T=troct, Gab=gabbro, An=anorthositic,
Agt=augite troct, Mt=melatroct Per=peridotite,
ORT=oliv-rich troct, OG=olivine gabbro,
sms=semi-mass sulf, r=remainder, Gran=granite

NRRI
Relogging Project
Lithologic Log

Hole Number BL-381

Sheet 1 of 4

Bearing/Inclination _____

Drilling Company/Driller _____

Area BABBITT
OVB from 0 to 43'
Hole Depth from 0 to 1113'

Logged by MARK J. SEVERSON
Date 4-23-07

HETEROGENEOUS HOLE!!
w/ SUBVERT ULTRAS!!

Split	Interval From	Interval To	Rock Type	Grain Size	Texture	Alteration/ Fracturing	Plag %	Oliv %	Cpx %	% Sulfide Cp/Cb	% Sulfide Po	Opx %	Oxide	Other %	Bio %	Description/Comment
	0	43	OVERBURDEN													
	43	113	T	F-PEG	HET		60-75	R	V-4	RARE	(TR)		1		✓	
			@ 59-65 URAL PEG OG													
			@ 65-67 MOD URAL													
			@ 70-72 MT - GRAD			MOD SERP = STRONG										
			@ 75-90 T - HOMO													
			@ 90-97 ANT - MOD SMSS													
			@ 97-105 MOD-ST CHL w/ IRREG CHL			JNTS.										
			@ 105-113 MOD SMSS													
	113	117	PEG OG	PEG	HET		65	15	17	—	—		3			
			LAST 2" = w/ 2% CP							✓						
	117	125	T	F	HOMO		60	36	3	—	—		1			
	125	155	T	F-C	HET		60-65	R	1-4	—	—		1			
	155	165	T	M	HOMO		65	31	3	—	—		1			
			@ 158-165 MOD-ST CHL w/ JNT			DOWN AXIS										
	165	197	T	M-VC	HET		55-65	R	1-4	—	—		1			
			@ 185-187.5 GRAD ORT							0.8	0.2					
			↓ GRAD													
	197	205	ORT ↓ GRAD	M	HOMO	WK SERP = 60° ± 0° w/ SLICKED JNTS	50	46	1	—	—		3			
	205	208	MT	M	HOMO	MOD SERP = 60° ± 0°	20	75	2	—	—		3			
	208	213	T	M-C	HET					—	—					
	213	227	ORT			MOD SERP = 60-80°	50	47	✓	—	—		3			
			@ 221-225 T - GRAD													
✓			@ 225-227 SPLIT							—	—					
	227	231	T		HET					TR	TR					
	231	255	MT	M	HOMO	WK-MOD SERP = 0°-20°	30	65	2	TR	TR		3			
			@ 237-239 GRAD T								0.5					
			@ 243-245 " T							0.7	0.3					
↓			↓ GRAD													

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NRRI
Relogging Project
Lithologic Log

