



42A06NW0218 22 OGDEN

010

DIAMOND DRILL

TOWNSHIP: Ogden

REPORT No.: 22

WORK PERFORMED BY: Amax Minerals Exploration Ltd.

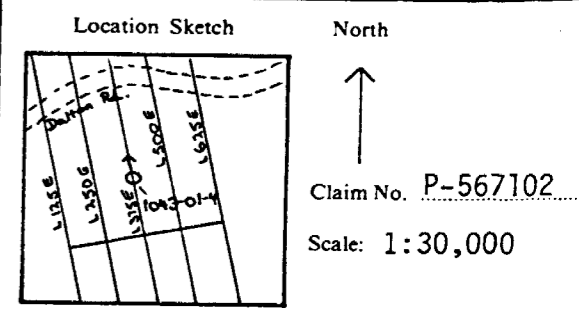
<u>CLAIM No.</u>	<u>HOLE No.</u>	<u>FOOTAGE</u>	<u>DATE</u>	<u>NOTE</u>
P 567102	1043-01-04	240.0m	May/82	(1) (2)
P 567100	1043-01-05	219.0m	May/82	(1) (2)

NOTES: (1) #386-82
(2) OMEP Submittal: OM81-5-C-135

AMAX MINERALS EXPLORATION
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DIAMOND DRILL RECORD

Hole No. 1043-01-04

Hole No. 1043-01-04 Sheet 1	Length 240.0 metres	Commenced May 15, 1982	Dip: Collar -47°
Property 1043-01	Bearing 346°	Completed May 21, 1982	Etch Test
Township Ogden	Dip -47°	Drilling Co. St. Lambert	Depth
Location L 375E, 775S	Objective Stratigraphic drilling	Core Size BQ	Rdg.
Logged By S. Davies		Casing Left/ Lost in Hole	True
Core Location Timmins			1 125.0m 55° 47°
			2 240.0m 56° 48°



Remarks

Metres		DESCRIPTION
From	To	
0	18.80	OVERBURDEN
18.80	77.91	MAFIC TUFFACEOUS SEDIMENT
77.91	78.38	INTERMEDIATE TO FELSIC TUFF
78.38	93.00	ANDESITE
93.00	100.49	MAFIC TUFF
100.49	130.84	GREYWACKE
130.84	139.50	ALTERATION ZONE
139.50	177.00	FAULT
177.00	190.50	ALTERED TUFF
190.50	197.70	MAFIC TUFF
197.70	240.00	TUFFACEOUS SEDIMENT
	240.00	END OF HOLE

J. A. MacPherson

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Hole No. 1043-01-04
Sheet No. 4

Metres		DESCRIPTION
From	To	
0	18.8	OVERBURDEN
18.8	77.91	MAFIC TUFFACEOUS SEDIMENT
		Dark green in colour, fine grained and tuffaceous fragments up to 3mm in size. Fragments are subangular with a preferred orientation of approx. 55° to the core axis. Well laminated up to 5mm in width. Carbonate occurs as stringers and laminated with a total content of approx. 5%.
		Quartz-carbonate occur at random angles to the core axis and along the bedding. Sulphides occur as small cubes of pyrite disseminated sulphides and minor chalcopyrite. It is found predominantly in the quartz-carbonate but also is found along bedding planes. Overall content is approx. 2% but increases to 5% in places. The laminations and stringers are highly crenulated with the crenulation cleavage at 13° to the core axis.
		20.76 - 21.15, quartz (pinkish) content approx. 15% containing minor pyrite in cubes.
		25.28 - 25.53, sulphide content increases to approx. 4% in cubes contained within quartz veinlets and along bedding planes
		26.83 - 26.97, carbonate increases to 15% with cubic and disseminated pyrite also increasing to about 5%.
		33.18 - 33.30, carb. increases to 10% and cubes of pyrite approx. 3%.
		34.53 - 34.72, quartz-carb. veinlets are highly deformed and sulphides occur as large cubes approx. 3%.
		43.10 - 43.22, white quartz vein at approx. 43° to the core axis.
		44.47 - 44.59, highly crenulated and brecciated quartz vein with minor sulphides.
		59.80 - 60.30, quartz-carb. veining which has been affected by ground water movement. Sulphides approx. 37° occur disseminated.
		66.00 - 66.21, pink quartz vein at approx. 10° to the core axis contains approx. 4% pyrite along the margins.
		Lower contact is sharp at 52° to the core axis.

