

FREQUENCY COORDINATION AND INTERFERENCE
ANALYSIS REPORT

PREPARED FOR
U.S. SATELLITE CORPORATION
MURRAY, UT
SATELLITE EARTH STATION
(9.2 Meter)

PREPARED BY
COMSEARCH
2002 EDMUND HALLEY DRIVE
RESTON, VIRGINIA 20191
August 18, 1999

TABLE OF CONTENTS

1. CONCLUSIONS
2. SUMMARY OF RESULTS
3. SUPPLEMENTAL SHOWING, RE: PART 25.203(C)
4. EARTH STATION COORDINATION DATA
5. CERTIFICATION

1. CONCLUSIONS

AN INTERFERENCE STUDY CONSIDERING ALL EXISTING, PROPOSED AND PRIOR COORDINATED MICROWAVE FACILITIES WITHIN THE COORDINATION CONTOURS OF THE PROPOSED EARTH STATION DEMONSTRATES THAT THIS SITE WILL OPERATE SATISFACTORILY WITH THE COMMON CARRIER MICROWAVE ENVIRONMENT. FURTHER, THERE WILL BE NO RESTRICTIONS OF ITS OPERATION DUE TO INTERFERENCE CONSIDERATIONS.

2. SUMMARY OF RESULTS

A NUMBER OF GREAT CIRCLE INTERFERENCE CASES WERE IDENTIFIED DURING THE INTERFERENCE STUDY OF THE PROPOSED EARTH STATION. EACH OF THE CASES WHICH EXCEEDED THE INTERFERENCE OBJECTIVE ON A LINE-OF-SIGHT BASIS WAS PROFILED AND THE PROPAGATION LOSSES ESTIMATED USING NBS TN101 (REVISED) TECHNIQUES. THE LOSSES WERE FOUND TO BE SUFFICIENT TO REDUCE THE SIGNAL LEVELS TO ACCEPTABLE MAGNITUDES IN EVERY CASE.

3. SUPPLEMENTAL SHOWING
RE: PART 25.203 (C)

PURSUANT TO PART 25.203 (C) OF THE FCC RULES AND REGULATIONS,
THE SATELLITE EARTH STATION PROPOSED IN THIS APPLICATION
WAS COORDINATED BY COMSEARCH USING COMPUTER TECHNIQUES
AND IN ACCORDANCE WITH PART 25 OF THE FCC RULES AND
REGULATIONS.

COORDINATION DATA FOR THIS EARTH STATION WAS SENT TO THE
BELOW LISTED CARRIERS WITH A LETTER DATED JULY 16, 1999.

ALL WEST COMMUNICATIONS, INC.
AMERICAN RURAL CELLULAR, INC.
AT&T COMMUNICATIONS
AT&T COMMUNICATIONS OF MOUNTAIN STATES
CELLULAR INC., NETWORK CORPORATION
CITIZENS COMMUNICATIONS CO. OF UTAH
DESERET GENERATION & TRANSMISSION COOP
EMERY TELEPHONE
IHC HOSPITALS, INC.
LEGACY WORLDCOM
MCCAW COMM. OF THE MIDSOUTH - PROVO
MCCAW COMM. OF THE MIDSOUTH - SALT LAKE
MCCAW COMM. OF THE MIDSOUTH - UT 1 BOX E
METRO TRAFFIC CONTROL INC
PACIFICORP UTAH POWER CORPORATION
PEAK CABLEVISION
PILOT BUTTE TRANSMISSION CO., INC.
QUESTAR INFOCOMM, INC.
SPECIALTY ANTENNA SITE RESOURCES, INC.
UA CABLE OF CENTRAL WYOMING - CASPER
UNION TELEPHONE COMPANY, INC.
US WEST COMMUNICATIONS, INC.
UTAH COMMUNICATIONS INC
UTAH STATE
UTAH STATE HIGHWAY PATROL
VOICESTREAM PCS BTA 1 LICENSE CORP.
WESTERN TELE-COMMUNICATIONS, INC.

4. EARTH STATION COORDINATION DATA

THIS SECTION PRESENTS THE DATA PERTINENT TO FREQUENCY COORDINATION OF THE PROPOSED EARTH STATION WHICH WAS CIRCULATED TO ALL COMMON CARRIERS WITHIN ITS COORDINATION CONTOURS.

