

Logs by E. Livingston (New Jersey Zinc Corp.)  
- Commercial Minerals, Kamboja.

May, 1960  
(received June 1960)

Confidential to Dept of  
Minis.

Refered legend:  
(c.c) (cc) = Cherty Breck (diorite)  
IM = Iron rock (diorite)

92I/9W

92I/NE-15

0 - N19' overburden

Joker Gp

Hole 3

Depth 80'

N19' - 80' M.g. IM diorite split core

009748

19' - 41' Poor core much breccia very little mineralization

26' - 29' Poor core, massive hematite in gouge

67' - 72' Broken poor core, probably sheared.

Hole 4

0 - 25' overburden

Depth 79'

25' - 79' Split core, M.g. IM diorite  
snow in box to 56'

25' - N56' Probably all sheared and altered  
much gravel sized core

56' - 79' Partly breccia mostly good core

at 72 + N1 1/2" Massive chalcopryrite and chalcocite.

Hole 5

0 - 25' overburden

Depth 82'

N25' - 82' M.g. IM diorite

Snow in box to 53'. May be sheared

No shearing 53' to end.

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Hole 7  
Depth 98'

- ~10' - 98 Mg. IM diorite as in other holes
- 10' - ? Split core No sulphides
- @ 30' "Mud scum"
- 29' - 36' Probably fault zone poor core.
- 46' - 50' No core ('mud and clay')
- 45' - ~70' Poor core mud, breccia, much chlorite on numerous shears. Several patches of pink feldspar especially ~60'.

Hole 8

- 0 - 25' overburden Depth 90'
- ~25' M.g. IM diorite, coarser than average
- 0 - 52' Very poor core, all small fragments
- 52' - 90' All split core no sulphides seen
- ~75' Muddy zone.

Hole 9

- 0 - 41' overburden Depth 89½'
- 41' - 89½' M.g. IM diorite
- 41' - 74' Very little core, mostly gravel, several 'mud' blocks. Bleached to 54' From there breccia quite pink, with much dark chlorite in streaks and stringers.

Hole 10

- 0 - 34' overburden Depth 110'
- 34' - 110' M.g. IM diorite. Split core. No mineralization.
- 34' - 82' All very poor core, small fragments, mud, sand, etc., especially 34' - 42', 63' - 79'
- 95' - 110' All very poor core, all mud, 105' - 108', and 109' - 110'. Breccia quite pink with chlorite.

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Hole 11

- 17' - 120 $\frac{1}{2}$ ' M.g. IM diorite Depth 120 $\frac{1}{2}$ '  
Bleaching on tight joints gives breccia-like appearance in some places.
- 17' - 65' Good core, xeno at 40 $\frac{1}{2}$ '
- 65' - 94 $\frac{1}{2}$ ' Very poor core, fragments and mud all shows bleaching.
- 112 $\frac{1}{2}$ ' - 114 $\frac{1}{2}$ ' Part breccia showing m.g. diorite fragments and some f.g. pink fragments which may be f.g. dyke or may be fragments carried in brecc.

Hole 12

- 0' - 53' overburden
- 53' -  $\sim$ 133' M.g. IM diorite Depth 149 $\frac{1}{2}$ '
- $\sim$ 56' - 97' Poor core, much lost mud and sand, some looks weathered, probably all fault, sand at 97'.
- 97' -  $\sim$ 133' Good core  $\sim$ 50' crush breccia, little rust on fractures.
- 133' - 149 $\frac{1}{2}$ ' F.g. to m.g. pink diorite (cc diorite?) *(Blowing Rock?)*

Hole 13

- 0' - 25' overburden
- 25' - 102' M.g. IM diorite, looks weathered to  $\sim$ 50'. Depth 102' (?)
- @ 71' Very distinct f.g. dark xeno.
- 75' - 102' Split, no sulphides seen.
- 90' - 102' Very little core, mostly small fragments and green mud - fault.

Hole 14

- 0' - 47' Casing
- 47 - 147 $\frac{1}{2}$ ' M.g. IM diorite as described in other holes. Depth 152'
- Pinkish alteration to  $\sim$ 100', grey from 100' -  $\sim$ 125'. All split. No sulphides.
- $\sim$ 65' -  $\sim$ 89' Broken core, several mud zones, probably all sheared.
- 147 $\frac{1}{2}$ ' - 152' F.g. pinkish c.c. diorite. Contact probably sheared.

