



UNITED STATES SKI AND SNOWBOARD ASSOCIATION

ALPINE OFFICIALS' MANUAL

CHAPTER VII

THE RACECOURSE

2011-2012

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OVERVIEW

The United States Ski and Snowboard Association (USSA) and the International Ski Federation (FIS) take an active role in providing information, instruction, guidance and direction to organizers at all levels of ski competition. Because of the rapidly changing nature of equipment and competition it is necessary for each official to familiarize themselves with *current* editions of the USSA Alpine Competition Regulations (ACR), the FIS International Ski Competition Rules (ICR) and its Precisions as well as additional rule books published by USSA and/or FIS and applicable to the sport.

The ACR, the ICR and its current Precisions as well as any bulletins issued by USSA and/or the FIS Bureau supersede any information contained in any Chapter of this Alpine Officials' Manual. For USSA non-FIS events, the ACR is used, however, "*The FIS International Competition Regulations (ICR) and adjuncts shall govern any and all issues not addressed therein.*" (USSA ACR) For FIS events, the ICR supersedes all parts of the ACR.

THE RACECOURSE

The essential element in any ski race is the "*racecourse*" commonly called the "*course*", or, to make the more specific European distinction - the "*piste*", which is the trail or slope, where the competition is set, and the "*track*", which is the sequence of gates through which the competitors pass.

The goal is to achieve a well-maintained racecourse/track that is not only legal but is also fair for all competitors. To these ends, the rules specify "dimensions" which include the minimum and maximum vertical drop; the minimum width of the racecourse; the number, width and separation of the gates; and necessary manual/hand timekeeping and homologated electronic timing systems and procedures.

RULES PERTAINING TO THE RACECOURSE AND THE "TRACK"

Most matters relative to the "racecourse" are treated under specific event sections of the ACR, the ICR and its current Precisions. Rule reference numbers are not listed in this Alpine Officials' Manual as they may change with each publication of these rules. Check the Index to these rules for section numbers for the following items:

- (Jury) Supervision of the Training
- Rights of the Jury During Competition
- The Start
- The Finish
- Homologation
- Preparing the Downhill racecourse, and its "dimensions"
- Preparing the Slalom racecourse, and its "dimensions"
- Preparing the Giant Slalom racecourse, and its "dimensions"
- Preparing the Super G racecourse, and its "dimensions"
- Inspection and Training (on the racecourse)
- Preparing the Parallel racecourse, and its "dimensions"
- Preparing the racecourse and the "dimensions" for Children's International Competitions

The rulebooks contain various instructions regarding the racecourse - evidence that this part of alpine ski racing continues to evolve at a relatively rapid rate. Because of the nature of this subject and its impact on the success of a race, it is best to view the racecourse from the point of view of the objectives involved and the importance of meeting those objectives.

A properly prepared racecourse is essential for a good race. If the racecourse is well prepared, the race will run with few complications and will be legal and fair for all competitors. It takes knowledge, experience and dedication to be able to adapt racecourse preparations, racecourse setting and racecourse maintenance to the varying conditions presented by different sites, different fields and unpredictable weather. An ideal racecourse should be maintained so that all competitors have equal opportunities regardless of their start position. After the race, the hill should be left clean of equipment and debris.

On-hill security/protection installations require specific knowledge and experience and should basically follow this creed:

- Avoid the obstacle
- Deflect a fallen competitor away from an obstacle
- Stop a fallen competitor before he gets to the obstacle

FIS names specific individuals to some competitions, e.g. World Cup and Continental Cup, to work with the organizers in advance of the competition to ensure the condition of the racecourse and the availability of necessary competitor security/protection equipment. USSA has named a task force that is charged with similar duties; contact USSA Competition Services for information.

FIS RACECOURSE HOMOLOGATION

Alpine ski competitions appearing on the FIS Calendar are to be held on racecourses that are homologated (approved) in advance by the FIS. This helps assure the quality and legality of FIS races, provides for consistency between sites and offers race organizers an opportunity to receive input from acknowledged experts.

