COMPANY: Allegiance Mining NL
PROJECT: Stonehenge
HOLE NUMBER: S 33

Commenced:	16 September 99
Completed:	08 October 99
Logged By:	L.A.Newnham
Drilled By:	Almac

Purpose of Hole

To further test a sequence of zinc rich black shales in the Stonehenge area west of Zeehan:

Comments on Completion

Sequence of shales, siltstone and carbonates was intersected; only significant mineralisation was coarse sphalerite and galena associated with quartz and quartz-carbonate veins cutting a carbonate sequence between 192-196 m: 4.0 m. 0.39% Pb and 1.26% Zn;

Collar Details

Grid	Northing	Easting	Elevation	Dip	Bearing
AMG	5359544.6	359735.4	2262.16	-50	192

Length (m)
250.5

Hole Size

To (m)	Size
79.5	HQ
250.5	NQ

Significant Core Loss Zones

From	To	%Rec.
major losses		see log

Hole Condition on Completion

Summary of Results:

Depth		Recovery	Description	Assays							
From	To	%		Length	Cu	Pb	Zn				
192.0	196.0	98	sphalerite associated with carbonate and quartz carbonate veining	4.0	<0.01	0.39	1.26				
			cutting a carbonate sequence								

DOWN HOLE SURVEY DATA

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Depth	Dip	Bearing	Interval		Length	Vertical Distance		Horizontal Distance		Co-ordinates			
(m)		(AMG)	From	To	(D)	D.sin dip	R.L.	D. cos dip (HD)	Cumulative HD	N. distance HD. cos brg.	N. co-ordinate	E. distance HD. sin brg.	E. co-ordinate
COLLAR	-50	192					2262.20		0.00		5,359,544.6		359,735.4
0	-50	192	0	26	26	19.92	2242.28	16.71	16.71	-16.35	5,359,528.3	-3.47	359,731.9
52	-52	193	26	88	62	48.86	2193.43	38.17	54.88	-37.19	5,359,491.1	-8.59	359,723.3
124	-51	191	88	146	58	45.07	2148.35	36.50	91.38	-35.83	5,359,455.2	-6.96	359,716.4
168	-52	191	146	189	43	33.88	2114.47	26.47	117.86	-25.99	5,359,429.2	-5.05	359,711.3
210	-51	192	189	230.25	41.25	32.06	2082.41	25.96	143.82	-25.39	5,359,403.9	-5.40	359,705.9
250.5	-51	192	230.25	250.5	20.25	15.74	2066.67	12.74	156.56	-12.47	5,359,391.4	-2.65	359,703.3
250.5													

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Description			Core Recovery			RQD			Assays							
From	To		From	To	%	From	To	%	From	To	Cu	Pb	Zn			
0.0	1.0	**HW tricone: no core;** 6.0 m. PVC inserted as casing;	0.0	1.0	0	0.0	75.5	0								
1.0	4.5	**MUDSTONE:** light gray highly decomposed very soft mudstone,extensively reduced to mud and sludge; phyllitic texture, poor recoveries;	1.0	3.5	90											
			3.5	4.0	80											
			4.0	5.8	70				3.0	4.0	<0.01	<0.01	<0.01			
			5.8	7.5	0											
4.5	34.7	**SILTSTONE-SANDSTONE:** light brown - fawn siltstone and mudstone; highly decomposed - rubble for most of unit; weathering results in dark brown coloration along fractures and broken surfaces; remnant thin highly broken quartz veins in places; pervasive minor small euhedral pyrite crystals ocassionally up to 0.5% over short intervals; leaching of pyrite may be cause of total degredation and decomposition of unit; significant core losses;	7.5	9.3	95				4.5	5.5	<0.01	0.07	0.05			
			9.3	10.6	80											
			10.6	12.7	80				9.3	10.3	<0.01	0.03	0.13			
			12.7	15.3	100											
			15.3	16.8	90				14.0	15.0	<0.01	0.05	0.20			
			16.8	22.3	100											
			22.3	23.9	75				17.0	18.0	<0.01	0.03	0.12			
			23.9	26.9	100											
			26.9	27.9	50				20.0	21.0	<0.01	0.02	<0.01			
			27.9	29.5	80											
			29.5	30.8	70				24.0	25.0	<0.01	0.01	0.08			
			30.8	32.2	15											
34.7	38.3	**SAND:** dark gray-fawn medium-fine grained sand, possibly derived from unit below;	32.2	33.3	70				27.0	28.0	<0.01	<0.01	0.06			
			33.3	34.7	80											
			34.7	35.7	20				33.0	34.0	<0.01	<0.01	0.13			
			35.7	37.5	75											
38.3	39.0	**SANDSTONE:** fawn sandstone, highly decomposed and disaggregated;	37.5	38.3	20				36.0	37.0	0.01	0.10	0.61			
			38.3	39.3	80											
			39.3	40.8	100											
			40.8	42.3	70											
39.0	41.5	**SHALE, black carbonaceous and pyritic:** black shale, soft and graphitic, highly carbonaceous; pervasive minor-significant fine grained pyrite ocassionally as small aggregates; shale strongly cleaved and very broken;	42.3	44.2	75				39.0	40.0	0.01	0.06	0.06			
			44.2	45.3	90				40.0	41.0	<0.01	0.02	0.02			
			45.3	46.8	90				41.0	42.0	<0.01	0.03	0.10			
			46.8	49.8	90				42.0	43.0	<0.01	0.03	0.13			
			49.8	51.3	90				43.0	44.0	<0.01	0.01	<0.01			
			51.3	52.8	90				44.0	45.0	<0.01	0.02	0.08			
41.5	75.5	**BLACK PUG and GRITS:** black clayey pug and black grits; totally decomposed; grits appear to be composed of fine black shale fragments, fine quartz and black clay; fine euhedral pyrite is common throughout, approx. 2-3%, but more abundant in some.....	52.8	54.3	80				45.0	46.0	<0.01	0.02	0.09			
			54.3	55.8	90				46.0	47.0	<0.01	0.01	0.05			
			55.8	57.3	85				47.0	48.0	<0.01	0.02	0.07			
			57.3	58.8	90				48.0	49.0	<0.01	0.02	0.05			
			58.8	60.3	70				49.0	50.0	<0.01	0.01	0.11			
			60.3	61.8	80				50.0	51.0	<0.01	0.01	0.21			
			61.8	63.3	75				51.0	52.0	<0.01	0.01	0.08			

