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RADIO SYSTEM COST SUMMARIES

DEPARTMENT OF PUBLIC SAFETY 800 MHZ TRANSITION

Radio system costs are categorized into radio infrastructure costs, dispatch equipment costs, and user equipment such as portable or mobile radios.

Infrastructure costs are those costs associated with facilities, ant. towers, microwave systems, and power systems required to support a radio system.

RADIO SYSTEM COSTS

NETWORK UPGRADES	4,649,975.00
RADIO REPEATERS/CONTROLLERS	
DISPATCH EQUIPMENT	1,166,550.00
USER EQUIPMENT	NOTE 1
SERVICES	2,014,685.00

RADIO SYSTEM SUBTOTAL	7,831,210.00
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INFRASTRUCTURE UPGRADES

2,624,856.00

FACILITIES AND MICROWAVE

SYSTEM SUBTOTAL	10,456,066.00
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User equipment consists primarily of portable and mobile radio equipment. User equipment comprises the majority of costs for a system. The user equipment can range in costs of \$2000/unit to \$5500/unit based on options, capacity, and capability. The higher end costs are also based on the new P25 digital standard.

The DPS includes both highway funded and non highway funded or general fund Divisions. Based on current inventories, and ratio of portable radios to mobile radios, the following costs are provided.

USER EQUIPMENT

	DPS	LIST CST. EA.	
HIGHWAY FUND	1400	\$3,000.00	\$4,200,000.00
NON-HIGHWAY FUND	600	\$3,000.00	\$1,800,000.00

SYSTEM TOTALS	
HIGHWAY FUND	14,656,066.00
GENERAL FUND	\$1,800,000.00

Note: 1 Determination of type, model and options of user equipment must be completed.

ASSEMBLY WAYS AND MEANS

DATE: 5/28/03 ROOM: 3137 EXHIBIT C

SUBMITTED BY: Highway Patrol

C-10614

April 21, 2003

Federal Communications Commission
445 12th Street, SW
Room 4-C324
Washington, D.C. 20544

Attention: Jeanne Kowalski, Deputy Chief
Public Safety & Private Wireless Division
Wireless Telecommunications Bureau

Re: Nevada DPS Radio System Plan

Dear Ms. Kowalski:

Enclosed with this letter is the compliance plan for the State of Nevada Department of Public Safety radio communications system as promised in my letter to you on April 7. As my letter indicated, Nevada intends to move its Department of Public Safety from its current VHF radio system to the Nevada Department of Transportation 800 MHz system as soon as possible. As a clarification to a letter you received from Highway Patrol Chief Hosmer dated April 4, 2003, we have no intention at this time of seeking ways to use the current VHF system as a long term solution.

Please note that the information provided in Table 1 to the plan is current as of today but is not complete. The additional information will be forwarded to you as soon as it is available. Thank you for your patience.

Sincerely,

MICHAEL D. HILLERBY
Deputy Chief of Staff

MDH/

Cc: Kenny C. Guinn, Governor of Nevada
Keith G. Munro, General Counsel, Nevada Governor's Office

C-2 of 14

**FCC REGULATORY COMPLIANCE PLAN FOR STATE OF
NEVADA DEPARTMENT OF PUBLIC SAFETY RADIO
COMMUNICATIONS**

April 21, 2003

SUBMITTED BY:

NEVADA Department of Public Safety
NEVADA Department of Transportation
NEVADA Department of Information Technology

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PURPOSE

This plan is submitted to the Federal Communications Commission to address and correct frequency licensing issues of existing land mobile radio systems utilized by the Department of Public Safety (DPS) within the State of Nevada. These corrections will provide short-term resolution to stop all non-authorized usage of unlicensed frequencies by the DPS. The Nevada Department of Public Safety intends to migrate users of the current high band VHF radio system to the 800MHz Nevada Shared Radio System (NSRS).

SCOPE OF PLAN

The scope of this plan is to provide an agreed upon methodology by both the State of Nevada and the Federal Communications Commission (FCC) with respect to the process and timeframes to correct frequency licensing issues for land mobile radio systems that are governed by CFR-47 Part 90 and presently being utilized by the Department of Public Safety.