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Hole No. 1043-01-04
Sheet No. 5

Metres		DESCRIPTION
From	To	
18.8	77.91	MAFIC TUFFACEOUS SEDIMENT (continued)
		At 23.20 laminated at 44° to the core axis.
		" 26.87 " 47° "
		" 31.87 " 62° "
		" 36.31 " 64° "
		" 39.13 " 60° "
		" 42.40 " 65° "
		" 43.87 " 80° "
		" 46.80 " 70° "
		" 48.20 " 70° "
		" 50.65 " 55° "
		" 51.45 " 55° "
		" 55.50 " 60° "
		" 59.84 " 55° "
		" 62.85 " 60° "
		" 64.12 " 60° "
		" 65.65 " 75° "
		" 65.90 " 45° "
		" 66.12 " 4° "
		" 66.30 " 12° "
		" 66.38 " 14° "
		" 66.84 " 40° "
		" 71.00 " 45° "
		" 74.63 " 55° "
		" 77.20 " 60° "
77.91	78.38	INTERMEDIATE TO FELSIC TUFF
		Light grey in colour, medium grained and very siliceous. Numerous quartz "eyes" which are sub-rounded and up to 3mm in size.
		Upper and lower contacts are sharp at 62° to the core axis.
		Minor disseminated sulphides. Very minor carbonate less than 1%.
		The unit has a crude bedding and the fragments have a slight preferred orientation of approx. 50° to the core axis.
		Small quartz-carbonate stringers cut the core at random angles and have a maximum width of 1.5cm.

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Hole No. 1043-01-04
Sheet No. 6

Metres		DESCRIPTION
From	To	
78.38	93.00	ANDESITE
		Greyish green in colour, fine grained and relatively massive. Minor brecciation in places with angular andesite fragments up to 1.5cm in size found in a quartz-carbonate matrix. Minor sulphides occur as cubic and disseminated pyrite. Overall content approx. 1%. Core is cut by numerous quartz veins at random angles to core axis. Overall content approx. 10%. Carbonate occurs throughout with total content of 3%. Minor vesicles (?) are found in places. They are rounded and up to 2mm in size. Lower contact is gradational.
		80.00 - 80.30, sulphide content increases to approx. 2-3%.
		83.20 - 83.81, quartz-carbonate vein. Cuts core at 58°, and has undergone brecciation with secondary quartz filling the cracks. Very minor sulphides occur on margins.
		84.70 - 85.60, Core is brecciated into angular fragments up to 6cm in size. Quartz-carbonate found in places as matrix.
93.00	100.49	MAFIC TUFF
		Grey green in colour and fine grained. Fragments occur pervasively throughout. Subangular in shape with a preferred orientation of approx. 45°. Quartz carbonate stringers occur in places and cut the core at random angles. Carbonate also occurs throughout core. Overall content approx. 10%. Fine laminations occur in places at 35° to the core axis. Very minor sulphides occur as disseminated pyrite. Content less than 1%. Lower contact is gradationally sharp at approx. 45°.
100.49	130.84	GREYWACKE
		Grey in colour, fine to medium grained and thinly bedded throughout at 45° to the core axis. Carbonate is found throughout core as stringers and is also interbedded. Overall content approx. 10%. Minor quartz-carbonate stringers and veinlets cut the core at random angles to the core axis.

