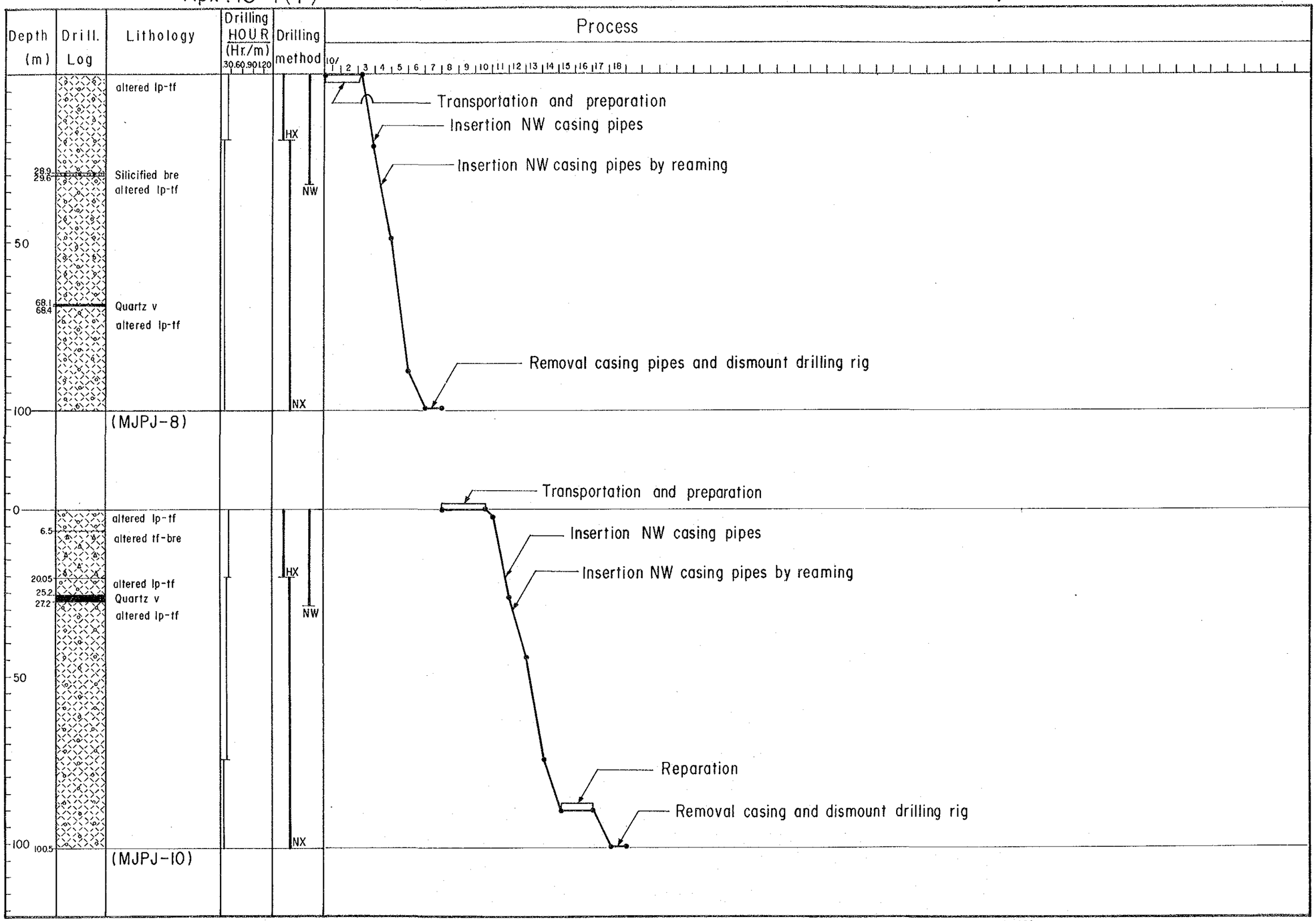


Apx. 15-1(6) PROGRESS RECORD OF DIAMOND DRILLING MJPJ-9, 11



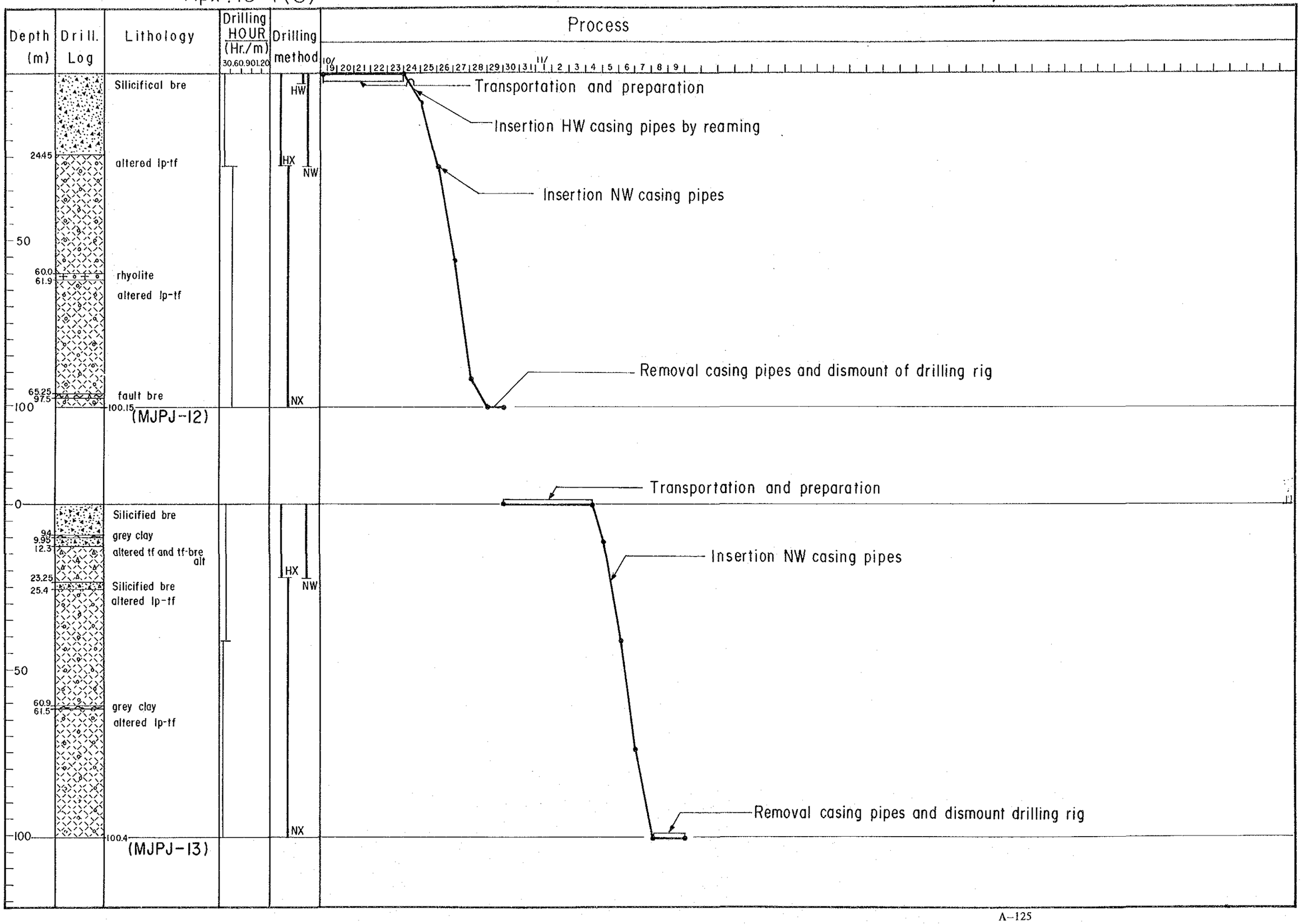
Apx. 15-1 (7)

PROGRESS RECORD OF DIAMOND DRILLING MJPJ-8, 10



Apx. 15-1(8)

PROGRESS RECORD OF DIAMOND DRILLING MJPJ-12, 13



Apx. 15 Miscellaneous Data for the Drilling survey

15-2-(1) List of the Used Equipment for Drilling

(MJPC-1, 2)

