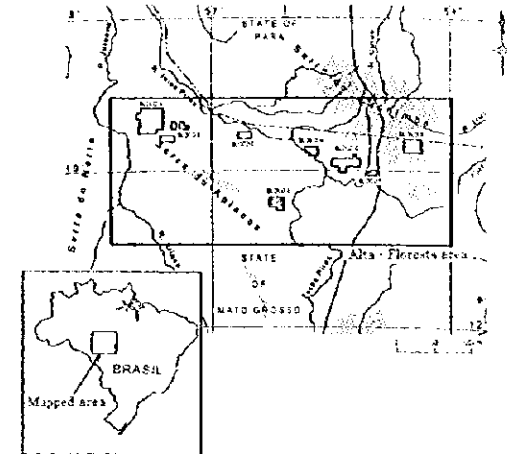
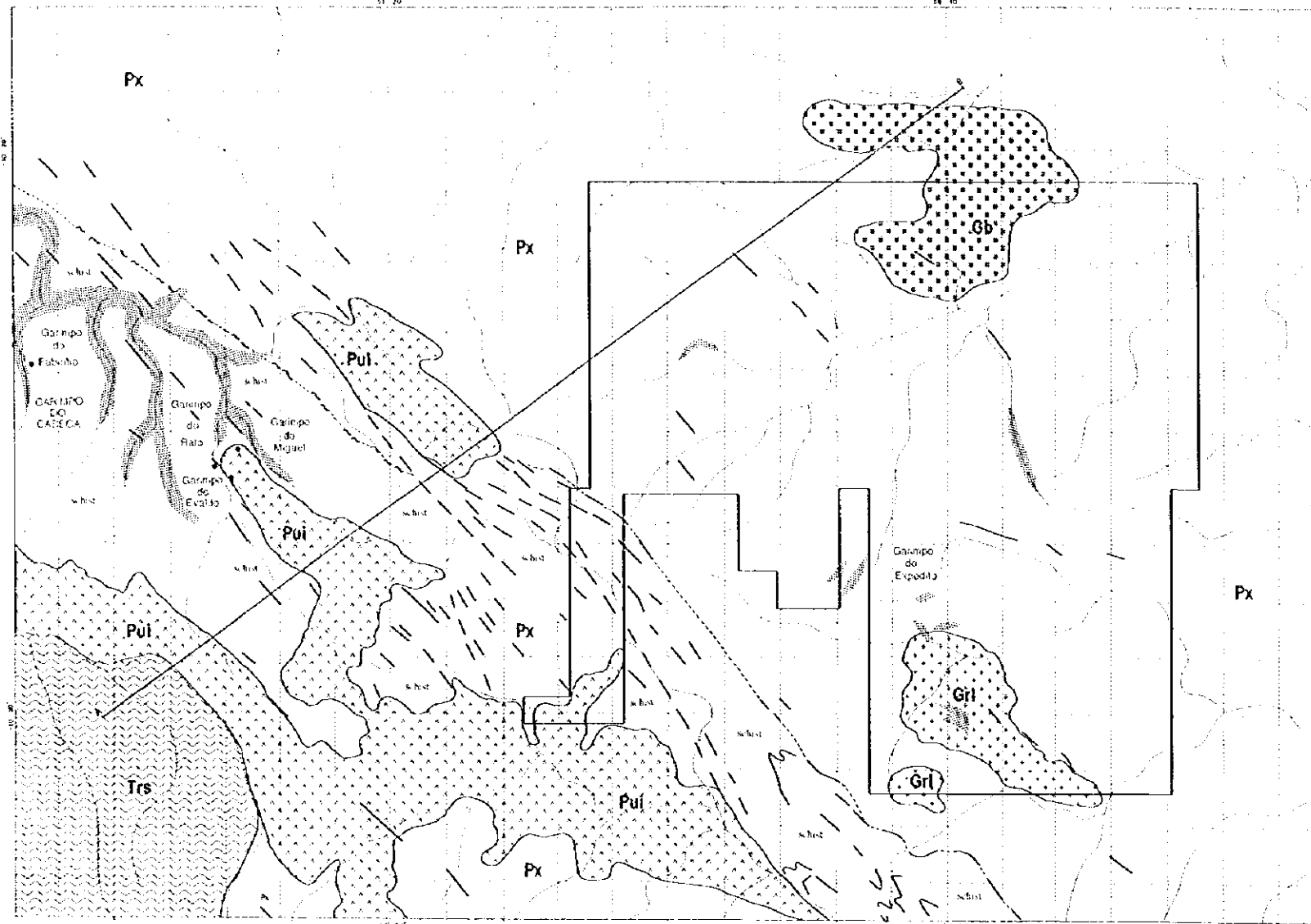
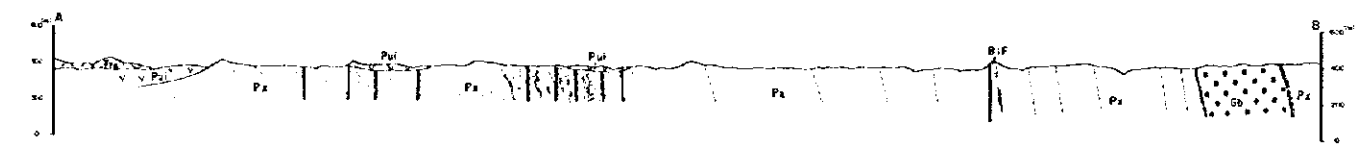


PLATES

REPORT ON THE MINERAL EXPLORATION IN THE ALTA FLORESTA AREA, FEDERATIVE REPUBLIC OF BRAZIL PHASE I Geological, profile and mineral location map of Block E



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METAL MINING AGENCY OF JAPAN
FEBRUARY, 1999



SYNTHETIC STRATIGRAPHIC COLUMN OF THE STUDY AREA

UNIT	THICKNESS (m)	DESCRIPTION	REMARKS
Px	100-150	Arenaceous sandstone and shale	Extensive
Pul	50-100	Siltstone and claystone	Interspersed with Px
Trs	20-50	Tuffaceous sandstone	Thin beds
Gb	10-20	Granite	Small outcrops
Gri	5-10	Gneiss	Small outcrops

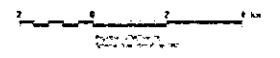
Scale: 1:50,000
 Date: February 1999
 Project: Mineral Exploration in the Alta Floresta Area, Brazil
 Authors: JICA/MMAJ

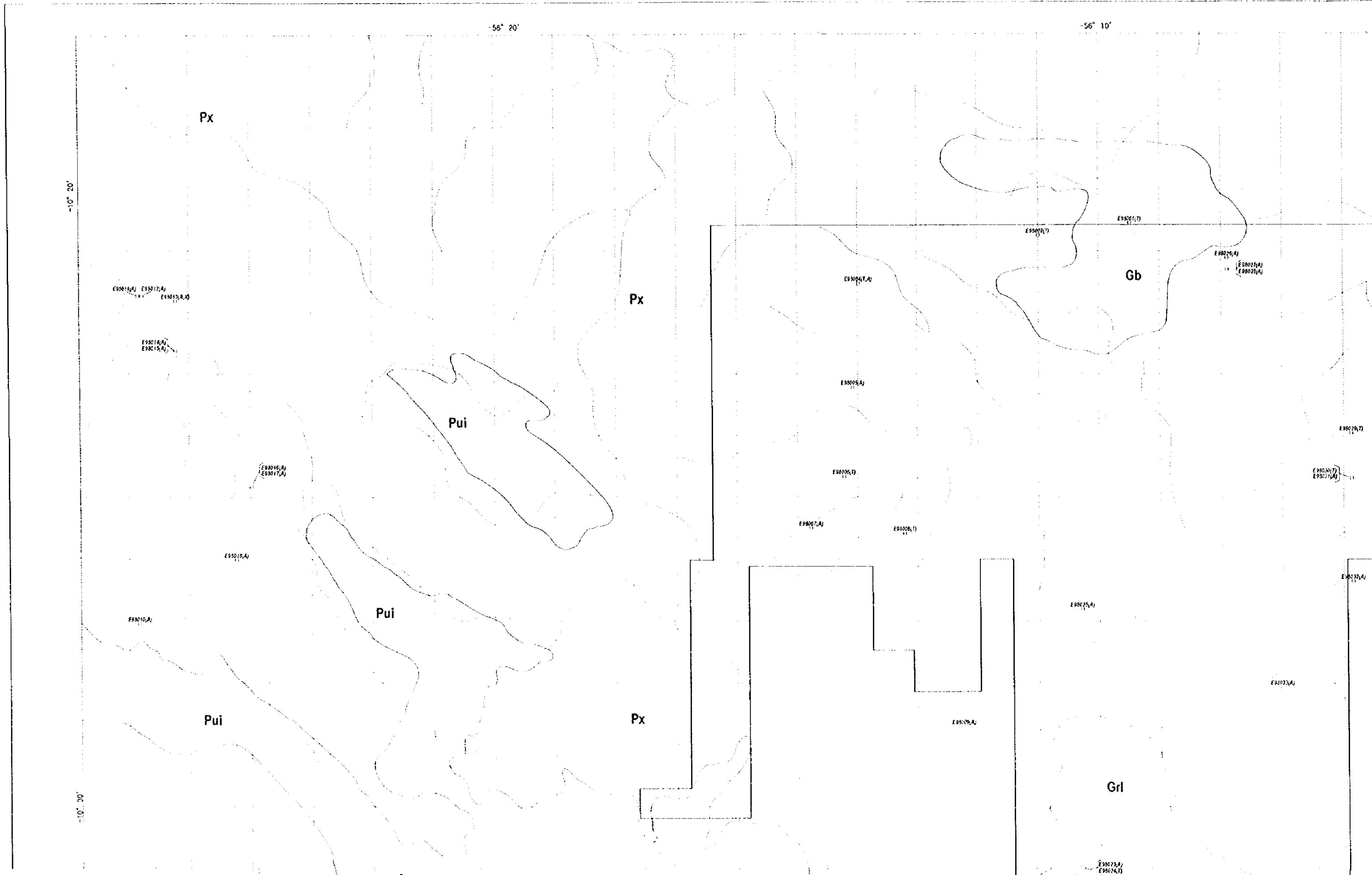
LEGEND

Px: Arenaceous sandstone and shale
 Pul: Siltstone and claystone
 Trs: Tuffaceous sandstone
 Gb: Granite
 Gri: Gneiss