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Description			Core Recovery			RQD			Assays							
From	To		From	To	%	From	To	%	From	To	Cu	Pb	Zn			
41.5	75.5	...intervals;	63.3	64.8	95	75.5	103.5	0	52.0	53.0	<0.01	0.01	0.07			
continued.....		unit may represent totally decarbonatised	64.8	66.3	85				53.0	54.0	<0.01	0.01	0.08			
		calcareous sediment and shale;	66.3	67.8	85				54.0	55.0	<0.01	<0.01	0.11			
		recoveries difficult to judge but overall appear	67.8	69.3	50				55.0	56.0	<0.01	0.01	0.10			
		reasonable;	69.3	70.8	85				56.0	57.0	<0.01	<0.01	0.30			
			70.8	72.3	90				57.0	58.0	<0.01	0.03	0.09			
75.5	79.8	**SILTSTONE-CLAY:**	72.3	73.8	50				58.0	59.0	<0.01	0.01	0.21			
		pale buff-off-white siltstone(?);	73.8	75.3	75				59.0	60.0	<0.01	0.03	0.14			
		severely weathered/altered to soft pug and	75.3	76.8	70				60.0	61.0	<0.01	0.01	0.41			
		disaggregated material; original rock possibly	76.8	78.3	100				61.0	62.0	<0.01	0.05	0.11			
		fine grained felspathitic siltstone;	78.3	79.5	95				62.0	63.0	<0.01	<0.01	0.05			
		minor fine grained striated pyrite grains;							63.0	64.0	<0.01	0.02	0.09			
		several 0.5 m. intervals of sandy wash;							64.0	65.0	<0.01	0.01	0.08			
		remnant texture suggests unit was either							65.0	66.0	<0.01	0.02	0.06			
		strongly sheared and foliated;							66.0	67.0	<0.01	0.03	0.07			
		reduced to HQ at 79.5 m;	79.5	81.3	70				67.0	68.0	<0.01	0.03	0.06			
79.8	87.0	**SHALE and MUD:**	81.3	82.5	75				68.0	69.0	<0.01	<0.01	0.11			
		totally decomposed black muds and very	82.5	84.0	75				69.0	70.0	<0.01	<0.01	0.12			
		finely fragmented black graphitic shale	84.0	85.5	60				70.0	71.0	<0.01	0.02	0.13			
		forming as grit;	85.5	87.0	45				71.0	72.0	<0.01	<0.01	0.08			
		fine grains of white quartz a significant							72.0	73.0	<0.01	<0.01	0.14			
		component of these grits; several fragments of							73.0	74.0	<0.01	0.02	0.11			
		white quartz veins remain in black shaley							74.0	75.0	<0.01	0.01	0.14			
		muds;							75.0	76.0	<0.01	0.01	0.09			
		some bands of decomposed shale still														
		recognisable as such (ie) the interval is not														
		simply transported muds;							77.0	78.0	<0.01	0.04	0.12			
		1-3% fine pyrite throughout, more abundant														
		in some intervals; strong sulfide smell							80.0	81.0	<0.01	0.03	0.16			
		suggests substantial ultrafine sulfide may be							81.0	82.0	<0.01	0.02	0.09			
		present;							82.0	83.0	0.01	0.03	0.10			
			87.0	102.4	0				83.0	84.0	<0.01	<0.01	0.07			
87.0	102.4	**NO RECOVERY:**							84.0	85.0	<0.01	0.03	0.08			
		despite careful drilling practices, rods just fell							85.0	87.0	0.01	0.07	0.22			
		under their own weight and there was no														
		recovery; very soft muds suspected;							102.4	103.5	<0.01	0.06	0.03			
102.4	103.6	**PYRITIC SHALE-SILTSTONE-PUG:**	102.4	103.5	75											
		dark gray and black graphitic shales and														
		siltstone bands, strongly decomposed,														
		reduced to mud and pug in places;														
		striated euhedral pyrite common;														