SATELLITE EARTH STATION
FREQUENCY COORDINATION DATA
07/16/99

Company	U.S. SATELLITE CORPORATION		
Owner code	P9025		
Earth Station Name, State	MURRAY, UT		
Latitude (DMS)	40 38 53.3 N		
Longitude (DMS)	111 55 00.4 W		
Ground Elevation AMSL (Ft/m)	4265.0 / 1299.9		
Antenna Centerline AGL (Ft/m)	16.0 / 4.9		
Receive Antenna Type:	R40924	SATCOM TECH.	
		920CS	
4 GHz Gain (dBi) / Diameter (m)	50.1 /	9.2	
3 dB / 15 dB Half Beamwidth	0.26 /	0.53	
Transmit Antenna Type:	R60924	SATCOM TECH.	
		920CS	
6 GHz Gain (dBi) / Diameter (m)	53.0 /	9.2	
3 dB / 15 dB Half Beamwidth	0.19 /	0.39	
Operating Mode	TRANSMIT AND RECEIVE		
Modulation	ANALOG & DIGITAL		
Emissions:	30K0G8E, 360KF8E, 1M20G7D, 1M23G7D, 1M34G7D, 2M98G7D, 18M0G7D, 36M0G7D, 36M0F8W		
Receive Band (MHz)	3700.0000 - 4200.0000		
Transmit Band (MHz)	5925.0000 - 6425.0000		
Max. Available RF Power (dBW)/4 kHz)	6.60		
(dBW)/MHz)	30.60		
Max. EIRP	(dBW)/4 kHz)	59.60	
	(dBW)/MHz)	83.60	
	(dBW)	0.00	
Max permissible Interference Power			
4 GHz, 20% (dBW/1 MHz)	-150.0		
4 GHz, 0.0100% (dBW/1 MHz)	-130.0		
6 GHz, 20% (dBW/4 kHz)	-154.0		
6 GHz, 0.0025% (dBW/4 kHz)	-131.0		
Range of Satellite Arc (Geostationary)			
Degrees Longitude	40.0 W / 184.0 W		
Azimuth Range (Min/Max)	102.0 / 258.1		
Corresponding Elevation Angles	5.0 / 4.8		
Radio Climate	A		
Rain Zone	5		
Max Great Circle Coordination Distance (Mi/Km)			
4 GHz	297.9 / 479.5		
6 GHz	318.0 / 511.8		
Precipitation Scatter contour radius (Mi/Km)			
4 GHz	80.8 / 130.0		
6 GHz	91.0 / 146.5		

