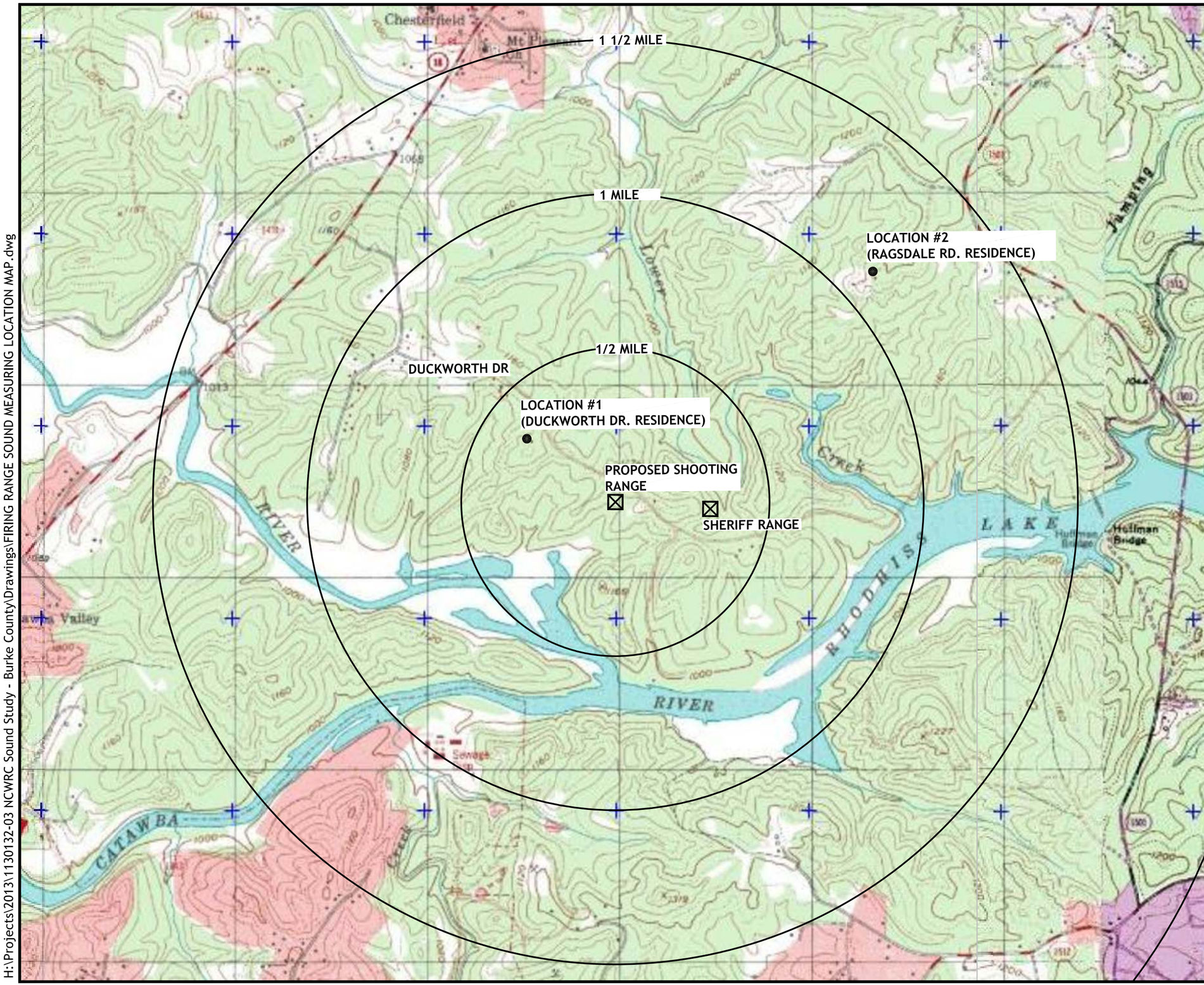


N

LEGEND

- ⊠ SHOOTING RANGE SITES
- ● SOUND LEVEL METER LOCATIONS
- 1/2 MILE — DISTANCE FROM PROPOSED SHOOTING RANGE SITE

0 1/4 1/2

1/2 MILE SCALE

SHIELD ENGINEERING, INC.
4301 TAGGART CREEK ROAD
CHARLOTTE, NC 28208
704-394-6913
704-394-6968 fax
www.shieldengineering.com