Fault
 Fault zone
 Fault trace

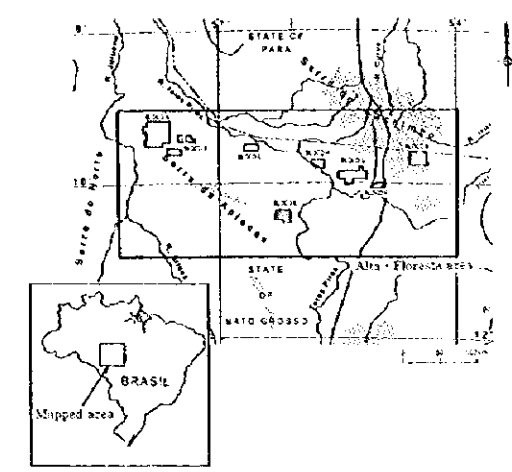
Mineral point
 Mineral zone





REPORT ON THE MINERAL EXPLORATION
IN
THE ALTA FLORESTA AREA,
FEDERATIVE REPUBLIC OF BRAZIL
PHASE I

Sample location in Block E



JAPAN INTERNATIONAL COOPERATION AGENCY
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FEBRUARY, 1999



Projection: UTM, Zone 21J
Spheroid: New International 1967

LEGEND

Residual Sediment		Pre-Uatuma Granite	
Trs	Partially lateritic alluvial - colluvial sediment	Gr I	Gr I: Adanellite, granodiorite, hornblende biotite granite
Basic Intrusive		Ductile Shearing Zone	
Gb	Gabbro		Quartz mylonite, micro breccia and ultramylonite
Uatuma Super-Group		Xingu Complex	
Formation	Pui	Px	Augen gneiss, granite gneiss, metabasite, granodiorite, BIF, quartzite, calc-silicate, schists
	Rhyolite, rhyodacite, dacite, pyroclastics, quartzite		
Sample location			
	A1010		Analyzed sample
	T		Thin section
	P		Polished section
	X		X-ray diffraction analysis
	A		Ore assay
	F		Fluid inclusion



-10° 20'

-10° 30'

E98011(A) E98012(A) E98013(A)

E98014(A) E98015(A)

E98016(A) E98017(A)

E98018(A)

E98019(A)

E98020(A)

E98021(A) E98022(A)

E98023(A)

E98024(A) E98025(A)

E98026(A)

E98027(A)

E98028(A)

E98029(A)

E98030(A)

E98031(A)

E98032(A)

E98033(A)

E98034(A)

E98035(A) E98036(A) E98037(A) E98038(A)

E98039(A) E98040(A)

E98041(A)

E98042(A)

E98043(A)

Pui

Pui

Pui

Trs

Px

Px

Px

Px

Pui

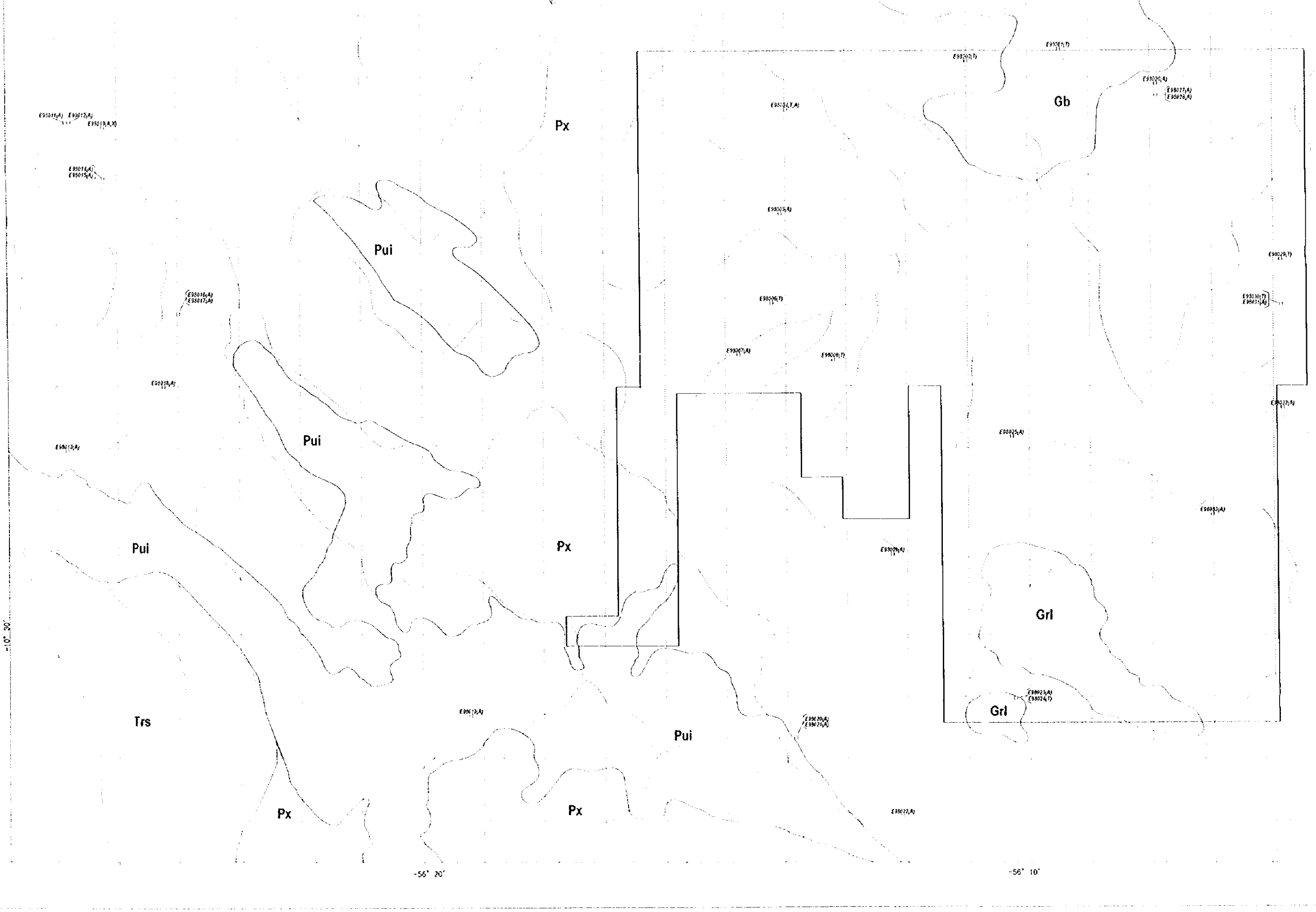
Grl

Grl

Gb

-56° 20'

-56° 10'



Px

Gb

E9307(A)

E9307(D)

E9307(D)

E9307(A)
E9307(A)
E9307(A)

E9307(A)

E9307(D)

E9307(D)
E9307(A)

E9307(A)

E9307(D)

E9307(A)

E9307(A)

Px

Grl

E9307(A)

Grl

E9307(A)
E9307(A)

Pui

E9307(A)
E9307(A)

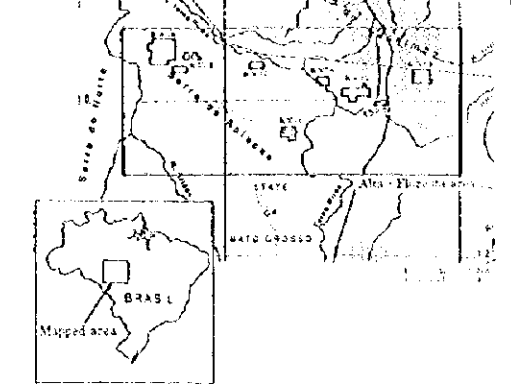
Px

E9307(A)

-56° 10'

-10° 20'

-10° 30'



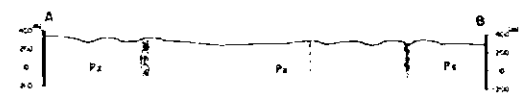
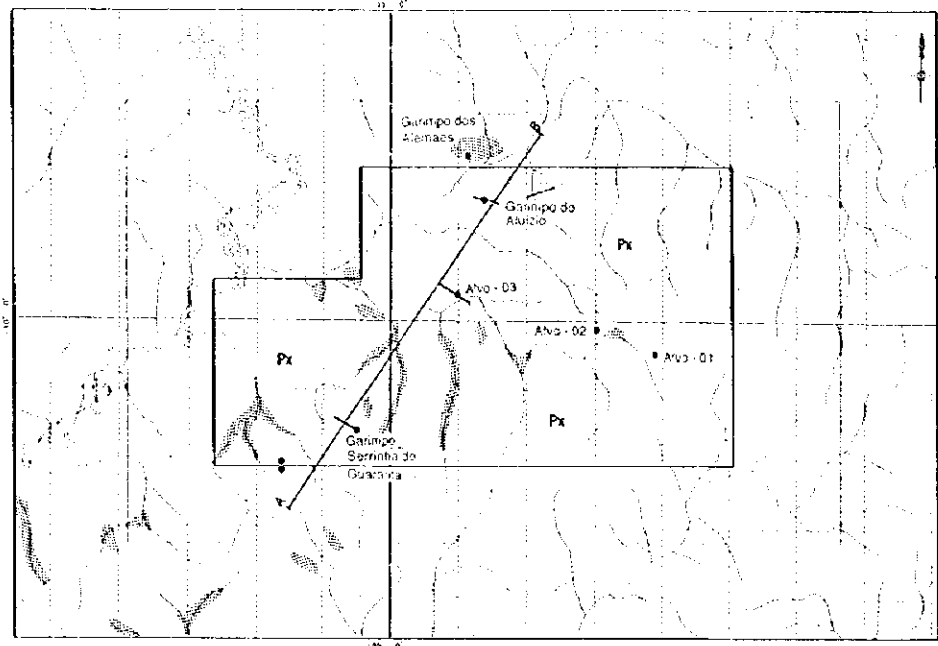
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METAL MINING AGENCY OF JAPAN
FEBRUARY, 1999



Proj. Syst. UTM, Zone 21j
Spheroid: New International 1967

LEGEND

Residual Sediment		Pre-Uatuma Granite	
Trs	Partially lateritic alluvial-colluvial sediment	Grl	Gr 1: Adamellite, granodiorite, hornblende biotite granite
Basic Intrusive		Ductile Shearing Zone	
Gb	Gabbro		Quartz mylonite, muscovite breccia and ultramylonite
Uatuma Super-Group		Xingu Complex	
Pui	Rhyolite, rhyodacite, diorite, pyroclastics, quartzite	Px	Amphibole gneiss, granite gneiss, metabasite, granodiorite, BIF, quartzite, calc-silicate, schists
Sample location			
		A1010	Analyzed sample
		T	Thin section
		P	Polished section
		X	X-ray diffraction analysis
		A	Ore assay
		F	Fluid inclusion



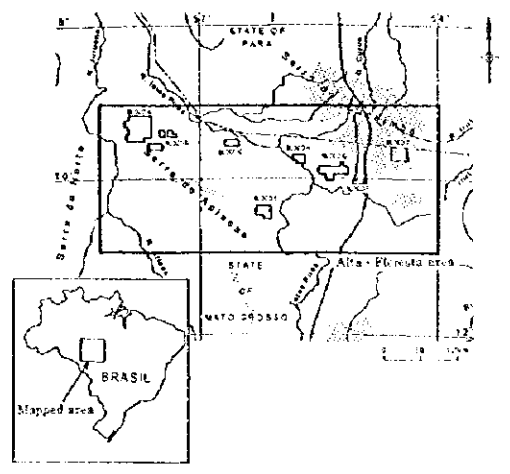
LEGEND

- Dotted line**
Dz: Dotted line (with wavy lines) - Dotted line (with wavy lines)
 - Explosion**
Px: Explosion symbol (with wavy lines) - Explosion symbol (with wavy lines)
 - Profile**
---: Profile line
- - -: Profile line
- - -: Profile line
 - Mineral**
●: Mineral (with wavy lines) - Mineral (with wavy lines)
■: Mineral (with wavy lines) - Mineral (with wavy lines)
- Scale: 0 2 4 km

