SDMS DOCID# 1138575

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

August 17, 2012

VIA FEDERAL EXPRESS: # 529286512115

William McCardle, President
California Drilling & Blasting Co., Inc.
4144 North Arden Drive
El Monte, CA 91731

Re: Information Request Letter Related to Stringfellow Superfund Site

Dear Mr. McCardle:

The United States Environmental Protection Agency ("EPA") is spending public funds to investigate and respond to actual or threatened releases of hazardous substances, pollutants, and contaminants into the soil and groundwater from the Stringfellow Superfund Site (the "Site") in Riverside County, California. This letter seeks your cooperation in providing information and documents you may have pertaining to the operations of California Drilling & Blasting Co., Inc. (the "Company") within the Site. The term "Site" as used herein refers to the properties in or near Pyrite Canyon that surround the former Stringfellow hazardous waste disposal area.

As part of its ongoing investigation of the Site, EPA is seeking to identify activities and parties that have or may have contributed to contamination at the Site. EPA believes that the Company may have information that will assist the EPA in its investigation, especially with regard to perchlorate releases. EPA requests that the Company answer the questions contained in Enclosure B. Definitions and instructions on how to respond to the questions are provided in Enclosure A.

Under Section 104(e) of Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA"), 42 U.S.C. §9604(e), EPA has broad information-gathering authority that allows EPA to require persons to furnish information or documents relating to:

(a) The identification, nature, and quantity of materials which have been or are generated, treated, stored, or disposed of at a vessel or facility or transported to a vessel or facility.

(b) The nature or extent of a release or threatened release of a hazardous substance or pollutant or contaminant at or from a vessel or facility.

(c) Information relating to the ability of a person to pay for or perform a cleanup.

Please note that the Company's compliance with this information request is mandatory. Failure to respond fully and truthfully may result in an enforcement action by EPA pursuant to Section 104(e)(5) of CERCLA, 42 U.S.C. §9604(e)(5). This statutory provision authorizes EPA to seek the imposition of penalties of up to $37,500 per day of noncompliance. Please be further advised that provision of false, fictitious, or fraudulent statements or representations may subject you to criminal penalties under 18 U.S.C. §1001. The information the Company provides may be used by EPA in administrative, civil, or criminal proceedings.

Some of the information EPA is requesting may be considered by the Company to be confidential. Please be aware that the Company may not withhold information upon that basis. If the Company wishes EPA to treat the information confidentially, it must advise EPA of that fact by following the procedures outlined in Enclosure A, including the requirement for supporting its claim for confidentiality.

This request for information is not subject to review by the Office of Management and Budget ("OMB") under the Paperwork Reduction Act because it is not an "information collection request" within the meaning of 44 U.S.C. §§3502(3), 3507, 3512, and 3518(c)(1). See also, 5 C.F.R. §§1320.3(c), 1320.4, and 1320.6(a).

We encourage the Company to give this matter its immediate attention and request that it provide a complete and truthful response to this information request within thirty (30) calendar days of its receipt of this letter. EPA is committed to moving forward with its investigation, and extensions of time for responses will only be granted upon a showing of good cause and for no more than 30 days. If the Company anticipates that it will need an extension, please request one as soon as possible. Requests for extensions made at or near the due date will not be viewed favorably by EPA. The Company's response to this letter should be made in writing and signed by you or a duly authorized representative of the Company. If some or all of the requested information has previously been provided to EPA, the Company may incorporate that information by referencing the date of the earlier response and the information contained therein that is responsive to the current information request.

The Company's response should include the appropriate name, address, and telephone number of the person to whom EPA should direct future correspondence in regard to this information request.

The Company's response to the information request should be directed to:

Keith Olinger, Enforcement Office (SFD-7-5)
U.S. EPA, Region 9
75 Hawthorne St.
San Francisco, CA 94105

If the Company has any questions regarding this letter, please contact Mr. Olinger at (415) 972-3125 or olinger.keith@epa.gov. Questions regarding the Site's cleanup status should be directed to the Remedial Project Manager, Julie Santiago-Ocasio, at (415) 972-3525 or santiago-ocasio.carmen@epa.gov. Questions regarding legal matters can be directed to Andrew Helmlinger at (415) 972-3904 or helmlinger.andrew@epa.gov. Thank you for your prompt attention to this matter.

Sincerely,

Kathi Moore

Kathi Moore, Manager
Case Development Cost Recovery Section
Superfund Division

Enclosures (2):

Attachment A (Instructions and Definitions)
Attachment B (Information Request)

ENCLOSURE A: INSTRUCTIONS AND DEFINITIONS

Instructions:

1. Answer Every Question Completely. A separate response must be made to each of the questions set forth in this information request. For each question contained in this letter, if information responsive to this information request is not in the Company's possession, custody, or control, please identify the person(s) from whom such information may be obtained.

2. Number Each Answer. When answering the questions in Enclosure B, please precede each answer with the corresponding number of the question and subpart to which it responds.

3. Number Each Document. For each document produced in response to this information request, indicate on the document, or in some other reasonable manner, the number of the question to which it corresponds.

4. Provide the Best Information Available. Provide responses to the best of the Company's ability, even if the information sought was never put down in writing or if the written documents are no longer available. The Company should seek out responsive information from current and former employees/agents. Submission of cursory responses when other responsive information is available will be considered non-compliance with this information request.

5. Identify Sources of Answer. For each question, identify (see Definitions) all the persons and documents that the Company relied on in producing its answer.

6. Continuing Obligation to Provide/Correct Information. If additional information or documents responsive to this information request become known or available to the Company after it responds to this information request, EPA hereby requests pursuant to CERCLA Section 104(e) that the Company supplement its response to EPA.

7. Scope of Request. The scope of this request includes all information and documents independently developed or obtained by research on the part of the Company, its attorneys and consultants or any of their agents, consultants or employees.

8. Confidential Information. The information requested herein must be provided even though the Company may contend that it includes confidential information or trade secrets. The Company may assert a confidentiality claim covering part or all of the information requested, pursuant to Sections 104(e)(7)(E) and (F) of CERCLA, 42 U.S.C. §§9604(e)(7)(E) and (F), and Section 3007(b) of RCRA, 42 U.S.C. §6927(b), and 40 C.F.R. §2.203(b). If the Company makes a claim of confidentiality for any of the information it submits to EPA, it must prove that claim. For each document or response the Company claims as confidential, it must separately address the following points:

   (a) Clearly identify the portions of the information alleged to be entitled to confidential treatment;

(b) Identify the period of time for which confidential treatment is desired (e.g., until a certain date, until the occurrence of a specific event, or permanently);

(c) Identify measures taken by the Company to guard against the undesired disclosure of the information to others;

(d) Explain the extent to which the information has been disclosed to others, and the precautions taken in connection therewith;

(e) Provide pertinent confidentiality determinations, if any, by EPA or other federal agencies, and a copy of any such determinations or reference to them, if available; and

(f) State whether the Company asserts that disclosure of the information would likely result in substantial harmful effects to the Company's competitive position, and if so, what those harmful effects would be, why they should be viewed as substantial, and an explanation of the causal relationship between disclosure and such harmful effects.

(g) To make a confidentiality claim, please stamp, or type, "confidential" on all confidential responses and any related confidential documents. Confidential portions of otherwise nonconfidential documents should be clearly identified. The Company should indicate a date, if any, after which the information need no longer be treated as confidential. Please submit the Company's response so that all nonconfidential information, including any redacted versions of documents, are in one envelope and all materials for which the Company desires confidential treatment are in another envelope.

(h) All confidentiality claims are subject to EPA verification. It is important that the Company satisfactorily show that it has taken reasonable measures to protect the confidentiality of the information and that it intends to continue to do so, and that the information is not and has not been obtainable by legitimate means without the Company's consent. Information covered by such claim will be disclosed by EPA only to the extent permitted by CERCLA Section 104(e). If no such claim accompanies the information when it is received by EPA, then it may be made available to the public by EPA without further notice to the Company.

9. Disclosure to EPA's Authorized Representatives. Information that the Company submits in response to this information request may be disclosed by EPA to authorized representatives of the United States pursuant to 40 C.F.R. § 2.310(h) even if the Company asserts that all or part of it is confidential business information. The authorized representatives of EPA to which EPA may disclose information contained in the Company's response are as follows:

GRB Environmental Services, Inc.
EPA Contract Number EPR90603

Department of Toxic Substances Control/California
Environmental Protection Agency

Toeroek & Associates, Inc.
EPA Contract Number BPA-11-W-001

CH2M Hill, Inc.
EPA RAC Contract Number EP-S9-08-04

SAIC (subcontractor under Toeroek & Associates, Inc.)
EPA Contract Number BPA-11-W-001

Any subsequent additions or changes in EPA contractors who may have access to the Company's response to this information request will be published in the Federal Register.

This information may be made available to these authorized representatives of EPA for any of the following reasons: to assist with document handling, inventory, and indexing; or to assist with document review and analysis for verification of completeness; or to provide expert technical review of the contents of the response. Pursuant to 40 C.F.R. § 2.310(h), the Company may submit comments on EPA's potential disclosure of any confidential information to its authorized representatives within the thirty (30) calendar day period in which the response is due.

10. Objections to Questions. If the Company has objections to some or all of the questions contained in the information request, it is still required to respond to each of the questions.

Definitions Applicable to Enclosure B, Information Request:

1. Any reference to California Drilling & Blasting Co., Inc. or the "Company" should be interpreted to include, but not be limited to, all officers, managers, employees, contractors, assigns, agents, trustees, predecessors, successors, subsidiaries, operating divisions, affiliates and branches.

2. The term "person" shall include any individual, firm, unincorporated association, partnership, corporation, trust, joint venture, or other entity.

3. The term "waste" or "wastes" shall mean and include trash, garbage, refuse, by-products, solid waste, hazardous waste, hazardous substances, and pollutants or contaminants, whether solid, liquid or sludge.

4. The term "hazardous waste" shall have the same definition as that contained in Section 1004(5) of RCRA.

5. The term "hazardous substance" shall have the same definition as that contained in Section 101(14) of CERCLA, and includes any mixtures of such hazardous substances with any other substances, including mixtures of hazardous substances with petroleum products or other nonhazardous substances.

6. The term "release" has the same definition as that contained in Section 101(22) of CERCLA, and includes any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment, including the abandonment or discharging of barrels, containers and other closed receptacles containing any hazardous substance or pollutant or contaminant.

7. The term "pollutant or contaminant" shall have the same definition as that contained in Section 101(33) of CERCLA and include any mixtures of such pollutants and contaminants with any other substance including petroleum products.

8. The term "materials" shall mean all substances that have been generated, treated, stored, or disposed of or otherwise handled at or transported to the Site including, but not limited to, all hazardous substances, pollutants or contaminants.

9. The term "documents" includes any written, recorded, computer generated, or visually or aurally reproduced material of any kind in any medium in your possession, custody, or control or known by you to exist, including originals, all prior drafts, and all non-identical copies.

ENCLOSURE B: INFORMATION REQUEST

Information provided to EPA indicates that California Drilling & Blasting Co., Inc. currently operates as a blasting contractor at the Site for Stone Valley Materials, LLC, and may have conducted operations at the Site as early as 1986.

1. State the full legal name, address, telephone number, position(s) held by, and tenure of the individual(s) answering any of the questions below on behalf of the Company.

2. Identify the individuals who are or were responsible for environmental matters for the Company's operations located in or near Pyrite Canyon near Glen Avon, California (the "Site"). Henceforth, the term "Site" shall be interpreted to include all real property surrounding the former Stringfellow hazardous waste disposal site and any improvements thereto. For each individual responsible for environmental matters, provide his/her full name, current or last known address, current or last known telephone number, position titles, and the dates each individual held such position.

3. Explain the Company's present operational status (e.g., active, suspended, defunct, merged, or dissolved).

4. Provide the date the Company was incorporated, formed, or organized. Identify the State in which the Company was incorporated, formed, or organized.

5. Identify the business structure (e.g., sole proprietorship, general partnership, limited partnership, joint venture, or corporation) under which the Company currently exists or operates, and identify all former business structures under which it existed or operated since its inception.

6. Provide a copy of the articles of incorporation, partnership agreement, articles of organization, or any other documentation (together with any amendments) demonstrating the particular business structure under which the Company has existed or operated since its inception.

7. If the Company is or was operating under a fictitious business name at the Site, identify the fictitious name and the owner(s) of the fictitious name, and provide a copy of the Fictitious Business Name Statement filed with the county.

8. List the names, titles, telephone number(s), and current or last known addresses of all individuals who are currently or were officers and/or owners of the Company during the time period when the Company operated at the Site, regardless of the business structure under which the Company is or was operated. Provide documentation of both the percentage of each individual's current or former ownership interest in the Company and the time period(s) during which he/she held this ownership interest.

9. Provide the dates that the Company, under any of its current or former business structures, operated at the Site along with a brief description of the types of operations conducted at the Site.

10. Identify and provide last known contact information for all prior and subsequent operators/ occupants and property owners of the Site. Provide the time period of each party's operations or ownership and describe the type of operations each conducted at the Site.

11. Identify and describe the portion(s) of the Site where the Company conducted mining, quarrying, blasting, exploratory or other operations, and provide the dates during which the Company conducted each type of operation at the Site. Provide a copy of each lease agreement, subcontract agreement, mining lease, gravel and tailings lease, and other documents which establish the Company's relationship to the real property owner during the period of the Company's operations at or occupancy of the Site.

12. Provide a scaled map of the Site that shows where the Company conducted or conducts mining, quarrying, blasting, exploratory or other operations. The map should include the locations of significant buildings, equipment and geographical features. Indicate the locations of all chemical and waste storage areas, and the boundaries of mining or quarrying districts and/or individual mines or quarries located within the Site.

13. Provide a detailed description of all activities involved in the mining, quarrying, blasting or other operations conducted by the Company at the Site.

14. Provide a list of all chemicals and hazardous substances used by the Company at the Site, identifying the chemical composition and quantities used. Provide copies of Material Safety Data Sheets ("MSDSs") for all hazardous substances used.

15. Provide copies of hazardous material business plans and chemical inventory forms (originals and updates) submitted by the Company to city, county, and state agencies for the Site.

16. Please identify all leaks, spills, or other releases into the environment of any hazardous substances or pollutants or contaminants that have occurred at or from the Site. In addition, identify and provide supporting documentation of:

    a. The date each release occurred;
    b. The cause of each release;
    c. The amount of each hazardous substance, waste, or pollutant or contaminant released during each release;
    d. Where each release occurred and what areas were impacted by the release; and
    e. Any and all activities undertaken in response to each release, including the notification of any local, state, or federal government agencies about the release.

17. Provide copies of all sampling and investigation reports for the Site that contain the laboratory or field analyses of the soil quality and water quality of the aquifers, groundwater, mine water, surface water, pit lake, tailing pond discharges and receiving streams, including a map showing the sampling locations.

18. Provide records, if any, on the dewatering of the mines that provide specific information on pump rates, pump station locations, pump sizes, and changes in aquifer piezometric heads.

19. Provide copies of the mine or quarry plans and process flow sheets used at any and all mines or quarries within the Site.

20. If explosives were used in the Company's operations at the Site, provide a complete list of the explosives and their chemical components, the time period that the respective explosives were used, and a map showing the locations where the respective explosives were stored and detonated. Provide copies of MSDSs for all explosives.

21. If any substance containing perchlorate was utilized in any of the Company's operations at the Site, provide a complete description of those operations. Indicate the number of explosions per year, approximate volume of perchlorate substances used per explosion at the Site, and the storage and disposal practices in effect during the Company's operations at the Site for materials containing perchlorate. Include all documentation referencing or detailing the Company's use and disposal of perchlorate-containing substances

22. Describe all waste materials generated from the Company's operations at the Site. Provide information on the storage and disposal methods for each waste, the frequency of disposal, and quantities of waste generated annually. Provide copies of all manifests or other documents evidencing the Company's offsite disposal of wastes from the Site.

23. Provide copies of all state and federal permits related to the Company's operations at the Site, including permits that the Company obtained on behalf of other entities.

ENCLOSURE B: INFORMATION REQUEST

ANSWERS:

1. William Murphy McCardle
   4144 Arden Drive
   El Monte, CA 91731
   (626) 443-0310
   Chairman / CEO
   16 Years
2. Same as #1
3. Active
4. December 21, 1959, California
5. Corporation
6. Enclosed
7. No fictitious name
8. Same as #1
9. May 2010 to current
10. Only current information: Stone Valley Materials
11. Drilling & Blasting has been conducted in the North, Northwest and Northeast areas of the quarry.
12. Map enclosed
13. Drilled & Blasted quarry benches for Stone Valley Materials.
14. No Chemicals, explosives used MSDS enclosed
15. No hazardous materials business plan or chemical storage.
16. No leaks or spills
17. No testing
18. No dewatering
19. No flow sheets
20. Enclosed list and MSDS
21. No perchlorates found in MSDS
22. No waste
23. Riverside County permit

DOCUMENT FILED
Dec. 29, 1959
Office of County Clerk
Corporation Div.

387986

ENDORSED
FILED

In the office of the
Secretary of State
of the
State of California
Dec. 21, 1959
Frank M. Jordan
Secretary of State
by Stacy H. Aspey
Deputy

ARTICLES OF INCORPORATION

OF

CALIFORNIA DRILLING AND BLASTING CO., INC.

I

NAME

The name of this corporation is:

CALIFORNIA DRILLING AND BLASTING CO., INC.

II

SPECIFIC BUSINESS

The specific business in which the corporation is primarily to engage is the business of furnishing the construction industry and allied industries with services and equipment used in drilling, demolition, blasting and excavating with explosives.

III

ADDITIONAL PURPOSES

The additional purposes for which this corporation is formed are:

To purchase, take on lease or in exchange, hire or otherwise acquire any property of any kind or chara ter, real, personal, or mixed, or any rights or privileges therein, and to hold, sell, mortgage, let, hypotecate, and encumber by deed or trust, or otherwise handle or deal with or in or dispose of the same; to make any and all kinds of contracts in connection with any business which may be conducted by said corporation, or in connection with any properties which it may own, hold or have in its possession, and to undertake or gudrantee the whole or any part of the liabilities of any person, firm or corporation with which it may have business relations, and to pay for all property purcha ed, or rights acquired in money or stock, bonds, debentures or other property or securities of this corporation, to borrow and loan money, and to give and take security therefor; to acquire, own, handle, hold, sell, and dispose of, the capital stock, bonds, and other securities of other

corporations, and the bonds of governments, states and municipalities; to issue bonds, debentures or other obligations of the corporation from time to time for any of the objects or purposes of the corporation, and to secure the same by mortgage or deed of trust or pledge or lien upon any or all of the property, real, personal or mixed, or rights, privileges and franchises of the corporation, wherescoever situated and of whatever kind or character, acquired and to be acquired, and to sell or otherwise dispose of any or all of the same and any or all of its properties or whatever kind or character; to act as principal, agent, joint venturer, partner or in any other capacity which may be authorized or approved by the board of directors of this corporation; to transact business in the State of California or in any other jurisdiction of the United States of America or elsewhere in the world; and to have and to exercise all the powers conferred by the laws of California upon corporations formed under the laws pursuant to and under which this corporation is formed, as such laws are now in effect or may at any time hereafter be amended.

IV

PRINCIPAL OFFICE

The principal office for the transaction of the business of this corporation is to be located in the County of Los Angeles, State of California.

V

PERPETUAL EXISTENCE

The existence of this corporation is to be perpetual.

VI

AUTHORIZED CAPITAL

The total number of shares which this corporation shall have authority to issue is (7500) Seventy-five hundred shares. The par value of each share is Ten Dollars ($10.00). The aggregate par value of all shares is Seventy-five Thousand ($75,000.00) Dollars.

VII

NUMBER, NAMES AND ADDRESSES OF DIRECTORS

The number of directors of this corporation shall be three (3) and the names and addresses of the persons who shall serve as the first directors of this corporation are:

W. A. MURPHY	185 West Longdon Avenue, Arcadia, Calif.
BOB A. LUNDGREN	118 East 165th Street, Gardena, Calif.
ARTHUR A. MC CARDLE	19934 Rambling Road, Covina Calif.

IN WITNESS WHEREOF, the persons who are to act in the capacity of first directors of the corporation have hereunto set their hands this 2nd day of December, 1959.

W. A. Murphy

Bob A. Lundgren

Arthur A. McCardle

STATE OF CALIFORNIA)
) ss.
COUNTY OF LOS ANGELES)

On this 2nd day of December, 1959, before me Vernon M. Brydolf, a Notary Public in and for the said County and State, residing therein and duly commissioned and sworn, personall appeared W. A. Murphy, known to me to be the person whose name is subscribed to and who executed the within instrument, and acknowledged that he executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal and the day and year last above written.

Vernon M. Brydolf
Notary Public in and for the said County and State.
(seal)

STATE OF CALIFORNIA)
) ss.
COUNTY OF LOS ANGELES)

On this 2nd day of December, 1959, before me, Vernon M. Brydolf, a Notary Public in and for the said County

and State, residing therein and duly commissioned and sworn, personally appeared Bob A. Lundgren, known to me to be the person whose name is subscribed to and who executed the within instrument, and acknowledged that he executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal and the day and year last above written.

Vernon M. Brydolf
Notary Public in and for the said County and State.
(seal)

STATE OF CALIFORNIA }
COUNTY OF LOSANGELES } ss.

On this 2nd day of December, 1959, before me, Vernon M. Brydolf, a Notary Public in and for the said County and State, residing therein and duly commissioned and sworn, personally appeared Arthur A. McCardle, known to me to be the person whose name is subscribed to and who executed the within instrument, and acknowledged that he executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal and the day and year last above written.