A request for homologation is to be directed to the USA representative on the FIS Alpine Courses Subcommittee. At the time of the request, the race organizer or ski area should provide basic information regarding the trail and its intended use, the proper contact people at the site and the current state of preparations.

FIS DH and SG racecourses must be re-homologated every 5 years. FIS SL and GS racecourses must be re-homologated every 10 years. The homologation is valid from 1 November of the year of issue of the homologation certificate.

All racecourses – DH, SG, GS, and SL – must be re-homologated whenever there have been major modifications to the hill including, but not limited to: Erosion, landslides or overgrowth; construction of buildings or lifts; construction of shelters, parks, roads, tracks, etc.; installation of snowmaking hydrants, snow retention fences or other significant hardware.

NOTE: A race organizer should not depend entirely on the homologation of a racecourse by the FIS and ignore exceptional snow and weather conditions. Natural conditions like insufficient or excessive snow depth, unfavorable surface snow conditions, dense fog, heavy snow fall or rain may make the trail unsuitable for holding a specified competition.

USSA RACECOURSE HOMOLOGATION/APPROVAL

All sanctioned USSA Downhill (DH) and Super G (SG) Giant Slalom (GS and Slalom (SL) events, both scored and non-scored and including Masters', are to be conducted on USSA-approved racecourses. Racecourse setting needs to conform to the inspection report and requirements.

All FIS homologated trails are automatically accepted as meeting USSA Racecourse Approval standards, as are DH trails which were previously homologated by FIS but now lack the necessary vertical drop due to FIS rule changes - provided no major changes have taken place on the racecourse and re-inspection is current. Events run on these racecourses must meet published minimum vertical drop or minimum combined time (for 2-run events) time standards. If a USSA event meets the required vertical drop, no further action is required. If the required vertical drop cannot be met but the minimum time standard can, the higher of the calculated penalty or the minimum penalty of 30.00 must be applied. If a USSA DH, SG, GS or SL meets neither the vertical drop requirement nor the minimum time standards, in order to be scored to the USSA Points List, the calculated penalty must be adjusted accordingly and the higher of the adjusted penalty or the minimum penalty of 30.00 must be applied. Refer to the current Competition Guide for these adjustment requirements. Vertical drop requirements must be met for all FIS events in order for these events to be scored to the FIS Points List.

USSA DH and SG racecourses must be re-approved every 5 years or when major modifications are made to the hill; USSA SL and GS racecourses must be re-approved every 10 years or when major modifications are made to the hill.

USSA RACECOURSE INVENTORY

The USSA Alpine Office and the Alpine Courses Working Group have developed an inventory of racecourses used for USSA events. The intention of this program is to assist race organizers with their concerns. List of approved racecourses can be found on the USSA website.

PERSONNEL

The Chief of Course is the official in charge of preparing the racecourse, working with Course Setters and supervising the cleanup immediately following the event. Successful completion of these responsibilities requires organization, leadership, communication, personnel and equipment.

The Chief of Course will need to establish advance communication with ski area management. In fact, at many major events where the ski area is involved with organization, the Chief of Course is an area-employed supervisor and is the "local authority" regarding area weather patterns, ski area resources and existing snow conditions.

A Chief of Course needs to know racecourse and snow preparation and should be able to evaluate the racecourses set under their jurisdiction. Their responsibilities include the start and finish areas as well as the actual race trail.

In addition to responsibilities to the Race Organizers, a Chief of Course should know and understand the rules and participate in Jury inspections and other Jury meetings.

Refer to Chapter IV - Race Organization, for suggestions for a “Race Personnel Assignment Sheet” and a “Check List for Race Organizers”.

COURSE WORKERS/VOLUNTEERS

A critical aspect of working “between the fences” at any ski competition is that all personnel need to be properly trained and equipped for their tasks. Not only is reasonable skiing skill necessary to perform work in this challenging and sometimes hazardous environment, but the ability to maneuver competently on steep slopes while carrying equipment and materials, including 50-pound bags of fertilizer or salt, is a key requirement. Individuals’ skiing ability should be verified prior to their being assigned to specific tasks, especially in extreme/technical areas or in course sections that are steep or icy.