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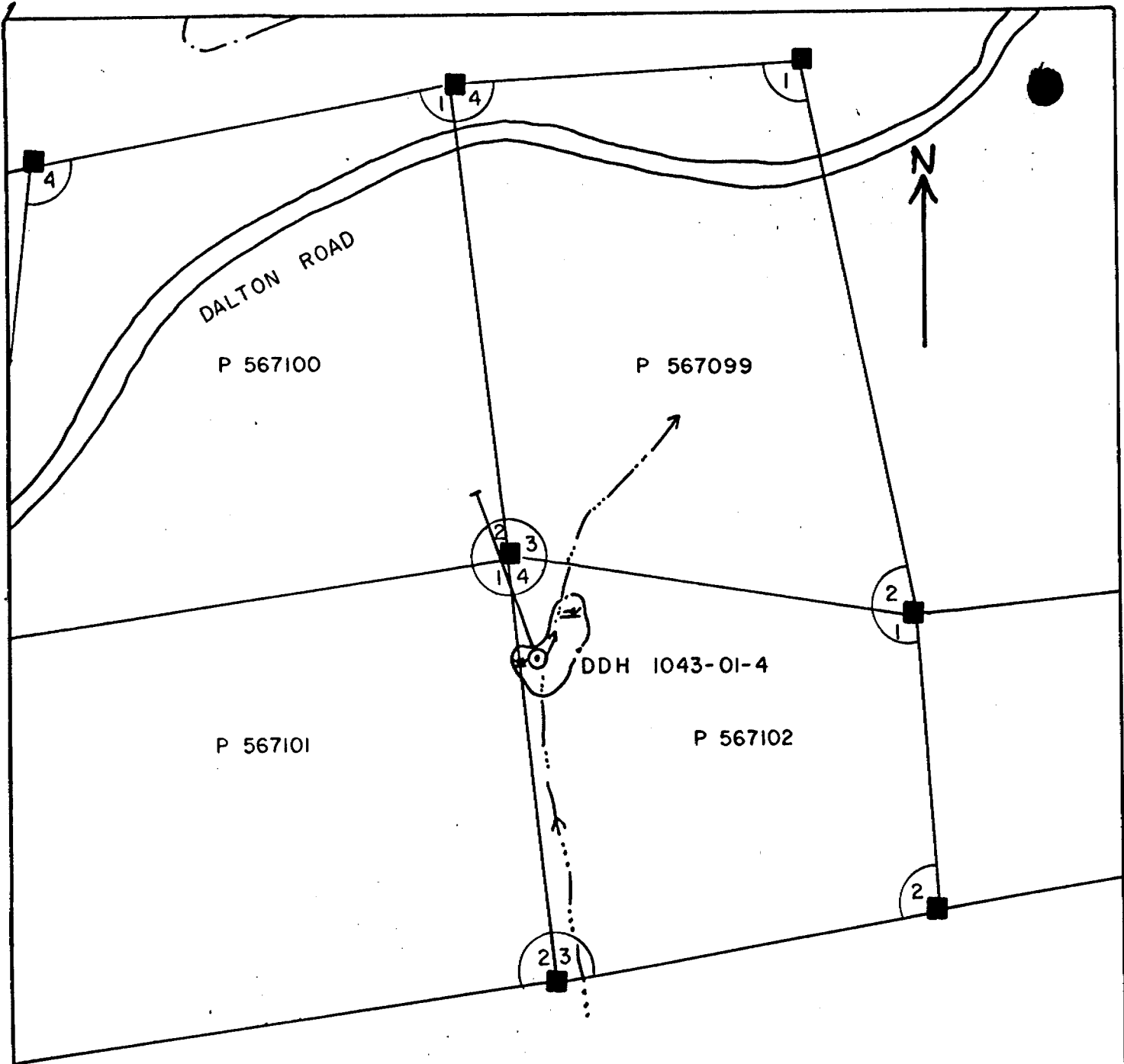
Hole No. 1043-01-04
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Metres		DESCRIPTION
From	To	
100.49	130.84	GREYWACKE (continued)
		Sulphides occur through core as cubic and disseminated pyrite. Total content less than 1%. Some evidence of soft sediment slumping and deformation of bedding.
		At 109.0 metres bedded at 40° to the core axis.
		" 117.5 " 43° "
		" 112.8 " 45° "
		" 125.7 " 45° "
		" 128.9 " 43° "
		" 130.0 " 47° "
		Lower contact is gradational.
130.84	139.50	ALTERATION ZONE
		Original sediment (?) has been highly altered and deformed due to major fault cutting the core at approx. 139.0 metres.
		Rock has been highly crenulated, carbonatized and hematized. Chlorite is found along fractured planes. Core is slightly magnetic.
		Disseminated pyrite occurs along bedding planes and in places reaches a maximum content of 10%. Overall content approx. 2-3%.
		From 136.0 to 139.5 rock is highly carbonatized and sulphide content is 10 - 15%.
139.50	177.00	FAULT
		Core is rubble.
		Rock fragments are hematized, highly carbonatized and have been leached by ground water.
		High sulphide content in most of core. Approximate content of 8%. No other visible structures.