Hole Number B1-381

Sheet 2 of 4

Bearing/Inclination _____

Drilling Company/Driller _____

Area _____

OVB from 0 to _____

Hole Depth from 0 to _____

Logged by MJS

Date 4-24-07

Split	Interval From	Interval To	Rock Type	Grain Size	Texture	Alteration/ Fracturing	Plag %	Oliv %	Cpx %	% Sulfide Cp/Cb	% Sulfide Po	Opx %	Oxide	Other %	Bio %	Description/Comment
✓	255	265	ORT ↓GRAD	M	Homo	LOCALLY WK SERP	50	R	✓	TR-1	TR-0.5		3			WK MAG.
	265	268	MT ↓ "	M	"	WK-MOD SERP = 0-25°	35	R	2	"	"		4			MOD. "
	268	274	T ↓ "	M	WK-HOT		55-65	R	1-3	0.5-1.5	TR-0.5		1			
	274	285.5	MT ↓ "	M	WK HOT = W/ ORT + T PATCHES	V. WK-WK SERP	25-35	R	1-3	1-5	TR-1		2-3			
	285.5	339	T w/ COMMON GRAD ORT ZONES ↓GRAD	M	Homo w/ GRADS.	(WK-SERP)	58-60	R	1-3	0.5-5	TR-0.5		1-3			
	307		@307-315 MT/ORT	M	" "					0.5-5	TR-1					
			@337-339 MT ↓GRAD							0.7	0.3					
	339	410	T	M-C	Homo w/ PLAG LAM ZONES & VARIABLE		65-70	R	3	1-3	1-2		1			POLISHED CORE
	373	382	GRAD ↓ @373-382 AGT	M-VC	HOT		60-65	R	8-12	1-3	0.5-1		2-3			
	410	417	ORT ↓GRAD	M	Homo	WK SERP	50	50		TR	TR					
	417	429	T	M-C	WK HOT		60-70	R	1-4	1-3	TR-1		1			
			↓ IRREG ⊥ DOWN AXIS FOR 1'													
	429	437.5	HNFL-CORD ± CALC-SIL							—	- (3)					
	437.5	461	T	M	Homo ±	PLAG LAM ~30°	65	R	2	TR-2	TR-1		1			
			@450 = 2" HNFL-CORD ↓GRAD													
	461	471	T ↓ "	M-C	WK-HOT					TR-2	TR-0.5					SUBVOLT?
	471	487	MT w/ORT ↓GRAD	M	BNDED DOWN AXIS??	MOD SERP = 0°-30°	30-50	R	✓	TR	TR		3-5			
	487	513	T w/ ORT ZONES	M	~~HOT~~ HOT	w/ SUBVERT PLAG LAM	50-65	R	✓	TR-0.5 (2)	TR		1-2			
	513	539.5	T	M-C	~~HOT~~ HOT		—	VAR	—	1-2	TR-1		1-2			
			@519 = 3" BDD HNFL INCL ↓30°													
	539.5	541	PER	F/M	Homo	MOD SERP = 60°	10	R	✓	0.5			4			
	541	542.5	T	M-C	HOT					TR	TR					
	542.5	543	HNFL-CORD													
	543	555	T ↓GRAD	M-C	HOT			VAR	<4	TR-2	TR-1					CASE - W/ORT-MT PATCHES

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NRRI
Relogging Project
Lithologic Log

Hole Number B1-381

Sheet 3 of 4

Bearing/Inclination _____

Drilling Company/Driller _____

Area _____

OVB from 0 to _____

Hole Depth from 0 to _____

Logged by MJS

Date 4-24-07

Split	Interval From	Interval To	Rock Type	Grain Size	Texture	Alteration/ Fracturing	Plag %	Oliv %	Cpx %	% Sulfide Cp/Cb	% Sulfide Po	Opx %	Oxide	Other %	Bio %	Description/Comment
✓	555	565	T w/common GRAD ORT-MT ZONES	M	Homo	VAR SCRP = 60→90	40-65	R	✓	TR	TR		2-3			
	565	609	T @572-575 ORT @584.5-585.5 ORT	M-C	HET					1-3	0.5-1					
	609	616.5	HNFL-CORD							—	—	w/ 3% Po IN LAST 3"				J
	616.5	619.5	T		HET					✓	✓					
	619.5	621	MT	M	Homo	WK SCRP = 45°	20	70	6	TR			4			
	621	693	T	M-C	HET					0.5-2	0.5-1					
	693	698	MT	M	Homo	½ WK SCRP	25	R	4	TR-0.5			2-3			WK MAG
	698	~790	T @737-765 WK HETER ↓ ? POLISHED CORE	M-C	HET					1-3	0.5-2					
	~790	809	AGT @807.5 = 5" HNFL-BDD Po	M-C	HET		60-65	R	8-12	1-3	1-3		2-3			
	809	839	HNFL 809-813 RXTAL-GRAPH-BDS? 813-817 CORD 817-825 BLOCKY CORD 825-833 CORD 833-839 CORD w/20% Po = BDD Po? @836-837 MIXED W/ NOR							—	5					
	839	843	NOR	M-C	HET					0.5	1.5					
	843	845	HNFL-BDD Po								5					
	845	850	GAB NOR		HOT					1	2					
	850	859	AGT		HET					1	2					
	859	867	ORT w/ GRAD MT + T ZONES ↓ GRAD			WK SCRP = ~50°				1-2	1-2					
✓	867	885	AGT ↓ GRAD							1-2	2-3					

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NRRI
Relogging Project
Lithologic Log

