

Operational Discipline Does Your Organization Do the Job Right Every Time?

**Brian D. Rains
Global Process Safety Management Leader
DuPont Safety Resources
Wilmington, Delaware**

Operational Discipline Defined

DuPont defines operational discipline (or OD) as “the deeply rooted dedication and commitment by every member of an organization to carry out each task the right way every time.” Expressed more succinctly, OD is “Everyone: Do It Right Every Time” (Figure 1). As applied to safety, DuPont reinforces the company’s desire for a strong OD culture by stating that safety is a condition of employment.



Figure 1. Operational Discipline leads to operating excellence

One employer used the term 10,000% compliance to describe the expectation that 100% of the people are to comply 100% of the time. Again, failure to meet this expectation was met with negative consequences.

A third company, a DuPont client, describes operational discipline in terms of its results, stating that OD “delivers stable, low-cost production.”

All of these messages have one thing in common: They are statements by management, directed to the entire organization, expressing clearly their expectations for personal conduct and behavior, a standard of “following the rules.” In this paper, I will reference the DuPont definition.

When we talk about everyone doing it right every time, we often focus first on defining “everyone” or even “every time,” while concurrently attempting to describe what type of culture this might suggest. In my experience of leading manufacturing organizations in many settings and

on several continents, I believe that the first step to increasing operational discipline is to focus first on the “it,” that is, what is it that we expect people to do?

Most organizations, especially those handling hazardous materials or performing hazardous operations, invest considerable effort in preparing written instructions and procedures. Written procedures have many functions, including enabling consistent operations and behaviors, and they serve as a vehicle for codifying technology, best practices and experience. So why do so many companies find that employees are not following these instructions and procedures?

In this paper, I will share the recipe that I use to lead manufacturing organizations to a state of higher operational discipline. It is a simple, but I believe, effective, eight-step approach.

Eight Steps Toward Operational Discipline

Step 1. Be Convinced Operational Discipline Is Needed

The greater the risks in your operations, the greater the need is for a strong operational discipline culture. Perhaps you believe that relying on the experience of your employees and word-of-mouth training is sufficient for your organization. But if your business would suffer from human errors leading to safety incidents, quality and reliability issues, poor process optimization and higher costs, then it is probably time to implement the changes that create a strong operational discipline culture.

A review of some of the operating practices of the most hazardous industries, including airline transportation and nuclear power generation, shows that operational discipline is built into operations through check sheets, step-by-step sign-offs and independent verification by a co-worker or supervisor of the most critical steps. In the area of health care, a recent news report interviewed a Harvard University physician who had introduced checklists into the operating room. He reported a dramatic decrease in medical errors and avoidable patient complications and deaths.

In most DuPont manufacturing operations, we do not rely on direct supervisory oversight or direct secondary observation to ensure employees perform tasks correctly, and we often reserve checklists and sign-offs for the most critical tasks. Instead, we depend on a healthy Operational Discipline culture. And upon reflection, even checklists, sign-offs and other observation approaches rely upon workers’ doing the job right – without taking shortcuts and following required procedures.

How can you gauge the status of Operational Discipline in your organization? One way is to review your incidents and ask some questions. Do you have repeated procedural violations? Are you analyzing incident trends and categorizing root causes for indications of systemic weaknesses?

When DuPont’s Process Safety Incidents for 2000 were analyzed as part of our Operational Discipline initiative, the data revealed that a lack of Operational Discipline was a dominant cause in more than half the cases. This triggered the development of a number of additional tools to assess and strengthen our OD culture. Some of these will be described below.

When management becomes convinced that a strong Operational Discipline culture will be a key determinant in achieving key business metrics and that the prevailing OD culture needs to be strengthened, then the environment is ready to move to Step 2.

Step 2: Assess the Current State

What follows is an informal process I have conducted with many client groups.

I start by asking the group to consider all the individual tasks that are performed in their facility in a normal week where a documented procedure exists. The number is often very large, on the order of 10,000 tasks. The actual number is unknown, but it is clear that the size of the facility and the workforce plus the complexity of the operation are key determinants. I then ask what percentage of those numerous tasks are completed according to the required procedures and request each individual in the group to write this number down for future sharing. We then go around the room capturing the individuals' responses on a chart pad.