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Hole 15

Depth 164'

0' - 38' overburden

38' - 140' (?) M.g. IM diorite

75' - 110' Fault chloritic muddy brecc.  
Little native C over 1" @ 83'

Before 140' texture very indistinct looks finer.

9 | 140' (?) - 152' F.g. to m.g. pink cc diorite. Quite pink. Very poor core from 141' - 152' Breccia and gouge.

152' - 164' M.g. IM diorite as at start, good core.

Hole 16

0' - 25' overburden

Depth 186'

25' - 135½' M.g. IM diorite as described.

@ 27½' Fragments of pinkish porphyric dyke.

46' - 50' Brecciated, sheared, with chlorite and mud

65' - 67' Poor core, probably sheared.

75' - 105' Fault sheared with little pyrite, much mud and gouge, especially 76' - 93'

135½' - 136' Small dark grey dyke slightly porphyric as before *VP-67-21 @ 135½-136*

9 | 136' - 160' F.g. M.g. cc diorite pinkish *VP-67-19 @ 152'*

158½' - 160' Few fragments well healed brecc. and 'mud' note *VP-67-20 @ 161'*

160' - 186' M.g. IM dior very little shearing.

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Hole 17

Depth 214'

~ 25' ~ 140' M.g. pinkish IM diorite as in other holes, chloritized, no biotite. Possible xeno at 116'.

80' - 97' Zone of fault breccia and gouge Breccia, fairly hard, shows at start and finish, rest is fragments of core and soft greenish gouge (chloritic).

0 | ~ 140' - ~ 142 1/2' Few fragments of f.g.-m.g. dyke, very fresh porphyritic with close packed stubby feldspar grains in glassy looking matrix. Very poor recovery. Probably cc diorite.

0 | 142 1/2' - 164 1/2' E.g. to m.g. pink c.c. diorite as described in other holes, mafics to chlorite, all poor broken core.

164 1/2' - 214' M.G. IM diorite as start

166' - 168' Poor core shows chloritic shear zone

183 1/2' - 184' " " " " " " .

Hole 18

*Handwritten note:* depth 6

0' - 27' overburden Depth 175'

27 - ~ 158' M.g. IM diorite as in other holes. Little ragged biotite. Darker 86' - 109' - more chlorite.

65' - 98' Split core apparently barren, except tr native Cu 80' - 86' in sheared zone

71' - 86' Fault with gouge, some breccia, much pale chlorite. Fragments bleached in part

@ 121, 1 1/2" pink dyke as below.

156' - 158.2 1' core of fault breccia.

| ~ 158' - 175 1/2' F.g. to m.g. pink CC diorite. Mostly poor broken core.

174' - 175 1/2' Mud scum.

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Hole 19

Depth 199'

- 0 - 30' overburden
- ~30' - 199' M.g. IM Diorite as Hole 20 with ragged biotite
- ~30' - ~47' much missing core several small lengths  
fault breccia
- ~51' - ~89' Fragments diorite, fragments breccia  
and much mud especially 78-86
- 107' - 121' Broken core several mud zones
- 162' - 168' Mud and fragments core as 78'-86'
- 168' - 172' Well healed fault breccia.

Hole 20

Depth 172' (?)

Lot 585 Comm. Minerals

- 0 - 172' Medium grained uniform grained IM diorite. Least altered part consists of cloudy euhedral plagioclase grains in matrix of pale pink orthoclase (?) which has almost graphic texture. The mafics are all altered to medium green chlorite. Accessories - magnetite < 1%. Typical composition probably 50% plagioclase 30% orthoclase 20% chlorite.
- Rock as above varies to pale grey rock in which only chlorite grains may be seen.
- All core broken with few minor mud seams.
- 88' - 137' Crushed and sheared zone, mud fragments of broken core, probably some bleaching with breccia and mylonite 100'-102', 116'-135'
- 137' - 172' (?) Same as above but with ~ 2% ragged biotite in addition to chlorite described above slightly mineralized with hematite and trace chalcopyrite ~ 160'.  
1" breccia with porphyry fragments ~ 165'.

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Hole 21

Depth 247 ?