Hole Number B1-381

Sheet 4 of 4

Logged by MJS

Date 4-23-07

Bearing/Inclination _____

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Area _____

OVB from 0 to _____

Hole Depth from 0 to _____

Split	Interval From	Interval To	Rock Type	Grain Size	Texture	Alteration/ Fracturing	Plag %	Oliv %	Cpx %	% Sulfide Cp/Cb	% Sulfide Po	Opx %	Oxide	Other %	Bio %	Description/Comment
✓	885	934	T w/IRREG ORT PATCHES	m-c	HET					2-3	2-4					
			@918.5-919 GRAD MT PATCH													
	934	935.5	MT ↓STEEP	m	Homo	v. wk SERP	25				TR					
	935.5	973	T	m-c	HET					2-3	2-4					
			@942-953 w/ORT + MT													
			@962-964 " " " " - STEEP													CC-
			@967-973 " " " " "													
	973	999	AGT	m-c	HET					TR-1	1-3					
	999	1004.5	ORT			MOD SERP = 35°					TR					
	1004.5	1058	AGT	m-c	HET					1-2	2-3					
			@1026.5 = 2" FN-GRN NOR DIKE @ 45°													
			@1029-1031 3 " " 4 DIKES @ 80-50°													
			@1045-1050 NOR - m, Homo								TR					
↓	1058	1067	NOR w/ILM NEEDLES	m-c	HET											
TOP	1067	1078	VIRG FM - CORD w/ BIO-RICH BEDS													
			↓ BOTTOM-UP WELL JOINTED (90°) CORE													
	1078	1101	VIRGSILL/MG UNIT													
	1101	1113	VIRGSILL - MED-GRN "INTERIOR"													
			@1111-1113 MULTIPLE SLICKED JOINTS @ MANY ORIENTS = BROKEN-UP ZONE + HARD TO DRILL THRU													
			EOH = 1113'													

1/17/94

B1-381	2814.1	-1191	1552.2	0	-90	1113		
B1-381	0	86.5	86.5	0	-90			
B1-381	86.5	248	161.5	25	-82			
B1-381	248	428	180	23	-80			
B1-381	428	638	210	3	-78.5			
B1-381	638	828	190	345	-79			
B1-381	828	988	160	356	-79.5			
B1-381	988	1113	125	355	-81.5			
B1-381								
B1-381	0	45	45	-2	-2	-2	-2	-2
B1-381	45	55	10	-2	-2	-2	76	-2
B1-381	55	65	10	-2	-2	-2	77	-2
B1-381	65	75	10	-2	-2	-2	44	-2
B1-381	75	85	10	-2	-2	-2	83	-2
B1-381	85	95	10	-2	-2	-2	74	-2
B1-381	95	105	10	-2	-2	-2	54	-2
B1-381	105	115	10	-2	-2	-2	46	-2
B1-381	115	125	10	-2	-2	-2	57	-2
B1-381	125	135	10	-2	-2	-2	80	-2
B1-381	135	145	10	-2	-2	-2	97	-2
B1-381	145	155	10	-2	-2	-2	63	-2
B1-381	155	165	10	-2	-2	-2	70	-2
B1-381	165	175	10	-2	-2	-2	75	-2
B1-381	175	185	10	-2	-2	-2	83	-2
B1-381	185	195	10	-2	-2	-2	62	-2
B1-381	195	205	10	-2	-2	-2	52	-2
B1-381	205	215	10	-2	-2	-2	65	-2
B1-381	215	225	10	-2	-2	-2	71	-2
B1-381	225	235	10	0.08	0.06	0.13	71	-2
B1-381	235	245	10	0.26	0.11	0.28	53	-2
B1-381	245	255	10	0.12	0.1	0.09	80	-2
B1-381	255	265	10	0.32	0.12	0.34	73	-2
B1-381	265	275	10	0.38	0.13	0.45	69	-2
B1-381	275	285	10	0.65	0.18	0.65	82	-2
B1-381	285	295	10	0.55	0.15	0.65	76	-2
B1-381	295	305	10	0.41	0.14	0.53	92	-2
B1-381	305	315	10	0.58	0.16	0.64	61	-2
B1-381	315	325	10	0.53	0.16	0.6	75	-2
B1-381	325	335	10	0.82	0.22	1.02	81	-2
B1-381	335	345	10	0.62	0.16	0.73	89	-2
B1-381	345	355	10	0.69	0.16	0.85	67	-2
B1-381	355	365	10	1.08	0.2	1.09	85	-2