Training on proper use of racecourse maintenance equipment is critical. Training on use of shovels, rakes, paint/dye packs and other materials should occur prior to race day. All course workers should be under constant supervision by trained and experienced crew leaders. Radio communication with course crew leaders is also critical.

Awareness of details will improve the chance that racecourse work proceeds with a greater margin of security. Some of these details include:

- Daily Program (schedule), including training, forerunner and racer start times
- Racecourse inspection techniques authorized for competitors,
- Start intervals for competitors
- “Start Stop” procedures (Refer to Chapter III. Rules, Jury and Technical Delegate)
- Location of staging areas, i.e. replacement poles and/or equipment

LIST OF SUGGESTED RACECOURSE MATERIALS

The equipment and supplies needed to conduct an alpine ski race depend on many factors. The type of event; the number, age and ability of competitors; the nature of the racecourse; the number of workers available; as well as the snow conditions and weather can all make a difference in the supplies you will need. For example, DH, SG, GS and some SL events will require additional fencing and security/protection systems. If the snow is soft or layered or if it has a crust, shovels and rakes will be needed to keep the track in competition condition. In a SL, replacement poles and extra tools will be needed. “Self-redressing” poles require certain tools and personnel. Additional gate panels must be available as needed. All tools and materials should be in place at the Racecourse well in advance of the start of an event. It is advisable that “caches” of equipment be placed along longer racecourses to speed repair and replacement.

Poles:	Wrenches for screw-in gates
Maximum: 252 per GS racecourse	Wedges, hammers
Maximum: 168 per SL racecourse	Tool kit (pliers, screwdriver, etc.)
Reserves: 10-50%	Shovels and rakes
Barriers: As needed	Communications equipment
Drills/Auger for hard snow/ice	Extra radio batteries and chargers
Drill battery chargers and extra batteries	Chemicals for snow treatment
“Willy bags” & filling	Buckets and spreaders
Air fences and inflating devices	Rope/pennants for crowd control
Tags or stickers for numbering gates	Pine boughs/dye - course “paint” & sprayers
Dye - for gate placement	Plastic garbage bags
Tape - duct, electrical, friction, etc.	Heavy twine/baling wire
Official Notice Board(s)	“Zip” ties
Gate flags/banners DH/GS/SG	Support for banners
Banners: Start, Finish, Sponsors	Signs (“Closed”, etc.)
Score Board	Timing equipment: electronic & Manual/hand
Public Address System	Finish Sensor protection devices

THE START AREA

The start area is an integral and important part of the racecourse and care should be included in planning and preparation. The exact location of the start gate and the start ramp should be well considered so that it leads competitors logically and smoothly onto the racecourse through the first gates. The track from the start line to the first gate should be prepared as well as the rest of the racecourse.

The preparation area should be closed off from the public and it should be either sheltered or near shelter. It should have sufficient area for competitors, coaches and service representatives and it should have a place to leave extra clothing and should have an exit other than through the start gate.

The start area includes a warm-up and preparation area, preferably sheltered, a start line platform or hut and an actual start gate. The actual start line area should be level so competitors may stand relaxed prior to their start and access should be restricted to the competitor, coach and start officials.

The start gate should be constructed with posts 50 cm to 80 cm apart and the wand must also be within this range so a competitor cannot go through the gate without triggering the timing equipment. The posts need to be firmly fixed so they do not work loose and should be constructed so that a competitor cannot use the start gate to push or pull out of the start.

The start wand should be attached so that the competitor hits the bar below the knee and not too close to the boot top. In all cases it shall not be less than 35 cm or more than 50 cm above the surface of the snow. It may be mounted either to the right or left of the starting skier, and its exact position and rotation on the posts must be marked. Unless a start wand breaks, it may not be changed during a run. If a start gate requires replacement during a run, it must be replaced with an identical start gate in the original position and with the same rotation.

