AGENDA
REGULAR SESSION
GARDEN RIDGE QUARRY COMMISSION MEETING
Monday, September 11, 2017 at 6:00 p.m.

The Garden Ridge City Quarry Commission will meet in regular session on Monday, September 11, 2017 at 6:00 p.m. in the City Council Chambers, 9400 Municipal Parkway, Garden Ridge, Texas. This is an open meeting, open to the public, subject to the Open Meetings Law of the State of Texas, and as required by law, notice is hereby posted on or before September 8, 2017 before 5:00 p.m., providing time, place, date and agenda thereof. The meeting facility is wheelchair accessible and accessible parking spaces are provided. Requests for accommodations or interpretative services must be made 48 hours prior to this meeting.

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1. Call to Order :

2. Roll Call:

3. Approval of Minutes:
   a. July 10, 2017 Regular Quarry Commission Meeting
   b. August, 31, 2017 Special Session Quarry Commission

4. Citizens Comments – Limited to 30 minutes

Rules for Citizen's Participation:
The Quarry Commission welcomes citizen participation and comments at all of their Commission Meetings. The Commission offers citizens the opportunity to address them by signing up to speak prior to the meeting. As a courtesy to your fellow citizens and out of respect for our appointed officials, we request that if you speak, you follow these guidelines:

a) Respect and courtesy:
   i. Direct your comments to the entire Commission, not to an individual member, nor to the audience.
   ii. Show the Commission the same respect that you would like to be shown.
   iii. Show the Commission courtesy by ending your speaking at the time allotted below.

b) Speaking:
   i. First citizen comment period
      a. You are required to sign up to speak.
      b. You are limited to three (3) minutes per citizen.
   ii. Business item period
      a. You are required to sign up to speak.
      b. You are limited to three (3) minutes per citizen.
   iii. Second citizen comment period
      a. You are not required to sign up.
      b. You are limited to two (2) minutes per citizen.

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iv. State your name and address before your comments begin.
v. Citizens are only allowed to speak once, unless also speaking during a posted Public Hearing.

NOTE: *The Texas Open Meetings Act permits a member of the public or a member of the governmental body to raise a subject that has not been included in the notice for the meeting. However, any discussion of the subject* ***must be limited*** *to a proposal to place the subject on the agenda for a future meeting and any response to a question posed to the Commission is limited to either a statement of specific factual information or a recitation of existing policy.* TEX. GOV'T CODE § 551.042.

5. Business Items:
The City Quarry Commission may discuss, consider, and /or take possible action for possible recommendation to the City Council for the following items:

a. Review and discussion on the monthly Hanson Quarry blasting analysis data reported by Vibratech. Discussion with Hanson Servtex and Blasting contractors, on recent quarry operations, including any unusual blasts that occurred during reported month/s and/or current month.

b. Review individual citizen blast report/s, follow up on citizen blast report/s and/or assign Quarry Commission member contact with citizen/s, as necessary.

c. Discussion on number of, placement and location of monitors and other matters related to monitoring of blasts by Vibratech and notification to residents of monitor placements. Discuss request from Gary Larrew, 9107 Cinnabar Court, for a temporary monitor at his residence.

d. Request from Buckley Powder Company for a Partial Exemption Permit to conduct blasting activities at the Hanson Quarry
    i. Review request and make recommendation to the City Council.

e. Discuss and possible recommendation of reappointment of Commissioners Shands, Haddad, Holloway and Mudge due to expiring terms of office (September 30, 2017) for a two-year term.

f. Discuss Grapevine article topics.

g. Presentation by Orica regarding the different types of decking, what is it and what it is meant to do and the effect of frequencies and waves during and after blasts.

h. Discuss future training sessions.

6. Citizen's Participation - Limited to 20 minutes
See "Rules for Citizen's Participation" under Item 4.

7. Adjournment:

AGENDA NOTICES:

Decorum Required:
Any disruptive behavior, including shouting or derogatory statements or comments may be ruled out of order by the Presiding Officer. Continuation of this type of behavior could result in a request by the Presiding Officer that the individual leave the meeting, and if refused, an order of removal.

Action by Commission Authorized:
The City Quarry Commission may vote and/or act upon any item within this Agenda. The Commission reserves the right to retire into executive session concerning any of the items listed on this Agenda, pursuant to and in accordance with Texas Government Code Section 551.071, to seek the advice of its attorney about pending or contemplated litigation, settlement offer or on a matter in which the duty of the attorney to the governmental body under the Texas Disciplinary Rules of Professional Conduct of the State Bar of Texas conflict with the Open Meetings Act and may invoke this right where the City Attorney, the Mayor or a majority of the Governing Body deems an executive session is necessary to allow privileged consultation between the City Attorney and the governing body, if considered necessary and legally justified under the Open Meetings Act. The City Attorney may appear in person, or appear in executive session by conference call in accordance with applicable state law.

Executive Sessions Authorized:
This agenda has been reviewed and approved by the City's legal counsel and the presence of any subject in any Executive Session portion of the agenda constitutes a written interpretation of Texas Government Code Chapter 551 by legal counsel for the governmental body and constitutes an opinion by the attorney that the items discussed therein may be legally discussed in the closed portion of the meeting considering available opinions of a court of record and opinions of the Texas Attorney General known to the attorney. This provision has been added to this agenda with the intent to meet all elements necessary to satisfy Texas Government Code Chapter 551.144(c) and the meeting is conducted by all participants in reliance on this opinion.

Attendance By Other Elected or Appointed Officials:
It is anticipated that members of other city board, commissions and/or committees may attend the meeting in numbers that may constitute a quorum of the other city boards, commissions and/or committees. Notice is hereby given that the meeting, to the extent required by law, is also noticed as a meeting of the other boards, commissions and/or committees of the City, whose members may be in attendance. The members of the boards, commissions and/or committees may participate in discussions on the same items listed on the agenda, which occur at the meeting, but no action will be taken by such in attendance unless such item and action is specifically provided for on an agenda for that board, commission or committee subject to the Texas Open Meetings Act.

Shelley Goodwin, TMRC
City Secretary

This is to certify that I, Shelley Goodwin, posted this Agenda at 4:15pm on September 7, 2017 on the bulletin board located at the entrance to the Garden Ridge City Hall, 9400 Municipal Parkway, Garden Ridge, Texas.

Shelley Goodwin, TMRC
City Secretary

MINUTES OF QUARRY COMMISSION REGULAR MEETING
JULY 10, 2017

Members Present:
Chairman Mike Shands
Vice Chairman Wayne Mudge
Commissioner Richard Holloway
Commissioner Johnell Holly
Commissioner Jerry Barucky
Commissioner Mark DuBois (arrived 6:01 PM)

Member Absent:

Commissioner Albert Haddad

City Staff Present:
Nancy Cain, City Administrator
Lori Claus, Administrative Assistant

1. Call to Order

With a quorum of the Quarry Commission Members present, Chairman Mike Shands called the regular meeting of the Garden Ridge Quarry Commission to order at 6:00 p.m. on Monday, July 10, 2017, in the City Council Chambers of the Garden Ridge City Hall, 9400 Municipal Parkway, Garden Ridge, Texas 78266.

2. Approval of Minutes:

a) May 8, 2017 Regular Quarry Commission Meeting

Motion: Upon motion made by Commissioner Barucky and seconded by Commissioner Mudge to approve the May 8, 2017 Regular Quarry Commission Meeting Minutes. The Quarry Commission voted five (6) for, none (0) opposed. The motion carried unanimously.

3. Citizens Comments

Leon Timmerman, 9926 Trophy Oaks Drive, addressed the Quarry Commission about the June 9, 2017 blast. He asked the Commission to explain why the blast was so bad. He had never experienced one like it in the past. He said it felt like an earthquake. He also stated that it was hard for him and his wife to sleep at night due to noise from the quarry, which he stated could be

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from rock crushing activities. Commissioner Shands explained that the blast would be discussed under item 4.b. of the agenda.

4. **Business Items:**

The City Quarry Commission may discuss, consider, and /or take possible action for possible recommendation to the City Council for the following items:

a. **Review and discussion on the monthly Hanson Quarry blasting analysis data reported by Vibratech. Discussion with Hanson Servtex and Blasting contractors, on recent quarry operations, including any unusual blasts that occurred during reported month/s and/or current month.**

Nicholas Rightinger of Vibra-Tech presented and discussed the May blast analysis. He stated that 14 blasts occurred during the month of May and none of the blasts exceeded the limits of Ordinance 34. The highest ppv readings occurred on May 30, 2017 in Wall 3C, with 0.383 ppv and frequency of 11.1 Hz recorded at the Warden residence. The strongest air blast occurred on May 16, 2017, in South Wall D with an overpressure of 118 dB recorded at the Holly residence. He also discussed the timing and shots.

Commissioner Shands noted that on May 12, 2017, the roving monitor was moved from the Cohen residence to the Trevino residence.

Mr. Rightinger confirmed that the May 1, 2017 reading of 0.330 PPV at the City Property Line was in compliance with Ordinance 34.

Mr. Rightinger then presented and discussed the June blast analysis. He stated that 17 blasts occurred during the month of June and none of the blasts exceeded the limits of Ordinance 34. The highest ppv readings occurred on June 23, 2017 in Wall 3C, with 0.243 ppv recorded at the Warden residence. The strongest air blast occurred on June 5, 2017 at 3G at both the City Property Line and Michels residence, with an overpressure of 122 dB recorded. This reading is right at the line and does not exceed the limit set in Ordinance 34. The reading is most likely the result of the weather (low cloud cover and no sun). He also discussed the timing and shots.

The Quarry Commission discussed the shots and the blast analysis.

b. **Review individual citizen blast report/s, follow up on citizen blast report/s and/or assign Quarry Commission member contact with citizen/s, as necessary.**

Nicholas Rightinger, Vibra-Tech, reviewed the shot reports for each citizen blast report received during the months of May and June, as follows:

- John Thomas (5/1/17) – Close to Michels monitor with readings of .108 PPV; frequency of 7.4 Hz and air overpressure reading of 1.02 dB
- Lawrence Scott (5/5/17) – Close to Michels monitor with readings of 0.53 PPV; frequency of 22.7 Hz and air overpressure reading of 101 dB

- Lawrence Scott (5/9/17 – Close to Michels monitor with readings of 0.43 PPV; frequency of 6.6 Hz and air overpressure reading of 107 dB
- Armando Diaz (5/19/17) – Close to Warden property line monitor with readings of 0.148 PPV; frequency of 9.1 Hz and air overpressure reading of 102 dB
- Denise Diaz (5/30/17) – Close to Warden property line monitor with readings of 0.383 PPV; frequency of 11.1 Hz and air overpressure reading of 113 dB
- Leon Timmerman (6/19/17) – Close to Warden property line monitor with readings of 0.125 PPV; frequency of 8.5 and air overpressure reading of 111 dB
- Clarissa Lara (6/26/17) – Close to Michels monitor with readings of 0.68 PPV; frequency of 7.4 Hz and air overpressure reading of 103 dB

It was noted that most citizen reports were on days with low frequency readings (under 10.0 Hz). Orica stated that there may be more caverns in the blasting area, and Orica's tech team will look into changing the blast timing to bring the frequencies up. The 5/30/17 citizen report coincides with the highest PPV reading in May. The City limit is .389 and the reading was .383. Orica is continually working on finding the right formula to minimize the effects of blasts on the community.

In response to questions about noise during the night, it was explained that rock crushers generally run from 6:00 PM to 6:00 AM, but due to electrical curtailment efforts, the crushers have been running from 4:00 PM to 4:00 AM. Drilling also takes place all night which might be causing the noise that Mr. Timmerman is hearing.

It was noted that the number of blasts per month has increased and Orica explained that they were catching up on orders and the blasts per month should decrease in the coming months.

The Quarry Commission asked how quickly blasts would reach 3009. There is a 2,500 foot buffer between the quarry and 3009 where no blasts will occur and the buffer will most likely be reached in 1-2 years.

Regarding the late blast request that occurred on Friday, 7/7/17, it was explained that two brand new spools of wire failed, which caused them to need to re-wire a third time. It was dangerous to leave the blasts over the weekend (lightning and other factors could cause a blast) so a request for a late blast was made. The requirements of Ordinance 34 were followed – permission sought and granted by the Chief of Police and the Quarry Commission was notified – and the blast was safely shot at 5:32 PM.

c. Discussion on number of, placement and location of monitors and other matters related to monitoring of blasts by Vibratech and notification to residents of monitor placements.

Commissioner Shands reported that although the roving monitor was to be placed at the Cozean residence last month, Ms. Cozean requested a delay, so the roving monitor was placed at the Trevino residence. The monitor will be moved from the Trevino residence to the Cozean residence in August and to the Timmerman residence in September.

Residents who are interested in the placement of a monitor at their home should contact the City of Garden Ridge.

d. Status of submission of blasting permit applications for new permit year 10/1/17-9/3/18.

The permit is being prepared and will be submitted by 7/21/17. Upon receipt, the Quarry Commission will determine if a special meeting is needed to review the applications.

e. Discuss Grapevine article topics.

Jerry Barucky will continue to author Grapevine articles for the next 2 months with the first article addressing blasting statistics and the second on a topic of interest.

f. Discuss future training sessions.

Orica postponed its program on the different types of decking, what is it and what it is meant to do, and will present this at the September meeting. The presentation will also include information about frequencies and waves.

5. Citizen's Participation: - 3 minute limit per citizen.

Commissioner Barucky reported to the Commission that the Bacon family was very pleased with the Commission's response to their concerns about the blasts, including the offer of a roving monitor. They were asked to continue to submitting blast reports so that the Quarry Commission could remain informed about such issues.

6. Adjournment:

There being no further business, the Monday, July 10, 2017 Garden Ridge Quarry Commission regular meeting was adjourned at 6:55 p.m. by Chairman Shands.

_____
Mike Shands
Quarry Commission Chair

ATTEST

_____
Lori Claus
Administrative Support Liaison

SIGN IN TO SPEAK AT THE JULY 10, 2017
QUARRY COMMISSION REGULAR MEETING

Rules for Citizen's Participation:

The Quarry Commission welcomes citizen participation and comments at all of their Meetings. As a courtesy to your fellow citizens and out of respect to our appointed/elected officials, we must request that if you wish to speak, that you follow these guidelines.

a. Direct your comments to the entire Commission, not to an individual member nor to the audience.
b. Show the Commission the same respect and courtesy that you expect to be shown to you.
c. Limit remarks to three (3) minutes.

Disclaimer:

Any disruptive behavior, including shouting or derogatory statements or comments, will be ruled out of order by the Presiding Officer. Continuation of this type of behavior could result in a request by the Presiding Officer that the individual leave the meeting, and if refused, an order of removal.

	NAME	ADDRESS	SUBJECT
1.	Leon Zimmermann	9926 Trophy Oaks Dr.	Blast
2.			
3.			
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7.			
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9.			
10.			

MINUTES OF QUARRY COMMISSION SPECIAL SESSION
AUGUST 31, 2017

Members Present:
Chairman Mike Shands
Commissioner Albert Haddad
Commissioner Richard Holloway
Commissioner Johnell Holly
Commissioner Jerry Barucky

Member Absent:

Vice Chairman Wayne Mudge
Commissioner Mark DuBois

City Staff Present:
Nancy Cain, City Administrator
Lori Claus, Administrative Assistant
Bryan Lantzy, Councilmember

1. Call to Order

With a quorum of the Quarry Commission Members present, Chairman Mike Shands called the special session of the Garden Ridge Quarry Commission to order at 6:02 p.m. on Thursday, August 31, 2017, in the City Council Chambers of the Garden Ridge City Hall, 9400 Municipal Parkway, Garden Ridge, Texas 78266.

2. Citizens Comments

None.