What kind of responses do we get? Simply stated, they are wide-ranging. Individual estimates of the number of tasks completed according to required procedures have ranged from less than 5 percent to 98 percent. Most organizations, however, average less than 50 percent.

I have also observed that managers tend to offer a higher relative percentage than others in a group and those individuals, whose duties are closest to the shop floor, offer lower numbers. For example, in a recent such session, a middle manager suggested that the correct answer for his organization was 10 percent. His 25 colleagues and peers in the room said nothing.

There are many reasons for the range of answers:

1. Many people don't know what procedures exist.
2. There has been no initial training and/or no refresher training provided on the procedure.
3. There are better ways to complete the tasks than what is documented in the procedure.
4. Following the procedures is optional.
5. Some people don't care.

Of course, this question addresses only compliance with the existing procedures. It does not take into account whether procedures actually exist for all of the facility's important operational and maintenance tasks.

Over the years, DuPont has developed a number of diagnostic tools to improve our Operational Discipline. One of these is a set of 11 characteristics that are used in assessing an organization's OD culture. These characteristics are depicted in Figure 2.



Figure 2. These 11 OD characteristics are used to assess OD culture.

In OD assessments, individuals and groups of workers are asked questions such as:

- Are alternative ways to completing a task rather than the documented procedure accepted by the organization? Are shortcuts taken? Do you take shortcuts?
- Given the circumstances that led to a recent process safety incident, were procedures adequate to prevent the incident? Were they followed? What would you have done differently, if anything?
- Are line managers aware of how work is actually done? Do they tolerate shortcuts? What are their standards of performance? How do they communicate their standards?

The assessment team provides site management with feedback for each of the 11 OD characteristics. Strengths and improvement opportunities are highlighted, as are best practices at other sites.

Other assessment tools include a comprehensive self assessment methodology and an on-line survey. Management has the right to apply the tools most appropriate for its situation.

Another example is the First and Second Party Process Safety Management (PSM) Audit Protocol. It includes approximately 300 audit questions asked during a routine one-week audit. Of these questions, 120 are mapped or correlated to one of the 11 OD Characteristics. When the audit scoring is complete, not only is an overall PSM score awarded, but also Operational Discipline scoring that includes a total OD score and an individual score for each OD characteristic.

Assessing OD can be sensitive. It is also highly subjective. A high degree of trust is needed to obtain a realistic picture. With these factors in mind, it is recommended that all organizations use more than one assessment tool and use them frequently.

Step 3: Develop a Comprehensive Roll-Out Plan

With every change initiative, especially those that affect the organization's fundamental culture, detailed and comprehensive planning is essential.

All good plans describe:

- The plan goal or objective and how it supports and is aligned with overall business strategies
- The gap between the desired future state and the present condition
- The steps that will be taken to close the gap, including the role of management in leading the change
- The assignments that will be given to those who are responsible for completing these tasks
- An agreed-upon timetable for accomplishment of the tasks
- Communications to all those involved
- Metrics and other measurement tools, including periodic reviews and audits that leaders will use to track progress

One company that DuPont worked with developed a 43-step Operational Discipline Enhancement Campaign. It focused on the 11 OD Characteristics that it believed would most effectively "move the culture." – PPE Compliance, Housekeeping, Elimination of Shortcuts and "Absolute Adherence to Procedures." Communication assignments included playing a recorded message by the site leader twice per shift on the site's PA system. Other important steps in the plan were:

- An announcement and information about the OD campaign provided to all personnel at all levels
- The use of skits, displays, mannequins, videos, and other communication vehicles to get the word out
- Training on key procedures and improving the availability and access of these documents to the organization
- On-going communication to the entire organization on the campaign's progress
- Focused housekeeping audits and the implementation of a 5S program

A key component of any such initiative is the celebration of the positive results and the process of communicating and learning from deviations.

Another company took a more direct approach to implementing OD by issuing an "Operational Discipline Standard." Some of their statements were excellent; for example: *Site Management shall establish the foundation for an effective Operational Discipline process through visible and felt leadership and commitment.*

Other statements may have been a bit idealistic: *All employees shall believe that all injuries, occupational illnesses, as well as safety and environmental incidents are preventable and commit to the policy that safety of a person overrides all production targets and all employees shall understand and internalize the Health & Safety principles of the company.*

Overall, what is most important in the development of an OD improvement plan is that it is consistent with the company's values and that the management is credible and authentic in its communication and implementation.