Special attention must be paid to preparing the surface where an athlete places his ski poles below the start gate. It is best to ice in starting pads at the snow surface so the area does not deteriorate throughout the race creating a disadvantage for the later starting racers.

THE FINISH AREA

For a major race, there may be 20-30 race officials at the finish area in addition to press, spectators and competitors. For the functions of the finish area to be effective, a location should be chosen which conforms to current requirements of USSA and FIS concerning width and vertical drop of the racecourse above it. It should provide an area of sufficient length and width that competitors can stop after crossing the finish line in racing fashion and should provide access/egress for both officials and competitors. The finish should also have space allotted for functions that take place adjacent to the finish area including timing, scoreboard, media and spectators.

The last gate should be open and direct the competitor to the middle of the finish line, which is to be clearly marked horizontally with a coloring substance. The finish area should be prepared and maintained as well as the rest of the racecourse.

The finish line is marked by two posts or vertical banners and may be connected by a horizontal banner with the sign "Finish". In DH and SG races, the finish must be no less than 15 m wide and in SL and GS no less than 10 m wide. The width is considered to be the distance between the two finish posts or banners not the length of the finish line, and the supports used to mount the timing devices must also be at least this far apart. The timing supports are to be placed behind the banners on the downhill side and protected to reduce the chance a competitor who has fallen can make contact with them.

Finish installations and closures should be set up or secured through suitable protection measures, that the competitors are protected as well as possible

THE "TRACK"

Course Setting is acknowledged as an art - not a science - and cannot be easily taught or explained. The prescriptions for each event are defined by the FIS and should be followed. However, experience is critical to good course setting and should be recognized in selection of course setters for each event.

Vertical drop requirements, gate specifications and other instructions regarding the track appear in the current copies of USSA and FIS rules in the specific sections for each event. Vertical drop requirements and special time requirements for USSA events appear in the current ACR. These regulations are also available on the USSA website. In order to guarantee Officials are using current guidelines, these specifications will not be listed in this Chapter.

USSA and FIS rules contain a "Job Description" for the Course Setter. The articles that detail this job description include nomination/assignment and prerequisites, supervision and subordination, and the rights and duties of the Course Setter.

The Course Setters answer to the Jury of the particular competition. They need to follow the directives of the Jury and, if the racecourse has been set prior to the Team Captains' meeting, they are required to make a report at the Team Captains' meeting concerning their course set.

Racecourses should be set appropriate to the level of competition and are required to be set within USSA and FIS specifications regarding the number of gates, the width between the poles of each gate, the distance between successive gates, and the restrictions applied to vertical combinations (flushes and hairpins). In general, racecourses should have some rhythm and the preferred line should be obvious. The challenge should not be in memorizing the racecourse but in selecting the best line in the racecourse set. Course Setters should not rely merely on complex combinations of poles, as a selection of a general line that will test a variety of normal racing skills is the first objective. Racecourses should be technically challenging and the gates should require competitors to make complete turns. A racecourse should have a variety of turns, with varying radii in and out of the fall line and skillful use of the terrain, especially for GS. The final gates of a racecourse should lead the competitor through the center of the finish gate, and Course Setters should anticipate setting into the finish several gates before the end of the racecourse.

The Course Setter should check to see that poles are set in firmly to the proper height. Assistants need to be available so that the Course Setter may concentrate on setting instead of carrying poles.

Whenever practical, the Course Setter should run the racecourse or have a qualified person run it so that needed adjustments may be made. This should be done as each section is set and again, full length, when all gates are in place.

Downhill and Super G Course Setters should meet with the Technical Delegate and the Organizer at least one day before the training begins to discuss the racecourse and any possible alterations. DH Course Setters must be acquainted with the particular racecourse. Laying out a trail and setting the racecourse for DH races that are legal and fair for all competitors requires particular knowledge, skill and experience. The Course Setter needs to consider the possible effects of a change in weather as temperature changes can affect racecourse conditions. In DH and SG, gate flags need to be fastened according to manufacturer and FIS specifications. It is critical to have qualified personnel *who are not entered in the competition* test DH racecourses and assist the Course Setter with fine-tuning of the racecourse by running all or part of the racecourse the day before the official training begins.

