

Buckley Powder Co.**BLAST REPORT**SERVICE SITE LOCATION: LouviersORDER NO.: D7403778BLAST NUMBER: #2-02-2018 BLAST TIME: 11:53 am BLAST DATE: 02/26/2018CUSTOMER: MARTIN MARIETTA MINE: RED CANYON ADDRESS: Colorado Springs, COROCK TYPE: Granite Tons/Yd3: 2.21 EXPECTED VIBRATION: 0.000 IPS**LOCATION OF BLAST**LOCATION OF BLAST IN MINE: North BENCH: Bench 7BLAST GPS POINTS: N 038 36 28.98000 & W -104 56 46.38000**WEATHER**WEATHER: Clear CEILING: High TEMPERATURE: 45 F WIND DIRECTION & SPEED: Northeast 20 MPH**NEAREST NON-OWNED STRUCTURE**NAME: North Hillside GPS Points: N 038 36 22.41000 & W -104 56 31.21980DISTANCE: 1,374 (FT) DIRECTION: 119°**SEISMOGRAPH DATA**

LOCATION		DISTANCE		GPS POINTS		CALIBRATION DATE	
1	North Hillside	1,374 (FT)		N 038 36 22.41000	& W -104 56 31.21980	09/02/2017	
	L (F)	T (F)	V (F)	AIR (db)	SEISMOGRAPH	SERIAL	OPERATOR
1	N/T	N/T	N/T	N/T	VibraTech 7816	7816	

BLAST DATA

NUMBER OF HOLES (EA)		EXPLOSIVES SIZE, TYPE & WEIGHT		
	91	SIZE	TYPE	WEIGHT
HOLE DIAMETER (IN)	4.5	0.75	SPARTAN 350SR	68.25
HOLE DEPTH (FT)	22.41	BULK	TITAN 1000 XL	10,020
FACE HEIGHT (FT)	20.41			
SUB DRILLING (FT)	2			
AVG. STEM FACE HOLES (FT)	12.289			
STEM OTHER HOLES (FT)	12.611			
BURDEN FRONT ROW (FT)	12			
BURDEN OTHER ROWS (FT)	12			
SPACING FRONT ROW (FT)	14			
SPACING OTHER ROWS (FT)	14			
TOTAL WEIGHT (LB):				10,088.25

DETONATORS USED IN BLAST: ElectronicMATS USED: No STEM TYPE: 3/4 x 1/2 CRUSHEDTOTAL DRILL DEPTH: 2,039 (FT)

TYPE	MFG	DATE CODE	USED	TYPE	MFG	DATE CODE	USED
DIGISHOT 30 FT	Dyno Nobel Global	09OC17	63	DIGISHOT DETONATOR 50FT	Dyno Nobel Global	14AU17	28
SPARTAN 350SR	Dyno Nobel Global	13AU17	91				

CU YDS IN SHOT: 11,557 SCALED DISTANCE FACTOR: 56 % OF ANFO: 0TONS IN SHOT: 25,540 HOLES/DELAY: 5 FUEL OIL % (BULK): 0MAX LBS/DELAY: 591 AVERAGE LBS/HOLE: 111POWDER FACTOR (TONS/LB): 2.53 POWDER FACTOR POUNDS/YD3: 0.87BLASTERS NAME: Farmer, Jimmie BLASTERS NUMBER & STATE: 1-035-0748 ColoradoBLASTERS SIGNATURE: [Signature] SITE SAFETY INSPECTION PERFORMED: YesNUMBER OF PERSONNEL ON SITE: 6

REMARKS : GPS drilling, after drilling We came in and taped all of the holes and had two redrills. Depth of holes are 12' to 32' average for billing is 20.41". Shot loaded good, stemming on the back row left down to 17.5' This is to not get rock down the back hillside. Shot pulled out nice with good breakage. 21' of end break. No Seismograph readings

START TIME	END TIME	TOTAL TIME	TRUCK NUMBERS
7:00 AM	11:00 AM	04:00	5093

APPENDIX A

Date: 2/26/2018

Location: MM Red Canyon

shot #: 2



BLASTER'S CHECKLIST

Must be filled out as you go!

PRE-TRIP CHECKLIST

✓	Measuring Tapes and lead ends
✓	Burden pole Tape/ Profiler
✓	Loading Poles
✓	Marking Paint
✓	Starter and primers
✓	Blasting Signs & cones
✓	Sirens in working order
✓	Set back stakes
✓	Digital video camera & Tripod

yes / no / NA

✓	Scientific Calculator
✓	Pocket Mirror
✓	Empty Shot bags
✓	Powder Punch
✓	GPS
✓	Non sparking Knife
✓	Wire strippers
✓	Splices
✓	Flash Light & Batteries

yes / no / NA

✓	Drill Logs
✓	Shot reports
✓	Hold Hammies
✓	Seismographs
✓	Density Cup and Scales
✓	Two Way Radios / fully
✓	Wheel Chocks
✓	Harness & Lanyard / "T" post
✓	First Aid Kits