3. Business Items:

a. Request from Orica USA, Inc. for a Partial Exemption Permit to conduct blasting activities at the Hanson Quarry
   i. Review request and make recommendation to the City Council.

The Quarry Commission discussed the permit submitted by Orica USA, Inc. It was noted that although the papers submitted are administratively complete in that all information called for in Ordinance 34 has been provided, it was very poorly organized and hard to follow. The first part of the application addressed the requirements of Items 1 through 9 of City Ordinance 34. However, Appendix 1.0, 2.0 and 3.0 which were referenced in the submission were not properly labeled, making the application difficult to follow. Nancy Cain, City Administrator, confirmed

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that the submitted permit is similar to those presented in past years and is satisfied that it is complete. Commission discussed the possibility of returning the permit to Orica for clarification.

Motion: Upon motion made by Commissioner Shands and seconded by Commissioner Holloway and Quarry Commission having reviewed the application packet and found it to be administratively complete, the request from Orica USA, Inc. for a Partial Exemption Permit to conduct blasting activities at the Hanson Quarry is forwarded to Council for action. The Quarry Commission voted five (5) for, none (0) opposed. The motion carried unanimously.

4. Adjournment:

There being no further business, the Thursday, August 31, 2017 Garden Ridge Quarry Commission special session was adjourned at 6:35 p.m. by Chairman Shands.

_____
Mike Shands
Quarry Commission Chair

ATTEST

_____
Lori Claus
Administrative Support Liaison

SIGN IN TO SPEAK AT THE AUGUST 31, 2017 QUARRY COMMISSION SPECIAL SESSION

Rules for Citizen's Participation:

The Quarry Commission welcomes citizen participation and comments at all of their Meetings. As a courtesy to your fellow citizens and out of respect to our appointed/elected officials, we must request that if you wish to speak, that you follow these guidelines.

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	NAME	ADDRESS	SUBJECT
1.			
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10.			

Vibra-Tech
VibraTechinc.com

4818 E. Ben White Blvd.
Suite 202
Austin, TX 78741

Phone 512.442.6464
Fax 512.442.6552

August 4, 2017

Mr. Mike Shands
Garden Ridge Quarry Commission
9400 Municipal Parkway
Garden Ridge, Texas 78266

Dear Mr. Shands,

Enclosed is the analysis for the blasting conducted during the month of July 2017 at the Hanson Aggregates Quarry in Garden Ridge, Texas. Please place this information in your 2017 Blast Data Management Book.

At the request of the Garden Ridge Quarry Commission, Vibra-Tech, Inc. personnel used seismographs each day of blasting at various locations.

The attached report contains the original seismograph records obtained from the blasting along with a comparison of the recorded vibrations to the latest recommended U.S. Bureau of Mines (USBM) Variable Partic le Velocity vs. Frequency Limits Report of Investigations (RI)-8507 (Nov. 1980).

On July 7, 2017 the instruments malfunctioned due to excessive heat. They were set up at 10:30AM and the blast occurred at 5:32PM. The peak temperature that day was 103°F. An additional seismograph was set at the nearest structure at Schneider Lane. It recorded a PPV of 0.055in/sec and an air overpressure of 102dB.

All recorded ground vibrations **satisfy** the Variable Particle Velocity vs. Frequency Limits recommended by the USBM RI-8507 (Nov. 1980), and the levels set forth in Garden Ridge City Ordinance 34.

All recorded air-borne effects **satisfy** the recommended levels set forth in the USBM RI-8485 (Nov. 1980), and the levels set forth in Garden Ridge City Ordinance 34.

If there are any additional questions, please contact the Quarry Commission, Mike Shands at (210) 257-0868, or attend the Quarry Commission meeting held the 2nd Monday of each month at 7:00 p.m.

Vibra-Tech

VibraTechinc.com

Respectfully submitted,

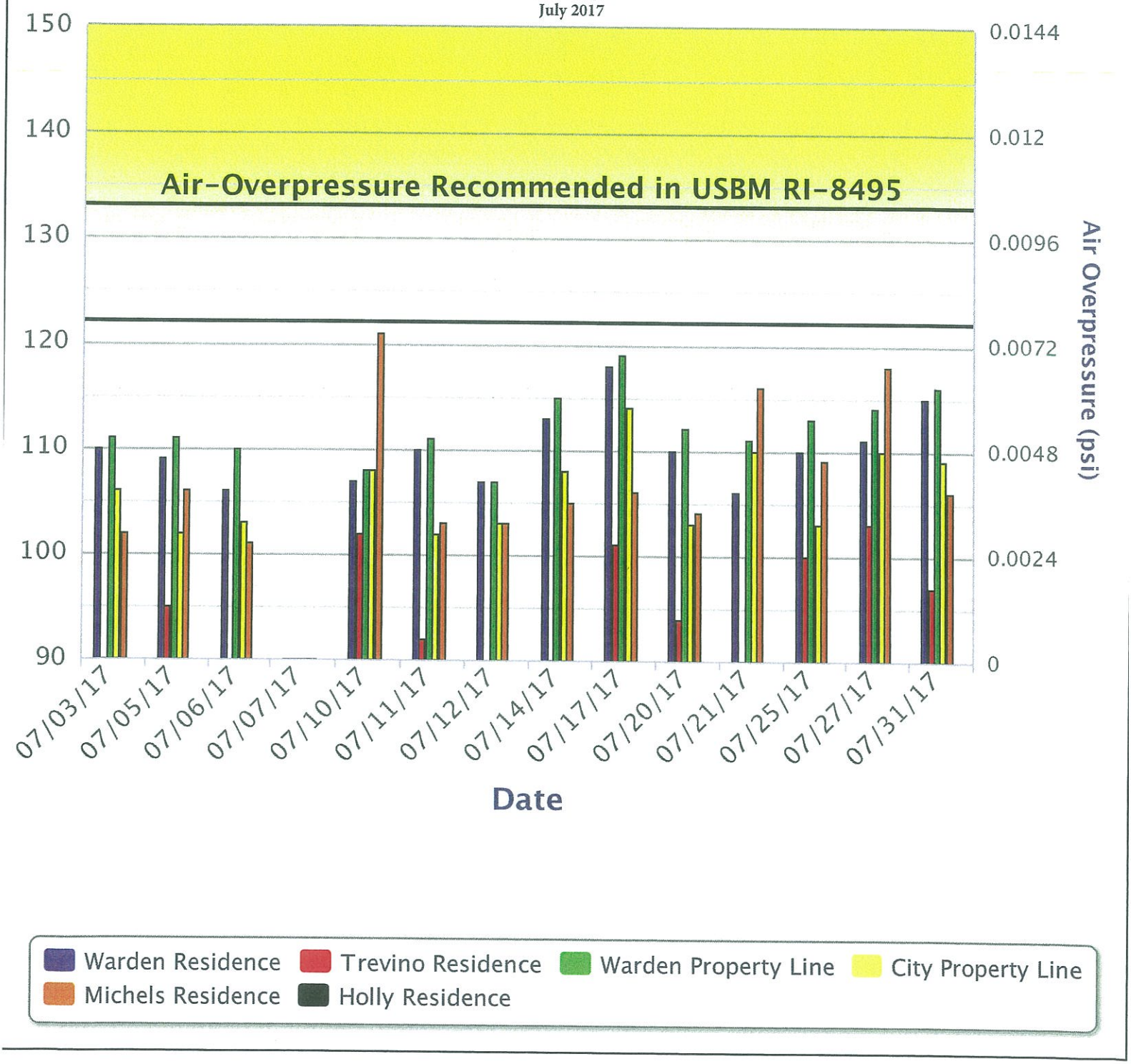
VIBRA-TECH, INC.

Geoffrey Rigsby
Southwest Regional Manager

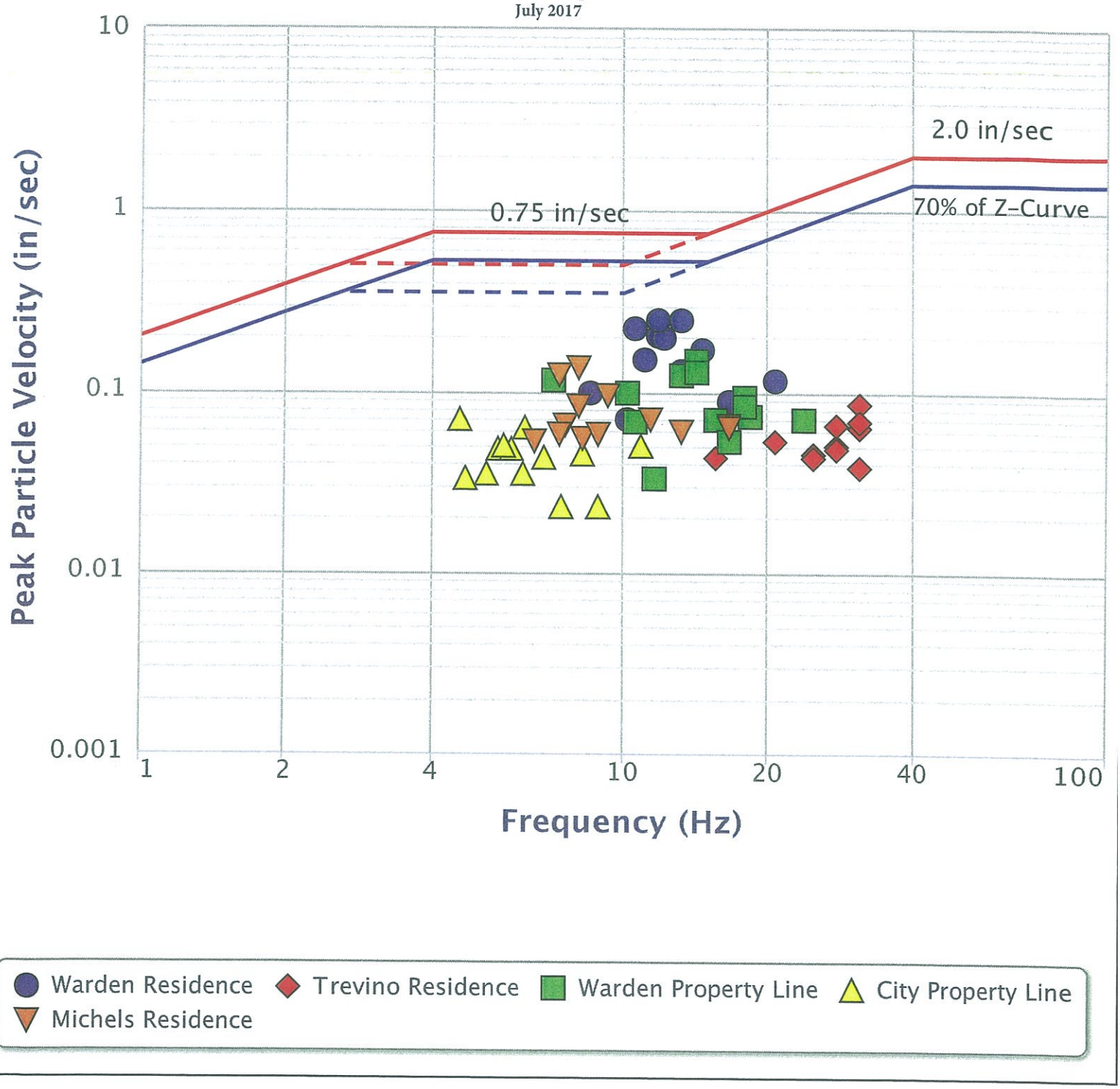
cc: Hal Halamuda, Hanson – Servtex

07-12-2017 3H
Michels
07-10-2017 3G
07-03-2017 3F
07-20-2017 3F
07-17-2017 3E
07-14-2017 Lower 6 N. Wall B
07-11-2017 3D
07-06-2017 3C
Trevino
07-25-2017 3C
07-21-2017 Upper 3B
07-05-2017 Upper 3B
Warden Property Line
Warden
City Property Line
Holly
Garden Ridge
07-07-2017 Upper S. Wall B
© 2017 Google
Google earth
1995
29°38'31.34" N 98°17'46.25" W elev 971 ft eye alt 12438 ft

Garden Ridge Quarry Commission
Garden Ridge, Texas
AO Graph
July 2017



Garden Ridge Quarry Commission
Garden Ridge, Texas
USBM Graph
July 2017



GARDEN RIDGE QUARRY COMMISSION
HANSON - SERVTEX QUARRY
GARDEN RIDGE, TEXAS
JULY 2017

DATE	SHOT # LOCATION	SHOT LOCATION GPS READING	WEATHER	TIME	PPV (in/sec)	FREQ (Hz)	AIR (dB)	SHOT DURATION (MS)	MAX LBS/ DELAY	DISTANCE FROM BLAST	SEISMOGRAPH LOCATION
07/03/17	07-03-2017 3F	N 29° 38 55.8" W 098° 17' 42.1"	PT CLOUDY 95° SE 7	12:26	0.035	6.2	106.0	874	729.00	3,520	City Property Line
07/03/17	07-03-2017 3F	N 29° 38 55.8" W 098° 17' 42.1"	PT CLOUDY 95° SE 7	12:26	0.060	13.2	102.0	874	729.00	3,309	Michels - 9118 Tuscan Hills
07/03/17	07-03-2017 3F	N 29° 38 55.8" W 098° 17' 42.1"	PT CLOUDY 95° SE 7	12:26	0.085	31.3	89.0	874	729.00	6,777	Trevino Residence
07/03/17	07-03-2017 3F	N 29° 38 55.8" W 098° 17' 42.1"	PT CLOUDY 95° SE 7	12:26	0.115	20.8	110.0	874	729.00	3,329	Warden - 21375 Gunther Grove
07/03/17	07-03-2017 3F	N 29° 38 55.8" W 098° 17' 42.1"	PT CLOUDY 95° SE 7	12:26	0.070	15.6	111.0	874	729.00	3,133	Warden Property Line
07/05/17	07-05-2017 Upper 3B	N 29° 38 39.9" W 098° 17' 38.3"	PT CLOUDY 94° SE 7	14:09	0.048	5.5	102.0	804	161.50	2,229	City Property Line
07/05/17	07-05-2017 Upper 3B	N 29° 38 39.9" W 098° 17' 38.3"	PT CLOUDY 94° SE 7	14:09	0.055	8.3	106.0	804	161.50	3,823	Michels - 9118 Tuscan Hills
07/05/17	07-05-2017 Upper 3B	N 29° 38 39.9" W 098° 17' 38.3"	PT CLOUDY 94° SE 7	14:09	0.038	31.3	95.0	804	161.50	6,752	Trevino Residence
07/05/17	07-05-2017 Upper 3B	N 29° 38 39.9" W 098° 17' 38.3"	PT CLOUDY 94° SE 7	14:09	0.203	11.9	109.0	804	161.50	1,719	Warden - 21375 Gunther Grove
07/05/17	07-05-2017 Upper 3B	N 29° 38 39.9" W 098° 17' 38.3"	PT CLOUDY 94° SE 7	14:09	0.123	13.2	111.0	804	161.50	1,511	Warden Property Line
07/06/17	07-06-2017 3C	N 29° 38 43.7" W 098° 17' 41.8"	PT CLOUDY 96° SE 6	12:38	0.063	6.3	103.0	748	337.00	2,389	City Property Line
07/06/17	07-06-2017 3C	N 29° 38 43.7" W 098° 17' 41.8"	PT CLOUDY 96° SE 6	12:38	0.095	9.3	101.0	748	337.00	3,418	Michels - 9118 Tuscan Hills
07/06/17	07-06-2017 3C	N 29° 38 43.7" W 098° 17' 41.8"	PT CLOUDY 96° SE 6	12:38	0.050	27.8	90.0	748	337.00	6,496	Trevino Residence
07/06/17	07-06-2017 3C	N 29° 38 43.7" W 098° 17' 41.8"	PT CLOUDY 96° SE 6	12:38	0.248	13.2	106.0	748	337.00	2,104	Warden - 21375 Gunther Grove
07/06/17	07-06-2017 3C	N 29° 38 43.7" W 098° 17' 41.8"	PT CLOUDY 96° SE 6	12:38	0.148	14.3	110.0	748	337.00	1,911	Warden Property Line