Giant Slalom racecourse setting should conform to current specifications of the rules with special attention paid to correct setting, flags, color sequence and width of gates. Poles should conform to current specifications of the rules. As in DH and SG, GS gate flags need to meet current homologations for fastening and minimum distance above the snow. For single gate Giant Slalom, first gate, last gate, and delay gates are the only gates that require both a turning and outside pole. All rules and regulations regarding the width of the racecourse should be considered as if there was an imaginary outside gate. *Please refer to current rules regarding "single gate Giant Slalom".*

Slalom racecourse setting should conform to current specifications of the rules. Poles should conform to current specifications of the rules. Flags are no longer used. For single pole Slalom, first

gate, last gate, delay gates and combination gates (hairpins, verticals) are the only gates that require both a turning and outside pole. *Please refer to current rules regarding “single pole Slalom”.*

RACECOURSE PREPARATION SUGGESTIONS

Advance racecourse preparation is a key element of a successful race; no amount of race day effort can replace it. The Organizing Committee should consider the recommendations of the area management and the consideration of the skiing public. It is essential to keep area management informed, involved and committed throughout the planning. Advance, joint planning is necessary if an organizer wishes to achieve cooperation and commitment from area management.

Racecourse preparation begins before the first snowfall with the clearing of obstacles from the slope and alongside the racecourse. Brush is trimmed so the racecourse can be used with a minimum of cover. Snow preparation begins with the first snowfall. If the race is to be held on a slope normally used by recreational skiers, it is usually groomed on a regular basis by the area. Working closely with the experienced area employee in charge of slope maintenance, a schedule can be designed which will provide for the best conditions on race day.

Snow density is the primary factor for insuring a good racing surface for all of the competitors. Density is a function of moisture and compaction of the snow. Experience of the Race Organizing Committee, resort management and local groomers and snowmakers will help to insure a good track for the racers.

Before race day, the surface of the racecourse should be made as firm and smooth as possible. Under most conditions, it will take at least 12 hours for reworked snow to properly “set”. Mogul cutting, using grooming machines, should be done days before the event.

When working with manmade snow, advance planning is necessary because its structure – higher water content, extra density and compaction than natural snow – requires time to “set” undisturbed to drain excess moisture before it can be worked.

There are many options available for mechanical preparation. Depending on the ski area “rolling stock”, the snow conditions and anticipated weather; the ski area employee in charge of grooming is generally the most knowledgeable. Qualified personnel should discuss preparation of the racecourse well in advance of the event. This will ensure that the grooming staff is aware of current course preparation requirements. The security of ski competitions demands recognition of the difference between snow preparation for competition and snow preparation for recreation.

Track Packing can be used early in the season to develop a base. This increases friction and tilling and provides a rough surface to which future snow can adhere. This may also help in consolidating deep, dry snowfalls until they can be worked more intensely. With care, track packing may provide enough consolidation and adhesion for new snow to adhere to a frozen base.

A *Compaction Bar*, “*Wing*”, or “*Dovetail*”, is hydraulic powered to apply significant down pressure and is the standard grooming device for most ski areas with modern grooming equipment. It leaves a smooth or slightly rippled surface, but if worked in very deep snowfalls, it may leave layers of

compacted snow. Continuous packing is necessary during heavy storms or a sufficient period of time must be allowed to elapse after grooming to allow top layers to “set”.

A *Cutter Bar or Blade* is used to “cut” moguls and move snow and should be followed up by finish grooming to leave a skiable surface. This type of grooming requires skilled operators.

Rotary Tilling is the most effective tool over a wide range of conditions. These conditions include: new snow, old snow, loose snow, crust layer, frozen granular with ice patches and spring snow. Its thorough cutting, aeration and subsequent compaction provide worked snow that will set overnight in most conditions. During new snowfall and under ideal conditions, “setting” may occur in minutes with the use of this tool.