PRESHIFT CHECKLIST

✓	Inspect blast area for Unsafe Working Conditions (including face) for voids, cracks, caves, etc..
✓	Ensure all employees have their site specific training.
✓	Secure blast site with warning signs and cones (including floor in front of face)
✓	Check shot access including traffic activity
✓	Pre shift inspections on all equipment -OK and safe to operate (includes back up alarms, brakes, horns, etc..)
✓	Mark fall zone area at least six(6) feet from the crest
✓	Inspect Harness/ Lanyard before each use if needed for fall zone or on top of trucks
✓	Insure all needed products are present-enough boosters, detonators etc
✓	Calculate Minimum Burden and Measure front row burden with burden pole or profiler (Document)
✓	Check drill log and all holes for proper depth and blockage
✓	Insure blast design is consistent with closest structures requirements
✓	Any need for calling assistance (Hold Harmless, equipment to close, drilling problems, etc...)
✓	Conduct pre-blast safety meeting with blast crew. If there is not a timing diagram, detonator tie-in must be discussed at the
✓	Calculate pounds per delay: Expl density x expl diam ² x .3405 = _____ lbs/ ft x avg powder column= _____
✓	lbs/ft x expected _____ holes / delay = _____ lbs/delay
✓	Calculate scale distance: 1) Distance _____ 2) divided by lbs/delay _____ 3) hit square root then equals _____ =S.D. (4)
✓	Calculate expected vibration: S.D.(4) _____ Push 1/x on calculator. Push (yx) key then 1.6 hit equals x 180 = _____ exp. vib.

TIE-IN CHECKLIST

✓	Shot tie inspected and signed off by two persons prior to shot including lead line (include names below)
✓	Blast area is cleared and blocked before attaching starter cap and lead line <u>MATT JR</u> <u>Luke R</u>
✓	Blaster in charge in communication with all guards at this time
✓	Blaster in charge will insure blast area has been cleared and guarded before the siren is sounded
✓	After proper waiting time blaster in charge will contact all guards before firing blast
✓	Seismograph located at nearest off site structure or at the Property Line related to nearest off-site
✓	Video Recording Made of Shot

POST BLAST CHECKLIST

✓	Maintain guards until shot is cleared and "all clear" is sounded
✓	Check for misfires, undetonated explosives or burning product and other dangers
✓	Sound all clear that is audible to all parties
✓	Dispose of lead line in approved manner
✓	Dispose of empty boxes in approved methods only
✓	Complete all required paper work prior to leaving customer location- shipping Papers, delivery ticket, Blaster's
✓	Make one final check of blast site before leaving property to insure no materials have been left
✓	and that no hazards are present that may have been missed during clearing process

Must completed and turned in daily- end of shift

Blaster In Charge

APF

R.C. @ Buckley St #29020018

Hole ID	Comment	Penetration Rate (ft/s)									
		Steel 1		Steel 2		Steel 3		Steel 4		Steel 5	
		1-23-45-7	8+	1-23-45-7	8+	1-23-45-7	8+	1-23-45-7	8+	1-23-45-7	8+
#28			X	2.6		2.6					
#27	Moved Back on Bench 8'	3.8		2.6		2.6					
#26		3.9		2.6		2.5					
#45	Moved 6" To Right	X		2.5		2.5					
#44	Moved Back 1'	2.5		2.5		2.5					
#29		2.4		2.5		2.5					
#43		2.5		2.5		2.5					
#16	Moved Back 2'		X		X						
#12		X		3.6		2.6					
#13	Top 12' Not Good Rock		5.14	3.7		2.6					
#9	Moved 6" Not Good Rock 1st		5.16	4.7		4.7					
#8			6.10	4.7		4.7					
#25			3.7	2.6		2.6					
#30			3.8	2.6		2.6					
#42		2.5		2.6		2.6					
#31			2.14	2.7		2.5					
#24			2.7			2.5					
#14	VOID Top 12'		X	2.7		2.5					
#92		2.5		2.7		2.7					
#41			3.8	2.6		2.6					
#40			3.7	3.7		2.6					
#39			X	2.11		2.6					

25.
25.
27.
25.
26.
27.
23.
26.
23.
26.
29.
28.
30-0
31.1
27.5
29.2
30.1
31.7
30.6

R.C.A Buckley Shot #2/20/18

Penetration Rate (ft/s)													
Hole ID	Comment	Steel 1		Steel 2		Steel 3		Steel 4		Steel 5			
		1-23	45-7	8+	1-23	45-7	8+	1-23	45-7	8+	1-23	45-7	8+
# 32			4-11		2-6		2-4						30.69
# 23			2-6		2-5		2-5						31.56
# 15	Top Steel Not Good Rock		X		3-6		3-6						29.56
# 7	Top Steel Not Good Rock		X		6-10		X						30.05
# 38			X		X		X						30.06
# 33			3-5		2-5		2-5						32.1
# 22			2-8		2-6		2-5						30.6
# 16			X		2-5		2-6						30.3
# 6			5-12		4-12		2-6						31.0
# 5			5-14		2-6		2-6						31.0
# 2	Moved 6"		7-14		2-14		2-6						32.0
# 4	VOID 1st 6'		4-12		3-8		2-6						31.0
# 17			X		3-8		2-7						33.11
# 18			5-11		2-6		2-6						34.4
# 19			5-12		2-7		2-6						32.5
# 1			3-11		2-7		2-6						34.1
# 93	Moved About A 1' VOID First 8'		X		3-8		2-6						34.1
# 3			4-8		3-8		2-6						32.1
# 21			3-8		2-5		2-6						34.1
# 20			3-8		2-6		2-6						34.1
# 37	Moved Back 1 1/2'		3-10		3-12		2-7						34.1
# 36	Moved 1'		5-10		X		2-7						34.1