Vernon M. Brydolf
Notary Public in and for the said County and State.
(seal)

Drilling & Blasting operations

Summary of Products Used

CentraGold 7000
CentraControl 7000
CentraControl 8000
ANFO
Fortel Extra
Power-ditch
Pentex D12
1lb Booster
3/4 lb Booster
1/2 lb Booster
80'HDT Ea
65' Unitronc
50' Unitronc
30' Unitronc
Harness Wire

60'HDT
50'HDT
40'HDT
24'HDT
20'EXEL MS20
30'EXEL MS20
40'EXEL #20
50'EXEL #20
30'CTD 9ms
30'CTD 17ms
30'CTD 42ms
20'CTD 42ms
20'CTD 17ms
20'CTD 9ms
2000' LL

1947 - Stone Valley Materials / Pyrite Street - Riverside

Shot Date	Invoice#	Cyds Producdd	CG7000 lbs	CC7000 lbs	CC8000 lbs	ANFO lbs.	Fortel Extra	Power-ditch	Pentex D12	1lb Booster	3/4 lb Booster	1/2 lb Booster	80'HDT Ea	65' Unitronc	50' Unitronc	30' Unitronc
4/21/2010	16279	12579	14700							154						
6/4/2010	16292	11495	16260							114						
7/1/2010	16303	7528		9800						91						
7/23/2010	16312	16664		23680						125						
8/20/2010	16321&29	13367		17360						142	45					
8/24/2010	16323	T&M				165										
9/8/2010	16330	15505		19040						166						
10/27/2010	16342	14568		8695	5725					140		13				
12/28/2010	16355	4513		6640						38						
12/30/2010	16356	6274	7980							52						
1/6/2011	16359	8776	12040							88						
1/13/2011	16357	T&M				55						52				
2/10/2011	16372	10723		15060						75			38			
2/23/2011	16373	15918		20380						119			63			
3/14/2011	16381	14548		21120						108			55			
3/15/2011	16399	5873				6160	400				77					
4/1/2011	16400	T&M				165	158	80				80				
4/5/2011	16401	17224		16760						131				67	64	
4/27/2011	16410	22774	26380							17				90	85	
5/24/2011	16425	4000				3740	193		83							
6/24/2011	16439	5718		6400							137					
7/11/2011	16457	10665		10960							120				50	60
7/29/2011	16468	12722		15040						90				45	45	
8/29/2011	16480	7681		9360						44					44	
9/9/2011	16488	T&M				275	40				12					
9/20/2011	16493	9601		10840						101						
10/4/2011	16500	3915		4160							61					
10/14/2011	16504	T&M									64					
10/21/2011	16507	10051		6660						68						
11/18/2011	16523	6770		7500							64					

P1

Shot Date	Invoice#	Cyds Producdd	CG7000 lbs	CC7000 lbs	CC8000 lbs	ANFO lbs.	Fortel Extra	Power-ditch	Pentex D12	1lb Booster	3/4 lb Booster	1/2 lb Booster	80'HDT' Ea	65' Unitronc	50' Unitronc	30' Unitronc
2/10/2012	16548	12087		13360						114						
6/12/2012	16596	6848				5390					76					

1947 - Stone Valley Materials / Pyrite Street - Riverside

Shot Date	Invoice #	60'HDT Ea	50'HDT Ea	40'HDT Ea	24'HDT Ea	20'EXEL MS20	30'EXEL MS20	40'EXEL #20	50'EXEL #20	30'CTD 9ms	30'CTD 17ms	30'CTD 42ms	20'CTD 42ms	20'CTD 17ms	20'CTD 9ms	2000' LL	Harness Wire
4/21/2010	16279	61			33			60		20	5	7				1	
6/4/2010	16292	45					69			10	2	10				1	
7/1/2010	16303		49				42			4		10				1	
7/23/2010	16312	63						62				17				1	
8/20/2010	16321&29		72			45	70			15			15			2	
8/24/2010	16323					74				45						2	
9/8/2010	16330	83						83				15				1	
10/27/2010	16342			140		13							35			1	
12/28/2010	16355	19					19					12				1	
12/30/2010	16356	26					26					5				1	
1/6/2011	16359															1	
1/13/2011	16357						52								20	1	
2/10/2011	16372							37				10				1	
2/23/2011	16373								57	10	3	10				1	
3/14/2011	16381							53								1	
3/15/2011	16399		70			7				2		10	25		5	1	
4/1/2011	16400				142		40			30	65					1	
4/5/2011	16401															2	
4/27/2011	16410																1
5/24/2011	16425		40	15			28						5		5	1	
6/24/2011	16439		27			60	50						20	20		1	
7/11/2011	16457																1
7/29/2011	16468																1
8/29/2011	16480																1
9/9/2011	16488				12									5			
9/20/2011	16493		60				51						10	10	15	1	
10/4/2011	16500			27	10	24							10		10	1.5	
10/14/2011	16504					64				20				9		1	
10/21/2011	16507			68						3	10	10				1	
11/18/2011	16523	32					32					8				1	

P2

Shot Date	Invoice #	60'HDT Ea	50'HDT Ea	40'HDT Ea	24'HDT Ea	20'EXEL MS20	30'EXEL MS20	40'EXEL #20	50'EXEL #20	30'CTD 9ms	30'CTD 17ms	30'CTD 42ms	20'CTD 42ms	20'CTD 17ms	20'CTD 9ms	2000' LL	Harness Wire
2/10/2012	16548		79		33	2							15		6	1	
6/12/2012	16596	38					38				5	4				1	

California Drilling & Blasting Co., Inc.

Shot Report

BR - 5052

Job # 1947 Customer Stone Valley Materials Job Type Quarry Date 4-21-10 WED

Job Location Pepite Str Blaster In Charge Bob L

Powder Crew Chris G, Ken B, Tom B

General Weather Conditions (Sunny, Clear, Overcast, Wind/Direction, Temperature):
Cold - Overcast - Some Sun, Some Rain Breeze SE

Number Boreholes 33	Number Boreholes 61	Number Boreholes
Diameter 4" Depth 10'	Diameter 5" Depth 33'-42'	Diameter Depth
Burden 10' Spacing 10'	Burden 11' Spacing 13'	Burden Spacing
Stemming Ht. 8'	Stemming Ht. 10'-26'	Stemming Ht.
Borehole Water Depth 2'-6'	Borehole Water Depth 1'-30'	Borehole Water Depth
Type Stemming Crushed Rock	Type Stemming Crushed Rock	Type Stemming

Explosives Used:

Type	Amount	Quantity	Detonators Description
Centragold 7000 (Gas)	14,700 lbs	61	60' Handi-Dets
Pentex 1b Boosters	154 ea.	60	40' EXEL #20s
2000' Shooting Line	1 ea.	33	24' Handi-Dets
30' CTD 42ms	7 ea.	20	30' CTD 9ms
		5	30' CTD 17ms

Maximum Lbs/Delay 425 Number Holes Double Primed 60 Total Lbs in Blast 14,854

Cubic Yards Produced 12,578.63 Powder Factor 1.18 Number Blasting Mats Used: 0

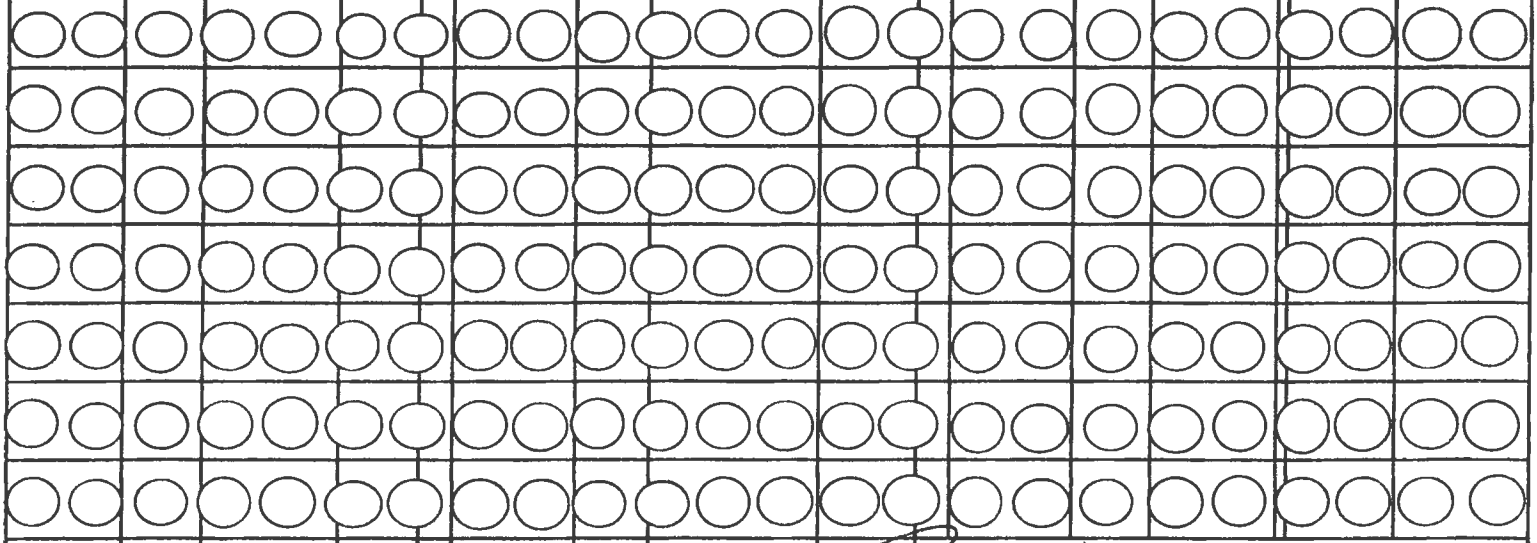
Distance to Nearest Structure: 750 Scale Distance 45 Preblast Survey by: None

Seismic Location(s): 1) 550' East of Shot 2)

Seismic Results: .22 in/sec @ 126 db 27Hz in/sec @ db

Comments About Shot: Results were O.K. Blast very contained, No throw rock - breakages O.K.

Shot Number CDB-10 01 (Indicate North on Diagram) Time Of Blast 4:05 pm.



By: Robert Lowergan Jr

[signature]

California Drilling & Blasting Co., Inc.

Shot Report

BR - 5062

[illegible] Customer [illegible] Job Type Quarry Date [illegible]

Location [illegible] Blaster In Charge [illegible]

Powder Crew Rolands, [illegible]

General Weather Conditions (Sunny,Clear, Overcast, Wind/Direction, Temperature):

Sunny 88° Low Breeze SE

Number Boreholes 24	Number Boreholes 45	Number Boreholes
Diameter 4 1/2" Depth 10'	Diameter 5" Depth 42-49	Diameter Depth
Burden 10 Spacing 10'	Burden 11' Spacing 13'	Burden Spacing
Stemming Ht. 6'	Stemming Ht. 10' - 23'	Stemming Ht.
Borehole Water Depth 1-4'	Borehole Water Depth 1-40'	Borehole Water Depth
Type Stemming Crushed Rock	Type Stemming Crushed Rock	Type Stemming

Explosives Used:

Type	Amount	Quantity	Detonators Description
		69	30' Exel ms 20'
Central Gold 7000	16,260 lbs	45	60' Handi-Dets
Pumped Lb Boosters	114 ea.	10	30' CTD 7ms
2000' Shoot Line	1 ea.	2	30' CTD 17ms
		10	30' CTD 42ms

Maximum Lbs/Delay 125 Number Holes Double Primed 45 Total Lbs in Blast 16,314

Cubic Yards Produced 11,494.42 Powder Factor 1.42 Number Blasting Mats Used: [illegible]

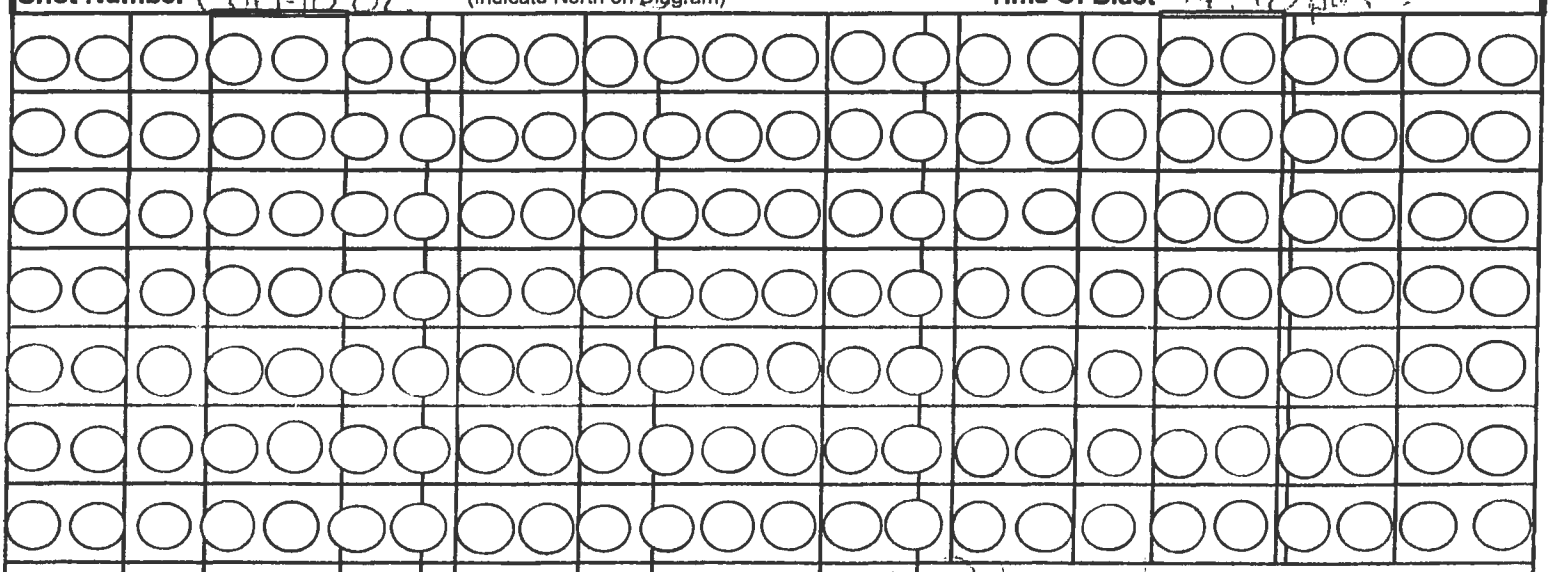
Distance to Nearest Structure: 900' Scale Distance 40 Preblast Survey by: None

Seismic Location(s): 1) 500' SE of Blast 2)

Seismic Results: .31 in/sec @ 126 db in/sec @ db

Comments About Shot: Results were good - no problems, Good movement. Not [illegible] rock, nice [illegible]

Shot Number CDB-10 02 (Indicate North on Diagram) Time Of Blast 4:10 pm



By: Robert [illegible]

California Drilling & Blasting Co., Inc.

Shot Report

BR - 5068

1947 Customer STONE Valley MATERIALS Job Type QUARRY Date 7-1-10 Thurs

Job Location Pyrite - Hwy 60 Blaster In Charge Bobl

Powder Crew EARLQ

General Weather Conditions (Sunny, Clear, Overcast, Wind/Direction, Temperature):
HOT 94° Lite Breeze SE

Number Boreholes 49	Number Boreholes	Number Boreholes
Diameter 5" Depth 20'-33	Diameter Depth	Diameter Depth
Burden 11 Spacing 13'	Burden Spacing	Burden Spacing
Stemming Ht. 11'-25'	Stemming Ht.	Stemming Ht.
Borehole Water Depth 1-30'	Borehole Water Depth	Borehole Water Depth
Type Stemming Crushed Rock	Type Stemming	Type Stemming

Explosives Used:

Type	Amount	Quantity	Detonators Description
		49	50' HANDI-DETS
CENTRACONTROL 70/30	9,800 lbs	42	30' EXEL #20s
TROJAN SPARTAN 1lb	9 lea	4	30' CTD 9ms
2000' SHOOTING line	1 EA.	10	30' CTD 42ms

Maximum Lbs/Delay 275 Number Holes Double Primed 42 Total Lbs in Blast 9,891

Cubic Yards Produced 7,527.67 Powder Factor 1.31 Number Blasting Mats Used: 0

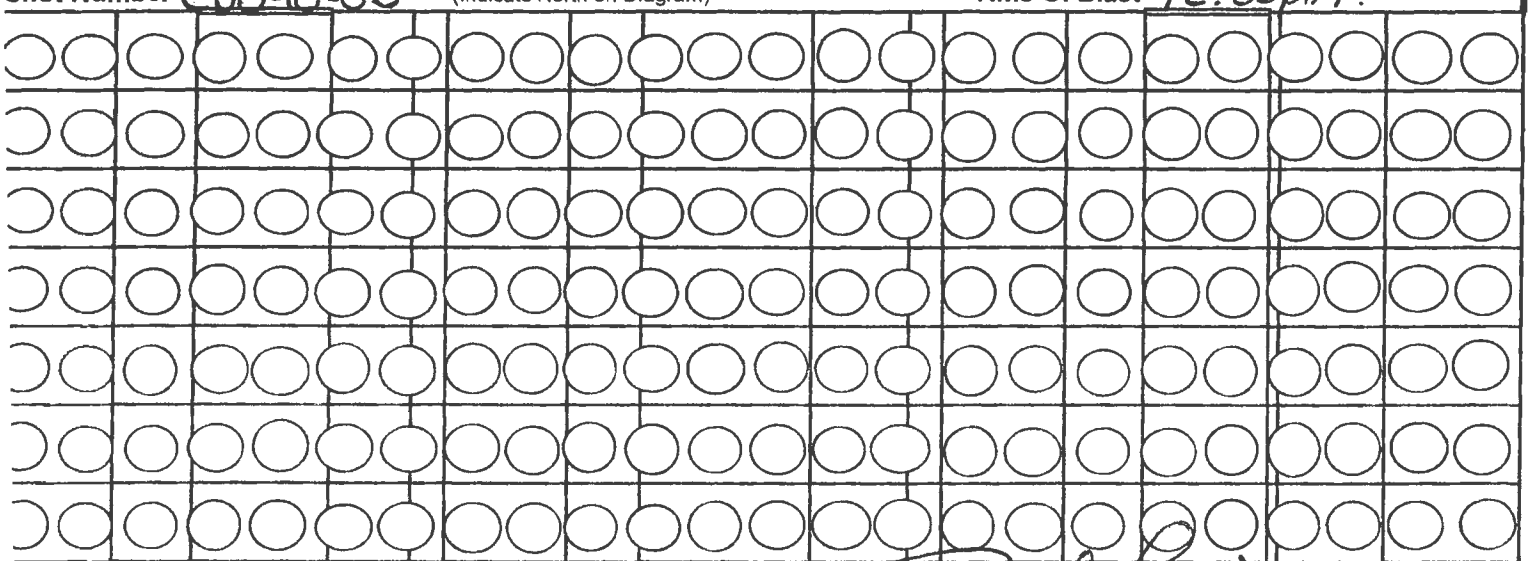
Distance to Nearest Structure: 580' Scale Distance 48 Preblast Survey by: NONE

Seismic Location(s): 1) 500' South EAST of BLAST 2)

Seismic Results: .24 in/sec @ 125 db 34 Hz in/sec @ db

Comments About Shot: Results were good chunky 75' away from crusher rest of BLAST broke nice no problems

Shot Number CDB-10-03 (Indicate North on Diagram) Time Of Blast 12:00pm.



By: [signature]

California Drilling & Blasting Co., Inc.

Shot Report

BR - 5077

,147 Customer STONE Valley Job Type QUARRY Date 7-23-10 Fri

Job Location Pyrite Hwy 60 Blaster In Charge Bobl

Powder Crew EARLQ, LEONARD W, Ken B

General Weather Conditions (Sunny, Clear, Overcast, Wind/Direction, Temperature):
HOT Sunny 96° Lite Breeze SE

Number Boreholes 63	Number Boreholes	Number Boreholes
Diameter 5" Depth 50'	Diameter Depth	Diameter Depth
Burden 11' Spacing 13'	Burden Spacing	Burden Spacing
Stemming Ht. 10' - 22'	Stemming Ht.	Stemming Ht.
Borehole Water Depth 2-12'	Borehole Water Depth	Borehole Water Depth
Type Stemming 3/8" Crushed Rock	Type Stemming	Type Stemming

Explosives Used:

Type	Amount	Quantity	Detonators Description
		62	40' EXE/20s
CENTRA CONTROL 7000 (70/30)	[illegible] 23,680 lbs	63	60' HANDI-DETS
TROJAN SPARTANS 1lb Boosters -	125 EA.	17	30' CTD 42ms
2000' SHOOTING Line	1 EA.		

Maximum Lbs/Delay 520 Number Holes Double Primed 62 Total Lbs in Blast 23,805

Cubic Yards Produced 16,663.5 Powder Factor 1.42 Number Blasting Mats Used: 0

Distance to Nearest Structure: 600' Scale Distance 30 Preblast Survey by: NONE

Seismic Location(s): 1) Seismic @ 500' BACK of 2) BLAST TOWARDS TRAILERS

Seismic Results: .10 in/sec @ 120 db in/sec @ db

Comments About Shot: Results were good - but we had some large pieces on top about middle of BLAST. Rest of BLAST Looked good!

Shot Number CDB-10-04 (Indicate North on Diagram) Time Of Blast 4:05 pm

By: [signature]

California Drilling & Blasting Co., Inc.

Shot Report

BR - 5085

Job # 1947 Customer STONE VALLEY MAT. Job Type QUARRY Date 8-20-10 Fri

Job Location PYRITE STR Blaster In Charge BOBL

Powder Crew EARLQ, Chris G

General Weather Conditions (Sunny, Clear, Overcast, Wind/Direction, Temperature):
Sunny HOT 100° Lite Breeze SE

Number Boreholes 23	Number Boreholes 71	Number Boreholes
Diameter 3 1/8" Depth 10'	Diameter 5" Depth 32-37	Diameter Depth
Burden 10 Spacing 10'	Burden 11' Spacing 13'	Burden Spacing
Stemming Ht. 4'-5'	Stemming Ht. 11'-20'	Stemming Ht.
Borehole Water Depth 0	Borehole Water Depth 1-8'	Borehole Water Depth
Type Stemming Crushed Rock	Type Stemming Crushed Rock	Type Stemming

Explosives Used:

Type	Amount	Quantity	Detonators Description
		72	50' HANDI-DETS
CENTRA CONTROL 7000	17,360	70	30' EXEL #20s
TROIAN BOOSTERS lb	142 EA.	45	20' EXEL #20s
Pentex 3/4 lb Boosters	45 EA or 33.75 lbs	15	20' CTD 42ms
2000' Shootline line	2 EA	15	30' CTD 9ms

Maximum Lbs/Delay 250 Number Holes Double Primed 94 Total Lbs in Blast 17,535.75

Cubic Yards Produced 13,367.14 Powder Factor 1.31 Number Blasting Mats Used: 0

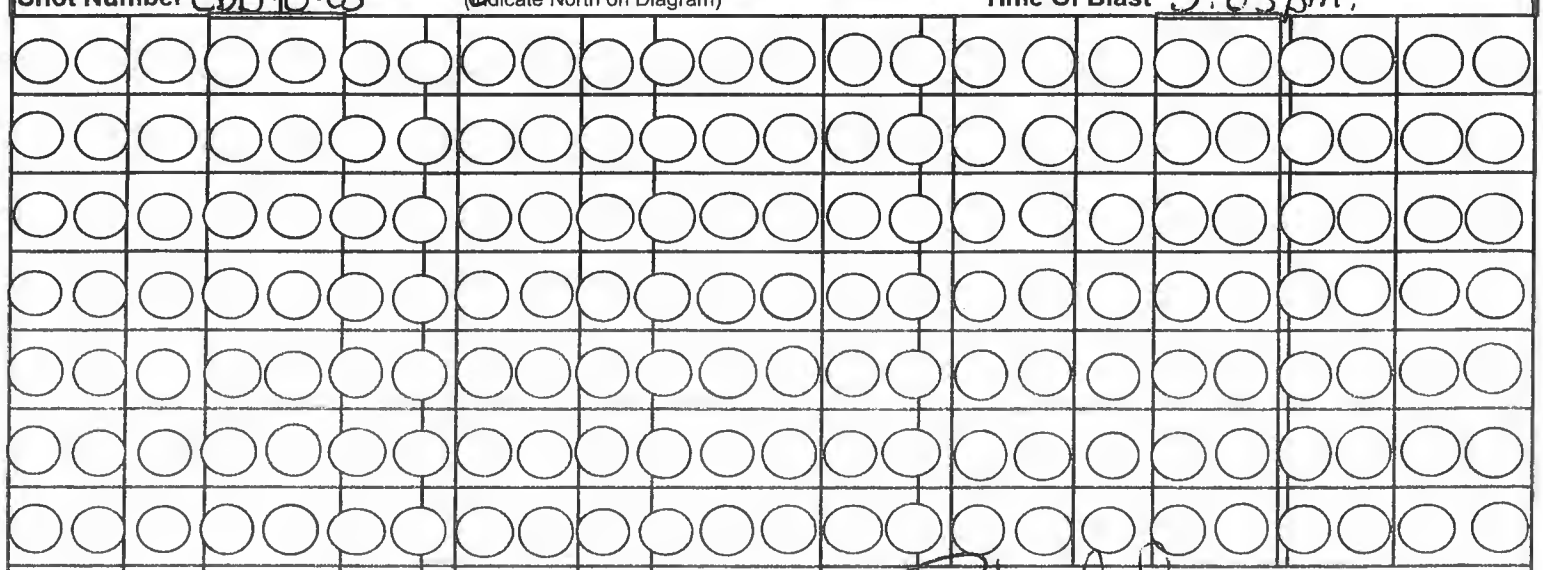
Distance to Nearest Structure: 780' Scale Distance 50 P bl t Surv

Seismic Location(s): 1) 550' SE OF BLAST 2)

Seismic Results: .14 in/sec @ 127 db @ 23HZ in/sec @ db

Comments About Shot: Results were good - good movement nice breakages Overhang came out fine - good results.

Shot Number CDB-10-05 (Indicate North on Diagram) Time Of Blast 3:05pm.



By: Robert Smith L

CALIFORNIA DRILLING & BLASTING CO., INC.

CONTRACTORS LICENSE NUMBERS • CALIFORNIA #189455 • NEVADA #0011156 • HAWAII #C-5160
P.O. BOX 4607 • EL MONTE, CA 91733-0607 • TEL (626) 443-0310 • FAX (626) 575-2848

COMPANY Stone Valley DATE 8-2

ADDRESS _____ CITY _____ ZIP _____

JOB LOCATION Pyrite Sth. CUSTOMER NO. _____ CD&B JOB NO.