Table of Earth Station Coordination Values
07/16/99

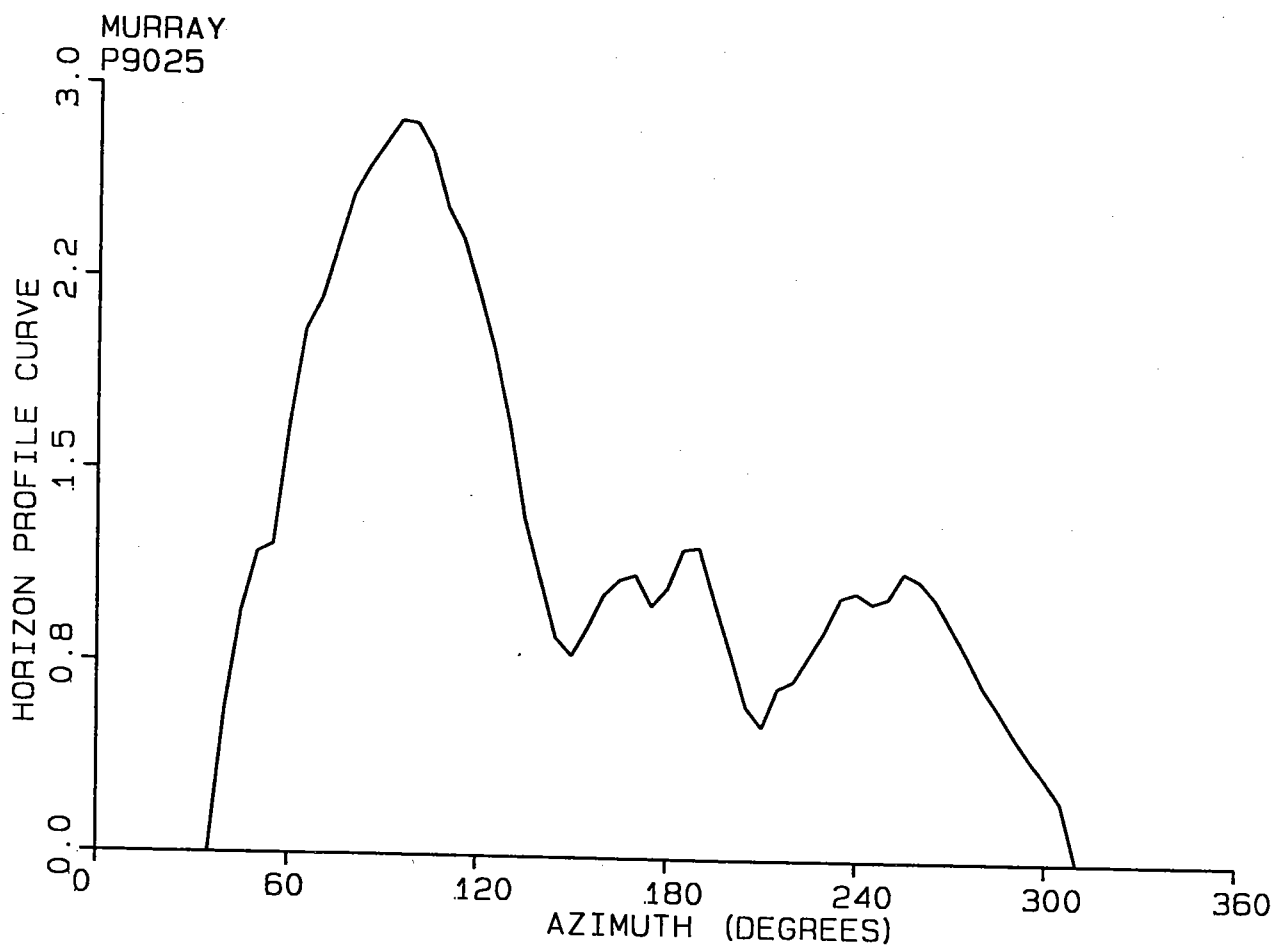
Earth Station Name MURRAY UT
 Owner U.S. SATELLITE CORPORATION
 Latitude 40 38 53.3 N
 Longitude 111 55 00.4 W
 Ground Elevation (Ft/m) 4265.0 / 1299.9 AMSL ACL 16.0 Feet AGL
 Antenna Model SATCOM TECH. 920CS
 Objectives: Receive -150.0 (dBW /1 MHz)
 Transmit -154.0 (dBW /4 kHz) TX Power 6.6 (dBW/4 kHz)