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From	To		From	To	%	From	To	%	From	To	Cu	Pb	Zn			
103.6	112.9	**SANDSTONE-SILTSTONE, leached:** light gray-fawn siltstone and sandstone with minor shaley bands; siltstone-sandstone strongly leached and decomposed in places with minor vuggy appearance; shale units reduced to mud and pug; numerous narrow random quartz veins cut siltstone-sandstone; minor pervasive fine grained disseminated pyrite, commonly euhedral; core extremely broken; drilling problems resulted in some redrilling of core and start of a new hole; several zones of high core loss;	103.5	105.0	50	103.5	112.9	0	107.5	108.5	<0.01	<0.01	0.09			
			105.0	106.5	15											
			106.5	107.5	50				111.0	112.9	<0.01	0.02	0.12			
			107.5	108.4	85											
			108.4	109.5	15											
			109.5	110.6	50											
			110.6	111.0	50											
			111.0	112.5	60											
			112.5	112.9	75											
112.9	118.2	**SHALE-SANDSTONE, contorted and calcareous;** mottled zone of finely disrupted and whispy black shale mixed with light gray groundmass of calcareous sandstone and large irregular patches of carbonate (dolomite?); this unit is possibly precursor of decomposed material in unit above; minor fine grained pyrite; unit strongly altered and broken in places but represents first competent rock in hole;	112.9	114.0	75	112.9	117.5	30	114.0	115.5	<0.01	0.01	<0.01			
			114.0	115.5	70											
			115.5	117.0	80											
			117.0	118.3	100											
118.2	155.2	**CARBONATE, minor shale bands:** light and dark gray carbonate, possibly a silty dolomite; extensively veined and brecciated by large masses white carbonate (calcite) and several later generations of 1-10 mm. white carbonate veins; stylolitic and slumped in places; foliation (? bedding) varies from sub parallel CA to 30° CA; several light gray pug and dark gray-black sandy silts possibly represent decomposed shale bands (eg) 128.0-129.7 m., 131.0-131.2 m., 135.0-135.2 m., 140.0-143.6 m; **140.2 m:** 100 mm. vein of semi massive pyrite-galena-sphalerite; this vein is associated with a very broken and distorted....	118.3	128.4	100	117.5	120.9	70	119.0	120.0	<0.01	0.01	<0.01			
			128.4	129.0	15	120.9	124.4	60								
			129.0	135.0	100	124.4	127.7	50	122.0	123.0	<0.01	<0.01	<0.01			
			135.0	138.2	95	127.7	131.2	40								
			138.2	140.6	100	131.2	134.2	40	126.0	127.0	<0.01	<0.01	<0.01			
			140.6	141.3	40	134.2	137.9	70								
			141.3	142.5	15	137.9	142.5	50	134.0	135.0	<0.01	<0.01	<0.01			
			142.5	143.1	35	142.5	145.8	50								
			143.1	145.5	95	145.8	149.8	60	139.0	140.0	<0.01	<0.01	<0.01			
			145.5	148.8	90	149.8	153.4	80								
			148.8	155.2	100	153.4	156.8	90	140.2	140.6	<0.01	0.30	1.20			
									144.5	145.5	<0.01	0.01	0.03			
									151.5	152.5	<0.01	<0.01	<0.01			

