



**Chapter 24, Inc.
Madison, Wisconsin**

Society of Broadcast Engineers

August 2000

TELECOM INDUSTRY NEWS

By Neal McLain

PROTECTING WMSN'S FIBER - PART 2

The WMSN fiber has survived the construction project at the intersection of the West Beltline and Mineral Point Road. It's now safely buried at least two feet below new pavement on the south side of Mineral Point.

THE SIX-LANE EXPANSION

For those who missed Part 1 of this story (as reported in the March *Newsletter*), here's a quick review.

The Wisconsin Department of Transportation (WISDOT) is reconstructing three interchanges along West Beltline Highway (US 12/14) in southwest Madison. One of these interchanges is at West Mineral Point Road, where the department is widening Mineral Point. By the time the job is done, Mineral Point will have six through lanes all the way from Gammon Road to Junction Road. In the area immediately under the Beltline overpass, there will be eight lanes, six for through traffic and two for left-turn traffic (Figure 1).

There are numerous underground utility transmission facilities at this interchange. Besides the usual water, gas, and sewer lines, there are fiber optic facilities owned by five companies:

- Charter Communications, the franchised cable television operator.
- KMC Telecom, a competitive local telephone exchange carrier (CLEC).
- Mid-Plains Telephone, the incumbent local telephone exchange carrier (ILEC).
- TDS MetroCom, another CLEC.
- WMSN, Madison's Fox affiliate broadcast station.

(continued on page 4)

Next Meeting:

**Thursday,
August 24, 2000**

Broadcast Antennas

**Dutch Treat Dinner
at 5:30 PM**

**at Babes Bar and Grill
5614 Schroeder Rd**

**Meeting and Program
at 7:00 PM**

**at WISC-TV
7025 Raymond Rd**

In This Issue:

Minutes.....	page 2
Auction Delays	page 3
Amateur Radio News ...	page 3
New CC/DVS Rules	page 5
FCC Rulemakings	page 6

Madison Community Tower Activities

By Ken Dixon

Regardless of the COFDM vs 8VSB debate currently raging, the industry continues to move incrementally toward those mandated DTV broadcast dates of 1 MAY 2002 and 1 MAY 2003. The Madison market is as deeply involved in these efforts as any other location in the country, and is fortunate to have the candelabra tower as a resource able to accommodate both the NTSC and DTV needs of the local broadcasters. Even with the candelabra towers massive size and recent construction, it will require the addition of considerable additional reinforcement and the

replacement of several levels of guy cables before the mounting of the new DTV antennas and transmission lines can occur.

It has not been a quick or easy process to create the plan of action for this project; it is the result of several engineering studies and reports along with input from technical consultants, organizational financial people, and administrators. Considerable concern continues to exist over the effects of power reductions and pattern distortion, time-frames, and cost. Each tenant is dealing with these issues in the best way they can considering the

resources available to each. There are advocates for making the modifications now, and for delaying; the majority being for progressing quickly. The following describes the major points of the plan, starting with the existing configuration.

The current tower top configuration has the WKOW-TV, CH-27/WKOW-DT, CH-26, antenna located on the West arm of the star mount; WMSN, CH-47, on the South-East arm; and WHA-TV, CH-21, with WISC-TV, CH-3, stacked above, on the North-East arm.

In the new configuration, WKOW-TV,
(continued on page 7)

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July Business Meeting Minutes

Chapter 24 of the Society of Broadcast Engineers met on Wednesday, July 19, 2000 in Middleton, Wisconsin at Mendota County Park for the Annual SBE Chapter 24 Picnic and Horseshoe Tournament. There were 14 members in attendance, 12 of who were certified, and 3 guests.

Chairperson Kevin Ruppert called the meeting to order at 7:27 PM. Minutes of the June meeting, as published in the July newsletter, were approved as published.

Treasurer Stan Scharch reported that the chapter treasury is in the black.

Newsletter Editor, Mike Norton, reported the deadline for the next newsletter as midnight on Friday, August 4, with the folding party the following Wednesday, August 9 at WKOW-TV beginning at 5:30 PM.

Membership Coordinator, Paul Stoffel, was not present. Sustaining Membership Coordinator, Fred Sperry, did not have any new information to report.