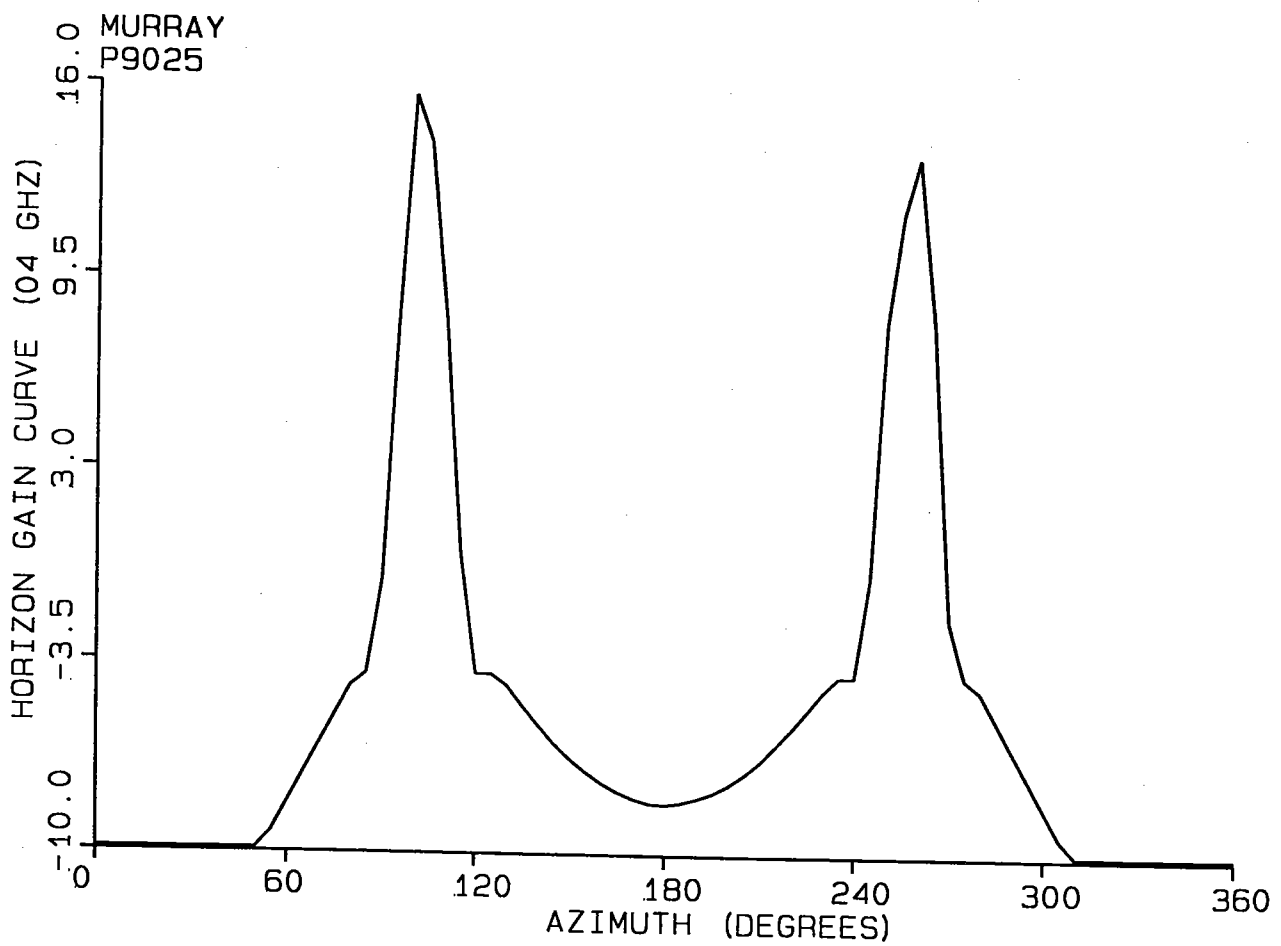
Azimuth (Deg)	Horizon Elevation Angle (Deg)	Antenna Disc. Angle (Deg)	4 GHz		6 GHz	
			Antenna Gain (dBi)	Coordination Distance (Km)	Antenna Gain (dBi)	Coordination Distance (Km)
0	0.00	101.85	-9.90	204.7	-12.37	197.3
5	0.00	96.98	-9.90	204.7	-12.00	198.8
10	0.00	92.00	-9.90	204.7	-12.00	198.8
15	0.00	87.02	-9.90	204.7	-12.00	198.8
20	0.00	82.04	-9.90	204.7	-12.00	198.8
25	0.00	77.06	-9.90	204.7	-12.00	198.8
30	0.00	72.08	-9.90	204.7	-12.00	198.8
35	0.00	67.10	-9.90	204.7	-12.00	198.8
40	0.00	62.12	-9.90	204.7	-11.27	201.5
45	0.20	57.14	-9.90	204.7	-10.00	204.8
50	0.20	52.16	-9.90	204.7	-10.00	204.8
55	0.20	47.19	-9.34	206.8	-9.44	206.9
60	0.30	42.22	-8.34	203.7	-7.89	205.1
65	0.30	37.26	-7.35	205.1	-5.90	211.5
70	0.30	32.31	-6.36	209.1	-4.46	217.7
75	0.30	27.38	-5.38	213.2	-2.95	224.3
80	0.20	22.49	-4.40	227.7	-1.00	243.9
85	0.30	17.62	-3.90	219.6	0.95	242.9
90	0.30	12.87	-3.38	222.0	4.00	258.3
95	0.40	8.35	8.10	274.0	8.00	270.1
100	0.50	4.89	11.55	474.9	11.23	508.4
105	0.60	5.28	10.54	352.8	10.72	368.9
110	0.60	8.82	8.10	255.8	8.00	253.1
115	0.70	12.36	-1.36	204.1	4.00	226.8
120	0.70	15.91	-3.90	193.4	1.64	215.4
125	0.70	19.36	-3.90	193.4	0.26	209.1
130	0.80	22.62	-4.42	185.9	-1.05	200.0
135	0.80	25.82	-5.06	183.1	-2.33	194.4
140	0.70	28.92	-5.68	185.7	-3.57	194.3
145	0.60	31.83	-6.27	188.5	-4.37	196.1
150	0.60	34.41	-6.78	186.3	-4.88	193.9
155	0.50	36.80	-7.26	189.7	-5.72	195.7
160	0.30	38.95	-7.69	206.2	-6.58	208.7
165	0.30	40.55	-8.01	205.0	-7.22	206.1
170	0.20	41.83	-8.27	211.0	-7.73	213.7
175	0.00	42.76	-8.45	210.3	-8.10	212.2
180	0.00	43.00	-8.50	210.1	-8.20	211.8