GARDEN RIDGE QUARRY COMMISSION
HANSON - SERVTEX QUARRY
GARDEN RIDGE, TEXAS
JULY 2017

DATE	SHOT # LOCATION	SHOT LOCATION GPS READING	WEATHER	TIME	PPV (in/sec)	FREQ (Hz)	AIR (dB)	SHOT DURATION (MS)	MAX LBS/ DELAY	DISTANCE FROM BLAST	SEISMOGRAPH LOCATION
07/07/17	07-07-2017 Upper S. Wall B	N 29° 38 12.1" W 098° 16' 42.8"	PT CLOUDY 98° S 6	17:32	**	**	**	1048	*	**	City Property Line
07/07/17	07-07-2017 Upper S. Wall B	N 29° 38 12.1" W 098° 16' 42.8"	PT CLOUDY 98° S 6	17:32	**	**	**	1048	*	**	Michels - 9118 Tuscan Hills
07/07/17	07-07-2017 Upper S. Wall B	N 29° 38 12.1" W 098° 16' 42.8"	PT CLOUDY 98° S 6	17:32	**	**	**	1048	*	**	Trevino Residence
07/07/17	07-07-2017 Upper S. Wall B	N 29° 38 12.1" W 098° 16' 42.8"	PT CLOUDY 98° S 6	17:32	**	**	**	1048	*	**	Warden - 21375 Gunther Grove
07/07/17	07-07-2017 Upper S. Wall B	N 29° 38 12.1" W 098° 16' 42.8"	PT CLOUDY 98° S 6	17:32	**	**	**	1048	*	**	Warden Property Line
07/10/17	07-10-2017 3G	N 29° 38 56.1" W 098° 17' 42.2"	PT CLOUDY 96° S 6	12:30	0.043	6.9	108.0	761	719.00	3,547	City Property Line
07/10/17	07-10-2017 3G	N 29° 38 56.1" W 098° 17' 42.2"	PT CLOUDY 96° S 6	12:30	0.123	7.4	121.0	761	719.00	3,804	Michels - 9118 Tuscan Hills
07/10/17	07-10-2017 3G	N 29° 38 56.1" W 098° 17' 42.2"	PT CLOUDY 96° S 6	12:30	0.063	31.3	102.0	761	719.00	6,779	Trevino Residence
07/10/17	07-10-2017 3G	N 29° 38 56.1" W 098° 17' 42.2"	PT CLOUDY 96° S 6	12:30	0.098	8.6	107.0	761	719.00	3,360	Warden - 21375 Gunther Grove
07/10/17	07-10-2017 3G	N 29° 38 56.1" W 098° 17' 42.2"	PT CLOUDY 96° S 6	12:30	0.068	10.6	108.0	761	719.00	3,164	Warden Property Line
07/11/17	07-11-2017 3D	N 29° 38 45.8" W 098° 17' 41.9"	PT CLOUDY 94° S 6	12:30	0.048	5.9	102.0	608	381.00	2,577	City Property Line
07/11/17	07-11-2017 3D	N 29° 38 45.8" W 098° 17' 41.9"	PT CLOUDY 94° S 6	12:30	0.083	8.1	122.0	608	381.00	3,364	Michels - 9118 Tuscan Hills
07/11/17	07-11-2017 3D	N 29° 38 45.8" W 098° 17' 41.9"	PT CLOUDY 94° S 6	12:30	0.068	31.3	92.0	608	381.00	6,525	Trevino Residence
07/11/17	07-11-2017 3D	N 29° 38 45.8" W 098° 17' 41.9"	PT CLOUDY 94° S 6	12:30	0.223	10.6	110.0	608	381.00	2,317	Warden - 21375 Gunther Grove
07/11/17	07-11-2017 3D	N 29° 38 45.8" W 098° 17' 41.9"	PT CLOUDY 94° S 6	12:30	0.098	10.2	111.0	608	381.00	2,123	Warden Property Line

* = Instrument Unavailable
= Information not provided

GARDEN RIDGE QUARRY COMMISSION
HANSON - SERVTEX QUARRY
GARDEN RIDGE, TEXAS
JULY 2017

DATE	SHOT # LOCATION	SHOT LOCATION GPS READING	WEATHER	TIME	PPV (in/sec)	FREQ (Hz)	AIR (dB)	SHOT DURATION (MS)	MAX LBS/ DELAY	DISTANCE FROM BLAST	SEISMOGRAPH LOCATION
07/12/17	07-12-2017 3H	N 29° 39 1.6" W 098° 17' 42.6"	PT CLOUDY 97° S 6	14:24	0.023	8.9	103.0	1004	299.50	4,074	City Property Line
07/12/17	07-12-2017 3H	N 29° 39 1.6" W 098° 17' 42.6"	PT CLOUDY 97° S 6	14:24	0.058	8.9	103.0	1004	299.50	3,385	Michels - 9118 Tuscan Hills
07/12/17	07-12-2017 3H	N 29° 39 1.6" W 098° 17' 42.6"	PT CLOUDY 97° S 6	14:24	0.053	20.8	90.0	1004	299.50	6,956	Trevino Residence
07/12/17	07-12-2017 3H	N 29° 39 1.6" W 098° 17' 42.6"	PT CLOUDY 97° S 6	14:24	0.070	10.2	107.0	1004	299.50	3,918	Warden - 21375 Gunther Grove
07/12/17	07-12-2017 3H	N 29° 39 1.6" W 098° 17' 42.6"	PT CLOUDY 97° S 6	14:24	0.033	11.6	107.0	1004	299.50	3,722	Warden Property Line
07/14/17	07-14-2017 Lower 6 N. Wall B	N 29° 38 54.0" W 098° 17' 7.2"	PT CLOUDY 95° S 6	11:35	0.023	7.5	108.0	592	567.40	5,203	City Property Line
07/14/17	07-14-2017 Lower 6 N. Wall B	N 29° 38 54.0" W 098° 17' 7.2"	PT CLOUDY 95° S 6	11:35	0.053	6.6	105.0	592	567.40	6,364	Michels - 9118 Tuscan Hills
07/14/17	07-14-2017 Lower 6 N. Wall B	N 29° 38 54.0" W 098° 17' 7.2"	PT CLOUDY 95° S 6	11:35	NT	NT	NT	592	567.40	9,686	Trevino Residence
07/14/17	07-14-2017 Lower 6 N. Wall B	N 29° 38 54.0" W 098° 17' 7.2"	PT CLOUDY 95° S 6	11:35	0.088	16.7	113.0	592	567.40	4,268	Warden - 21375 Gunther Grove
07/14/17	07-14-2017 Lower 6 N. Wall B	N 29° 38 54.0" W 098° 17' 7.2"	PT CLOUDY 95° S 6	11:35	0.053	16.7	115.0	592	567.40	4,060	Warden Property Line
07/17/17	07-17-2017 3E	N 29° 38 48.8" W 098° 17' 42.0"	PT CLOUDY 96° SE 8	14:08	0.035	5.2	114.0	654	661.00	2,854	City Property Line
07/17/17	07-17-2017 3E	N 29° 38 48.8" W 098° 17' 42.0"	PT CLOUDY 96° SE 8	14:08	0.070	11.4	106.0	654	661.00	3,312	Michels - 9118 Tuscan Hills
07/17/17	07-17-2017 3E	N 29° 38 48.8" W 098° 17' 42.0"	PT CLOUDY 96° SE 8	14:08	0.048	27.8	101.0	654	661.00	6,582	Trevino Residence
07/17/17	07-17-2017 3E	N 29° 38 48.8" W 098° 17' 42.0"	PT CLOUDY 96° SE 8	14:08	0.130	13.2	118.0	654	661.00	2,620	Warden - 21375 Gunther Grove
07/17/17	07-17-2017 3E	N 29° 38 48.8" W 098° 17' 42.0"	PT CLOUDY 96° SE 8	14:08	0.093	17.9	119.0	654	661.00	2,426	Warden Property Line

IT = No Trigger, <0.020 ips.
IT = No Trigger, <122dB

GARDEN RIDGE QUARRY COMMISSION
HANSON - SERVTEX QUARRY
GARDEN RIDGE, TEXAS
JULY 2017

DATE	SHOT # LOCATION	SHOT LOCATION GPS READING	WEATHER	TIME	PPV (in/sec)	FREQ (Hz)	AIR (dB)	SHOT DURATION (MS)	MAX LBS/ DELAY	DISTANCE FROM BLAST	SEISMOGRAPH LOCATION
07/20/17	07-20-2017 3F	N 29° 38 52.0" W 098° 17' 42.5"	PT CLOUDY 97° S *	12:02	0.033	4.7	103.0	786	771.00	3,143	City Property Line
07/20/17	07-20-2017 3F	N 29° 38 52.0" W 098° 17' 42.5"	PT CLOUDY 97° S *	12:02	0.065	16.7	104.0	786	771.00	3,252	Michels - 9118 Tuscan Hills
07/20/17	07-20-2017 3F	N 29° 38 52.0" W 098° 17' 42.5"	PT CLOUDY 97° S *	12:02	0.045	25.0	94.0	786	771.00	6,624	Trevino Residence
07/20/17	07-20-2017 3F	N 29° 38 52.0" W 098° 17' 42.5"	PT CLOUDY 97° S *	12:02	0.150	11.1	110.0	786	771.00	2,947	Warden - 21375 Gunther Grove
07/20/17	07-20-2017 3F	N 29° 38 52.0" W 098° 17' 42.5"	PT CLOUDY 97° S *	12:02	0.070	23.8	112.0	786	771.00	2,753	Warden Property Line
07/21/17	07-21-2017 Upper 3B	N 29° 38 41.5" W 098° 17' 38.0"	PT CLOUDY 100° S 10	15:15	0.050	5.7	110.0	600	131.00	2,374	City Property Line
07/21/17	07-21-2017 Upper 3B	N 29° 38 41.5" W 098° 17' 38.0"	PT CLOUDY 100° S 10	15:15	0.065	7.6	116.0	600	131.00	3,800	Michels - 9118 Tuscan Hills
07/21/17	07-21-2017 Upper 3B	N 29° 38 41.5" W 098° 17' 38.0"	PT CLOUDY 100° S 10	15:15	NT	NT	NT	600	131.00	6,796	Trevino Residence
07/21/17	07-21-2017 Upper 3B	N 29° 38 41.5" W 098° 17' 38.0"	PT CLOUDY 100° S 10	15:15	0.198	12.2	106.0	600	131.00	1,883	Warden - 21375 Gunther Grove
07/21/17	07-21-2017 Upper 3B	N 29° 38 41.5" W 098° 17' 38.0"	PT CLOUDY 100° S 10	15:15	0.115	7.2	111.0	600	131.00	1,674	Warden Property Line
07/25/17	07-25-2017 3C	N 29° 38 42.5" W 098° 17' 41.7"	PT CLOUDY 96° S 7	11:45	0.070	4.6	103.0	545	393.50	2,285	City Property Line
07/25/17	07-25-2017 3C	N 29° 38 42.5" W 098° 17' 41.7"	PT CLOUDY 96° S 7	11:45	0.058	7.4	109.0	545	393.50	3,459	Michels - 9118 Tuscan Hills
07/25/17	07-25-2017 3C	N 29° 38 42.5" W 098° 17' 41.7"	PT CLOUDY 96° S 7	11:45	0.043	15.6	100.0	545	393.50	6,486	Trevino Residence
07/25/17	07-25-2017 3C	N 29° 38 42.5" W 098° 17' 41.7"	PT CLOUDY 96° S 7	11:45	0.248	11.9	110.0	545	393.50	1,982	Warden - 21375 Gunther Grove
07/25/17	07-25-2017 3C	N 29° 38 42.5" W 098° 17' 41.7"	PT CLOUDY 96° S 7	11:45	0.128	14.3	113.0	545	393.50	1,789	Warden Property Line

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GARDEN RIDGE QUARRY COMMISSION
HANSON - SERVTEX QUARRY
GARDEN RIDGE, TEXAS
JULY 2017

DATE	SHOT # LOCATION	SHOT LOCATION GPS READING	WEATHER	TIME	PPV (in/sec)	FREQ (Hz)	AIR (dB)	SHOT DURATION (MS)	MAX LBS/ DELAY	DISTANCE FROM BLAST	SEISMOGRAPH LOCATION
07/27/17	07-27-2017 3G	N 29° 38 55.7" W 098° 17' 42.4"	PT CLOUDY 99° S 7	13:32	0.050	10.9	110.0	765	715.00	3,503	City Property Line
07/27/17	07-27-2017 3G	N 29° 38 55.7" W 098° 17' 42.4"	PT CLOUDY 99° S 7	13:32	0.135	8.1	118.0	765	715.00	3,282	Michels - 9118 Tuscan Hills
07/27/17	07-27-2017 3G	N 29° 38 55.7" W 098° 17' 42.4"	PT CLOUDY 99° S 7	13:32	0.043	25.0	103.0	765	715.00	6,749	Trevino Residence
07/27/17	07-27-2017 3G	N 29° 38 55.7" W 098° 17' 42.4"	PT CLOUDY 99° S 7	13:32	0.135	14.3	111.0	765	715.00	3,320	Warden - 21375 Gunther Grove
07/27/17	07-27-2017 3G	N 29° 38 55.7" W 098° 17' 42.4"	PT CLOUDY 99° S 7	13:32	0.073	18.5	114.0	765	715.00	3,125	Warden Property Line
07/31/17	07-31-17 3D	N 29° 38 45.5" W 098° 17' 42.4"	PT CLOUDY 95° NE 7	13:19	0.045	8.3	109.0	642	768.00	2,532	City Property Line
07/31/17	07-31-17 3D	N 29° 38 45.5" W 098° 17' 42.4"	PT CLOUDY 95° NE 7	13:19	0.065	16.7	106.0	642	768.00	3,326	Michels - 9118 Tuscan Hills
07/31/17	07-31-17 3D	N 29° 38 45.5" W 098° 17' 42.4"	PT CLOUDY 95° NE 7	13:19	0.065	27.8	97.0	642	768.00	6,476	Trevino Residence
07/31/17	07-31-17 3D	N 29° 38 45.5" W 098° 17' 42.4"	PT CLOUDY 95° NE 7	13:19	0.170	14.7	115.0	642	768.00	2,290	Warden - 21375 Gunther Grove
07/31/17	07-31-17 3D	N 29° 38 45.5" W 098° 17' 42.4"	PT CLOUDY 95° NE 7	13:19	0.083	17.9	116.0	642	768.00	2,099	Warden Property Line

Vibra-Tech

VibraTechinc.com

4818 E. Ben White Blvd.
Suite 202
Austin, TX 78741

Phone 512.442.6464
Fax 512.442.6552

September 6, 2017

Mr. Mike Shands
Garden Ridge Quarry Commission
9400 Municipal Parkway
Garden Ridge, Texas 78266

Dear Mr. Shands,

Enclosed is the analysis for the blasting conducted during the month of August 2017 at the Hanson Aggregates Quarry in Garden Ridge, Texas. Please place this information in your 2017 Blast Data Management Book.

At the request of the Garden Ridge Quarry Commission, Vibra-Tech, Inc. personnel used seismographs each day of blasting at various locations.

The attached report contains the original seismograph records obtained from the blasting along with a comparison of the recorded vibrations to the latest recommended U.S. Bureau of Mines (USBM) Variable Partic le Velocity vs. Frequency Limits Report of Investigations (RI)-8507 (Nov. 1980).