MOBILIZATION IN / OUT _____ BY (CO.) _____

NO.		HOURS EACH				TOTAL HOURS	OVERTIME
1	DRILLS	8				8hrs	
	JACKHAMMER						
1	POWDERMAN	8				8hrs	Boulder
	FOREMAN						overhaul
1	HELPER	8				8hrs	Crusher
	STANDBY						
	SUBSISTANCE						

_____ PERMIT APPLICATION _____ POWDER TRUCK _____ PICK-UP TRUCK _____

_____ SEISMIC ☐ BY: _____ OTHER _____

EXPLOSIVES: DELIVERY W.A. Murphy PICK UP _____ SHOT REPORT #. Br #5083

HIGH EXPLOSIVES:
TYPE _____ SIZE _____ _____
TYPE _____ SIZE _____ LBS. _____
BOOSTERS 74 EA. SIZE 3/4 (LB) BOOSTERS _____ EA. SIZE ____ (LB)
TWO COMPONANT _____ (TYPE) _____ (EA)

ANFO BAGGED Shamrock ANFO-165 (LBS) BULK _____

EMULSION BLEND _____ LBS. _____
PACKAGED: SIZE _____ LBS. _____

DETONATORS

QUANTITY	LENGTH	DESCRIPTION	QUANTITY	LENGTH
74	20'	EXEL #20		
45	30'	CTD 9ms		

OTHER: NOISELESS TRUNKLINE 4000 (FT.) PRIMA CORD _____

X Robert Morgan X

PREPARED BY CUSTOMER SIGNATURE

CALIFORNIA DRILLING & BLASTING CO., INC. *PAYROLL / COST ACCOUNTING*

LABOR NAME: LAST FIRST	HOURS WORKED REG.	OT	JOB DESCRIPTION (DRILLER, POWDERMAN, HELPER, ETC.)
Bradshaw, Ken	8		Driller
Bradshaw, Ken	8		Powder
Lowerson, Bob	8		Powderman

California Drilling & Blasting Co., Inc.

Shot Report

BR - 5092

Job # 1947 Customer Stone Valley Job Type QUARRY Date 9-8-10 WED

Job Location Pyrite-Riverside Blaster In Charge Bob L

Powder Crew EARL Q, Ken B

General Weather Conditions (Sunny, Clear, Overcast, Wind/Direction, Temperature):
Overcast, Sunny 85° Lite Breeze SE

Number Boreholes 83	Number Boreholes	Number Boreholes
Diameter 5" Depth 35-37'	Diameter Depth	Diameter Depth
Burden 11' Spacing 13'	Burden Spacing	Burden Spacing
Stemming Ht. 11'-25'	Stemming Ht.	Stemming Ht.
Borehole Water Depth 1'-35'	Borehole Water Depth	Borehole Water Depth
Type Stemming Crushed Rock	Type Stemming	Type Stemming

Explosives Used:

Type	Amount	Quantity	Detonators Description
		83	60' HANDI-DETS
CENTRA CONTROL 7000	19,040 lbs	83	40' EXEL #20s
TROJAN 16 BOOSTERS	166 EA.	15	30' CTD 42 ms
2000' SHOOTING LINE	1 EA.		

Maximum Lbs/Delay 300 Number Holes Double Primed 83 Total Lbs in Blast 19,206

Cubic Yards Produced 15,504.99 Powder Factor 1.23 Number Blasting Mats Used: 0

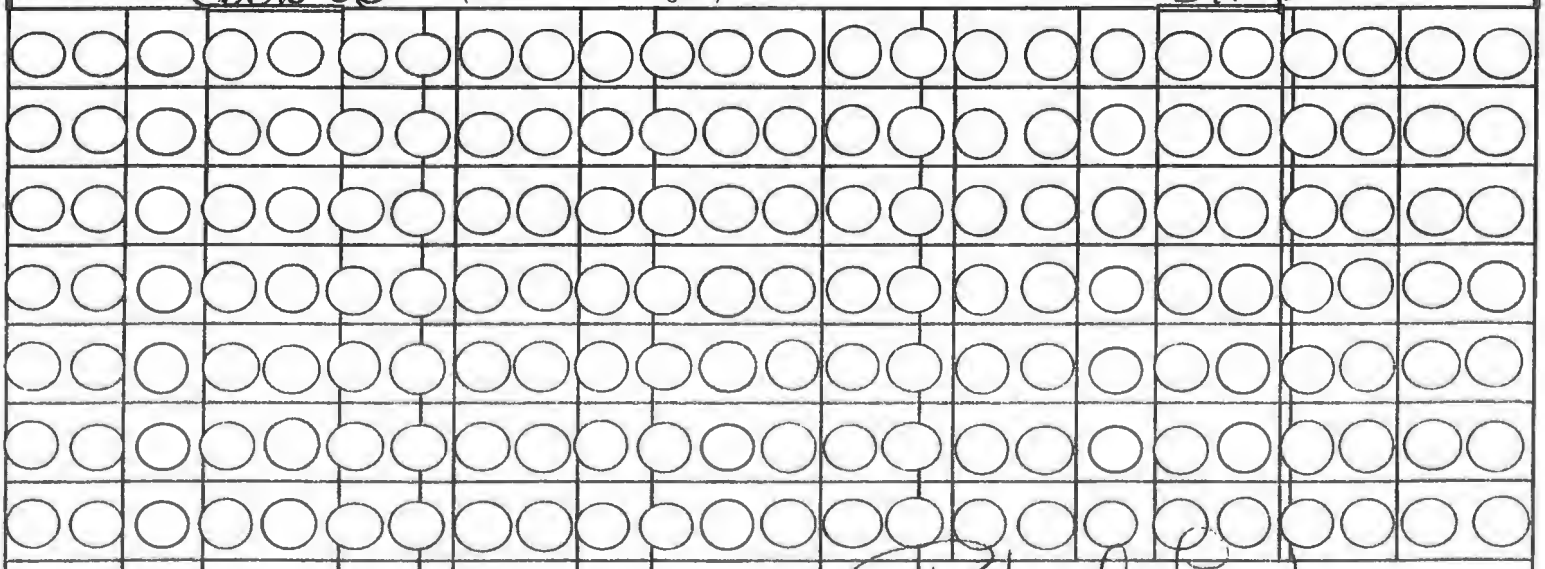
Distance to Nearest Structure: 850 Scale Distance 52 Preblast Survey by: None

Seismic Location(s): 1) SE of BLAST - 550' 2)

Seismic Results: .09 in/sec @ 127 db 19 Hz in/sec @ db

Comments About Shot: Results were good - nice movement good breakages No Flyrock!

Shot Number CDB10-06 (Indicate North on Diagram) Time Of Blast 3:10pm



By: Robert [illegible]

California Drilling & Blasting Co., Inc

Shot Report

BR - 7-Oct

Job # 1947 Customer Stone Valley Materials Job Type Quarry Date Wed 10-27-10

Job Location Pyrite St. Blaster In Charge Earl Quinby

Powder Crew Chris Garcia , Kenny Bradshaw , Kevin Ingram

General Weather Conditions (Sunny,Clear, Overcast, Wind/Direction, Temperature):

Windy and clear

Number Boreholes 88	Number Boreholes 52	Number Boreholes
Diameter 5" Depth 13' to26'	Diameter 4.5" Depth 11' to 26'	Diameter Depth
Burden 11' Spacing 13'	Burden 10' Spacing 12'	Burden Spacing
Stemming Ht. 12'	Stemming Ht. 12'	Stemming Ht.
Borehole Water Depth n/a	Borehole Water Depth n/a	Borehole Water Depth
Type Stemming 3/8" rock	Type Stemming 3/8" rock	Type Stemming

Explosives Used:

Type	Amount	Quantity
Centra Control 8000	5725 Lb.	140 ea.
Centra Control 7000	8695 Lb.	13 ea.
1 Lb. BSTR	140 ea.	35 ea.
1/2 Lb. BSTR	13 ea.	2000 Ft.

Detonators

Description
40 Ft.Handidet
20 Ft. Exel MS 20
20 Ft. CTD MS 42
Exel Lead in Line

Maximum Lbs/Delay 147 **Number Holes Double Primed** 13 **Total Lbs in Blast** 14,567 Lb.

Cubic Yards Produced 14,568 cy **Powder Factor** 1 **Number Blasting Mats Used:** n/a

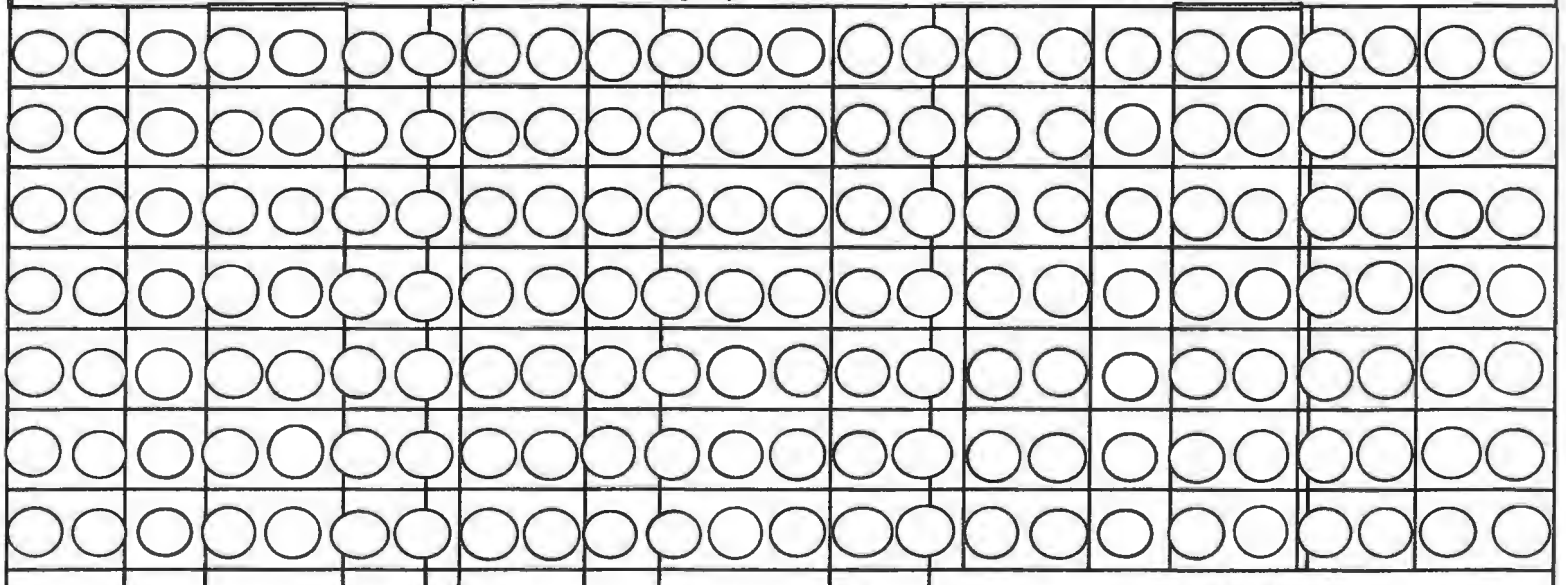
Distance to Nearest Structure: n/a **Scale Distance** n/a **Preblast Survey by:** n/a

Seismic Location(s): 1) n/a 2)

Seismic Results: n/a in/sec @_ n/a in/sec @ db

Comments About Shot: Good shot.....

Shot Number CDB 10-07 (Indicate North on Diagram) **Time Of Blast** 15:05



By: Earl Quinby

California Drilling & Blasting Co., Inc.

Shot Report

BR - 5099

.147 Customer STONE Valley MATERIALS Job Type QUARRY Date 12-28-10 TUES

.ocation Pyrite Riverside Blaster In Charge Bob L

owder Crew Chris G.

General Weather Conditions (Sunny,Clear, Overcast, Wind/Direction, Temperature):
Cloudy, Sunny 51° Lite Breeze SW

Number Boreholes 19	Number Boreholes	Number Boreholes
Diameter 5" Depth 44-47'	Diameter Depth	Diameter Depth
Burden 11' Spacing 13'	Burden Spacing	Burden Spacing
Stemming Ht. 12'-15'	Stemming Ht.	Stemming Ht.
Borehole Water Depth 8-40'	Borehole Water Depth	Borehole Water Depth
Type Stemming Crushed Rock	Type Stemming	Type Stemming

Explosives Used:

Type	Amount	Quantity	Detonators Description
		19	60' HANDI-DETS
CENTRA CONTROL 7000	6,640 lbs	19	30' EXEL MS 20s
PENTEX 1lb BOOSTERS	38 EA.	12	30' CTD 42MS
2000' SHOOTING line	1 EA.		

Maximum Lbs/Delay 352 Number Holes Double Primed 19 Total Lbs in Blast 6,678
Cubic Yards Produced 4,512 3T Powder Factor 1.47 Number Blasting Mats Used: 0

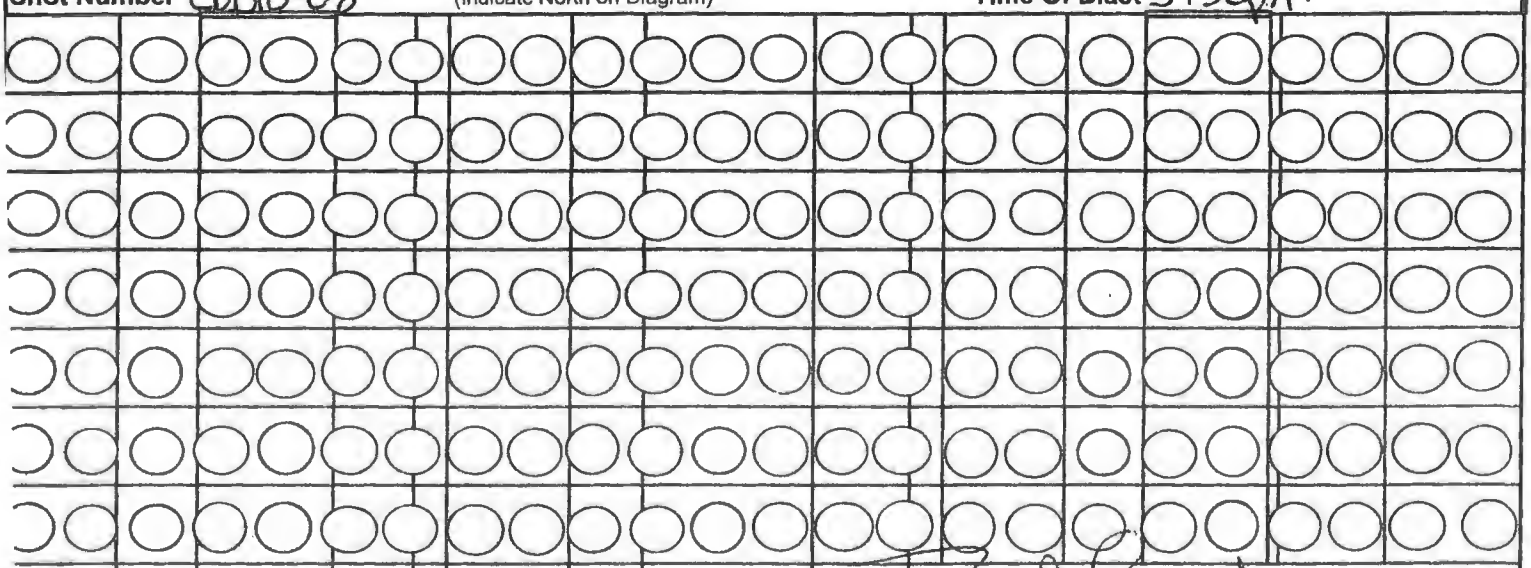
Distance to Nearest Structure: 900' Scale Distance 51 Preblast Survey by: None

Seismic Location(s): 1) 800' SE 2)

Seismic Results: .23 in/sec @ 121 db in/sec @ db

Comments About Shot: We are loading for Rip-Rap SHOT. We had good results no problems - good Blast!

Shot Number CDB10-08 (Indicate North on Diagram) Time Of Blast 3:30pm.



By: Robert [illegible]

California Drilling & Blasting Co., Inc

Shot Report

BR 3401

Customer STONE VALLEY MATERIALS Job Type QUARRY Date 12-30-10 Thurs

Location Pyrite, Riverside Blaster In Charge BOBL

Driller Crew CHRIS G

General Weather Conditions (Sunny,Clear, Overcast, Wind/Direction, Temperature):
Sunny, Cold 55° Lite Breeze SE

Number Boreholes 26	Number Boreholes	Number Boreholes
Diameter 5" Depth 45'-47'	Diameter Depth	Diameter Depth
Burden 11' Spacing 13'	Burden Spacing	Burden Spacing
Stemming Ht. 12'-16'	Stemming Ht.	Stemming Ht.
Borehole Water Depth 8'-40'	Borehole Water Depth	Borehole Water Depth
Type Stemming Crushed Rock	Type Stemming	Type Stemming

Explosives Used:

Type	Amount	Quantity	Detonators	Description
CENTRAGOLD 700D	7,980 lbs		26	60' HANDI-DETS
Pentolite Boosters	52 EA.		26	30' EXE 1ms 20'
2000' EXEL Shooting Line	1 EA.		5	30' CTD 42ms

Maximum Lbs/Delay 352 Number Holes Double Primed 26 Total Lbs in Blast 8,032
Cubic Yards Produced 6,273.94 Powder Factor 1.28 Number Blasting Mats Used: 0

Distance to Nearest Structure: 900' Scale Distance 50 Preblast Survey by: NONE

Seismic Location(s): 1) NO READING 2)

Seismic Results: _____ in/sec @ _____ db _____ in/sec @ _____ db

Comments About Shot: Shooting for Rip-Rap, shot came out fine no problems - great movement!

Shot Number CDB10-09 (Indicate North on Diagram) Time Of Blast 3:45pm.

By: [signature]

California Drilling & Blasting Co., Inc

Shot Report

BR 3402

147 **Customer** Stone Valley Materials **Job Type** Quarry **Date** 1-6-11 Tues

Location Pyrite, Riverside **Blaster In Charge** Bob L

Powder Crew Chris C & Ken B

General Weather Conditions (Sunny,Clear, Overcast, Wind/Direction, Temperature):
Sunny, Cold 54° Lite Breeze SE

Number Boreholes 44	Number Boreholes	Number Boreholes
Diameter 5" Depth 36' - 44'	Diameter Depth	Diameter Depth
Burden 11' Spacing 13'	Burden Spacing	Burden Spacing
Stemming Ht. 11' - 18'	Stemming Ht.	Stemming Ht.
Borehole Water Depth 2' - 28'	Borehole Water Depth	Borehole Water Depth
Type Stemming Crushed rock	Type Stemming	Type Stemming

Explosives Used:

Type	Amount	Quantity
Centra Gold 7000	12,040 lbs	
Pentex 1b Boosters	88 ea.	
2000' Shooting line	1 ea.	

Detonators

	Description
44	60" Handi-Dets
44	30' EXEL #20s
1	30' CTD 9ms
12	30' CTD 42ms

Maximum Lbs/Delay 363 **Number Holes Double Primed** 44 **Total Lbs in Blast** 12,128
Cubic Yards Produced 8,776.4 **Powder Factor** 1.38 **Number Blasting Mats Used:** 0

Distance to Nearest Structure: 650' **Scale Distance** 38 **Preblast Survey by:** None

Seismic Location(s): 1) South of Blast near structures
Seismic Results: .29 in/sec @ 122 db in/sec @ ____ db

Comments About Shot: Were blasting for large materials, it looked like we got some good material out of shot!

Shot Number CDB11-01 (Indicate North on Diagram) **Time Of Blast** 3:45 pm.

By: Robert Lynn L

California Drilling & Blasting Co., Inc

Shot Report

BR 3404

ob # 1947 Customer Stone Valley Materials Job Type Boulders Date 1-13-11 Thurs

ob Location Pyrite, Riverside Blaster In Charge Bob L

'owder Crew Ken B

General Weather Conditions (Sunny,Clear, Overcast, Wind/Direction, Temperature):
Sunny, Warm 74° Lite Breeze

Number Boreholes 52	Number Boreholes	Number Boreholes
Diameter 3 1/8" Depth 3'-7'	Diameter Depth	Diameter Depth
Burden 2 Spacing 2	Burden Spacing	Burden Spacing
Stemming Ht. 2'-5'	Stemming Ht.	Stemming Ht.
Borehole Water Depth 0	Borehole Water Depth	Borehole Water Depth
Type Stemming Crushed Rock	Type Stemming	Type Stemming

Explosives Used: **Detonators**

Type	Amount	Quantity		Description
Shamrock, ANFO	55 lbs		52	30' EXEL #20's
Pentex 1/2 lb Boosters	52 ea.		20	20' CTD 9ms
2000' Shooting line	1 ea.			

Maximum Lbs/Delay 1 Number Holes Double Primed 0 Total Lbs in Blast 81

Cubic Yards Produced Boulders Powder Factor .50 Number Blasting Mats Used: 0

Distance to Nearest Structure: Scale Distance Preblast Survey by:

Seismic Location(s): 1) No Reading 2)

Seismic Results: in/sec @ db in/sec @ db

Comments About Shot: We were breaking down very large Boulders had great results! No problems

Shot Number CDB11-03 (Indicate North on Diagram) Time Of Blast 2:35 pm

Boulders

By: Robert Pyzak

California Drilling & Blasting Co., Inc

Shot Report

BR 3409

Job # 1947 Customer STONE Valley Job Type QUARRY Date 2-10-11 THURS

Job Location Pyrite Str, Riverside Blaster In Charge Bob L.

Powder Crew EARL Q. ROLANDS

General Weather Conditions (Sunny, Clear, Overcast, Wind/Direction, Temperature):
Sunny, Windy SW

Number Boreholes 38	Number Boreholes	Number Boreholes
Diameter 5" Depth 52-55'	Diameter Depth	Diameter Depth
Burden 11' Spacing 13'	Burden Spacing	Burden Spacing
Stemming Ht. 12'-20' LOCKHOLES	Stemming Ht.	Stemming Ht.
Borehole Water Depth 1'-50'	Borehole Water Depth	Borehole Water Depth
Type Stemming Crushed Rock	Type Stemming	Type Stemming

Explosives Used:

Type	Amount	Quantity
CENTRA CONTROL 7000	15,060 lbs	
Pentex 1lb BOOSTERS	75 EA	
2000' SHOOTING Line	1 EA.	

Detonators

	Description
38	80' NANDI-DETS
37	40' EXEL #20's
10	30' CTD 42ms

Maximum Lbs/Delay 473 Number Holes Double Primed 37 Total Lbs in Blast 15,135

Cubic Yards Produced 10,722.83 Powder Factor 1.41 Number Blasting Mats Used: 0

Distance to Nearest Structure: 800' Scale Distance 45 Preblast Survey by: NONE

Seismic Location(s): 1) 700' SE OF BLAST 2)

Seismic Results: .31 in/sec @ 118 db in/sec @ db

Comments About Shot: Results were good - shot was controlled, but broke well! No Problems!

Shot Number CDBil-04 (Indicate North on Diagram) Time Of Blast 1:15 pm.

By: Robert [illegible]

California Drilling & Blasting Co., Inc

Shot Report

BR 3412

Customer Stone Valley Materials Job Type Quarry Date 2-23-11 WED

...tion Pyrite, Riverside Blaster In Charge Bob L

...er Crew EARL Q, ROLANDS

General Weather Conditions (Sunny, Clear, Overcast, Wind/Direction, Temperature):
Cloudy & Sunny 54° Lite Breeze SE

Number Boreholes 59	Number Boreholes	Number Boreholes
Diameter 5" Depth 51'	Diameter Depth	Diameter Depth
Burden 11' Spacing 13'	Burden Spacing	Burden Spacing
Stemming Ht. 12'-26'	Stemming Ht.	Stemming Ht.
Borehole Water Depth 20'-50'	Borehole Water Depth	Borehole Water Depth
Type Stemming Crushed Rock	Type Stemming	Type Stemming

Explosives Used:

Type	Amount	Quantity
Centra Control 7000	20,380	
Pentex 16 Boosters	119 EA.	
2000' Shooting line	1 EA.	