Program Committee, Denise Maney, announced that the next meeting would be held on Thursday, August 24. Dinner will be held at Babe's Grill & Bar from 5:30 PM – 6:45 PM. Steve Paugh announced that the business meeting and program would be held in the conference room at WISC-TV at 7:00 PM. The program will be a Power Point presentation by Jampro Antennas. The ramifications of side-mounting an antenna on a tower will be discussed.

Certification, Jim Hermanson, reported that three re-certifications had been completed.

Frequency Coordinator, Tom Smith, reported that he has been approached by Boykin And Associates, the communications provider for an auto race at Madison International Speedway (MIS) in Oregon, Wisconsin. The coordinators have asked for quite a few frequencies in the available spectrum during a racing event to be held on August 16 -18, 2000. Tom is researching the request.

National Liaison, Leonard Charles, did not have any changes to report. For Professional Announcements, Neal McLain acknowledged that he is officially retiring again, and will be moving to Utah.

Kevin Ruppert adjourned the business meeting at 7:32 PM.

The evening's meeting was followed by a horse shoe tournament with the team of Greg Maney and Tom Weeden competing against the team of Dan Maney and Mike Norton. The victorious team of Maney and Norton was awarded the Golden Horseshoe.

Submitted by Vicki Kipp, Secretary

FCC DELAYS AUCTION

By Tom Smith

On July 31st, the FCC announced they were delaying the start of the auction for the 747-762 and 777-792 MHz bands to March 6, 2001. This delay is due to fear by the FCC that the auction would not get the amount of money that Congress is expecting. This is because the FCC has not come up with rules to aid negotiations between broadcasters who currently occupy the spectrum and the winners of the auction. Potential bidders have suggested that the spectrum would be of less value because it would be limited with broadcasters still using part of it. Many of the stations that occupy TV channels 60-69 are in large markets where spectrum is tighter and more valuable.

Former FCC Chairman Reed Hundt has suggested that the broadcasters on channels 60-69 be forced to give up the channels and accept guaranteed carriage on cable. In fact, Mr. Hundt has suggested to make room for new wireless data services, the FCC should turn to the UHF TV spectrum on channels 14 through 69. Needless to say, the National Association of Broadcasters does not agree with Hundt.

In an article in *WIRELESS WEEK*, Sprint, Nextel, and AT&T were quoted as having enough unused spectrum to provide for new services for up to 10 years.

From FCC Release (www.fcc.gov), *Wall Street Journal*, and *WIRELESS WEEK* (www.wirelessweek.com)



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AMATEUR RADIO NEWS

By Tom Weeden, WJ9H

- Amateur Satellite Corporation (AMSAT) officials are attempting to determine the impact of an Ariane 5 launch delay on Phase 3D—the next-generation Amateur Radio satellite. Arianespace has postponed the launch of Flight 130, scheduled to launch July 25, while it looks into an “anomaly” uncovered during testing. The amateur radio satellite tentatively had been scheduled to launch aboard the next Ariane 5 flight in line after 130. The space agency said it was holding up the Flight 130 launch until an upper stage anomaly detected during endurance testing on Ariane 5 components in Europe could be resolved. The Phase 3D satellite is at the European Spaceport in French Guiana awaiting the start of launch preparations. Its flight had been set for mid-September at the earliest and possibly as late as the end of October.

- The American Radio Relay League has asked the FCC to elevate the domestic status of amateur and amateur-satellite services from secondary to primary in the band 2400 to 2402 MHz. The League filed a Petition for Rule Making with the FCC on July 17. Amateurs already are primary at 2390 to 2400 and from 2402 to 2417 MHz. The ARRL says it’s necessary to secure the intervening spectrum slice “to provide some assurances of future occupancy of the band segments for the next generation of amateur satellites,” including Phase 3D. Hams have shared their other 2.4 GHz spectrum on a secondary basis with government users. In this week’s petition, the League said it wants an allocation that’s not subject to reallocation or use by “an incompatible sharing partner.” The City of Los Angeles recently was granted an experimental license to operate a TV downlink system in the 2402-2448 MHz band. The ARRL has protested that grant as well as a similar application from Los Angeles County.