The recorded ground vibrations **satisfy** the Variable Particle Velocity vs. Frequency Limits recommended by the USBM RI-8507 (Nov. 1980), and the levels set forth in Garden Ridge City Ordinance 34.

The recorded air-borne effects **satisfy** the recommended levels set forth in the USBM RI-8485 (Nov. 1980), and the levels set forth in Garden Ridge City Ordinance 34.

If there are any additional questions, please contact the Quarry Commission, Mike Shands at (210) 257-0868, or attend the Quarry Commission meeting held the 2nd Monday of each month at 7:00 p.m.

Vibra-Tech

VibraTechinc.com

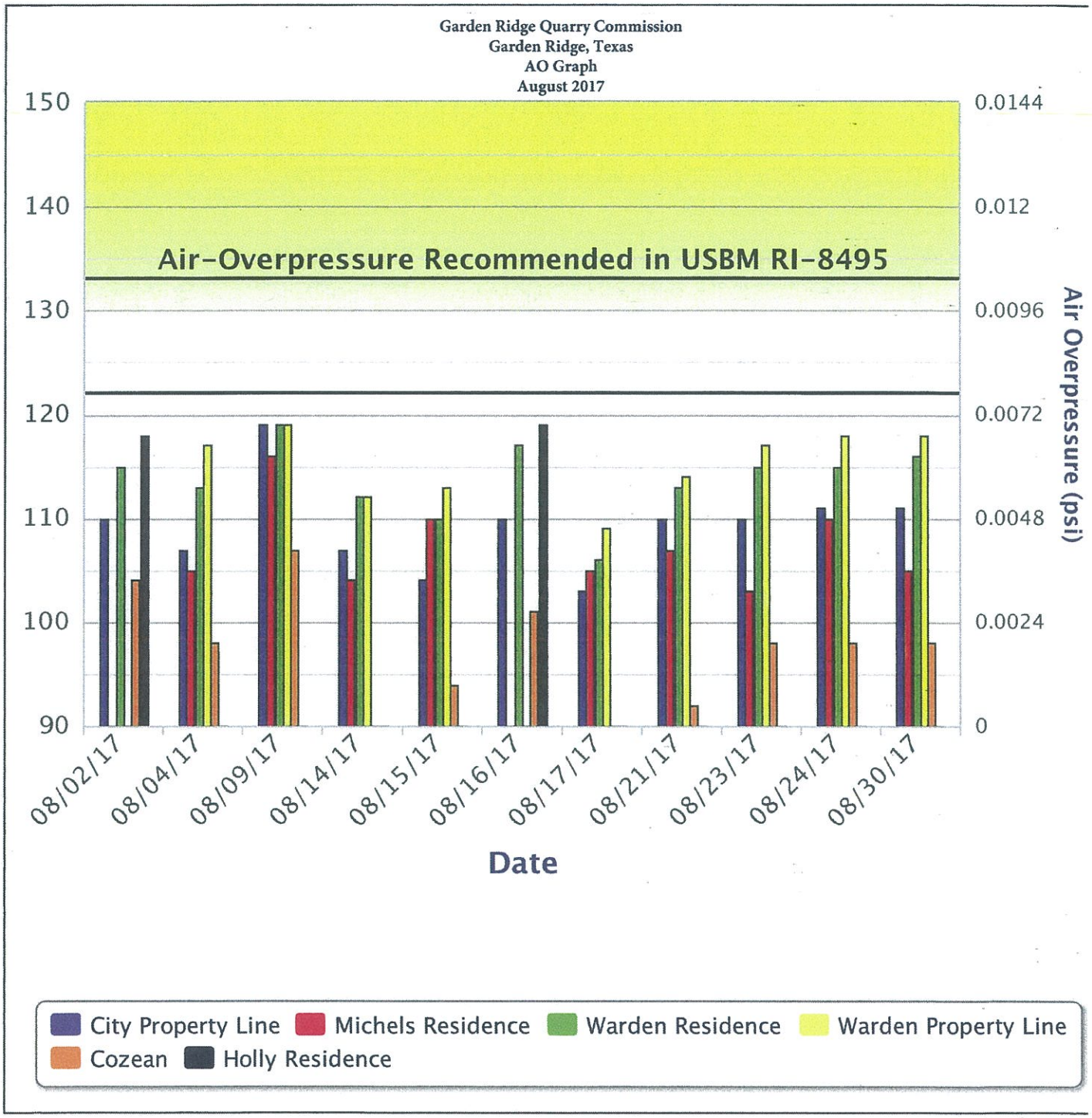
Respectfully submitted,

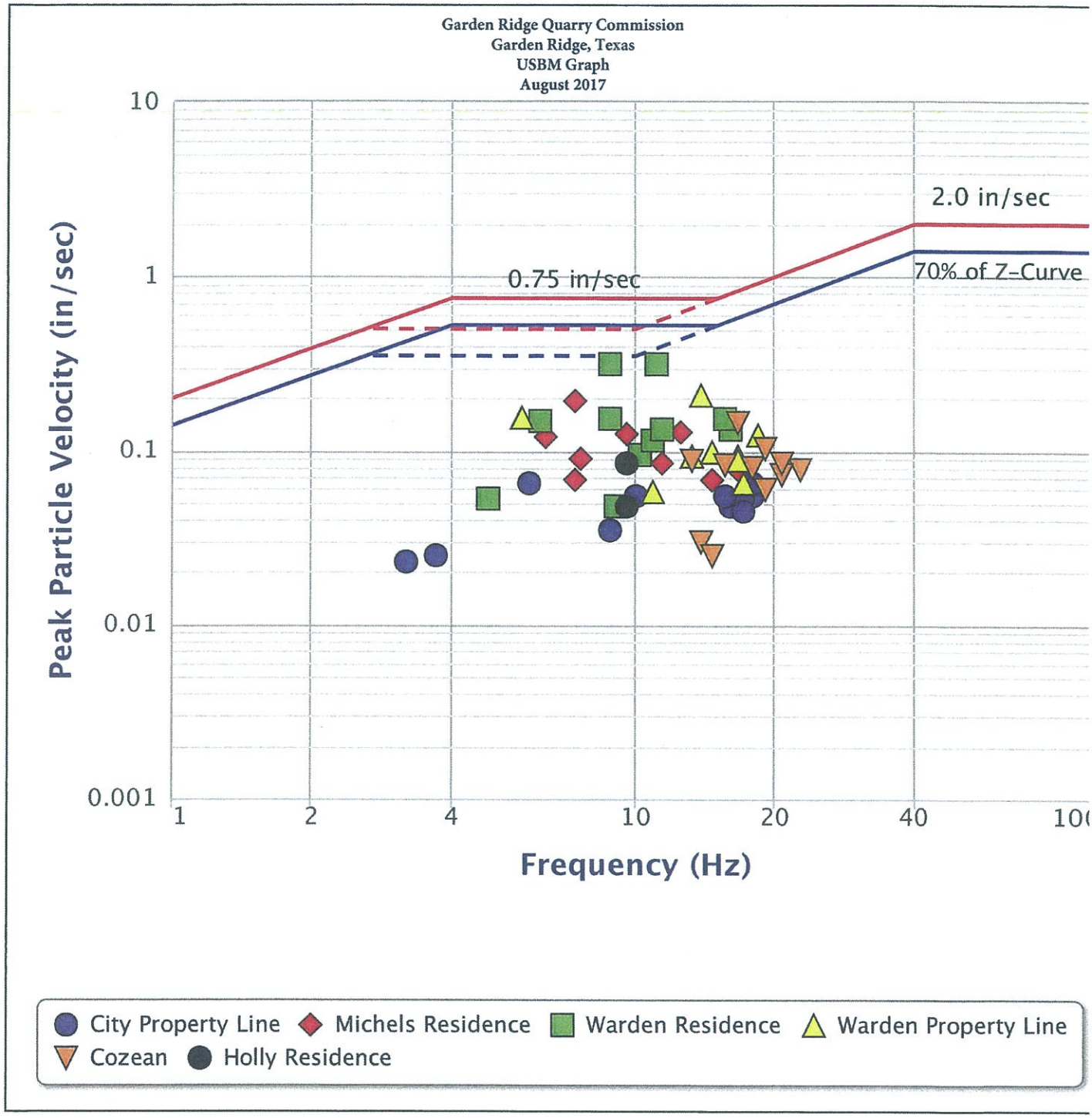
VIBRA-TECH, INC.

Geoffrey Rigsby
Southwest Regional Manager

cc: Hal Halamuda, Hanson – Servtex

08-09-2017 3H
Michels
08-30-2017 3G
08-14-2017 3F
08-24-2017 3F
08-04-2017 3E
08-21-2017 3E
08-17-2017 3D
08-15-2017 3C
08-23-2017 Upper 3B
Cozean
Warden
Warden Property Line
City Property Line
Holly
08-16-2017 Base Pit S. Wall
Garden Ridge
08-02-2017 S. Wall D
© 2017 Google
Google earth
1995
29°38'32.27" N 98°17'40.55" W elev 950 ft eye alt 12292 ft


Garden Ridge Quarry Commission
Garden Ridge, Texas
AO Graph
August 2017
150
140
130
120
110
100
90
0.0144
0.012
0.0096
0.0072
0.0048
0.0024
0
Air-Overpressure Recommended in USBM RI-8495
Air Overpressure (psi)
08/02/17
08/04/17
08/09/17
08/14/17
08/15/17
08/16/17
08/17/17
08/21/17
08/23/17
08/24/17
08/30/17
Date
City Property Line
Michels Residence
Warden Residence
Warden Property Line
Cozean
Holly Residence


Garden Ridge Quarry Commission
Garden Ridge, Texas
USBM Graph
August 2017
10
1
0.1
0.01
0.001
Peak Particle Velocity (in/sec)
2.0 in/sec
0.75 in/sec
70% of Z-Curve
1
2
4
10
20
40
Frequency (Hz)
City Property Line
Michels Residence
Warden Residence
Warden Property Line
Cozean
Holly Residence

GARDEN RIDGE QUARRY COMMISSION
HANSON - SERVTEX QUARRY
GARDEN RIDGE, TEXAS
AUGUST 2017

DATE	SHOT # LOCATION	SHOT LOCATION GPS READING	WEATHER	TIME	PPV (in/sec)	FREQ (Hz)	AIR (dB)	SHOT DURATION (MS)	MAX LBS/ DELAY	DISTANCE FROM BLAST	SEISMOGRAPH LOCATION
08/02/17	08-02-2017 S. Wall D	N 29° 38 10.1" W 098° 16' 47.3"	PT CLOUDY 90° SE 5	12:12	0.023	3.2	110.0	456	1173.00	6,008	City Property Line
08/02/17	08-02-2017 S. Wall D	N 29° 38 10.1" W 098° 16' 47.3"	PT CLOUDY 90° SE 5	12:12	0.030	13.9	104.0	456	1173.00	10,386	Cozean Residence
08/02/17	08-02-2017 S. Wall D	N 29° 38 10.1" W 098° 16' 47.3"	PT CLOUDY 90° SE 5	12:12	0.048	9.6	118.0	456	1173.00	3,445	Holly - 9916 Trophy Oaks
08/02/17	08-02-2017 S. Wall D	N 29° 38 10.1" W 098° 16' 47.3"	PT CLOUDY 90° SE 5	12:12	NT	NT	NT	456	1173.00	9,157	Michels - 9118 Tuscan Hills
08/02/17	08-02-2017 S. Wall D	N 29° 38 10.1" W 098° 16' 47.3"	PT CLOUDY 90° SE 5	12:12	0.048	9.1	115.0	456	1173.00	4,822	Warden - 21375 Gunther Grove
08/04/17	08-04-2017 3E	N 29° 38 48.4" W 098° 17' 42.4"	PT CLOUDY 90° S 5	12:25	0.048	16.1	107.0	782	681.00	2,803	City Property Line
08/04/17	08-04-2017 3E	N 29° 38 48.4" W 098° 17' 42.4"	PT CLOUDY 90° S 5	12:25	0.078	22.7	98.0	782	681.00	6,049	Cozean Residence
08/04/17	08-04-2017 3E	N 29° 38 48.4" W 098° 17' 42.4"	PT CLOUDY 90° S 5	12:25	0.068	14.7	105.0	782	681.00	3,281	Michels - 9118 Tuscan Hills
08/04/17	08-04-2017 3E	N 29° 38 48.4" W 098° 17' 42.4"	PT CLOUDY 90° S 5	12:25	0.133	16.1	113.0	782	681.00	2,583	Warden - 21375 Gunther Grove
08/04/17	08-04-2017 3E	N 29° 38 48.4" W 098° 17' 42.4"	PT CLOUDY 90° S 5	12:25	0.093	16.7	117.0	782	681.00	2,390	Warden Property Line
08/09/17	08-09-2017 3H	N 39° 39 3.8" W 098° 17' 43.3"	PT CLOUDY 95° NE 3	12:31	0.035	8.8	119.0	886	290.00	4,277	City Property Line
08/09/17	08-09-2017 3H	N 39° 39 3.8" W 098° 17' 43.3"	PT CLOUDY 95° NE 3	12:31	0.088	13.2	107.0	886	290.00	6,806	Cozean Residence
08/09/17	08-09-2017 3H	N 39° 39 3.8" W 098° 17' 43.3"	PT CLOUDY 95° NE 3	12:31	0.125	9.6	116.0	886	290.00	3,398	Michels - 9118 Tuscan Hills
08/09/17	08-09-2017 3H	N 39° 39 3.8" W 098° 17' 43.3"	PT CLOUDY 95° NE 3	12:31	0.095	10.2	119.0	886	290.00	4,145	Warden - 21375 Gunther Grove
08/09/17	08-09-2017 3H	N 39° 39 3.8" W 098° 17' 43.3"	PT CLOUDY 95° NE 3	12:31	0.058	10.9	119.0	886	290.00	3,950	Warden Property Line

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GARDEN RIDGE QUARRY COMMISSION
HANSON - SERVTEX QUARRY
GARDEN RIDGE, TEXAS
AUGUST 2017