Detonators

	Description
63	80' HANDI-DETS
57	50' EXEL #20's
10	30' CTD 9ms
3	30' CTD 17ms
10	30' CTD 42ms

Maximum Lbs/Delay 462 Number Holes Double Primed 57 Total Lbs in Blast 20,499
Cubic Yards Produced 15,917.61 Powder Factor 1.29 Number Blasting Mats Used: 0

Distance to Nearest Structure: 800' Scale Distance 45 Preblast Survey by: NONE

Seismic Location(s): 1) 700' SE of BLAST 2)

Seismic Results: NO READING in/sec @ db in/sec @ db

Comments About Shot: Results were very good no problems - nice movement good breakages - No Drow Rock. Note: USED 1-80' HD as Surface Cap

Shot Number CDB11-05 (Indicate North on Diagram) Time Of Blast 2:00 pm

By: Robert Lyl

California Drilling & Blasting Co., Inc

Shot Report

BR 3416

Job # 1947 Customer Stone Valley Materials Job Type Quarry Date 3-14-11 mm

Job Location Pyrite - Riverside Blaster In Charge Bob L.

Powder Crew Rang

General Weather Conditions (Sunny,Clear, Overcast, Wind/Direction, Temperature):
Sunny 69° High Clouds - Lite Breeze 2-3mph

Number Boreholes 55	Number Boreholes	Number Boreholes
Diameter 5" Depth 50'	Diameter Depth	Diameter Depth
Burden 11' Spacing 13'	Burden Spacing	Burden Spacing
Stemming Ht. 11'-21'	Stemming Ht.	Stemming Ht.
Borehole Water Depth 1'-45'	Borehole Water Depth	Borehole Water Depth
Type Stemming Crushed Rock	Type Stemming	Type Stemming

Explosives Used:

Type	Amount	Quantity
Centra Control 7000	21,120 lbs	
Pentex lb Boosters	108 ea	
2000' Shooting line	ea.	

Detonators

	Description
55	80' Handi-Dets
53	40' Exel #20's
2	30' CTD 9ms
10	30' CTD 42ms

Maximum Lbs/Delay 480 Number Holes Double Primed 53 Total Lbs in Blast 21,228

Cubic Yards Produced 14,547.5 Powder Factor 1.45 Number Blasting Mats Used: 0

Distance to Nearest Structure: 800' Scale Distance 38 Preblast Survey by: None

Seismic Location(s): 1) 600' East of Blast in front of Trailers

Seismic Results: .42 in/sec @ 121 db in/sec @ db

Comments About Shot: Results were good - very controled no problems
Some chunks on front nothing bad.

Shot Number CDB11-06 (Indicate North on Diagram) Time Of Blast 2:10pm.

By: Robert Fry

California Drilling & Blasting Co., Inc

Shot Report

BR 3417

Customer STONEVALLEY Job Type QUARRY Date 3-15-11 TUES

Location PYRITE, RIVERSIDE Blaster In Charge BOBL

Powder Crew ROLANDS

General Weather Conditions (Sunny,Clear, Overcast, Wind/Direction, Temperature):
Sunny, WARM Lite Breeze NE

Number Boreholes 69	Number Boreholes	Number Boreholes
Diameter 4" Depth 32'	Diameter Depth	Diameter Depth
Burden 8' Spacing 9'	Burden Spacing	Burden Spacing
Stemming Ht. 8'-16"	Stemming Ht.	Stemming Ht.
Borehole Water Depth 0	Borehole Water Depth	Borehole Water Depth
Type Stemming Crushed rock	Type Stemming	Type Stemming

Explosives Used:

Type	Amount	Quantity
SHAMROCK ANFO	6,160 lbs	
FORTE/EXTRA 2½ x 16"	399.6 lbs or 120 STKS	
TROJAN 3/4 lb BOOSTER	77 EA or 57.75	
2000' SHOOTING line	1 EA.	

Detonators

Quantity	Description
70	50' HANDI-DETS
7	20' EXEL #20 9
5	20' CTD 9ms
25	20' CTD 42ms

Maximum Lbs/Delay 125 Number Holes Double Primed 8 Total Lbs in Blast 6,617.35

Cubic Yards Produced 5,873.28 Powder Factor 1.12 Number Blasting Mats Used: 0

Distance to Nearest Structure: 900' Scale Distance 70 Preblast Survey by: NONE

Seismic Location(s): 1) 900' SE 2)

Seismic Results: NO READING in/sec @ db in/sec @ db

Comments About Shot: Results were very good no problems - nice movement good breakage

Shot Number CDB1727 (Indicate North on Diagram) Time Of Blast 2:10 pm.

1ST ON TOP of QUARRY

By: Robert Pryor

California Drilling & Blasting Co., Inc

Shot Report

BR 3419

Job # 1947 Customer Stone Valley Materials Job Type Quarry Date 4-1-11 Fri

Job Location Pyrite, Riverside Blaster In Charge Bobl

Powder Crew Chris G - 4hrs, Rolands - 8hrs

General Weather Conditions (Sunny, Clear, Overcast, Wind/Direction, Temperature):
Sunny & Hot 93° Lite Breeze SE

Number Boreholes 182	Number Boreholes	Number Boreholes
Diameter 3" Depth 3'-7'	Diameter Depth	Diameter Depth
Burden 3 Spacing 3	Burden Spacing	Burden Spacing
Stemming Ht. 2'-5'	Stemming Ht.	Stemming Ht.
Borehole Water Depth 2'-4'	Borehole Water Depth	Borehole Water Depth
Type Stemming Crushed Rock	Type Stemming	Type Stemming

Explosives Used:

Type	Amount	Quantity	Detonators	Description
Pentex ½ lb Boosters	80 lbs or	160 ea.	142	24' Handi Dets
Shamrock ANFO	165 lbs		40	30' EXE 1.20 s
Power Ditch 1000 2"x16"	80 lbs or	32 STKS	30	30' CTD 9ms
Fodel EXTRA 2"x16"	158.4 lbs or	72 STKS	25	30' CTD 17ms
2 1000' Shooting Line	2 EA.			

Maximum Lbs/Delay 12 Number Holes Double Primed 20 Total Lbs in Blast 483.4

Cubic Yards Produced 628 Powder Factor .76 Number Blasting Mats Used: 0

Distance to Nearest Structure: 1000+ Scale Distance _____ Preblast Survey by: None

Seismic Location(s): 1) No Seismic 2)

Seismic Results: _____ in/sec @ _____ db _____ in/sec @ _____ db

Comments About Shot: We loaded 5'-7' holes plus 24 Boulders, had no problems everything shot and Broke.

Shot Number CDB11-08 (Indicate North on Diagram) Time Of Blast 2:45 pm

By: [signature]

California Drilling & Blasting Co., Inc

Shot Report

BR 3420

1947 Customer STONEVALLEY Job Type QUARRY Date 4-5-11 WED

Location RYRITE, RIVERSIDE Blaster In Charge BOBL

Powder Crew EARLQ, ROLANDS

General Weather Conditions (Sunny,Clear, Overcast, Wind/Direction, Temperature):
OVERCAST, COLD - Light Breeze SE

Number Boreholes 67	Number Boreholes	Number Boreholes
Diameter 4½" Depth 46-50'	Diameter Depth	Diameter Depth
Burden 11' Spacing 13'	Burden Spacing	Burden Spacing
Stemming Ht. 10'-25'	Stemming Ht.	Stemming Ht.
Borehole Water Depth 4'-50'	Borehole Water Depth	Borehole Water Depth
Type Stemming CrushedRock	Type Stemming	Type Stemming

Explosives Used:

Type	Amount	Quantity
CENTRACONTROL 7000	16,760 lbs	
Pentel 1lb Boosters	131 ea.	

Detonators

	Description
67	65' UNITRONIC CAPS
64	50' UNITRONIC CAPS

Maximum Lbs/Delay 360 Number Holes Double Primed 64 Total Lbs in Blast 16,[illegible]

Cubic Yards Produced 17,224.24 Powder Factor .98 Number Blasting Mats Used: [illegible]

Distance to Nearest Structure: 4[illegible]' Scale Distance 50 Preblast Survey by: None

Seismic Location(s): 1) Seismic @ SE of BLAST by 2 TRAILERS

Seismic Results: .13 in/sec @ 115 db in/sec @ db

Comments About Shot: Results were good - nice movement, good breakages No throw rock.

Shot Number CDB11-09 (Indicate North on Diagram) Time Of Blast 2:34pm.

By: [signature]

California Drilling & Blasting Co., Inc

Shot Report

BR 3424

Job # 1947 Customer Stone Valley Job Type Quarry Date 4-27-11 WED

Job Location Pyrite str - Riverside Blaster In Charge Bobl

Powder Crew EARIQ, Ken B, Rolands (4 hrs)

General Weather Conditions (Sunny, Clear, Overcast, Wind/Direction, Temperature):
Overcast, Sunny, High Clouds 71° Lite Breeze

Number Boreholes 86	Number Boreholes	Number Boreholes
Diameter 4½ Depth 50'	Diameter Depth	Diameter Depth
Burden 11 Spacing 13	Burden Spacing	Burden Spacing
Stemming Ht. 10'-25'	Stemming Ht.	Stemming Ht.
Borehole Water Depth 45-50'	Borehole Water Depth	Borehole Water Depth
Type Stemming Crushed Rock	Type Stemming	Type Stemming

Explosives Used:

Type	Amount	Quantity
Centragold 7000	26,380 lbs	
Rental lb Boosters	175 ea.	
Harness Wire	1 ea.	

Detonators

	Description
85	50' Unitronics
90	65' Unitronics

Maximum Lbs/Delay 410 Number Holes Double Primed 86 Total Lbs in Blast 26,555

Cubic Yards Produced 22,774.07 Powder Factor 1.17 Number Blasting Mats Used: 0

Distance to Nearest Structure: 1000' Scale Distance 55 Preblast Survey by: None

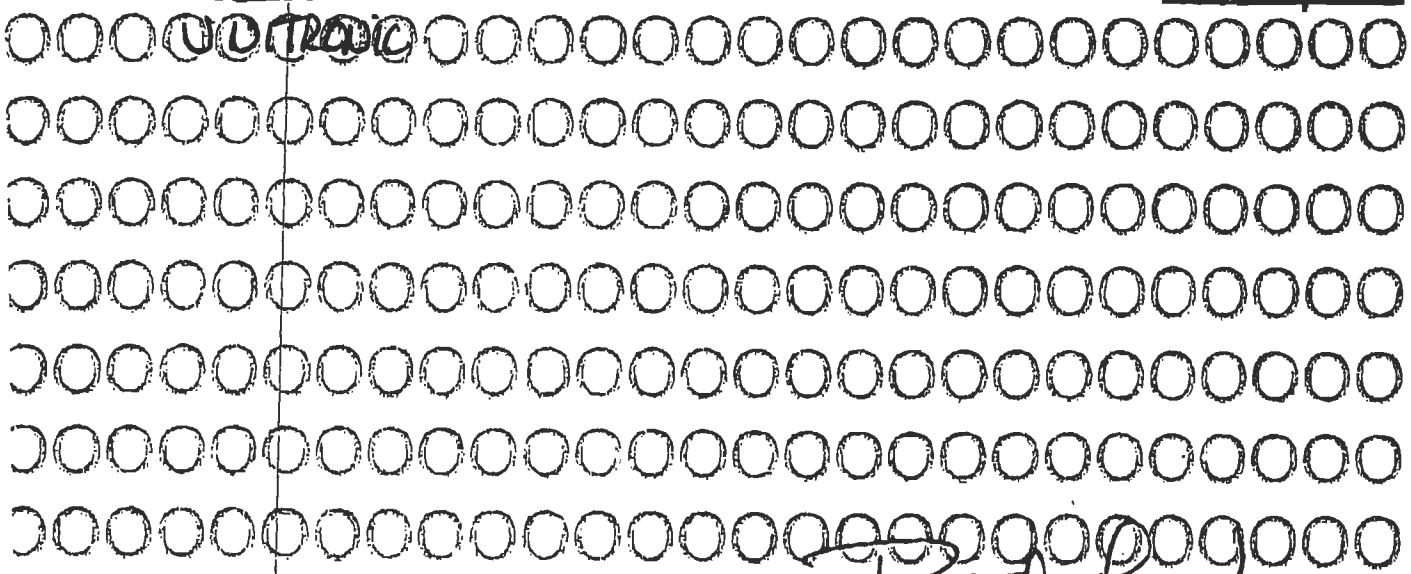
Seismic Location(s): 1) 750' East of Blast Towards Trailer, other side of Fence

Seismic Results: .34 in/sec @ 116 db in/sec @ db

Comments About Shot: Results were very good, breakage good, walls nice - No throw rock.

Shot Number CDB11-10 (Indicate North on Diagram) Time Of Blast 4:40pm.

Unitronic



By: Robert [illegible]

California Drilling & Blasting Co., Inc

Shot Report

BR 1115

Job # 1947 Customer Stone Valley Materials Job Type Drill and Shoot Date 5-24-11

Job Location Top Bench Blaster In Charge Chris Garcia

Powder Crew Lenord Watts, Ken Bradshaw

General Weather Conditions (Sunny,Clear, Overcast, Wind/Direction, Temperature):
Warm and Sunny Wind South @ 10mph

Number Boreholes 50	Number Boreholes	Number Boreholes
Diameter 4" Depth 30'	Diameter Depth	Diameter Depth
Burden 8 Spacing 9	Burden Spacing	Burden Spacing
Stemming Ht. 8-20	Stemming Ht.	Stemming Ht.
Borehole Water Depth 0'-5'	Borehole Water Depth	Borehole Water Depth
Type Stemming Crushed Rock	Type Stemming	Type Stemming

Explosives Used:

Type	Amount	Quantity
Shamrock ANFO	3740 LBS	
Fortel Pro 3X16	193 STK	
Pentex D 12	83	
2000' LIL	1 @ 2000'	

Detonators

	Description
40	50' HD 25/500
15	40' HD 25/500
28	30' MS Eltel 500
5	20' 9ms CTD
5	20' 42ms CTD

Maximum Lbs/Delay 220 Number Holes Double Primed 37 Total Lbs in Blast 4744

Cubic Yards Produced 4000 Powder Factor 1.18 Number Blasting Mats Used: 8

Distance to Nearest Structure: 1500' Scale Distance Preblast Survey by:

Seismic Location(s): 1) Fence @ Gate 2)

Seismic Results: .042 in/sec @ 116 db in/sec @ db

Comments About Shot: Area had seams that had to be darked thrue
Had to unhand vethole product in 4 holes and Reprime

Shot Number 5-11-011 (Indicate North on Diagram) Time Of Blast 12:35

By: Chris Garcia

California Drilling & Blasting Co., Inc

Shot Report

BR 3432

47 Customer STONE VALLEY MATERIALS Job Type QUARRY Date 6-24-11 FRI

ation Pyrite, Sth Riverside Blaster In Charge Bob L

der Crew RONG - Earl & Kevin 1 hrs @ end of Day

General Weather Conditions (Sunny, Clear, Overcast, Wind/Direction, Temperature):
HOT 97° Lite Breeze SE

Number Boreholes 33	Number Boreholes 71	Number Boreholes
Diameter 4½" Depth 30'-42'	Diameter 3½" Depth 5-10'	Diameter Depth
Burden 11 Spacing 13	Burden 5 Spacing 6	Burden Spacing
Stemming Ht. 10'-15'	Stemming Ht. 5-6'	Stemming Ht.
Borehole Water Depth 30'-40'	Borehole Water Depth 0	Borehole Water Depth
Type Stemming 3/4" crushed	Type Stemming 3/8" crushed	Type Stemming

Explosives Used:

Type	Amount	Quantity
CENTR CONTROL 7000	6,400 lbs	
TROJAN 3/4 lb BOOSTERS	137 EA.	
2000' SHOOTING line	1 EA.	

Detonators

	Description
50	30' EXE 120s
60	20' EXE 120s
27	50' HANDI-DETS
20	20' CTD 42ms
20	20' CTD 17ms

Maximum Lbs/Delay 279 Number Holes Double Primed 33 Total Lbs in Blast 6,502.75
Cubic Yards Produced 5,718.49 Powder Factor 1.14 Number Blasting Mats Used: 0

Distance to Nearest Structure: 1200' Scale Distance 60+ Preblast Survey by: NONE

Seismic Location(s): 1) NO READING @ 900' TO EAST

Seismic Results: _____ in/sec @ _____ db _____ in/sec @ _____ db

Comments About Shot: Results were good no problems. lots of large material fell from Face was not Blasted! trim areas came out fine.

Shot Number CDB11-12 (Indicate North on Diagram) Time Of Blast 4:00pm.

20 @ 20' CTD 9ms

By: [signature]

California Drilling & Blasting Co., Inc

Shot Report

BR 3436

Job # 1947 Customer Stone Valley Job Type Quarry Date 7-11-11 mm

Job Location Pyrite, Riverside Blaster In Charge Bob L, Earl Q

Powder Crew Ken B

General Weather Conditions (Sunny, Clear, Overcast, Wind/Direction, Temperature):
Hot, Sunny 98° Lite Breeze SW

Number Boreholes 60	Number Boreholes	Number Boreholes
Diameter 4 1/2" Depth 33'-36'	Diameter Depth	Diameter Depth
Burden 11 Spacing 13	Burden Spacing	Burden Spacing
Stemming Ht. 11'-25'	Stemming Ht.	Stemming Ht.
Borehole Water Depth Ø	Borehole Water Depth	Borehole Water Depth
Type Stemming Crushed Rock	Type Stemming	Type Stemming

Explosives Used:

Type	Amount	Quantity
Centra Control	10,960 lbs	
Trojan Spartans 3/4 lb	120 ea or 90 lbs	
Harness wire	1 ea.	

Detonators

	Description
60	50' Unitronic Caps
60	30' Unitronic Caps

Maximum Lbs/Delay 225 Number Holes Double Primed 60 Total Lbs in Blast 11,050

Cubic Yards Produced 10,664.64 Powder Factor 1.04 Number Blasting Mats Used: Ø

Distance to Nearest Structure: 950' Scale Distance 50 Preblast Survey by: None

Seismic Location(s): 1) Seismic 800' SE of Blast 2)

Seismic Results: .18 in/sec @ 122 db in/sec @ db

Comments About Shot: Results were good this was 2nd from Top Bench, 33' cut starting to produce 30' x 30' Benches - Good Day.

Shot Number CDBH-13 (Indicate North on Diagram) Time Of Blast 2:20pm.

By: [signature]

California Drilling & Blasting Co., Inc

Shot Report

BR 3440

Job # 1947 Customer Stone Valley Job Type Quarry Date 7-29-11

Job Location Pyrite Riverside Blaster In Charge Bob L

Powder Crew Kevin

General Weather Conditions (Sunny,Clear, Overcast, Wind/Direction, Temperature):
Hot - 98° Light Breeze SE

Number Boreholes 45	Number Boreholes	Number Boreholes
Diameter 4 1/2" Depth 53'-55'	Diameter Depth	Diameter Depth
Burden 11' Spacing 13'	Burden Spacing	Burden Spacing
Stemming Ht. 11'-25'	Stemming Ht.	Stemming Ht.
Borehole Water Depth 2'-50'	Borehole Water Depth	Borehole Water Depth
Type Stemming Crushed Rock 1/2"	Type Stemming	Type Stemming

Explosives Used:

Type	Amount	Quantity	Detonators	Description
Centra Control 7000	15,040		45	Unitronic 500 - 50'
Trojan Spartons 1 lb	90 ea		45	Unitronic 500 - 65'
Unitronic Harness Wire	1 ea			

Maximum Lbs/Delay 396 Number Holes Double Primed 45 Total Lbs in Blast 15,130

Cubic Yards Produced 12,722.45 Powder Factor 1.18 Number Blasting Mats Used: 0

Distance to Nearest Structure: 900' Scale Distance 50+ Preblast Survey by: None

Seismic Location(s): 1) 750' S EOJ BLAST 2)

Seismic Results: .26 in/sec @ 118 db in/sec @ db

Comments About Shot: Results were good Shot moved very well - good breakage, No throw rock.

Shot Number CDBIL-14 (Indicate North on Diagram) Time Of Blast 2:00pm.

By: Robert Page

California Drilling & Blasting Co., Inc

Shot Report

BR 3443

Job # 1947 Customer Stone Valley Job Type Quarry Date 8-29-11 mm

Job Location Pyrite, Riverside Blaster In Charge Bob L.

Powder Crew Leonard W

General Weather Conditions (Sunny,Clear, Overcast, Wind/Direction, Temperature):
105° HOT, Lite Breeze SE

Number Boreholes 44	Number Boreholes	Number Boreholes
Diameter 4½" Depth 33'	Diameter Depth	Diameter Depth
Burden 11' Spacing 13'	Burden Spacing	Burden Spacing
Stemming Ht. 11'-20'	Stemming Ht.	Stemming Ht.
Borehole Water Depth Ø	Borehole Water Depth	Borehole Water Depth
Type Stemming Crushed Rock	Type Stemming	Type Stemming

Explosives Used:

Type	Amount	Quantity	Detonators	Description
Centra Control 7000	9,360 lbs		44	15m (50') Unitronic Caps
Trojan Spartan 1b	44 ea.			
Unitronic Wire	1 ea			

Maximum Lbs/Delay 198 Number Holes Double Primed Ø Total Lbs in Blast 9,404 lbs

Cubic Yards Produced 7,681.08 Powder Factor 1.22 Number Blasting Mats Used: Ø

Distance to Nearest Structure: 1,100' Scale Distance 60+ Preblast Survey by: NONE

Seismic Location(s): 1) 850' E of Blast in Front of Trailers

Seismic Results: .08 in/sec @ 121 db in/sec @ db

Comments About Shot: Results were very good no problems - No throw rock! this shot was 2nd Bench from top!

Shot Number CDB-11-15 (Indicate North on Diagram) Time Of Blast 12:45pm.

By: Robert Smyth

California Drilling & Blasting Co., Inc

Shot Report

BR 3446

1947 **Customer** Stone Valley **Job Type** Quarry **Date** 9-9-11 Fri

Location Pyrite, Riverside **Blaster In Charge** Bob L

Powder Crew

General Weather Conditions (Sunny,Clear, Overcast, Wind/Direction, Temperature):
Sunny 85° No Breeze

Number Boreholes 12	Number Boreholes	Number Boreholes
Diameter 4 1/2 Depth 10'	Diameter Depth	Diameter Depth
Burden 8' Spacing 8'	Burden Spacing	Burden Spacing
Stemming Ht. 6'	Stemming Ht.	Stemming Ht.
Borehole Water Depth Ø	Borehole Water Depth	Borehole Water Depth
Type Stemming Crushed Rock	Type Stemming	Type Stemming

Explosives Used:

Type	Amount	Quantity	Detonators	Description
Shamrock ANFO	275 lbs		12	24' Handi-Dets
3x16" Fortel	40 lbs		5	20' CTD 17ms
3/4 lb Boosters	12 ea or 9 lbs			
2000' Shooting line	1 ea			

Maximum Lbs/Delay 27 **Number Holes Double Primed** Ø **Total Lbs in Blast** 324
Cubic Yards Produced 284.4 **Powder Factor** 1.14 **Number Blasting Mats Used:** Ø

Distance to Nearest Structure: 900+ **Scale Distance** 60+ **Preblast Survey by:** None

Seismic Location(s): 1) No Seismic 2)

Seismic Results: in/sec @ db in/sec @ db

Comments About Shot: this was a area that needed to be widen for Access to Bench good results.

Shot Number TIGHT Area (Indicate North on Diagram) **Time Of Blast** 8:15 AM.

By: Rule [illegible]

California Drilling & Blasting Co., Inc

Shot Report

BR 3448

,447 Customer STONE Valley Job Type Quarry Date 9-20-11 TUES

Location Pyrite, Riverside Blaster In Charge Bob L

owder Crew Chris G.

General Weather Conditions (Sunny,Clear, Overcast, Wind/Direction, Temperature):
Hot 98° Lite Breeze SE

Number Boreholes 55	Number Boreholes 52	Number Boreholes
Diameter 4 1/2" Depth 33'	Diameter 4" Depth 5'-10'	Diameter Depth
Burden 11' Spacing 13'	Burden — Spacing Vareys	Burden Spacing
Stemming Ht. 11'-28'	Stemming Ht. 3'-6'	Stemming Ht.
Borehole Water Depth 0	Borehole Water Depth 0	Borehole Water Depth
Type Stemming Crushed Rock	Type Stemming Crushed Rock	Type Stemming

Explosives Used:

Type	Amount	Quantity
Centra Control 70/30	10,840 lbs	
Trojan 16 Boosters	10 lea	
2000' shooting line	1 ea.	

