&EPA

Video Teleconferencing Services

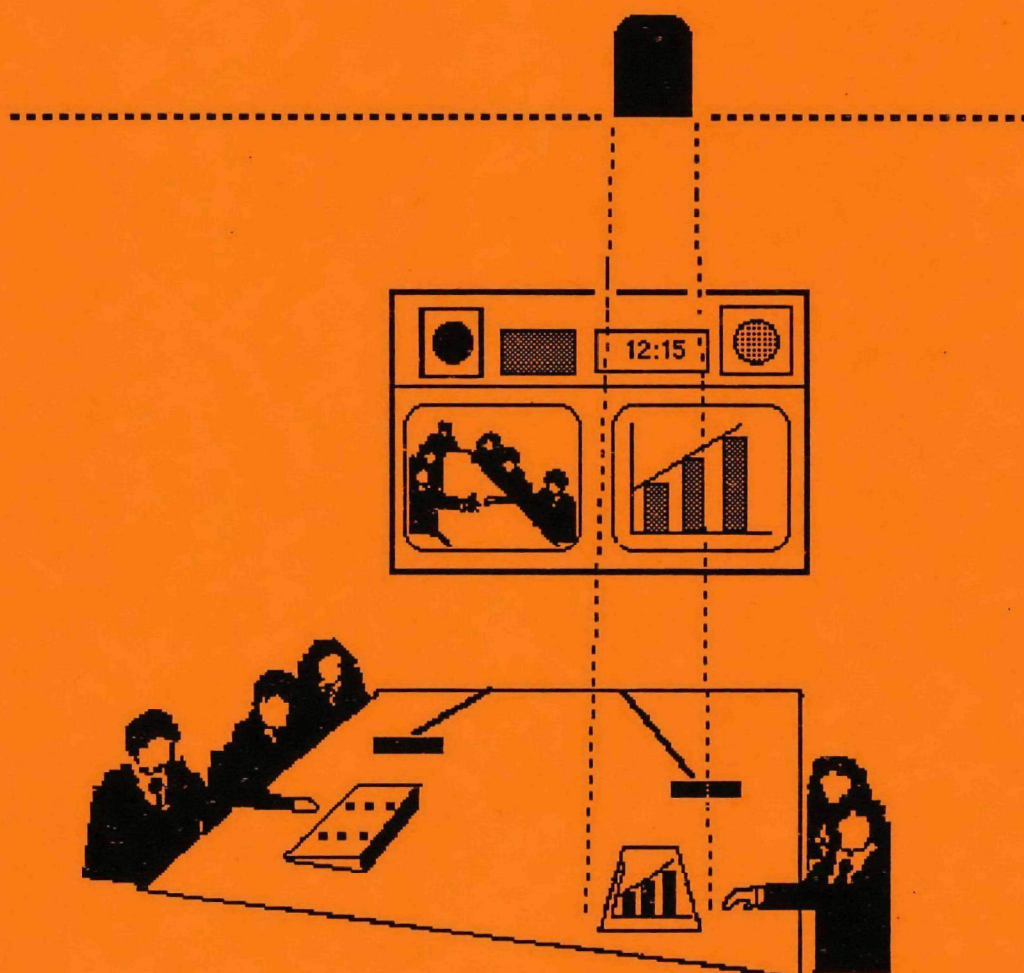# Quick Reference Guide

TABLE OF CONTENTS

TABLE OF EXHIBITS

INTRODUCTION

Meetings are an important part of our work at the U.S. Environmental Protection Agency (EPA). The quality of our work is directly related to the effectiveness with which we use meetings to assemble project teams, share information, generate ideas, make decisions, coordinate efforts, and track progress.

EPA provides employees with sophisticated video teleconferencing capabilities to make meetings more convenient, productive, and cost-effective. Video teleconferencing is both a substitute for and supplement to face-to-face meetings. Agency personnel can use specially equipped rooms at Headquarters, Research Triangle Park, regional offices, and laboratories to participate in teleconferences that involve full-motion live video, two-way audio, still and action graphics, 35 mm slides, facsimile, and other modes of electronic communication. The Agency's video teleconferencing network supports point-to-point and multipoint conferences.

This guide describes video teleconferencing facilities, systems, services, and capabilities available to EPA personnel through the Agency's National Data Processing Division (NDPD). It explains how to use video teleconferencing in your job; how to request a video teleconference; how to conduct a video teleconference; and how to resolve technical problems during a video teleconference. A checklist is provided to help you decide when to choose video teleconferencing over travel or audio teleconferencing. Another checklist helps you to determine what video teleconference configuration is best suited to your requirements.

NDPD manages Agency video teleconferencing systems for the benefit of all EPA personnel nationwide. NDPD is committed to providing Agency personnel with the best possible video teleconferencing systems, services, and capabilities available. The Agency also has dedicated audio teleconferencing systems that support voice-only multipoint conference calls and can provide bridged, audio-only access to EPA video teleconferences. (See the EPA Audio Teleconferencing Services Quick Reference Guide for further details).

EPA personnel should read this guide prior to scheduling or participating in a video teleconference. For information on video teleconferencing charges to EPA sites and program offices, call EPA's FTS2000 Business Office at 8-919-541-2255. First-time video teleconference users should contact EPA's national video teleconference service coordinator at 8-202-260-3763 to obtain the name and number of their regional/local coordinator. You may schedule conferences through the national coordinator or your regional/local video coordinator. Your regional/local coordinator will provide you with access to the video teleconference room at the designated date and time.

Please let us know how EPA video teleconferencing services can best support the way you work.

WHAT IS VIDEO TELECONFERENCING?

Video teleconferencing is the ability of dispersed people to see and speak with one another in real time over telecommunications connections.

Video teleconferences utilize many sophisticated telecommunications technologies. Typically, video teleconferencing is provided through specially equipped rooms, in each of which are installed cameras, microphones, monitors, speakers, graphics stands, conference tables, and other equipment and furniture. Exhibit 1 depicts a typical video teleconferencing room configuration.
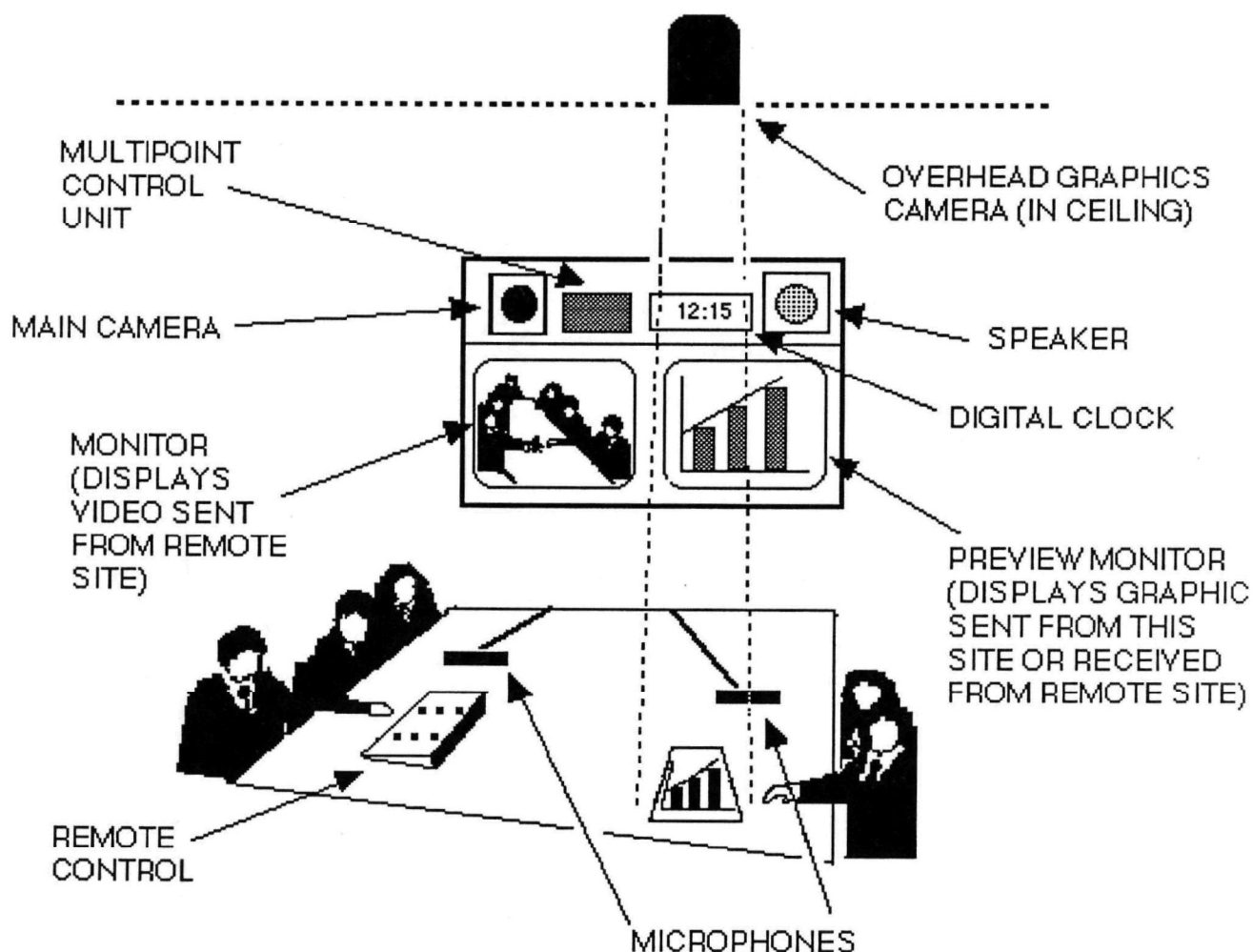
EXHIBIT 1:
CONFIGURATION OF A TYPICAL VIDEO TELECONFERENCING ROOM