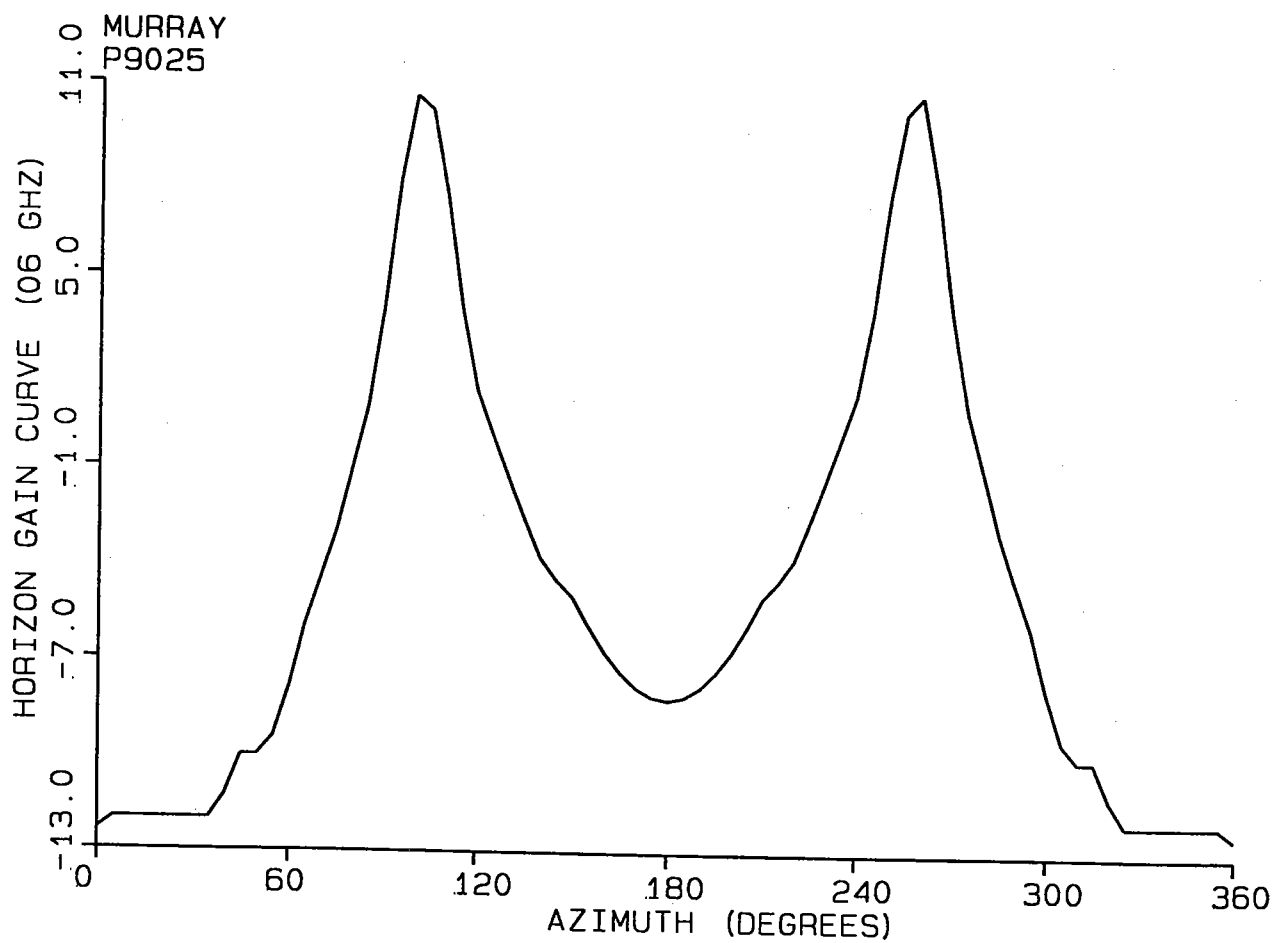
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Azimuth (Deg)	Horizon Elevation Angle (Deg)	Antenna Disc. Angle (Deg)	4 GHz		6 GHz	
			Antenna Gain (dBi)	Coordination Distance (Km)	Antenna Gain (dBi)	Coordination Distance (Km)
185	0.00	42.76	-8.45	210.3	-8.10	212.2
190	0.20	41.83	-8.27	211.0	-7.73	213.7
195	0.30	40.55	-8.01	205.0	-7.22	206.1
200	0.40	38.86	-7.67	197.2	-6.54	201.3
205	0.50	36.80	-7.26	189.7	-5.72	195.7
210	0.50	34.49	-6.80	191.7	-4.90	199.2
215	0.60	31.83	-6.27	188.5	-4.37	196.1
220	0.90	28.77	-5.65	174.9	-3.51	184.0
225	0.90	25.74	-5.05	177.8	-2.30	189.4
230	0.90	22.55	-4.41	180.6	-1.02	195.1
235	0.90	19.22	-3.90	182.9	0.31	201.0
240	0.90	15.77	-3.90	182.9	1.69	205.5
245	0.90	12.22	-0.80	196.6	4.00	216.2
250	0.90	8.62	8.10	237.1	8.00	236.4
255	0.90	5.01	11.09	350.4	10.99	366.8
260	0.90	4.36	13.37	479.4	12.27	511.7
265	1.00	7.88	8.10	231.3	8.12	231.6
270	0.90	12.52	-1.98	191.4	4.00	216.2
275	0.80	17.36	-3.90	188.2	1.06	207.6
280	0.70	22.26	-4.35	191.5	-0.91	205.7
285	0.60	27.20	-5.34	192.5	-2.88	202.4
290	0.50	32.16	-6.33	193.7	-4.43	201.2