Item	Model	Quantity	Capacity, Type and Specification
Drilling Machine	L-38	1	Capacity NQ: 575m BQ: 725m Inner Diameter of Spindle: 78mm Wieght (except engine)
Engine for Drill	GMG	1	Diesel Engine 2,200rpm / 102ps
Pump	BEAM	2	Piston ϕ 68mm Capacity 18～137 liter/min. Pressure 46kg/min.
Engine for Pump	BOSCH	2	Diesel Engine 2,200rpm / 25ps
Generator	BRIGG-STRATON	1 1	5kvA 220v 7kvA 220v
Engine for Generator		2	Diesel Engine 1,800rpm / 8.5ps
Mud Mixer	SRENKA	1	Volume 100 liter 800～1,000rpm/min.
Derrick	LONGYEAR	1	
Rod Holder	LONGYEAR	1	
Drill Rods	NC-WL NX-WL BX-WL	60 120 120	3.00 m/pc 3.00 m/pc 3.00 m/pc
Casing Pipes	HW NW BW	26 50 70	1.50 m/pc 3.00 m/pc 3.00 m/pc
Core Tube Assembly	NC-WL NX-WL BX-WL	2 2 2	1.50 m 1.50 m 1.50 m
Inner Tube Assembly	NC-WL NX-WL BX-WL	2 2 2	1.50 m 1.50 m 1.50 m

Apx. 15-2-(2) List of the Used Equipment for Drilling

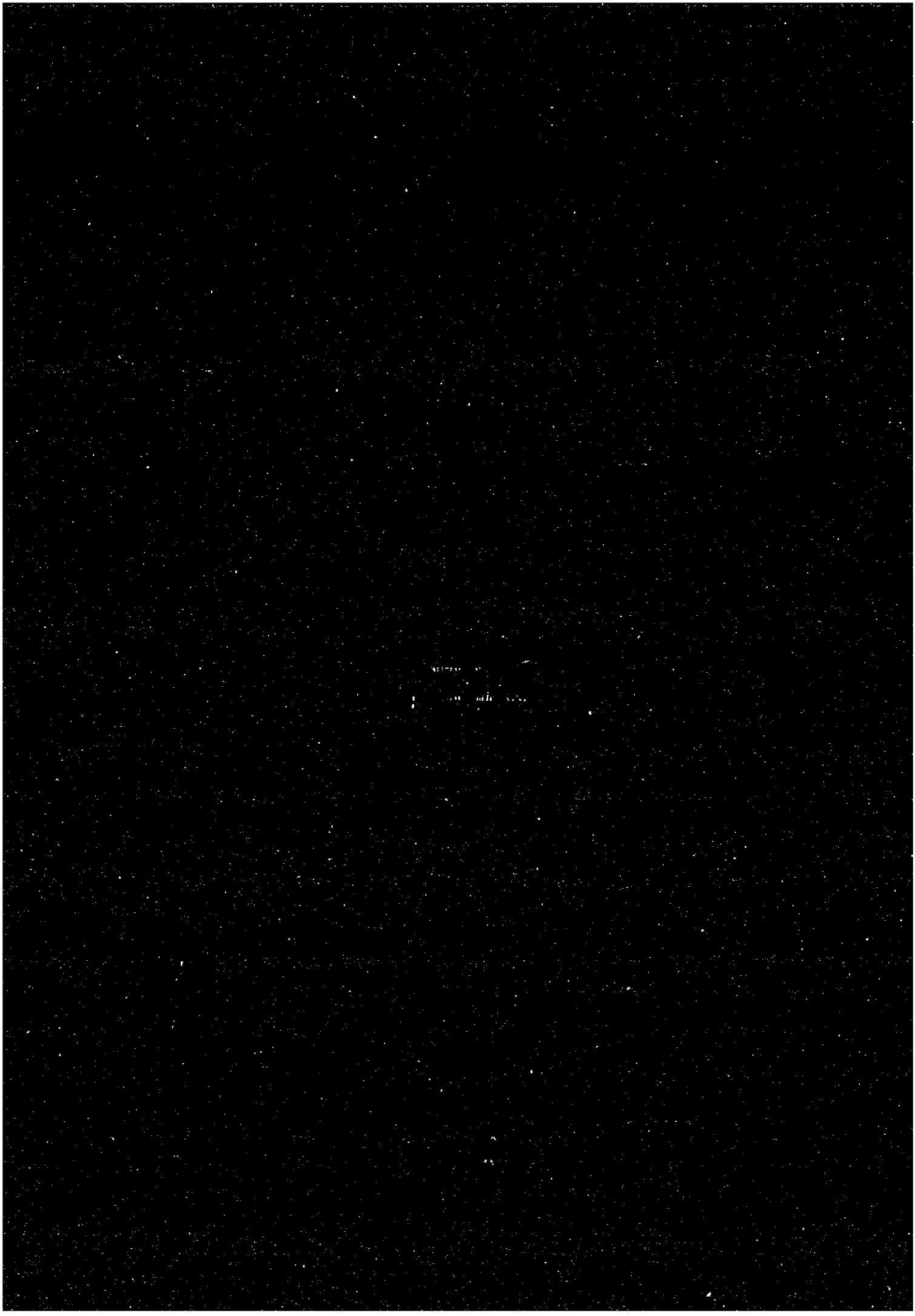
(MJPC-3～6)