PROPOSED SHOOTING RANGE AND SOUND MEASURING LOCATION MAP

NORTH CAROLINA WILDLIFE RESOURCES COMMISSION
DIVISION OF ENGINEERING AND LAND MANAGEMENT
CREEDMOOR, NORTH CAROLINA

DATE :	05/14/15	DRAWN BY :	ELF
SCALE :	AS SHOWN	FIGURE :	1

H:\Projects\2013\1130132-03 NCWRC Sound Study - Burke County\Drawings\FIRING RANGE SOUND MEASURING LOCATION MAP.dwg

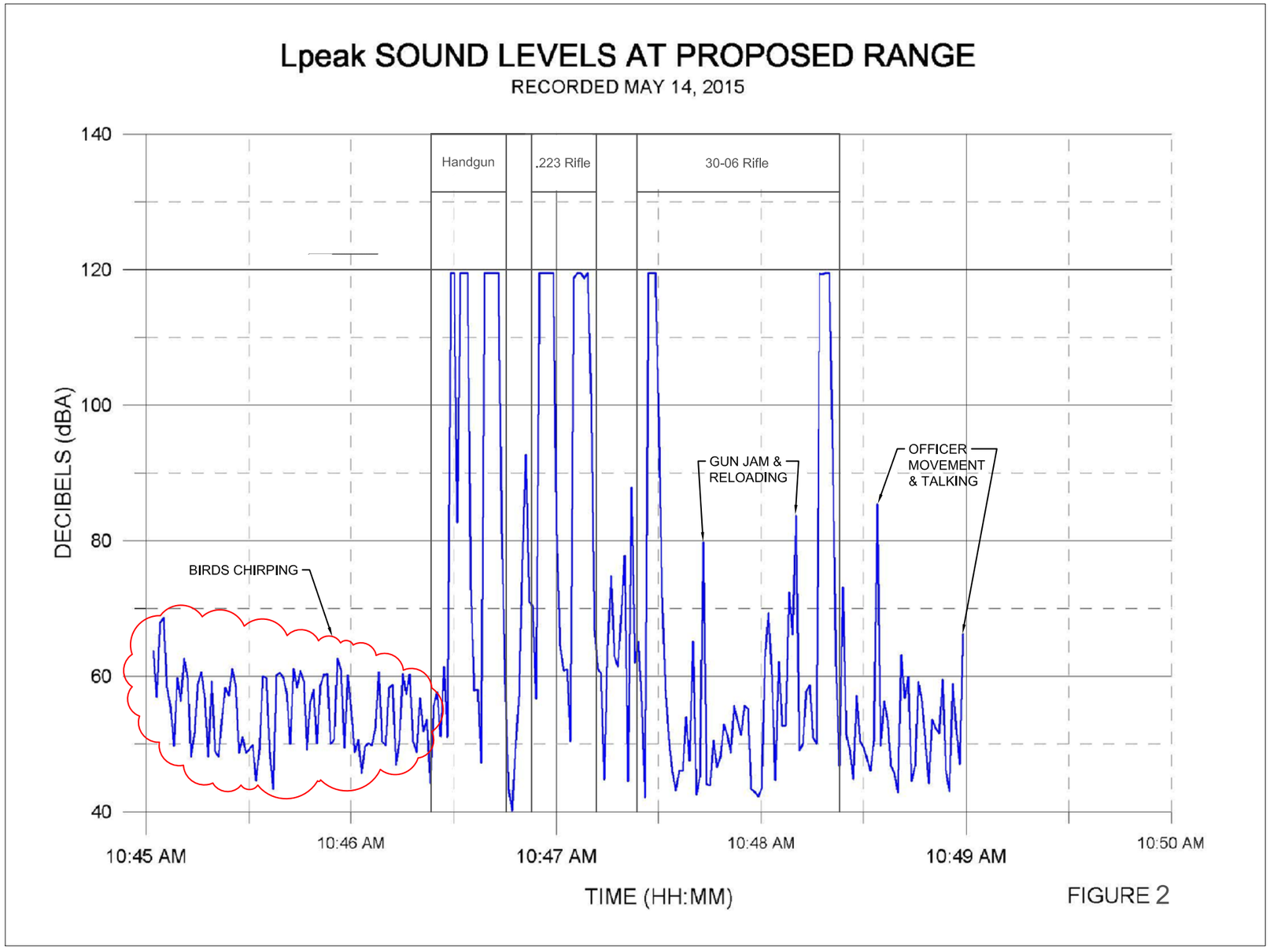
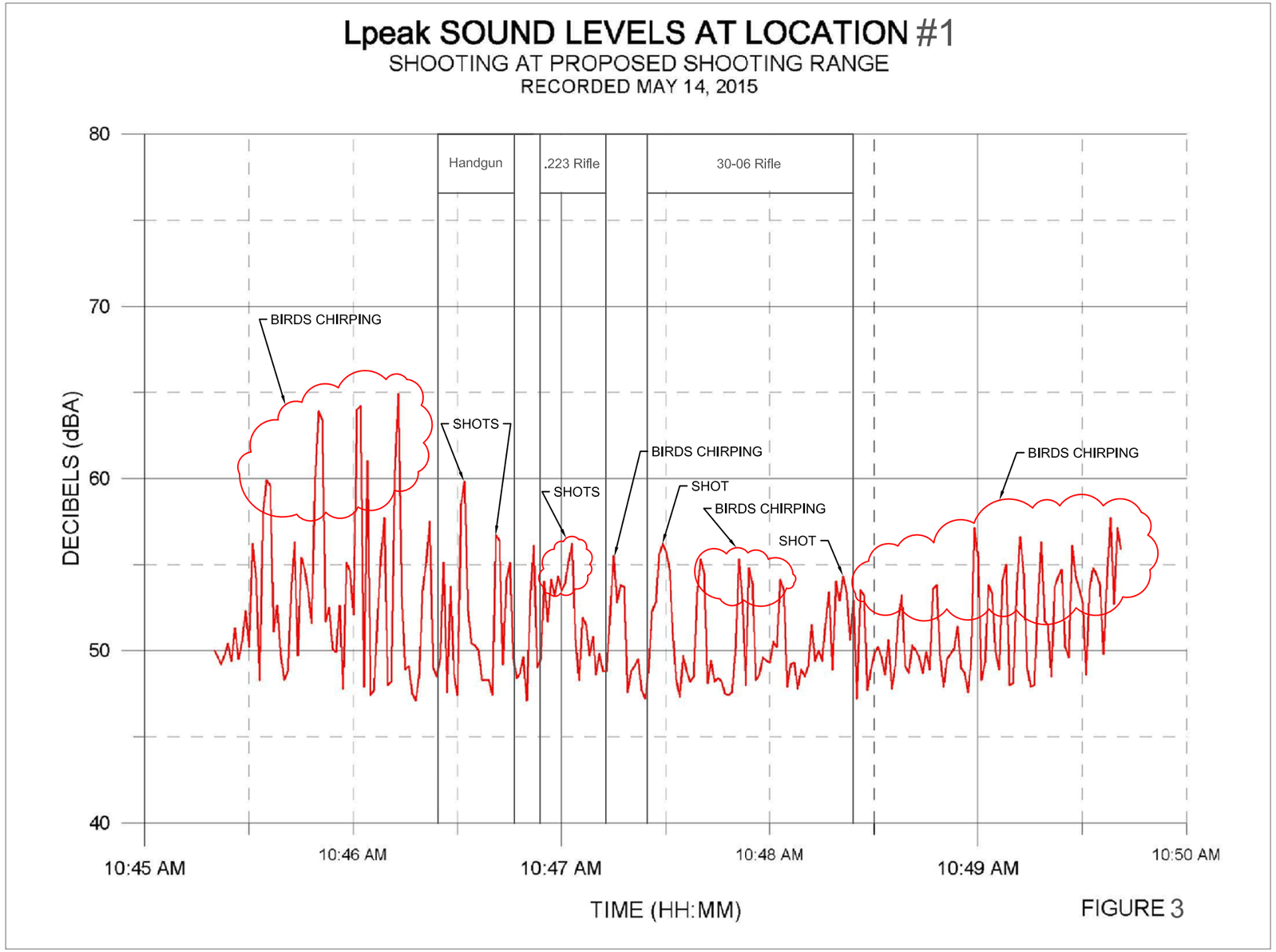