(Excerpts from the American Radio Relay League’s “The ARRL Letter”)

Thanks to WISC-TV for
maintaining the web server for the
Chapter 24 Web page!

Thanks to WKOW-TV for providing
copying and folding facilities for
the Chapter 24 newsletter!

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TELECOM INDUSTRY NEWS (continued from page 1)

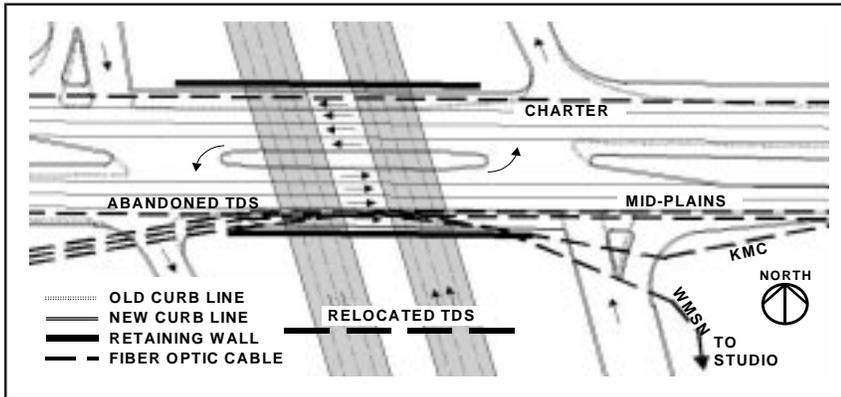


Figure 1. WISDOT Year 2000 Expansion Plan for the West Beltline interchange at Mineral Point Road. Five fiber optic cables cross the Beltline at this interchange. Drawing by the author based on WISDOT construction documents.

WMSN's FIBER CABLE

WMSN's fiber cable contains four separate fibers (Figure 2):

- One fiber serves as an STL, carrying WMSN's program feed from the studio to the transmitter.
- One fiber carries the demodulated transmitter signal back to the studio for monitoring purposes.
- One fiber carries WMSN's daily news program *News at 9* from the transmitter back to the studio. This program is produced at the WKOW-TV studio on Tokay Blvd.; WKOW-TV hands the signal over to WMSN at the Community Tower.
- One fiber carries *Fox NewsEdge*, a satellite-delivered network feed of news packages for use in Fox affiliate newscasts. This signal is carried from the WMSN studio to the transmitter, and thence back to WKOW-TV for use by the *News at 9* production staff.

UTILITY RELOCATION

In order to accommodate the new Mineral Point through lanes, most of

these companies were forced to relocate their facilities. TDS moved its facilities several feet south, outside the project area (Figure 1). Charter had to lower a 100-foot section of conduit to make room for a storm sewer.

KMC Telecom and WMSN joined forces with Madison Gas & Electric (MGE) in a combined effort to relocate two fiber cables and a gas main. Each of these companies entered into separate agreements with InterCon Construction, Inc., a Madison-based construction company. InterCon dug a single trench near the old sidewalk (Figure 3). As this work proceeded:

- KMC and WMSN moved their existing fiber cables into the new trench. Fortunately, there was plenty of slack in both cables so that no new splices were needed.
- MGE has abandoned its old gas main, and installed a new section of main through the new trench.

Once InterCon completed its work, WISDOT's contractor (Lunda Construction of Black River Falls) resumed its work. Lunda has since paved over the entire trench, creating a

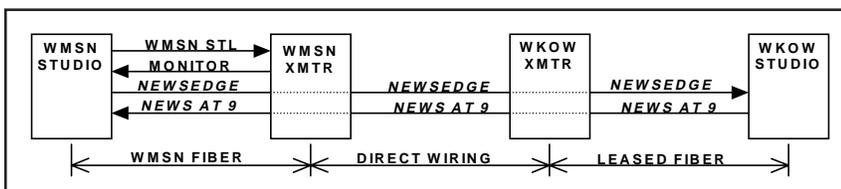


Figure 2. Video signals carried by WMSN's fiber optic cable.

new eastbound traffic lane (Figure 4).

Communication Technologies, Inc. (my employer) represented WMSN in this effort. In all my years in the cable industry, this was the first time I have ever encountered a joint-trench project involving a telephone company, a gas company, and a broadcast station.