Plate II-13

REPORT ON THE MINERAL EXPLORATION IN THE ALTA FLORESTA AREA, FEDERATIVE REPUBLIC OF BRAZIL PHASE I

Geological, profile and mineral location map of the Block F



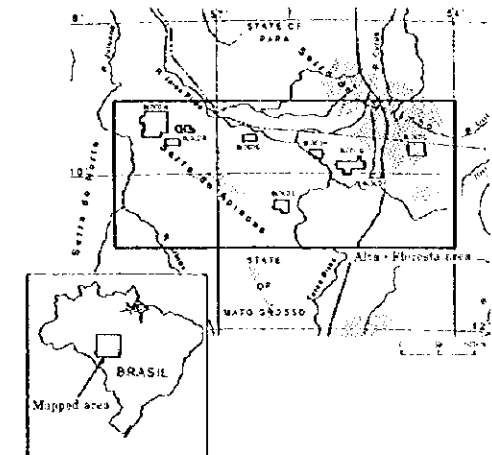
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STRATIGRAPHIC COLUMN OF THE SURVEY AREA

UNIT	THICKNESS	DESCRIPTION	MINERAL	REMARKS
P5	100m	...	...	...
P4	100m	...	...	...
P3	100m	...	...	...
P2	100m	...	...	...
P1	100m	...	...	...

REPORT ON THE MINERAL EXPLORATION
IN
THE ALTA FLORESTA AREA,
FEDERATIVE REPUBLIC OF BRAZIL
PHASE I

Sample location in Block F



JAPAN INTERNATIONAL COOPERATION AGENCY
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FEBRUARY, 1999



Projection: UTM, Zone 21
Spheroid: New International 1967

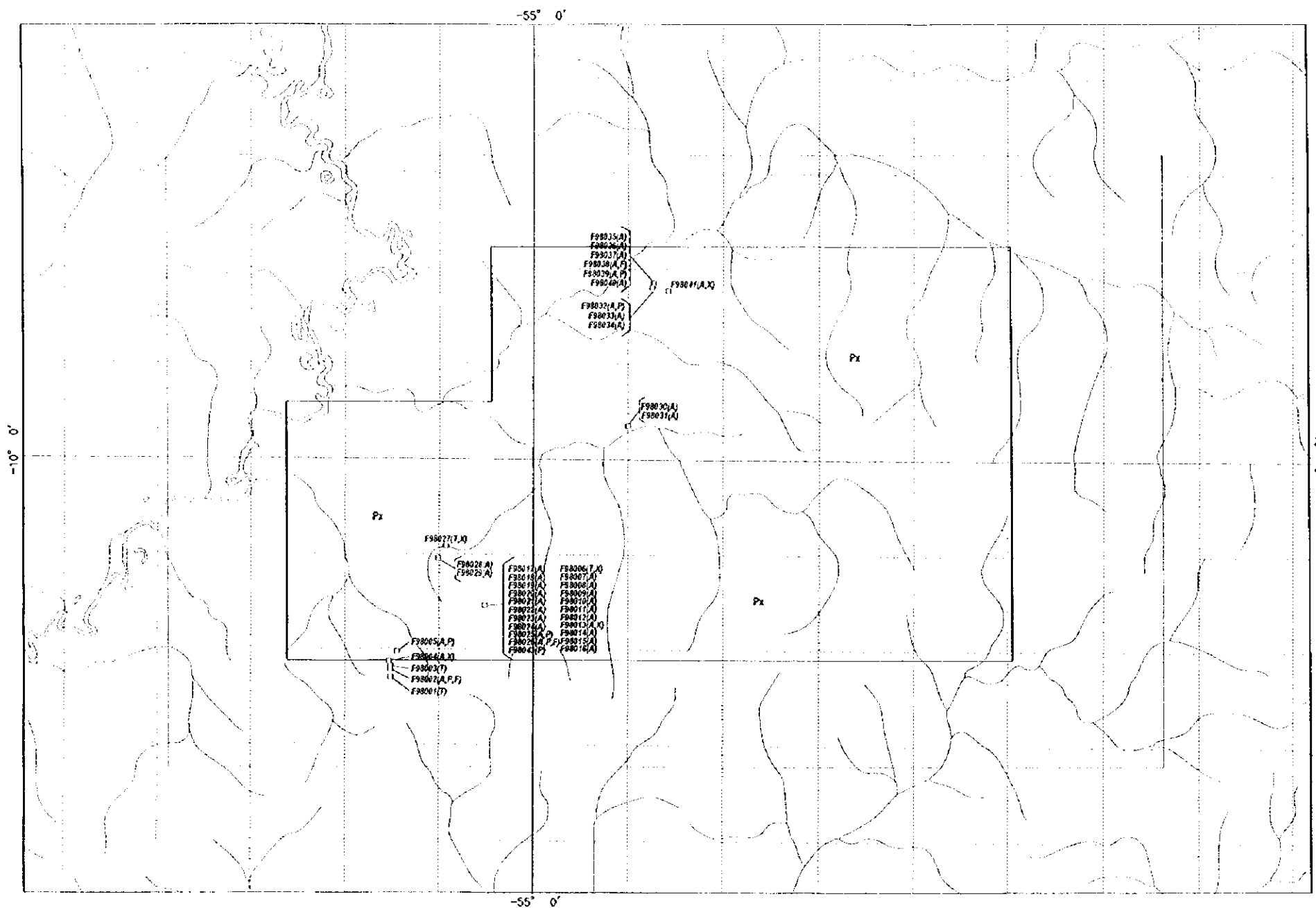
LEGEND

Xingu Complex

Px Augen gneiss, granite gneiss,
metabasite, granodiorite, BIF,
quartzite, calc-silicate, schists

Sample location

A1010 Analyzed sample
() Thin section
T Thin section
P Polished section
X X-ray diffraction analysis
A Ore assay
F Fluid inclusion

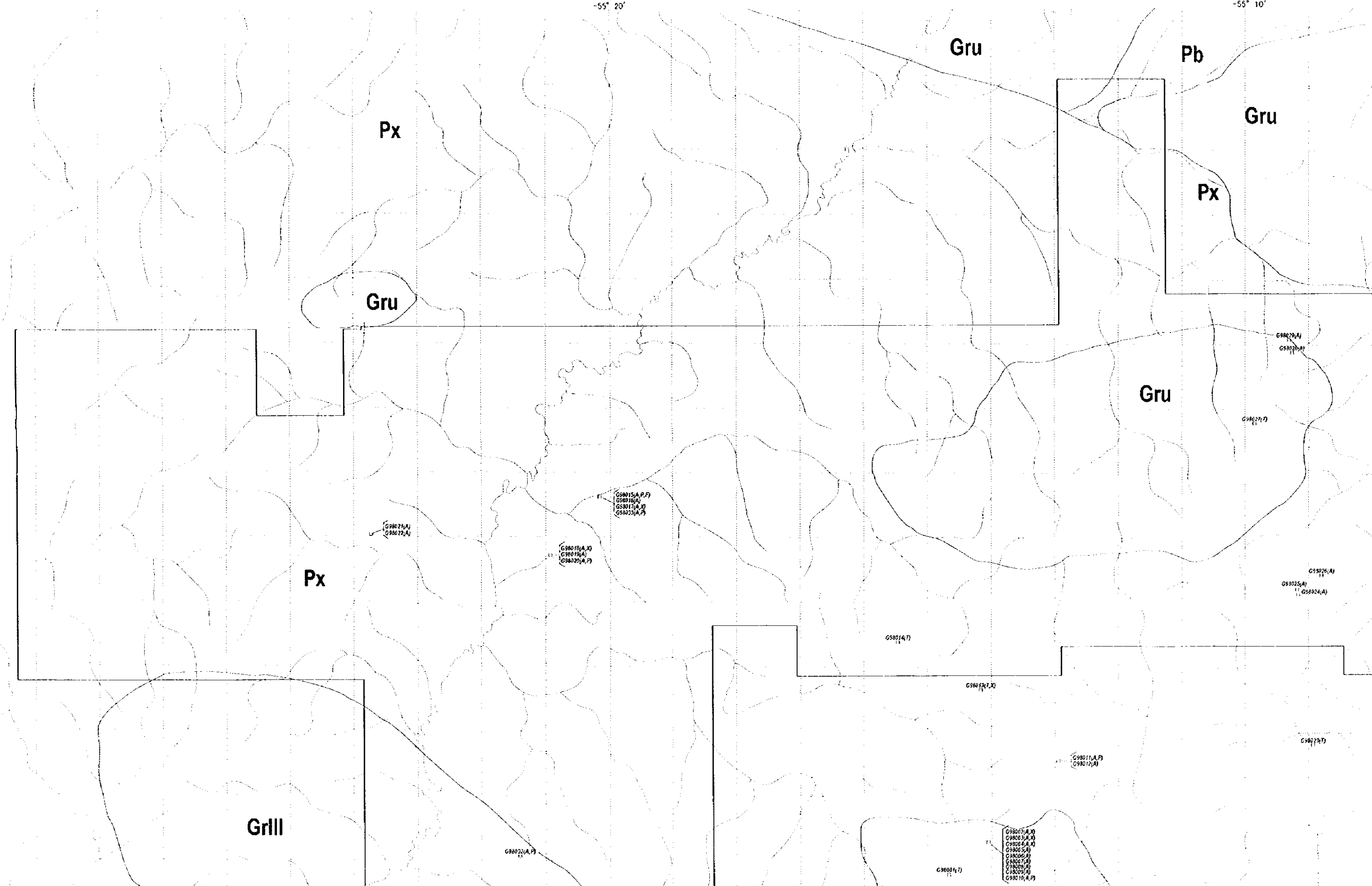


-55° 30'

-55° 20'

-55° 10'

-9° 50'



REPORT ON THE MINERAL EXPLORATION
IN
THE ALTA FLORESTA AREA,
FEDERATIVE REPUBLIC OF BRAZIL
PHASE I

Sample location in Block G

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FEBRUARY, 1999

Projection: UTM Zone 21J
Spheroid: Rosa Sattelmair of 1967

LEGEND

-9° 50'

Gru

Gru

G9825(A)
G9826(A)

G9827(A)

G9815(A,P,F)
G9816(A)
G9817(A,X)
G9833(A,P)

G9821(A)
G9822(A)

G9818(A,X)
G9819(A)
G9820(A,P)

Px

G9825(A)
G9826(A)

G9814(A)

G9832(A,X)

G9823(A)

G9811(A,P)
G9812(A)

GrIII

G9837(A,P)

G9802(A,X)
G9803(A,X)
G9804(A,X)
G9805(A)
G9806(A)
G9807(A)
G9808(A)
G9809(A,P)

G9801(A)

Px

G9821(A,X)