Machine preparation is quick and usually effective, but machines do have their limitations. Compacting power is diminished on very steep slopes (45 %+), and control of the machine may be difficult in some conditions. Also, some machines do not maneuver or pack well on a side-hill.

Under some circumstances, use of machinery can damage the prepared track, and unless there is sufficient time for the surface to be slipped by skis after working, machinery is best kept off DH racecourses until the depth of new snow can no longer be handled by working on skis.

In the event that machines are not available, or their use would be ineffective, manual means of snow preparation will be necessary. When snow cover is very thin, the slope is too steep for effective machine use, the crust layer will support skis but break under machines, the racecourse is covered with old unpacked snow or there is a great depth of new snow, it may be necessary to *ski* or *boot pack* before machinery can be effective. Packing teams need to be knowledgeable, organized, thorough and dedicated.

Ideally, *boot packing* should be done several days in advance to be as effective as possible. When boot packing, several passes over the slope are usually needed. Boot holes should be left open and not packed or slipped over until two days before the event or beginning of training. The racecourse should then be ski packed on the day before the event, and the ridges should not be slipped.

Ski packing is necessary when there is very thin snow cover, a racecourse needs smoothing after being boot packed, there are isolated areas that cannot be reached by machinery or machinery is not available.

Side slipping is used for final smoothing of the racecourse and/or removing loose snow from the track.

SPECIAL SITUATIONS

When new snow is expected overnight, it is best to defer racecourse setting until morning. If snow starts during the night, cat crews should be constantly packing new snow as it falls, and racecourse maintenance crews should be prepared to begin work on the racecourse as early as possible to move new snow off to the sides if it is not too deep or heavy. In this situation, additional help should be available for the Course Setter.

If the snow cover is thin, dry snow can be sprayed with water in order that loose snow, when applied, will adhere and will be more resistant to ski traffic. Ice patches can either be sprayed with water or industrial-type propane torches can be used to partially melt relatively large areas that will also allow loose snow to adhere.

Chemicals can be used to add moisture to snow and/or melt ice sufficiently for new snow to adhere in a variety of situations including:

- When snow is too cold and dry (powder or granular)
- When snow sticky - it is too soft or wet due to mild weather and/or rain
- When the snow is actually hard ice

Chemical application to loose snow will create a more durable racing surface; chemical application to an ice surface may also have the benefit of adding “texture” to the racing surface. Organizers should work with ski area management regarding types of chemicals allowed by the area/local environmental agencies/regulations.

When using chemicals, the upper layer of snow is ski packed and then smoothed with skis or rakes and shovels. The section to be prepared is “salted” by hand or with a spreader. “Salt” is scattered on the surface and then covered with a thin layer of snow by side slipping or shoveling. The treated area should extend beyond the track itself.

In order to give competitors a “feel” for the treated snow, it is recommended that practice areas be treated in the same manner as the racecourse. Start and finish areas should also be prepared in the same manner as the racecourse. A treated racecourse may become smooth only after several skiers use it so advance preparation for an adequate number of forerunners will assist in providing an even surface for all competitors.

Granular spring snow may be hardened by the use of additives. Preparation of the run with chemicals, if done in due time, is more effective than applying water because it allows the snow to become moist and even. With new snowfall, the snow needs to be treated and compressed during, or immediately after, the snowfall to take advantage of the humidity in the new snow. When using chemicals, prepare several test patches adjacent to the racecourse in order to evaluate the effectiveness of the chemicals.

Chemicals are generally not recommended for use with dry snow at low temperatures. When chemicals are used, the snow becomes hard more quickly at varying depths and hardness lasts for differing amounts of time.