295	0.40	37.12	-7.32	198.6	-5.85	204.2
300	0.30	42.09	-8.32	203.8	-7.84	205.3
305	0.00	47.09	-9.32	206.9	-9.42	207.0
310	0.00	52.06	-9.90	204.7	-10.00	204.8
315	0.00	57.03	-9.90	204.7	-10.00	204.8
320	0.00	62.00	-9.90	204.7	-11.20	201.8
325	0.00	66.98	-9.90	204.7	-12.00	198.8
330	0.00	71.96	-9.90	204.7	-12.00	198.8
335	0.00	76.94	-9.90	204.7	-12.00	198.8
340	0.00	81.92	-9.90	204.7	-12.00	198.8
345	0.00	86.91	-9.90	204.7	-12.00	198.8
350	0.00	91.89	-9.90	204.7	-12.00	198.8
355	0.00	96.87	-9.90	204.7	-12.00	198.8







5. CERTIFICATION

I HEREBY CERTIFY THAT I AM THE TECHNICALLY QUALIFIED PERSON RESPONSIBLE FOR THE PREPARATION OF THE FREQUENCY COORDINATION DATA CONTAINED IN THIS APPLICATION, THAT I AM FAMILIAR WITH PARTS 101 AND 25 OF THE FCC RULES AND REGULATIONS, THAT I HAVE EITHER PREPARED OR REVIEWED THE FREQUENCY COORDINATION DATA SUBMITTED WITH THIS APPLICATION, AND THAT IT IS COMPLETE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

BY:



GARY K. EDWARDS
MANAGER SATELLITE SERVICES
COMSEARCH
2002 EDMUND HALLEY DRIVE
RESTON, VIRGINIA 20191

DATED: August 18, 1999

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