G9830(A)

GrII

GrI

GrI

Beneficial

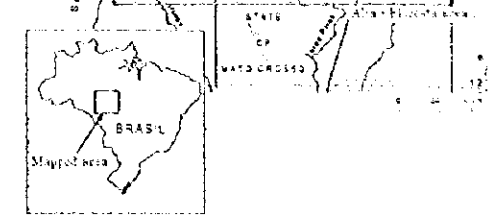
Utama
Teluk Pines
Gante

-10° 0'

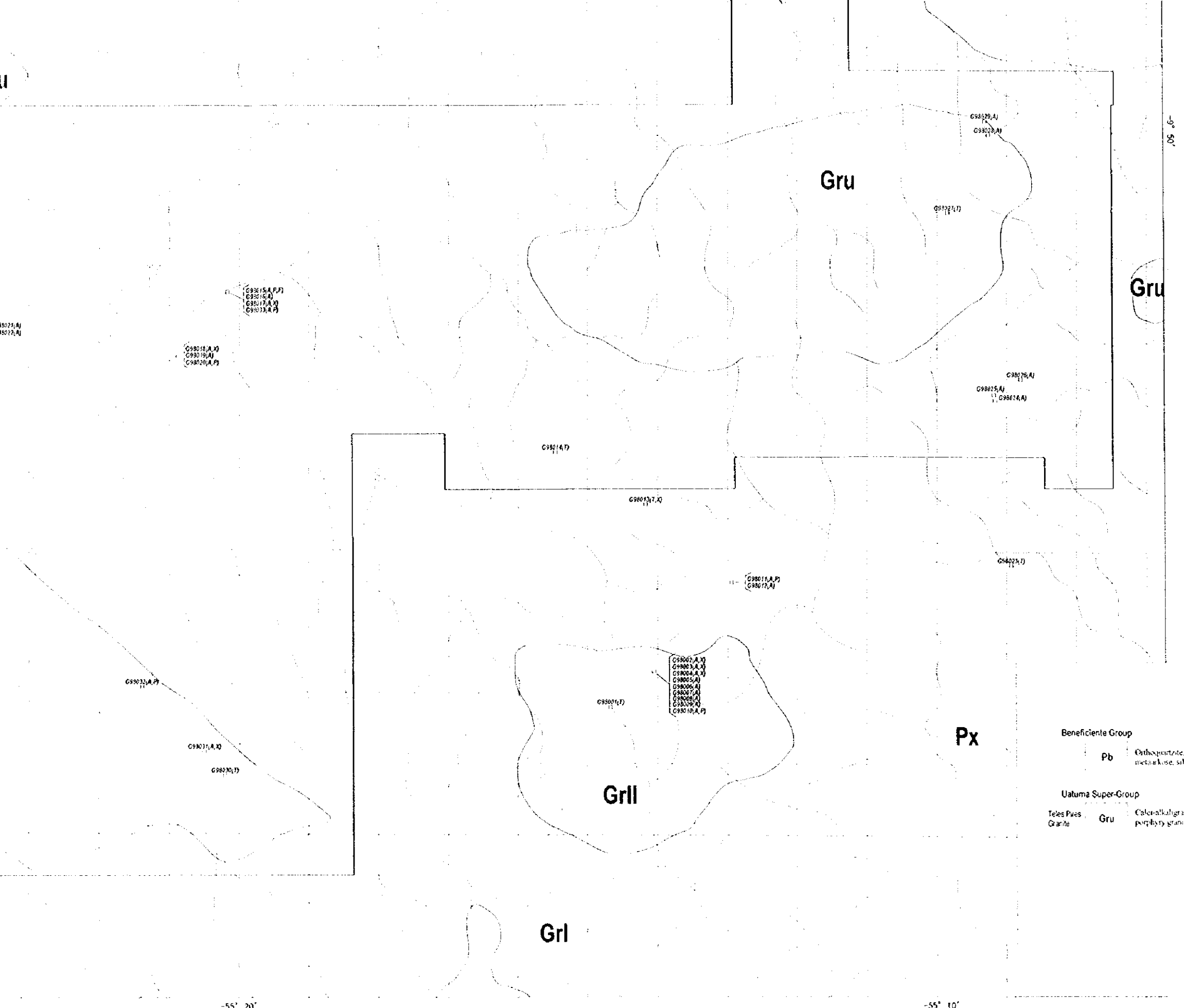
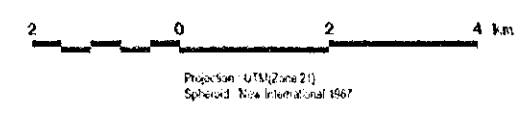
-55° 30'

-55° 20'

-55° 10'



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 FEBRUARY, 1999

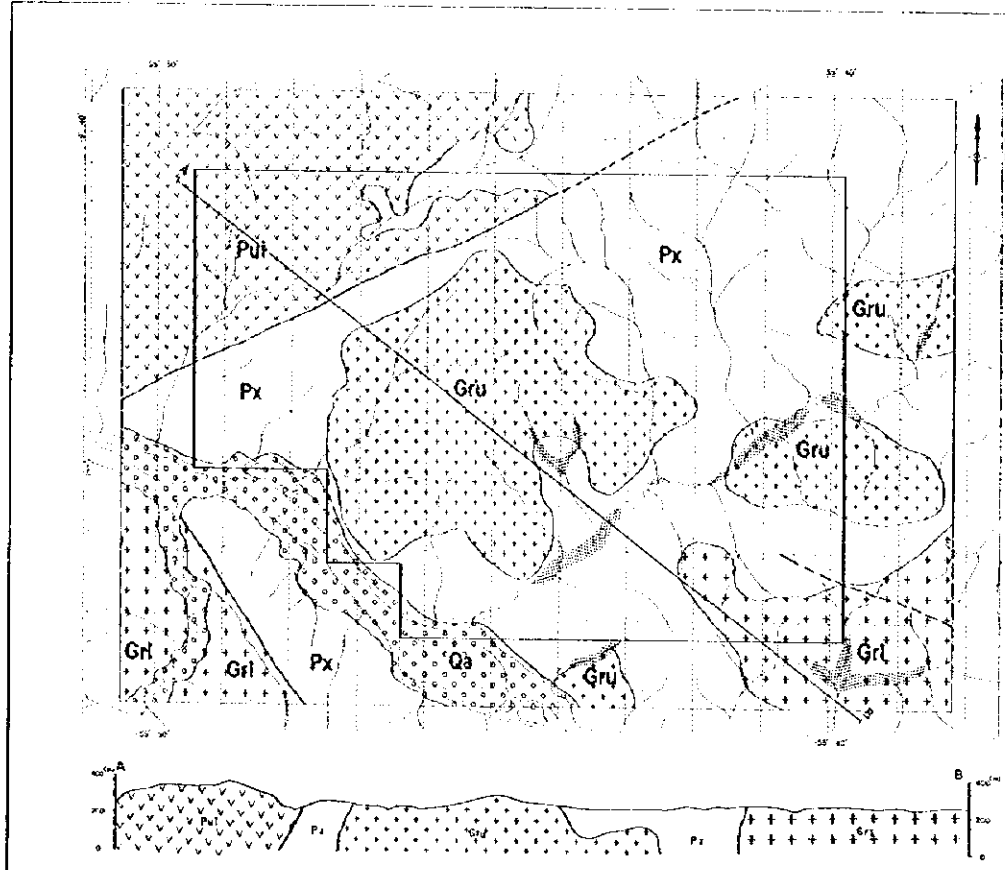


LEGEND

- | | |
|--|---|
| Beneficiaria Group | Pre-Uatuma Granite |
| Pb Orthoquartzite, metasediments, meta-kose, siltite, argillite | Gr I Gr I: Adirillite, granodiorite, hornblende biotite granite |
| Uatuma Super-Group | Gr II Gr II: Two mica granite, biotite muscovite granite, hydrothermal granite |
| Teles Pires Granite | Gr III Gr III: Syenitic biotite granite, alkali granite |
| Gru Calc-alkaligranite, biotite granite, porphyry granite, adirillite | Xingu Complex |
| | Px Aegirine gneiss, granite gneiss, metabasite, granodiorite, BIF, quartzite, calc-silicite, schists |
| | Sample location |
| | A100 Analyzed sample |
| | T Thin section |
| | P Polished section |
| | X X-ray diffraction analysis |
| | A Ore assay |
| | I Fluid inclusion |

-55° 20'

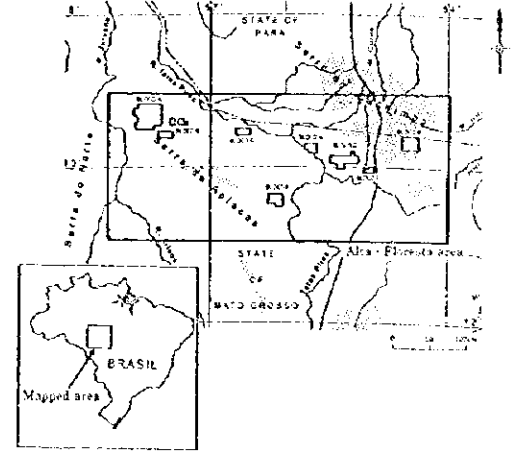
-55° 10'