Detonators

	Description
60	50' Handi-Dets
51	30' Exel 20s
15	20' CTD 9ms
10	20' CTD 17ms
10	20' CTD 42ms

Maximum Lbs/Delay 240 Number Holes Double Primed 0 Total Lbs in Blast 10,941

Cubic Yards Produced 9,601.35 Powder Factor 1.14 Number Blasting Mats Used: 0

Distance to Nearest Structure: 1000' Scale Distance 60+ Preblast Survey by: NONE

Seismic Location(s): 1) No Reading 2)

Seismic Results: in/sec @ db in/sec @ db

Comments About Shot: We loaded High area plus Boulders shot everything sometime had good results!

Shot Number CDB11-16 (Indicate North on Diagram) Time Of Blast 2:10pm.

By: Robert Lyle

California Drilling & Blasting Co., Inc.

Shot Report

BR - 5401

Job # 1947 Customer Stone Valley Job Type Quarry Date 10-4-11 tues

Job Location Pyrite, Riverside Blaster In Charge Bob L.

Powder Crew Chris C.

General Weather Conditions (Sunny,Clear, Overcast, Wind/Direction, Temperature):
High Clouds, Some Sun, Light Breeze 82°

Number Boreholes 32	Number Boreholes 15	Number Boreholes ~~15~~
Diameter 4½" Depth 10'-25'	Diameter 3½" Depth 3'-7'	Diameter ____ Depth ____
Burden 11 Spacing 13	Burden Boulders ~~Spacing~~ ____	Burden ____ Spacing ____
Stemming Ht. 9'-15	Stemming Ht. 2'-3'	Stemming Ht. ____
Borehole Water Depth 25'	Borehole Water Depth ~~0~~	Borehole Water Depth ____
Type Stemming Crushed Rock	Type Stemming Crushed Rock	Type Stemming ____

Explosives Used:

Type	Amount	Quantity
CENTRA CONTROL 7000	4,160 lbs	27
TROJAN 3½ lbs	6 EA.	10
2,000' Shooting line	1 EA.	24
1000' Shooting line	1 EA.	10
		10

Detonators

Description
40' Handi-Nets
34' Handi-Nets
20' EXEL #20's
20' CTD 9ms
20' CTD 42ms

Maximum Lbs/Delay 175 Number Holes Double Primed 15 Total Lbs in Blast 4,205.75

Cubic Yards Produced 3,914.0 Powder Factor 1.07 Number Blasting Mats Used: None

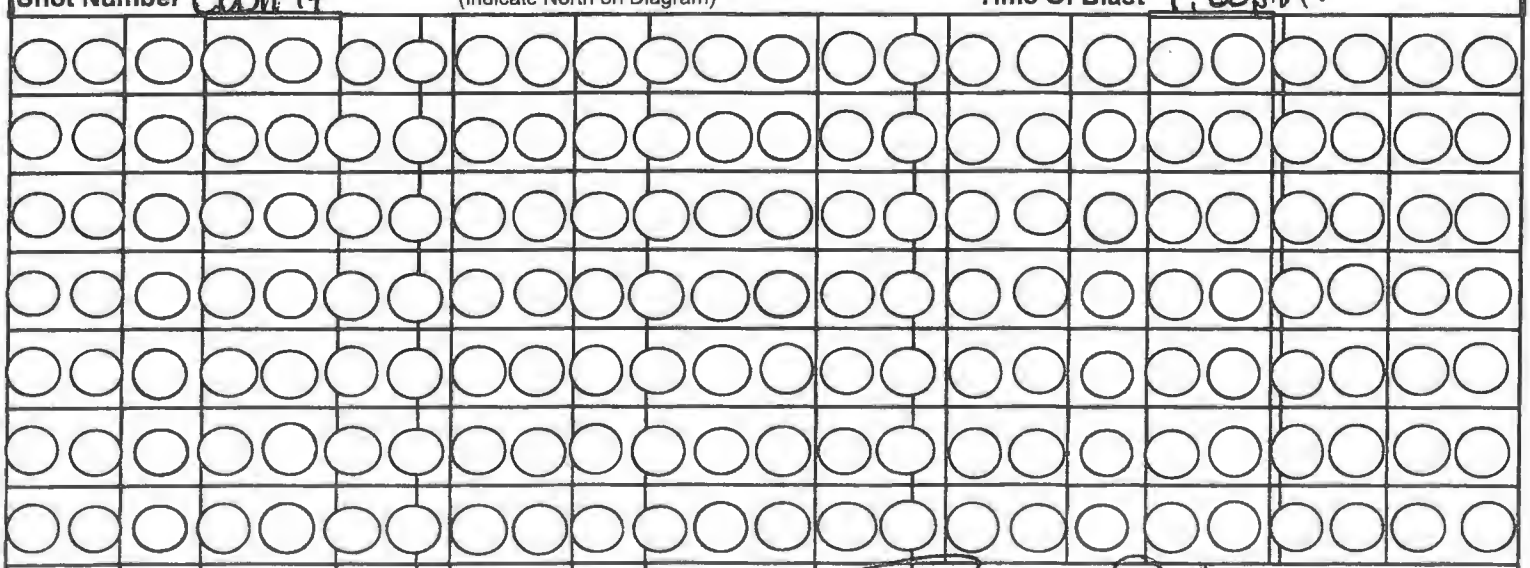
Distance to Nearest Structure: 1000' Scale Distance 50+ Preblast Survey by: None

Seismic Location(s): 1) No Reading 2) @ 850' SE

Seismic Results: ____ in/sec @ ____ db ____ in/sec @ ____ db

Comments About Shot: We had very good results, plus Shot Boulders with good results - no problems - good day

Shot Number CDB11-17 (Indicate North on Diagram) Time Of Blast 1:00pm.



By: [signature]

California Drilling & Blasting Co., Inc.

Shot Report

BR - 5403

Job # 1947 Customer STONE Valley Job Type Quarry Date 10-14-11 Fri

Job Location Pyrite Str, [illegible] Pierside Blaster In Charge Bob L

Powder Crew Ken B

General Weather Conditions (Sunny,Clear, Overcast, Wind/Direction, Temperature):

Sunny HOT 96° Lite Breeze

Number Boreholes 32	Number Boreholes	Number Boreholes
Diameter 3½" Depth 3'-8'	Diameter Depth	Diameter Depth
Burden Boulders Spacing —	Burden Spacing	Burden Spacing
Stemming Ht. 2'-4'	Stemming Ht.	Stemming Ht.
Borehole Water Depth Ø	Borehole Water Depth	Borehole Water Depth
Type Stemming Crushed Rock	Type Stemming	Type Stemming

Explosives Used:

Type	Amount	Quantity	Detonators Description
TROJAN SPARTAN 3/4 lb	64 ea or 48 lbs	9	20' CTD 17 ms
		64	20' EXEL #20s
2000' Shooting line	1 ea	20	30' CTD 9 ms

aximum Lbs/Delay 3/4 lb Number Holes Double Primed 32 Total Lbs in Blast 48

ubic Yards Produced Boulders Powder Factor 1.25 Number Blasting Mats Used: Ø

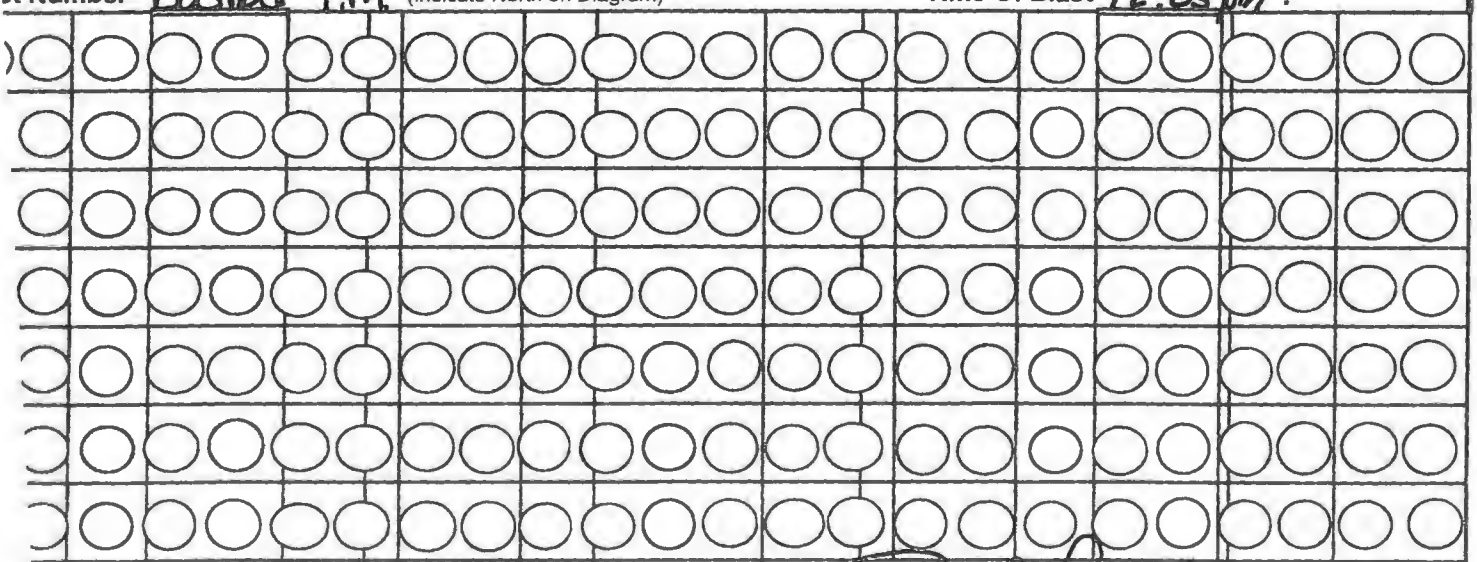
stance to Nearest Structure: 6' Scale Distance 20 Preblast Survey by: NONE

eismic Location(s): 1) NO READING 2)

Seismic Results: in/sec @ db in/sec @ db

mments About Shot: Boulders came out OK, no Damage TO STRUCTURE To move large Boulder - Day O.K.

ot Number Boulder T.M. (Indicate North on Diagram) Time Of Blast 12:05 pm.



By: [signature]

California Drilling & Blasting Co., Inc.

Shot Report

BR - 5405

Job # 1947 Customer STONE Valley Job Type Quarry Date 10-21-11 FRI

Job Location Pyrite STR - Riverside Blaster In Charge Bob L

Powder Crew Earl Q, Chris G

General Weather Conditions (Sunny, Clear, Overcast, Wind/Direction, Temperature):

Sunny Hot 93° Lite Breeze SE

Number Boreholes 70	Number Boreholes	Number Boreholes
Diameter 4½" Depth 10'-30'	Diameter Depth	Diameter Depth
Burden 11' Spacing 13'	Burden Spacing	Burden Spacing
Stemming Ht. 11'-16'	Stemming Ht.	Stemming Ht.
Borehole Water Depth 0	Borehole Water Depth	Borehole Water Depth
Type Stemming Crushed Rock	Type Stemming	Type Stemming

Explosives Used:

Type	Amount	Quantity	Detonators Description
Central Control 7000	6,660 lbs	68	40' Handi-Dets
Trojan Boosters 1b	68 ea	3	CTD 9ms (30')
Shooting line 2000'	1 ea.	10	30' CTD 17ms
		10	30' CTD 42ms

Maximum Lbs/Delay 171 Number Holes Double Primed 0 Total Lbs In Blast 6,728

Cubic Yards Produced 10,051 Powder Factor .67 Number Blasting Mats Used: 0

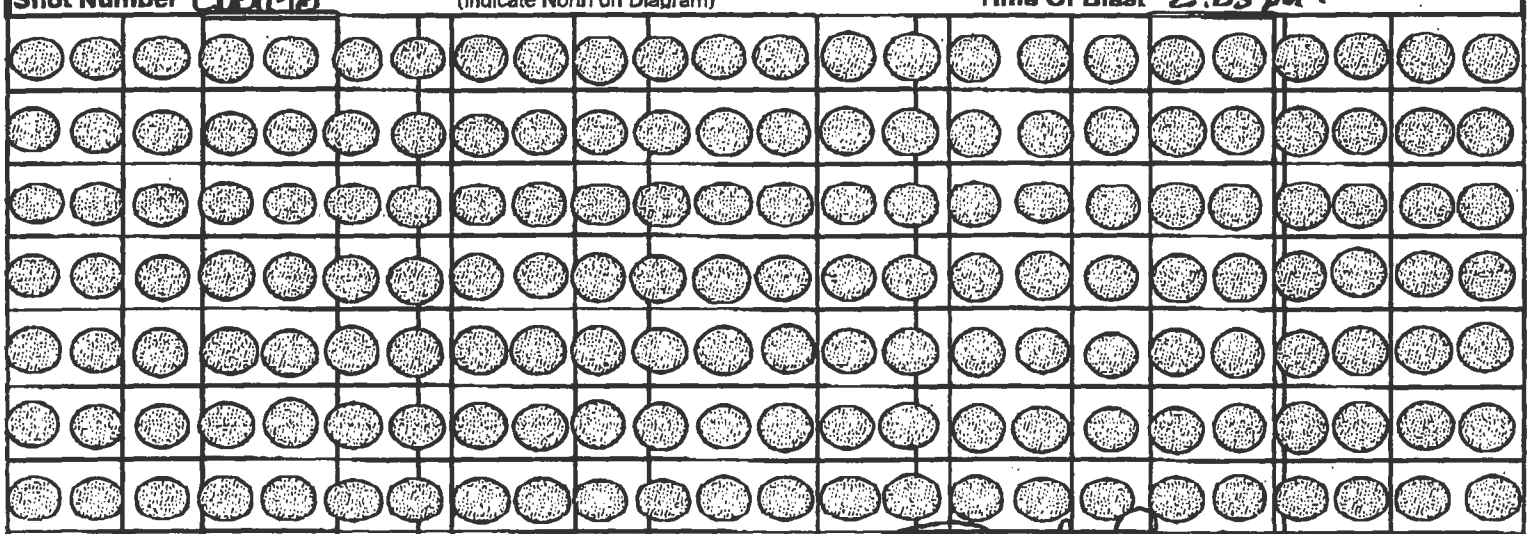
Distance to Nearest Structure: 1000' Scale Distance 50T Preblast Survey by: None

Seismic Location(s): 1) @ East Fence 900' 2)

Seismic Results: .12 in/sec @ 122 db in/sec @ db

Comments About Shot: Results were very good no problem. lots of rock come off of top - no problems - good Day!

Shot Number CD811-18 (Indicate North on Diagram) Time Of Blast 2:05 pm.



By: [signature]

Rcl. Nr 13 200802742

California Drilling & Blasting Co., Inc.

Shot Report

BR - 414

1947 Customer Stone Valley Job Type Quarry Date 11-18-11 Fri

ob Location Pyrite - Riverside Blaster In Charge Bob L

Powder Crew Leonard W

General Weather Conditions (Sunny, Clear, Overcast, Wind/Direction, Temperature):
overcast, Lite Drizzle, Windy SE

Number Boreholes 32	Number Boreholes	Number Boreholes
Diameter 4 1/2" Depth 40'	Diameter Depth	Diameter Depth
Burden 11' Spacing 13'	Burden Spacing	Burden Spacing
Stemming Ht. 11'-25'	Stemming Ht.	Stemming Ht.
Borehole Water Depth 2'-40'	Borehole Water Depth	Borehole Water Depth
Type Stemming Crushed Rock	Type Stemming	Type Stemming

Explosives Used:

Type	Amount	Quantity	Detonators Description
Centra Contro 17000	7,500 lbs	32	60' Handi-Dets
Trojan Boosters 3/4 lb	64 ea or 48 lbs	32	30' EXE 120s
2000' Shooting line	1 ea.	8	30' CTD 42 ms

Maximum Lbs/Delay 350 Number Holes Double Primed 32 Total Lbs in Blast 7,548

Cubic Yards Produced 6,771.2 Powder Factor 1.11 Number Blasting Mats Used: 0

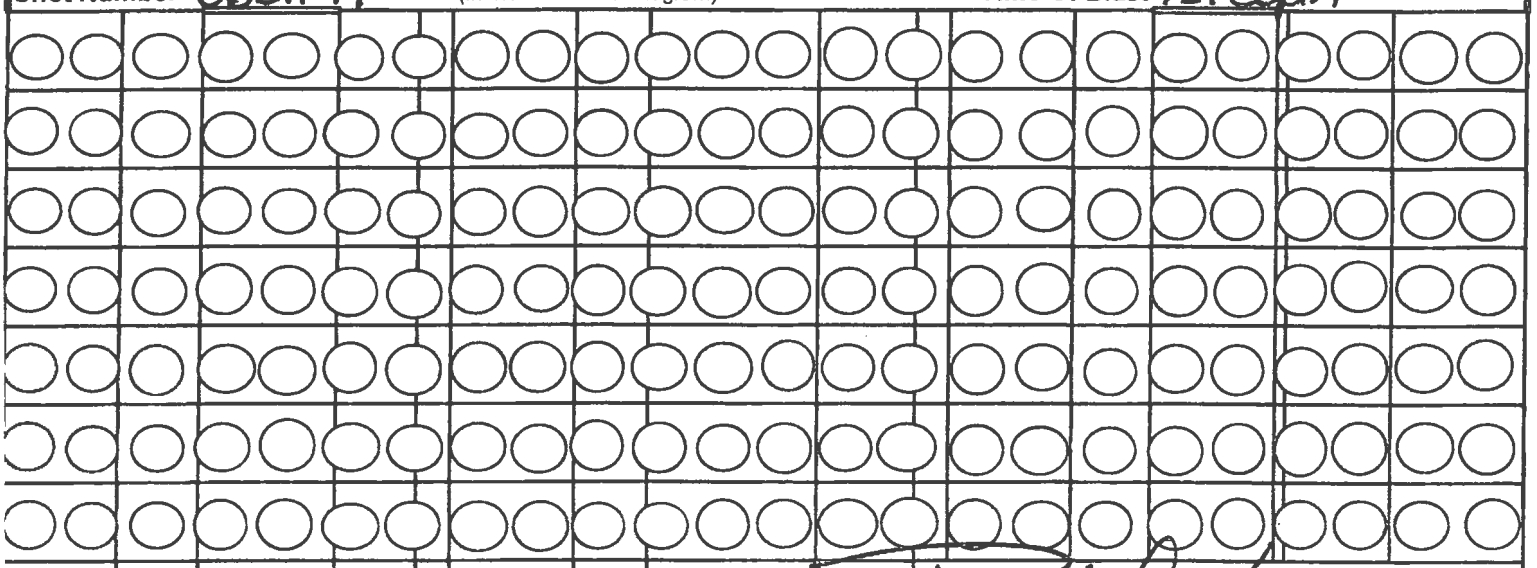
Distance to Nearest Structure: 850' Scale Distance 50 Preblast Survey by: NONE

Seismic Location(s): 1) No Reading! 2)

Seismic Results: in/sec @ db in/sec @ db

Comments About Shot: Results were good - no problems good breakages No Throw Rock!

Shot Number CDB11-19 (Indicate North on Diagram) Time Of Blast 12:30pm



By: [signature]

California Drilling & Blasting Co., Inc

Shot Report

BR 1134

Job # 1947 Customer Stone Valley Materials Job Type Drill and Blast Date 2-10-2012

Job Location Bench 1 Blaster In Charge Chris Garcia

Powder Crew Leonard Watts

General Weather Conditions (Sunny,Clear, Overcast, Wind/Direction, Temperature):
Warm and Sunny Wind 10 mph West

Number Boreholes 79	Number Boreholes 33	Number Boreholes
Diameter 4.5 Depth 26	Diameter 4.5 Depth 10	Diameter Depth
Burden 11 Spacing 13	Burden Spacing	Burden Spacing
Stemming Ht. 9 - 24	Stemming Ht. 7'	Stemming Ht.
Borehole Water Depth 0 - 17'	Borehole Water Depth 3' - 5'	Borehole Water Depth
Type Stemming Crushed Rock	Type Stemming Crushed Rock	Type Stemming

Explosives Used:

Type	Amount	Quantity
Centra Control 7000	13 360	
Trojan Sparton 1LB	114	
2000' LIL	1	

Detonators

	Description
33	24' HD 25/500
79	50' HD 25/500
2	20' Ms Exel # 20
6	20' 9ms ctd
15	20' 42ms ctd

Maximum Lbs/Delay 300 Number Holes Double Primed 0 Total Lbs in Blast 13474

Cubic Yards Produced 12,086.66 Powder Factor 1.15 Number Blasting Mats Used: 0

Distance to Nearest Structure: 800' Scale Distance 40 Preblast Survey by: NONE

Seismic Location(s): 1) Seismic Didn't Trigger

Seismic Results: _____ in/sec @ _____ db _____ in/sec @ _____ db

Comments About Shot: Results were good nice movement good breakage No Problems!

Shot Number CDB12-01 (Indicate North on Diagram) Time Of Blast 2:05

By: Chris Garcia

California Drilling & Blasting Co., Inc.

Shot Report

BR - 4078

Job # 1947 Customer STONE VALLEY MAT. Job Type DRILL/BLAST Date 6-12-2012

Job Location PYRITE ST. Blaster In Charge LEONARD WATTS

Powder Crew WADE B., ALAN KING

General Weather Conditions (Sunny,Clear, Overcast, Wind/Direction, Temperature):

SUNNY, CLEAR, BREEZE N/W 90'S

Number Boreholes 38	Number Boreholes	Number Boreholes
Diameter 4 1/2 INCH Depth 36 FT	Diameter ____ Depth ____	Diameter ____ Depth ____
Burden 11 FT Spacing 13 FT	Burden ____ Spacing ____	Burden ____ Spacing ____
Stemming Ht. 10 FT - 28 FT	Stemming Ht. ____	Stemming Ht. ____
Borehole Water Depth 0	Borehole Water Depth ____	Borehole Water Depth ____
Type Stemming 3/8 INCH	Type Stemming ____	Type Stemming ____

Explosives Used:

Type	Amount	Quantity
ANFO	5390 LBS	
SPARTAN BOOSTER 3/4 LB	76 EA	
ROD IN LINE 2000 FT	1 EA	

Detonators

Quantity	Description
38 EA	60 FT HANDIDETS 25/500
38 EA	30 FT EXEL MS 500
5 EA	30 FT CONNECTADET MS 17
4 EA	30 FT CONNECTADET MS 42

Maximum Lbs/Delay 170 LBS Number Holes Double Primed 38 Total Lbs in Blast 5447 LBS

Cubic Yards Produced 7250.4 Powder Factor .75 Number Blasting Mats Used: N/A

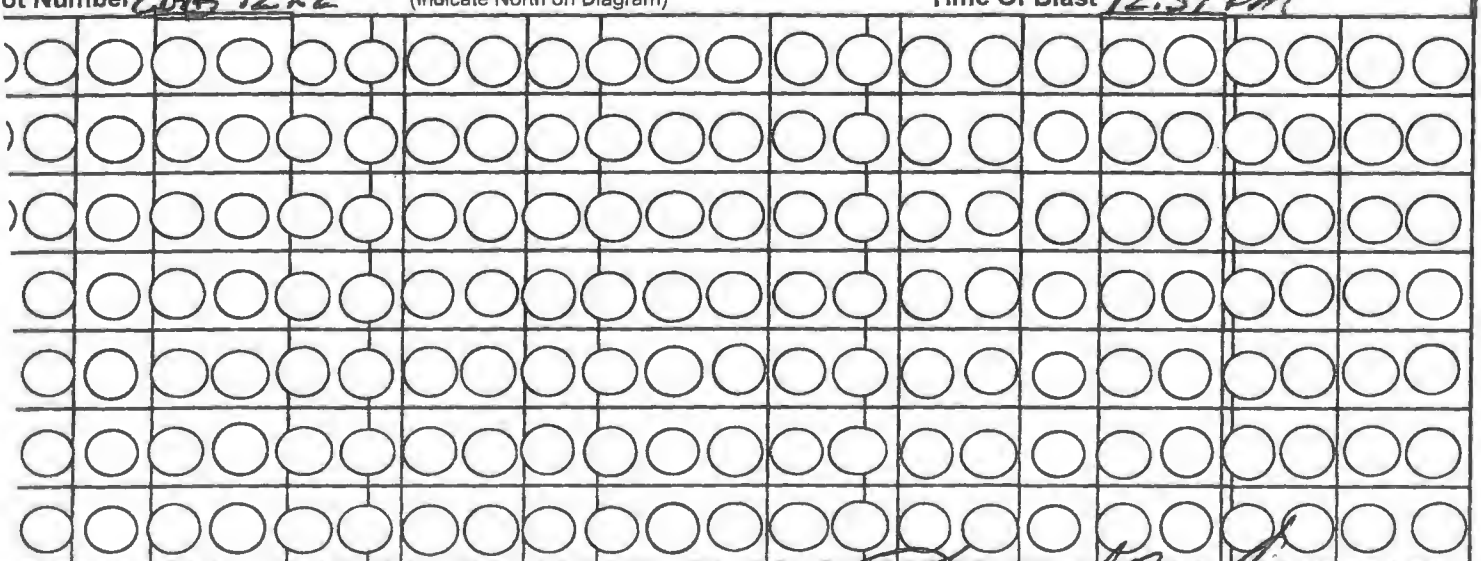
Distance to Nearest Structure: 1000+ Scale Distance 60+ Preblast Survey by: N/A

Seismic Location(s): 1) ____ 2) ____

Seismic Results: ____ in/sec @ ____ db ____ in/sec @ ____ db

Comments About Shot: GOOD RESULT, NO FLYROCK

Shot Number CD13 12X2 (Indicate North on Diagram) Time Of Blast 12:57 PM



By: Leonard Watts

Material Safety Data Sheet

Preparation Date: 18-Feb-2008 **Revision Date:** 15-June-2011 **Revision Number:** 1

SECTION 1 – PRODUCT AND COMPANY IDENTIFICATION

Supplier(s):

Orica Canada Inc.	Orica USA Inc.
Maple Street	33101 E. Quincy Avenue
Brownsburg, QC	Watkins, CO 80137-9406
For MSDS Requests: 1-450-533-4201	For MSDS Requests: 1-303-268-5000

Product Name:	**Centra™ Control 25, 30, 40, 50, 70, 80, 100 & ANE (USA)**
Product Code:	2120
Alternate Name(s):	Apex™ Gold 2502 Series, Apex™ Gold 2102 Series & PowerAN Series
UN-No:	UN0332
Recommended Use:	A booster sensitive emulsion explosive.