Codecs are required to compress video teleconferencing signals to a fraction of their original data rates, so that they may be carried over inexpensive telecommunications circuits. Exhibit 2 illustrates the role of codecs in a video teleconferencing connection. Uncompressed video signals contain a lot of information and, if codecs were not available, would require very-high-capacity telecommunications circuits beyond the means of most companies. Codecs at transmitting sites convert outgoing signals from local cameras, microphones, and other input devices into a digital bit-stream. The codec compresses the bit-stream and sends it to remote sites over digital telecommunications circuits. Codecs at receiving sites decompress the bit-stream and convert it back to its original analog waveform. Other equipment at the receiving site splits the incoming analog stream into its video and audio components and directs these signals to local monitors, speakers, and other output devices.
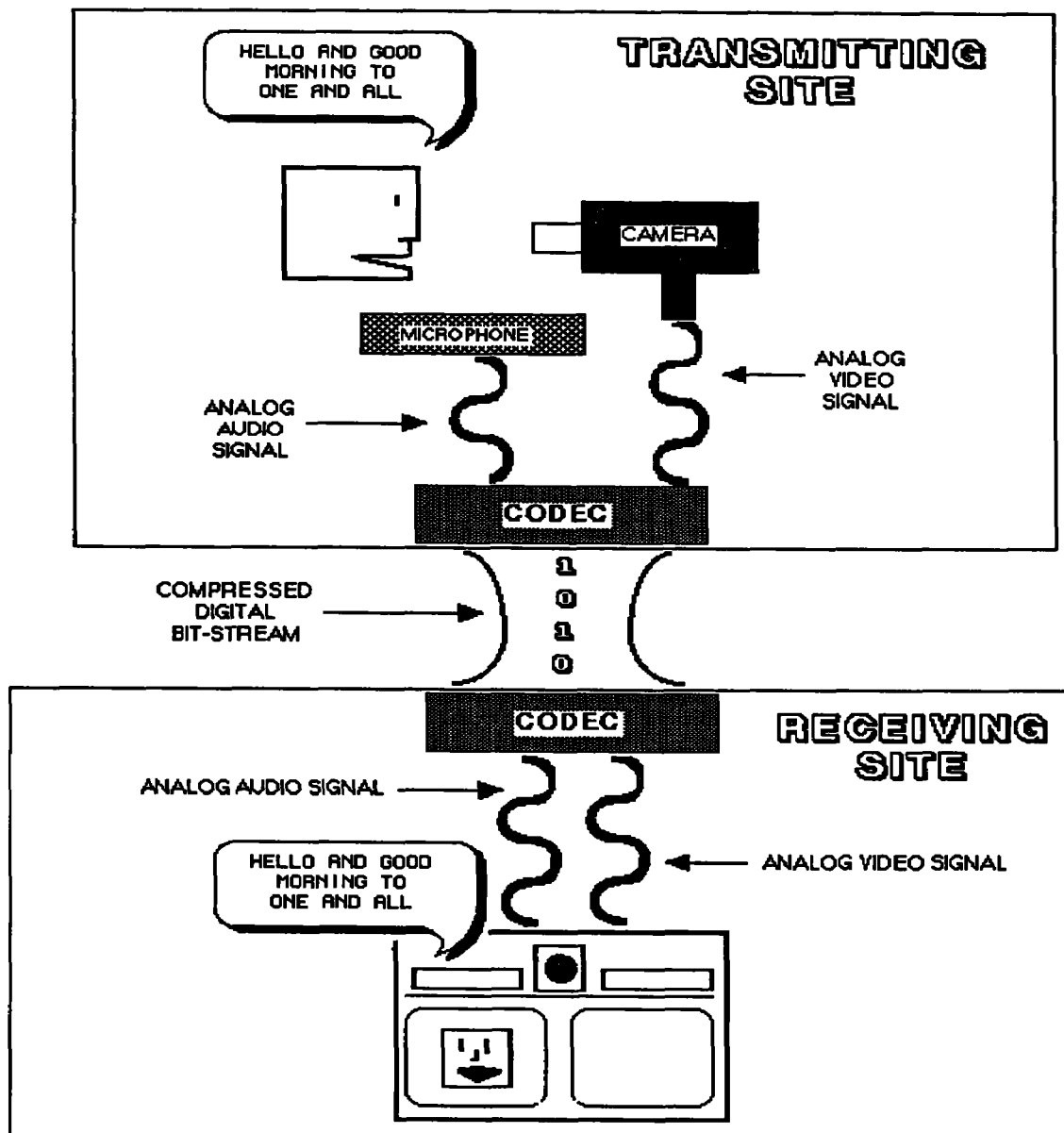
EXHIBIT 2:
FUNCTION OF CODECS IN A
VIDEO TELECONFERENCING CONNECTION

The most common video teleconference configuration is point-to-point. Point-to-point video teleconferences connect two sites. Point-to-point teleconferences may be set up in two- or one-way mode between sites, depending on whether interactive or lecture-style communications are required. Both types of conferences are depicted in Exhibit 3. On interactive teleconferences, both sites transmit and receive video and audio signals. On a one-way conference, one site transmits video and audio and the other receives. Another type of point-to-point conference involves one-way video and interactive audio.
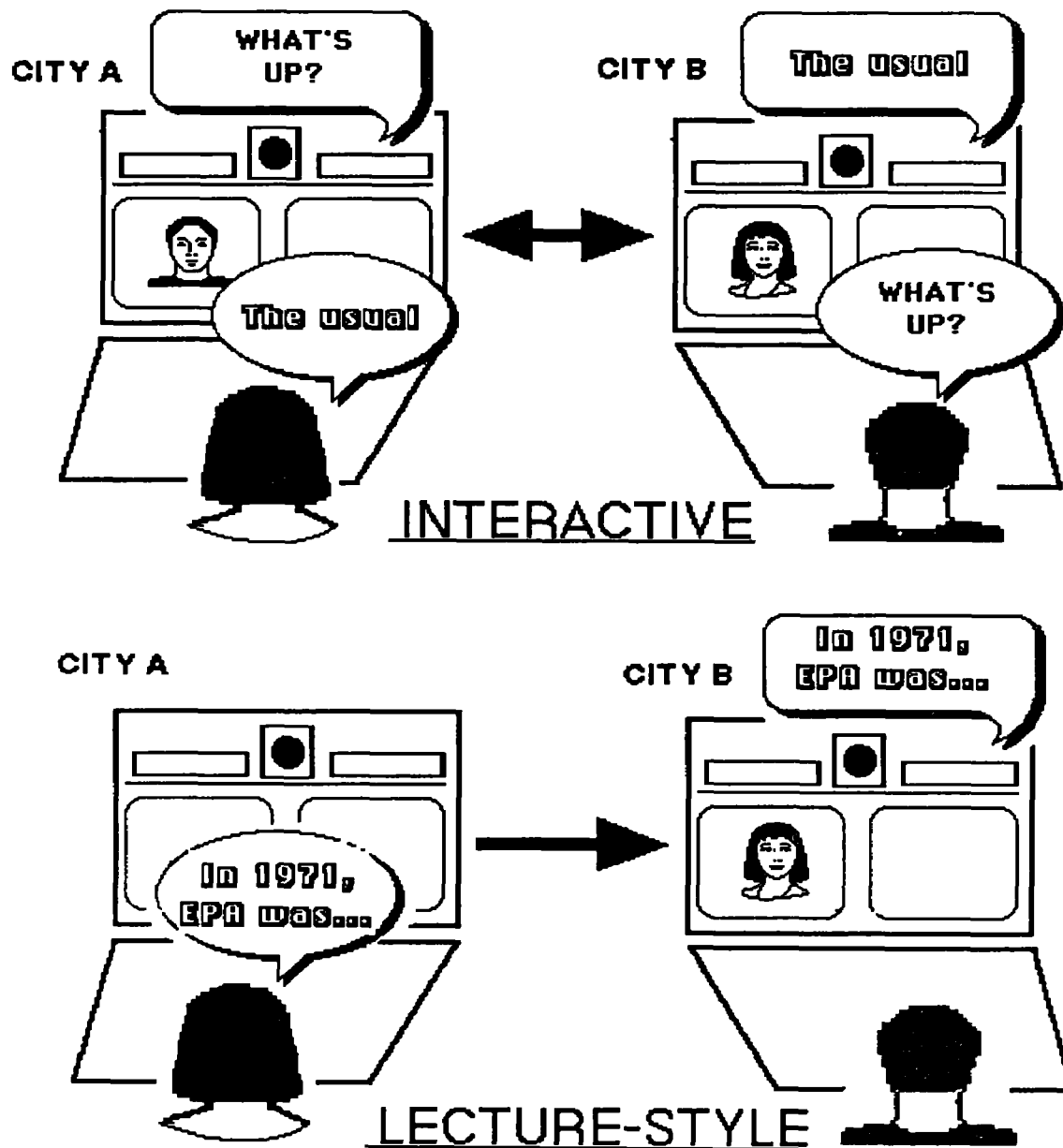
EXHIBIT 3:
TYPICAL POINT-TO-POINT
VIDEO TELECONFERENCE CONFIGURATION