30.49
31.56
29.56
30.05
32.26
30.0
30.3
31.0
31.0
32.0
31.0
33.11
34.4
32.5
34.0
34.0
34.0
34.0
34.0
34.0

R.C.Q. Buckley SHOT #2/022018

Hole ID	Comment	Penetration Rate (ft/s)									
		Steel 1		Steel 2		Steel 3		Steel 4		Steel 5	
		1-23-45-7	8+	1-23-45-7	8+	1-23-45-7	8+	1-23-45-7	8+	1-23-45-7	8+
# 34		X		2.6		2.6					
# 35		3.8		2.7		2.6					
# 36		2.7		2.7							
# 35		2.7		2.7							
# 53		2.6		2.6							
# 48		2.5		2.5							
# 47		2.5		2.5							
# 54		2.4		2.4							
# 46	Moves About 1 1/2'	2.4		2.4							
# 49		2.5		2.5							
# 50		2.4		2.5							
# 52		2.4		2.5							
# 51		2.6		2.5							
# 57		2.6		2.6							
# 58		2.5		2.6							
# 62		2.4		2.4							
# 60		2.7		2.4							
# 59		2.6		2.7							
# 61		2.4		2.5							
# 63		2.4		2.4							
# 65		2.5		2.5							
# 64		2.4		2.5							

33.00
34.1
19.6
22.2
20.21
18.0
18.0
22.0
20.7
19.0
16.5
19.0
12.5
26.8
19.0
19.0
17.7
17.0
18.0
18.24
17.14
17.5

R.C.Q. Buckley Shot #2/0220/8

Hole ID	Comment	Penetration Rate (ft/s)									
		Steel 1		Steel 2		Steel 3		Steel 4		Steel 5	
		1 - 23 - 45 - 7	8+	1 - 23 - 45 - 7	8+	1 - 23 - 45 - 7	8+	1 - 23 - 45 - 7	8+	1 - 23 - 45 - 7	8+
#66			X								
#67			X								
#68											
#91											
#89											
#90											
#88											
#69											
#70											
#87											
#86	Moves 1'										
#84											
#71											
#85											
#72											
#83											
#82	Moves 8" No good										
#73	No good										
#61											
#80											
#79											
#78											

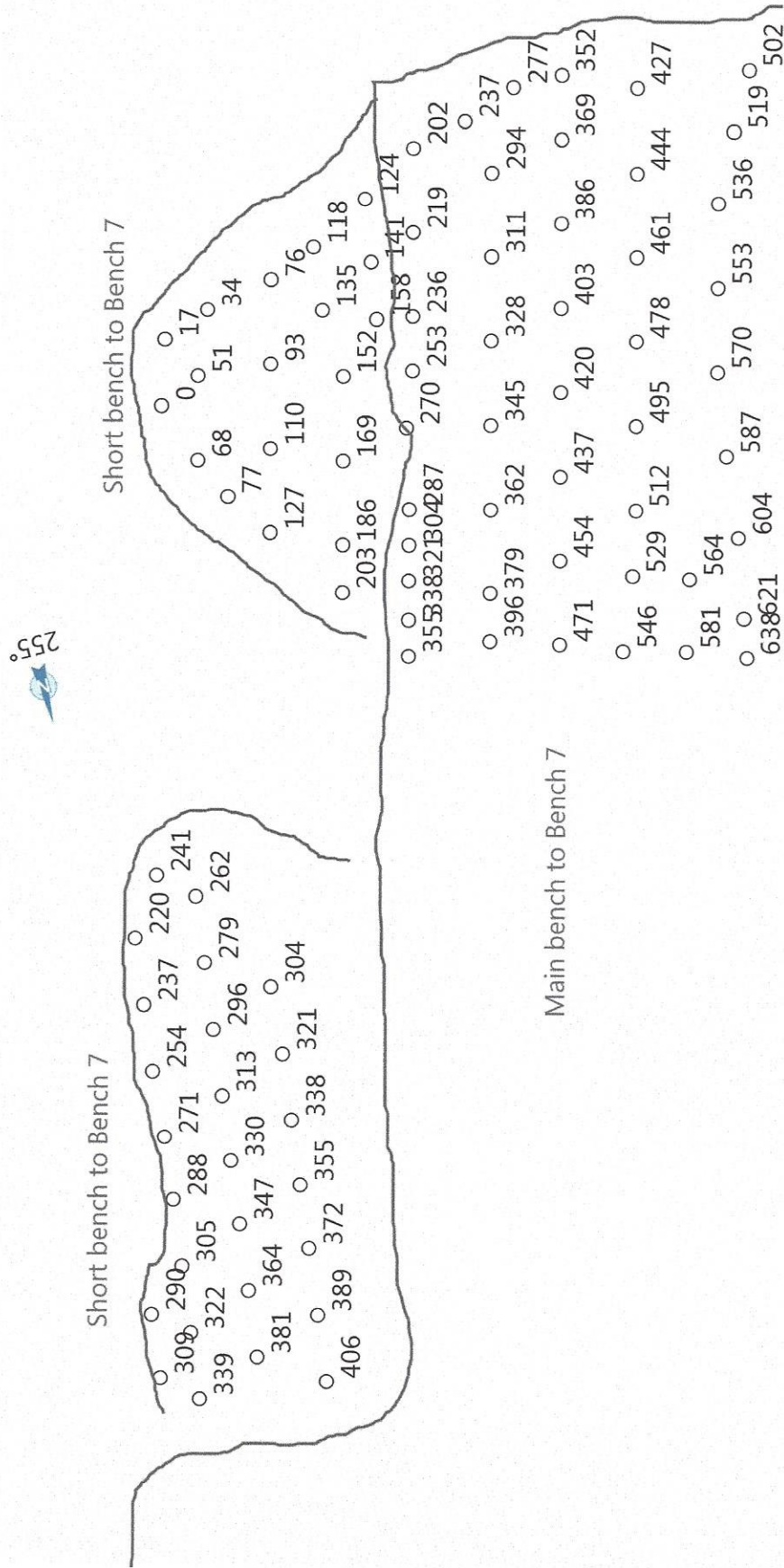
23.2
27.1
23.2
26.8
23.4
23.6
23.8
23.2
23.4
23.3
23.2
23.2
23.6
22.76
20.6
23.3