DATE	SHOT # LOCATION	SHOT LOCATION GPS READING	WEATHER	TIME	PPV (in/sec)	FREQ (Hz)	AIR (dB)	SHOT DURATION (MS)	MAX LBS/ DELAY	DISTANCE FROM BLAST	SEISMOGRAPH LOCATION
08/14/17	08-14-2017 3F	N 29° 38 55.7" W 098° 17' 43.1"	PT CLOUDY 99° S 5	12:05	0.055	17.9	107.0	762	732.00	3,485	City Property Line
08/14/17	08-14-2017 3F	N 29° 38 55.7" W 098° 17' 43.1"	PT CLOUDY 99° S 5	12:05	0.073	20.8	84.0	762	732.00	6,351	Cozean Residence
08/14/17	08-14-2017 3F	N 29° 38 55.7" W 098° 17' 43.1"	PT CLOUDY 99° S 5	12:05	0.120	6.4	104.0	762	732.00	3,221	Michels - 9118 Tuscan Hills
08/14/17	08-14-2017 3F	N 29° 38 55.7" W 098° 17' 43.1"	PT CLOUDY 99° S 5	12:05	0.153	8.8	112.0	762	732.00	3,325	Warden - 21375 Gunther Grove
08/14/17	08-14-2017 3F	N 29° 38 55.7" W 098° 17' 43.1"	PT CLOUDY 99° S 5	12:05	0.088	16.7	112.0	762	732.00	3,132	Warden Property Line
08/15/17	08-15-2017 3C	N 29° 38 42.7" W 098° 17' 42.4"	PT CLOUDY 99° S 5	14:00	0.065	5.9	104.0	538	900.00	2,275	City Property Line
08/15/17	08-15-2017 3C	N 29° 38 42.7" W 098° 17' 42.4"	PT CLOUDY 99° S 5	14:00	0.060	19.2	94.0	538	900.00	5,823	Cozean Residence
08/15/17	08-15-2017 3C	N 29° 38 42.7" W 098° 17' 42.4"	PT CLOUDY 99° S 5	14:00	0.068	7.4	110.0	538	900.00	3,394	Michels - 9118 Tuscan Hills
08/15/17	08-15-2017 3C	N 29° 38 42.7" W 098° 17' 42.4"	PT CLOUDY 99° S 5	14:00	0.315	8.8	110.0	538	900.00	2,007	Warden - 21375 Gunther Grove
08/15/17	08-15-2017 3C	N 29° 38 42.7" W 098° 17' 42.4"	PT CLOUDY 99° S 5	14:00	0.155	5.7	113.0	538	900.00	1,818	Warden Property Line
08/16/17	08-16-2017 Base Pit S. Wall	N 29° 38 14.5" W 098° 17' 0.9"	PT CLOUDY 95° S 6	11:31	0.025	3.7	110.0	340	731.00	4,746	City Property Line
08/16/17	08-16-2017 Base Pit S. Wall	N 29° 38 14.5" W 098° 17' 0.9"	PT CLOUDY 95° S 6	11:31	0.025	14.7	101.0	340	731.00	9,148	Cozean Residence
08/16/17	08-16-2017 Base Pit S. Wall	N 29° 38 14.5" W 098° 17' 0.9"	PT CLOUDY 95° S 6	11:31	0.085	9.6	119.0	340	731.00	2,211	Holly - 9916 Trophy Oaks
08/16/17	08-16-2017 Base Pit S. Wall	N 29° 38 14.5" W 098° 17' 0.9"	PT CLOUDY 95° S 6	11:31	NT	NT	NT	340	731.00	7,891	Michels - 9118 Tuscan Hills
08/16/17	08-16-2017 Base Pit S. Wall	N 29° 38 14.5" W 098° 17' 0.9"	PT CLOUDY 95° S 6	11:31	0.053	4.8	117.0	340	731.00	3,550	Warden - 21375 Gunther Grove

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GARDEN RIDGE QUARRY COMMISSION
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AUGUST 2017

DATE	SHOT # LOCATION	SHOT LOCATION GPS READING	WEATHER	TIME	PPV (in/sec)	FREQ (Hz)	AIR (dB)	SHOT DURATION (MS)	MAX LBS/ DELAY	DISTANCE FROM BLAST	SEISMOGRAPH LOCATION
08/17/17	08-17-2017 3D	N 29° 38 45.0" W 098° 17' 42.9"	PT CLOUDY 95° S 6	13:33	0.055	10.0	103.0	633	760.00	2,468	City Property Line
08/17/17	08-17-2017 3D	N 29° 38 45.0" W 098° 17' 42.9"	PT CLOUDY 95° S 6	13:33	0.085	20.8	87.0	633	760.00	5,868	Cozean Residence
08/17/17	08-17-2017 3D	N 29° 38 45.0" W 098° 17' 42.9"	PT CLOUDY 95° S 6	13:33	0.078	16.7	105.0	633	760.00	3,294	Michels - 9118 Tuscan Hills
08/17/17	08-17-2017 3D	N 29° 38 45.0" W 098° 17' 42.9"	PT CLOUDY 95° S 6	13:33	0.148	6.2	106.0	633	760.00	2,244	Warden - 21375 Gunther Grove
08/17/17	08-17-2017 3D	N 29° 38 45.0" W 098° 17' 42.9"	PT CLOUDY 95° S 6	13:33	0.123	18.5	109.0	633	760.00	2,056	Warden Property Line
08/21/17	08-21-2017 3E	N 29° 38 48.0" W 098° 17' 43.0"	PT CLOUDY 95° SE 6	13:37	0.065	17.9	110.0	797	723.00	2,746	City Property Line
08/21/17	08-21-2017 3E	N 29° 38 48.0" W 098° 17' 43.0"	PT CLOUDY 95° SE 6	13:37	0.080	17.9	92.0	797	723.00	5,984	Cozean Residence
08/21/17	08-21-2017 3E	N 29° 38 48.0" W 098° 17' 43.0"	PT CLOUDY 95° SE 6	13:37	0.085	11.4	107.0	797	723.00	3,233	Michels - 9118 Tuscan Hills
08/21/17	08-21-2017 3E	N 29° 38 48.0" W 098° 17' 43.0"	PT CLOUDY 95° SE 6	13:37	0.153	15.6	113.0	797	723.00	2,547	Warden - 21375 Gunther Grove
08/21/17	08-21-2017 3E	N 29° 38 48.0" W 098° 17' 43.0"	PT CLOUDY 95° SE 6	13:37	0.093	13.2	114.0	797	723.00	2,357	Warden Property Line
08/23/17	08-23-2017 Upper 3B	N 29° 38 40.2" W 098° 17' 38.6"	PT CLOUDY 95° S 6	14:01	0.053	17.2	110.0	479	205.00	2,237	City Property Line
08/23/17	08-23-2017 Upper 3B	N 29° 38 40.2" W 098° 17' 38.6"	PT CLOUDY 95° S 6	14:01	0.103	19.2	98.0	479	205.00	6,058	Cozean Residence
08/23/17	08-23-2017 Upper 3B	N 29° 38 40.2" W 098° 17' 38.6"	PT CLOUDY 95° S 6	14:01	0.090	7.6	103.0	479	205.00	3,789	Michels - 9118 Tuscan Hills
08/23/17	08-23-2017 Upper 3B	N 29° 38 40.2" W 098° 17' 38.6"	PT CLOUDY 95° S 6	14:01	0.315	11.1	115.0	479	205.00	1,747	Warden - 21375 Gunther Grove
08/23/17	08-23-2017 Upper 3B	N 29° 38 40.2" W 098° 17' 38.6"	PT CLOUDY 95° S 6	14:01	0.208	13.9	117.0	479	205.00	1,541	Warden Property Line

GARDEN RIDGE QUARRY COMMISSION
HANSON - SERVTEX QUARRY
GARDEN RIDGE, TEXAS
AUGUST 2017

DATE	SHOT # LOCATION	SHOT LOCATION GPS READING	WEATHER	TIME	PPV (in/sec)	FREQ (Hz)	AIR (dB)	SHOT DURATION (MS)	MAX LBS/ DELAY	DISTANCE FROM BLAST	SEISMOGRAPH LOCATION
08/24/17	08-24-2017 3F	N 29° 38 52.2" W 098° 17' 43.3"	PT CLOUDY 95° NE 5	12:50	0.045	17.2	111.0	761	783.00	3,140	City Property Line
08/24/17	08-24-2017 3F	N 29° 38 52.2" W 098° 17' 43.3"	PT CLOUDY 95° NE 5	12:50	0.083	15.6	98.0	761	783.00	6,156	Cozean Residence
08/24/17	08-24-2017 3F	N 29° 38 52.2" W 098° 17' 43.3"	PT CLOUDY 95° NE 5	12:50	0.128	12.5	110.0	761	783.00	3,181	Michels - 9118 Tuscan Hills
08/24/17	08-24-2017 3F	N 29° 38 52.2" W 098° 17' 43.3"	PT CLOUDY 95° NE 5	12:50	0.115	10.9	115.0	761	783.00	2,973	Warden - 21375 Gunther Grove
08/24/17	08-24-2017 3F	N 29° 38 52.2" W 098° 17' 43.3"	PT CLOUDY 95° NE 5	12:50	0.065	17.2	118.0	761	783.00	2,782	Warden Property Line
08/30/17	08-30-2017 3G	N 29° 38 56.2" W 098° 17' 43.0"	PT CLOUDY 93° NW 6	14:47	0.055	15.6	111.0	797	680.00	3,536	City Property Line
08/30/17	08-30-2017 3G	N 29° 38 56.2" W 098° 17' 43.0"	PT CLOUDY 93° NW 6	14:47	0.145	16.7	98.0	797	680.00	6,385	Cozean Residence
08/30/17	08-30-2017 3G	N 29° 38 56.2" W 098° 17' 43.0"	PT CLOUDY 93° NW 6	14:47	0.193	7.4	105.0	797	680.00	3,236	Michels - 9118 Tuscan Hills
08/30/17	08-30-2017 3G	N 29° 38 56.2" W 098° 17' 43.0"	PT CLOUDY 93° NW 6	14:47	0.133	11.4	116.0	797	680.00	3,375	Warden - 21375 Gunther Grove
08/30/17	08-30-2017 3G	N 29° 38 56.2" W 098° 17' 43.0"	PT CLOUDY 93° NW 6	14:47	0.098	14.7	118.0	797	680.00	3,181	Warden Property Line

#	Month	Blast Date	Blast time	Date Received	Name	Address	Phone #	Rating	# stories	sq footage	request contact	Misc	Date sent to Quarry Commission
2017-17Q	July	7/10/2017	12:30	7/10/2017	Jim Lowe	Miller Lane	210-527-7411				Yes	Worst blast he's felt since he moved here 8-9 years ago. Nails are always popping out of the ceiling and the walls are cracking. A mirror fell off the salla nd broke.	7/10/2017
2017-18Q	July	7/10/2017	12:15	7/10/2017	Charles Fink	9233 Schoenthal Road	210-288-9850	5	1	3400	No	Severe blast that shook windows and doors; one of the most severe we felt in our years here.	7/10/2017
2017-19Q	July	7/4/2017	1:30	7/10/2017	Edwin Ford	21360 Gunther Grove	210-946-8123	5	1	-	No	Excessive ground vibrations, caused pool tile and plaster damage. Pool tile broke from pool wall, falling into pool.	7/10/2017
2017-20Q	July	7/5/2017	2:09	7/10/2017	Edwin Ford	21360 Gunther Grove	210-946-8123	5	1	-	No	Excessive ground vibrations and air blast.	7/10/2017
2017-21Q	July	7/6/2017	12:30	7/10/2017	Edwin Ford	21360 Gunther Grove	210-946-8123	5	1	-	No	Execessive ground vibrations and air blast. Yard workers even complained about how bad blast was.	7/10/2017
2017-22Q	July	7/7/2017	5:15	7/10/2017	Edwin Ford	21360 Gunther Grove	210-946-8123	5	1	-	No	Loud, high decibels exceeding acceptable residential living standards.	7/10/2017

2017-23Q	August	8/30/2017	2:46	8/30/2017	Rebecca Mattison	20814 Woodland Cove	210-332-3133	4	1	4500	Yes	Large blast. Bigger than usual and really shook windows and rattled the entire house. I've been noticing bigger and bigger blasts	8/31/2017
2017-24Q	August	8/30/2017	2:48	8/30/2017	Steve Hatley	22117 Paseo Corto Drive	210-651-0520	4.5	1	3100	No	Whole roof shook of my house; more forceful	8/31/2017

Adm Liaison

From: Adm Liaison
Sent: Monday, July 10, 2017 2:27 PM
To: Lori Claus
Subject: FW: Quarry Blast (7/10/17)

This is about the 7/10/17 blast.

Lori Claus
Administrative Support Liaison
City of Garden Ridge
210-651-6632
AdmLiaison@ci.garden-ridge.tx.us

From: Water
Sent: Monday, July 10, 2017 1:50 PM
To: Adm Liaison
Subject: FW: Quarry Blast

Jim Lowe who lives on Miller Lane wants someone from the Quarry Commission to call him about the Quarry blast today. He said it was the worst one he's felt since he moved here 8 or 9 years ago. He said nails are always popping out of the ceiling & the walls are cracking. A mirror fell off the wall & broke. He didn't want to fill out a blast report, he just wants to talk to someone on the Commission. His phone # is 210-527-7411

2017-17Q.

Adm Liaison

From: noreply@civicplus.com
Sent: Monday, July 10, 2017 1:11 PM
To: City Administrator; City Secretary; Adm Liaison
Subject: Online Form Submittal: Citizen Quarry Blast Impact Report

Citizen Quarry Blast Impact Report

First Name	Charles
Last Name	Flink
Report Date	7/10/2017
Phone Number:	210-288-9850
E-Mail Address	ctflink@swbell.net
Address1	9233 Schoenthal Road
Blast Date/Time:	12:15 PM
Please describe the event.	Severe Blast that shook windows and doors
How did this blast compare to other blasts?	One of the most severe we felt in our years here
On a 1 to 5 scale, please rate the blast intensity. (1=minor, 5 = major)	5
What was your activity at the time of blast?	Watching TV
In what general direction does you house face? (N,E,S or W)	S
What is the approximate square footage of your home?	3400
Is your home a 1 story, 1 1/2 , or 2 story or large?	1
Would you like a Quarry Commission member to contact you regarding	No

2017-18 A

your report?

We encourage you to attend the next meeting of the Quarry Commission. *Representatives of the monitoring company and the blasting contractor as well as the Quarry Manager normally attend every meeting and are available to answer questions. The Commission meets the second Monday of every other month at 6:00 PM in the City Council Chambers in City Hall.*

By filing this report, you consent to the public release of this information.

Email not displaying correctly? View it in your browser.

CITY OF GARDEN RIDGE

CITIZEN QUARRY BLAST IMPACT REPORT

Name: Edwin Ford Report Date: 7/4/2017

Address: 21360 Gunter Gr. E-Mail Address: eford3@icloud.com

Phone: 210-946-8123 Blast Date/Time: 1:30 pm.

Please describe the event.

Excessive ground vibrations, caused pool tile & plaster damage. Pool tile broke from pool wall, falling into pool.

How did this blast compare to other blasts?

On a 1 to 5 scale, please rate the blast intensity. (1= minor, 5= major) 5

What was your activity at the time of the blast? pool activity

In what general direction does your house face? (N, E, S or W) E

Is your home a 1 story, 1 ½ story, or 2 story or larger? 1

What is the approximate square footage of your home? —

Would you like a Quarry Commission member to contact you regarding your report? (Yes or No) No

We encourage you to attend the next meeting of the Quarry Commission. Representatives of the monitoring company and the blasting contractor as well as the Quarry Manager normally attend every meeting and are available to answer questions. The Commission meets the second Monday of every other month at 6:00 PM in the Municipal Courtroom.

Please complete the form and print it, then submit the completed report(s) to the City Hall or to citysecretary@ci.garden-ridge.tx.us. Thank you for submitting the form.

By filing this report, you consent to the public release of this information.

2017-19 Q

CITY OF GARDEN RIDGE

CITIZEN QUARRY BLAST IMPACT REPORT

Name: Edwin Ford Report Date: 7/5/2017

Address: 21360 Gunter Gr. E-Mail Address: eford3@icloud.com

Phone: 210-946-8123 Blast Date/Time: 2:09 /

Please describe the event.

Excessive ground vibrations and air blast.

How did this blast compare to other blasts?

On a 1 to 5 scale, please rate the blast intensity. (1= minor, 5= major) 5

What was your activity at the time of the blast? Office

In what general direction does your house face? (N, E, S or W) E

Is your home a 1 story, 1 ½ story, or 2 story or larger? 1

What is the approximate square footage of your home? —

Would you like a Quarry Commission member to contact you regarding your report? (Yes or No) No.

We encourage you to attend the next meeting of the Quarry Commission. Representatives of the monitoring company and the blasting contractor as well as the Quarry Manager normally attend every meeting and are available to answer questions. The Commission meets the second Monday of every other month at 6:00 PM in the Municipal Courtroom.

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2017-202

CITY OF GARDEN RIDGE

CITIZEN QUARRY BLAST IMPACT REPORT

Name: Edwin Ford Report Date: 7/6/2017

Address: 21360 Gunter Gr. E-Mail Address: eford3@icloud.com

Phone: 210-946-8123 Blast Date/Time: 12:30 AM

Please describe the event.