BACKGROUND

Based on a 1997 study¹ and recommendation by the Consulting Firm of Frank Thatcher and Associates (FTA) under the direction of the Nevada Department of Information Technology (DOIT), the Nevada Department of Public Safety was funded to implement a statewide VHF Trunked Radio System. In September of 2002, internal review of issues regarding the DPS VHF Radio system resulted in identification of unlicensed and unauthorized usage of radio frequencies allocated under CFR 47, Part 90 in the DPS radio system. A multi-agency committee established to investigate, identify issues, review alternatives and discuss these issues with the FCC have completed initial assessments and provided recommendations to the Governors Office. Based on this assessment, the State will complete and submit a plan to the FCC that addresses and corrects problems identified by the FCC and the State.

¹ Thatcher & Assoc., Mobile Radio and Microwave Study (1997).

COMPLIANCE METHODOLOGY

The State must immediately address with the FCC, issues associated with licensing and obtaining FCC authorization for all Public Safety transmitters used by the Department of Public Safety. Specifically, the State will provide a showing of the following:

1. Identification of geographical locations where transmitters are operating in violation of CFR 47, Part 90. This information should include latitude, longitude, and elevation.
2. A listing of unauthorized frequencies that have been placed into operation at the geographical locations identified under element 1.
3. A listing of frequencies that will be placed into operation by DPS to meet compliance requirements that:
 - a. meet eligibility requirements as defined by Part 90, Subpart B,
 - b. meet frequency coordination requirements as described by Part 90, Subpart B, Section 90.170
 - c. ensure written concurrence from existing authorized co-channel or adjacent channel users as required based on radio engineering and frequency coordination practices,
 - d. is supported by radio engineering documentation used to establish usable frequencies and service areas determined during frequency coordination
 - e. describe the process on how application for station authorization will occur and if request for temporary station authorization will be requested.
 - f. provide estimated loading
4. The time frames to accomplish compliance
5. A letter to the FCC from the state stating that compliance has been achieved

Reference: Table 1 and Diagram 1

The state has collected and compiled data requested by the FCC relating to elements in paragraphs 1,2,& 3.a,b, above and has provided this data in Table 1. Diagram 1 provides a graphical showing of locations for Mobile Relay Stations (FB2) stations. Specific data provided in Table 1 includes:

6. location, coordinates, and elevations of FB2 class stations
7. unauthorized frequencies presently in use and by geographical location
8. proposed frequencies that have met frequency coordination requirements and that can be submitted for station authorization and associated temporary station authorizations for conventional FB2 operation.
9. a number key to relate table information to site information

State staff has completed frequency searches for approximately 45% of locations where FB2 operation is in place on unauthorized frequencies. By obtaining inter-service sharing approval from the American Association of State Highway and Transportation Officials (AASHTO) and Forestry Conservation Service, it will be possible for the state to achieve compliance. Concurrence letters for those frequencies that require inter-service sharing from the respective service coordinator will be filed and provided to the coordination service completing DPS applications.

The FCC's request for the state to provide engineering documents that support frequency coordination findings will be provided with each submitted application. In completing frequency searches, coordination, and engineering interference contours, the State has utilized Radio Engineering Software by RadioSoft to complete the following tasks:

- a. Search FCC Granted and Pending databases
- b. Provide analysis for frequency ranking, contours and Matrix analysis:
- c. Provide engineering support documentation that provides technical parameters and calculations for interference or service contours for proposed frequencies shown in Table 1.

Frequency searches will be performed utilizing Public Safety frequency allocations described under CFR 47, Part 90, Subpart B, 90.15- 90.20.

APPLICATION PROCESS

Identified frequencies will be submitted to the American Association of State Highway and Transportation Officials (AASHTO) for coordination approval. Upon submittal to the FCC, the State will request a temporary station authorization. Information shown under Appendix A will be updated daily showing current status and will be available for review upon request.