B1-381	365	375	10	1.01	0.17	1.24	66	-2
B1-381	375	385	10	0.48	0.1	0.57	38	-2
B1-381	385	395	10	0.39	0.12	0.35	85	-2
B1-381	395	405	10	0.34	0.1	0.36	77	-2
B1-381	405	415	10	0.13	0.08	0.19	78	-2
B1-381	415	425	10	0.6	0.17	0.9	85	-2
B1-381	425	435	10	0.32	0.08	0.48	82	-2
B1-381	435	445	10	0.48	0.12	0.69	80	-2
B1-381	445	455	10	0.75	0.16	1.08	97	-2
B1-381	455	465	10	0.85	0.17	0.69	91	-2
B1-381	465	475	10	0.44	0.12	0.57	88	-2
B1-381	475	485	10	0.06	0.11	0.04	88	-2
B1-381	485	495	10	0.23	0.11	0.45	56	-2
B1-381	495	505	10	0.24	0.1	0.24	57	-2
B1-381	505	515	10	0.46	0.12	0.54	41	-2
B1-381	515	525	10	0.84	0.16	1.23	82	-2
B1-381	525	535	10	0.66	0.14	0.97	68	-2
B1-381	535	545	10	0.43	0.12	0.63	52	-2
B1-381	545	555	10	0.47	0.13	0.65	92	-2
B1-381	555	565	10	0.12	0.08	0.29	82	-2
B1-381	565	575	10	0.34	0.1	0.87	92	-2
B1-381	575	585	10	0.24	0.07	0.67	78	-2
B1-381	585	595	10	0.39	0.1	0.71	89	-2
B1-381	595	605	10	0.42	0.1	0.83	91	-2
B1-381	605	615	10	0.22	0.06	0.8	73	-2
B1-381	615	625	10	0.18	0.08	0.94	45	-2
B1-381	625	635	10	0.33	0.09	0.88	73	-2
B1-381	635	645	10	0.2	0.07	0.65	70	-2
B1-381	645	655	10	0.36	0.1	0.62	86	-2
B1-381	655	665	10	0.58	0.12	1.14	80	-2
B1-381	665	675	10	0.58	0.13	1.06	88	-2
B1-381	675	685	10	0.44	0.12	0.94	91	-2
B1-381	685	695	10	0.17	0.06	0.29	93	-2
B1-381	695	705	10	0.33	0.1	0.58	89	-2
B1-381	705	715	10	0.52	0.12	1.08	91	-2
B1-381	715	725	10	0.84	0.16	1.58	83	-2
B1-381	725	735	10	0.62	0.12	1.57	55	-2
B1-381	735	745	10	0.53	0.13	1.28	76	-2
B1-381	745	755	10	0.72	0.16	1.85	92	-2
B1-381	755	765	10	0.68	0.16	1.64	78	-2
B1-381	765	775	10	0.88	0.17	2.22	82	-2
B1-381	775	785	10	0.56	0.12	1.63	95	-2

B1-381	785	795	10	0.62	0.14	1.83	70	-2
B1-381	795	805	10	0.78	0.16	2.33	87	-2
B1-381	805	815	10	0.29	0.06	1.48	84	-2
B1-381	815	825	10	0.05	0.02	0.46	95	-2
B1-381	825	832	7	0.05	0.02	0.58	83	-2
B1-381	832	835	3	0.73	0.24	7.31	83	-2
B1-381	835	845	10	0.73	0.24	7.31	84	-2
B1-381	845	855	10	0.48	0.1	1.44	89	-2
B1-381	855	865	10	0.3	0.11	1	67	-2
B1-381	865	875	10	0.38	0.11	1.34	63	-2
B1-381	875	885	10	0.71	0.17	2.39	87	-2
B1-381	885	895	10	0.83	0.21	2.38	80	-2
B1-381	895	905	10	0.58	0.15	1.56	87	-2
B1-381	905	915	10	0.6	0.14	1.52	78	-2
B1-381	915	925	10	0.37	0.12	0.99	95	-2
B1-381	925	935	10	0.72	0.15	1.62	65	-2
B1-381	935	945	10	0.65	0.11	1.35	64	-2
B1-381	945	955	10	0.24	0.13	0.99	91	-2
B1-381	955	965	10	0.53	0.14	1.74	84	-2
B1-381	965	975	10	0.58	0.14	1.47	86	-2
B1-381	975	985	10	0.2	0.04	1.88	90	-2
B1-381	985	995	10	0.2	0.05	0.56	82	-2
B1-381	995	1005	10	0.16	0.08	0.43	87	-2
B1-381	1005	1015	10	0.43	0.08	1.15	78	-2
B1-381	1015	1025	10	0.41	0.09	1.34	93	-2
B1-381	1025	1035	10	0.45	0.08	1.58	91	-2
B1-381	1035	1045	10	0.46	0.08	1.38	91	-2
B1-381	1045	1055	10	0.22	0.05	0.6	83	-2
B1-381	1055	1065	10	0.02	0.005	0.29	84	-2
B1-381	1065	1075	10	0.02	0.01	0.44	55	-2
B1-381	1075	1085	10	-2	-2	-2	46	-2
B1-381	1085	1095	10	-2	-2	-2	81	-2
B1-381	1095	1105	10	-2	-2	-2	79	-2
B1-381	1105	1113	8	-2	-2	-2	-2	-2