24 EMERGENCY: CANADA:	**1-877-561-3636 (Orica Transportation Emergency Response)**
USA:	**1-800-424-9300 (CHEMTREC)**

FOR CHEMICAL EMERGENCIES (24 HOUR) INVOLVING TRANSPORTATION, SPILL, LEAK, RELEASE, FIRE OR ACCIDENTS: **IN CANADA CALL:** THE ORICA TRANSPORTATION EMERGENCY RESPONSE SYSTEM AT **1-877-561-3636. IN THE U.S. CALL: CHEMTREC 1-800-424-9300. IN THE U.S.:** FOR LOST, STOLEN, OR MISPLACED EXPLOSIVES CALL: BATF **1-800-800-3855.** FORM ATF F 5400.5 MUST BE COMPLETED AND LOCAL AUTHORITIES (STATE/MUNICIPAL POLICE, ETC.) MUST BE ADVISED.

SECTION 2 – HAZARD IDENTIFICATION

Emergency Overview:
DO NOT FIGHT FIRES INVOLVING EXPLOSIVES. Risk of explosion by shock, fire of other sources of ignition. May cause skin irritation and/or dermatitis. This product contains one or more substances, which are classified in the EU as carcinogenic, mutagenic and/or reprotoxic. Irritating to eyes. Harmful if swallowed. Oxidizing agent. May cause methemoglobinemia. May cause liver damage. May cause kidney damage.

Appearance:	**Physical State:**	**Odor:**
Pink, viscous putty-like	Viscous, putty-like	Diesel

SECTION 3 – COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	**CAS-No**	**Weight %**
Ammonium Nitrate	6484-52-2	60-80
Diesel Fuel	68476-34-6	1-6
Mineral Oil	64742-53-6	1-6

Note: Diesel Fuel may be substituted for Mineral Oil in the emulsion matrix component.

SECTION 4 – FIRST AID MEASURES

General Advice:	In case of accident or if you feel unwell, seek medical advice IMMEDIATELY (show the product label where possible).
Eye Contact:	Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Immediate medical attention is required.
Skin Contact:	Wash off immediately with soap and plenty of water, removing all contaminated clothes and shoes. If skin irritation persists, call a physician.
Inhalation:	Move victim to fresh air. Give artificial respiration ONLY if breathing has stopped. Give cardiopulmonary resuscitation (CPR) if there is no breathing AND no pulse. Obtain medical advice IMMEDIATELY.
Ingestion:	Immediate medical attention is required. Do no induce vomiting. Clean mouth with water and afterwards drink plenty of water. If spontaneous vomiting occurs, have victim lean forward with

	head positioned to avoid breathing in of vomitus, rinse mouth and administer more water. Never give anything by mouth to and unconscious person.
Notes to physician:	Symptomatic. Administer oxygen if there are signs of cyanosis. If clinical condition deteriorates, administer 10cc Methylene Blue intravenously. It is unlikely for this to be required with methemoglobin level of less than 40%.

SECTION 5 – FIRE-FIGHTING MEASURES

Flammable properties:	Not itself combustible but assists fire in burning materials. The product does not flash. Rate of burning: does not sustain burning at atmospheric pressure.
Suitable extinguishing media:	DO NOT FIGHT FIRES INVOLVING EXPLOSIVES. Evacuate surrounding areas. When controlling fire before involvement of explosives, fire-fighters should wear positive pressure self-containing breathing apparatus (SCBA) and full turnout gear. Water may be applied through fixed extinguishing system (sprinklers) as long as people need not be present for the system to operate.
Unsuitable extinguishing media:	DO NOT FIGHT FIRES INVOLVING EXPLOSIVES. Attempts to smother a fire involving this product will be ineffective as it is its own oxygen source. Smother this product could lead to decomposition and explosion. This product is more sensitive to detonation if contaminated with organic or oxidisable material or if heated while confined. Unless the mass of product on fire is flooded with water, re-ignition is possible.
Specific hazards arising from the chemical:	This product is a high explosive with mass detonation hazard. DO NOT FIGHT FIRES INVOLVING EXPLOSIVE MATERIALS. Immediately evacuate all personnel from the area to a safe distance. Guard against re-entry. Thermal decomposition can lead to release of irritating gases and vapors.
Protective equipment and precautions for firefighters:	As in any fire, wear self-contained breathing apparatus pressure-demand, NIOSH approved (or equivalent) and full protective gear.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

Methods for containment:	Contain or absorb leaking putty with sand or earth or other suitable substance.
Methods for cleaning up:	Avoid the use of metal tools containing iron and/or copper. Be careful to avoid shock, friction, and contact with grit. Collect product for recovery or disposal. For release to land, contain discharge by constructing dykes or applying inert absorbent; for release to water, utilize damming and/or water diversion to minimize the spread of contamination. Collect contaminated soil and water, and absorbent for proper disposal. Notify applicable government authority if release is reportable or could adversely affect the environment.
Other information:	Deactivating chemicals: Detergents will break up emulsions if mixed in.

SECTION 7 – HANDLING AND STORAGE

Handling:	This product is an explosive and should only be used under the supervision of trained personnel. The use of coveralls is recommended. Use good industrial hygiene and housekeeping practices. Keep away from open flames, hot surfaces and sources of ignition.
Storage:	Store under moderate temperatures recommended by a technical services representative. Store under dry conditions in a well ventilated magazine that has been approved by the appropriate regulatory agency. Keep away from heat, spark and flames. Keep containers closed. Explosives should be kept well away from initiating explosives; protected from physical damage; separated from oxidizing materials; combustibles, and sources of heat. Keep away from incompatibles. Ideal storage temperature is 10-27°C (50-80°F). It is recommended that emulsion explosives are not stored or used at temperatures exceeding 70°C (158°F) without approved procedures to address the elevated temperatures.

SECTION 8 – EXPOSURE CONTROLS/PERSONAL PROTECTION

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Diesel Fuel	TWA: 100 mg/m³ Skin		
Mineral Oil	5 mg/m³	5 mg/m³	

Other exposure guidelines: Ammonium Nitrate: ORICA Guideline 5 mg/m³ (internal TWA)

Engineering Measures: No information available.

Personal Protective Equipment

Eye/Face Protection: Tightly fitting safety goggles.

Skin Protection: User should verify impermeability under normal conditions of use prior to general use. Impervious butyl rubber gloves.

Respiratory Protection: In case of insufficient ventilation wear suitable respiratory equipment. A NIOSH-approved respirator, if required.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety practice. Recommendations listed in this section indicate the type of equipment, which will provide protection against over exposure to this product. Conditions of use, adequacy of engineering or other control measures, and actual exposures will dictate the need for specific protective devices at your workplace.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Pink, viscous putty-like	**Odor:**	Diesel
Physical State:	Viscous, putty-like	**Viscosity:**	No information available
pH:	4- 6	**Flash Point:**	Not applicable
Autoignition Temperature:	230-265°C/ 446-509°F	**Boiling Point/Range:**	None
Melting Point/Range:	Not available	**Flammable Limits (Upper):**	Not applicable
Flammable Limits (Lower):	Not applicable	**Explosion Power:**	No data available
Specific Gravity:	1.20 – 1.30 g/cc	**Water Solubility:**	Negligible
Other Solubility:	No data available	**Vapor Pressure:**	0 mmHg @ 20°C
Oxidizing Properties:	Oxidizer	**Partition Coefficient (n-octanol/water):**	No data available

SECTION 10 – STABILITY AND REACTIVITY

Stability: Stable under normal conditions. Decomposition Temperature: Ammonium Nitrate will spontaneously decompose at 210°C (410°F).

Conditions to avoid: Keep away from open flames, hot surfaces and sources of ignition. Not expected to be sensitive to static discharge. Not expected to be sensitive to mechanical impact.

Incompatible materials: Avoid oxidizable materials, metal powder, bronze & copper alloys, fuels (e.g. lubricants, machine oils), fluorocarbon lubricants, acids, corrosive liquids, chlorate, sulphur, sodium nitrite, charcoal, coke and other finely divided combustibles. Strong oxidizing and reducing agents.

Hazardous decomposition products: The following toxic decomposition products may be released. At temperatures above 210°C (410°F), decomposition may be explosive, especially if confined. Nitrogen oxides (NOx). Carbon oxide. Hydrocarbons.

Hazardous Polymerization: None under normal processing. Hazardous polymerization does not occur. Explosive material under shock conditions.

SECTION 11 – TOXICOLOGICAL INFORMATION

Acute Toxicity

Product Information: Irritating to eyes. May cause skin irritation. Harmful if swallowed.

Chemical name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Ammonium Nitrate	2217 mg/kg Rat	3000 mg/kg Rabbit	88.8 mg/L Rat 4 h
Diesel Fuel	>5000 mg/kg (rabbit)		
Mineral Oil	4300 mg/kg Rat		

Subchronic Toxicity (28 Days): Ammonium Nitrate: Ingestion may cause methemoglobinemia. Initial manifestation of methemoglobinemia is cyanosis, characterized by navy lips, tongue and mucous membranes, with skin color being slate grey. Further manifestation is characterized by headache, weakness, dyspnea, dizziness, stupor, respiratory distress and death due to anoxia. If ingested, nitrates may be reduced to nitrites by bacteria in the digestive tract. Signs and symptoms of nitrite poisoning include methemoglobinemia, nausea, dizziness, increased heart rate, hypotension, fainting and, possibly shock.

Chronic Toxicity: May cause methemoglobinemia.

Carcinogenicity: The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical name	ACGIH	IARC	NTP	OSHA
Diesel Fuel	A3			

Legend: A3: Confirmed as an animal carcinogen.
Mutagenic effects: There is no evidence of mutagenic potential.

Irritation: Irritating to eyes. May cause irritation of respiratory tract. May cause skin irritation in susceptible persons.
Reproductive effects: No information is available and no adverse reproductive effects are anticipated.
Developmental effects: No information is available and no adverse developmental effects are anticipated.
Target Organ: Eyes, skin, respiratory system, blood, liver, urinary tract, gastrointestinal tract (GI), endocrine system, & immune system.

SECTION 12 – ECOLOGICAL INFORMATION

Ecotoxicity effects: Dissolves slowly in water. Harmful to aquatic life at low concentrations.
Environmental Effects: Can be dangerous if allowed to enter drinking water intakes. Do not contaminate domestic or irrigation water supplies, lakes, streams, ponds, or rivers.

Persistence/Degradability: Some water resistance but soluble with extended time periods.

Mobility in Environmental media: Dissolves slowly in water.

SECTION 13 – DISPOSAL CONSIDERATIONS

Waste Disposal Method: Burn under supervision of an expert at an explosive burning ground or destroy by detonation in boreholes, in accordance with applicable local, provincial and federal regulations. Call upon the services of an Orica Technical Representative.

SECTION 14 – TRANSPORT INFORMATION

DOT Proper Shipping Name: Explosive blasting type E
Hazard Class: 1.5D
UN-No: UN0332
Packing group: II
TDG Proper Shipping Name: Explosive blasting type E
Hazard Class: 1.5D
UN-No: UN0332
Packing group: II

Transportation Emergency Telephone Number: 1-877-561-3636 or CHEMTREC: 1-800-424-9300

SECTION 15 – REGULATORY INFORMATION

CANADIAN CLASSIFICATION: This product has been classified in accordance with the hazard criteria of the CPR (Controlled Products Regulations) and this MSDS contains all the information required by the CPR

WHMIS hazard class: This product is an explosive and is not regulated by WHMIS.
USA CLASSIFICATION:
SARA Regulations Sections 313 and 40 CFR 372: This product contains the following toxic chemical(s) subject to reporting requirements, Ammonium Nitrate (6484-52-2).
SARA 311/312 Hazardous Categorization
Acute Heath Hazard: Yes
Chronic Health Hazard: Yes
Fire Hazard: Yes
Reactive Hazard: No
Sudden Release of Pressure Hazard: Yes
Ozone Protection and 40 CFR 42: No reportable quantities of ozone depleting agents
Other Regulations/Legislations which apply to this product: New Jersey Right-to-Know, Pennsylvania Right-to-Know, Massachusetts Right-to-Know, Rhode Island Right-to-Know, Florida, New Jersey Special Health Hazard Substance List, Minnesota Hazardous Substance List, California Director's List of Hazardous Substances, California Proposition 65.

TSCA: Complies **DSL:** Complies **NDSL:** Complies

The components in the product are on the following international inventory lists:

Chemical Name	TSCA	DSL	NDSL	ENCS	EINECS	ELINCS	CHINA	KECL	PICCS	AICS
Ammonium Nitrate	X	X	-	X	X	-	X	X	X	X
Diesel Fuel	X	X	-	-	X	-	X	X	X	X
Mineral Oil	X	X	-	-	X	-	X	X	X	X

Legend: X – Listed

SECTION 16 – OTHER INFORMATION

Prepared by: **Safety Health & Environment**
303-268-5000

Preparation Date: 18-Feb-2008
Revision Date: 15-June-2011

The information contained herein is provided only as a guide for the handling of this specific material and has been prepared in good faith by technically knowledgeable personnel. This Material Safety Data Sheet is not all-inclusive. The circumstances of use and handling may involve additional considerations that have not been addressed by this Data Sheet. No warranty of any kind is provided or implied by this Data Sheet. Orica will not be liable for any damages, losses, injuries or indirect damages that may result from the use of, or reliance on, any information contained herein.

End of MSDS

Material Safety Data Sheet

Preparation Date: 19-Jul-2007 **Revision Date:** 21-Oct-2011 **Revision Number:** 2

SECTION 1 – PRODUCT AND COMPANY INFORMATION

Supplier(s):

Orica Canada Inc.	Orica USA Inc
Maple Street	33101 E Quincy Ave
Brownsburg, QC	Watkins, CO 80137-9406
For MSDS Requests: 1-450-533-4201	For MSDS Requests: 1-303-268-5000

Product Name:	**Exel™ Lead-In-Line™, Exel™ Shock Tube™ (Bulk)**
Product Code:	20015
Alternate Name(s):	Bulk Shock Tubing
UN-No:	UN0349
Recommended Use:	Shock Tube for non-electric blast initiation.

Emergency Telephone Number: FOR CHEMICAL EMERGENCIES (24 HOUR) INVOLVING TRANSPORTATION, SPILL, LEAK, RELEASE, FIRE OR ACCIDENTS: **IN CANADA CALL:** ORICA CANANDA TRANSPORTATION EMERGENCY RESPONSE SYSTEM AT **1-877-561-3636.** IN US CALL: CHEMTREC **1-800-424-9300. IN THE U.S.** FOR LOST, STOLEN OR MISPLACED EXPLOSIVES CALL: BATF **1-800-800-3855.** FORM ATF F5400.0 MUST BE COMPLETED AND LOCAL AUTHORITIES (STATE/MUNICIPAL POLICE, ETC.) MUST BE ADVISED.

SECTION 2 – HAZARD IDENTIFICATION

Emergency Overview:
This product is an article. No exposure to hazardous chemicals is expected to occur during intended product use. Misuse of the product may result in exposure to hazardous chemicals. The following information is the potential hazards associated with the ingredient(s) in this product. It is our belief that, under conditions of normal occupational exposure, this product should pose no such hazards to the user. Main risk is that of explosion by shock, friction, fire or other sources of ignition. Read the entire MSDS for a more thorough evaluation of the hazards.

Appearance:	**Physical State:**	**Odor:**
Polyolefin tube with unspecified color	Solid	None

SECTION 3 – COMPOSITION/ INFORMATION ON INGREDIENTS

Chemical Name	**CAS-No**	**Weight %**
Cyclotetramethylenetetranitramine (HMX) / Octogen	2691-41-0	0.2 – 0.4
Aluminum	7429-90-5	<0.1

SECTION 4- FIRST AID MEASURES

General Advice:	General: Not applicable; this is a packaged product that will not result in exposure to the contents under normal conditions of use. In the event of contact, administer first aid appropriate for burns, laceration and bruises. If detonation fumes are inhaled, remove to fresh air. Give artificial respiration ONLY if breathing has stopped. Give cardiopulmonary resuscitation (CPR) if there is no breathing AND no pulse. Oxygen administration may be beneficial in this situation, but should only be administered by personnel trained in its use. Obtain medical attention IMMEDIATELY.
Eye Contact:	No applicable information.
Skin Contact:	No applicable information.
Inhalation:	In the event those workers are overexposed to fumes and vapour resulting from detonation, remove victim from exposure and provide artificial respiration if not breathing.
Ingestion:	No applicable information.
Notes to Physician:	No applicable information.

SECTION 5 – FIRE-FIGHTING MEASURES

Flammable properties:	High explosive with mass detonation hazard. Expected to be sensitive to mechanical impact. Not expected to be sensitive to static discharge.
Suitable extinguishing media:	DO NOT FIGHT FIRES INVOLVING EXPLOSIVES. Evacuate surrounding areas. When controlling fire before involvement of explosives, fire-fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear. Water may be applied through fixed extinguishing system (sprinklers) as long as people need not be present for the system to operate. Water may be used on small fires.
Unsuitable extinguishing media:	DO NOT FIGHT FIRES INVOLVING EXPLOSIVES.
Specific hazards arising from the Chemical:	DO NOT FIGHT FIRES INVOLVING EXPLOSIVE MATERIALS. Immediately evacuate all personnel from the area to a safe distance. Guard against re-entry. This product is a high explosive with a mass detonation hazard. Thermal decomposition can lead to release of irritating gases and vapors.
Protective equipment and precautions for fire fighters:	As in any fire, wear self-contained breathing apparatus pressure-demand, NIOSH approved (or equivalent) and full protective gear.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

Methods for containment:	No information available.
Methods for cleaning up:	Not required. Contact an Orica Canada Inc. or Orica USA Inc. Technical Representative.

SECTION 7 - HANDLING AND STORAGE

Handling:	This product is an explosive and should only be used under the supervision of trained personnel. Protect containers from physical damage. Keep away from incompatible materials, heat, sparks, flames and other ignition sources. Avoid rough handling.
Storage:	Keep container tightly closer in a dry and well-ventilated place.

SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Measures:	Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction.
Personal Protective Equipment	
Eye/Face Protection:	Tightly fitting safety goggles.
Skin Protection:	not required for normal use.
Respiratory protection:	Use a NIOSH-approved respirator, if required.
Hygiene Measures:	Handle in accordance with good industrial hygiene and safety practice.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Polyolefin tube with unspecified color.
Physical State:	Solid
pH:	No data available
Flammable Limits (upper):	No data available
Explosion Power:	No data available
Water Solubility:	Negligible
Vapor Pressure:	Not available
Partition Coefficient (n-octanol/water):	No data available
Odor:	None
Viscosity:	No information Available
Melting Point/Range:	PETN melts at 140°C / 284°F
Flammable Limits (lower):	No data available
Specific Gravity:	Not available
Other Solubility:	No information available
Oxidizing Properties:	No information available

SECTION 10 - STABILITY AND REACTIVITY

Stability:	Stable under recommended storage conditions.
Conditions to avoid:	Keep away from heat, sparks, flame, impact and friction.
Incompatible materials;	None.
Hazardous decomposition products:	Thermal decomposition products are toxic and may include hydrocarbons, oxides of carbon and nitrogen.
Hazardous polymerization:	Hazardous polymerization does not occur.

SECTION 11 - TOXICOLOGICAL INFORMATION

Acute Toxicity

Product information:	This product has not been tested for toxicity. Information provided is based on the components.
Carcinogenicity:	There are no known carcinogenic chemicals in this product.
Mutagenicity:	There is no evidence of mutagenic potential.
Sensitization:	None.
Reproductive effects:	None.
Developmental effects:	None.
Target Organ:	No information available.

SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicity effects:	Contains no substances known to be hazardous to the environment or not degradable in wastewater treatment plants.

SECTION 13 - DISPOSAL CONSIDERATIONS

Waste Disposal Method:	Burn under supervision of an expert at and explosive burning ground or destroy by detonation in boreholes, in accordance with applicable local, provincial and federal regulations. Call upon the services of an Orica Technical Representative.

SECTION 14 - TRANSPORT INFORMATION

DOT Proper Shipping Name:	Articles, Explosive, N.O.S.
Hazard Class:	1.4S or Unclassified
UN-No:	UN0349
Packing Group:	II
TDG Proper Shipping Name:	Articles, Explosive, N.O.S.
Hazard Class:	1.4S or Unclassified
UN-No:	UN0349
Packing Group:	II

SECTION 15 - REGULATORY INFORMATION

CANADIAN CLASSIFICATION:	This product has been classified in accordance with the hazard criteria of the CPR (Controlled Products Regulations) and this MSDS contains all the information required by the CPR
WHMIS hazard class:	This product is an explosive and is not regulated by WHMIS.

USA CLASSIFICATION:

SARA Regulations Sections 313 and 40 CFR 372: No reportable components present

SARA 311/312 Hazardous Categorization

Acute Health Hazard:	No
Chronic Health Hazard:	No
Fire Hazard:	No
Reactive Hazard:	Yes
Sudden Release of Pressure Hazard:	No

Ozone Protection and 40 CFR 42: No reportable quantities of ozone depleting agents
Other Regulations/Legislations which apply to this product: Massachusetts Right-to-Know, Pennsylvania Right-to-Know, New Jersey Special Health Hazard Substance List

TSCA: Complies **DSL:** Complies **NDSL:** Complies

SECTION 16 - OTHER INFORMATION

Prepared By: **Safety, Health & Environment**
303-268-5000

Preparation Date: 19-May-2005
Revision Date: 21-Oct-2011

The information contained herein is offered as a guide to the handling of this specific material and has been prepared in good faith by technically knowledgeable personnel. It is not intended to be all-inclusive and the manner and conditions of use and handling may involve other and additional considerations. No warranty of any kind is given or implied and Orica will not be liable for any damages, losses, injuries or consequential damages which may result from the use of or reliance on any information contained herein.