Many video teleconference networks, including EPA's, are beginning to support multipoint sessions. A multipoint video teleconference connects three or more video sites. The typical, fully interactive, multipoint video teleconference uses a single monitor for viewing other sites and displays video only from the site that is currently speaking. Video and audio switching functions are performed by a device known as a "multipoint control unit." See Exhibit 4 for an illustration of a fully interactive multipoint video teleconference with voice-switched video. Multipoint technology is also used for broadcast applications, which typically involve one-way video with interactive audio.
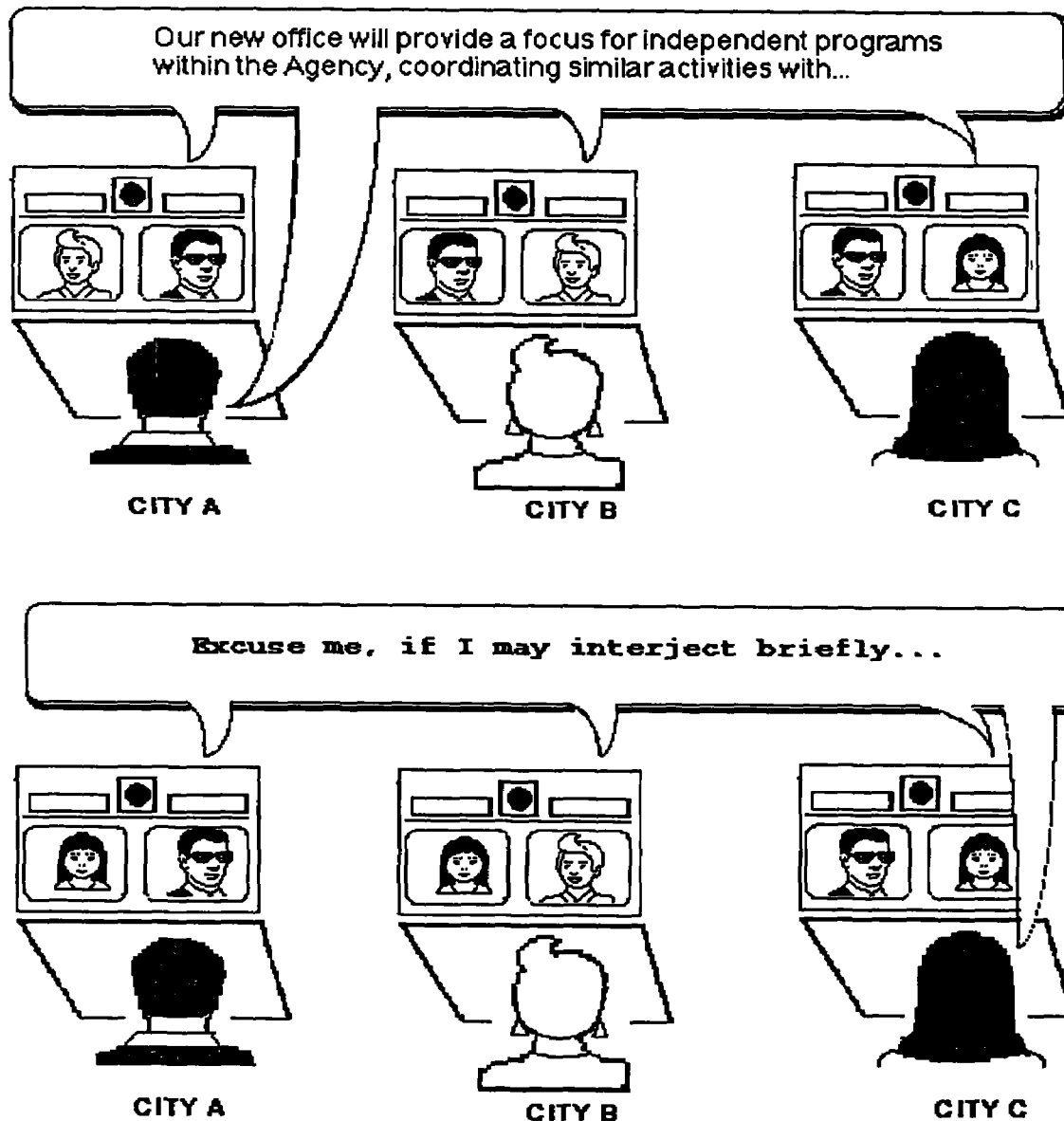
EXHIBIT 4:
FULLY INTERACTIVE MULTIPOINT VIDEO TELECONFERENCE
WITH VOICE-SWITCHED VIDEO

Note. For illustrative purposes, this conference was set up to allow each participant to view him or herself in the right monitor and the current speaker in the left monitor. The current speaker views the previous speaker in the left monitor. All participants hear audio only from the current speaker.

Anybody who has access to a telephone may participate in a video teleconference on a "bridged" audio-only basis. Audio connections are provided through "phone-add" capabilities. Multiple audio participants can be connected to a video teleconference through a multipoint audio teleconferencing bridge. See Exhibit 5 for the configuration of a multipoint video teleconference that includes several audio-only sites.
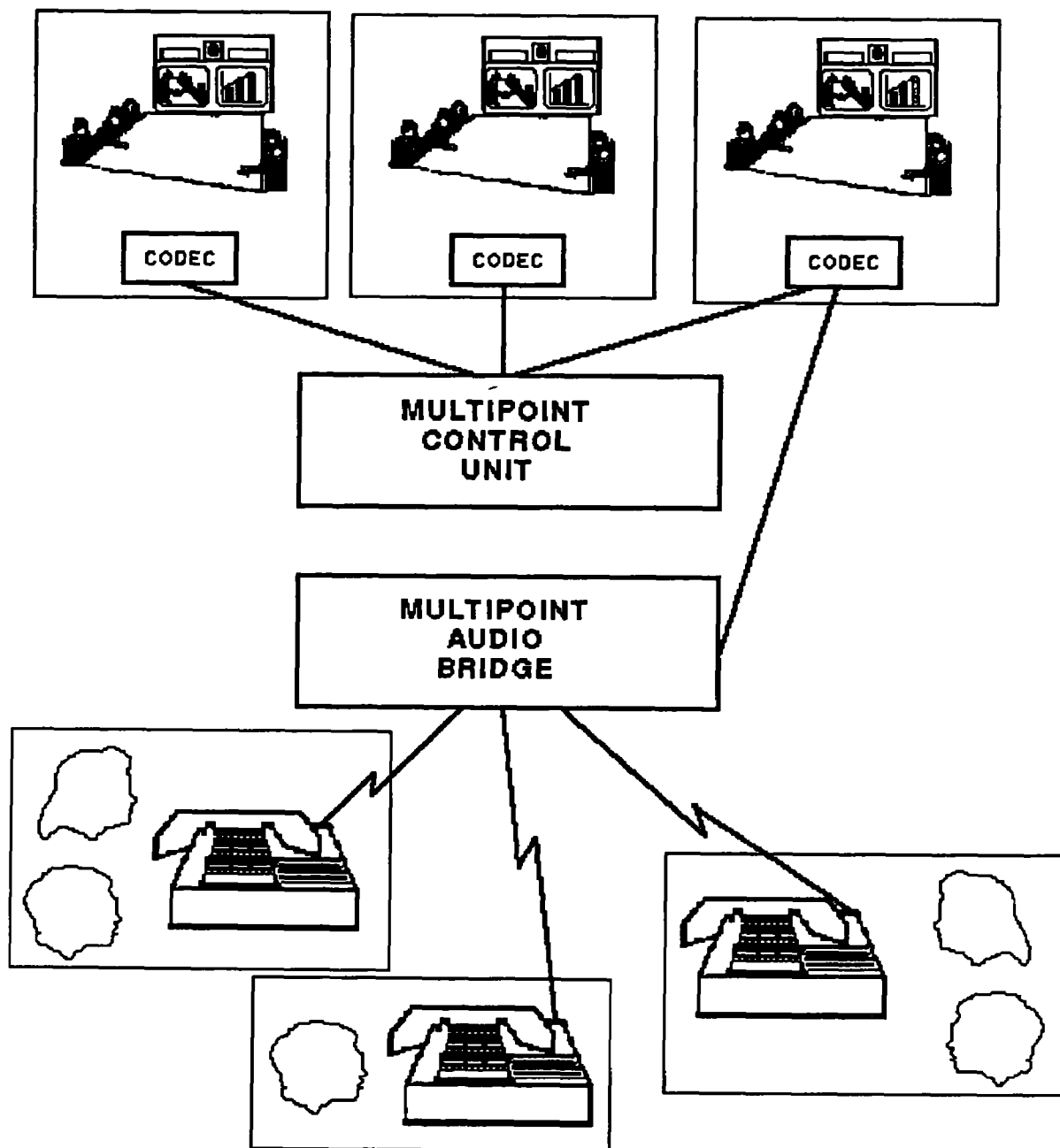
EXHIBIT 5:
MULTIPOINT VIDEO TELECONFERENCE WITH
SEVERAL AUDIO-ONLY SITES

Video teleconference sites may also, depending on their hardware and software installations, exchange facsimiles, electronic mail, computer graphics, and videotaped presentations with each other, transforming the session into what could be called a "multimedia video teleconference." See Exhibit 6 for an overview of the capabilities of a typical multimedia video teleconference. Video teleconferencing technology can support the full range of electronic communications required by conferees.