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Hole No. 1043-01-04
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Metres		D E S C R I P T I O N
From	To	
177.00	190.50	ALTERED TUFF
		Original tuff has been highly altered and deformed such that the laminations are extensively crenulated. Primary fragments are not visible. There is chlorite along the slip planes and it has been sericitized. Numerous quartz veins cut the core at random angles to the core axis.
		Some quartz veins are highly mineralized with pyrite and minor chalcopyrite. Overall carbonate content of 2%. Carbonates occur along laminations and margins of quartz veins.
		Sulphides occur as cubic and disseminated pyrite and some chalcopyrite. Overall content is 10%. Sulphides occur in quartz veins, as massive pyrite (up to 80% over 18cm) and also along laminations. Core is well laminated but laminations are so highly deformed that core angles cannot be measured.
		182.79 to 182.83, massive banded pyrite, 70-80%.
		185.00 to 185.40, white quartz vein with fragments of wall rock within vein. Cubic pyrite occurs along margins.
		188.23 to 189.00, white quartz vein and massive pyrite. Pyrite content of 75%. Minor chalcopyrite within veins.
		Lower contact is gradational.
190.5	197.70	MAFIC TUFF
		Grey in colour and fine grained. Well laminated at approx. 55° to the core axis. Some fragments are found with no preferred orientation. They are subangular and up to 3mm in size. Minor quartz carbonate veinlets and stringers cut the core at random angles to the core axis. Carbonate occurs primarily along bedding planes. Total content approx. 10%.
		Sulphides occur as cubic pyrite and minor disseminated pyrite throughout core. Overall content approx. 2%.
		There is chlorite along slip planes and very minor sericite.
		Lower contact is gradational.



AMAX MINERALS EXPLORATION

Location Map — DDH 1043-01-4

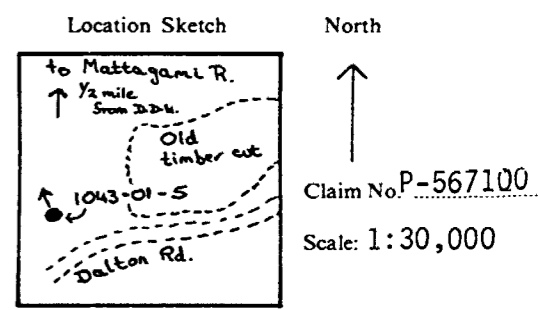
Ogden Township

Scale 1:5000

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DIAMOND DRILL RECORD

Hole No. 1043-01-5

Hole No. 1043-01-5 Sheet 1	Length 219.0 metres	Commenced May 24, 1982	Dip: Collar -45°
Property Ogden-1, 1043-01	Bearing 346°	Completed May 29, 1982	Etch Test Depth Rdg. True
Township Ogden	Dip -45° N	Drilling Co. St. Lambert	
Location L 125E, 275S	Objective Stratigraphic testing	Core Size BQ	
Logged By J. MacPherson		Casing Left/Lost in Hole none	
Core Location Timmins Office			



Remarks

Metres		DESCRIPTION
From	To	
0	43.50	OVERBURDEN
43.50	44.10	BROKEN CORE
44.10	46.20	INTERFLOW SEDIMENT
46.20	47.80	TUFFACEOUS ARGILLITE
47.80	50.75	TUFFACEOUS SEDIMENT
50.75	54.00	TUFF
54.00	58.10	TUFFACEOUS SEDIMENT
58.10	65.40	MAINLY INTERMEDIATE TUFFS
65.40	82.25	INTERMEDIATE FLOWS AND TUFFS
82.25	88.00	RUBBLE FLOW
88.00	89.20	SILICEOUS FLOW / TUFF
89.20	97.50	RUBBLE FLOW

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Hole No. 1043-01-5
Sheet No. 3