Step 4: Focus on the "It"

In our definition of OD – *everyone does it right every time* – "it" refers to the work or day-to-day tasks to be performed. For there to be a single right way to do the job, the "it" is typically

described in instructions or procedures. Procedures should be the documented, codified best practices that represent the organization's complete and best knowledge and experience. Procedures should contain the cumulative body of knowledge expressed in writing that instructs how a particular task is to be performed each and every time.

Too often, when an organization attempts to improve its Operational Discipline, it focuses first on the people and "fixing" what is wrong in the culture. In my experience, the right place to start is in the quality of the procedures.

If management instructs its employees to follow procedures when the procedures do not represent the best knowledge and experience of the facility, employees are placed in an untenable position and faced with two options:

1. Obey and follow the bad procedure and get a bad result
2. Ignore the procedure and do the task a "better way," inviting negative consequences for failing to follow management instructions

In this situation, not only is the employee placed in a difficult position, but management will suffer a loss of credibility and loyalty.

A robust process of technical review and employee involvement combined with talented procedure writers and a document management/control system is absolutely essential to building a culture of Operational Discipline. It is a continuous process of improvement.

As shown in Figure 3, the state of operational effectiveness is the product of the quality of the management standards and the Operational Discipline. Weakness of either (or both) will result in ineffective operations and safety incidents.

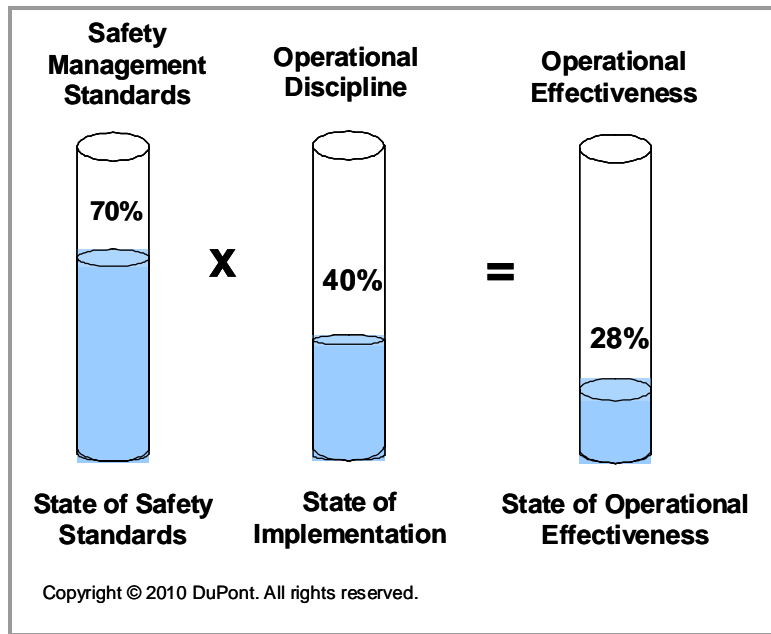


Figure 3. Safety performance is a function of the safety management systems and level of execution.

Management should not insist upon compliance to procedures until the procedures are of sufficient high quality to merit compliance.

Step 5: Establish Priorities

All procedures are *not* created equal. Employees understand that to operate a facility or perform their tasks safely, some procedures and regulations are more important than others. Thus, to strengthen Operational Discipline, a focus on compliance with the most important procedures is the place to start. Taking this approach, DuPont and many other companies compile and publish a list of the most critical safety rules. The list becomes a line in the sand, and there is zero tolerance for willful violation.

Seven examples of these lists appear in the Appendix to this paper. What is important is not so much the rules themselves, as they will vary from company to company and site to site depending on the risks and cultures, but management's complete commitment to seeing them followed without exception. Although the lists in the Appendix deal with safety, other operational and maintenance procedures can be equally critical and equally valuable in an organization's drive for full compliance and greater Operational Discipline. Shutdown and startup procedures, interlock test procedures, relief valve test procedures, and PPE compliance can be given high priority and no-tolerance status.

All workers should know without any doubt the organization's inviolable rules. The rules should be highly visible, with framed copies in conference rooms, control rooms, maintenance shops and laboratories. Contractors should also be fully aware of the rules and should be expected to comply. Every possible effort should be made to avoid the situation where an employee claims, usually during an incident investigation, that he or she was not aware of violating an inviolable standard.