REPORT ON THE MINERAL EXPLORATION
IN
THE ALTA FLORESTA AREA,
FEDERATIVE REPUBLIC OF BRAZIL
PHASE I

Plate II-17

Geological, profile and mineral location
map of the Block H

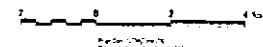


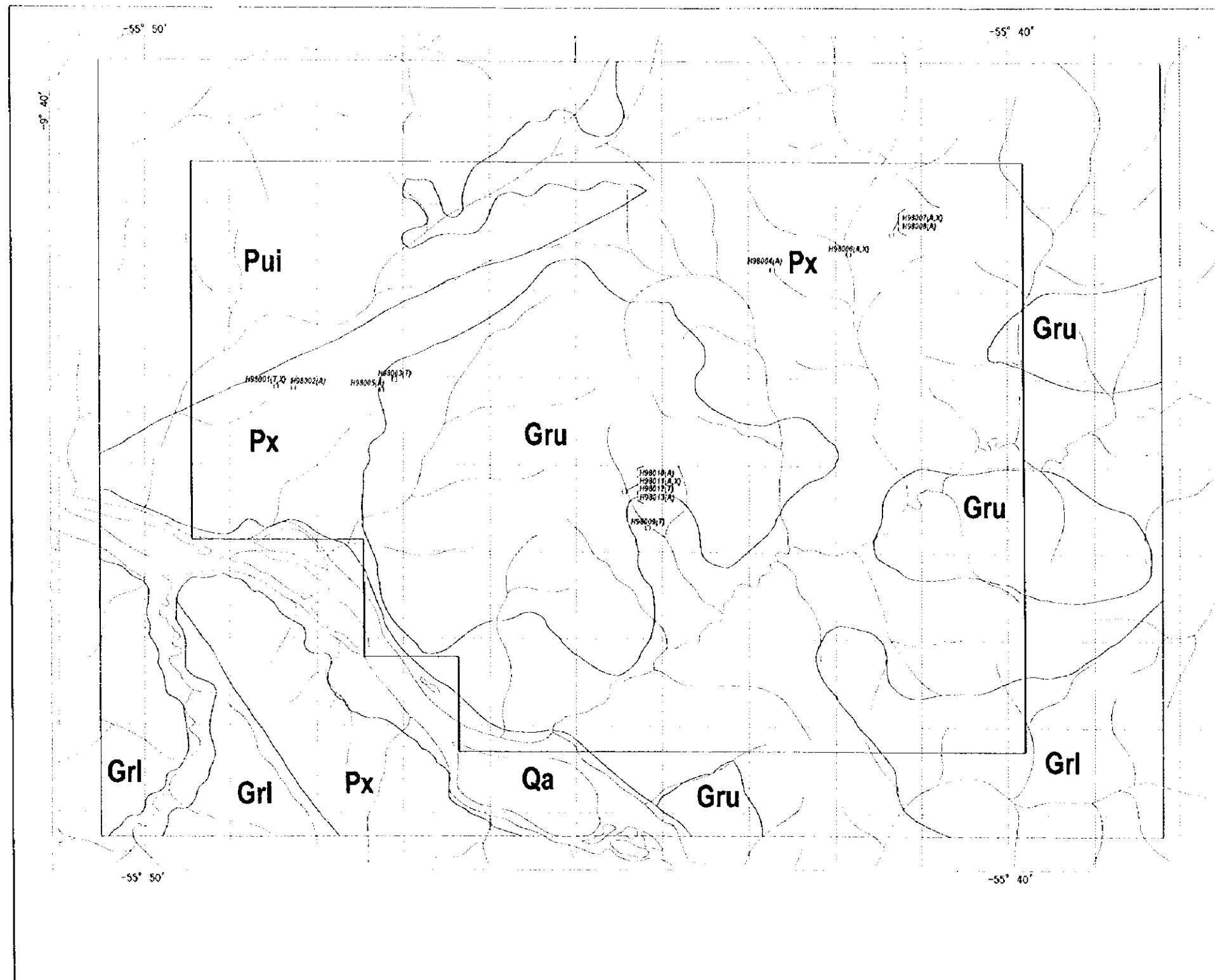
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FEBRUARY, 1999

LEGEND

<p>Neogene Grt</p> <p>Quaternary Qa</p> <p>Palaeogene Px</p> <p>Proterozoic Gru</p>	<p>Quaternary Qa</p> <p>Palaeogene Px</p> <p>Proterozoic Gru</p>	<p>Quaternary Qa</p> <p>Palaeogene Px</p> <p>Proterozoic Gru</p>	<p>Quaternary Qa</p> <p>Palaeogene Px</p> <p>Proterozoic Gru</p>
---	--	--	--

UNIT	SYMBOL	DESCRIPTION	AGE	REMARKS
Qa	Stippled	Quaternary alluvium	Q	
Px	Diagonal lines	Palaeogene igneous rocks	P	
Gru	Grid pattern	Proterozoic gneiss	G	
Grt	Vertical lines	Neogene granite	G	

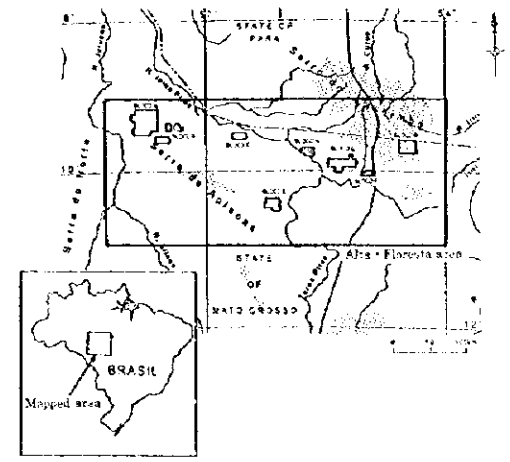




REPORT ON THE MINERAL EXPLORATION
IN
THE ALTA FLORESTA AREA,
FEDERATIVE REPUBLIC OF BRAZIL
PHASE I

Plate II-1-8

Sample location in Block H



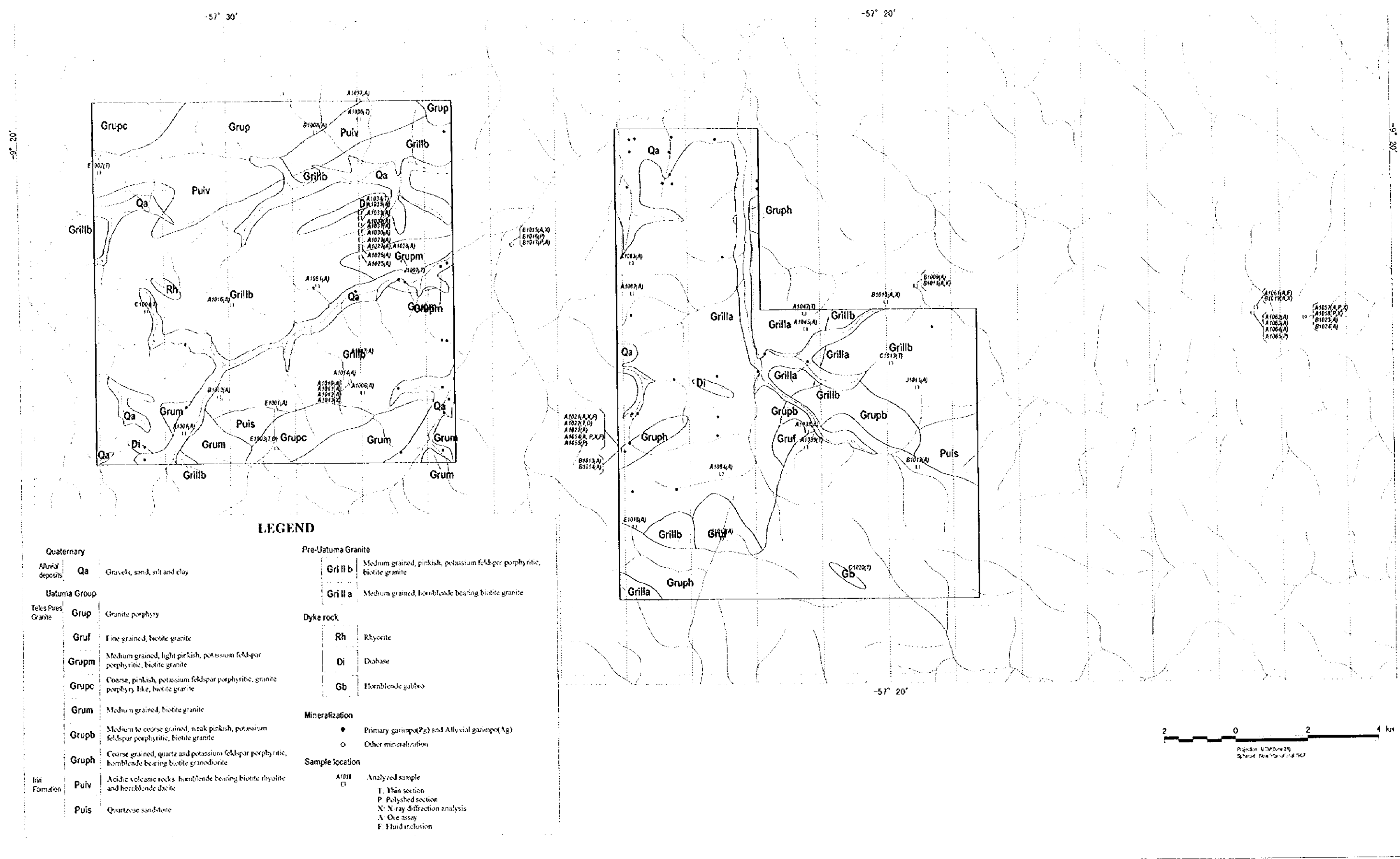
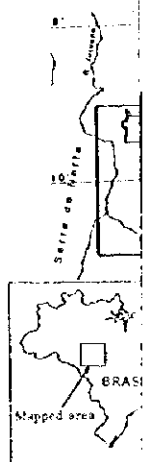
JAPAN INTERNATIONAL COOPERATION AGENCY
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FEBRUARY, 1999



Projection: UTM (Zone 21)
Spheroid: New International 1967

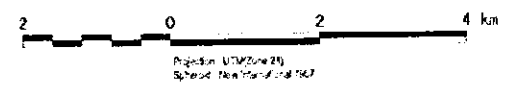
LEGEND

Recent Alluvium	Qa Inconsolidated alluvial sediments	Pre-Uatuma Granite	Grl Gr 1: Adamellite, granodiorite, hornblende biotite granite
Uatuma Super-Group	Gru Calci-alkaligranite, biotite granite, perphyry granite, adamellite	Xingu Complex	Px Augen gneiss, granite gneiss, metabasite, granodiorite, BIF, quartzite, calc-silicate, schists
Teles Pires Granite	Gru		
Itin Formation	Pui Rhyolite, rhyodacite, dacite, pyroclastics, quartzite	Sample location	A1910 Analyzed sample U Thin section P Polished section X X-ray diffraction analysis A Ore assay F Fluid inclusion



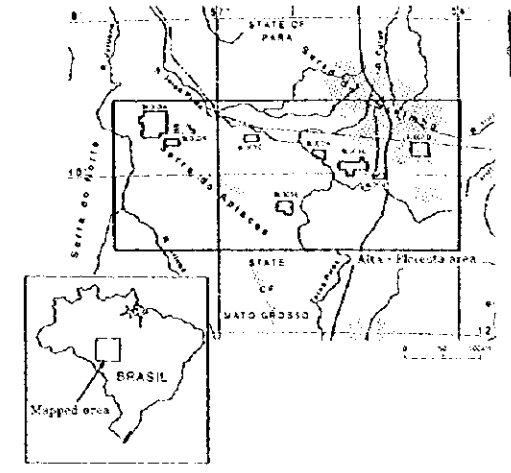
LEGEND

- | | | | |
|---------------------|---|---------------------------|---|
| Quaternary | | Pre-Uatuma Granite | |
| Alluvial deposits | Qa Gravels, sand, silt and clay | Grill b | Medium grained, pinkish, potassium feldspar porphyritic, biotite granite |
| Uatuma Group | | Grill a | Medium grained, hornblende bearing biotite granite |
| Telus Pires Granite | Grup Granite porphyry | Dyke rock | |
| | Gruf Fine grained, biotite granite | Rh | Rhyolite |
| | Grupm Medium grained, light pinkish, potassium feldspar porphyritic, biotite granite | Di | Diabase |
| | Grupc Coarse, pinkish, potassium feldspar porphyritic, granite porphyry like, biotite granite | Gb | Hornblende gabbro |
| | Grum Medium grained, biotite granite | Mineralization | |
| | Grupb Medium to coarse grained, weak pinkish, potassium feldspar porphyritic, biotite granite | ● | Primary garimpo (Pg) and Alluvial garimpo (Ag) |
| | Gruph Coarse grained, quartz and potassium feldspar porphyritic, hornblende bearing biotite gneiss/diorite | ○ | Other mineralization |
| Iron Formation | Puiv Acidic volcanic rocks - hornblende bearing biotite rhyolite and hornblende dacite | Sample location | |
| | Puis Quartzose sandstone | A1010 | Analytical sample |
| | | □ | T: Thin section
P: Polished section
X: X-ray diffraction analysis
A: Ore assay
F: Fluid inclusion |