- 0 - 30 $\frac{1}{2}$ ' ? Very heterogeneous rock as Hole 23.  
Mostly breccia (probably IM).
- 30 $\frac{1}{2}$ ' - 33' F.g. greenish dyke, poor core.
- 33' - 47' As start
- | 47' - 96 $\frac{1}{2}$ ' F.g. cc(?) dyke, split core, breccia in part, few  
small patches specularite, fairly light color except  
near mineralization.
- 82' - 84 $\frac{1}{2}$ ' Chalcopyrite with specularite, little  
magnetite. This is probably a breccia zone in  
dyke with extreme alteration.
- 96 $\frac{1}{2}$ ' - 136 $\frac{1}{2}$ ' Missing Very heterogeneous rock as start  
138'-146', 151'-156', 169'-174', 182' -207' Zones  
of brecc. mud and shearing  
@ 188' recognizable piece of dyke, probably small,  
also 232'?

Hole 23

- 0 - 18' overburden Depth 140' (?)
- 18' - 140' (?) Very heterogeneous, very highly altered rock  
mostly dark, as Hole 25. (probably IM)
- 24' (?) - 54' Split core High grade (5%+?) from  
32'-35' with trace chalcopyrite several other  
places from 24'-54'. Mineralization heavy in  
32'-35' section with chalcopyrite specularite  
and little magnetite. No Chalcocite seen.
- 69'-76' Breccia highly altered may be finer grained  
rock as seen in Hole 25.

Hole 24

Depth 76'

- 0 - 14' overburden
- 14' - 76' Peridotite typical m.g. better core than Hole 26.  
Total core. Mostly fragments. Total ~ 39'.

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Hole 25

- 0 - 13' overburden Depth 180'
- 13' - 89' As Hole 27, but better core. Rock may be slightly fresher. Definitely more magnetite than Holes 27 and 28, all as c.g. disseminated and as stringers, probably IM diorite.
- 30'-75' Broken core mud breccia probably fault.
- 89' - 104½' | F.g. grey green rock probably cc dyke, texture is very indistinct.
- 89'-90' Breccia with minor pyrite
- 91½'-96' All breccia - starts as crush breccia with well rounded rubble breccia toward 96'.
- 96'-99' Mostly mud
- 99'-100' Breccia
- 100'-101' Mud
- 101' - 103 Breccia
- 103'-104½' Mostly mud
- | 104½' - 112 As start IM diorite
- 112' - 119' Cc Dyke? as 89-104½ Very indistinct, texture may be porphyritic.
- 119' - 180' As start IM diorite
- 128'-135' Sheared mud, etc.

Hole 26

- 0- 19' overburden Depth 88'
- 19' - 51' 10' of fragments and mud of dark green m.g. peridotite (picrite)
- | 51' - 53' Diorite (?) highly altered maroon colored, may be cc diorite type dyke(?) with disseminated f.g. chalcopyrite
- 53' - 66½" As 19-51 (5' in box)
- 66½' - 67½' Possible dyke as 51-53 also chalcopyrite  
Few fragments with distinct cc texture @ 68.9.
- 67½' - 88' 10' fragments and mud of dark green m.g. peridotite.



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Hole 27

Depth 27'

- 0 - 8' overburden
- 8' - 37' All very heterogeneous rock as Hole 28, predominantly dark. c.g. product of extreme alteration with numerous chloritic shears and several breccias. Rock is difficult to describe, probably IM diorite.

Hole 28

- 0 - 12' overburden Depth 100'?
- ~12' - 42' Gouge - chlorite heterogeneous coarse IM(?) diorite breccia, all poor core, fragments and mud. Weathered to about 20'.
- 42' - 48' Probably dyke f.g. cc diorite, mostly poor core, color from pink to white, no chlorite.
- 48' - ~100' IM diorite as start, but better core, much coarse grained dark alteration, little light alteration also.

Hole 29

- 0 - 27' overburden Depth 265'
- N 27' - ~48' About 10' fragments mud etc. probably mostly peridotite probably sheared.
- 48' - 235½' More than 50% distinct rounded breccia diorite pegmatitic diorite, etc. Much chlorite, core broken but very little mud, as most breccia is healed. No apparent alignment.
- 179'-180' Chalcopyrite, pyrite, specularite, calcite, possibly covellite 3% Cu. split
- 230'-232' Mud, chlorite.
- 235½' - 243½' F.g.-m.g. pinkish, porphyritic cc dyke.
- 243½' - 265' As start, mostly good core, dark heterogeneous IM diorite (?).