STILL AND ACTION GRAPHICS

35 MILLIMETER SLIDES

VIDEOCASSETTE PRESENTATIONS

COMPUTER GRAPHICS
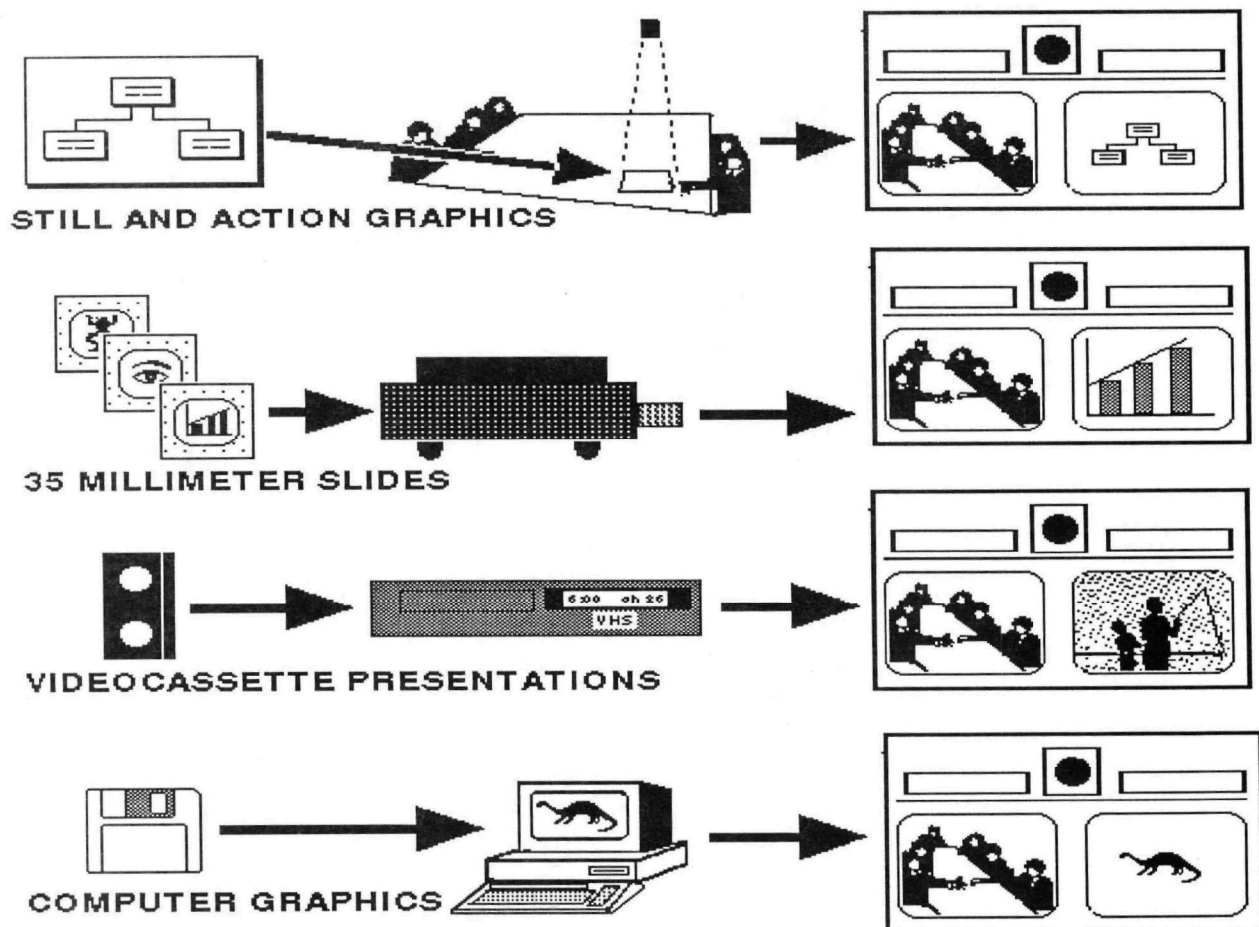
EXHIBIT 6:
MULTIMEDIA VIDEO TELECONFERENCE CAPABILITIES

Video teleconferencing provides the intimacy and immediacy of face-to-face communications and, as a communications medium, has the following advantages over face to face:

Superior orchestration of conference presentations: Video teleconference participants can orchestrate meetings with expert precision by controlling the video, audio, and other information that is sent to other sites. Live action can be combined with graphics, 35 mm slides, videotapes, and other information sources to deliver polished, multimedia presentations.

Ready-made record of conference proceedings: Participants can easily record video teleconferences on videotape at those sites equipped with videocassette recorders. In addition, images from conference monitors can be output to room printers for incorporation into meeting minutes.

However, video teleconferences are not perfect substitutes for face-to-face meetings, due in part to technological constraints or limitations. In order to manage videoconferences effectively, participants must be aware of limitations inherent to the technology as well as those specific to the particular hardware and software installed in the network. Teleconference participants may encounter the following technical limitations:

Limitations with video equipment: Codecs compress video signals to reduce the amount of redundant pictorial information sent across the network. Generally, codecs transmit only those portions of the image that have changed since the last frame, such as movements in people's faces and bodies. When an image changes very rapidly, codecs may not be able to respond as fast, which results in blurring of the moving image transmitted to a remote site. Exhibit 7 presents an illustration of motion-induced video blurring.

blurring   no blurring
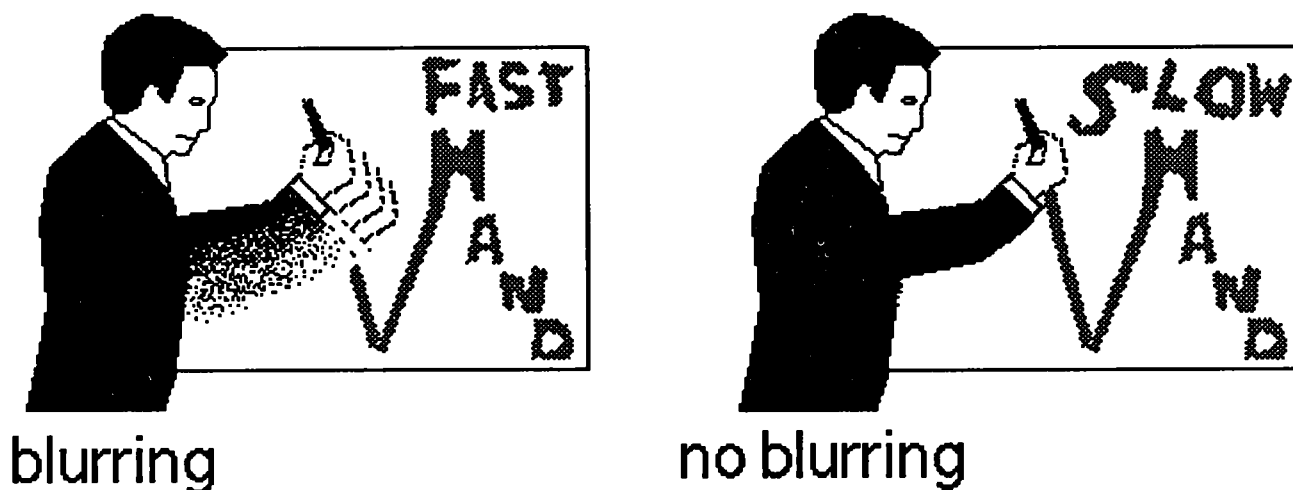
EXHIBIT 7:
MOTION-INDUCED VIDEO BLURRING