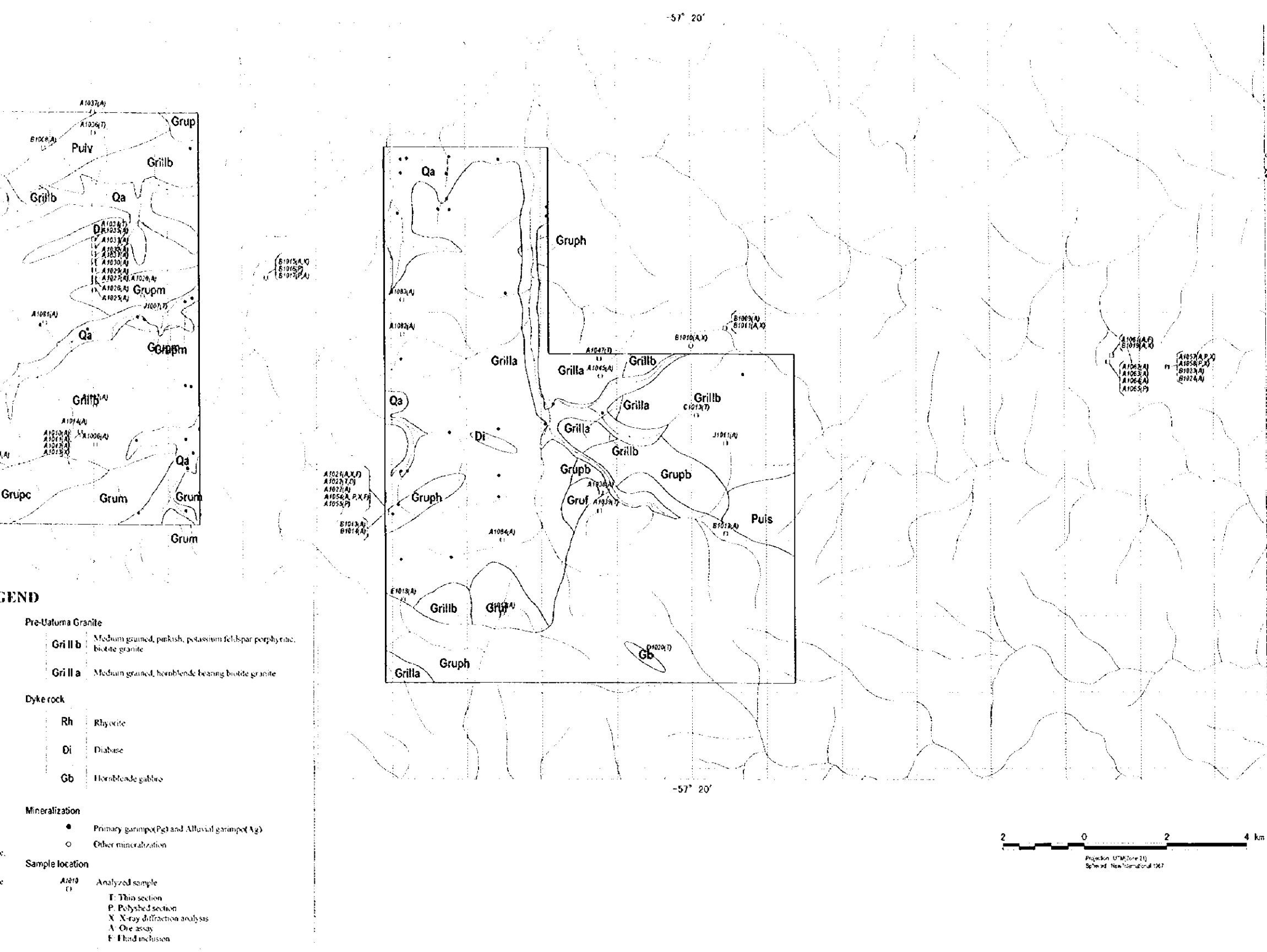


REPORT ON THE MINERAL EXPLORATION
IN
THE ALTA FLORESTA AREA,
FEDERATIVE REPUBLIC OF BRAZIL
PHASE I

Sample location in Block B

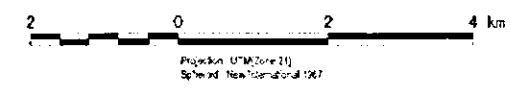


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FEBRUARY, 1999



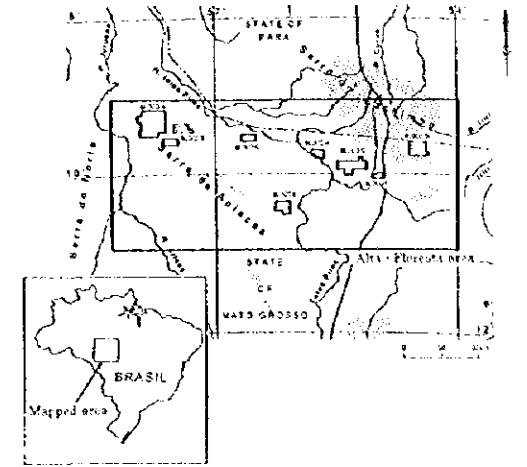
LEGEND

- Pre-Uatuma Granite
 - Gril b Medium grained, pinkish, potassium feldspar porphyritic, biotite granite
 - Gril a Medium grained, hornblende bearing biotite granite
- Dyke rock
 - Rh Rhyolite
 - Di Diabase
 - Gb Hornblende gabbro
- Mineralization
 - Primary garnet (Pg) and Alluvial garnet (Ag)
 - Other mineralization
- Sample location
 - A1019 Analyzed sample
 - F Thin section
 - P Polished section
 - X X-ray diffraction analysis
 - A Ore assay
 - F Fluid inclusion



REPORT ON THE MINERAL EXPLORATION
IN
THE ALTA FLORESTA AREA,
FEDERATIVE REPUBLIC OF BRAZIL
PHASE I

Location map of soil samples in Block B

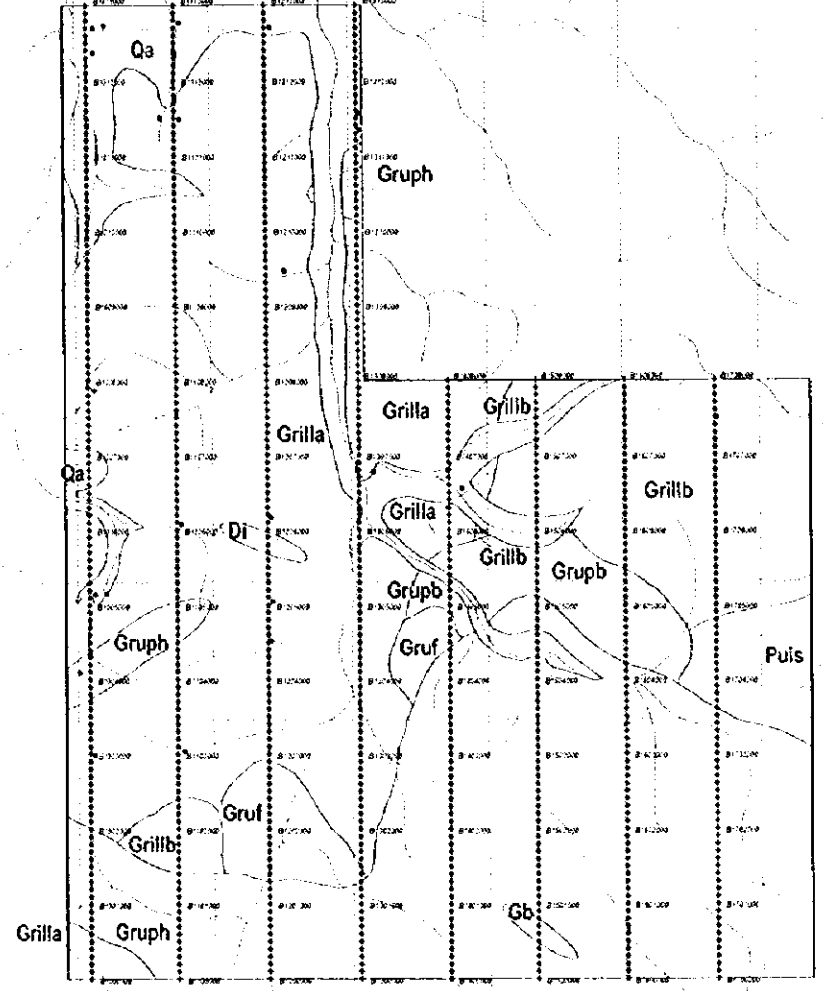
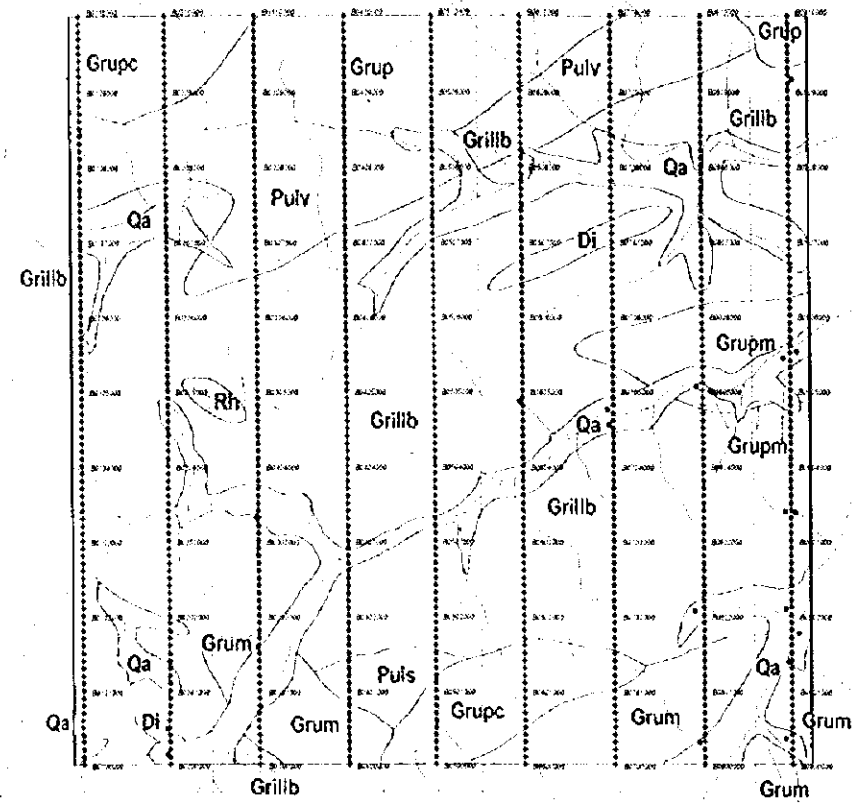