PROGRAM TIMEFRAME

Timeframes to complete compliancy will be established based on time required to complete those tasks identified as follows:

- a. frequency engineering and coordination
- b. completion of FCC 601 applications
- c. completion of requests for STA's
- d. programming of DPS user equipment to remove unauthorized frequencies and replace with authorized frequencies
- e. programming of FB2 Class stations throughout the state
- f. retuning of antenna filtering systems to include receiver multicouplers, and transmitter combiners
- g. development of user operational plan

Assumptions used to establish and set hours or man days necessary to complete elements in paragraphs a -g include:

- h. programming of user equipment identified under task d. An average of 30 minutes per user device to include administrative coordination and scheduling, programming/test equipment setup, connection and cleanup, and operational check. Current inventory reflects an estimated 2000 pieces of user equipment. Estimated timeframe for this task is 1000 hours or twenty five man days.
- i. programming of FB2 class station equipment and associated tuning of receiver multicouplers and combiners is estimated at 1 day per site@ 60 sites. Estimated timeframe is sixty man days.
- j. administrative time to provide program management and development of operational support plans. An estimated time for this element is 80 man hours.

NOTE: Table 1 provides an asterisk by FB2 stations that presently require snow cat or helicopter support for access. Adverse weather will impact timeframes to accomplish FB2 reprogramming for compliancy.

The state will allocate 9 staff resources to complete logistical issues of re-channeling the DPS system, 2 staff resources to address frequency engineering and coordination. Management staff from both NDOT and DPS will address program/project management, and those issues associated with operational plans. Estimated timeframes are:

2 weeks	completion of frequency engineering/coordination
1 week	completion of applications and submittal of applications
1 week	completion and processing of sta's
2 weeks	completion of programming of site and user equipment
1 week	contingency

Pending weather delays due to site accessibility, an estimated 7 weeks will be required for full compliance upon approval of the process described in this plan.

FCC ACCEPTANCE PLAN

The requirements placed on the state to show method and process to become compliant must be approved by the FCC. The state submits this plan for review and comment and will commence to follow established tasks and timeframes. As noted, several activities have been started and must be completed as part of any approved plan.

There is also a need to bring closure and a final acceptance that the state has complied with Federal Communications Commission directions and it's rules and regulations regarding the DPS system. To this extent, the state will provide the Commission with monthly status/progress reports and upon completion of the attached program plan will provide a letter of completion and statement of compliance from the state to the FCC. By that letter, the state will guarantee that all elements and tasks included in this document have been completed.