FIGURE 2

	Proposed Range					
	Handgun		AR-15 Rifle		30-06 Rifle	
	Time	dBA	Time	dBA	Time	dBA
	10:46:29	119.5	10:46:55	119.5	10:47:27	119.5
	10:46:30	119.5	10:46:56	119.5	10:47:28	119.5
	10:46:32	119.5	10:46:57	119.5	10:47:29	119.5
	10:46:33	119.5	10:46:58	119.5		
	10:46:34	119.5	10:46:59	119.5		
Troy Tube	10:46:39	119.5	10:47:05	119.5	10:48:17	119.5
Troy Tube	10:46:40	119.5	10:47:06	119.5	10:48:18	119.5
Troy Tube	10:46:41	119.5	10:47:07	119.5	10:48:19	119.5
Troy Tube	10:46:42	119.5	10:47:08	119.5	10:48:20	119.5
Troy Tube	10:46:43	119.5	10:47:09	119.5		

27 OUT OF 27 SHOTS WERE AUDIBLE BY TECHNICIAN.
SOUND METERS WERE PROGRAMMED TO RECORD
MAXIMUM SOUND LEVELS OF 119.5 dBA.



Location #1	Distance From Proposed Range			0.35 Miles		
	Handgun		AR-15 Rifle		30-06 Rifle	
	Time	dBA	Time	dBA	Time	dBA
	10:46:29	48.6	10:46:55	54.0	10:47:27	52.8
	10:46:30	47.4	10:46:56	51.7	10:47:28	55.6
	10:46:32	59.8	10:46:57	54.1	10:47:29	56.2
	10:46:33	52.3	10:46:58	53.2		
	10:46:34	50.4	10:46:59	54.3		
Troy Tube	10:46:39	48.3	10:47:05	48.3	10:48:17	53.4
Troy Tube	10:46:40	47.4	10:47:06	51.9	10:48:18	48.9
Troy Tube	10:46:41	56.7	10:47:07	51.5	10:48:19	54.0
Troy Tube	10:46:42	56.4	10:47:08	49.7	10:48:20	52.9
Troy Tube	10:46:43	49.2	10:47:09	50.8		