Metres		DESCRIPTION
From	To	
0	43.50	OVERBURDEN
43.50	44.10	BROKEN CORE
44.10	46.20	INTERFLOW SEDIMENT
		(Mudstone - siltstone). Very fine grained, moderately well bedded. Core axis = 50°. Rock is grey-green. Minor amounts of py (locally 2-3%) present. Carb. up to 5%.
46.20	47.80	TUFFACEOUS ARGILLITE
		Slightly tuffaceous argillite. Moderately banded. Much darker grey than above unit. Few fragments observed, carb. pervasive in seams. Amount is highest at contact (34-40%) and lowest in middle of unit (5%). Cubic and disseminated py present in amounts up to 10% locally. Average is less than 3%.
		46.2 - 46.4, highly altered area, silicified and carbonatized. Original layering still visible. 10% py (disseminated)
47.80	50.75	TUFFACEOUS SEDIMENT
		Probably distal environment. Fine to medium grained, well banded. Possibly some small stretched siliceous frags visible ½cm cubic of py present. Highly chloritized.
		47.8 - 48.6, Lower contact of this unit - highly pyritized + carbonatized. Up to 15% py and 30% carb. Bedding convoluted in area of contact. A few 5cm wide quartz veins with py are present. Degree of carb. and alt. decreases downhole.
		At 49.0 metres it is 70° to the core axis.

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Hole No. 1043-01-5
 Sheet No. 4

Metres		D E S C R I P T I O N
From	To	
50.75	54.00	TUFF
		Well laminated tuff. Small siliceous fragments abundant. Matrix is very fine grained and highly chloritic. Rock is moderately soft. Carbonatization is strongest in areas where rock is very well laminated, 2-3% py present overall, locally it may be massive quartz-carb. veinlets generally concordant with laminations.
		53.65 - 53.70, carb-sericite veinlet (very little quartz). Up to 5% disseminated py present.
		Core axis angle at 53.8 metres is = to 50° " " 52.3 " = " 65°
54.00	58.10	TUFFACEOUS SEDIMENT
		Same as 47.8 - 50.75. Much higher degree of alteration in the form of quartz carb. veining. Some large blebs of py (sometimes in quartz carb. veining) are present.
58.10	65.40	MAINLY INTERMEDIATE TUFFS
		Mainly intermediate tuffs, lesser flows. Frags are siliceous and carbonatized. Unit is cut by a number of quartz carb.-tourmaline veins with some assoc. py (up to 10%).
		60.8 - 61.4, quartz carb. tourmaline vein with sericite alteration at contacts and in vein. Very little py associated.
		62.25 - 62.50, Convolute bedding highly altered. May be flow top breccia - faint ghosts of fragments are visible.
		Contacts with upper and lower units are usually gradational and are marked by an increase in quartz and carb. content. Slight increase in amount of py also in areas of contacts.

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Hole No. 1043-01-5
Sheet No. 5

Metres		DESCRIPTION
From	To	
65.40	82.25	INTERMEDIATE FLOWS AND TUFFS Both show good foliation, with core axis being an average of 70°. Amount of tuffaceous material is greater than flow material. Spotty carbonate alteration is common in the tuffs. Flows are more chloritic than the tuffs. Flow top breccia present from 70.3 to 70.6 metres. (Up to 15% py in this section). Overall carbonate content is around 15% with some sections as high as 40%. There is about 5% quartz veins in the rock, both concordant and discordant to foliation.
82.25	88.00	RUBBLE FLOW Mafic to intermediate rubble flow. Ghosts of fragments are visible - these are altered to epidote and chlorite. Matrix is altered to chlorite. Core axis is = 70° at 86.0 metres.
88.00	89.00	SILICEOUS FLOW / TUFF Grey-green, massive. Little carb., odd py cube.
89.20	97.50	RUBBLE FLOW Basically the same unit as 82.25 - 88.0. Epidote decreases downhole. Core axis = 70° at 99.0 metres. A few quartz carb. veinlets present most are concordant to foliation. At 89.3, a 5cm wide quartz carb. veinlet has brecciated the wall rock and contains 5% py.
97.5	106.50	MAFIC TUFF After 97.5 metres rock becomes progressively softer + more talcose. Epidote disappears and banding becomes more pronounced, suggesting a tuffaceous nature. Carb. is restricted to concordant seams in the rock. Average py = 2%. Locally, rock is quite talcose. 102.5 - 102.7, shear zone. Very talcose. 105.75 - 106, carb.-rich zone. Silicified. Convolutated bed.