Excessive ground vibrations and air blast. Yard workers even complained about how bad blast was.

How did this blast compare to other blasts? _____

On a 1 to 5 scale, please rate the blast intensity. (1= minor, 5= major) 5

What was your activity at the time of the blast? yard work.

In what general direction does your house face? (N, E, S or W) E

Is your home a 1 story, 1 ½ story, or 2 story or larger? 1

What is the approximate square footage of your home? —

Would you like a Quarry Commission member to contact you regarding your report?
(Yes or (No)) _____

We encourage you to attend the next meeting of the Quarry Commission. Representatives of the monitoring company and the blasting contractor as well as the Quarry Manager normally attend every meeting and are available to answer questions. The Commission meets the second Monday of every other month at 6:00 PM in the Municipal Courtroom.

Please complete the form and print it, then submit the completed report(s) to the City Hall or to citysecretary@ci.garden-ridge.tx.us. Thank you for submitting the form.

By filing this report, you consent to the public release of this information.

2017-21Q

CITY OF GARDEN RIDGE

CITIZEN QUARRY BLAST IMPACT REPORT

Name: Edwin Ford Report Date: 7/7/2017

Address: 21360 Gunther Gr. E-Mail Address: eford3@icloud.com

Phone: 210-946-8123 Blast Date/Time: 5:15pm

Please describe the event.

Loud, high decibels exceeding acceptable residential living standards.

How did this blast compare to other blasts?

On a 1 to 5 scale, please rate the blast intensity. (1= minor, 5= major) 5

What was your activity at the time of the blast? yard activity

In what general direction does your house face? (N, E, S or W) E

Is your home a 1 story, 1 ½ story, or 2 story or larger? 1

What is the approximate square footage of your home? —

Would you like a Quarry Commission member to contact you regarding your report?
(Yes or (No))

We encourage you to attend the next meeting of the Quarry Commission. Representatives of the monitoring company and the blasting contractor as well as the Quarry Manager normally attend every meeting and are available to answer questions. The Commission meets the second Monday of every other month at 6:00 PM in the Municipal Courtroom.

Please complete the form and print it, then submit the completed report(s) to the City Hall or to citysecretary@ci.garden-ridge.tx.us. Thank you for submitting the form.

By filing this report, you consent to the public release of this information.

2017-22 Q

Adm Liaison

From: noreply@civicplus.com
Sent: Wednesday, August 30, 2017 2:53 PM
To: City Administrator; City Secretary; Adm Liaison
Subject: Online Form Submittal: Citizen Quarry Blast Impact Report

Citizen Quarry Blast Impact Report

First Name	Rebecca
Last Name	Mattison
Report Date	8/30/2017
Phone Number:	12103323133
E-Mail Address	6rmattison@gmail.com
Address1	20814 Woodland Cove
Blast Date/Time:	August 30, 2017. 2:46 pm
Please describe the event.	Large blast. Bigger than usual and really shook windows and rattled the entire house
How did this blast compare to other blasts?	Large. I have been noticing increasingly bigger and bigger blasts
On a 1 to 5 scale, please rate the blast intensity. (1=minor, 5 = major)	4
What was your activity at the time of blast?	Sitting inside working on the computer.
In what general direction does you house face? (N,E,S or W)	SW
What is the approximate square footage of your home?	4,500
Is your home a 1 story, 1 1/2 , or 2 story or large?	I story
Would you like a Quarry	Yes

2017-230

Commission member to
contact you regarding
your report?

We encourage you to attend the next meeting of the Quarry Commission. *Representatives of the monitoring company and the blasting contractor as well as the Quarry Manager normally attend every meeting and are available to answer questions. The Commission meets the second Monday of every other month at 6:00 PM in the City Council Chambers in City Hall.*

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Adm Liaison

From: noreply@civicplus.com
Sent: Wednesday, August 30, 2017 2:53 PM
To: City Administrator; City Secretary; Adm Liaison
Subject: Online Form Submittal: Citizen Quarry Blast Impact Report

Citizen Quarry Blast Impact Report

First Name	Steve
Last Name	Hatley
Report Date	8/30/2017
Phone Number:	2106510520
E-Mail Address	Oeodoeod@yahoo.com
Address1	22117 Paseo Corto Drive
Blast Date/Time:	8/30/17 2:47 or 2:48 pm
Please describe the event.	Whole roof shook of my house
How did this blast compare to other blasts?	More forceful
On a 1 to 5 scale, please rate the blast intensity. (1=minor, 5 = major)	4.5
What was your activity at the time of blast?	At home
In what general direction does you house face? (N,E,S or W)	North
What is the approximate square footage of your home?	3100
Is your home a 1 story, 1 1/2 , or 2 story or large?	1
Would you like a Quarry Commission member to contact you regarding	No

2017-240

your report?

We encourage you to attend the next meeting of the Quarry Commission. *Representatives of the monitoring company and the blasting contractor as well as the Quarry Manager normally attend every meeting and are available to answer questions. The Commission meets the second Monday of every other month at 6:00 PM in the City Council Chambers in City Hall.*

By filing this report, you consent to the public release of this information.

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Buckley Powder Co.
A Dyno Nobel Distributor

DYNO
Dyno Nobel

P.O. Box 1358 Georgetown, TX 78628 USA Telephone 512-869-0287 Fax: 512-819-9906

August 24, 2017

City Administrator
City of Garden Ridge
9400 Municipal Parkway
Garden Ridge, TX 78266

To whom it may concern:

Buckley Powder Company would like to be considered for a Partial Exemption Permit with the City of Garden Ridge. We have four gentlemen that will be our representatives for the purpose of this application, Mr. Steve Davis, Mr. Riley Pumphrey, Mr. Rich Weaver and Mr. Bebo Dutton. The complete contact information for these gentlemen is as follows:

Steve Davis, Health & Safety Manager (512) 818-7731
steved@buckleypowder.com

Riley Pumphrey, General Manager (512) 864-4185
riley.pumphrey@buckleypowder.com

Rich Weaver, Senior Technical Representative (830) 708-2511
richw@buckleypowder.com

Bebo Dutton, Technical Representative (512) 591-1021
b.dutton@icloud.com

Buckley Powder Company
6305 N. IH-35
New Braunfels, TX 78130

Buckley Powder will be blasting for the crushed stone operation of Lehigh Hanson Aggregates for the 2018 fiscal year. If you have any questions or concerns, please feel free to contact either Mr. Davis or Mr. Weaver.

Sincerely,

Steve Davis
Health & Safety Manager

Buckley Powder Co.
A Dyno Nobel Distributor

DYNO
Dyno Nobel

P.O. Box 1358 Georgetown, TX 78628 USA Telephone 512-869-0287 Fax: 512-819-9906

TO: City of Garden Ridge

CC: Riley Pumphrey, Bebo Dutton, Joe Crownover

From: Steve Davis
Health & Safety Manager
Buckley Powder Company

Date: August 24, 2017

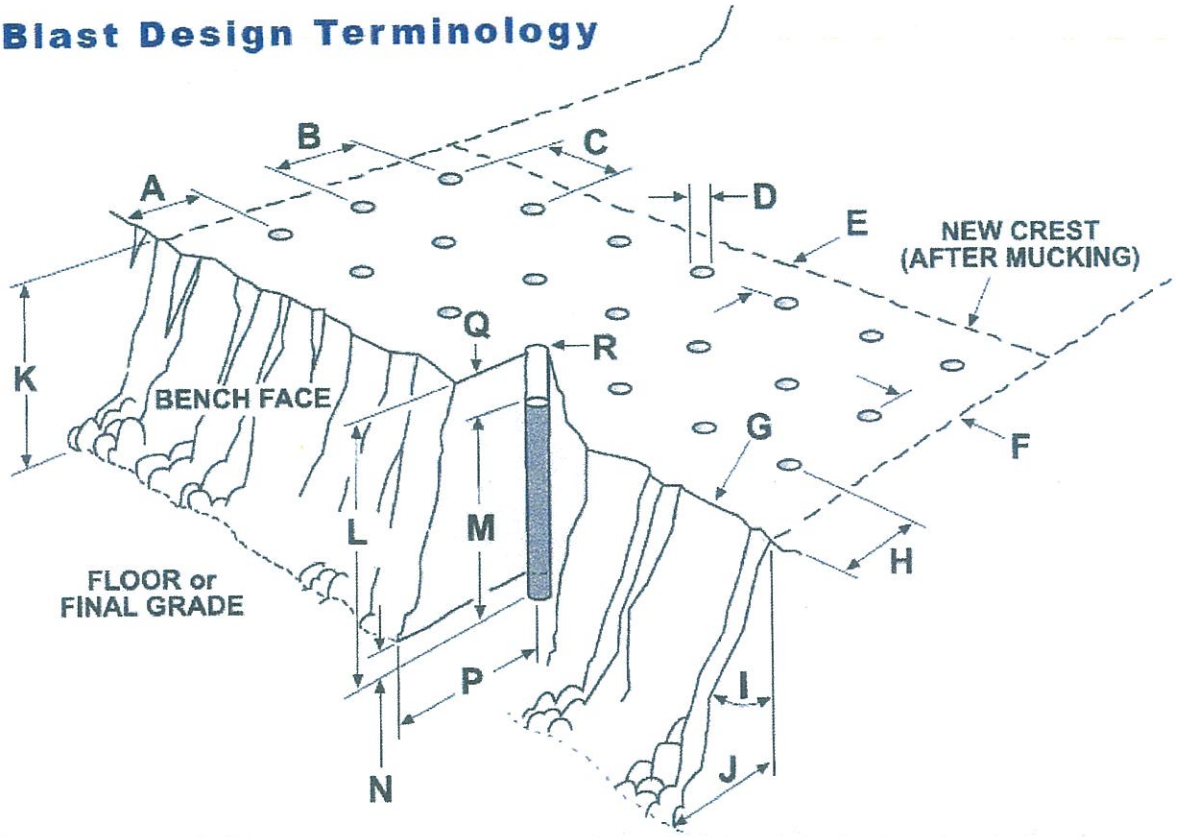
Included with this packet is a copy of the Buckley Powder Blasting Standard Operating Procedures. This document is very specific as to the proper procedures required to provide optimum results for our customer while also providing a safe environment for Buckley Powder employees, those employed by our customer, and the surrounding community. All Buckley Powder blasters are required to attend at least 40 hours of classroom training and testing to ensure they have a complete understanding of these procedures. Along with classroom training, they are provided extensive field training before ever actually being assigned duties as a lead blaster.

Also included is a copy of Open Pit Blaster Training. This course provides a thorough understanding of the fragmentation process and how to minimize vibration and air over pressure which may affect the surrounding community. Blasters are taught all calculations necessary to safely obtain the production goals of the customer while minimizing the environmental effects. Once again they must pass written tests in the classroom and are audited in the field to ensure they are following these calculations and procedures. As new and improved techniques are introduced to the industry, blasters are brought in to be trained on the new information as well as refreshed on previous topics.

Buckley Powder now blasts approximately 30,000,000 tons of rock per year in the San Antonio – New Braunfels area. Our blasters and technical staff are very familiar with the geological abnormalities which must be addressed to keep environmental effects to a minimum. The included documents are quite lengthy – so we will list below the typical process involved for blasting in the Edwards Aquifer area.

Included on the next page is an illustration of a typical bench to be blasted and the terminology for many of the parameters considered in the design of the blast.

Blast Design Terminology



A	Hole - to - Crest	G	Crest	M	Explosive Column Height
B	Apparent Burden*	H	Crest Burden	N	Subdrilling
C	Apparent Spacing*	I	Bank Angle	P	Toe Burden
D	Hole Diameter	J	Toe	Q	Stemming Height
E	Back Break	K	Bench Height	R	Collar
F	Side Break	L	Hole Depth		

* True Burden and True Spacing may be different than Apparent Burden and Apparent Spacing due to delay pattern.

We teach our blasters that there are four things which occur when rock is blasted :

- The rock is broken or fragmented
- There is a heaving affect
- Vibration is created
- Air overpressure is created

If a blast is properly designed, the energy of the explosives will be used to do the first two in the list and there will be less energy left to create vibration and air overpressure. Thus the correct pattern to properly distribute the energy through the rock is the first important consideration. We know from experience how many pounds of explosives per cubic yard or ton of rock (powder factor) will give satisfactory fragmentation. If we under load a blast, it may actually create higher vibration. Extensive research calculations have been developed which aids in predicting vibration at a given distance based on the pounds of explosives detonated at 8 millisecond intervals. Based on the two above factors a blast pattern can be determined.

Laying out the blast pattern

As illustrated in the diagram, previous blasting will create a face which many times will be irregular; depending on the local geology. A two dimensional laser profiler will be used to determine at what distance from the crest holes should be placed in order to have the proper burden (amount of rock in front of the hole). There will be times when geological abnormalities may be observed and require the holes to have additional burden placed on them in order to minimize any venting of energy through the various seams; which may increase air overpressure. If this is necessary the spacing between holes in this row will be reduced to maintain the proper powder factor. The location of each hole is marked by the blaster.

Drilling

The driller will be given documentation of the pattern. This will include a diagram of the hole locations. The required depth of the holes will be indicated. Depths are determined from the initial data from the laser profiler. In order to properly break the rock at the bottom of the hole, the holes will be drilled slightly deeper than the actual bench height. In areas of vibration concern, this subdrill should be kept to a minimum. Excessive subdrill tends to increase vibration due to the over confinement in this area of the blast. The driller will be asked to provide a log of each hole. These logs will provide information concerning variations in geology; with the depths of these variations noted. This is very important data which aids the blaster in making determinations on how the hole should be loaded.

Loading the blast pattern

Before the blast is loaded, a three dimensional auto scan laser profiler will be used. This unit allows the exact location of each hole to be surveyed. It then can be set up to scan the face and collect upwards of 100,000 data points. If there are any "divots" in the face that requires more refinement of resolution, additional points can be scanned in that area. Various reports will be generated from the data, which will aid the blaster in determining what must be done to eliminate problems (examples included at the end). The most important of these reports are the actual profiles of each front row borehole. These profiles show the exact burden in front of the hole. The software can also be set to look a predetermined distance on either side of the hole for any lesser burdens which might be influenced by this hole. With these reports in hand, the blaster will visually examine the face one more time and make notes on the print outs of any variations in the loading which should take place.