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From	To		From	To	%	From	To	%	From	To	Cu	Pb	Zn			
.118.2 continued.....	155.2	Interval to 143.6 m. of decomposed shale, carbonate veining and carbonaceous carbonate; intervals of moderately competent ground separated by very broken zones of rubbly carbonate, decomposed shales and pug zones; **below 145 m:** very large irregular masses of white calcite; **152.7-155.2 m:** carbonate finer grained and well bedded; possibly finer grained calcareous siltstone; BCA 45°; minor sulfides throughout as thin whispy zones along stylolites and foliations, small aggregates and blebs associated with late stage carbonate veining; sulfides mainly pyrite but ocassional blebs of chalcopyrite with associated galena (?) and sphalerite (?); conformable contact with unit below;														
155.2	178.8	**SLUMPED SILTSTONE-MUDSTONE:** light fawn-buff brown soft pelitic sediment with dark gray interbeds; slumped with soft sediment deformation structures common; tight small scale folding; irregular and broken bedding; thin quartz and quartz-carbonate veining common, often folded and fractured with ptygmatic texture in places; bedding typically parallel and sub-parallel CA; trace fine grained euhedral pyrite; **175.6-177.0 m:** intrusion of large masses white quartz and quartz-carbonate, making up approx. 50-75% of rock; HQ core moderately competent but NQ extensively fractured parallel to bedding and along several joint sets; sharp but slumped contact with unit below;	155.2 166.1 169.4	166.1 169.4 178.4	100 65 100	156.8 160.5 163.9 166.4 171.4 175.4	160.5 163.9 166.4 171.4 175.4 180.0	90 80 90 55 40 80	156.0 161.5 175.5	157.0 162.5 177.5	<0.01 <0.01 <0.01	<0.01 <0.01 <0.01	<0.01 <0.01 <0.01			
178.8	179.8	**SILTY DOLOMITE:** dark gray contorted dolomite with two narrow interbeds of black shale; minor quartz-.....	178.4	179.8	100											

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From	To		From	To	%	From	To	%	From	To	Cu	Pb	Zn			
178.8 continued.....	179.8	carbonate veining; trace pyrite;														
179.8	185.9	**SILTSTONE, quartz veined:** dark gray siltstone with finely interbedded light gray - fawn partings; unit calcareous; contorted and slumped in places with BCA 0-40°; quartz present as thin discontinuous and distorted veins and large irregular masses, especially 182.2-182.7 m; minor pyrite as fine euhedral grains and larger aggregates replacing and accompanying quartz veins; ground moderately competent with some fracturing along bedding surfaces; sharp contact with unit below;	179.8	185.9	100	180.0	184.6	85	182.0	183.0	<0.01	<0.01	<0.01			
185.9	192.2	**CALCAREOUS BRECCIA and CALCAREOUS SEDIMENT:** dark gray calcareous shale fragments set in speckled white-gray carbonaceous groundmass near top and base of unit; light gray calcareous siltstone or dolomite with abundant white calcite veining in middle of unit; confused unit possibly representing a slumped sedimentary breccia within a carbonate sequence; in addition to calcite veins and irregular masses, carbonate sections contain abundant fine stylolitic structures; trace sphalerite (?) associated with pyrite; **below 191.5 m:** significant masses and spots of honey colored sphalerite and associated minor galena; several large aggregates near base; core moderately competent to 191.0 m., then broken with minor core loss; fractures along several joint sets and ocassionally on stylolitic surfaces;	185.9	190.5	100	184.6	189.1	90	186.0	187.0	<0.01	<0.01	<0.01			
			190.5	193.5	90	189.1	194.0	80	187.0	188.0	<0.01	<0.01	<0.01			
									188.0	189.0	0.01	<0.01	<0.01			
									189.0	190.0	<0.01	<0.01	<0.01			
									190.0	191.0	<0.01	<0.01	<0.01			
									191.0	192.0	<0.01	0.03	0.04			