End of MSDS

Material Safety Data Sheet

Preparation Date: 18-Feb-2008 **Revision Date:** 15-Mar-2011 **Revision Number:** 2

SECTION 1 – PRODUCT AND COMPANY IDENTIFICATION

Supplier(s):

Orica Canada Inc.	Orica USA Inc.
Maple Street	33101 E. Quincy Avenue
Brownsburg, QC	Watkins, CO 80137-9406
For MSDS Requests: 1-450-533-4201	For MSDS Requests: 1-303-268-5000

Product Name:	**Ammonium Nitrate Prill**
Product Code:	40002
Alternate Name(s):	AN Prill
UN-No:	UN1942
Uses:	Fertilizer, Manufacture of Explosives. Manufacture of Blasting Agents.

Emergency Telephone Number: FOR CHEMICAL EMERGENCIES (24 HOUR) INVOLVING TRANSPORTATION, SPILL, LEAK, RELEASE, FIRE OR ACCIDENTS: **IN CANADA CALL:** THE ORICA TRANSPORTATION EMERGENCY RESPONSE SYSTEM AT **1-877-561-3636. IN THE U.S. CALL: CHEMTREC 1-800-424-9300. IN THE U.S.:** FOR LOST, STOLEN, OR MISPLACED EXPLOSIVES CALL: BATF **1-800-800-3855.** FORM ATF F 5400.0 MUST BE COMPLETED AND LOCAL AUTHORITIES (STATE/MUNICIPAL POLICE, ETC.) MUST BE ADVISED.

SECTION 2 – HAZARD IDENTIFICATION

Emergency Overview:
Irritating to eyes, respiratory system and skin. May cause methemoglobinemia.

Appearance:	**Physical State:**	**Odor:**
Grey or white prills	Prills	Odorless

SECTION 3 – COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	**CAS-No**	**Weight %**
Ammonium Nitrate	6484-52-2	98-100

SECTION 4 – FIRST AID MEASURES

General Advice:	In case of accident or if you feel unwell, seek medical advice IMMEDIATELY (show the product label where possible)
Eye Contact:	Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Immediate medical attention is required.
Skin Contact:	Wash off immediately with soap and plenty of water, removing all contaminated clothes and shoes. If skin irritation persists, call a physician.
Inhalation:	Move victim to fresh air. Give artificial respiration ONLY if breathing has stopped. Give cardiopulmonary resuscitation (CPR) if there is no breathing AND no pulse. Obtain medical advice IMMEDIATELY.
Ingestion:	Immediate medical attention is required. If victim is alert and not convulsing, rinse mouth out and give 200-300 mL (1 cup) of water to dilute material. Do no induce vomiting. Clean mouth with water and afterwards drink plenty of water. If spontaneous vomiting occurs, have victim lean forward with head positioned to avoid breathing in of vomitus, rinse mouth and administer more water. Never give anything by mouth to and unconscious person.

Notes to physician: Symptomatic. Administer oxygen if there are signs of cyanosis. If clinical condition deteriorates, administer 10cc Methylene Blue intravenously. It is unlikely for this to be required with methemoglobin level of less than 40%.

SECTION 5 – FIRE-FIGHTING MEASURES

Flammable properties: Not itself combustible by assists fire in burning materials. The product does not flash. Rate of burning: attempts to smother a fire involving this product will be ineffective as it is its own oxygen source.

Suitable extinguishing media: Use Water only, in as much volume as possible to cool the burning mass quickly. Chemical extinguishers will not work. Fire-fighters should wear positive pressure self-containing breathing apparatus (SCBA) and full turnout gear. Water may be applied through fixed extinguishing system (sprinklers) as long as people need not be present for the system to operate.

Unsuitable extinguishing media: Chemical extinguishers will not work. Attempts to smother a fire involving this product will be ineffective as it is its own oxygen source. Smother this product could lead to decomposition and explosion. This product is more sensitive to detonation if contaminated with organic or oxidisable material or if heated while confined. Unless the mass of product on fire is flooded with water, re-ignition is possible.

Specific hazards arising from the chemical: Toxic gases and vapours will be released by the thermal decomposition of this material. At higher temperatures, decomposition may be explosive, especially if confined. Immediately evacuate all personnel from the area to a safe distance. Guard against re-entry.

Protective equipment and precautions for firefighters: As in any fire, wear self-contained breathing apparatus pressure-demand, NIOSH approved (or equivalent) and full protective gear.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

Methods for containment: Avoid dust formation. Do not breathe dust. Prevent further leak if safe to do so.

Methods for cleaning up: Avoid the use of metal tools containing iron and/or copper. Collect product in suitable containers for recovery or disposal. Prevent product from entering drains. Notify applicable government authority if release is reportable or could adversely affect the environment.

SECTION 7 – HANDLING AND STORAGE

Handling: Avoid contact with eyes or skin. Wash thoroughly with soap and water after handling. Wash clothing before re-use. Locate safety shower and eyewash station closest to chemical handling area. The use of coveralls is recommended. Use good industrial hygiene and housekeeping practices. Keep away from open flames, hot surfaces and sources of ignition

Storage: Store in a cool, well-ventilated area. Keep away from heat, sparks, and flames. Keep storage containers closed. Store at 10-27°C (50-80°F). Do not expose closed containers to temperatures above 40°C (104°F). Product is mildly corrosive to concrete and steel. Stainless steel and aluminium are adequate. Avoid materials made of copper, iron, or bronze.

SECTION 8 – EXPOSURE CONTROLS/PERSONAL PROTECTION

Other exposure guidelines: Ammonium Nitrate: ORICA Guideline 5 mg/m^3 (internal TWA)

Engineering Measures: Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction.

Personal Protective Equipment

Eye/Face Protection: Tightly fitting safety goggles.

Skin Protection: Gloves and protective clothing made from cotton should be impervious under normal conditions

Respiratory Protection: In case of insufficient ventilation wear suitable respiratory equipment. A NIOSH-approved respirator, if concentrations in air are unknown or in excess of established exposure guidelines

Hygiene Measures: Handle in accordance with good industrial hygiene and safety practice. Recommendations listed in this section indicate the type of equipment, which will provide protection against over exposure to this product. Conditions of use, adequacy of engineering or other control measures, and actual exposures will dictate the need for specific protective devices at your workplace.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Chemical Name:	Nitric Acid Ammonium Salt	**Chemical Family:**	Nitrates
Appearance:	Grey or white prills	**Odor:**	Odorless
Physical State:	Solid prills	**Viscosity:**	No information available
pH:	5 – 6 (0.1M solution in water)	**Flash Point:**	Not applicable
Autoignition Temperature:	Not applicable	**Boiling Point/Range:**	210°C/ 410°F
Melting Point/Range:	160–165°C/ 320-329°F	**Flammable Limits (Upper):**	Not applicable
Flammable Limits (Lower):	Not applicable	**Explosion Power:**	No data available
Specific Gravity:	1.72 g/cc	**Water Solubility:**	79% @25
Other Solubility:	Soluble in Alkalies, alcohols, acetone. Insoluble in ether.	**Vapor Pressure:**	0 mm Hg @20°C
Oxidizing Properties:	Oxidizer	**Partition Coefficient (n-octanol/water):**	No data available

SECTION 10 – STABILITY AND REACTIVITY

Stability: Stable under normal conditions. Decomposition Temperature: Ammonium Nitrate will spontaneously decompose at 210°C.

Conditions to avoid: Keep away from open flames, hot surfaces and sources of ignition. Not expected to be sensitive to static discharge. Not expected to be sensitive to mechanical impact. Keep away from light.

Incompatible materials: Avoid oxidizable materials, metal powder, bronze & copper alloys, fuels (e.g. lubricants, machine oils), fluorocarbon lubricants, acids, corrosive liquids, chlorate, sulphur, sodium nitrite, charcoal, coke and other finely divided combustibles, strong oxidizing and reducing agents. Keep away from combustible material.

Hazardous decomposition products: The following toxic decomposition products may be released. At temperatures above 210°C, decomposition may be explosive, especially if confined. Nitrogen oxides (NOx). Carbon oxide. Hydrocarbons. At higher temperatures, decomposition may be explosive, especially if confined.

Hazardous Polymerization: None under normal processing. Hazardous polymerization does not occur. Explosive material under shock conditions.

SECTION 11 – TOXICOLOGICAL INFORMATION

Acute Toxicity

Product Information: Irritating to eyes. May cause skin irritation. Harmful if swallowed. May cause methemoglobinemia.

Chemical name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Ammonium Nitrate	2217 mg/kg Rat	3000 mg/kg Rabbit	88.8 mg/L Rat 4 h

Subchronic Toxicity (28 Days): Ammonium Nitrate: Ingestion may cause methemoglobinemia. Initial manifestation of methemoglobinemia is cyanosis, characterized by navy lips, tongue and mucous membranes, with skin color being slate grey. Further manifestation is characterized by headache, weakness, dyspnea, dizziness, stupor, respiratory distress and death due to anoxia. If ingested, nitrates may be reduced to nitrites by bacteria in the digestive tract. Signs and symptoms of nitrite poisoning include methemoglobinemia, nausea, dizziness, increased heart rate, hypotension, fainting and, possibly shock.

Chronic Toxicity: May cause methemoglobinemia.

Carcinogenicity: The ingredients of this product are not classified as carcinogenic by ACGIH (American Conference of Governmental Industrial Hygienists) or IARC (International Agency for Research on Cancer), not regulated as carcinogens by OSHA (Occupational Safety and Health Administration), and not listed as carcinogens by TNTP (National Toxicology Program).

Mutagenic effects: There is no evidence of mutagenic potential.

Irritation: Irritating to eyes. May cause irritation of respiratory tract. May cause skin irritation in susceptible persons.

Reproductive effects:	No information is available and no adverse reproductive effects are anticipated.
Developmental effects:	No information is available and no adverse developmental effects are anticipated.
Target Organ:	Eyes, skin, respiratory system, blood, liver, urinary tract, gastrointestinal tract (GI), endocrine system, & immune system.

SECTION 12 – ECOLOGICAL INFORMATION

Ecotoxicity effects:	Dissolves slowly in water. Harmful to aquatic life at low concentrations. Environmental Effects: Can be dangerous if allowed to enter drinking water intakes. Do not contaminate domestic or irrigation water supplies, lakes, streams, ponds, or rivers.
Persistence/Degradability:	No data available.
Mobility in Environmental media:	Dissolves slowly in water

SECTION 13 – DISPOSAL CONSIDERATIONS

Waste Disposal Method:	Dispose of in accordance with National, State and local regulations. Should not be released into the environment. Do not dispose of waste with normal garbage, or to sewer systems. Call upon the services of an Orica Technical Representative.

SECTION 14 – TRANSPORT INFORMATION

DOT Proper Shipping Name:	Ammonium Nitrate
Hazard Class:	5.1
UN-No:	UN1942
Packing group:	III
TDG Proper Shipping Name:	Ammonium Nitrate
Hazard Class:	5.1
UN-No:	UN1942
Packing group:	III

Transportation Emergency Telephone Number: 1-877-561-3636 or CHEMTREC: 1-800-424-9300

SECTION 15 – REGULATORY INFORMATION

CANADIAN CLASSIFICATION:	This product has been classified in accordance with the hazard criteria of the CPR (Controlled Products Regulations) and this MSDS contains all the information required by the CPR
WHMIS hazard class:	C: Oxidizer. D-2B. Toxic.

USA CLASSIFICATION:
SARA Regulations Sections 313 and 40 CFR 372: This product contains the following toxic chemical(s) subject to reporting requirements, Ammonium Nitrate (6484-52-2).

SARA 311/312 Hazardous Categorization

Acute Heath Hazard:	Yes
Chronic Health Hazard:	No
Fire Hazard:	Yes
Reactive Hazard:	No
Sudden Release of Pressure Hazard:	No

Ozone Protection and 40 CFR 42: No reportable quantities of ozone depleting agents
Other Regulations/Legislations which apply to this product: New Jersey Right-to-Know, Pennsylvania Right-to-Know, Massachusetts Right-to-Know, Rhode Island Right-to-Know, Florida, New Jersey Special Health Hazard Substance List, Minnesota Hazardous Substance List, California Director's List of Hazardous Substances, California Proposition 65.

TSCA: Complies **DSL:** Complies **NDSL:** Complies

The components in the product are on the following international inventory lists:

Chemical Name	TSCA	DSL	NDSL	ENCS	EINECS	ELINCS	CHINA	KECL	PICCS	AICS
Ammonium Nitrate	X	X	-	X	X	-	X	X	X	X

Legend: X – Listed

SECTION 16 – OTHER INFORMATION

Prepared by: **Safety Health & Environment**
303-268-5000

Preparation Date: 18-Feb-2008
Revision Date: 15-Mar-2011

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End of MSDS

Material Safety Data Sheet

Preparation Date: 19-Jul-2007 **Revision Date:** 19-Jul-2011 **Revision Number:** 2

SECTION 1 – PRODUCT AND COMPANY INFORMATION

Supplier(s):

Orica Canada Inc.	Orica USA Inc
Maple Street	33101 E Quincy Ave
Brownsburg, QC	Watkins, CO 80137-9406
For MSDS Requests: 1-450-533-4201	For MSDS Requests: 1-303-268-5000

Product Name:	**Exel™ Detonator Assemblies Non-Electric**
Product Code:	20080
Alternate Name(s):	Exel™ Constadet™, Exel™ Handidet™, Exel™ Handidet™ LP, Exel™ XE MS, Exel™ LP, Exel™ LP (W), Exel™ MS, Exel™ MS (W), Exel™ XT, Exel SHD, & Exel™ T&D, Exel MSC-SP
UN-No:	UN0360 or UN 0361 (Depending on packaging)
Recommended Use:	Non-Electric detonators and accessory products.

Emergency Telephone Number: FOR CHEMICAL EMERGENCIES (24 HOUR) INVOLVING TRANSPORTATION, SPILL, LEAK, RELEASE, FIRE OR ACCIDENTS: **IN CANADA CALL:** ORICA CANANDA TRANSPORTATION EMERGENCY RESPONSE SYSTEM AT **1-877-561-3636.** IN US CALL: CHEMTREC **1-800-424-9300. IN THE U.S.** FOR LOST, STOLEN OR MISPLACED EXPLOSIVES CALL: BATF **1-800-800-3855.** FORM ATF F5400.0 MUST BE COMPLETED AND LOCAL AUTHORITIES (STATE/MUNICIPAL POLICE, ETC.) MUST BE ADVISED.

SECTION 2 – HAZARD IDENTIFICATION

Emergency Overview:
The following information is the potential hazards associated with the ingredient(s) in this product. It is our belief that, under conditions of normal occupational exposure, this product should pose no such hazards to the user. Main risk is that of explosion by shock, friction, fire or other sources of ignition. Read the entire MSDS for a more thorough evaluation of the hazards.

Appearance:	**Physical State:**	**Odor:**
A signal line (solid core/shock/tube) containing an explosive charge and a detonator.	Solid	None

SECTION 3 – COMPOSITION/ INFORMATION ON INGREDIENTS

Chemical Name	**CAS-No**	**Weight %**
Pentaerythritol Tetranitrate (PETN)	78-11-5	0-10
Lead Azide	13424-46-9	0-5
Cyclotetramethylenetetranitramine (HMX)	2691-41-0	0.2 – 0.4
Aluminum	7429-90-5	<0.1

Also- may contain a lead sheathed delay element(s); may include a delay composition.

SECTION 4- FIRST AID MEASURES

General Advice:	General: Not applicable; this is a packaged product that will not result in exposure to the contents under normal conditions of use. In the event of contact, administer first aid appropriate for burns, laceration and bruises. If detonation fumes are inhaled, remove to fresh air. Give artificial respiration ONLY if breathing has stopped. Give cardiopulmonary resuscitation (CPR) if there is no breathing AND no pulse. Oxygen administration may be beneficial in this situation, but should only be administered by personnel trained in its use. Obtain medical attention IMMEDIATELY.
Eye Contact:	No applicable information.
Skin Contact:	No applicable information.
Inhalation:	In the event those workers are overexposed to fumes and vapour resulting from detonation, remove victim from exposure and provide artificial respiration if not breathing.
Ingestion:	No applicable information.
Notes to Physician:	No applicable information.

SECTION 5 – FIRE-FIGHTING MEASURES

Flammable properties:	High explosive with mass detonation hazard. Expected to be sensitive to mechanical impact. Not expected to be sensitive to static discharge.
Suitable extinguishing media:	DO NOT FIGHT FIRES INVOLVING EXPLOSIVES. Evacuate surrounding areas. When controlling fire before involvement of explosives, fire-fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear. Water may be applied through fixed extinguishing system (sprinklers) as long as people need not be present for the system to operate. Water may be used on small fires.
Unsuitable extinguishing media:	DO NOT FIGHT FIRES INVOLVING EXPLOSIVE MATERIALS. Immediately evacuate all personnel from the area to a safe distance. Guard against re-entry. This product is a high explosive with a mass detonation hazard. Thermal decomposition can lead to release of irritating gases and vapors.
Protective equipment and precautions for fire fighters:	As in any fire, wear self-contained breathing apparatus pressure-demand, NIOSH approved (or equivalent) and full protective gear.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

Methods for containment:	No information available.
Methods for cleaning up:	Not required. If detonators are damaged, contact an Orica Canada Inc. or Orica USA Inc. technical representative. Deactivating Chemicals: Not required. If detonators are broken, contact product advisor.

SECTION 7 - HANDLING AND STORAGE

Handling:	This product is an explosive and should only be used under the supervision of trained personnel. Protect containers from physical damage. Keep away from incompatible materials, heat, sparks, flames and other ignition sources. Avoid rough handling.
Storage:	Store under moderate temperatures recommended by a technical services representative. Store under dry conditions in a well ventilated magazine that has been approved for either detonator storage or explosive storage. Do NOT store explosives in a detonator magazine or detonators in an explosive magazine. Keep away from heat, sparks and flames. Keep containers closed. Explosives should be kept well away from initiating explosives; protected from physical damage; separated from oxidizing materials, combustibles, and sources of heat. Keep away from incompatibles. Meet all legal requirements for shipping and magazining.
Storage Temperature:	It is recommended that detonators not be stored or used at temperatures exceeding 70°C (158°F) without approved procedures to address the elevated temperatures.

SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Other exposure guidelines:	Recommendations listed in this section indicate the type of equipment that will provide protection against exposure to this product under normal conditions of use. Conditions of use, adequacy of engineering or other control measures, and actual exposure situations will dictate the need for specific protective devices at your workplace.
Engineering Measures:	Full-handling precautions should be taken at all times.
Personal Protective Equipment	
Eye/Face Protection:	Safety glasses with side-shields are recommended to prevent eye contact.
Skin Protection:	Gloves and protective clothing made from cotton should provide adequate protective.
Hygiene Measures:	Handle in accordance with good industrial hygiene and safety practice.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	A signal line (solid core/shock/tube) Containing an explosive charge and A detonator.	**Odor:**	None
		Viscosity:	No Information Available
Physical State:	Solid	**Melting Point/Range:**	PETN melts at 140°C / 284°F
pH:	No data available		
Flammable Limits (upper):	No data available	**Flammable Limits (lower):**	No data available

Explosion Power:	No data available	**Specific Gravity:**	Not available
Vapor Pressure:	Not available	**Oxidizing Properties:**	No information available
Partition Coefficient (n-octanol/water):	No data available		

SECTION 10 - STABILITY AND REACTIVITY

Stability:	Can explode from impact, heat or friction. If detonators are broken, contact product advisor. PETN explodes at 190 - 210°C (374 - 410°F).
Conditions to avoid:	Impact or shock. Static discharge.
Incompatible materials;	Acids. Bases.
Hazardous decomposition products:	Thermal decomposition products are toxic and may include lead, hydrocarbons, oxides of carbon and nitrogen. To a lesser degree, decomposition products may include oxides of lead, chromium, barium, boron and hydrogen cyanide.

SECTION 11 - TOXICOLOGICAL INFORMATION

Acute Toxicity

Subchronic Toxicity (28 days):	Organic nitrates act as vasodilators; signs and symptoms of poisoning include headache, dizziness, increased heart rate, postural weakness and hypotension. Dermatitis or "drug rash" of the skin may also be observed.
Chronic toxicity:	Contains no substance that is a known carcinogen.
Carcinogenicity:	The ingredients of this product are not classified as carcinogenic by ACGIH (American Conference of Governmental Industrial Hygienists) or IARC (International Agency for Research on Cancer), not regulated as carcinogens by OSHA (occupational Safety and health Administration), and not listed as carcinogens by NTP (National Toxicology Program).
Reproductive effects:	It is our belief that under normal conditions of use, this product should pose no reproductive hazard to the worker. Lead exposure may cause reproductive effects based on studies in laboratory animals and on human epidemiological studies.
Developmental effects:	It is our belief that under normal conditions of use, this product should pose no reproductive hazard to the worker. Lead has been shown to cause congenital abnormalities and behavioral deficits in experimental animals in addition to its ability to increase the number of miscarriages, stillbirths and abortions in lead-exposed women.
Target Organ:	Eyes, Skin, cardiovascular system, immune system.
Other adverse effects:	Prolonged or repeated exposure to organic nitrates may develop a tolerance due to chronic dilation of the blood vessels. This tolerance disappears rapidly after a few days away from exposure and withdrawal symptoms consisting of angina and heart attack have been reported in chronically exposed workers. Another type of tolerance loss is the "Monday morning disease", where workers experience headaches, dizziness, postural weakness and other symptoms.

SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicity effects:	Contains no substances known to be hazardous to the environment or not degradable in waste water treatment plants.

SECTION 13 - DISPOSAL CONSIDERATIONS

Waste Disposal Method:	Burn under supervision of an expert at a government-approved explosive burning ground or destroy, by detonation in boreholes, in accordance with applicable local, provincial and federal laws. Call upon the services of an Orica Canada Inc. or Orica USA Inc. technical representative.

SECTION 14 - TRANSPORT INFORMATION

DOT Proper Shipping Name:	Detonator assemblies, Non-Electric
Hazard Class:	1.1B or 1.4B (depending on packaging)
UN-No:	UN0360 or UN0361 (depending on packaging)
Packing Group:	II
TDG Proper Shipping Name:	Detonator assemblies, Non-Electric
Hazard Class:	1.1B or 1.4B (depending on packaging)
UN-No:	UN0360 or UN0361 (depending on packaging)
Packing Group:	II

SECTION 15 - REGULATORY INFORMATION

CANADIAN CLASSIFICATION: This product has been classified in accordance with the hazard criteria of the CPR (Controlled Products Regulations) and this MSDS contains all the information required by the CPR

WHMIS hazard class: This product is an explosive and is not regulated by WHMIS.

USA CLASSIFICATION:

SARA Regulations Sections 313 and 40 CFR 372: This product contains the following toxic chemical(s) subject to reporting requirements, Lead, Lead Azide

SARA 311/312 Hazardous Categorization

Acute Health Hazard:	No
Chronic Health Hazard:	No
Fire Hazard:	No
Reactive Hazard:	Yes
Sudden Release of Pressure Hazard:	No

Ozone Protection and 40 CFR 42: No reportable quantities of ozone depleting agents

Other Regulations/Legislations which apply to this product: Massachusetts Right-to-Know, Pennsylvania Right-to-Know, New Jersey Right-to-Know, Rhode Island Right-to-Know.

TSCA: Complies **DSL:** Complies **NDSL:** Complies

SECTION 16 - OTHER INFORMATION

Prepared By: **Safety, Health & Environment**
303-268-5000

Preparation Date: 19-Jul-2007
Revision Date: 19-Jul-2011

The information contained herein is offered as a guide to the handling of this specific material and has been prepared in good faith by technically knowledgeable personnel. It is not intended to be all-inclusive and the manner and conditions of use and handling may involve other and additional considerations. No warranty of any kind is given or implied and Orica will not be liable for any damages, losses, injuries or consequential damages which may result from the use of or reliance on any information contained herein.

End of MSDS

Material Safety Data Sheet

Preparation Date: 19-Jul-2007 **Revision Date:** 19-Jul-2011 **Revision Number:** 1

SECTION 1 – PRODUCT AND COMPANY INFORMATION

Supplier(s):

Orica Canada Inc.	Orica USA Inc
Maple Street	33101 E Quincy Ave
Brownsburg, QC	Watkins, CO 80137-9406
For MSDS Requests: 1-450-533-4201	For MSDS Requests: 1-303-268-5000

Product Name:	**Exel™ Connectadet™ (Detonator Assemblies Non-Electric)**
Product Code:	20063
Alternate Name(s):	Not Available
UN-No:	UN0500
Recommended Use:	Non-Electric detonators and accessory products.