A PERSONAL NOTE

This will be my last *Newsletter* article, at least for the foreseeable future. Later this month, I will be retiring from CTI and moving to Utah to be closer to my daughter and her family.



Figure 3. BEFORE: West Mineral Point Road facing east, before relocation of the WMSN and KMC fiber cables. The piles of dirt in the terrace at the left mark the location of the WMSN fiber. KMC's fiber is located behind the embankment to the right. WISDOT has ordered both companies to relocate their fiber cables to a new trench located near the sidewalk at the right.



Figure 4. AFTER: West Mineral Point Road facing east, as of August 5, 2000. The old terrace is now a bicycle lane and the old sidewalk is now another traffic lane. Both fiber cables (WMSN and KMC) are now safely buried under the new traffic lane. The embankment to the right is still under construction; when the project is finished, the embankment will be replaced with a new sidewalk and retaining wall.

FCC ADOPTS NEW RULES

By Paul Stoffel

July 21 marked the tenth anniversary of the Americans with Disabilities Act (ADA). The ADA required all telecommunications services and products to be accessible to all people with disabilities, including the requirement for nearly all television programming to be accessible through closed captions by 2006. Additional FCC technical standards are being adopted for the display of closed captioning on digital television receivers, and the provision of video description on analog television programming.

CLOSED CAPTIONING

The FCC amended its rules to require closed captioning display capability in digital television receivers. This action ensures that closed captioning services will continue to be available to consumers as the transition from analog to digital broadcasting progresses. The FCC said that it would require manufacturers to include compliant DTV closed captioning decoder circuitry in DTV devices by July 1, 2002. Devices covered under the rules include DTV sets with integrated "widescreen" displays measuring at least 7.8 inches vertically, DTV sets with conventional displays measuring at least 13 inches vertically, and stand-alone DTV tuners, whether or not they are marketed with display screens.

Viewers will be allowed to choose and alter the color, size, and font of their captioning and to choose between multiple streams of captioning, such as "easy reader" or alternate language captioning. Cable providers and other multichannel video programming distributors will be required to transmit captions in a format that will be understandable to the decoder circuitry in digital television receivers.

DESCRIPTIVE VIDEO

After five years of review and study, the FCC adopted video description rules to make television more accessible to persons with visual disabilities. Video description involves the insertion into a TV program of narrated descriptions of settings and actions that are not otherwise reflected in the dialogue, such as the movement of a person in the scene. Video description is typically provided on TV through the use of the Secondary Audio Programming (SAP) channel, so that it is audible only when that channel is activated through a TV set or a VCR with SAP capability. Thus, viewers can control whether they hear the video description on the SAP channel.

Back in 1985, WGBH, Boston, began exploring possible applications of the SAP feature on the then new technology of stereo television. In 1990, WGBH provided Descriptive Video Service (DVS) to PBS programs AMERICAN PLAYHOUSE and MYSTERY. Now, DVS is available on many more PBS programs, as well as other cable networks and movie rentals. PBS programming with DVS has been available on Wisconsin Public Television since March, 1997.

Beginning April 2002, broadcasters affiliated with the ABC, CBS, Fox and NBC networks in the top 25 television markets will be required to provide a minimum of 50 hours per calendar quarter (roughly four hours per week) of described prime time and/or children's programming. Any broadcast station, regardless of market size, will be required to "pass through" any video description it receives from a programming provider if the broadcast station has the technical capability necessary to do so. Not all TV stations broadcasting in stereo have implemented the SAP channel, part of

the BTSC Multichannel Television Sound (MTS).

This new rule applies to analog television. The FCC expects ultimately to require DTV broadcasts to include video description, but that it would not consider that issue until there had been further experience with both digital broadcasting and video description.

EMERGENCY MESSAGES

The FCC also ruled that any broadcast station that provides local emergency information as part of a regularly scheduled newscast, or as part of a newscast that interrupts regularly scheduled programming, will be required to make the critical details of this information accessible to persons with visual disabilities in the affected local area. This could be done by providing closed captioning or by keying character generator text.

In addition, any broadcast station that provides emergency information through a crawl or scroll will be required to accompany that information with an aural tone to alert persons with visual disabilities that the station is providing this information.