27 OUT OF 27 SHOTS WERE AUDIBLE BY TECHNICIAN.
SOUND METERS WERE PROGRAMMED TO RECORD
MAXIMUM SOUND LEVELS OF 119.5 dBA.

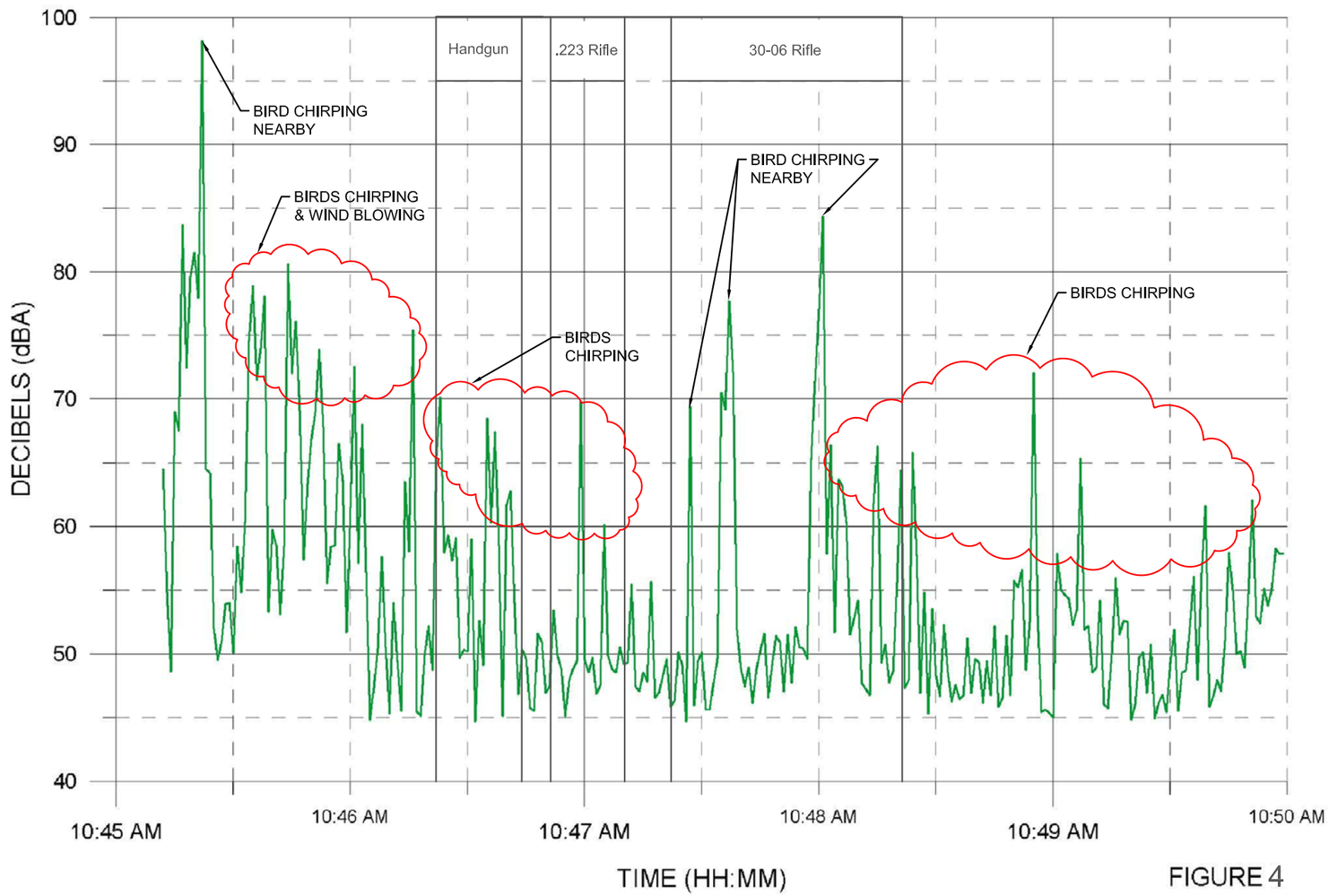


FIGURE 4

Location #2		Distance From Proposed Range		1.10 Miles	
Handgun		AR-15 Rifle		30-06 Rifle	
Time	dBA	Time	dBA	Time	dBA

ALL SHOTS WERE AUDIBLE BY TECHNICIAN BUT DECIBEL LEVELS WERE NOT DISTINGUISHABLE FROM REGULAR BACKGROUND NOISE.