All holes will be checked for proper depth. If any have excessive subdrill which may increase vibration, they will be backfilled to the proper depth. Detonators and cast boosters will be placed in the holes as needed and the hole will be loaded with bulk explosives. The blaster will monitor the rise of the product in the hole. If there any abnormalities such as cracks and voids the powder will stop rising and the blaster will immediately stop to address the issue. In most cases an inert

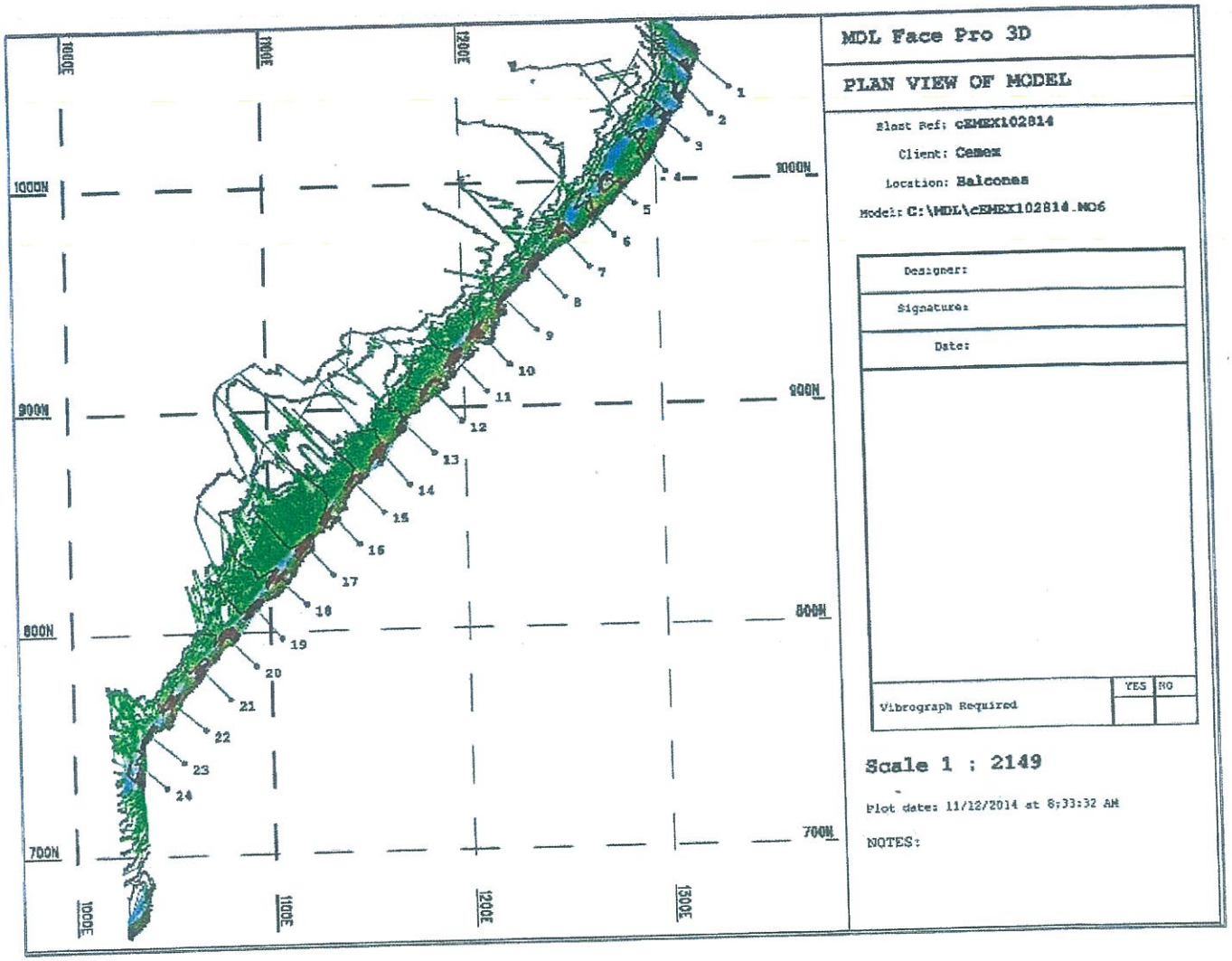
material such as crushed stone will be placed in this area of the borehole to avoid the accumulation of excess explosives. Trucks are equipped with meters as an added check to ensure the proper amount of explosives is being placed in each hole. In the cases where a full column may be too large to maintain the desired vibration level; the load in the hole may be divided into smaller charges separated by inert material. These smaller charges will be timed to detonate separately to reduce vibration. If seams of softer material or clay have been noted on drill logs or observed by the blaster as he inspects the face; inert material will be placed in that area of the column to prevent venting which may increase air overpressure and noise. The powder column will be stopped at a predetermined distance from the top of the hole. This is called the stemming area and will be filled with crushed stone to create confinement at the surface.

Electronic Detonators

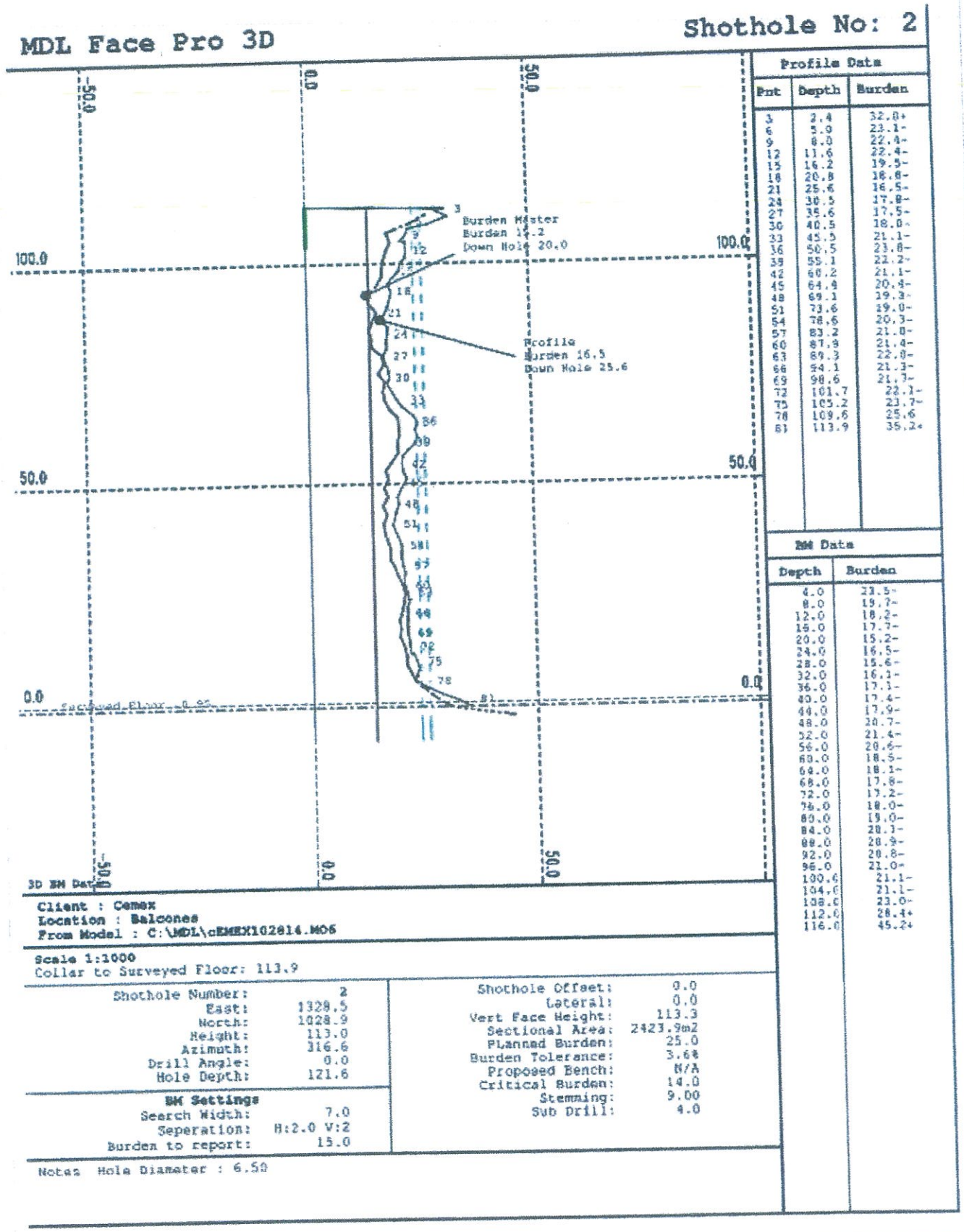
The development of electronic detonators has greatly improved the ability of our industry to reduce vibration from blasting. The accuracy of these detonators has allowed us to be very predictive as to our end results. Software has been developed which allows us to blast one hole, collect the vibration data; apply that data to a multiple hole scenario; and with a fair amount of accuracy predict what the results will be from that blast. The software we have allows us to enter the exact parameters of a particular blast pattern, and see what the vibration should be based of various timing sequences. Though our vibration levels are never close to a level which will do damage to a structure, we can many times find a sequence which is less perceivable and acceptable to the community.

Conclusion

There are few places left where our customers have not had developments build around them. Buckley Powder has been very successful helping those customers deal with community concerns. We take great pride in our education program for our personnel concerning safety and technology. If you have further questions concerning our procedures, please contact us.



Aerial view of blast pattern created from 3D profile software



Profile of a blasthole. Burden master data is from searching 7' on either side of hole

BUCKPOW-01 OMOHLE

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 6/22/2017

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER
JLT Specialty Insurance Services Inc.
5847 San Felipe St.
Suite 2800
Houston, TX 77057

CONTACT NAME: Olivia Mohle
PHONE (A/C, No, Ext): (713) 325-7633 FAX (A/C, No):
E-MAIL ADDRESS: olivia.mohle@jltus.com

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A: Starr Indemnity & Liability Company	38318
INSURER B: American Guarantee and Liability Insurance Company	26247
INSURER C:	
INSURER D:	
INSURER E:	
INSURER F:	

INSURED
Buckley Powder Co.
42 Inverness Dr. East
Englewood, CO 80112

CERTIFICATE NUMBER: REVISION NUMBER:

COVERAGES

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS		
A	X COMMERCIAL GENERAL LIABILITY			1000090348171	07/01/2017	07/01/2018	EACH OCCURRENCE	$	1,000,000
	CLAIMS-MADE X OCCUR						DAMAGE TO RENTED PREMISES (Ea occurrence)	$	100,000
							MED EXP (Any one person)	$	5,000
							PERSONAL & ADV INJURY	$	1,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER						GENERAL AGGREGATE	$	2,000,000
	X POLICY PRO-JECT LOC						PRODUCTS - COMP/OP AGG	$	2,000,000
	OTHER:							$	
A	AUTOMOBILE LIABILITY			1000198724171	07/01/2017	07/01/2018	COMBINED SINGLE LIMIT (Ea accident)	$	2,000,000
	X ANY AUTO						BODILY INJURY (Per person)	$	
	ALL OWNED AUTOS / SCHEDULED AUTOS						BODILY INJURY (Per accident)	$	
	HIRED AUTOS / NON-OWNED AUTOS						PROPERTY DAMAGE (Per accident)	$	
								$	
B	X UMBRELLA LIAB X OCCUR			AUC 3793061-09	10/01/2016	04/01/2018	EACH OCCURRENCE	$	5,000,000
	EXCESS LIAB CLAIMS-MADE						AGGREGATE	$	5,000,000
	DED RETENTION $							$	
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY			1000002255	07/01/2017	07/01/2018	PER STATUTE / OTH-ER		
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) Y/N: N N/A						E.L. EACH ACCIDENT	$	1,000,000
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE	$	1,000,000
							E.L. DISEASE - POLICY LIMIT	$	1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)
Subject always to policy terms, conditions and exclusions, Certificate Holder is named as Additional Insured (excluding Workers' Compensation and Employers' Liability) but only to the extent of risks and liabilities assumed by the Named Insured in a signed written contract.

CERTIFICATE HOLDER

City of Garden Ridge
9400 Municipal Parkway
Garden Ridge, TX 78266

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE
JLT Specialty Insurance Services Inc.

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Lehigh Hanson
HE1DEL8ERGCEMENTGroup

Hanson Aggregates
Servtex Quarry

August 22, 2017

Nancy Cain
City Administrator
City of Garden Ridge
9500 Municipal Parkway
Garden Ridge, Texas, 78266-2600

RE: Buckley's Application for a Partial Exemption Permit for Blasting in October 2017 through September2018.

Nancy,

We have asked Buckley to pursue obtaining a Partial Exemption Permit for Blasting within the City Limits of Garden Ridge per Ordinance 34 for the fiscal year of 2018. We will assist with any necessary documentation for the permit. If there is any questions or concerns, please contact me directly at hal.halamuda@lehighhanson.com or my office phone (210) 658-7461.

Best Regards

Hal Halamuda

CC: Jason Mims, Buckley Explosives

Sworn to and subscribed before me by Hal Halamuda, on this the 22nd day of August, 2017.

TRACY GIBBONS
Notary Public, State of Texas
My Comm. Exp. 08-30-2020
ID No. 34080-2

Tracy Gibbons
Notary Public in and for
The State of Texas
My commission expire 8-30-2020

U.S. Department of Justice
Bureau of Alcohol, Tobacco, Firearms and Explosives
Federal Explosives Licensing Center (FELC)
www.atf.gov

Federal Explosives Licensing Center
244 Needy Road
Martinsburg, West Virginia 25405
telephone: (877)283-3352 fax: (304)616-4401

08/10/2017

NOTICE OF CLEARANCE

for individuals transporting, shipping, receiving, or possessing explosive materials.

ISSUED TO: BUCKLEY POWDER CO
NOTICE DATE: 08/10/2017

Federal Explosives license/permit no.: 5-TX-091-20-9J-01236
Expiration Date: **September 1, 2019**
Explosives License/Permit Type: 20-MANUFACTURER OF EXPLOSIVES

EXPIRATION DATE: This Notice expires when superseded by a newer Notice which will list all current responsible persons and employee possessors, or when the license or permit expires - whichever comes first.

1. **WARNING. Only those individuals listed below as RESPONSIBLE PERSONS and EMPLOYEE POSSESSORS with a background clearance status of "CLEARED" or "PENDING" are authorized to transport, ship, receive, or possess explosive materials in the course of employment with you.**
2. **"DENIED" STATUS. If an employee possessor has a background clearance status of "DENIED", you MUST take immediate steps to remove the employee from a position requiring the transporting, shipping, receiving, or possessing of explosive materials. Also, if the employee has been listed as a person authorized to accept delivery of explosive materials, you MUST remove the employee from such list and immediately, and in no event later than the second business day after such change, notify distributors of such change, as stated in 27 CFR 555.33(a).**
3. **CHANGE IN RESPONSIBLE PERSONS. You MUST report any change in responsible persons to the Chief, Federal Explosives Licensing Center, within 30 days of the change and new responsible persons MUST include "appropriate identifying information" as defined in 27 CFR 555.11. Fingerprints and photos are NOT required, however they will be required upon renewal of the license or permit.**
4. **CHANGE OF EMPLOYEES. You MUST report any change of employee/possessors to the Chief, FELC, within 30 days. Reports relating to newly hired employees must be submitted on ATF Form 5400.28 for EACH employee.**

Premises Address: 6305 IH 35 NORTH
NEW BRAUNFELS, TX 78130

Mailing Address:
BUCKLEY POWDER CO
42 INVERNESS DRIVE EAST
ENGLEWOOD, CO 80112

This 'Notice of Clearance' is provided to you as required by 18 U.S.C. 843(h) and MUST be retained as part of your permanent records and be made available for examination or inspection by ATF officers as required by 27 CFR 555.121. If you receive a Notice subsequent to this Notice, this Notice will no longer be valid.

In accordance with 27 CFR 555.33, Background Checks and Clearances, and 27 CFR 555.57, Change of Control, Change in Responsible Persons, and Change of Employees, ATF's Federal Explosives Licensing Center (FELC) has conducted background checks on the individual(s) you identified as a responsible person(s) and an employee/possessor(s) on your application, or reported after the issuance of your license/permit.

The following is a SUMMARY of the results of the background checks conducted on the individuals you reported as responsible persons and employee/possessors. ATF will be notifying ALL individuals listed on this document of their respective status by separate letter mailed to their residence address.

PLEASE BE ADVISED THAT IT IS UNLAWFUL FOR ANY PERSON REFLECTING A STATUS OF "DENIED" TO TRANSPORT, SHIP, RECEIVE, OR POSSESS EXPLOSIVE MATERIALS.

Please carefully review this Notice to ensure that all the information is accurate. If this Notice is incorrect, please return the Notice to the Chief, FELC, with a statement showing the nature of the error(s). The Chief, FELC, shall correct the error, and return a corrected Notice.