LPFM APPLICATION DATES ANNOUNCED

By Tom Smith

The FCC as announced that it will accept the next round of LPFM applications on August 28th to September 1, 2000. Applications will be accepted from non-profit groups in the following states; Connecticut, Illinois, Kansas, Michigan, Minnesota, Mississippi, Nevada, New Hampshire, Puerto Rico, Virginia and Wyoming.

From FCC Release (www.fcc.gov)



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FCC Rulemakings

Compiled By Tom Smith

FINAL RULEMAKINGS

ET Docket No. 99-254; MM Docket No. 95-179

Closed Caption Requirements for Digital Television Receiver, Closed Captioning and Video Description of Video Programming, Implementation of Section 305 of the Telecommunications Act of 1996, Video Programming Accessibility

The FCC has adopted rules requiring manufacturers of DTV television receivers and tuners to include circuitry for the display of closed captions as of July 1, 2002. Caption circuits must be included in all 13 inch diagonal 4 by 3 aspect ratio DTV sets, and all DTV sets with a picture height of 7.8 inches high with an aspect ratio of 16 by 9. The 7.8 inch high is the same picture height as a 13 inch 4 by 3 set. All separate DTV tuners must have full caption ability. DTV to NTSC converters must be able to supply the current analog captions to NTSC sets.

The FCC adopted and wrote into its rules the full EIA-708 standards. The caption decoder must be able to provide three sizes of captions in 8 colors with 8 background colors in 8 different fonts. The viewer must be able to change these settings from those selected by the captioner. The viewer must also be able to adjust the opacity of the letters and background, as well as the font edges (drop shadows, etc.) and locations. The caption decoder must be able to decode all six caption services that are in the standard. This is to avoid the current problem of sets unable to decode the second caption and text information. Finally, the set

must remember the viewers settings when turned off.

This rule was adopted on July 21, 2000 and released on July 31, 2000.

**MM Docket No. 99-339
Video Description for Persons with Visual Disabilities**

The FCC has adopted rules that will require ABC, CBS, FOX, and NBC stations in the 25 largest markets to provide descriptive video service at a minimum of 50 hours per quarter of a year. These programs could either be childrens or primetime programming. Multi-video program distributors such as cable or satellite providers with 50,000 subscribers must provide descriptive video on the top 5 national non-broadcast networks they carry. All other broadcasters and MVPDs must pass through the descriptive service if they are capable. Descriptive video is normally carried on the stations SAP channel and consists of program audio with a narrator describing the action.

This action was taken on July 21, 2000 and becomes effective 60 days after being published in the FEDERAL REGISTER.

**ET Docket No. 95-18
In the Matter of the Amendment of Section 2.106 of the Commission's Rules to Allocate Spectrum for the Use by the Mobile Satellite Service**

The FCC has issued the final rules concerning the changes in the allocation of the 2 GHz band used for TV remote pickup. The FCC will conduct a phased reallocation of the band. In the first step the FCC will reduce the band from 1990-2110 MHz to 2008-2110 MHz. Broadcasters will be losing

12 MHz in the first phase. This will reduce the seven channels to one channel of 15 MHz and six channels of 14.5 MHz. In the second phase, the band will be reduced to 2025-2110 MHz which will reduce the channels to 12.4 for channel one and 12.1 MHz for the rest. This phase will not be started until the Mobile Satellite Service shows a need. Broadcasters will have to give up channel one until everyone is retuned to the narrower channels. This notice contains rules concerning the transition timetable and the cost sharing rules. There will be a mandatory negotiation period. These rules are important if a MSS provider is to pick up a broadcaster's cost.

The FCC adopted these rules on June 27, 2000 and released them on July 3, 2000.

Compiled from FCC releases (www.fcc.gov)

PLEASE TAKE A NUMBER

By Tom Smith

The FCC has adopted a new identity number system for FCC licenses and applicants. It is called CORES and stands for Commission Registration Number. All licenses and applicants will receive a ten digit FCC Registration Number (FRN) to be placed on their applications and payments.