Step 6: Strengthen Discipline Processes

To encourage cooperation and adherence to Operational Discipline principles, many facilities use a process called Progressive Discipline that establishes negative consequences for failing to comply as expected (see Figure 4). Although Operational Discipline can and should be a positive element in an organization's culture, it is important to make a clear statement of what will happen if individuals elect to not follow procedures.

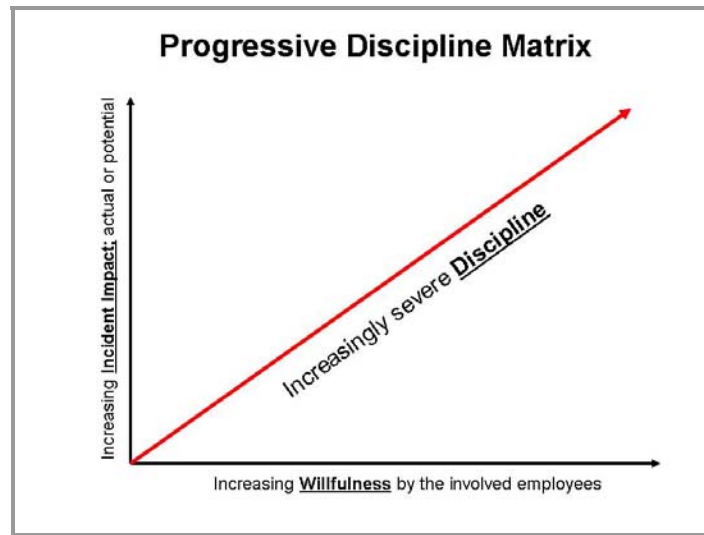


Figure 4. As this two-axis matrix shows, the severity of discipline increases as the impact of an incident and the willfulness of intent increases.

Typical steps in a Progressive Discipline system are: (1) verbal warning, (2) written warning, (3) probation, (4) suspension with or without pay, and (5) termination.

The discipline system must apply to all employees, from shop floor to shift technicians to supervisors, managers and superintendents. It is most effective when the system is broadly communicated by line management to all employees. Although the human resources function is typically the administrator of the process, line management is the user and should be responsible for its communication and implementation.

If a new or enhanced system is being implemented as part of an overall OD initiative, management must communicate clearly to all employees the date when the new system will go into effect.

Step 7: Implement

Once the planning is finished, the difficult task of implementation begins. As with all cultural changes, new patterns of behavior are initiated. The implementation plan and expectations for behavior must be communicated clearly to all employees. Managers should solicit feedback from employees to know what progress is being made and where there might be difficulties or misunderstandings. Clear accountability for key tasks should be assigned. Timelines should be established and deadlines met.

Building a strong Operational Discipline culture in an organization has been described by some as Management 101 ; in other words, it is good, fundamental management practice. Implementing an Operational Discipline plan should be kept as simple as possible. The most important considerations are management consistency, exhaustive two-way communication and a prompt response to questions or concerns.

Step 8: Audit, Audit, Audit

Step 2 in the process is to assess the current state. With this data in hand, plans and programs can be put in place to strengthen the organization's OD culture. Similarly, Step 8 revisits the assessment and audit step to trigger the next round of planning and improvement. The same or

possibly different assessment/audit tools can be used, but it is important to be able to determine whether true progress is being made by a comparison with prior results.

In a trusting and mature culture, assessing the level of Operational Discipline is important for all members of the organization, regardless of their roles. Defensiveness on the part of individuals or work groups or the failure to report the “whole truth” can usually be avoided if management effectively communicates the critical importance of a strong OD culture and the changes that are being made.

Conclusion

In an organization where a strong Operational Discipline culture exists, there will be a “deeply rooted dedication and commitment by every member of an organization to carry out each task – “the right way, every time.” When an organization needs to create or strengthen its OD culture, the eight-step process described above, when led with authenticity and commitment, has been shown to be an effective and successful approach. Continuous effort by management will be required to sustain the gains.

A final comment: It is unfortunate that the term “Operational Discipline” has been confused with “Progressive Discipline” or other forms of punishment. Part of the confusion comes from the role that Progressive Discipline might have in initiatives to strengthen the underlying Operational Discipline culture (see Step 6). The word “discipline” can evoke a strong negative reaction even though when coupled as “Operational Discipline” it is intended to describe a culture of order and predictability. It is everyone’s best interest to view Operational Discipline in a positive light; an important enabler in the journey towards Operational Excellence.