R.C.Q. Buckley SH61 #2/02-2018

[illegible]

DIAGRAM

BLAST DATE: 02/26/2018
BLAST NUMBER: #2-02-2018



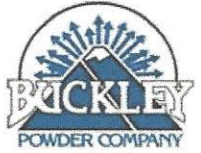
Shot: #2-02-2018

Bench: Bench 7

Customer: MARTIN MARIETTA

Site: Louviers

Load Sheet Report



Mine: RED CANYON	Shot: #2-02-2018	Date: 2/26/2018	Time: 11:53AM
Blaster: Farmer, Jimmie	License: 1-035-0748	Material: Granite	Holes: 91
Diameter: 4.5 (IN)	Burden: 12 (FT)	Spacing: 14 (FT)	Primers: 91
Exp. Vibration: 0.00 IPS	Fr. Burden:12 (FT)	Fr. Spacing: 14 (FT)	Total Exp.: 10,088 (LB)
Fuel: 0 (LB)	AN: 0 (LB)	ANFO: 0 (LB)	Emulsion: 10,020 (LB)
Depth: 22.41 (FT)	YD3: 11,557	Tons: 25,540	Tons/Lb: 2.53
Max Lbs/Delay: 591 (LB)	Holes / 8ms: 5	Location: N 038 36 28.98000	& W-104 56 46.3800
Temperature: 45° F	Wind Dir: Northeast	Wind Speed: 20 MPH	Ceiling: High
Conditions: Clear	Method of Detonation: Electronic		
Pre-Blast Inspection Performed: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No	Initiation: Remote		
Load Started: 7:00 AM	Load Ended: 11:00 AM	Total Load Time: 04:00	
Comments: GPS drilling, after drilling We came in and taped all of the holes and had two redrills. Depth of holes are 12' to 32' average for billing is 20.41" . Shot loaded good, stemming on the back row left down to 17.5' This is to not get rock down the back hillside. Shot pulled out nice with good breakage. 21' of end break. No Seismograph readings			

Crew

Name	Hours	Name	Hours
Anthony Archelta	5	Luke Reel	6
Luke Swearingen	6	Matt Klepfer	6
Thomas Stocker	6		

Trucks Used: 5093

Inventory

Description	Date Code	Out	Description	Date Code	Out
SPARTAN 350SR	13AU17	91	DIGISHOT 30 FT	09OC17	63
DIGISHOT DETONATOR 50FT	14AU17	28			

Services

Service	Quantity	Service	Quantity
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Product Totals

Product	Total (LB)
SPARTAN 350SR	68.25
TITAN 1000 XL	10,020

Row	Col	Depth	Rise	Stem	Wet?	Product	Hole Total (LB)
A	1	22.41	10.41	12	No	SPARTAN 350SR	0.75
A	1	22.41	10.41	12	No	TITAN 1000 XL	117.256
A	2	22.41	10.41	12	No	SPARTAN 350SR	0.75
A	2	22.41	10.41	12	No	TITAN 1000 XL	117.256
A	3	22.41	10.41	12	No	SPARTAN 350SR	0.75
A	3	22.41	10.41	12	No	TITAN 1000 XL	117.256
A	4	22.41	10.41	12	No	SPARTAN 350SR	0.75
A	4	22.41	10.41	12	No	TITAN 1000 XL	117.256
A	5	22.41	10.41	12	No	SPARTAN 350SR	0.75
A	5	22.41	10.41	12	No	TITAN 1000 XL	117.256
B	1	22.41	10.41	12	No	SPARTAN 350SR	0.75
B	1	22.41	10.41	12	No	TITAN 1000 XL	117.256
B	2	22.41	10.41	12	No	SPARTAN 350SR	0.75
B	2	22.41	10.41	12	No	TITAN 1000 XL	117.256
B	3	22.41	10.41	12	No	SPARTAN 350SR	0.75
B	3	22.41	10.41	12	No	TITAN 1000 XL	117.256
B	4	22.41	10.41	12	No	SPARTAN 350SR	0.75
B	4	22.41	10.41	12	No	TITAN 1000 XL	117.256
C	1	22.41	10.41	12	No	SPARTAN 350SR	0.75
C	1	22.41	10.41	12	No	TITAN 1000 XL	117.256
C	2	22.41	10.41	12	No	SPARTAN 350SR	0.75
C	2	22.41	10.41	12	No	TITAN 1000 XL	117.256
C	3	22.41	10.41	12	No	SPARTAN 350SR	0.75
C	3	22.41	10.41	12	No	TITAN 1000 XL	117.256
C	4	22.41	10.41	12	No	SPARTAN 350SR	0.75
C	4	22.41	10.41	12	No	TITAN 1000 XL	117.256
C	5	22.41	10.41	12	No	SPARTAN 350SR	0.75
C	5	22.41	10.41	12	No	TITAN 1000 XL	117.256
C	6	22.41	10.41	12	No	SPARTAN 350SR	0.75
C	6	22.41	10.41	12	No	TITAN 1000 XL	117.256
D	1	22.41	10.41	12	No	SPARTAN 350SR	0.75
D	1	22.41	10.41	12	No	TITAN 1000 XL	117.256
D	2	22.41	10.41	12	No	SPARTAN 350SR	0.75
D	2	22.41	10.41	12	No	TITAN 1000 XL	117.256
D	3	22.41	10.41	12	No	SPARTAN 350SR	0.75
D	3	22.41	10.41	12	No	TITAN 1000 XL	117.256
D	4	22.41	10.41	12	No	SPARTAN 350SR	0.75
D	4	22.41	10.41	12	No	TITAN 1000 XL	117.256
D	5	22.41	10.41	12	No	SPARTAN 350SR	0.75
D	5	22.41	10.41	12	No	TITAN 1000 XL	117.256
D	6	22.41	10.41	12	No	SPARTAN 350SR	0.75