27 OUT OF 27 SHOTS WERE AUDIBLE BY TECHNICIAN. SOUND METERS WERE PROGRAMMED TO RECORD MAXIMUM SOUND LEVELS OF 119.5 dBA.

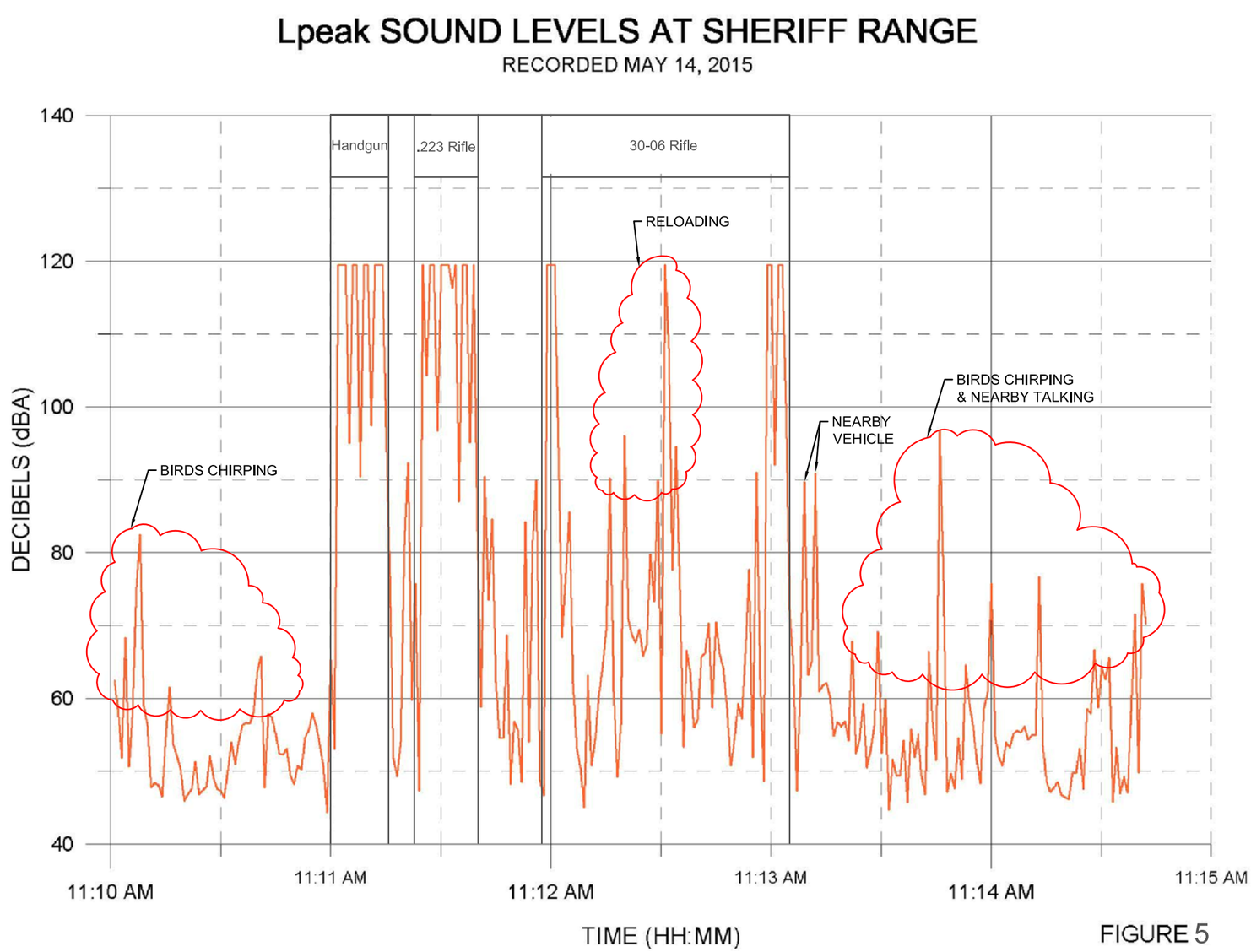


FIGURE 5

Sheriff Range

Handgun		AR-15 Rifle		30-06 Rifle	
Time	dBA	Time	dBA	Time	dBA
11:11:02	119.5	11:11:25	119.5	11:11:59	119.5
11:11:03	119.5	11:11:27	119.5	11:12:00	119.5
11:11:04	119.5	11:11:28	119.5	11:12:01	119.5
11:11:06	119.5	11:11:30	119.5	11:12:31	119.5
11:11:07	119.5	11:11:31	119.5		
11:11:09	119.5	11:11:32	119.5	11:12:59	119.5
11:11:10	119.5	11:11:34	119.5	11:13:00	119.5
11:11:12	119.5	11:11:36	119.5	11:13:02	119.5
11:11:13	119.5	11:11:37	119.5	11:13:03	119.5
11:11:14	119.5	11:11:39	119.5		