Item	Model	Quantity	Capacity, Type and Specification
Drilling Machine	L-44	1	Capacity NQ: 790m BQ: 1,060m Inner Diameter of Spindle: 98mm
Engine for Drill	GMG	1	Diesel Engine 2,200rpm / 60～102ps
Pump	BEAM	2	Piston ϕ68mm Capacity 18～137 liter/min. Pressure 46kg/min.
Engine for Pump	BOSCH	2	Diesel Engine 2,200rpm / 35ps
Generator	BRIGG-STRATON	2	5kvA 220v
Mud Mixer	SRENKA	1	Volume 100 liter 800～1,000rpm/min.
Derrick	LONGYEAR	1	
Rod Holder	LONGYEAR	1	
Drill Rods	NC-WL	60	3.00 m/pc
	NX-WL	130	3.00 m/pc
	BX-WL	130	3.00 m/pc
Casing Pipes	HW	20	1.50 m/pc
	NW	60	3.00 m/pc
	BW	70	3.00 m/pc
Core Tube Assembly	NC-WL	2	1.50 m
	NX-WL	2	1.50 m
	BX-WL	2	1.50 m
Inner Tube Assembly	NC-WL	3	1.50 m
	NX-WL	3	1.50 m
	BX-WL	3	1.50 m

Apx. 15-2-(3) List of the Used Equipment for Drilling

(MJPJ-4～13)

Item	Model	Quantity	Capacity, Type and Specification
Drilling Machine	L-38	1	Capacity NQ: 575m BQ: 725m Inner Diameter of Spindle: 78mm Wieght (except engine)
Engine for Drill	GMG	1	Diesel Engine 2,200rpm / 102ps
Pump	BEAM	2	Piston ϕ 68mm Capacity 18～137 liter/min. Pressure 46kg/min.
Engine for Pump	BOSCH	2	Diesel Engine 2,200rpm / 33ps
Generator	BRIGG-STRATON	2 1	5kvA 220v 7kvA 220v
Engine for Generator		2	Diesel Engine 1,800rpm / 8.5ps
Mud Mixer	SRENKA	1	Volume 100 liter 800～1,000rpm/min.
Derrick	LONGYEAR	1	
Rod Holder	LONGYEAR	1	
Drill Rods	NC-WL NX-WL BX-WL	20 50 50	3.00 m/pc 3.00 m/pc 3.00 m/pc
Casing Pipes	HW NW BW	15 20 20	1.50 m/pc 3.00 m/pc 3.00 m/pc
Core Tube Assembly	NC-WL NX-WL BX-WL	2 2 2	1.50 m 1.50 m 1.50 m
Inner Tube Assembly	NC-WL NX-WL BX-WL	2 2 2	1.50 m 1.50 m 1.50 m