D	6	22.41	10.41	12	No	TITAN 1000 XL	117.256
D	7	22.41	10.41	12	No	SPARTAN 350SR	0.75
D	7	22.41	10.41	12	No	TITAN 1000 XL	117.256
D	8	22.41	10.41	12	No	SPARTAN 350SR	0.75
D	8	22.41	10.41	12	No	TITAN 1000 XL	117.256
D	9	22.41	10.41	12	No	SPARTAN 350SR	0.75
D	9	22.41	10.41	12	No	TITAN 1000 XL	117.256
D	10	22.41	10.41	12	No	SPARTAN 350SR	0.75
D	10	22.41	10.41	12	No	TITAN 1000 XL	117.256
E	1	22.41	10.41	12	No	SPARTAN 350SR	0.75
E	1	22.41	10.41	12	No	TITAN 1000 XL	117.256
E	2	22.41	10.41	12	No	SPARTAN 350SR	0.75
E	2	22.41	10.41	12	No	TITAN 1000 XL	117.256
E	3	22.41	10.41	12	No	SPARTAN 350SR	0.75
E	3	22.41	10.41	12	No	TITAN 1000 XL	117.256
E	4	22.41	10.41	12	No	SPARTAN 350SR	0.75
E	4	22.41	10.41	12	No	TITAN 1000 XL	117.256
E	5	22.41	10.41	12	No	SPARTAN 350SR	0.75
E	5	22.41	10.41	12	No	TITAN 1000 XL	117.256
E	6	22.41	10.41	12	No	SPARTAN 350SR	0.75
E	6	22.41	10.41	12	No	TITAN 1000 XL	117.256
E	7	22.41	10.41	12	No	SPARTAN 350SR	0.75
E	7	22.41	10.41	12	No	TITAN 1000 XL	117.256
E	8	22.41	10.41	12	No	SPARTAN 350SR	0.75
E	8	22.41	10.41	12	No	TITAN 1000 XL	117.256
F	1	22.41	10.41	12	No	SPARTAN 350SR	0.75
F	1	22.41	10.41	12	No	TITAN 1000 XL	117.256
F	2	22.41	10.41	12	No	SPARTAN 350SR	0.75
F	2	22.41	10.41	12	No	TITAN 1000 XL	117.256
F	3	22.41	10.41	12	No	SPARTAN 350SR	0.75
F	3	22.41	10.41	12	No	TITAN 1000 XL	117.256
F	4	22.41	10.41	12	No	SPARTAN 350SR	0.75
F	4	22.41	10.41	12	No	TITAN 1000 XL	117.256
F	5	22.41	10.41	12	No	SPARTAN 350SR	0.75
F	5	22.41	10.41	12	No	TITAN 1000 XL	117.256
F	6	22.41	10.41	12	No	SPARTAN 350SR	0.75
F	6	22.41	10.41	12	No	TITAN 1000 XL	117.256
F	7	22.41	10.41	12	No	SPARTAN 350SR	0.75
F	7	22.41	10.41	12	No	TITAN 1000 XL	117.256
F	8	22.41	10.41	12	No	SPARTAN 350SR	0.75
F	8	22.41	10.41	12	No	TITAN 1000 XL	117.256
G	1	22.41	10.41	12	No	SPARTAN 350SR	0.75
G	1	22.41	10.41	12	No	TITAN 1000 XL	117.256