Appendix: Examples of Life Saving Safety Rules

Company A:

INVIOABLE SAFETY STANDARDS

The following standards are inviolable; if followed, they are known to drastically reduce employee exposure, serious injuries and/or death. Thorough job planning will help ensure that these standards are met. These standards apply equally to both employees and contractors.

1. CONDONING THE VIOLATION OF SITE STANDARDS

Supervision will not direct or condone an employee or contractor to violate any safety or environmental standards. It is every person's (but especially supervision's) responsibility to immediately correct any sub-standard safety, health or environmental performance that is observed.

2. ENERGY CONTROL (formerly LOCK, TAG AND TRY)

The Energy Control procedure must be observed and complied. No unauthorized maintenance, servicing, installation, repairs or inspections of machinery or equipment shall be performed.

3. CONFINED SPACE ENTRY

The Confined Space Procedure must be observed and complied with. No unauthorized confined space or vessel entry shall be performed.

4. LINE BREAK (formerly FIRST BREAK)

The Line Break Procedure must be observed and complied with. No unauthorized line breaks shall be performed.

5. HOT WORK

The Hot Work Procedure must be observed and complied with. No unauthorized hot work shall be performed within an area that contains flammable and/or combustible materials, especially those activities that can result in a naked flame or in sparks being generated.

6. FALL PROTECTION

The Fall Protection Procedure must be observed and complied with. No unauthorized elevated work without the prescribed fall protection shall be performed.

7. ELECTRICAL WORK PERMIT

The Electrical Work Permit Procedure must be observed and complied with. No unauthorized work on electrically energized equipment shall be performed.

8. INTERLOCK BYPASS

The Interlock Bypass Procedure must be observed and complied with. No unauthorized bypass or disabling of a safety or environmental interlock shall be performed.

9. RELEASE OF HAZARDOUS MATERIALS TO THE ENVIRONMENT

No person shall perform any unauthorized discharge of hazardous materials to a storm drain, the ground or the atmosphere.

10. RECKLESS ENDANGERMENT

No person shall participate in or condone any reckless activity (e.g. horseplay, fighting) that will endanger any persons including himself to potential injury.

WILFUL VIOLATIONS OF OR SERIOUS DISREGARD FOR ANY OF THESE INVIOABLE SAFETY STANDARDS WILL SUBJECT THE INVOLVED INDIVIDUAL(S) TO IMMEDIATE DISCIPLINARY ACTION WHICH COULD RESULT IN TERMINATION

Company B:

Golden Rules

- You have the time to do the job safely
- You must perform a risk assessment and implement the controls before starting the job
- Procedures must be followed
- Appropriate PPE for the job is a must
- You have to make choices and use judgment
- You must act on all unsafe acts / conditions immediately

Company C:

Cardinal Rules

- It is mandatory to report all “on the job” safety incidents
- Disabling of safety critical and security devices without proper written authorization, is strictly prohibited
- Lockout / Tagout & Try procedures for all isolations are mandatory
- Lighting a flame, without authorization, in Operating Areas and Warehouses is prohibited
- Engaging in or provoking horseplay or fighting within Company premises is prohibited
- Smoking is not allowed in Plant & Office premises except in designated areas
- Willful damage to Company property is prohibited
- Violation of traffic rules with plant boundaries is prohibited
- Any person under the influence of drugs or alcohol will not be permitted to enter Plant & Office Premises
- Weapons, intoxicants, alcoholic beverages and illicit drugs are strictly prohibited in Plant & Office premises
- It is mandatory to follow all Company policies, safety rules and applicable laws as stipulated by the government and the Company

Not following the above rules will be treated as Misconduct.