TABLE 1

4/18/03 16:30

SITE NAME	MAP DESIG	LAT	LON	ELEV	EXIST FREQ TX	EXIST FREQ RX	PROP FREQ TX	PROP FREQ RX	APP SUBMIT	STA REQUEST
ALAMO	35	37-20-39.	115-15-26.8	1856	151.4375	161.0475	154.0550	158.8500	04/11/03	
					151.3475	161.2575	154.7400	158.9400		
					154.6800	160.6950	154.8600	159.0300		
					465.4375	465.4375	465.5500	460.5500	MISSED	
ANGELS	20	36-19-05.	115-34-26.	2620	154.6800	160.9650	153.8600	158.7900	04/16/03	
					154.1300	160.9200	153.9800	158.9250		
					151.0400	160.9050	154.6500	159.1500		
BEAVER *	33	37-09-18.0 N	113-53-01.0 W	2244	151.4300	161.0550	153.8600	158.7900	04/16/03	
					151.2350	160.9950	153.9800	158.9250		
					151.0100	160.9800	154.6500	159.1500		
CHRISTMAS TREE	5	35-14-58.0 N	114-44-33.0 W	1427	151.0550	160.6800	154.6500	159.2850	04/10/03	
					151.2800	160.6950	155.1900	159.0000		
					154.6800	160.7100				
POTOSI	8	35-57-24.7 N	115-29-49.6 W	2388	156.1350	160.7550	154.9425	158.7225	04/10/03	
					151.2200	160.7850	155.4525	159.4725		
					151.0700	160.7250				
					156.0000	160.8000				
					158.0750	160.8750				
ARDEN	18	35-56-43.0 N	115-02-33.0 W	1286	151.0850	160.4550	151.0850	159.4050	04/15/03	
					151.2800	160.4400	151.2800	159.2920		
					154.2650	160.3950				
					154.7550	160.3800				
					155.4300	160.3500				
APEX	21	36-20-01.3 N	114-58-34.3 W	1027	151.1000	161.1000	154.9200	159.4125	04/15/03	
					154.1450	161.1150	156.4425	159.3000		
					154.9200	161.2050				
					155.5650	161.1450				
					155.8500	161.3550				
HILTON	17	36-08-07.0 N	115-09-50.0 W	629	151.1300	160.4700	156.1200	159.4275	04/11/03	
					151.4000	160.4850	151.3700	170.4250		
					154.3100	160.6350	151.4300	170.5750		
					155.3100	160.5600				
					155.5050	160.5750				
PAHRUMP SO.		36-07-00.9 N	115-56-49.7 W	829	151.1300	160.4700	155.0625	158.7225	04/15/03	
					151.4000	160.4850	155.6475	159.4200		
					154.3100	160.6350	156.0000	159.2475		
					155.3100	160.5600				
					155.5050	160.5750				
BEACON HILL	28	36-41-07.1	114-31-09.2	609	154.4450	161.0475	155.7900	158.9400	04/11/03	
HIGHLAND *	37	37-53-37.8 N	114-34-41.9 W	2848	151.0175	161.0475	153.7400	158.7300	04/16/03	
					151.2275	161.2575	153.8750	158.8500		
					154.6800	160.6950	154.6800	159.0300		
					465.4375	465.4375	460.5500	465.5500		
COLUMBUS		38-09-39.1 N	118-00-12.5 W	1568	151.1075	161.0175	153.9800	158.7300	04/11/03	
					151.2875	151.2275	154.1150	154.1150		
					154.6950	160.6950	154.6950	159.0300		
SAWTOOTH	119	36-56-08.6 N	116-51-02.3 W	1730	151.0025	161.0175	153.7400	158.7300	04/15/03	
					154.6800	160.6950	154.6800	159.0300		
SKULL	182	36-46-33.7 N	116-10-25.3 W	1794	151.2125	161.0175	153.9200	158.8725	04/15/03	
MILLER *	113	38-02-30.0 N	118-11-15.0 W	2317	151.0925	161.0025	154.0550	158.7300		
ROUND MTN		38-42-21.4 N	117-05-00.0 W	1889	154.9050	161.4525	154.9050	158.8200	04/11/03	
					161.0175	151.0325	158.7300	153.7400		
BROCK	46	38-03-06.9	117-13-33.4	2130	151.0325	161.0175	153.7400	158.7300	04/15/03	
					151.2425	161.2275	153.8450	158.9100		
					154.6950	160.6950	154.6950	159.0300		
					465.4275	465.4375	460.5500	465.5500		
WARM SPRINGS	47	38-11-30.7 N	116-25-04.2 W	2254	151.0025	161.0175	153.8000	158.7600	04/15/03	
					151.2125	161.2275	153.9200	158.8800		