G	2	22.41	10.41	12	No	SPARTAN 350SR	0.75
G	2	22.41	10.41	12	No	TITAN 1000 XL	117.256
G	3	22.41	10.41	12	No	SPARTAN 350SR	0.75
G	3	22.41	10.41	12	No	TITAN 1000 XL	117.256
G	4	22.41	10.41	12	No	SPARTAN 350SR	0.75
G	4	22.41	10.41	12	No	TITAN 1000 XL	117.256
G	5	22.41	10.41	12	No	SPARTAN 350SR	0.75
G	5	22.41	10.41	12	No	TITAN 1000 XL	117.256
G	6	22.41	10.41	12	No	SPARTAN 350SR	0.75
G	6	22.41	10.41	12	No	TITAN 1000 XL	117.256
G	7	22.41	10.41	12	No	SPARTAN 350SR	0.75
G	7	22.41	10.41	12	No	TITAN 1000 XL	117.256
G	8	22.41	10.41	12	No	SPARTAN 350SR	0.75
G	8	22.41	10.41	12	No	TITAN 1000 XL	117.256
H	1	22.41	4.91	17.5	No	SPARTAN 350SR	0.75
H	1	22.41	4.91	17.5	No	TITAN 1000 XL	45
H	2	22.41	4.91	17.5	No	SPARTAN 350SR	0.75
H	2	22.41	4.91	17.5	No	TITAN 1000 XL	45
H	3	22.41	4.91	17.5	No	SPARTAN 350SR	0.75
H	3	22.41	4.91	17.5	No	TITAN 1000 XL	45
H	4	22.41	4.91	17.5	No	SPARTAN 350SR	0.75
H	4	22.41	4.91	17.5	No	TITAN 1000 XL	45
H	5	22.41	4.91	17.5	No	SPARTAN 350SR	0.75
H	5	22.41	4.91	17.5	No	TITAN 1000 XL	45
H	6	22.41	4.91	17.5	No	SPARTAN 350SR	0.75
H	6	22.41	4.91	17.5	No	TITAN 1000 XL	45
H	7	22.41	4.91	17.5	No	SPARTAN 350SR	0.75
H	7	22.41	4.91	17.5	No	TITAN 1000 XL	45
H	8	22.41	4.91	17.5	No	SPARTAN 350SR	0.75
H	8	22.41	4.91	17.5	No	TITAN 1000 XL	45
H	9	22.41	4.91	17.5	No	SPARTAN 350SR	0.75
H	9	22.41	4.91	17.5	No	TITAN 1000 XL	45
I	1	22.41	10.41	12	No	SPARTAN 350SR	0.75
I	1	22.41	10.41	12	No	TITAN 1000 XL	117.256
I	2	22.41	10.41	12	No	SPARTAN 350SR	0.75
I	2	22.41	10.41	12	No	TITAN 1000 XL	117.256
I	3	22.41	10.41	12	No	SPARTAN 350SR	0.75
I	3	22.41	10.41	12	No	TITAN 1000 XL	117.256
I	4	22.41	10.41	12	No	SPARTAN 350SR	0.75
I	4	22.41	10.41	12	No	TITAN 1000 XL	117.256
I	5	22.41	10.41	12	No	SPARTAN 350SR	0.75
I	5	22.41	10.41	12	No	TITAN 1000 XL	117.256
I	6	22.41	10.41	12	No	SPARTAN 350SR	0.75

I	6	22.41	10.41	12	No	TITAN 1000 XL	117.256
I	7	22.41	10.41	12	No	SPARTAN 350SR	0.75
I	7	22.41	10.41	12	No	TITAN 1000 XL	117.256
I	8	22.41	10.41	12	No	SPARTAN 350SR	0.75
I	8	22.41	10.41	12	No	TITAN 1000 XL	117.256
J	1	22.41	10.41	12	No	SPARTAN 350SR	0.75
J	1	22.41	10.41	12	No	TITAN 1000 XL	117.256
J	2	22.41	10.41	12	No	SPARTAN 350SR	0.75
J	2	22.41	10.41	12	No	TITAN 1000 XL	117.256
J	3	22.41	10.41	12	No	SPARTAN 350SR	0.75
J	3	22.41	10.41	12	No	TITAN 1000 XL	117.256
J	4	22.41	10.41	12	No	SPARTAN 350SR	0.75
J	4	22.41	10.41	12	No	TITAN 1000 XL	117.256
J	5	22.41	10.41	12	No	SPARTAN 350SR	0.75
J	5	22.41	10.41	12	No	TITAN 1000 XL	117.256
J	6	22.41	10.41	12	No	SPARTAN 350SR	0.75
J	6	22.41	10.41	12	No	TITAN 1000 XL	117.256
J	7	22.41	10.41	12	No	SPARTAN 350SR	0.75
J	7	22.41	10.41	12	No	TITAN 1000 XL	117.256
J	8	22.41	10.41	12	No	SPARTAN 350SR	0.75
J	8	22.41	10.41	12	No	TITAN 1000 XL	117.256
K	1	22.41	10.41	12	No	SPARTAN 350SR	0.75
K	1	22.41	10.41	12	No	TITAN 1000 XL	117.256
K	2	22.41	10.41	12	No	SPARTAN 350SR	0.75
K	2	22.41	10.41	12	No	TITAN 1000 XL	117.256
K	3	22.41	10.41	12	No	SPARTAN 350SR	0.75
K	3	22.41	10.41	12	No	TITAN 1000 XL	117.256
K	4	22.41	10.41	12	No	SPARTAN 350SR	0.75
K	4	22.41	10.41	12	No	TITAN 1000 XL	117.256
K	5	22.41	10.41	12	No	SPARTAN 350SR	0.75
K	5	22.41	10.41	12	No	TITAN 1000 XL	117.256
K	6	22.41	10.41	12	No	SPARTAN 350SR	0.75
K	6	22.41	10.41	12	No	TITAN 1000 XL	117.256
K	7	22.41	10.41	12	No	SPARTAN 350SR	0.75
K	7	22.41	10.41	12	No	TITAN 1000 XL	117.256
L	1	22.41	10.41	12	No	SPARTAN 350SR	0.75
L	1	22.41	10.41	12	No	TITAN 1000 XL	117.256
L	2	22.41	10.41	12	No	SPARTAN 350SR	0.75
L	2	22.41	10.41	12	No	TITAN 1000 XL	117.256
L	3	22.41	10.41	12	No	SPARTAN 350SR	0.75
L	3	22.41	10.41	12	No	TITAN 1000 XL	117.256
L	4	22.41	10.41	12	No	SPARTAN 350SR	0.75
L	4	22.41	10.41	12	No	TITAN 1000 XL	117.256