Company D:

Non-Tolerance Items and Activities

- Use and carrying of narcotics, drugs, alcohols of any kind at site is strictly prohibited

- Bringing in and use of fire-arms and weapons of all kinds at the site is strictly prohibited. Harassment of any kind & horseplay is forbidden at site.
- Usage of defective tools, tackles, slings, lifting gears and full body harnesses is strictly prohibited.
- Ingress at site of un-checked/un-inspected equipments & plants such as cranes, welding plants and equipments, drill machines, transit mixers is strictly forbidden. Only perfectly fit equipment is allowed at site.
- Cables buried underground without proper protection against heavy traffic is highly dangerous and strictly forbidden.
- Operating electrical equipment/systems without double grounding and ELCB's is not allowed
- Scaffolding built improperly and not red tagged is a highly unsafe offence and strictly forbidden.
- Non-compliance of full body harness protocol. Use full body harness when working at heights.
- Vehicles, equipment driven/operated by un-trained/non-qualified personnel are criminal offences. Anybody doing so shall be immediately turned out of the site.
- Smoking in non-designated areas is strictly forbidden. Violators to be expelled from site
- Non-compliance of Work Permit Procedure is strictly forbidden. Violators to be dealt with strictly and will be expelled from site.
- Violation of Rigging Protocol (rigging of loads less than 10 tons without pre-lift checklist, 10-50 tons without filling rigging card and more than 50 tons without carrying out a detailed rigging study) is strictly forbidden.
- Sleeping at any area within the site is strictly forbidden. Violators will be immediately turned out of site.

Company E

Red Rules

- No smoking inside defined plant areas
- All use of fire fighting equipment must be reported to the Fire Department
- No maintenance in high risk areas without specified PPE

Company F

Life Saving Rules

All safety rules are important and must be followed. A few rules, because of imminent and potentially serious injury or fatality, are categorized as inviolable safety rules. Termination of employment is the first consideration for violation of an inviolable safety rule.

1. **Seat Belts.** Seat belts are to be worn by all occupants in a moving motor vehicle while on company business, in company provided vehicles or while on company property, including parking lots inside the company property security fence.
2. **Lock, Tag, Clear and Try.** This procedure identifies the means to prevent unexpected release of hazardous energy when such release could cause injury to personnel or damage to systems, equipment, or machines. It includes the minimum requirements for locking, tagging,

clearing, trying, and testing systems, equipment, or machines to allow work without injuring personnel or damaging property.

3. **Line Break.** This procedure establishes the minimum safety requirements for isolating and opening potentially hazardous piping systems, piping components, equipment, and vessels to prevent possible injury or environmental release. It specifies the minimum safety requirements for making line breaks into piping systems, piping components, equipment and vessels in a way that prevents injury or adverse environmental releases.
4. **Permit-Required Confined Spaces.** This procedure identifies the minimum safety requirements necessary to enter a permit-required confined space and, where appropriate, to protect employees from the hazards of entry into permit-required confined spaces, and for regulating employee entry.
5. **Fall Prevention.** The procedure identifies the minimum requirements for protecting people when working at heights including ladders. Each employee working on a walking/working surface with an unprotected side or edge which is six feet or more above a lower level shall be protected at the walking/working surface.

Company G

Inviolable Standards

These standards are established to ensure a clear understanding of the site management's high expectations regarding prevention and elimination of injuries and environmental incidents. These standards will provide supervisors, employees and contractor personnel with examples of what may be considered a flagrant violation of Safety, Health & Environmental Standards, in which immediate disciplinary action (with removal from the site) is initiated. Contractor companies may also be removed.

Intentionally Directing or Condoning Violations of Safety or Environmental Standards:

Supervision will not direct or condone an employee violating any safety or environmental standard.

Lock, Tag and Try: No person shall work on any piece of equipment for which he or she has not personally inspected and insured is de-energized, isolated and affixed his or her approved locking device and tag.

Confined Space Entry: No person shall enter a confined space unless all routes from which hazardous material can enter are disconnected and blanked, the atmosphere in the confined space is checked, prescribed PPE is worn, a lifeline is present, a harness is worn, and a standby person is in place. Entry occurs at the time when any part of the body breaks the plane of a point of entry.

Line Break: Prescribed PPE must be worn when exposed to open systems containing hazardous materials.

Fall Protection: Prescribed fall protection must be in place when working from a position where there is a potential for falling or slipping, and in places where lifting of disabled personnel may be necessary (such as in a confined space entry).

High Energy: Protective equipment and isolation requirements for energized electrical equipment and proximity to energized electrical must be followed.

Barricade Access: Entry to any barricade is through the identified gate/gates. Any unauthorized entry, anyone ducking under, stepping over, or going through a barricade will be subject to removal from the site.