JAPAN INTERNATIONAL COOPERATION AGENCY
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FEBRUARY, 1999

-57° 30'

-57° 20'

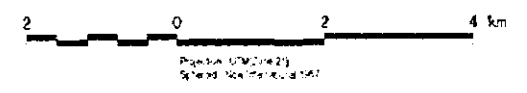
-5° 20'



-57° 20'

LEGEND

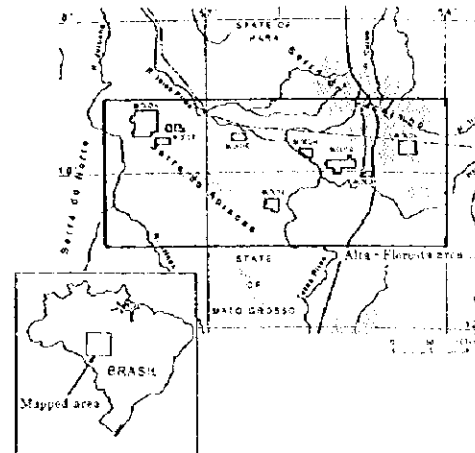
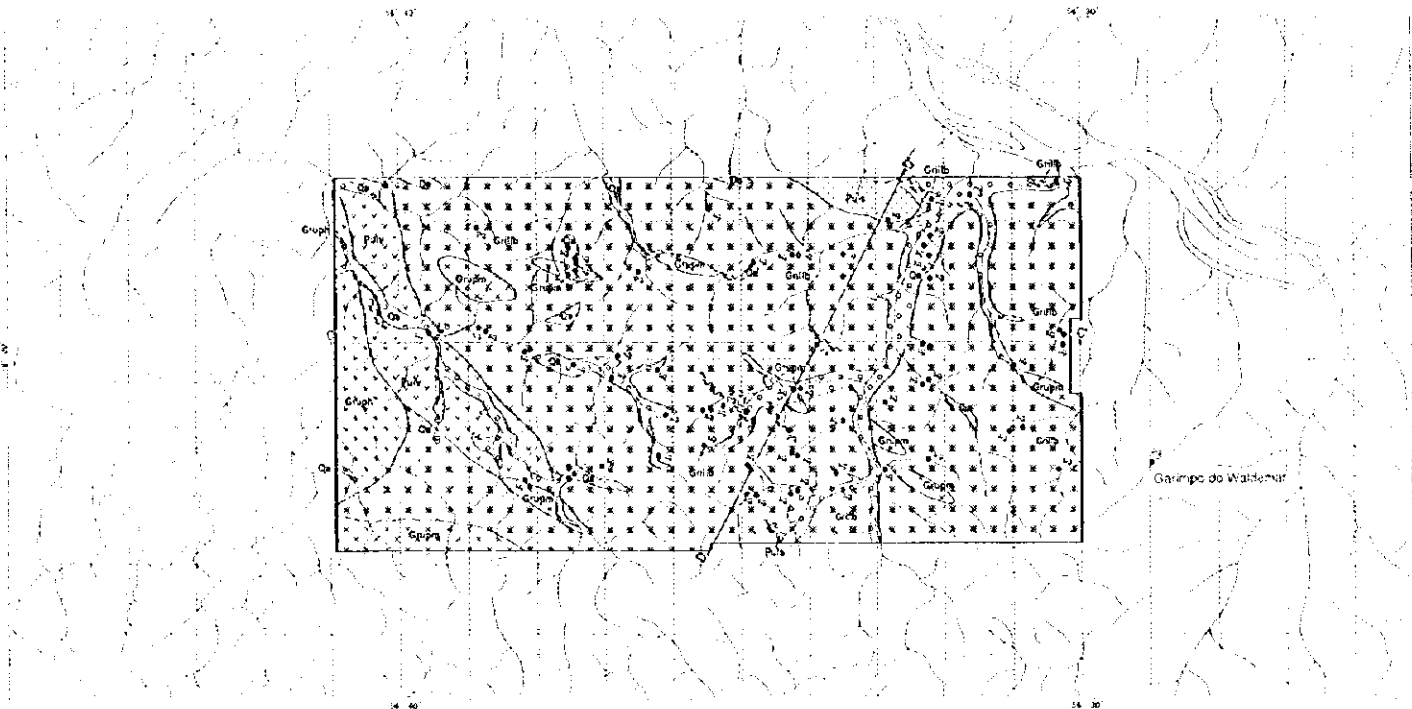
Quaternary		Pre-Uatuma Granite	
Aluvial deposits	Qa Gravels, sand, silt and clay	Grill b	Medium grained, pinkish, potassium feldspar porphyritic, biotite granite
Uatuma Group		Dike rock	
Teles Pires Granite	Grup Granite porphyry	Rh	Rhyolite
	Gruf Fine grained, biotite granite	Di	Dialuse
	Grupm Medium grained, light pinkish, potassium feldspar porphyritic, biotite granite	Gb	Hornblende gabbro
	Grupc Coarse, pinkish, potassium feldspar porphyritic, granite porphyry like, biotite granite	Mineralization	
	Grum Medium grained, biotite granite	•	Primary gangings (Pg) and Alluvial gangings (Ag)
	Grupb Medium to coarse grained, weak pinkish, potassium feldspar porphyritic, biotite granite	○	Other mineralization
Iron Formation	Gruph Coarse grained, quartz and potassium feldspar porphyritic, hornblende bearing biotite granodiorite		
	Pulv Andic volcanic rocks, hornblende bearing biotite rhyolite and hornblende dacite		
	Puis Quartzose sandstone		



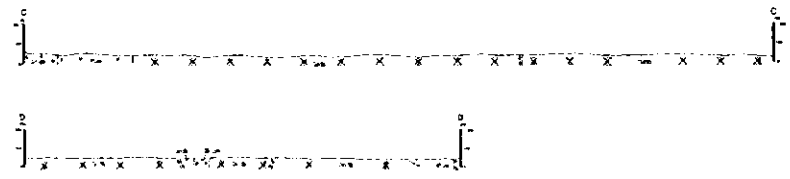
Projeção: UTM (Zone 21)
Sistema: North American 83

REPORT ON THE MINERAL EXPLORATION IN THE ALTA FLORESTA AREA, FEDERATIVE REPUBLIC OF BRAZIL PHASE I

Geological, profile and mineral location map of the Block C



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METAL MINING AGENCY OF JAPAN
FEBRUARY, 1999

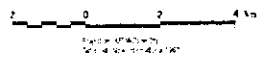


LEGEND

Quartzite	Geological Profile	Profile	Profile
Mica Schist	Geological Profile	Profile	Profile
Granite	Geological Profile	Profile	Profile
...

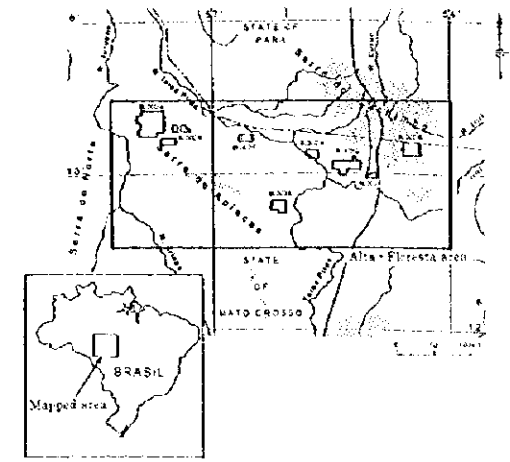
STRATIGRAPHIC SECTION OF THE STUDY AREA

UNIT	AGE	DESCRIPTION	THICKNESS (m)	COMPOSITION
Q	Quaternary	Quaternary deposits	0-5	Sand, silt, clay
P	Permian	Permian sandstone	20-30	Sandstone, shale
...

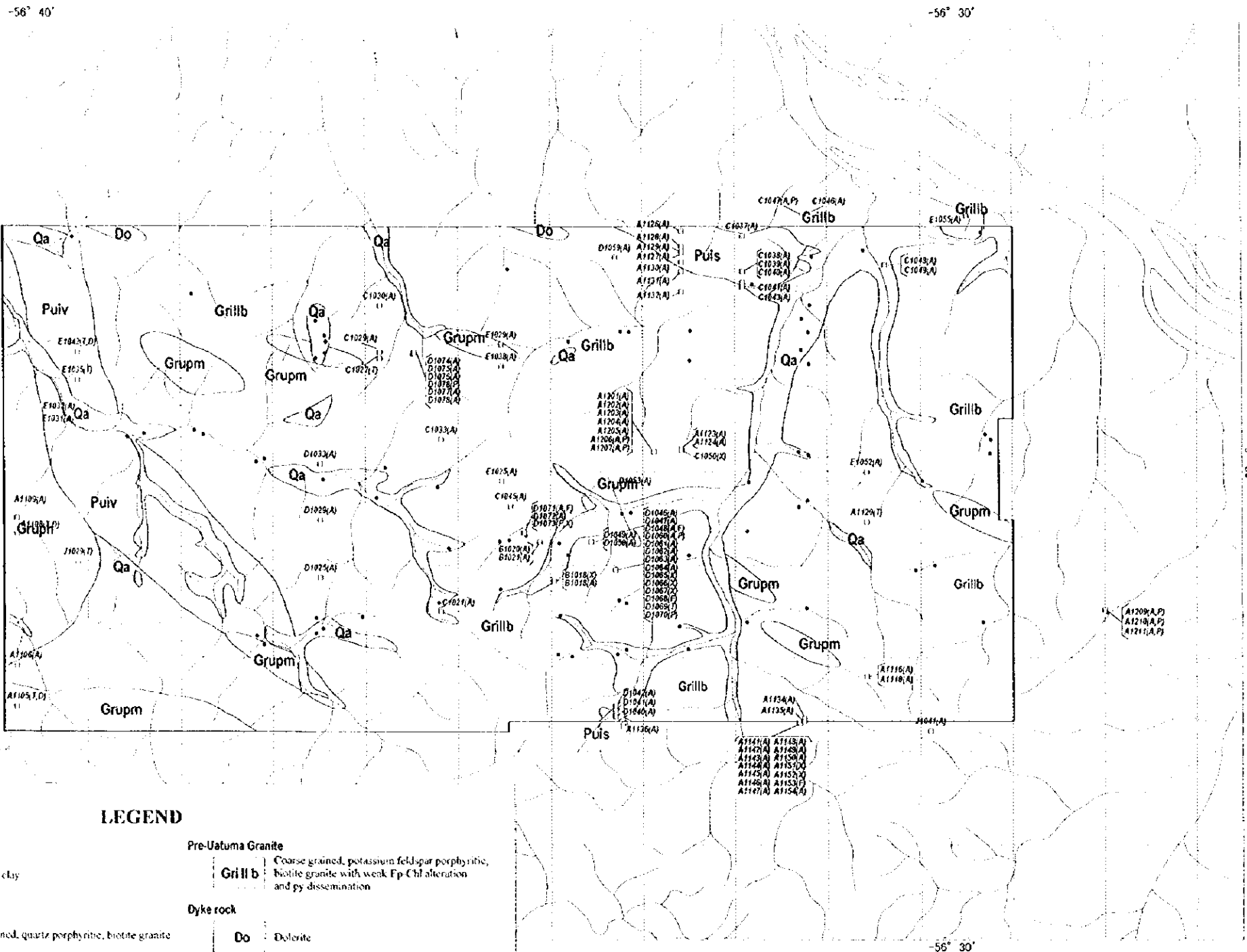


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Sample location in Block C

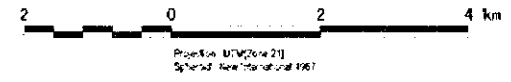


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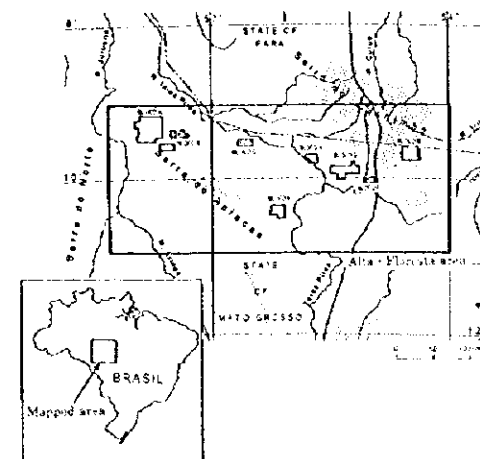
LEGEND