28 OUT OF 28 SHOTS WERE AUDIBLE BY TECHNICIAN.
SOUND METERS WERE PROGRAMMED TO RECORD
MAXIMUM SOUND LEVELS OF 119.5 dBA.

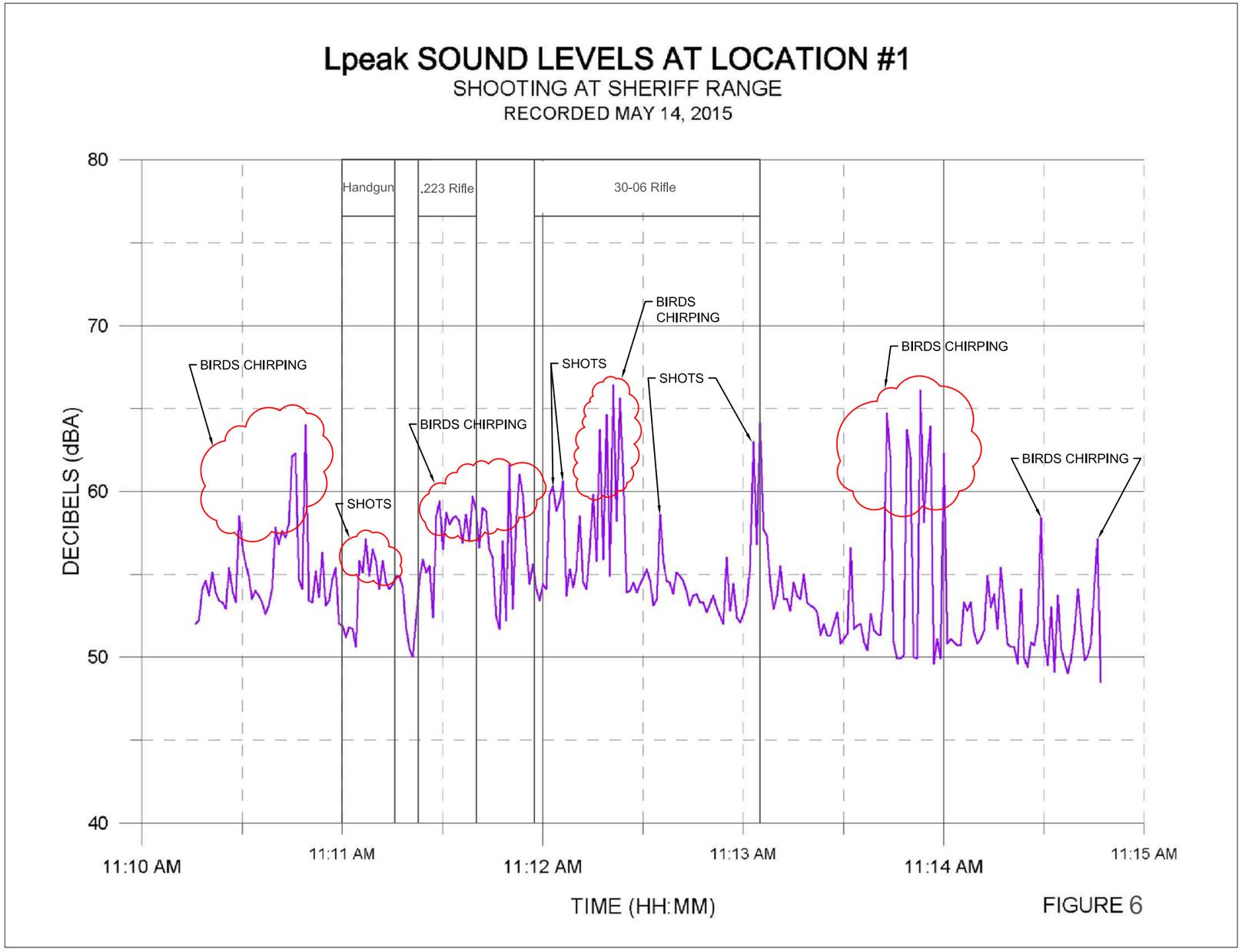
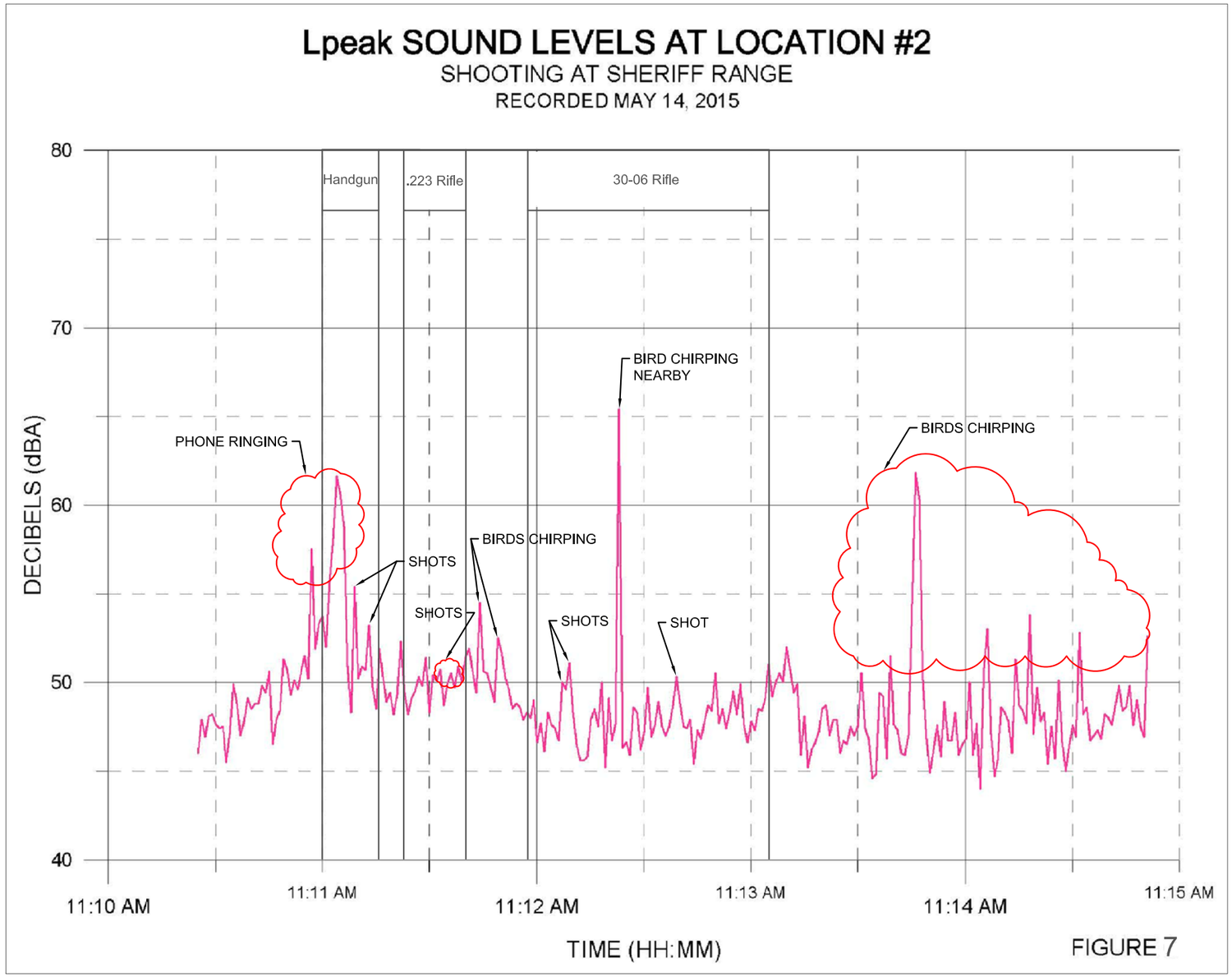