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Hole No. 1043-01-5

Sheet No. 6

Metres		DESCRIPTION
From	To	
106.5	111.5	MAFIC RUBBLE FLOWS Interflow tuffs approx. 10cm wide present.
111.5	117.9	TALC - CHLORITE SCHIST Well banded, black, fine grained. Up to 10% carb. and approx. 2% py on the average. Cut by the occasional quartz vein (no assoc. py). Unit is slightly magnetic.
117.9	118.8	SILICEOUS FLOW Very siliceous flow (could be a dyke). Fine grained, massive, reddish grey (darker). Quartz veins at each contact. Contains up to 10% diss. py, no carb. at all.
118.8	123.6	TALC CHLORITE SCHIST Same as 111.5 - 117.9, except this unit is more siliceous. Still magnetic.
123.6	123.9	QUARTZ VEIN No py, carb. talc. - chl. schist silicified downhole to 125.5m.
123.9	165.45	TALC CHLORITE SCHIST Very similar to the talc chlorite schist at 111.5 to 117.9m. Some sections are slightly more siliceous than others, but generally the unit is quite homogeneous. Pyrite present locally in amounts up to 5%. Areas of core with a concentration of pyrite are usually non-magnetic. Carbonate seaming and blotching is common. Banding / foliation is evident in certain areas giving an average core axis of 72°. Rock probably originally a series of mafic, ultramafic flows and related tuffs.

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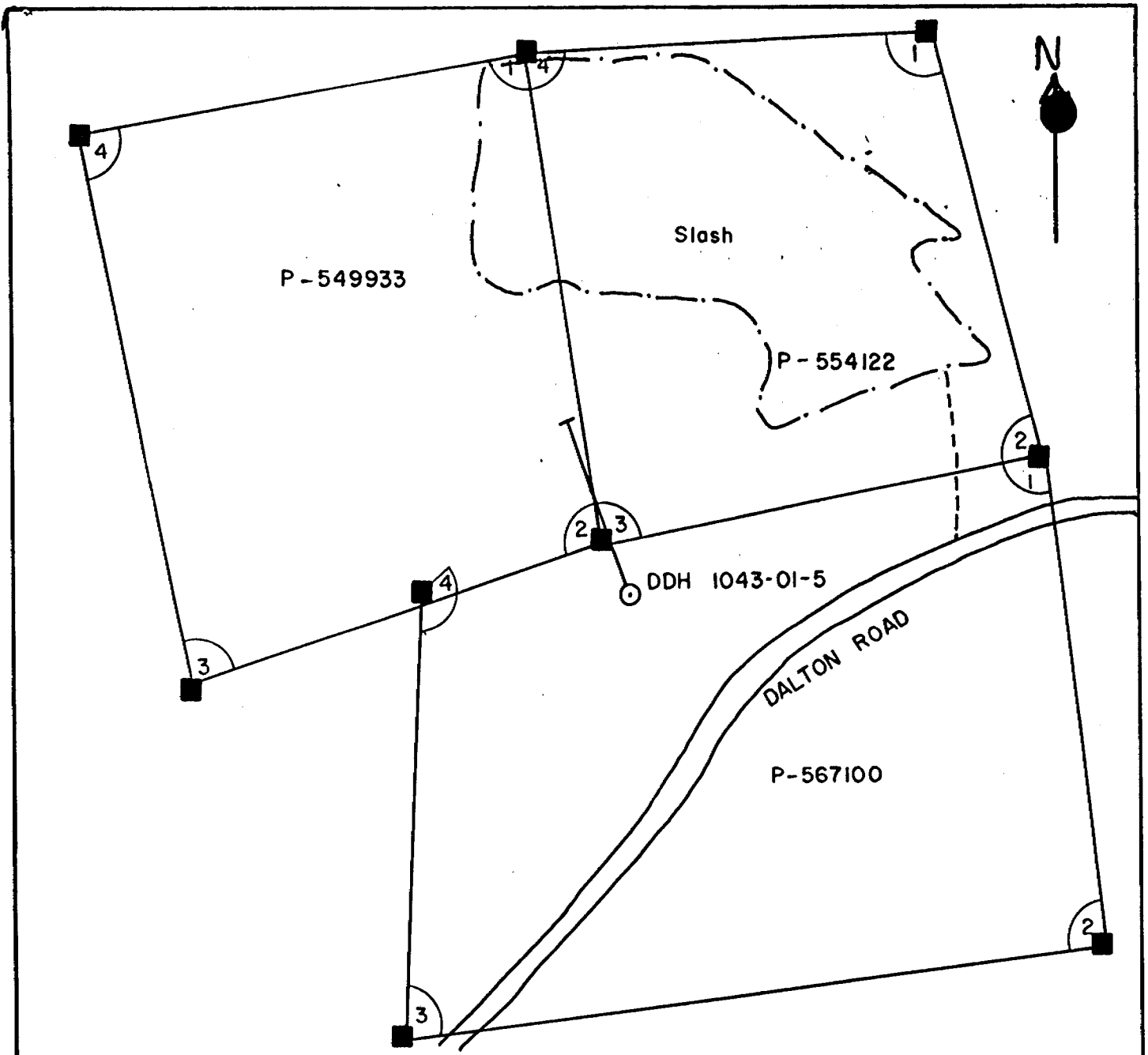
Hole No. 1043-01-5
Sheet No. 7