Quaternary		Pre-Uatuma Granite	
Alluvial deposits	Qa Gravels, sand, silt and clay	Grill b Coarse grained, potassium feldspar porphyritic, biotite granite with weak Ep-Chl alteration and py dissemination	
Uatuma Group		Dyke rock	
	Grupm Medium to coarse grained, quartz porphyritic, biotite granite	Do Dolerite	
	Gruph Coarse to medium grained, quartz porphyritic, hornblende bearing biotite granite	Mineralization	
Irin Formation	Puiv Acidic volcanic rocks, biotite chlorite and diorite	● Primary garimpo (Pg) and Alluvial garimpo (Ag)	○ Other mineralization
	Puis Quartzose sandstone	Sample location	
		A101(A)	Analyzed sample
		T	Thin section
		P	Polished section
		X	X-ray diffraction analysis
		A	Ore assay
		F	Fluid inclusion

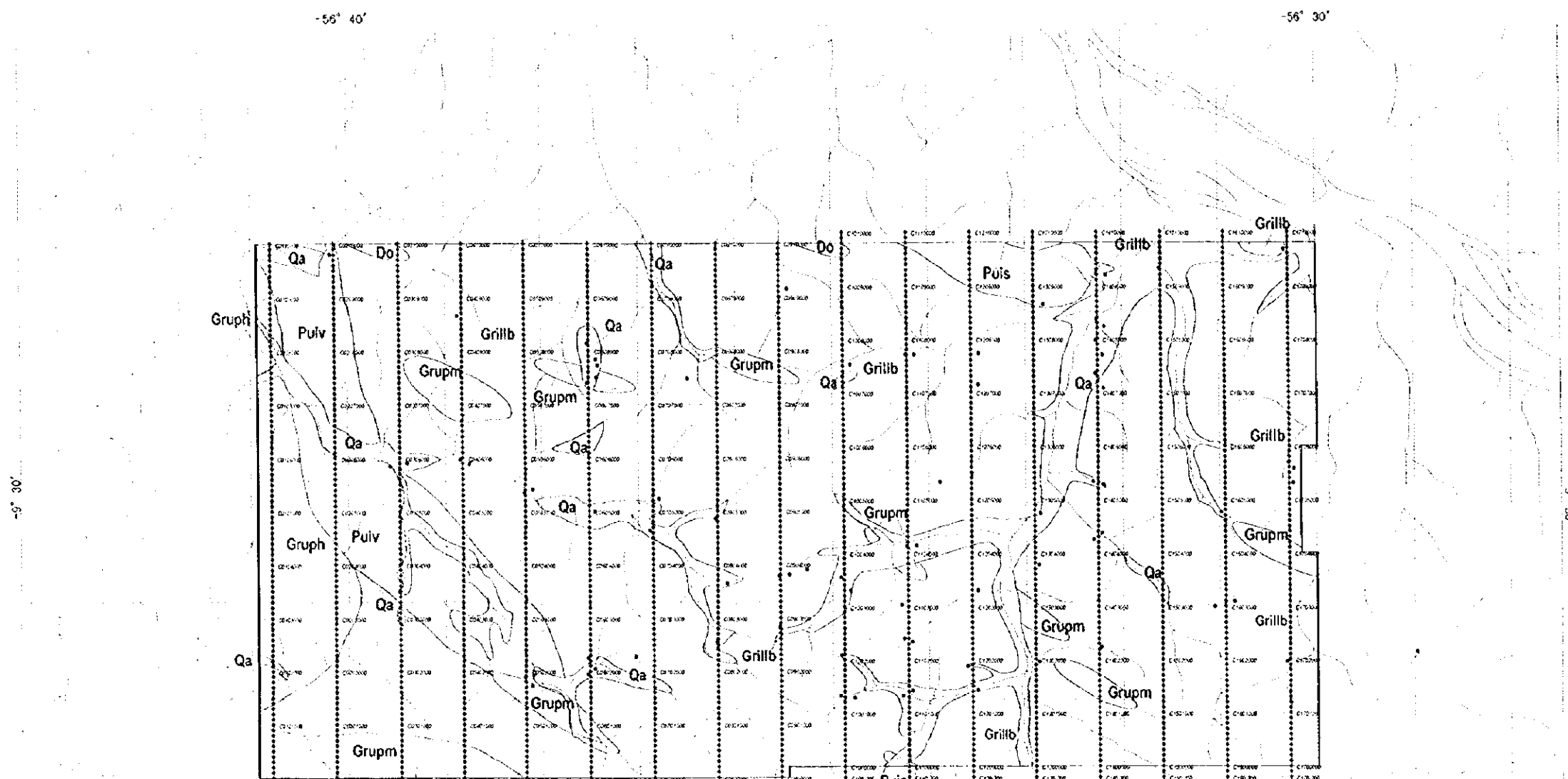


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Location map of soil samples in Block C

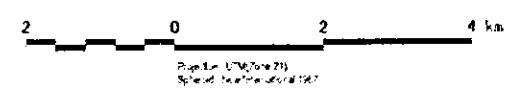


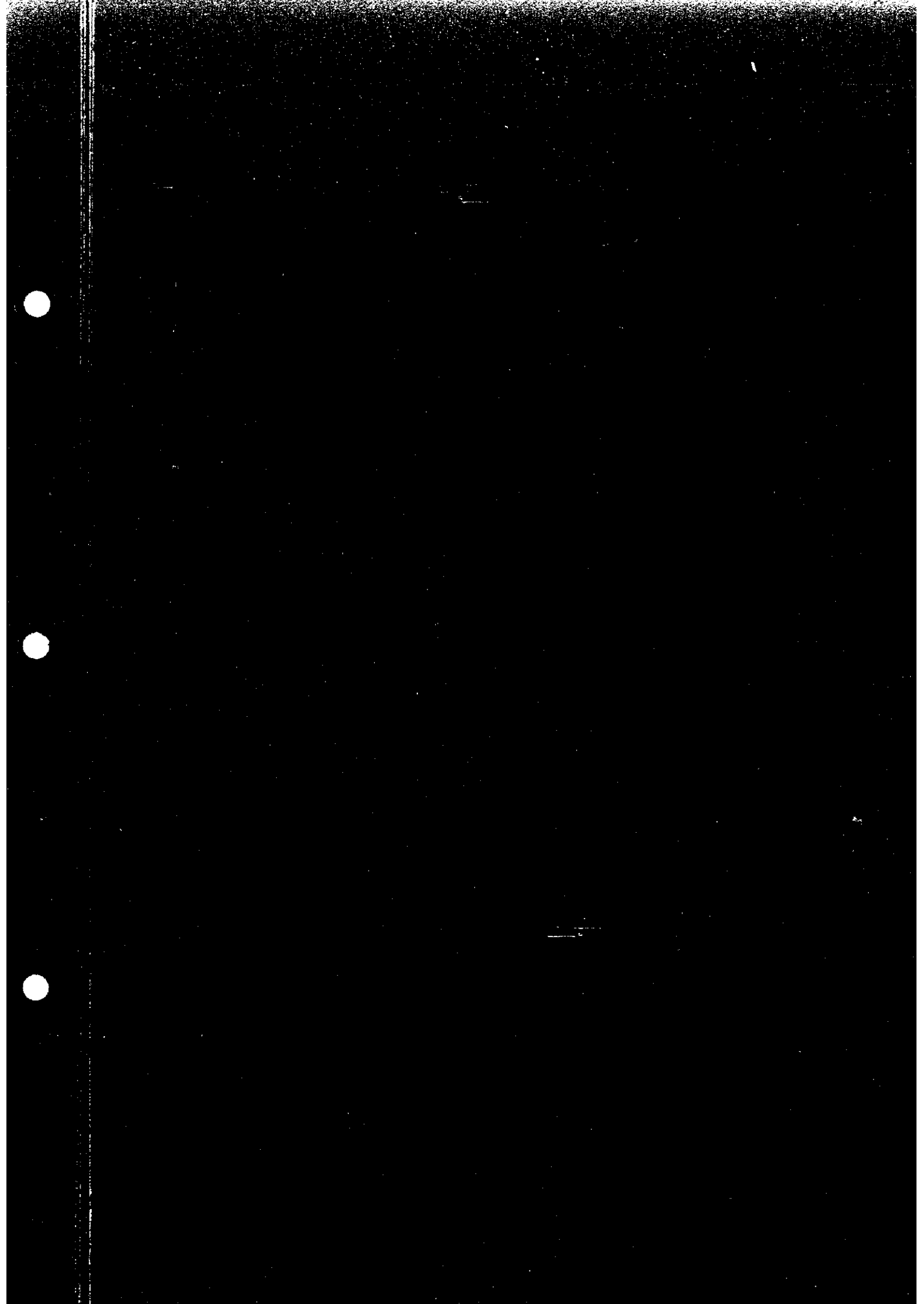
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FEBRUARY, 1993



LEGEND

Quaternary		Pre-Uatuma Granite	
Quaternary Alluvial deposits	Qa Gravels, sand, silt and clay	Grillb Coarse grained, potassium feldspar porphyritic, biotite granite with weak Fe-Cl alteration and py. dissemination	
Uatuma Group		Dyke rock	
	Grupm Medium to coarse grained, quartz porphyritic, biotite granite	Do Dolerite	
	Gruph Coarse to medium grained, quartz porphyritic, hornblende bearing biotite granite	Mineralization	
Basal Foundation	Puiv Acidic volcanic rocks, biotite thysite and dacite	● Primary garnet (Pg) and Alluvial garnet (Ag)	○ Other mineralization
	Puis Quartzose sandstone		





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