When time is short, or if a SL run needs overnight preparation with cold and loose snow, water and chemicals may be used in combination. In this case, the run should be boot packed, chemical spread evenly and then water should be spread. Working the run in small areas, this mixture of chemical and water should be immediately boot packed into the snow and then ski packed to make it smooth. Although chemicals may be used in varying amounts on certain sections of GS, SG and DH racecourses, it is best to prepare an entire SL racecourse evenly.

When there is damp or wet snow that does not freeze because of mild temperatures, compact snow may be obtained through the use of chemicals. Such products may also be effective because of rain and/or a rise in temperature.

Very wet, rippled snow is usually found in the spring when there is warm, rainy weather or when rainfall mixes with snow. The same substances used for wet snow are effective, but much deeper preparation is needed before chemicals are spread and must be repeated after spreading. If the snow is very humid, it may be necessary to use a different chemical.

Chemicals may be used to make frozen or icy runs softer or to soften a run so it can be smoothed. A racecourse may need to be softened when rainfall is followed by a sudden freeze. Chemicals should be spread on icy surfaces that have been raked slightly to scratch the surface so it can hold the chemical. Amounts, methods and time needed depend on the temperatures. A test may be necessary to determine the time required for softening.

There are many chemicals available for all types of racecourse maintenance. The type of snow, the reaction of the chemical, and the method of application should be considered when making a choice. As stated before, ski area personnel and/or environmental agencies/regulations need to be consulted; environmental concerns may limit type and/or amount of chemical used in a particular area.

***NOTE:** Traces of some “chemicals” can be transferred from on-hill clothing/equipment to travel clothing/equipment and may cause airport security alerts.*

Upper level events require that a racecourse be prepared with the use of a water injection bar. This machine adds water to the racecourse and, when set, provides a firmer racing surface.

RACECOURSE MAINTENANCE SUGGESTIONS

Racecourse maintenance begins with preparation of the slope that is to be used and ends after the last competitor has crossed the finish line and the racecourse has been removed. Potential trouble areas should be anticipated and proper planning should be undertaken to avoid problems. Constant racecourse maintenance work is necessary during the race to slip out ruts, holes and “chatter marks” from the turning areas. The objective is to make the racecourse as equitable for the last competitor out of the start gate as it was for the first competitor. Maintenance of the start area and finish area is as important as the maintenance of the actual racecourse.

If pre-race preparation has been successful, maintaining the racecourse during the race itself will be easier. If the race is a DH, part of maintenance will be preparation for the next day's training or race.

As with other race operations, racecourse maintenance is easier, more enjoyable and more effective if it is properly organized, and the workers are shown leadership and coordination. Communication is essential so that there is no delay in response or any error in assigned tasks. Number of racecourse maintenance workers needed is dependent on start intervals, number of racecourse sections, location of lifts, lift ride time, snow conditions, etc.

The most effective racecourse maintenance work is done by several crews under the direction of an experienced leader and staffed by skiers with sufficient weight and skill for the job. Each crew can

be assigned a section of the racecourse that they will work continuously, or they may rotate down the racecourse and move from one section to another. When a rotation system is used, one crew should always be either already at the start or on the lift headed for the start.

With sufficient organization, it should not be necessary to interrupt the race for maintenance other than at brief predetermined intervals. Should an interruption be needed, the delay should be approved by the Jury and announced to all officials, competitors and coaches. Adequate communication will be needed to assure the racecourse is clear of all competitors so that maintenance work can start.

Competitor inspections may damage a racecourse more than training runs will and may necessitate repair before the training run can start. Also, the best-prepared DH racecourse will suffer during training. Weather permitting, maintenance work should be done as soon as possible so a developing problem is not aggravated, and all major repair work should be completed after the last run of the day so the racecourse may “set” overnight.

Turns, landing areas after jumps, flats and traverses are all areas that require regular maintenance. Some sections will only need side slipping, but others may require major work with shovels, torches, water and chemicals. A good Chief of Course will anticipate problem areas and organize crews accordingly.

As a final note, ski area personnel are often more knowledgeable than you, as a visiting official are, regarding the type of preparation required by the consistency of the snow in their respective areas. Seek, listen and respect their recommendations.