Limitations with audio equipment: The "bridged" nature of the audio portion of video teleconferences generally requires that only one site or participant speak at a time. The teleconferencing system has a "microphone" that picks up the loudest source of sound. Overlapping conversations would cause the system microphone to switch abruptly, resulting in "clipping" or loss of speech from parties who had been interrupted. Exhibit 8 (next page) presents an illustration of audio clipping due to overlapping discussions.
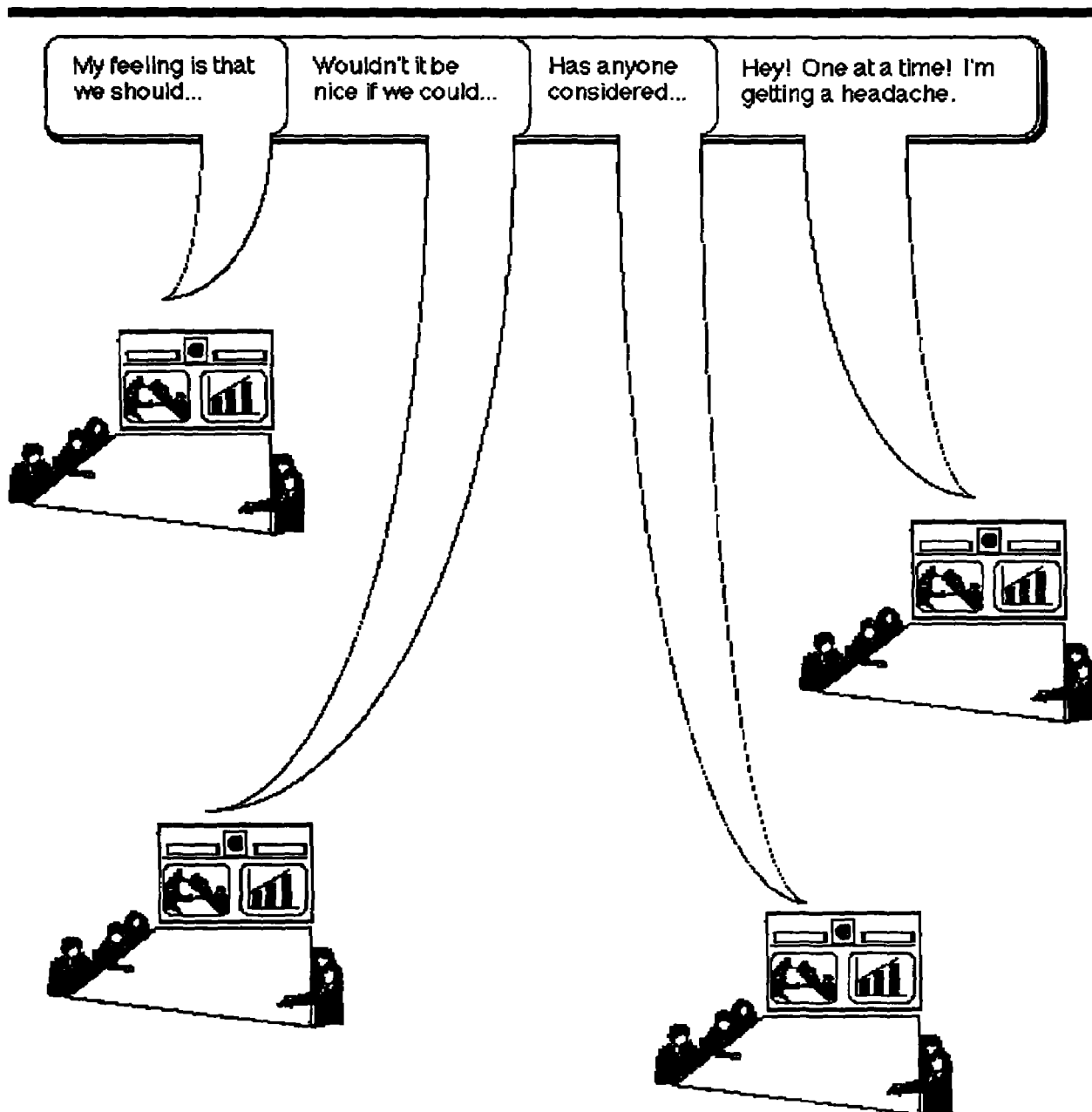
EXHIBIT 8:
AUDIO CLIPPING DUE TO OVERLAPPING DISCUSSIONS

Video teleconferencing can be a powerful communications medium, if conferees know how to incorporate visuals into their presentations and are familiar with the technical limitations of available hardware and software. Most video teleconferencing facilities have room coordinators who train users and provide assistance in developing conference graphics and in operating equipment. Experienced video teleconferencing users can provide coaching and guidance for their first-time-using colleagues. Teleconferencing is a group activity, so training must be done in a workgroup setting. Only through continual use and reinforcement can people build comfort, familiarity, and expertise with video teleconferencing.

10

WHAT NDPD VIDEO TELECONFERENCING FACILITIES AND SERVICES ARE AVAILABLE TO EPA PERSONNEL?

NDPD has established video teleconferencing rooms at the following EPA sites: Headquarters (Waterside Mall Room 3307; West Tower Room 1103; Emergency Operations Center/Waterside Mall Lower Concourse; Fairchild Building 8th floor), Research Triangle Park NC (Administration Building), Durham NC (Mutual Building), all 10 regions (Boston, New York, Philadelphia, Atlanta, Chicago, Dallas, Kansas City, Denver, San Francisco, Seattle), major laboratories (Cincinnati OH, Ada OK, Edison NJ, Las Vegas NV), and the National Enforcement Investigations Center (Denver CO). Exhibit 9 presents a map of EPA video teleconferencing sites, as of April 1992.
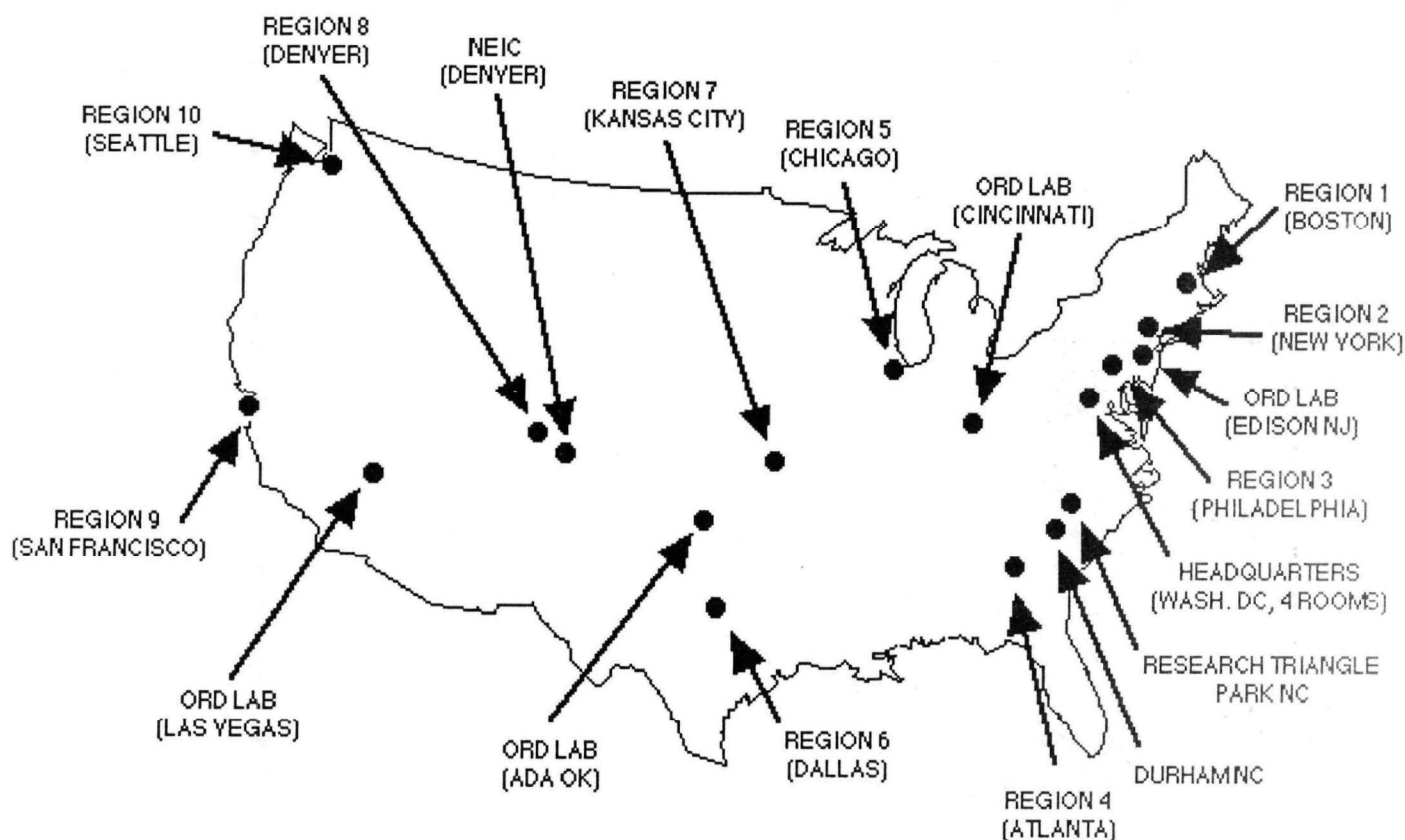
EXHIBIT 9:
EPA VIDEO TELECONFERENCING SITES

11

Each room seats as many as 10 conference participants and includes the following equipment for use by conferees (Exhibit 10 presents a standard EPA video teleconferencing room configuration; note that additional seats may be provided along the walls of some rooms for conference observers):

o   Console with two color monitors, one camera, and one speaker (the camera may be zoomed in/out and focused by conferees using room remote control; the monitors and speaker, however, cannot be adjusted by participants);

o   Overhead graphics camera (may be zoomed in/out and focused using room remote control; installed directly above conference table; supports transmission of still graphics and live graphics composition from the tabletop);

o   Tabletop microphones (can be physically repositioned on table to accommodate different seating arrangements);

o   Single-line telephone (supports incoming calls from "phone add" audio-only participants and outgoing calls to room coordinators and others);

o   Remote control unit (controls room cameras and, if available, video cassette recorder, 35 mm slide projector, and thermal printer);

o   35 mm slide projector (operated from room remote control; used to send slide images to remote sites); and