Metres		DESCRIPTION
From	To	
123.9	165.45	TALC CHLORITE SCHIST (continued)
		147.00 - 147.50, Broken core.
		156.00 - 158.60, Zone of fairly intense talc-carbonate alteration. Little py (<<1%). Quartz carb. vein at 150.2m has brecciated the talc-chlorite schist.
		159.00 - 160.70, silicified section, much less talc-carbonate seaming, but grades again into a very highly altered version of talc-carb. schist.
		161.90 - 162.10, shear zone. Talc chlorite schist fractured to core axis.
		163.40 - 163.70, Shear zone. Re-cemented talcose material, cement is highly carbonatized.
		164.10 - 164.30, shear zone, as above. Rock is more of a dry mud than anything else.
		164.60 - 164.70, narrow shear zone, as above
165.45	184.00	DIABASE DYKE
		Very sharp contact with talc chlorite schist, with wallrock very altered close to dyke. Greenish-black, medium grained, very lightly carbonatized. Minor diss. py (<1%). Slightly magnetic. Occasional seam of massive py (rare). Becomes progressively finer grained down the hole. Lower contact gradational over 15cm.
184.00	188.5	DACITE FLOW
		Fine to medium grained. Quite siliceous. Carbonate present only in narrow seams. Contains 1% py on average, locally 3-5%.
188.50	194.20	CHERTY SEDIMENTS
		Well banded light and dark segments. Up to 1% diss. py present. Intruded and shattered by numerous narrow quartz carb. veinlets. Core axis is 82° at 190.0 metres, 80° at 192.8 metres. Interbeds of slightly softer, more coarse-grained material is evident. Overall colour of rock is dark grey.

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Hole No. 1043-01-5
Sheet No. 8

Metres		DESCRIPTION
From	To	
194.2	219.0	RHYOLITE / RHYODACITE FLOWS
		Above unit grades into a series of rhyolite / rhyodacite flows and related felsic tuffs. Rock is light to dark grey and is quite siliceous. Some of the flows exhibit well - formed quartz eyes (ie at 203.9 metres) and flow banding (ie at 203.75). There is still some cherty interflow material (making up about 20%) of the core. Py is common; in some areas there is up to 10% locally. Carbonate alteration is weak and is restricted mainly to narrow seams and quartz-carbonate veins.
		194.6 - 195.5, Carbonate-quartz veins. 80% calcite, 20% quartz. No py or other associated mineralization and contacts with wall rock are very sharp. Individual calcite crystals can be seen.
		195.7 - 196.0, Zone of fracturing and brecciation of flows. Very minor py mineralization, 60% quartz present as stockworks).
		From 195.5 - 203.0 metres, there is about 5% py (average) and locally (near quartz carb. veins) it may be as high as 15-20%.
		199.5 - 199.7, Quartz carb. veinlet with 10% assoc. py
		200.5 - 201.0, Quartz carb. stockworks with 10% py. Wall rock brecciated and fragments are visible in the quartz. Well banded section of core is where most of the brecciation has taken place.
		203.5 - 204.1, Carbonate alteration associated with well banded sections of core. Vuggy in spots, with moderately well formed crystals of calcite. At 204.0 metres there is a 15cm quartz vein with 20-25% py.
		204.8 - 205.5, More quartz carb. alteration, stockworks, etc. Much less py here (<5%) and tourmaline present in quartz veins.
		205.65 - 208.5 Rhyolite flow with quartz eyes. At 207.0 metres: 15% py (massive blebs)
		218.1 - 219.0, Rhyolite flow with well developed quartz eyes.
219.0		END OF HOLE



AMAX MINERALS EXPLORATION

Location Map - DDH 1043-01-5

Ogden Township

Scale 1:5000