Apx. 15-3 Articles of Consumption and Drilling Parts

Item	Specification	Unit	Chontali Quantity							Jehuamarca Quantity										
			MJPC-1	MJPC-2	MJPC-3	MJPC-4	MJPC-5	MJPC-6	Total	MJPJ-4	MJPJ-5	MJPJ-6	MJPJ-7	MJPJ-8	MJPJ-9	MJPJ-10	MJPJ-11	MJPJ-12	MJPJ-13	Total
Light Oil		liter	2,590	2,280	2,555	3,230	1,660	1,960	14,275	560	780	640	600	520	470	650	550	640	530	5,940
Gasoria Oil		〃	1,665	1,870	1,980	2,160	1,200	1,270	10,145	510	730	420	680	400	290	595	380	540	405	4,950
Hydraulic Oil		〃	80	—	40	—	100	—	220	—	—	50	60	—	—	—	—	—	20	130
Drilling Oil		〃	150	80	220	105	110	140	805	90	60	80	40	60	40	120	70	100	70	830
Grease		kg	30	46	32	100	25	30	263	13	11	10	—	10	15	25	10	20	15	129
Mobil Oil		liter	40	30	30	35	30	25	190	12	15	13	10	—	15	20	15	15	15	130
Bentonite	40kg/bag	bag	46	80	71	109	54	66	426	35	33	30	8	38	28	35	33	29	29	298
CMC		kg	90	131	146	157	99	137	760	26	25	56	10	70	80	69	50	67	55	508
Cement	47kg/bag	bag	7	—	8	—	8	—	23	5	8	7	6	7	5	7	8	7	6	66
Single Core Tube	116mm×0.5m	Set	1	—	1	—	1	—	3	—	—	—	—	—	—	—	—	—	—	—
Wireline Core Barrel	NC×1.7m	〃	1	1	1	—	1	—	4	—	—	—	1	—	1	—	—	1	—	3
〃	NX×1.7m	〃	1	1	1	—	1	—	4	—	—	—	1	—	1	1	—	1	—	4
〃	BX×1.7m	〃	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	1
Inner Tube Assembly	NC×1.7m	〃	1	1	1	1	1	—	5	—	—	1	1	—	—	—	—	—	—	2
〃	NX×1.7m	〃	1	1	1	—	1	—	4	—	—	1	1	—	—	—	1	—	—	3
〃	BX×1.7m	〃	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	1
Outer Tube	NC×1.5m	〃	1	1	1	1	1	—	5	—	—	1	1	—	—	—	—	1	—	3
〃	NX×1.5m	〃	1	1	1	1	1	—	5	—	—	—	1	—	1	—	—	1	—	3
〃	BX×1.5m	〃	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Inner Tube	NC×1.5m	〃	1	1	2	1	—	1	6	—	1	—	1	—	—	1	1	1	—	5
〃	NX×1.5m	〃	1	1	1	1	—	1	5	—	1	—	1	1	1	—	—	2	—	6
〃	BX×1.5m	〃	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Casing Diamond Shoe	HW	PC	—	—	—	—	—	—	—	1	1	1	1	2	1	1	1	—	—	9
〃	NW	〃	1	1	1	1	1	1	6	—	—	—	—	—	—	—	1	1	1	3
Wire Rope	6mm×500m	roll	1	—	—	—	1	—	2	—	—	—	1	—	—	—	—	—	—	1
〃	12mm× 90m	〃	—	—	—	—	1	—	1	—	—	—	1	—	—	—	—	—	—	1
〃	18mm×100m	〃	—	—	—	—	1	—	1	—	—	—	1	—	—	—	—	—	—	1
Manila Rope		PC	—	—	—	—	1	—	1	—	—	—	1	—	—	—	—	—	—	1
Pump Packing		〃	6	—	6	—	—	6	18	—	6	—	—	6	—	—	—	6	—	18
Piston Rod		〃	—	3	2	—	—	—	5	—	—	2	—	1	—	—	—	—	—	3
Guide Pipe	NC	〃	1	—	—	1	—	1	3	—	1	—	—	—	—	—	1	—	—	2
〃	NX	〃	—	1	—	1	—	1	3	—	1	—	—	1	—	—	1	—	—	3
Valve Steel Ball	38.1ϕ	〃	—	6	6	—	—	—	12	—	—	—	—	—	6	—	—	—	—	6
Guide Coupling	NC	〃	—	1	1	1	—	1	4	—	1	—	—	—	—	1	1	—	—	3
〃	NX	〃	—	1	—	1	—	—	2	—	—	—	—	1	1	1	—	—	—	3
Suction Hose		〃	1	—	—	—	1	—	2	—	—	—	1	—	—	—	—	—	—	1
Water Swivel Packing		〃	—	4	4	4	—	4	16	4	—	4	—	—	4	—	—	3	—	15
Water Swivel Spudle		〃	—	1	1	—	—	—	2	—	—	—	—	—	1	—	—	—	—	1
V Belt		〃	—	2	3	—	—	—	5	2	—	—	—	—	—	3	—	—	1	6
Core Lifter	NC	〃	4	3	3	3	4	5	22	1	2	1	2	1	1	1	1	1	1	12
〃	NX	〃	2	4	4	6	4	3	23	2	2	3	3	2	2	3	2	2	2	23
Core Lifter Case	NC	〃	2	3	2	3	1	2	13	—	1	—	2	1	1	1	—	1	—	7
〃	NX	〃	2	3	2	3	1	1	12	1	2	2	2	1	—	1	1	1	—	11
Core Box	NC	〃	18	26	30	31	23	31	159	6	5	5	9	6	7	6	6	7	6	63
〃	NX	〃	17	34	27	46	20	30	174	17	18	17	15	19	17	19	12	15	18	167
〃	BX	〃	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5	—	—	5