o   Facsimile machine (supports one-touch facsimile transmission to other EPA video teleconferencing rooms, dial access to other facsimile machines, and receipt of incoming facsimiles).
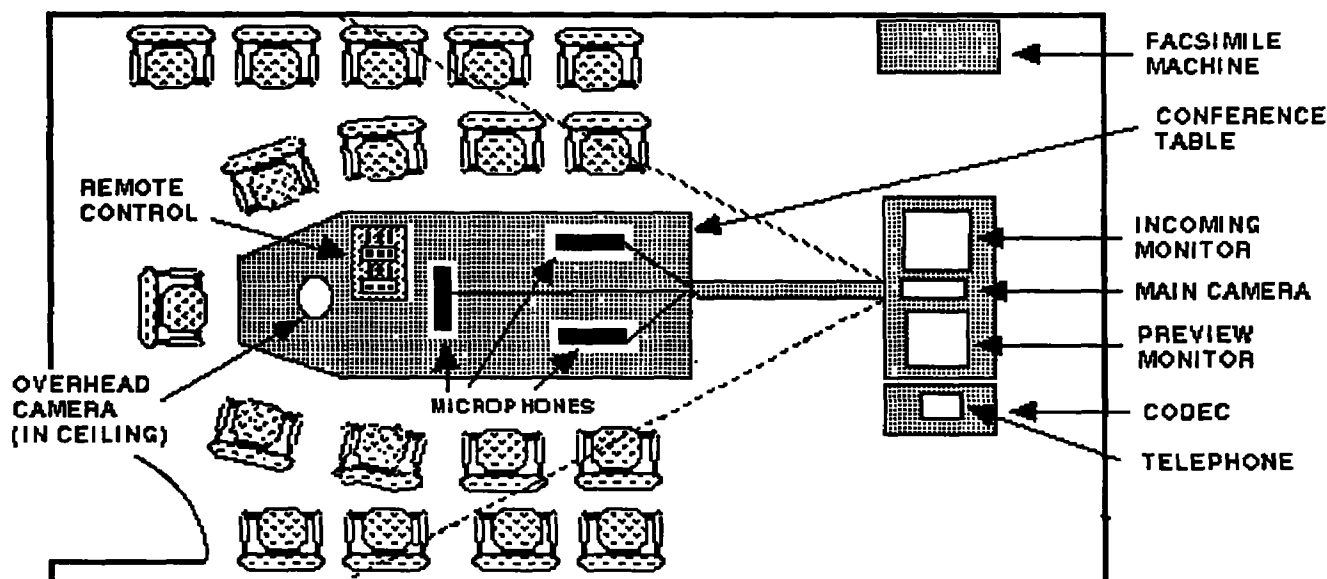
EXHIBIT 10:
STANDARD EPA VIDEO TELECONFERENCING
ROOM CONFIGURATION

Some sites have the following facilities and capabilities in addition to the standard room configuration described above (ask the appropriate regional or local room scheduler/coordinator what facilities are currently available at a particular site):

o   Steerable wall camera (steered, zoomed in/out, and focused from room remote control);

o   Thermal printer (operated from room remote control; used to make hardcopy printouts of video and graphics displayed on room monitors);

o   VHS-format videocassette recorder (operated from room remote control; used to play videotapes for transmission to other sites or to record video/audio output of conference);

o   Personal computer (operated from PC keyboard, mouse, or other input device; used to exchange computer graphics, text files, or electronic mail with remote video teleconference rooms and to access EPA or external data-communications systems); video teleconference participants must use the PC that is already installed in the room;

o   Lavalier microphones (attached to clothing of speakers who move or stand at whiteboard);

o   Whiteboard (used for live graphics composition; images captured by the steerable wall camera are transmitted to remote sites).

EPA video teleconference rooms are connected to one another through long-distance, digital circuits on the FTS2000 Compressed Video Teleconferencing Service (C-VTS), provided under a General Services Administration (GSA) contract by AT&T. The following C-VTS services are available to EPA sites:

o   Point-to-point: Two-way interactive video and audio;

o   Multipoint: Two-way interactive video and audio; one-way broadcast video with two-way interactive audio.

Each site has a room coordinator who can reserve video teleconferencing facilities, schedule time slots on the FTS2000 C-VTS network, and provide users with training on system capabilities.

PLEASE BE ADVISED. EPA video teleconference rooms are supported by EPA CONTRAC-TORS. To avoid contractor access to confidential business information, EPA employees must notify the support personnel at all sites that the subject matter is sensitive.

Before each video teleconference, those room coordinators who are contractors should identify themselves as contractors and offer to leave the room if the subject of the conference is sensitive. After explaining the equipment, if the subject is confidential, the contractor support personnel should leave the room immediately and must remain outside until termination of the conference or until given permission to re-enter.

Audio and video portions of the video teleconference may be monitored by GSA FTS2000 contractors who operate the video teleconferencing services under GSA contract.

WHEN SHOULD YOU USE VIDEO TELECONFERENCING?

Video teleconferencing should be considered for meetings involving dispersed people when it is not possible, practical, or cost-effective for some or all people to travel in order to meet face to face. The primary benefits of video teleconferencing are reduced travel requirements, increased access to expert personnel, and expanded meeting participation under tight time pressures.

Video teleconferencing must be used for official EPA business only. Video teleconferencing i. principally used at EPA for executive presentations, technical discussions, planning sessions, contract reviews, status briefings, budget reviews, and training sessions. NDPD welcomes ideas for new applications of video teleconferencing within the Agency. Video teleconferencing must NEVER be used for discussion of sensitive or restricted information, as all conferences are monitored for audio and video quality by FTS2000 contractor staff.

EPA personnel should consider the principal alternatives to video teleconferencing prior to scheduling a teleconference. These alternatives are as follows:
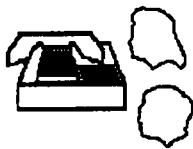
Audio Teleconferencing: EPA personnel should use audio teleconferencing when meetings rely heavily on verbal interaction, utilize no graphics, are conducted under short notice, are short in duration, have few participants at each site, and are of routine priority. This description fits most meetings held by EPA personnel. Consequently, audio teleconferencing is the preferred teleconferencing solution in most cases. See EPA's Audio Teleconferencing Services Quick Reference Guide for further details.

Travel: EPA personnel should travel to meetings when the trips will also involve extensive discussions or interviews with on-site people, exchange of confidential information, and performance of physical inspections and site visits.

EPA personnel should use Exhibit 11 (Meeting Options Solution Matrix) to determine whether video teleconferencing is appropriate to their next meeting. If video teleconferencing is the preferred meeting option, you should use Exhibit 12 (EPA Video Teleconferencing Configuration Solution Matrix) to identify the most appropriate video teleconference configuration. On either checklist, you should identify the questions under "Application" that you would answer "yes." Checkmarks in those rows indicate the options or configurations that might be suitable to your meeting. Absence of a checkmark means that the corresponding option or configuration would not be appropriate.

EPA video teleconferencing room schedulers and coordinators will be glad to help you determine the conference configuration that meets your requirements. Just tell the scheduler/coordinator what you would like to do, and let him or her handle all technical coordination.

APPLICATION \ MEETING OPTION	VIDEO TELECONFERENCING	AUDIO TELECONFERENCING	TRAVEL
Will the meeting involve significant visual interaction?	✓		✓
Will participants use graphics, slides, and other visual props?	✓		✓
Will the meeting be short in duration?	✓	✓	
Will the meeting be of routine priority?		✓	
Will some of the participants be involved in extensive local discussions, exchange confidential information, and perform physical inspections and site visits?			✓

EXHIBIT 11:
MEETING OPTIONS SOLUTION MATRIX

	TWO-WAY POINT-TO-POINT VIDEO WITH INTERACTIVE AUDIO	TWO-WAY MULTIPOINT VIDEO WITH INTERACTIVE AUDIO	ONE-WAY MULTIPOINT VIDEO WITH INTERACTIVE AUDIO
Two locations?	✓		
Three or more locations?		✓	✓
Interactive discussions?	✓	✓	✓
One-way presentation?			✓

CONFIGURATION

APPLICATION

**EXHIBIT 12:
EPA VIDEO TELECONFERENCE CONFIGURATION
SOLUTION MATRIX**

HOW DO YOU PLAN, ARRANGE, AND CONDUCT A VIDEO TELECONFERENCE?

Successful video teleconferences require preparation and planning by conference leaders, who are users that identify requirements for a meeting and place a teleconference request with the regional or local teleconference room scheduler/coordinator. Conference leaders have the following responsibilities:

o   Finding time in participants' schedules;

o   Scheduling use of video teleconferencing facilities;

o   Preparing conference visuals;

o   Leading the conference; and

o   Closing the conference.

The following pages contain practical guidelines for conference leaders to follow when planning, arranging, and leading video teleconferences.

FINDING TIME IN PARTICIPANTS' SCHEDULES
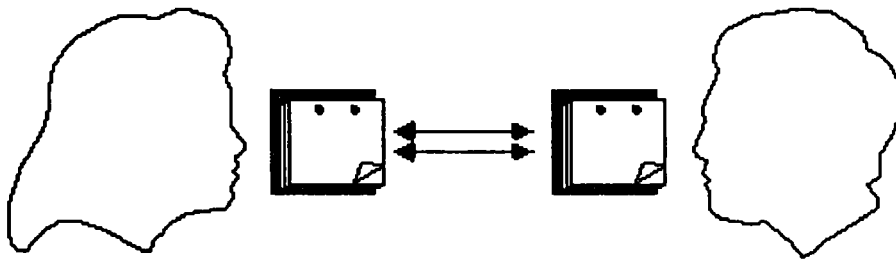
The conference leader must find a date and time acceptable to all participants and for which Agency teleconferencing facilities are available. These steps should be followed:

o   Find a common meeting date, time, and duration for all participants that fits into their schedules and is available within the operating hours of EPA's video teleconferencing network: 8 a.m. to 5 p.m. Eastern (i.e., Washington DC) Time. Also select an alternate date, time, and duration in case the original choice is not available. Be aware of the time-zone differences between yourself and the other sites with which you will be conferencing. The duration for the conference must be either 30, 45, 60, 75, or 90 minutes.

o   Identify site leaders for each location. Site leaders preferably should have some experience or familiarity with video teleconferencing.