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Hole 30

Depth 217½'

0 - 15' overburden

~15' - 52½' Very heterogeneous rock, mostly dark, highly altered, few patches distinctly diorite. Several places almost pegmatitic with coarse white feldspar and c.g. hornblende all cut by numerous fractures much magnetite in darker c.g. rocks. IM diorite?

→ | 52½' - 55' Bright pink f.g. porphyritic cc dyke with xenos of diorite.

55' - 88½' As start

→ | 88½' - 96' F.g. porphyry pinkish cc dyke as other dyke but fresher. Other dykes 2" wide @ 161', 1½" @ 161½'.

96' - 190½' As start  
Faulting, breccias, occasional gouge from 98'-198' especially 115'-159½', much core lost, much dark breccia.

→ | 190½' - 217½' F.g. cc diorite ctct. faulted.  
Faulting continues to 198' as noted above.  
Rock is quite pink, bleached in some places with occasional xenos of c.g. diorite.

From ~ 214½' to end, f.g. grey rock in sharp ctct. (30°) with slightly coarser pink rock. This may be finer grained grey dyke.

Hole 31

0 - 27' overburden

Depth 102'?

27' - 102' M.g. IM diorite alteration, brecciation, etc. is so intense in this hole that rock is difficult to identify.

27' - 59' No core, fragments bleached diorite?

59' - 102' Core fragments and mud predominant direction shearing is 45° - 50°.

83' - 85½' Pink alternate (50°) numerous stringers magnetite.

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Hole 32

Depth 127'

0 - 20' overburden

20' - 127'

All breccia, mylonite, etc. All good core, no mud, all brecc's are well healed. Brecc. fragments are predominantly dark, probably peridotite (heavy) with few rather distinct xenos of diorite. Alteration intense, mostly chloritic. Several dykes of f.g. pink porphyry with vague texture few white phenos 3 mm.  
Dykes 77'-78', 84'-85'

Occasional stringer of disseminated magnetite in dark rock.  
Few places are distinctly magnetic.  
There may be few more diorite fragments in lower part of the hole.

This zone may be like that seen between Cache Creek and peridotite at Cardo Hill.

Hole 33

Depth 101'

0 - 8' Overburden

8' - 101' M.g. IM diorite, minor amount of mottled brown alteration showing biotite.

8' - 20' Weathered fragments  
44' - 60½' Several breccia and gouge zones particularly 40'-47', 55'-60½'  
70' - 75½' Broke core mild shearing  
76' - 86' Much mud, broken core.  
95' - 101' Less than an alteration, fresh diorite with biotite.

Hole 34

Depth 174'

0 - 14' overburden

14' - 174' M.g. IM diorite

33'-37' Severe shearing, gouge, etc.  
37' - 67½' Less severe shearing, no attitude  
67½'-85' Probably intense shearing  
70'-135' Split core, no mineralization seen  
@135' Mud seam  
140-150' Several small shears.

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Hole 35

Depth 160'

0 - 10' overburden

10' - ~160' M.g. IM diorite, fair core, more than average alteration varies from bleaching to brown mottling.

65' - 69' Shearing, also 88'-90', 115'-126½'.  
Breccias 126½'-127', 128'-133'  
Xeno @ 140'  
Breccias are well healed, both crush and rubble.

Hole 36

Depth 169'?

0 - 12' overburden

12' - 144' M.g. IM diorite, alteration about average weathered to ~20'.

26'-33' Probably fault fragments of core and mud  
39½'-45' Much core missing, crush breccia, with  
          nylonite 41½'-45'  
74'-103' Shearing, breccias, mud all poor core  
110' - ~126' " " " " " "  
139'-144' " " " " " "

JMC 60-104 pink hb P at 157'  
Breccias 144'-163' ✓  
157'  
163'-169' ✓  
- fine pink

144'-163' F.g. cc diorite, mostly quite dark pink  
163'-169' M.g. IM diorite, good core.

Hole 37

Depth 144'

0 - 144' M.g. IM diorite  
Mostly good core

64'-67' Minor shearing.

Hole 38

Depth 168'

0 - 15' overburden

~15' - 168' M.g. diorite mostly good core, alteration average, pink to bleached occasional dark chlorite bands (average 80°) especially 106'-115' also 138-145'

77½'-89½' Fault zone, mud, fragments, much lost core, also 25'-35½', 47'-49½', 56'-63'.