Emergency Telephone Number: FOR CHEMICAL EMERGENCIES (24 HOUR) INVOLVING TRANSPORTATION, SPILL, LEAK, RELEASE, FIRE OR ACCIDENTS: **IN CANADA CALL:** ORICA CANANDA TRANSPORTATION EMERGENCY RESPONSE SYSTEM AT **1-877-561-3636.** IN US CALL: CHEMTREC **1-800-424-9300. IN THE U.S.** FOR LOST, STOLEN OR MISPLACED EXPLOSIVES CALL: BATF **1-800-800-3855.** FORM ATF F5400.0 MUST BE COMPLETED AND LOCAL AUTHORITIES (STATE/MUNICIPAL POLICE, ETC.) MUST BE ADVISED.

SECTION 2 – HAZARD IDENTIFICATION

Emergency Overview:
The following information is the potential hazards associated with the ingredient(s) in this product. It is our belief that, under conditions of normal occupational exposure, this product should pose no such hazards to the user. Main risk is that of explosion by shock, friction, fire or other sources of ignition. Read the entire MSDS for a more thorough evaluation of the hazards.

Appearance:	**Physical State:**	**Odor:**
A signal line (solid core/shock/tube) containing an explosive charge and a detonator.	Solid	None

SECTION 3 – COMPOSITION/ INFORMATION ON INGREDIENTS

Chemical Name	**CAS-No**	**Weight %**
Pentaerythritol Tetranitrate (PETN)	78-11-5	0-10
Lead Azide	13424-46-9	0-5
Cyclotetramethylenetetranitramine (HMX)	2691-41-0	0.2 – 0.4
Aluminum	7429-90-5	<0.1

Also- may contain a lead sheathed delay element(s); may include a delay composition.

SECTION 4- FIRST AID MEASURES

General Advice:	General: Not applicable; this is a packaged product that will not result in exposure to the contents under normal conditions of use. In the event of contact, administer first aid appropriate for burns, laceration and bruises. If detonation fumes are inhaled, remove to fresh air. Give artificial respiration ONLY if breathing has stopped. Give cardiopulmonary resuscitation (CPR) if there is no breathing AND no pulse. Oxygen administration may be beneficial in this situation, but should only be administered by personnel trained in its use. Obtain medical attention IMMEDIATELY.
Eye Contact:	No applicable information.
Skin Contact:	No applicable information.
Inhalation:	In the event those workers are overexposed to fumes and vapour resulting from detonation, remove victim from exposure and provide artificial respiration if not breathing.
Ingestion:	No applicable information.

Notes to Physician: No applicable information.

SECTION 5 – FIRE-FIGHTING MEASURES

Flammable properties: High explosive with mass detonation hazard. Expected to be sensitive to mechanical impact. Not expected to be sensitive to static discharge.

Suitable extinguishing media: DO NOT FIGHT FIRES INVOLVING EXPLOSIVES. Evacuate surrounding areas. When controlling fire before involvement of explosives, fire-fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear. Water may be applied through fixed extinguishing system (sprinklers) as long as people need not be present for the system to operate. Water may be used on small fires.

Unsuitable extinguishing media: DO NOT FIGHT FIRES INVOLVING EXPLOSIVE MATERIALS. Immediately evacuate all personnel from the area to a safe distance. Guard against re-entry. This product is a high explosive with a mass detonation hazard. Thermal decomposition can lead to release of irritating gases and vapors.

Protective equipment and precautions for fire fighters: As in any fire, wear self-contained breathing apparatus pressure-demand, NIOSH approved (or equivalent) and full protective gear.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

Methods for containment: No information available.

Methods for cleaning up: Not required. If detonators are damaged, contact an Orica Canada Inc. or Orica USA Inc. technical representative. Deactivating Chemicals: Not required. If detonators are broken, contact product advisor.

SECTION 7 - HANDLING AND STORAGE

Handling: This product is an explosive and should only be used under the supervision of trained personnel. Protect containers from physical damage. Keep away from incompatible materials, heat, sparks, flames and other ignition sources. Avoid rough handling.

Storage: Store under moderate temperatures recommended by a technical services representative. Store under dry conditions in a well ventilated magazine that has been approved for either detonator storage or explosive storage. Do NOT store explosives in a detonator magazine or detonators in an explosive magazine. Keep away from heat, sparks and flames. Keep containers closed. Explosives should be kept well away from initiating explosives; protected from physical damage; separated from oxidizing materials, combustibles, and sources of heat. Keep away from incompatibles. Meet all legal requirements for shipping and magazining.

Storage Temperature: It is recommended that detonators not be stored or used at temperatures exceeding 70°C (158°F) without approved procedures to address the elevated temperatures.

SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Other exposure guidelines: Recommendations listed in this section indicate the type of equipment that will provide protection against exposure to this product under normal conditions of use. Conditions of use, adequacy of engineering or other control measures, and actual exposure situations will dictate the need for specific protective devices at your workplace.

Engineering Measures: Full-handling precautions should be taken at all times.

Personal Protective Equipment

Eye/Face Protection: Safety glasses with side-shields are recommended to prevent eye contact.

Skin Protection: Gloves and protective clothing made from cotton should provide adequate protective.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety practice.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	A signal line (solid core/shock/tube) Containing an explosive charge and A detonator.	**Odor:**	None
		Viscosity:	No Information Available
Physical State:	Solid	**Melting Point/Range:**	PETN melts at 140°C / 284°F

pH:	No data available		
Flammable Limits (upper):	No data available	**Flammable Limits (lower):**	No data available
Explosion Power:	No data available	**Specific Gravity:**	Not available
Vapor Pressure:	Not available	**Oxidizing Properties:**	No information available
Partition Coefficient (n-octanol/water):	No data available		

SECTION 10 - STABILITY AND REACTIVITY

Stability: Can explode from impact, heat or friction. If detonators are broken, contact product advisor. PETN explodes at 190 - 210°C (374 - 410°F).

Conditions to avoid: Impact or shock. Static discharge.

Incompatible materials; Acids. Bases.

Hazardous decomposition products: Thermal decomposition products are toxic and may include lead, hydrocarbons, oxides of carbon and nitrogen. To a lesser degree, decomposition products may include oxides of lead, chromium, barium, boron and hydrogen cyanide.

SECTION 11 - TOXICOLOGICAL INFORMATION

Acute Toxicity

Subchronic Toxicity (28 days): Organic nitrates act as vasodilators; signs and symptoms of poisoning include headache, dizziness, increased heart rate, postural weakness and hypotension. Dermatitis or "drug rash" of the skin may also be observed.

Chronic toxicity: Contains no substance that is a known carcinogen.

Carcinogenicity: The ingredients of this product are not classified as carcinogenic by ACGIH (American Conference of Governmental Industrial Hygienists) or IARC (International Agency for Research on Cancer), not regulated as carcinogens by OSHA (occupational Safety and health Administration), and not listed as carcinogens by NTP (National Toxicology Program).

Reproductive effects: It is our belief that under normal conditions of use, this product should pose no reproductive hazard to the worker. Lead exposure may cause reproductive effects based on studies in laboratory animals and on human epidemiological studies.

Developmental effects: It is our belief that under normal conditions of use, this product should pose no reproductive hazard to the worker. Lead has been shown to cause congenital abnormalities and behavioral deficits in experimental animals in addition to its ability to increase the number of miscarriages, stillbirths and abortions in lead-exposed women.

Target Organ: Eyes, Skin, Cardiovascular system, Immune system.

Other adverse effects: Prolonged or repeated exposure to organic nitrates may develop a tolerance due to chronic dilation of the blood vessels. This tolerance disappears rapidly after a few days away from exposure and withdrawal symptoms consisting of angina and heart attack have been reported in chronically exposed workers. Another type of tolerance loss is the "Monday morning disease", where workers experience headaches, dizziness, postural weakness and other symptoms.

SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicity effects: Contains no substances known to be hazardous to the environment or not degradable in waste water treatment plants.

SECTION 13 - DISPOSAL CONSIDERATIONS

Waste Disposal Method: Burn under supervision of an expert at a government-approved explosive burning ground or destroy, by detonation in boreholes, in accordance with applicable local, provincial and federal laws. Call upon the services of an Orica Canada Inc. or Orica USA Inc. technical representative.

SECTION 14 - TRANSPORT INFORMATION

DOT Proper Shipping Name:	Detonator assemblies, Non-Electric
Hazard Class:	1.4S (depending on packaging)
UN-No:	UN0500
Packing Group:	II
TDG Proper Shipping Name:	Detonator assemblies, Non-Electric
Hazard Class:	1.4S (depending on packaging)
UN-No:	UN0500
Packing Group:	II

SECTION 15 - REGULATORY INFORMATION

CANADIAN CLASSIFICATION: This product has been classified in accordance with the hazard criteria of the CPR (Controlled Products Regulations) and this MSDS contains all the information required by the CPR

WHMIS hazard class: This product is an explosive and is not regulated by WHMIS.

USA CLASSIFICATION:

SARA Regulations Sections 313 and 40 CFR 372: This product contains the following toxic chemical(s) subject to reporting requirements, Lead, Lead Azide

SARA 311/312 Hazardous Categorization

Acute Health Hazard:	No
Chronic Health Hazard:	No
Fire Hazard:	No
Reactive Hazard:	Yes
Sudden Release of Pressure Hazard:	No

Ozone Protection and 40 CFR 42: No reportable quantities of ozone depleting agents

Other Regulations/Legislations which apply to this product: Massachusetts Right-to-Know, Pennsylvania Right-to-Know, New Jersey Right-to-Know, Rhode Island Right-to-Know.

TSCA: Complies **DSL:** Complies **NDSL:** Complies

SECTION 16 - OTHER INFORMATION

Prepared By:	**Safety, Health & Environment** **303-268-5000**
Preparation Date:	19-Jul-2007
Revision Date:	19-Jul-2011

The information contained herein is offered as a guide to the handling of this specific material and has been prepared in good faith by technically knowledgeable personnel. It is not intended to be all-inclusive and the manner and conditions of use and handling may involve other and additional considerations. No warranty of any kind is given or implied and Orica will not be liable for any damages, losses, injuries or consequential damages which may result from the use of or reliance on any information contained herein.

End of MSDS

Material Safety Data Sheet

Dyno Nobel Inc.
2795 East Cottonwood Parkway, Suite 500
Salt Lake City, Utah 84121
Phone: 801-364-4800 Fax: 801-321-6703
E-Mail: dnna.hse@am.dynonobel.com
FOR 24 HOUR EMERGENCY, CALL CHEMTREC (USA) 800-424-9300
CANUTEC (CANADA) 613-996-6666

MSDS # 1108
Date 06/28/11

Supercedes
MSDS # 1108 09/16/10

SECTION I - PRODUCT IDENTIFICATION

Trade Name(s):

DYNO® CORD SENSITIVE BOOSTERS - CS35, CS45, CS90, CS135
TROJAN® SPARTAN®
TROJAN® SPARTAN® Slider
TROJAN® Stinger
TROJAN® NB
TROJAN® NB UNIVERSAL
TROJAN® Twinplex
TROJAN® SPARTAN® SR

Product Class: Cast Boosters

Product Appearance & Odor: Tan to brown solid with no odor. May also be silvery gray. Packaged in paper or plastic tube.

DOT Hazard Shipping Description: Booster 1.1D UN0042 II

NFPA Hazard Classification: Not Available (See Section IV - Special Fire Fighting Procedures)

SECTION II - HAZARDOUS INGREDIENTS

			Occupational Exposure Limits	
Ingredients:	**CAS#**	**% (Range)**	**ACGIH TLV-TWA**	**OSHA PEL-TWA**
Pentaerythritol Tetranitrate (PETN)	78-11-5	35-70	None Established	None Established
Trinitrotoluene	118-96-7	30-50	0.1 mg/m^3 (skin)	1.5 mg/m^3 (skin)
RDX	121-82-4	0-25	0.5 mg/m^3 (skin)	1.5 mg/m^3 (skin)
HMX	2691-41-0	0-5	None Established	None Established
Aluminum	7429-90-5	0-15	10 mg/m^3 (dust)	15 mg/m^3 (total)

Ingredients, other than those mentioned above, as used in this product are not hazardous as defined under current Department of Labor regulations, or are present in deminimus concentrations (less than 0.1% for carcinogens, less than 1.0% for other hazardous materials).

DYNO
Dyno Nobel
Groundbreaking Performance

Material Safety Data Sheet

SECTION III - PHYSICAL DATA

Melting Point: 176° F (80° C) (TNT)
Vapor Density: Not applicable
Percent Volatile by Volume: Not applicable
Evaporation Rate (Butyl Acetate = 1): Not applicable
Vapor Pressure: 0.042mm Hg at 80° C (TNT)
Density: 1.55 - 1.65 g/cc
Solubility in Water: < 0.01%

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

Flash Point: Not applicable
Flammable Limits: Not applicable
Extinguishing Media: (See Special Fire Fighting Procedures section).
Special Fire Fighting Procedures: Do not attempt to fight fires involving explosive materials. Evacuate all personnel to a predetermined safe location, no less than 2,500 feet in all directions.
Unusual Fire and Explosion Hazards: Can explode or detonate under fire conditions. Burning material may produce toxic vapors.

SECTION V - HEALTH HAZARD DATA

Effects of Overexposure

Eyes: Particulates in the eye may cause irritation, redness, and tearing. Prolonged or repeated contact may cause cataracts, optic neuritis, blurred vision or amblyopia.
Skin: Prolonged contact may cause irritation, severe eczema and sensitization dermatitis. **TNT** may be absorbed through the skin, which may be indicated by orange staining on exposed skin. See systemic effects below.
Ingestion: Harmful if swallowed. See systemic effects below.
Inhalation: Inhalation of dusts may cause irritation, sneezing or coughing. See systemic effects below.
Systemic or Other Effects: TNT is an irritant, neurotoxin, hepatotoxin, nephrotoxin and bone marrow depressant. Although exposure is unlikely, acute or chronic exposure may cause sensitization dermatitis, headache, dizziness, jaundice, lethargy, or problems with the liver or blood such as toxic nephritis, aplastic anemia, hemolytic anemia or methemoglobin formation. **PETN** is a known coronary vasodilator, and ingestion or inhalation may result in a lowering of blood pressure, headache or faintness, and a decreased tolerance for grain alcohol. Repeated over-exposure may result in chest pains in the absence of exposure.

Emergency and First Aid Procedures

Eyes: Irrigate with running water for at least fifteen minutes. If irritation persists, seek medical attention.
Skin: Remove contaminated clothing. Wash skin thoroughly with soap and water.
Ingestion: Seek medical attention.
Inhalation: In case of irritation, remove to fresh air. Seek medical attention if chronic symptoms occur.
Special Considerations: None.

SECTION VI - REACTIVITY DATA

Stability: Stable under normal conditions, may explode when subjected to fire, supersonic shock or high-energy projectile impact, especially when confined or in large quantities.
Conditions to Avoid: Keep away from heat, flame, friction, impact, ignition sources and strong shock.
Materials to Avoid (Incompatibility): Corrosives (strong acids and bases or alkalis).
Hazardous Decomposition Products: Nitrogen Oxides (NO_X), Carbon Monoxide (CO)
Hazardous Polymerization: Will not occur.

DYNO
Dyno Nobel
Groundbreaking Performance

Material Safety Data Sheet

SECTION VII - SPILL OR LEAK PROCEDURES

Steps to be taken in Case Material Is Released or Spilled: Protect from all ignition sources. In case of fire evacuate area not less than 2,500 feet in all directions. Notify authorities in accordance with emergency response procedures. Only personnel trained in emergency response should respond. If no fire danger is present, and product is undamaged and/or uncontaminated, repackage product in original packaging or other clean DOT approved container. Ensure that a complete account of product has been made and is verified. Follow applicable Federal, State and local spill reporting requirements.
Waste Disposal Method: Disposal must comply with Federal, State and local regulations. If product becomes a waste, it is potentially regulated as a hazardous waste as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR, part 261. Review disposal requirements with a person knowledgeable with applicable environmental law (RCRA) before disposing of any explosive material.

SECTION VIII - SPECIAL PROTECTION INFORMATION

Ventilation: Not required for normal handling.
Respiratory Protection: None normally required.
Protective Clothing: Non-permeable gloves and work clothing that reduce skin contact are recommended.
Eye Protection: Safety glasses are recommended.
Other Precautions Required: None.

SECTION IX - SPECIAL PRECAUTIONS

Precautions to be taken in handling and storage: Store in cool, dry location. Store in compliance with all Federal, State and local regulations. Keep away from heat, flame, ignition sources or strong shock.
Precautions to be taken during use: Avoid breathing the fumes or gases from detonation of explosives. Use accepted safe industry practices when using explosive materials. Unintended detonation of explosives or explosive devices can cause serious injury or death.
Other Precautions: It is recommended that users of explosives material be familiar with the Institute of Makers of Explosives Safety Library publications.

SECTION X - SPECIAL INFORMATION

This product contains the following substances that are subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

Chemical Name	CAS Number	% By Weight
None Applicable		

Disclaimer

Dyno Nobel Inc. and its subsidiaries disclaim any warranties with respect to this product, the safety or suitability thereof, the information contained herein, or the results to be obtained, whether express or implied, INCLUDING WITHOUT LIMITATION, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE AND/OR OTHER WARRANTY. The information contained herein is provided for reference purposes only and is intended only for persons having relevant technical skills. Because conditions and manner of use are outside of our control, the user is responsible for determining the conditions of safe use of the product. Buyers and users assume all risk, responsibility and liability whatsoever from any and all injuries (including death), losses, or damages to persons or property arising from the use of this product or information. Under no circumstances shall either Dyno Nobel Inc. or any of its subsidiaries be liable for special, consequential or incidental damages or for anticipated loss of profits.

Riverside County Sheriff's Department
Stanley Sniff, Sheriff-Coroner
Hazardous Device Team
P.O. Box 1267
Riverside, CA 92502
(951) 955-1700

Permit No. HD120890001

Explosives Application and Permit

Date: 3/29/12 Fees: $ 260 00

☒ Explosives
☐ Fireworks / Special Effects

This permit is not transferable and is valid only at the designated job site or location indicated

Permit Use:

☒ Use
☐ Storage
☐ Transportation
☐ Other

This permit valid during the period:

04/13/2012 to **04/13/2013**
Blasting shall be confined to daylight hours except when noted in conditions of issuance.

Issued to: **California Drilling and Blasting** Robert Lonergan

Address: **P.O. Box 4607** **El Monte, CA 91734**

Telephone: **626-443-0310** **626 926 4624** - Emergency Contact

Job Site / Production: Hanson Aggregates 19494 River Rock Road, Riverside County (El Cerrito) CA 92881
Thomas Guide 774 C - 4

Sheriff's Station Area: Jurupa Station

Additional Conditions of Issuance: **Notify Sheriff's Dispatch prior to blasting @ 951 776 1099**
See Page 2 of permit for conditions

Type / Quantity of Explosive(s): **Blasting Agents, Boosters and Detonators** **Over 100 lbs.**

How Used: **Quarry Blasting / Mining** Storage Location: **N/A**

Explosive Magazine Type: **N/A** Date of Inspection: **N/A** Inspected by: **N/A**

THEFT OR LOSS SHALL BE REPORTED TO THIS AGENCY IMMEDIATELY (12086 H&S)

I, THE UNDERSIGNED, CERTIFY THAT I UNDERSTAND AND WILL ABIDE BY ALL FEDERAL, STATE, LOCAL LAWS, ORDINANCES, RULES OR ORDERS TO PERFORM THOSE ACTS NOTED THEREIN. I ALSO UNDERSTAND THAT ALL UNUSED INVENTORY COVERED BY THIS PERMIT ON OR BEFORE THE EXPIRATION DATE WILL BE DISPOSED OF BY; (1) RETURNING PRODUCT TO SOURCE, (2) TOTALLY DESTROYED IN A SAFE MANNER, (3) TURNING OVER TO RIVERSIDE COUNTY SHERIFF HAZARDOUS DEVICE TEAM, (4) RE-APPLY FOR A NEW PERMIT.

(Applicant / Agent Signature) (Date)

☒ FAX application

Authorized Personnel:
Name: **See attached List**

Address:

California State Blasting
Pyrotechnics License: Exp:
Driver's License No.: State:

Name:

Address:

California State Blasting
Pyrotechnics License: Exp.

Driver's License No.: State:

Stanley Sniff, Sheriff–Coroner; **R. Cuevas # 2526** - Issuing Deputy

RSD FORM #302 (Rev 01/03)

DEPARTMENT OF JUSTICE

Bureau of Alcohol, Tobacco,
Firearms and Explosives

Martinsburg, WV 25405

May 1, 2012

California Drilling & Blasting Company Inc
PO Box 4607
El Monte, CA 91734

901090:CRR/KCU
5400
File Number: 9-CA-90013

Premises Address: 4144 N Arden Dr, El Monte, CA 91731

Dear Sir/Madam:

This letter acknowledges receipt of your timely application to renew your Federal explosives license/permit.

The Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) is not able to process your application prior to the expiration date of your license/permit. However, Federal law allows you to continue operations under your current license/permit until such time as ATF completes processing your application. See 5 U.S.C. § 558. This letter, or as explained below, a follow-up letter, will serve as your license/permit until we complete action on your renewal. It is referred to as a Letter of Authorization (LOA).

Since we have not completed processing your application, you may supply a copy of this letter to other licensees/permittees, e.g., your distributors, for the next six months (or until we complete action on your renewal, if that occurs in less than six months) as evidence of your licensed/permitted status. If we have not completed processing your application for renewal within six months of the date of this letter, we will send you another letter, which will also be valid for six months (or until we complete action on your renewal, if that occurs in less than six months). This is of course contingent upon your remaining entitled to continue operations under your current license/permit.

Please direct questions or concerns regarding this letter to Susan Clark at 877-283-3352.

Sincerely,

Christopher R. Reeves

Christopher R. Reeves
Chief, Federal Explosives Licensing Center

ATF web address: www.atf.gov

DEPARTMENT OF THE TREASURY - BUREAU OF ALCOHOL, TOBACCO AND FIREARMS

LICENSE/PERMIT (18 U.S.C. CHAPTER 40, EXPLOSIVES)

In accordance with the provisions of Title XI, Organized Crime Control Act of 1970, and the regulations issued thereunder (27 CFR Part 555)you may engage in the activity specified in this license/permit within the limitations of Chapter 40, Title 18, United States Code and the regulations issued thereunder, until the expiration date shown. See "WARNING" and "NOTICES" on back.

DIRECT ATF CORRESPONDENCE TO

Christopher R. Reeves
Chief, Federal Explosives Licensing Center (FELC)
Bureau of Alcohol, Tobacco, Firearms and Explosives
244 Needy Road
Martinsburg, West Virginia 25405
Telephone: 1-877-283-3352 Fax: 1-304-616-4401

LICENSE/PERMIT NUMBER: 9-CA-037-33-2E-90013

EXPIRATION DATE: May 1, 2012

NAME

CALIFORNIA DRILLING & BLASTING COMPANY INC

Premises Address CHANGES? You must notify the FELC at least 10 days before the mo

4144 N ARDEN DR
EL MONTE, CA 91731-0000

TYPE OF LICENSE OR PERMIT

33-USER OF HIGH EXPLOSIVES

CHIEF, FEDERAL EXPLOSIVES LICENSING CENTER (FELC)

Christopher R. Reeves

Christopher R. Reeves

PURCHASING CERTIFICATION

I certify that this is a true copy of a license/permit issued to me to engage in the activity specified.

William M. McCrite

(SIGNATURE OF LICENSEE/PERMITTEE)

Mailing Address CHANGES? You must notify the FELC at least 10 days before the chang

CALIFORNIA DRILLING & BLASTING COMPANY INC
PO BOX 4607
EL MONTE, CA 91734-0000

The licensee/permittee named herein shall use a reproduction of this license/permit to assist a transferor of explosives to verify the identity and status of the licensee/permittee as provided in 27 CFR Part 555. The signature on each reproduction must be an ORIGINAL signature.

ATF F 5400.14/5400.15, Part 1 (8/89)