SCHEDULING USE OF VIDEO TELECONFERENCING FACILITIES
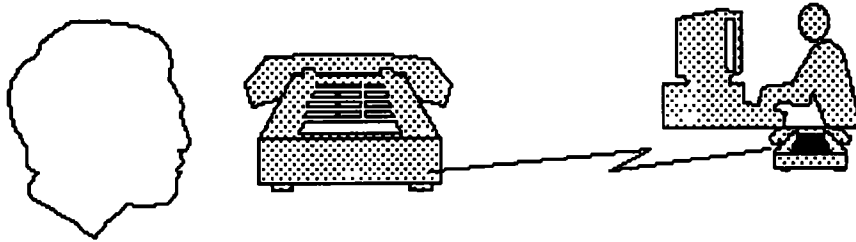
The conference leader must schedule use of EPA video teleconferencing facilities through his or her regional or local video teleconferencing room scheduler. To schedule your next video teleconference, follow these steps:

o Submit the scheduling request to your regional/local video teleconferencing room scheduler or to the national scheduler (8-202-260-3763) at least 2-3 days in advance of the conference, when possible. Your regional/local scheduler will contact the national EPA video teleconference coordinator, who will contact other involved room coordinators and, if bridged audio-only connections are also required, the EPA audio teleconferencing scheduler. The Agency-wide coordinator accepts reservations on a first-come, first-served basis, subject to availability of all involved EPA video rooms, and places the request with FTS2000 C-VTS network schedulers.

o Provide the scheduler/coordinator with the following information:

Name, mailcode, and phone number of requestor;

Date and beginning and ending times of conference (Eastern Time Zone);

Sites;

Points of contact at each site (with FTS2000 numbers at which they can be reached);

Program office to which lead participant belongs;

Subject of conference; and

What equipment or capabilities will be used at each sites (e.g., VCR, 35 mm slide projector, whiteboard, lavalier microphones, graphics stand, phone-add, bridged audio connections).

o Obtain written, ALL-IN-1, and/or telephone confirmation from the local/regional or Agency-wide video teleconference scheduler when the requested video teleconference circuit and rooms have been reserved. The conference confirmation contains the date, time, and locations.

o   Notify other local or remote participants of the date, time, and locations involved in the conference. Provide them with the conference leader's name and phone number. If participants are unfamiliar or inexperienced with video teleconferencing, instruct them to arrive at their respective conference rooms 10-15 minutes before the scheduled start time for a brief video teleconferencing training session to be provided either by their respective site leaders or by their regional/local room scheduler/coordinators.

o   Instruct participants to call the leader promptly if they wish to cancel the conference, add or delete sites, or change the date, time, or duration. The leader is responsible for promptly notifying his or her regional/local room scheduler/coordinator if the conference is to be canceled or modified in any way. To change or cancel your reservation, call your regional/local room scheduler as soon as possible. The reservation support system will not accept any changes to a confirmed reservation within 35 minutes of the scheduled start time or 35 minutes of the scheduled end time. Changes must be made in multiples of 15 minutes. If a cancellation is not made for the entire scheduled time, the conference originator will be assessed the full time at approximately $200 per hour. You should contact your regional/local room scheduler if a conference will be shortened or needs to be extended during the meeting.

o   Receive a confirmation call from the Agency-wide scheduler one business day before the scheduled conference.

PREPARING CONFERENCE VISUALS

&EPA
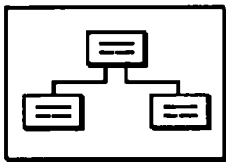
−EASY TO READ
−FEW WORDS
−SIMPLE GRAPHIC
−ORIGINAL COPY

The conference leader should oversee preparation of conference visuals—including still and action graphics, 35 mm slides, computer output, videocassette presentations, and whiteboard drawings—to ensure they meet standards for clarity and comprehensibility. Leaders should follow these steps:

o   Contact your regional/local conference room scheduler to request assistance in preparing visuals. The scheduler/coordinator will help to ensure that materials conform to the following guidelines for video transmission clarity (see Exhibit 12 for samples of visuals that comply with and violate these guidelines):

         Quality: All visual materials should use clear original graphics or copies with high resolution and contrast.

         Proportion: Visual sheets, slides, or frames should be 3 units high by 4 units wide (i.e., the ratio of the display monitor).

         Size: For textual materials, the minimum legible type size (in points) equals 3.0 times the width of the information area to be transmitted. For example, if the area to be transmitted is 8" wide, the type size should be at least 24 points. Text should be limited to 40 characters (including spaces) on a single line. Graphics may be as large as the graphics stand or whiteboard from which they are displayed. A 3-inch by 5-inch card can be "blown up" by the video camera's zoom lens to appear just as large as an 8-1/2-inch by 11-inch page.

o   Ask for the room scheduler/coordinator's advice on which visuals should be distributed to participants before or after the conference. Agendas, for example, should be distributed before meetings, and various documents may be suitable post-meeting reference materials. These materials may be distributed by U.S. mail, facsimile, electronic mail, or other means.
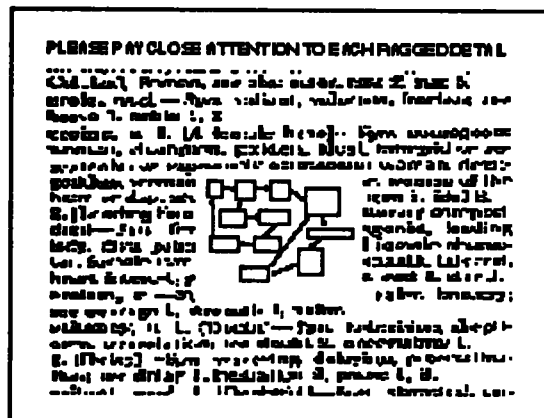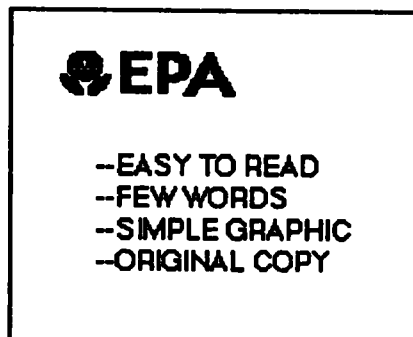
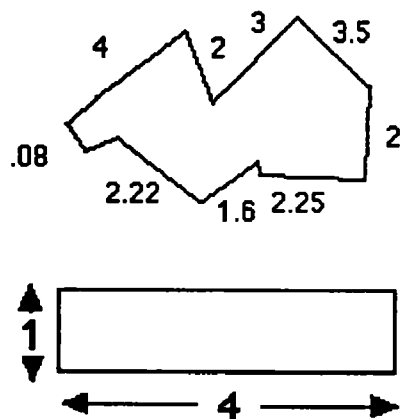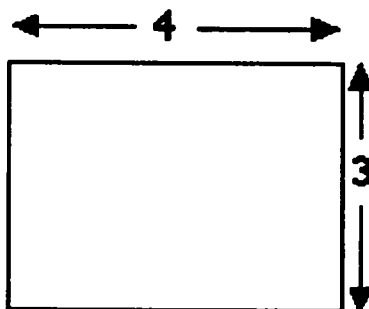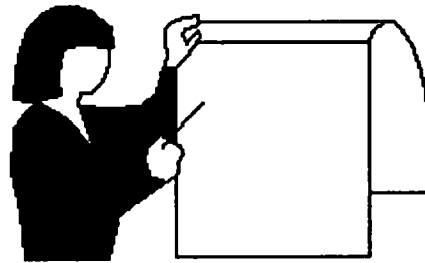|	**DO**	**DON'T DO**
QUALITY	♻EPA --EASY TO READ --FEW WORDS --SIMPLE GRAPHIC --ORIGINAL COPY	PLEASE PAY CLOSE ATTENTION TO EACH RAGGED DETAIL
SIZE	YOU'RE LOO- KING AT 24- POINT TYPE- FACE, WHICH IS USUALLY BEST	YOU'RE LOOKING AT 9-POINT TYPEFACE, WHICH IS LEGIBLE ONLY TO ASTRONOMERS ON VENUS SQUINTING THROUGH ZUKON-ENCRUSTED TELESCOPES WITH LASER-GUIDED VIEWFINDERS
PROPORTIONS	(rectangle: 4 wide × 3 high)	(irregular shape: 4, 2, 3, 3.5, 2, .08, 2.22, 1.6, 2.25; thin rectangle: 1 high × 4 wide)

EXHIBIT 13:
VISUALS PREPARATION GUIDELINES

LEADING THE CONFERENCE

Conference leaders can ensure that video teleconferences run smoothly by following these steps, some of which are technical in nature, while others are simply common-sense rules that apply equally well to face-to-face meetings:

o   Arrive at the video teleconference room 10-15 minutes before the scheduled start time. Rooms are generally locked when not in use, so the room scheduler/coordinator will have to unlock the door for participants. The scheduler/coordinator, if requested, may provide a brief video teleconferencing training session prior to the actual start of the conference. Training will familiarize participants with proper teleconferencing techniques and instruct them in use of the remote control. After this briefing, scheduler/coordinators will either leave the room or remain to assist in managing the video teleconference, per instructions from the conference leader. Scheduler/coordinators will provide telephone and/or beeper numbers at which they can be reached during the conference.

o   Ensure that participants follow these tips to maximize the productivity of discussions:

Start on schedule at the establishment of the video connection to remote sites.

Identify leader(s) and participants.

Review the meeting agenda and stick to it.

Identify yourself and ensure that other participants identify themselves when speaking.

Address participants by name.

Speak into the microphone in a normal tone of voice.

Pause occasionally so others may comment.

Refrain from speaking at the same time as others and from side conversations, eating, drinking, finger drumming, pencil tapping, paper shuffling, and coughing and sneezing into the microphone.