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TABLE 1

4/18/03 16:30

SITE NAME	MAP	LAT	LON	ELEV	EXIST FREQ	EXIST FREQ	PROP FREQ	PROP FREQ	APP SUBMIT	STA REQUEST
	DESIG				TX	RX	TX	RX		
					465.4375	465.4375	465.5500	460.5500		
							460.5625	465.5625	^^^	
AUSTIN *	76	39-27-13.3	117-06-16.4	2547	151.2125	161.0925	153.8000	159.1500		
BALD MTN *		38-47-03.7	118-50-02.5	2798	151.2275	161.0025	153.8225	159.2400		
					151.0175	161.2125	151.2050	158.8725		
					154.6950	160.6950	154.6950	159.0300		
BALD PK (EAST) *	91	40-19-21.9	114-33-45.	2608	151.1225	161.0025	153.7550	159.1500		
					151.3325	161.2125	153.8600	158.9400		
					154.6950	160.6950	154.6950	159.0300		
BROCKWAY *	181	39-15-48.	120-03-57.	2315	156.1200	161.0850				
					155.1300	160.9950				
					151.1300	160.9800				
CAVE MTN *	68	39-09-40.4 N	114-36-53.1 W	3260	151.0475	161.0325	153.7550	158.7300		
					151.2575	161.2425	153.8600	158.8350		
					154.6950	160.6950	154.6950	159.0300		
DENIO SUMMIT		41-52-19.7	118-35-10.2	1528	155.6775	155.6775				
					161.0925	151.0475				
DOUBLE H	111	41-28-26.5	118-03-25.3	1526	151.0025	161.5350				
					465.4375	465.4375				
EAST PEAK *		38-56-35.1	119-54-26.2	2907						
EAGLE RIDGE *	75	39-29-17.	119-17-52.	2095	155.5950	160.8450				
					154.8300	160.8300				
					151.2350	160.7850				
					151.0250	160.7700				
ELKO MTN *	96	40-53-39.6 N	115-37-48.7 W	2278	151.2575	161.1075	153.7400	158.7600		
					151.0475	161.2875	153.8450	158.8650		
					154.6950	160.6950	154.6950	159.0300		
ELKO NHP		40-51-50.	115-43-57.	1562	465.4375	465.4375	460.5500	465.5500		
ELLEN DEE *	110	41-47-06.7 N	114-50-25.8 W	2527	151.0325	161.0025				
					151.2425	161.2125				
FAIRVIEW PK *	82	39-13-30.5 N	118-09-09.2 W	2502	153.9500	161.3620	153.7400	158.7300		
					151.0475	161.1525	153.8450	158.8800		
					154.6950	160.6950	154.6950	159.0300		
FLAT CREEK		41-43-46.8	117-43-02.3	1444	154.9050	154.9050				
					161.5350	151.0025				
GRINDSTONE *		40-41-58.0 N	115-54-11.8 W	2231	151.4150	161.1075	153.8000	158.7900		
					465.4375	465.4375	465.5500	460.5500		
KIMBERLY	74	39-18-30.6 N	115-05-09.0 W	2805	153.7850	161.0325	154.1150	158.7750		
					465.4375	465.4375	465.5500	460.5500		
MARYS *	94	40-42-48.4 N	116-16-15.2 W	2282	151.4000	161.1075	153.8000	158.7600		
					151.1075	161.2875	153.9050	158.8650		
MCCLELLAN *	69	39-15-43.0 N	119-42-15.0 W	2255	155.4750	155.4750	155.4750	155.4750		
OPHIR *		39-19-10.7	119-40-11.6	2372	155.5650	160.8150				
					154.8150	160.7850				
					154.0250	160.4400				
					151.1450	160.6350				
					151.0550	160.2450				
					10633.1250	10568.1250	10633.1250	10568.1250		
PATRICK	80	39-33-08.7	119-32-03.9	1395	155.7450	161.2800	154.0550	159.0900		
					154.8450	161.2500	151.1825	159.3000		
					154.0250	161.3550				

C-1006 14

4/18/03 16:30

* = SITE ACCESS LIMITED BY SNOW

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Federal Communications Commission
Washington, D.C. 20554

May 23, 2003

State of Nevada
Office of the Governor
101 N. Carson Street
Carson City, Nevada 89701

Attention: Michael D. Hillerby
Deputy Chief of Staff
Office of the Governor

Re: Nevada Department of Public Safety Radio System Plan

Dear Mr. Hillerby:

Thank you for your letter, dated April 21, 2003, regarding a proposed "compliance plan" for the State of Nevada (Nevada) Department of Public Safety (DPS) radio communications system. In your letter, you state that Nevada intends to move the DPS from its current VHF radio system to the 800 MHz system utilized by the Nevada Department of Transportation as soon as possible. You also state that Nevada currently does not intend to seek ways to be able to use the current VHF system as a long-term solution for addressing the radio communications needs of the DPS.

Based on the information currently before us, it is our understanding that in September of 2002, Nevada, through an "internal review of issues regarding the DPS VHF radio system," learned that the DPS had not received authorization from the FCC for the frequencies utilized in its VHF radio system. Nevada informed Commission staff of the unauthorized use of the frequencies in late February of this year. Since that time Commission staff has worked closely with Nevada representatives to identify the scope of the problem and an effective and expeditious resolution thereof. In this regard, it now appears that the DPS system utilizes 141 frequencies (79 of which are designated for public safety use and 62 of which are designated for railroad use) and 52 mountain top sites throughout Nevada and the State of Utah.

Against this backdrop, we note, as an initial matter, that the unauthorized use of radio frequencies is not only a violation of the Commission's rules. Here, such violation also threatens the integrity of public safety communications. Consequently, while we are interested in assisting Nevada in its efforts to come into compliance with the Commission's rules, we believe that the DPS unauthorized use of over 100 channels must be discontinued at the earliest opportunity. We are concerned that such unauthorized use will cause interference to licensed radio systems, some of which may be used in connection with public safety, homeland security and/or mass transportation operations.