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Hole 39

Depth 203'

0 - 7' overburden

7' - 39' M.g. IM diorite, same as Hole 40, including alteration.

39' - 42' F.g. cc dyke, dark pink color, rock is porphyritic very close packed stubby feldspar. Lower contact sharp low angle. No mafic minerals.

42' - 134' M.g. IM diorite as start

36½' 1" gouge  
@ 78' 1" of dyke as 39'-42'

78'-90' Much coarse breccia mostly crush type with few rounded fragments.

96'-99' Shearing at 45°

99'-122' Several intensely bleached zones

134' - 155½' F.g. to m.g. cc diorite  
Bottom ctct. shows 1" magnetite, hematite, mineralization

134' - 135' Breccia, well healed, well rounded fragments

134' - 139½' Quite red

155½' - 167' M.g. IM diorite, as at start

167' - 168' Dyke cc diorite, tight contacts  $\sqrt{45^\circ}$

168' - 203' M.g. IM diorite, as above

171' - 174' Numerous stringers magnetite, some brecc.  $\sqrt{60^\circ}$

176' - 203' Bleaching, sev. breccias, alteration.

Hole 40

Depth 204'

0 - 202' M.g. IM diorite, mostly pale greenish in color, some pink feldspar even in green parts. Alteration is quite variable, much of core being mottled. Mostly good core. Brown mottled alteration shows biotite.

65½' - 70' missing

75' - 95' Several small brecc's

107' - 108½' Breccia, little gouge

167½' - 168½' " " "

172½' - 178' Pink feldspar alteration more intense

@ 195½' 2" Gouge.

202' - 204' F.g. to m.g. cc diorite, no gouge or brecciation on contact.

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Hole 41

Depth 157'

0 - 33' overburden

33' - 111' M.g. IM diorite

33' - 42' Fair weathered core

42' - 48' Shearing

48' - 99' Very intense shearing

71 $\frac{1}{2}$ ' - 90', 96' - 98' Distinct breccia.

111' - 130' F.g. cc diorite

130' - 157' M.g. IM dior  
All shearing ends @ 141'.

Hole 42

0 - 6' overburden Depth 239'

6' - 120' M.g. IM diorite, as hole 20, probably slightly less altered. Little ragged biotite throughout. Some places show vague dark reddish staining around biotite, grains. Good core, less fractured.

114' - 120' Broken core shearing mud breccia.

120' - 148' F.g. to m.g. cc diorite as described in Hole 43, few grains may be hornblende. Both contacts sheared especially upper. No biotite.

148' - 160' M.g. IM diorite as above. Fault contact at bottom.

160' - 177' CC diorite. Quite pink to 175' Pale grey 175' - 177'. Lower contact sheared, brecciated.

177' - 239' M.g. IM diorite as start

177' - 187' (?) Crush breccia, epidote, little chlorite.

200' - 239' " " " " "

especially past 210'. Strong set fractures at N25°.

VP-67-222/165  
VP-67-23 @ 176

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Hole 43

- 0' - 30½' overburden Depth 185'
- 30½' - 142½' M.g. even grained IM diorite. Least altered part has plagioclase in pale pink matrix as Hole 20. Chlorite alteration probably more intense here.
- 30½' - 122' all sheared, altered with much mud and several distinct breccias. Shearing with much chlorite probably @ 30°.
- 122' - 142½' Better core, much less shearing
- 142½' - 161' CC diorite f.g. to m.g. even textured rock, pale pinkish in color, definitely finer than above. Least altered portions show stubby plagioclase grains in pink matrix with chloritized mafics as above. Composition probably 60% pink matrix, 25% plagioclase grains, 15% chlorite and minor f.g. magnetite. Chlorite more often as long laths pass after hornblende. Contacts sharp but sheared with chlorite.
- 161' - 184' IM diorite as at start.
- 161'-174' sheared, broken mud, etc.  
lost core ~170'-174'

Hole 47

- 0 - 21' overburden Depth 95-100'?
- 21' - 95' M.g. IM diorite alteration about average, mafics to chlorite, mostly broken core.  
Mud and poor core, 25½'-29'  
At 60' abrupt change - core looks weathered, numerous chloritic slips from 75' to end. Very poor core, probably in sheared zone, much chlorite, etc.