L	5	22.41	10.41	12	No	SPARTAN 350SR	0.75
L	5	22.41	10.41	12	No	TITAN 1000 XL	117.256
L	6	22.41	10.41	12	No	SPARTAN 350SR	0.75
L	6	22.41	10.41	12	No	TITAN 1000 XL	117.256
L	7	22.41	10.41	12	No	SPARTAN 350SR	0.75
L	7	22.41	10.41	12	No	TITAN 1000 XL	117.256
L	8	22.41	10.41	12	No	SPARTAN 350SR	0.75
L	8	22.41	10.41	12	No	TITAN 1000 XL	117.256
L	9	22.41	10.41	12	No	SPARTAN 350SR	0.75
L	9	22.41	10.41	12	No	TITAN 1000 XL	117.256
L	10	22.41	10.41	12	No	SPARTAN 350SR	0.75
L	10	22.41	10.41	12	No	TITAN 1000 XL	117.256

Seismic Analysis Stop Event Report

Serial Number: 7816 0C-06.05
Client: Martin Marietta
Operation: Red Canyon Quarry
Location: North Hill Side
Operator: Vibra Tech
Comment: Pueblo, Colorado

Additional Info:

j-GEO-16060
N38 36 22 W104 56 31

Begin Date: 02/26/2018 05:00:48 (UTC -07:00)
End Date: 02/26/2018 22:00:00 (UTC -07:00)
Events Over Trigger: 0
Record Time: 5 s
Seismic Trigger: 0.02 in/s
Sound Trigger: 133 dB
Battery: 8.4 volts

Shaketable Calibrated:

On: 09/02/2017 (UTC -07:00)
By: Vibra-Tech, Inc.
2700 Holloway Road - Suite 113
Louisville, KY 40203 U.S.A.

Dynamic Calibration Graph:



Seismic Analysis Stop Event Report

Serial Number: 7816 0C-06.05
Client: Martin Marietta
Operation: Red Canyon Quarry
Location: North Hill Side
Operator: Vibra Tech
Comment: Pueblo, Colorado

Additional Info:

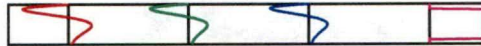
j-GEO-16060
N38 36 22 W104 56 31

Begin Date: 02/25/2018 05:00:50 (UTC -07:00)
End Date: 02/25/2018 22:00:00 (UTC -07:00)
Events Over Trigger: 0
Record Time: 5 s
Seismic Trigger: 0.02 in/s
Sound Trigger: 133 dB
Battery: 8.4 volts

Shaketable Calibrated:

On: 09/02/2017 (UTC -07:00)
By: Vibra-Tech, Inc.
2700 Holloway Road - Suite 113
Louisville, KY 40203 U.S.A.

Dynamic Calibration Graph:



Seismic Analysis Stop Event Report

Serial Number: 10696 0C-06.05
Client: Martin Marietta
Operation: Red Canyon Quarry
Location: Front Entrance
Operator: Vibra Tech
Comment:

Additional Info:

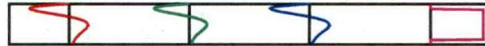
j-GEO-16222
N38 36 04 W104 56 59

Begin Date: 02/25/2018 05:00:56 (UTC -07:00)
End Date: 02/25/2018 22:00:00 (UTC -07:00)
Events Over Trigger: 0
Record Time: 5 s
Seismic Trigger: 0.02 in/s
Sound Trigger: 133 dB
Battery: 8.3 volts

Shaketable Calibrated:

On: 04/13/2017 (UTC -07:00)
By: Vibra-Tech, Inc.
2700 Holloway Road - Suite 113
Louisville, KY 40203 U.S.A.

Dynamic Calibration Graph:



Seismic Analysis Stop Event Report

Serial Number: 10696 0C-06.05
Client: Martin Marietta
Operation: Red Canyon Quarry
Location: Front Entrance
Operator: Vibra Tech
Comment:

Additional Info:

j-GEO-16222
N38 36 04 W104 56 59

Begin Date: 02/26/2018 05:00:58 (UTC -07:00)
End Date: 02/26/2018 22:00:00 (UTC -07:00)
Events Over Trigger: 0
Record Time: 5 s
Seismic Trigger: 0.02 in/s
Sound Trigger: 133 dB
Battery: 8.3 volts

Shaketable Calibrated:

On: 04/13/2017 (UTC -07:00)
By: Vibra-Tech, Inc.
2700 Holloway Road - Suite 113
Louisville, KY 40203 U.S.A.