C-120614

Mr. Michael D. Hillerby

May 23, 2003

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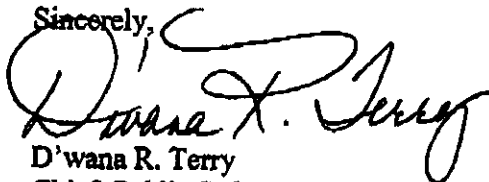
We nonetheless are encouraged by your proposed compliance plan indicating that the DPS's radio operations will become compliant with the applicable Commission rules within a seven-week timeframe. Given that Nevada has proposed such an approach after its study of the existing DPS system and communications needs, we are confident that the time frame and the described elements of the compliance plan are attainable. Accordingly, consistent with its proposal, we hereby request that Nevada, no later than June 9, 2003, provide this office with a letter of completion and statement that all unauthorized operation of radio frequencies by DPS has ceased.

In terms of a long-term solution for the radio communications needs of the DPS, please bear in mind that we have not predetermined whether any particular solution should be pursued. We nonetheless believe that it is imperative for Nevada to assess frequency availability issues, including but not limited to whether concurrence of other licensees or user groups will be required, in evaluating its alternatives. We also encourage your office to use this opportunity to determine whether there are significant public safety communications gains that can be realized with particular long-term solutions, such as increased interoperability, spectrum efficiency and/or wide-area operations capability. Regardless of the long-term solution ultimately chosen, Nevada must obtain FCC authority before it commences operations and must comply with all applicable Commission rules and regulations governing use of the specific frequencies utilized.

Finally, given the scope and duration of the unauthorized operation by the DPS, a formal investigation of this matter is underway at the Commission. We will seek to learn of the specific circumstances leading up to this problem, including whether particular persons or entities directly or indirectly contributed to the DPS implementing a radio communications system without proper FCC authorization. We believe such information will be helpful not only in resolving this matter, but also in avoiding any recurrences in the future.

We are poised to continue the constructive working relationship with staff in Nevada, and await your letter in early June reporting on the termination of all unlicensed operations. We nonetheless note that such efforts are without prejudice to future enforcement action, should the FCC determine such action to be appropriate.

Sincerely,



D'wana R. Terry

Chief, Public Safety & Private Wireless Division
Wireless Telecommunications

cc: Keith G. Munro, General Counsel, Nevada Governor's Office

April 7, 2003

Federal Communications Commission
445 12th Street, SW
Room 4-C324
Washington, D.C. 20554

Attention: Jeanne Kowalski, Deputy Chief
Public Safety & Private Wireless Division
Wireless Telecommunications Bureau

Re: Nevada DPS VHF Radio System

Dear Ms. Kowalski,

Thank you for taking the time today to talk to me and several others here in Nevada about the Nevada Department of Public Safety (DPS) VHF Radio system. The Governor is aware and concerned about the issues associated with the DPS Radio system. The intent of the State of Nevada is to immediately request funding from the Nevada Legislature and to migrate from the VHF radio system to the Nevada Department of Transportation 800 MHz system. It is our intent to vacate non-licensed frequencies currently being used by the DPS radio system as soon as possible, recognizing that our DPS can only operate now on the VHF system.

A plan will be submitted to your office by April 21, 2003 detailing a migration path from the current VHF system to the 800 MHz system. This plan will include the identification of other VHF frequencies and a methodology to utilize existing VHF system operations in a conventional manner during the transition to the Nevada Department of Transportation's 800 MHz system. The plan will specifically identify timeframes and frequencies of the transition, and the priority process to move DPS off of the non-public safety frequencies.

To facilitate communications between your office and the State of Nevada, the State's primary point of contact will be the team of Mr. Terry Savage, Director of the Department of Information Technology; Robert Chisel, Nevada Department of Transportation; and Mr. Dave Kieckbusch, Deputy Director, Nevada Department of Public Safety.

If at any time you need to contact this office, please feel free to call me directly. Thank you again for your time and patience.

Sincerely,

Michael D. Hillerby,
Deputy Chief of Staff

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