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From	To		From	To	%	From	To	%	From	To	Cu	Pb	Zn			
192.2	209.7	**CARBONATE SEQUENCE with SPHALERITE:** light-dark gray carbonate sequence, extensively replaced by large masses white crystalline calcite and cut by thin (<5 mm) random white calcite veins; texture of carbonate is highly disturbed and irregular, suggesting significant sedimentary slumping and movement following diagenesis; stylolitic structures common throughout, abundant in places; fine grained pyrite common in stylolites; minor honey colored sphalerite present as coarse aggregates along margins of 1-5 mm carbonate and quartz-carbonate veins; accompanied by minor galena, and trace chalcopyrite in places; veins typically 20-30° CA; sphalerite also ocassionally present in places along stylolites, in cross-cutting veins and small disseminated spots or aggregates in carbonate; amount of visible sphalerite appears to diminish towards base of unit; core moderately competent; principal joint set 50-60° CA; other fracturing along carbonate veins and stylolitic surfaces; relatively sharp contact with unit below 80° CA;	193.5	209.7	100	194.0	198.2	85	192.0	193.0	<0.01	1.02	1.98			
						198.2	202.7	85	193.0	194.0	<0.01	0.10	1.30			
						202.7	207.2	90	194.0	195.0	<0.01	0.06	0.80			
						207.2	211.8	75	195.0	196.0	<0.01	0.39	0.96			
									196.0	197.0	<0.01	0.06	0.37			
									197.0	198.0	<0.01	0.10	0.27			
									198.0	199.0	<0.01	0.03	0.13			
									199.0	200.0	<0.01	<0.01	0.03			
									200.0	201.0	<0.01	<0.01	0.02			
									201.0	202.0	<0.01	<0.01	0.30			
									202.0	203.0	<0.01	<0.01	0.01			
									203.0	204.0	<0.01	<0.01	0.01			
									204.0	205.0	<0.01	<0.01	<0.01			
									205.0	206.0	0.01	<0.01	<0.01			
									206.0	207.0	<0.01	<0.01	0.02			
									207.0	208.0	<0.01	<0.01	<0.01			
									208.0	210.0	<0.01	<0.01	<0.01			
209.7	219.4	**INTERBEDDED SHALE and SILTSTONE, abundant quartz-carbonate veining:** **209.7-210.8 m:** interbedded dark gray and fawn siltstone with irregular bedding but generally 80-90° CA; **210.8-214.0 m:** interbedded dark gray shale and light gray siltstone, slumped, contorted and brecciated; numerous thin carbonate and quartz-carbonate veins and patches; minor medium grained euhedral pyrite in veins, and fine grained disseminated pyrite in shale component;	209.7	211.2	100	211.8	217.0	50	214.0	216.0	<0.01	0.03	<0.01			
			211.2	213.9	90	217.0	221.2	20								
			213.9	214.4	80				218.0	220.0	0.01	0.01	<0.07			
			214.4	217.5	100											
			217.5	218.3	100											
			218.3	220.5	90											

Description			Core Recovery			RQD			Assays							
From	To		From	To	%	From	To	%	From	To	Cu	Pb	Zn			
209.7 continued.....	219.4	**214.0-219.4 m:** interbedded dark gray siltstoneand black carbonaceous shale; abundant quartz and quartz-carbonate as veins and large masses; 214.2 m: 200 mm. quartz and quartz-carbonate mass with 5-10% pyrite as large aggregates; minor pervasive disseminated euhedral pyrite in siltstone and fine graineddisseminations in carbonaceous black shales; intraformational slump structures plentiful but overall bedding 80-90° CA; core generally broken and shattered along veins, bedding (graphitic surfaces) and several joint sets; grades into unit below.....														
219.4	245.0	**INTERBEDDED BLACK SHALE-SILTSTONE /QUARTZITE:** interbedded black graphitic shale and light gray siltstone-quartzite; BCA generally in the range 70-80° but slumped and contorted in places; random thin (1-5 mm) quartz and quartz-carbonate veins common throughout; fine grained pyrite common in graphitic shales; minor fine grained euhedral pyrite disseminated in quartzite and ocassionally as coarse aggregates; fragment of core at 235.5 m. is solid pyrite; graphitic shales generally very broken along bedding planes, cleavage and joint sets; quartzites more competent but overall still quite broken; 233.8-235.5 m: some core loss;	220.5 221.7 233.8 235.1 235.5 238.5	221.7 233.8 235.1 235.5 238.5 245.0	90 100 45 40 90 100	221.2 225.7 230.1 235.0 239.6 243.9	225.7 230.1 235.0 239.6 243.9 248.2	65 75 50 40 45 50								
245.0	250.5	**QUARTZITE-MINOR SHALE:** dark gray quartzite interbedded with minor black shale; BCA variable due to slumping but overall more uniform towards bottom of hole at 70-80°; 1-2 mm. quartz and carbonate veining	245.0	250.5	100	248.2	250.5	75								

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From	To		From	To	%	From	To	%	From	To	Cu	Pb	Zn				
245.0 continued.....	250.5	common throughout; minor disseminated euhedral pyrite; some coarser pyrite associated with quartz veins and quartz-carbonate masses; ground moderately broken along bedding surfaces and quartz-carbonate veins; **END OF HOLE**															