Look at the camera when addressing parties at remote locations.

Summarize decisions and assignments.

Poll for questions and comments.

Keep track of the conference end time and the time remaining.

o   Coordinate the technical aspects of the conference, such as operating the room remote control or managing audio-visual presentations. Conference leaders may want to request one-on-one training from the local room coordinator prior to the conference. Leaders should follow these guidelines:

Audio:

Make sure participants are seated close to microphones. Avoid moving or rearranging microphones. Keep papers and other objects off the microphones. Participants who are using the whiteboard should be provided with lavalier microphones, where available.

Use the mute button whenever you want to prevent other sites from listening to local conversations or want to carry on local side conversations without distracting people at other sites. The red mute light will appear in the upper left section of the console.

Follow the instructions on the in-room telephone to add in single or bridged audio participants.

On multipoint conferences, select whichever video switching mode—chairperson control or voice activated—best suits the requirements of the conference.

Graphics:

Test graphics before the conference start to ensure their legibility at remote locations.

Preview all graphics before transmitting. Be sure to familiarize yourself with the "preview" and "transmit" buttons on the room remote control.

Focus the camera on the graphic. Use camera preset buttons on the remote control whenever possible. Preset buttons will aim the camera at a particular pre-programmed location, such as the room's whiteboard.

Make sure the graphic is fully within the frame that is transmitted.

Leave each graphic up on the monitor screen for as long as participants need to read it.

Send facsimile copies of busy, cluttered, or word-heavy materials to the other sites. Use single-button dialing on video teleconferencing room facsimile machines when sending materials to other EPA video sites.

Make a thermal printer copy of useful graphics or request that they be faxed after the conference. Avoid requesting that screen graphics be faxed during the conference, since this would place an unnecessary burden on the originating party. Always obtain the other party's permission prior to printing screen-displayed graphics.

Video:

> Seat everyone around the conference table, in well-lit spots, and within range of the cameras.
>
> Preview video signals before transmitting them.
>
> Zoom and focus the camera on the speaker. Use camera preset buttons on the remote control whenever possible.
>
> Eliminate unnecessary movement by cameras and participants.
>
> Request permission prior to making screen prints of participants' faces or videotapes of the conference. Leaders may want to include participant portraits and/or conference videotapes in meeting minutes or proceedings. Remember that you will not be able to record with the VCR while you are previewing or transmitting VCR pictures.

o   When requesting a conference extension, notify the room scheduler/coordinator at least a half-hour prior to the scheduled end of the conference.

o   When requesting early termination of the conference, notify the room scheduler/coordinator at least 15 minutes before its scheduled end in order to cancel any remaining time.

CLOSING THE CONFERENCE

Conference leaders can bring on-line discussions to a graceful, orderly close by following these steps:

o   When the "20 minutes remaining" message is displayed, begin to close the discussion.

o   At the end of the conference, summarize the discussion and clarify decisions or conclusions reached. Set up issues for the next conference, if applicable.

o   Thank participants and conclude the conference on schedule at or near the end of the video connection. The incoming signal will freeze when time is up.

o   Do not turn off the video teleconferencing equipment or room lights, fans, heating, air conditioning, or ventilation systems. This is the responsibility of the regional/local room scheduler/coordinator. Notify the scheduler/coordinator in person or by telephone that the conference is over.

o   Make sure that the video teleconference room is left neat for the next meeting.

o   Make sure that the door is shut and locked when all participants have left. Video teleconferencing room doors generally lock automatically when shut.

HOW DO YOU RESOLVE TECHNICAL PROBLEMS DURING A VIDEO TELECONFERENCE?

The best way to avoid technical problems during a video teleconference is for participants to follow these guidelines:

Use good audio teleconferencing practices, such as taking turns to talk, eliminating background noise and side conversations, and speaking into the tabletop microphone. **High-quality audio is the feature most critical to the success of a video teleconference.** People can tolerate faulty video to varying degrees but will always require clear audio in order to convey spoken information.

Avoid making sudden, rapid movements, since these can can cause blurring and loss of resolution in the video transmitted to other sites.

Site conference leaders should report technical problems promptly to their respective room scheduler/coordinators. Prior to reporting a problem, however, leaders should first determine whether it is due to any of the common user mistakes presented below:

AUDIO PROBLEMS:

Loud crunching or rustling sound:

Solutions:

Clear the conference table of all papers and other objects around the microphones.

Make sure that participants are not touching or jostling the microphones.

Faint or distant voices:

Solutions:

Participants should sit close to the microphones.

Make sure that participants speak in normal, audible tones of voice.

Speech clipped off:

Solutions:

Take turns talking.

Eliminate background noise and side conversations.

VIDEO PROBLEMS:

Image blurred or out of focus:

Solutions:

Eliminate excessive movement by participants, objects, and visual materials.

Use "focus" button on the room remote control to increase the image resolution.

Participants outside of camera range:

Solutions:

Zoom out on camera as far as necessary.

Tell participants to sit within the camera range.

If a steerable wall camera is used, adjust its angle to bring subjects into range.

Graphics outside of camera range:

Solutions:

Zoom out on the overhead graphics camera or steerable wall camera, whichever if used, as far as necessary.

Adjust position of graphics to bring them into camera range.

Conform to the 3x4 dimension guidelines for visual materials.

Send the graphic as a facsimile or computer image to the other site(s).

Illegible graphics or text on video monitor:

Solutions:

Conform with the quality, dimension, and size guidelines for visual materials.

Eliminate excessive movement of graphics.

Send the graphic or text as a facsimile or computer image to the other site(s).

Dim or low-contrast visuals:

Solution:

Make sure all participants are seated in well-lit areas around the conference table.

Conference leaders and participants should never attempt to correct, adjust, or repair video teleconferencing equipment or other room systems, such as cabling, heating, air conditioning, and lighting. If any of these systems fails or malfunctions, you must call the room scheduler/coordinator.

GLOSSARY OF VIDEO TELECONFERENCING TERMS

Action graphics: Capture and transmission of real-time graphics composition during a teleconference.

Analog signal: A video, voice, or other electronic signal transmitted as a smoothly varying, curvy, continuous waveform.

Audio teleconferencing bridge: A specialized, digital electronic device that enables four or more voice telephone callers to confer simultaneously.

Blurring: Diminished resolution of moving images during a video teleconference.

Bridged audio: Separate audio signals that have been combined into a single transmission path.

Broadcast: To send information to two or more receiving devices simultaneously.

Chairperson-controlled video switching: The ability of a designated multipoint video teleconference chairperson to control which site may transmit video signals to the others.

Clipping: An audio teleconference problem in which spoken phrases are cut off or only partially heard by conference participants.

Codec (contraction of coder-decoder): Equipment that converts outgoing analog signals from local cameras, microphones, and other input devices into digital bit-streams; compresses outgoing bit-streams; sends the bit-streams to remote sites over digital telecommunications circuits; decompresses incoming bit-streams; and converts incoming bit-streams back to their original analog waveforms.

Compressed Video Teleconferencing Service (C-VTS): The FTS2000 Network A video teleconferencing service used by EPA.

Compression: Reducing the number of digital bits needed to encode video, audio, text, and other information for transmission, storage, or processing.

Conference leader: The person who directs a teleconference and is equivalent to a chairperson in a face-to-face meeting.

Decompression: Restoring a compressed signal to its original, larger representation.

Digital bit-stream: A video, voice, or other electronic signal transmitted as a string of discrete, square, discontinuous waveforms.

Full-motion video: Continuous, real-time transmission and display of video images.

Interactive: The ability to carry on real-time, give-and-take electronic conferencing sessions.

Lavalier microphone: Microphone that is clipped onto the clothing of a teleconference participant.

Monitors: Devices used for display of video, graphics, and computer images during a teleconference.

Multimedia video teleconference: A video teleconference that involves any or all of the following capabilities: action and still graphics, 35 mm slides, videocassette presentations, computer text and graphics, scanned graphics, and facsimile.

Multipoint: The ability of three or more separately located people or groups to carry on live video, audio, textual, and/or pictorial communications sessions by means of electronic conferencing technologies.

Multipoint control unit: A device that establishes and manages video and audio connections of three or more video teleconference sites.

Mute: The ability of a teleconferencing site to temporarily disconnect the handset, speakerphone, or teleconferencing system microphone to prevent other sites from overhearing side conversations.

Overhead graphics: Still or action graphics that are captured and transmitted by a camera mounted in the ceiling of the video teleconference room—in most cases, directly over the conference table.

Phone-add: The ability to bridge an outside audio-only line into a video teleconference.

Point-to-point: A teleconference involving only two sites.

Preset buttons: Buttons on the video teleconference remote-control unit that enable participants to reset room cameras to default angles.

Preview buttons: Buttons on the video teleconference remote-control unit that enable participants to preview outgoing video and graphics images prior to transmission.

Room scheduler/coordinator: The person responsible for reserving EPA video teleconferencing facilities, scheduling time slots on the FTS2000 C-VTS network, providing users with training on system capabilities, providing assistance in developing conference graphics, and assisting conference participants in operating the equipment.

Still graphics: Capture and transmission of static images during a teleconference.

Transmit buttons: Buttons on the video teleconference remote-control unit that enable participants to transmit video and graphics to other sites.

Video teleconferencing: The ability of dispersed people to see and speak with one another in real time over telecommunications connections.

Voice-activated video switching: The ability of a multipoint video teleconference system to select video signals only from the site that is currently speaking.