Dynamic Calibration Graph:



STATE OF
COLORADO

Cazier - DNR, Tim <tim.cazier@state.co.us>

Shot #2

1 message

Wayne Stoughton <Wayne.Stoughton@martinmarietta.com>

Mon, Feb 26, 2018 at 1:12 PM

To: "Cazier - DNR, Tim" <tim.cazier@state.co.us>

Hello Tim,

We shot today at 11:53 AM. The two seismographs did not trigger which is great. I called the 3rd party company to send us a trigger report and have the daily test reports that they do to prove the units are operational. These reports are dated today at 11:01AM. I will send these to you when I have the completed blasting report package for you.

Wayne Stoughton

Manager, Red Canyon Quarry| Rocky Mountain Agg District

Martin Marietta

3131 Barrett Road, Colorado Springs, CO 80926

t. (719) 629-8372

e. wayne.stoughton@martinmarietta.comwww.martinmarietta.com



STATE OF
COLORADO

Cazier - DNR, Tim <tim.cazier@state.co.us>

RE: FW: REDCANYON Shot #2

1 message

Wayne Stoughton <Wayne.Stoughton@martinmarietta.com>
To: "Cazier - DNR, Tim" <tim.cazier@state.co.us>

Fri, Mar 2, 2018 at 12:30 PM

Hello Tim,

You are very correct, this shot was less by over half our normal shot tonnage in most cases. Plus this was the first time since 2016 that we have shot on the very North side of the quarry which is the furthest point from the neighbors. The wind was also coming out of the South that day and the two seismograph unit are located at the South entrance and the Southeast below Ken's home.

Hopefully this helps clarify what took place on the last shot.

Wayne

From: Cazier - DNR, Tim [<mailto:tim.cazier@state.co.us>]
Sent: Friday, March 02, 2018 11:03 AM
To: Wayne Stoughton <Wayne.Stoughton@martinmarietta.com>
Subject: Re: FW: REDCANYON Shot #2

EXTERNAL MAIL

Was this a really small shot, or why do you think they didn't trigger? It's certainly unusual and I would say unexpected. I applaud your efforts in checking the equipment and there appears to be some validation in that neither one of the seismographs were triggered. However, it does seem to be an anomaly and it would certainly be helpful to us to have some rationale as to why they didn't trigger.

Tim Cazier, P.E.

Environmental Protection Specialist

P 303.866.3567 x8169 | F 303.832.8106 | C 303.328.5229

1313 Sherman St., Room 215, Denver, CO 80203

tim.cazier@state.co.us | www.mining.state.co.us

On Fri, Mar 2, 2018 at 9:45 AM, Wayne Stoughton <Wayne.Stoughton@martinmarietta.com> wrote:

You are correct Sir. They did not trigger for the shot. That is why I requested trigger reports to make sure the units were functioning correctly. They two days of the reports prove the units are operating correctly. I have also requested that they keep sending me those reports so I know they are operational.

Wayne

From: Cazier - DNR, Tim [mailto:tim.cazier@state.co.us]
Sent: Friday, March 02, 2018 8:13 AM
To: Wayne Stoughton <Wayne.Stoughton@martinmarietta.com>
Subject: Re: FW: REDCANYON Shot #2

EXTERNAL MAIL

Did the seismographs not trigger? There are no results.

Tim Cazier, P.E.

Environmental Protection Specialist

P 303.866.3567 x8169 | F 303.832.8106 | C 303.328.5229

1313 Sherman St., Room 215, Denver, CO 80203

tim.cazier@state.co.us | www.mining.state.co.us

On Thu, Mar 1, 2018 at 2:41 PM, Wayne Stoughton <Wayne.Stoughton@martinmarietta.com> wrote:

Hello Sir,

Here are the event reports for the day before and day of the shot . These event reports show that the two units were operational. We had no triggers at the time of the shot for both locations. I believe the winds from the South negated any sound trigger and the shot location was at the North end of the Quarry on bench 7 and so no seismic trigger due to that distance from the units. The North Hillside unit is located on the South East end between Ken's home and the Quarry. It is labeled North Hillside due to the fact that it is located on the North side of the hill below his home. The Front entrance unit is located between the neighbors to the South of the operation near the entrance on the West side of the road to the plant.

Hope this is some help.

Wayne

From: Cazier - DNR, Tim [mailto:tim.cazier@state.co.us]
Sent: Thursday, March 01, 2018 1:28 PM
To: Wayne Stoughton <Wayne.Stoughton@martinmarietta.com>
Subject: Re: FW: REDCANYON Shot #2

EXTERNAL MAIL

Thanks Wayne, but I don't see the seismograph pages?

Tim Cazier, P.E.
Environmental Protection Specialist

P 303.866.3567 x8169 | F 303.832.8106 | C 303.328.5229

1313 Sherman St., Room 215, Denver, CO 80203

tim.cazier@state.co.us | www.mining.state.co.us

On Thu, Mar 1, 2018 at 7:50 AM, Wayne Stoughton <Wayne.Stoughton@martinmarietta.com> wrote:

Good Morning Tim,

Here is the Blasting Report and Information for your use. Once the video file is sent I will send that so you can see shot go off.

Wayne

From: JD Farmer [mailto:JD@buckleypowder.com]
Sent: Wednesday, February 28, 2018 10:40 AM
To: Wayne Stoughton <Wayne.Stoughton@martinmarietta.com>; Michael Sheahan <Michael.Sheahan@martinmarietta.com>; Robert Cochran <Robert.Cochran@martinmarietta.com>; Jessica Heaberlin-Mangone <Jessica.Heaberlin-Mangone@martinmarietta.com>
Subject: REDCANYON Shot #2

EXTERNAL MAIL