Number of RESPONSIBLE PERSON(S) : 7
Number of EMPLOYEE POSSESSOR(S): 26

LAST NAME, First Name, Middle Name	Clearance Status
RESPONSIBLE PERSONS:	**7**
0001 ADAMS, LANCE HENRY	Cleared
0002 BRETZING, STEPHEN KARL	Cleared
0003 BUCKLEY, RAYMOND LEE JR	Cleared
0004 BUCKLEY, STEVE LEE	Cleared
0005 HERMAN, SCOTT EDWARD	Cleared
0006 MEDLIN, JASON SCOTT	Cleared
0007 PUMPHREY, JAY ROY	Cleared

continued

LAST NAME, First Name, Middle Name	Clearance Status
EMPLOYEE POSSESSORS:	**26**
0001 BATES, DUSTIN WARREN	Cleared
0002 BORG, DARRYL JOSEPH	Cleared
0003 BROWN, BRADLEY EUGENE	Cleared
0004 CATES, JOSHUA LEE	Cleared
0005 CORTEZ, ISAAC	Cleared
0006 DAVIS, STEVEN EDWARD	Cleared
0007 DIRST, SETH RUSTIN	Cleared
0008 DUTTON, DENNIS SAMUEL	Cleared
0009 ESPINOZA, DARRELL JIM	Cleared

NOTICE OF CLEARANCE 08/10/2017

for individuals transporting, shipping, receiving, or possessing explosive materials.

NOTICE DATE: 08/10/2017

EXPIRATION DATE: This Notice expires when superseded by a newer Notice which will list all current responsible persons and employee possessors, or when the license or permit expires - whichever comes first.

This 'Notice of Clearance' is issued to: BUCKLEY POWDER CO
Federal Explosives license/permit no.: 5-TX-091-20-9J-01236
Explosives License/Permit Type : 20-MANUFACTURER OF EXPLOSIVES
Expiration Date : September 1, 2019

6305 IH 35 NORTH
NEW BRAUNFELS, TX 78130

continued from previous page

	LAST NAME, First Name, Middle Name	Clearance Status
0010	HADLEY, JOSHUA LOUIS	Cleared
0011	HOPE, JASON LANCE	Cleared
0012	MARRS, JILL	Cleared
0013	MIMS, JOHN J	Cleared
0014	MIRABELLI, LAWRENCE JOHN	Cleared
0015	MITCHELL, ETHAN CHASE	Cleared
0016	PUMPHREY, ADRIAN RILEY	Cleared
0017	SCHUCH, RODNEY ALBERT	Cleared
0018	SIEVERS, BRANDON JAMES	Cleared
0019	SNIDER, CLINTON DAVID	Cleared
0020	STAUFFER, LANE DOSS	Cleared
0021	VALDEZ, JACOB BENNETT	Cleared
0022	WALDROP, DIANN RACHELLE	Cleared
0023	WEAVER, RICHARD ALLEN	Cleared
0024	WEIR, CHRISTOPHER FRANKLIN	Cleared
0025	OUMA, ROY O	Pending
0026	WILLIAMS, JOSHUA CHAD	Pending

LAST NAME, First Name, Middle Name	Clearance Status

U.S. Department of Justice
Bureau of Alcohol, Tobacco, Firearms and Explosives

Federal Explosives License/Permit
(18 U.S.C. Chapter 40)

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 or permit within the limitations of Chapter 40, Title 18, United States Code and the regulations issued thereunder, until the expiration date shown. **THIS LICENSE IS NOT TRANSFERABLE UNDER 27 CFR 555.53.** See "WARNINGS" and "NOTICES" on reverse.

Direct ATF Correspondence To: ATF - Chief, FELC 244 Needy Road Martinsburg, WV 25405-9431	License/Permit Number: **5-TX-091-20-9J-01236**
Chief, Federal Explosives Licensing Center (FELC): Christopher R. Reeps	Expiration Date: **September 1, 2019**

Name
BUCKLEY POWDER CO

Premises Address (Changes? Notify the FELC at least 10 days before the move.)
6305 1H 35 NORTH
NEW BRAUNFELS, TX 78130-

Type of License or Permit
20-MANUFACTURER OF EXPLOSIVES

Purchasing Certification Statement

The licensee or permittee named above shall use a copy of this license or permit to assist a transferor of explosives to verify the identity and the licensed status of the licensee or permittee as provided by 27 CFR Part 555. The signature on each copy must be an original signature. A faxed, scanned or e-mailed copy of the license or permit with a signature intended to be an original signature is acceptable. The signature must be that of the Federal Explosives Licensee (FEL) or a responsible person of the FEL. I certify that this is a true copy of a license or permit issued to the licensee or permittee named above to engage in the business or operations specified above under "Type of License or Permit."

Mailing Address (Changes? Notify the FELC of any changes.)
BUCKLEY POWDER CO
42 INVERNESS DRIVE EAST
ENGLEWOOD, CO 80112-

Licensee/Permittee/Responsible Person Signature _____ Position Title _____

Printed Name _____ Date _____

Previous Edition is Obsolete BUCKLEY POWDER CO 6305 1H 35 NORTH 78130-5-TX 091-20-9J-01236 September 1, 2019 20-MANUFACTURER OF EXPLOSIVES

ATF Form 5400.14/5400.15 Part I
Revised October 2011

Federal Explosives License (FEL) Customer Service Information

Federal Explosives Licensing Center (FELC)
244 Needy Road
Martinsburg, WV 25405-9431

Toll-free Telephone Number: (877) 283-3352
Fax Number: (304) 616-4401
E-mail: FELC@atf.gov

ATF Homepage: www.atf.gov

Change of Address *(27 CFR 555.54(a)(1))*. Licensees or permittees may during the term of their current license or permit remove their business or operations to a new location at which they intend regularly to carry on such business or operations. The licensee or permittee is required to give notification of the new location of the business or operations not less than 10 days prior to such removal with the Chief, Federal Explosives Licensing Center. The license or permit will be valid for the remainder of the term of the original license or permit. **(The Chief, FELC, shall, if the licensee or permittee is not qualified, refer the request for amended license or permit to the Director of Industry Operations for denial in accordance with § 555.54.)**

Right of Succession *(27 CFR 555.59)*. (a) Certain persons other than the licensee or permittee may secure the right to carry on the same explosive materials business or operations at the same address shown on, and for the remainder of the term of, a current license or permit. Such persons are: (1) The surviving spouse or child, or executor, administrator, or other legal representative of a deceased licensee or permittee; and (2) A receiver or trustee in bankruptcy, or an assignee for benefit of creditors. (b) In order to secure the right provided by this section, the person or persons continuing the business or operations shall furnish the license or permit for for that business or operations for endorsement of such succession to the Chief, FELC, within 30 days from the date on which the successor begins to carry on the business or operations.

(Continued on reverse side)

Cut Here ✂

Federal Explosives License/Permit (FEL) Information Card

License Permit Name: **BUCKLEY POWDER CO**

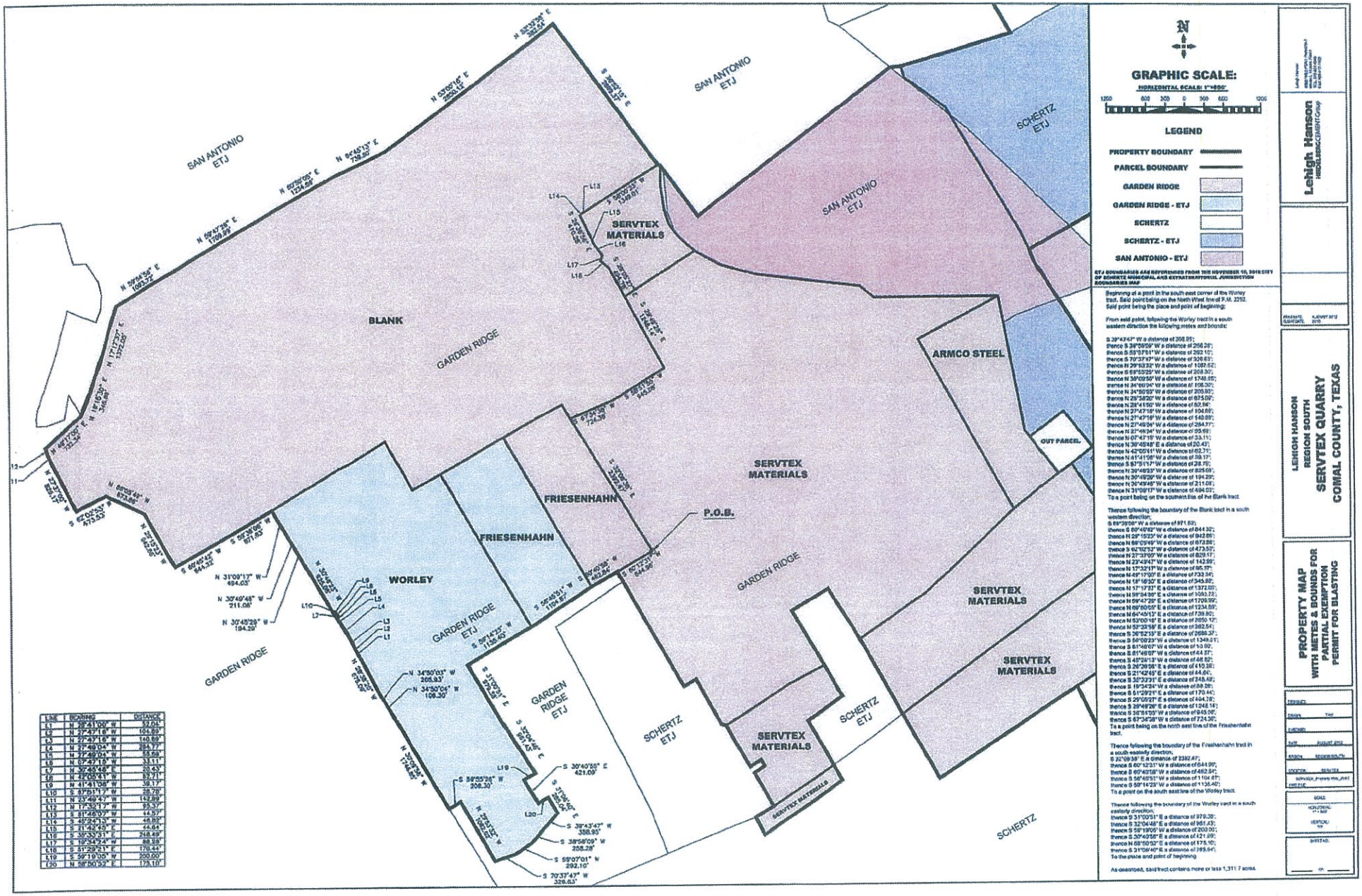
Business Name:

License Permit Number: **5-TX-091-20-9J-01236**

License Permit Type: **20-MANUFACTURER OF EXPLOSIVES**

Expiration: **September 1, 2019**

Please Note: Not Valid for the Sale or Other Disposition of Explosives



Beginning at a point in the south east corner of the Worley tract. Said point being on the North West line of P.M. 2252. Said point being the place and point of beginning;

From said point, following the Worley tract in a south eastern direction the following metes and bounds:

S 29°43'47" W a distance of 358.95';
thence S 39°58'09" W a distance of 256.29';
thence S 55°13'51" W a distance of 292.10';
thence S 70°37'47" W a distance of 326.63';
thence N 29°53'32" W a distance of 1087.62';
thence S 69°53'29" W a distance of 208.30';
thence N 38°09'50" W a distance of 1748.85';
thence N 34°50'04" W a distance of 108.30';
thence N 24°50'03" W a distance of 205.93';
thence N 28°38'20" W a distance of 873.09';
thence N 28°41'50" W a distance of 62.54';
thence N 27°47'16" W a distance of 104.69';
thence N 27°47'16" W a distance of 140.89';
thence N 27°48'04" W a distance of 284.77';
thence N 27°49'04" W a distance of 55.69';
thence N 07°47'15" W a distance of 33.11';
thence N 39°48'48" E a distance of 20.43';
thence N 42°05'41" W a distance of 62.71';
thence N 41°41'08" W a distance of 39.17';
thence S 82°51'17" W a distance of 28.75';
thence N 30°49'33" W a distance of 825.09';
thence N 30°49'26" W a distance of 194.29';
thence N 30°49'48" W a distance of 211.08';
thence N 31°09'17" W a distance of 494.03';
To a point being on the southern line of the Blank tract.

Thence following the boundary of the Blank tract in a south western direction;
S 89°39'08" W a distance of 871.63';
thence S 00°45'42" W a distance of 844.32';
thence N 29°15'23" W a distance of 942.66';
thence N 69°25'49" W a distance of 673.86';
thence S 62°02'53" W a distance of 473.53';
thence N 27°37'09" W a distance of 829.11';
thence N 27°43'47" W a distance of 142.99';
thence N 17°32'17" W a distance of 95.37';
thence N 49°17'00" E a distance of 733.34';
thence N 18°15'37" E a distance of 345.86';
thence N 17°17'37" E a distance of 1372.69';
thence N 59°34'39" E a distance of 1053.73';
thence N 09°47'28" E a distance of 1709.99';
thence N 69°50'59" E a distance of 1234.69';
thence N 64°45'13" E a distance of 739.80';
thence N 62°50'05" E a distance of 2650.10';
thence N 52°33'58" E a distance of 382.54';
thence S 36°52'15" E a distance of 2686.37';
thence S 84°08'23" W a distance of 1349.21';
thence S 61°48'07" W a distance of 10.00';
thence S 61°48'07" W a distance of 44.57';
thence S 45°35'13" W a distance of 446.52';
thence S 26°26'08" E a distance of 410.38';
thence S 21°42'49" E a distance of 64.84';
thence S 30°37'31" E a distance of 249.48';
thence S 19°34'24" W a distance of 89.28';
thence S 51°29'21" E a distance of 170.44';
thence S 29°05'27" E a distance of 494.28';
thence S 29°49'29" E a distance of 1248.14';
thence S 36°54'55" W a distance of 945.06';
thence S 67°34'26" W a distance of 724.50';
To a point being on the north east line of the Freshenhahn tract.

Thence following the boundary of the Freshenhahn tract in a south easterly direction;
S 82°09'38" E a distance of 2382.47';
thence S 60°12'21" W a distance of 644.99';
thence S 60°40'58" W a distance of 462.94';
thence S 56°45'51" W a distance of 1104.87';
thence S 58°14'23" W a distance of 1135.40';
To a point on the south east line of the Worley tract.

Thence following the boundary of the Worley tract in a south easterly direction;
thence S 31°09'51" E a distance of 979.39';
thence S 32°04'48" E a distance of 961.43';
thence S 58°19'06" W a distance of 200.00';
thence S 20°42'58" E a distance of 421.09';
thence N 58°50'52" E a distance of 175.10';
thence S 31°09'40" E a distance of 769.64';
To the place and point of beginning.

As described, said tract contains more or less 1,311.7 acres.

LINE	BEARING	DISTANCE
L1	N 28°41'00" W	57.04'
L2	N 27°47'16" W	104.69'
L3	N 27°47'16" W	140.89'
L4	N 27°48'04" W	284.77'
L5	N 27°49'04" W	55.69'
L6	N 07°47'15" W	33.11'
L7	N 39°48'48" E	20.43'
L8	N 42°05'41" W	62.71'
L9	N 41°41'08" W	39.17'
L10	S 82°51'17" W	28.75'
L11	N 30°49'47" W	142.89'
L12	N 17°32'17" W	95.37'
L13	S 61°48'07" W	44.57'
L14	S 45°24'13" W	446.52'
L15	S 71°42'49" E	44.84'
L16	S 39°53'51" E	248.48'
L17	S 19°34'24" W	89.28'
L18	S 51°29'21" E	170.44'
L19	S 29°19'09" W	200.00'
L20	N 58°50'52" E	175.10'

PROPERTY MAP
WITH METES & BOUNDS FOR
PARTIAL EXEMPTION
PERMIT FOR BLASTING

SHOOT 3 TIMES WEEK
11 – NOON