To apply for your FRN, go to the FCC web site, or fill out Form 160 if you like paper. Those who were registered with the Wireless Telecommunications Bureau's Universal Licensing System before June 22, 2000 will be automatically registered and sent their number. Use of the FRN is voluntary at this time, but will become mandatory in the future.

From FCC Release (www.fcc.gov)

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Tower Activities (continued from page 1)

CH-27/WKOW-DT, CH-26, will remain as is on the West arm. The WHA-TV, CH-21 antenna will be replaced with a two channel antenna for WHA-TV, CH-21/WHA-DT, CH-20 mounted back on the North-East arm with WISC-TV, CH-3 stacked above, as before. The South-East arm gets interesting. It will be a stack of three, with WMSN-TV, CH-47, on the bottom; WISC-DT, CH-50, in the middle; and WMSN-DT, CH-11 on top.

The tower shaft will also see lots of action with standby antennas being mounted to support WKOW-TV/DT, WISC-TV, and WMSN-TV during this modification process. WHA-TV currently has a standby antenna in place. Additional transmission lines will be added, as required, to feed most of the new antennas. WHA-TV will use its existing standby antenna and will re-use the transmission line feeding the current CH-21 antenna to feed its CH-21/20 antenna.

As always, when performing tower work, weather presents a largely unknown variable that often lengthens, but never shortens, a construction period. There is no question about it, the "W" word is one of the major concerns of all involved in this project. With that caveat in mind, the current schedule suggests:

- Last week of July: Tower crew arrives.
- August through mid-September: Prepare site, rig tower, add reinforcements, change guy cables, install new transmission lines.
- First week of September: Antennas arrive on site.
- Mid-September through mid-November: Install standby antennas, perform tower-top antenna changes.

After completion of the tower work, each station will continue their DTV

build-out activities on their own specific timelines.

Stay tuned for continuing updates.



Figure 1. Photo of the Madison Community Tower, as seen when facing west. The current antenna configuration shows WMSN-TV on the left, WKOW-TV/WKOW-DT in the center, and WISC-TV stacked on top of WHA-TV on the right.

CHAPTER 24 ONCE AGAIN RECOGNIZED FOR THE FINE EFFORTS OF ITS MEMBERS!

By Kevin Ruppert

Chapter 24 has picked up national awards for 1999 in two separate categories. Our newsletter, under the leadership of Mike Norton, has once again been cited as the best SBE local newsletter in the country. Steve Paugh of Chapter 24 has tied in the category of "Best Technical Article or Program" for his efforts putting together the DTV demonstration at the UW Engineering Expo in 1999. More details about the awards will be released soon. Congratulations to Mike and Steve on these awards.

CHAPTER 24 SUSTAINING MEMBERS

THANKS TO ALL OUR SUSTAINING MEMBERS:

- Alpha Video
- Belden Wire and Cable
- CTI
- Clark Wire and Cable
- Harris Corporation
- maney-logic
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- Video Images
- WISC-TV 3
- WKOW-TV 27
- WMSN-TV 47
- WMTV-TV 15

Special Thanks to Denise Maney for arranging the Annual SBE Chapter 24 Picnic in July.

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Thanks to Leonard Charles for his work on the Chapter 24 WWW page.

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AUGUST MEETING and PROGRAM



**Society of Broadcast Engineers
CHAPTER 24 MADISON, WISCONSIN
Thursday, August 24, 2000**

Broadcast Antennas

The topic of this month's program will be broadcast antennas. Al Jason from Jampro Antenna Inc. will give a presentation on TV and FM antennas. Jampro has been designing and building antennas for the TV and FM market since 1954, and they specialize in manufacturing antennas that are individually fabricated to each customer's unique requirements.

**Dutch Treat Dinner
at 5:30 PM**

**at Babes Bar and Grill
5614 Schroeder Road**

**Meeting and Program
at 7:00 PM**

**at WISC-TV
7025 Raymond Road**

Visitors and guests are welcome at all of our SBE meetings!

2000 UPCOMING MEETING/ PROGRAM DATES:

Day	Date	Program
Tuesday	September 19	Youth Night
Wednesday	October 18	Broadcast Clinic

Program Committee:	Kerry Maki 833-0047	Denise Maney 277-8001	Steve Zimmerman 274-1234	Steve Paugh 277-5139
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