FIGURE 6

Location #1		Distance From Sheriff Range		0.60 Miles	
Handgun		**AR-15 Rifle**		**30-06 Rifle**	
Time	**dBA**	**Time**	**dBA**	**Time**	**dBA**
11:11:02	51.8	11:11:25	55.1	11:11:59	53.4
11:11:03	51.7	11:11:27	52.2	11:12:00	54.4
11:11:04	50.6	11:11:28	58.5	11:12:01	54.1
11:11:06	55.1	11:11:30	56.5	11:12:31	55.3
11:11:07	57.1	11:11:31	58.7		
11:11:09	56.5	11:11:32	58.0	11:12:59	52.1
11:11:10	55.8	11:11:34	58.5	11:13:00	52.6
11:11:12	55.8	11:11:36	56.9	11:13:02	55.5
11:11:13	54.5	11:11:37	58.6	11:13:03	63.0
11:11:14	54.1	11:11:39	59.7		

28 OUT OF 28 SHOTS WERE AUDIBLE BY TECHNICIAN.
SOUND METERS WERE PROGRAMMED TO RECORD
MAXIMUM SOUND LEVELS OF 119.5 dBA.



Location #2		Distance From Sheriff Range		0.95 Miles	
Handgun		**AR-15 Rifle**		**30-06 Rifle**	
Time	**dBA**	**Time**	**dBA**	**Time**	**dBA**
11:11:02	55.7	11:11:25	49.1	11:11:59	49.0
11:11:03	50.1	11:11:27	50.3	11:12:00	46.6
11:11:04	61.6	11:11:28	49.8	11:12:01	47.7
11:11:06	58.8	11:11:30	48.3	11:12:31	49.7
11:11:07	50.9	11:11:31	50.4		
11:11:09	55.4	11:11:32	50.1	11:12:59	46.6
11:11:10	50.2	11:11:34	48.7	11:13:00	47.8
11:11:12	50.7	11:11:36	50.6	11:13:02	48.5
11:11:13	53.2	11:11:37	49.7	11:13:03	48.4
11:11:14	49.7	11:11:39	50.0		

28 OUT OF 28 SHOTS WERE AUDIBLE BY TECHNICIAN.
SOUND METERS WERE PROGRAMMED TO RECORD
MAXIMUM SOUND LEVELS OF 119.5 dBA.

TABLE 1
AVERAGE (Lpeak) SOUND LEVEL (Decibels) AT MEASURING LOCATIONS
BURKE COUNTY, NC

	SOUND METER LOCATION (see Figure 1)		
	Proposed Shooting Range	Location #1 (Duckworth Drive Residence)	Location #2 (Ragsdale Road Residence)
Average Lpeak for Period of Record (dBA)	63.5	52.5	55.5
Distance from Proposed Shooting Range Site (miles)	0.00	0.35	1.10
Max Lpeak (dBA)	119.5	64.9	98.1
Time of Max Lpeak	Multiple Occurances	10:46:13 AM	10:45:22 AM
Cause of Max Lpeak	Handgun, .223 Rifle & 30-06 Rifle	Birds Chirping	Bird Chirping Closeby

	SOUND METER LOCATION (see Figure 1)		
	Sheriff Range	Location #1 (Duckworth Drive Residence)	Location #2 (Ragsdale Road Residence)
Average Lpeak for Period of Record (dBA)	66.9	54.7	51.0
Distance from Sheriff Range Site (miles)	0.00	0.60	0.95
Max Lpeak (dBA)	119.5	66.4	65.4
Time of Max Lpeak	Multiple Occurances	11:12:21 AM	11:12:23 AM
Cause of Max Lpeak	Handgun, .223 Rifle & 30-06 Rifle	Birds Chirping	Birds Chirping

TABLE 2
TYPICAL SOUND LEVELS (Decibels) FOR COMMON SOUND SOURCES
BURKE COUNTY, NC

Type of Sound	Sound Levels (dBA)
Normal Conversation (3' to 5')	60 - 70
Passenger Car at 50mph (50 Feet from car)	65 - 72
Home Vacuum Cleaner	70 - 75
Telephone Dial Tone (typical desk phone)	80
Garbage Disposal at 3 Feet	80
Diesel Truck at 40mph (50 Feet from truck)	80 - 90
Level at which Sustained Exposure may result in Hearing Loss	***90 - 95***
Electric Food Blender at 3 Feet	90 - 95
Walk-behind Power Mower at 3 Feet	95 - 107
Electric Powered Saw at 3 Feet	110
Sandblasting	115

References:

Noise - Basic Information, Canadian Center for Occupational Health and Safety, September, 2006

Chasin Marshall, 2007 Sound Study for Center for Human Performance & Health, Ontario, Canada