Regulatory Analysis

Notice of Intended Action to be published: Iowa Administrative Code 875—Chapter 63
"Safety Rules for Bungee Jumps"

Iowa Code section(s) or chapter(s) authorizing rulemaking: 88A.3
State or federal law(s) implemented by the rulemaking: Executive Order 10

Public Hearing

A public hearing at which persons may present their views orally or in writing will be held as follows:

October 23, 2024 8:30 to 9 a.m.	Geode Conference Room 6200 Park Avenue, Suite 100 Des Moines, Iowa

Public Comment

Any interested person may submit written or oral comments concerning this Regulatory Analysis. Written or oral comments in response to this Regulatory Analysis must be received by the Labor Services Division no later than 4:30 p.m. on the date of the public hearing. Comments should be directed to:

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Purpose and Summary

This proposed rulemaking rescinds and adopts a new Chapter 63 in accordance with the goals and directives of Executive Order 10. Proposed Chapter 63 requires amusement ride operators to comply with safety requirements related to the design, operation and maintenance of bungee jumps.

Analysis of Impact

1. Persons affected by the proposed rulemaking:

- Classes of persons that will bear the costs of the proposed rulemaking:

Operators of bungee jumps will bear the costs of the proposed rulemaking.

- Classes of persons that will benefit from the proposed rulemaking:

Patrons of bungee jumps will benefit from the proposed rulemaking.

2. Impact of the proposed rulemaking, economic or otherwise, including the nature and amount of all the different kinds of costs that would be incurred:

- Quantitative description of impact:

There are fees set in Iowa Code chapter 88A and some costs associated with maintaining safe bungee jumps.

- Qualitative description of impact:

No qualitative impact is discerned.

3. Costs to the State:

- Implementation and enforcement costs borne by the agency or any other agency:

The agency employs bungee jump inspectors who also perform other duties for the agency.

- Anticipated effect on state revenues:

The agency does not anticipate a substantial effect on state revenues.

4. Comparison of the costs and benefits of the proposed rulemaking to the costs and benefits of inaction:

The costs of fees and safety measures are justified by the benefit of safety to bungee jump patrons.

5. Determination whether less costly methods or less intrusive methods exist for achieving the purpose of the proposed rulemaking:

No less costly or less intrusive methods are known.

6. Alternative methods considered by the agency:

- Description of any alternative methods that were seriously considered by the agency:

No alternative methods were seriously considered.

- Reasons why alternative methods were rejected in favor of the proposed rulemaking:

Not applicable.

Small Business Impact

If the rulemaking will have a substantial impact on small business, include a discussion of whether it would be feasible and practicable to do any of the following to reduce the impact of the rulemaking on small business:

- Establish less stringent compliance or reporting requirements in the rulemaking for small business.
- Establish less stringent schedules or deadlines in the rulemaking for compliance or reporting requirements for small business.
- Consolidate or simplify the rulemaking's compliance or reporting requirements for small business.
- Establish performance standards to replace design or operational standards in the rulemaking for small business.
- Exempt small business from any or all requirements of the rulemaking.

If legal and feasible, how does the rulemaking use a method discussed above to reduce the substantial impact on small business?

It would not be feasible to have lower bungee jump standards for small businesses.

Text of Proposed Rulemaking

ITEM 1. Rescind 875—Chapter 63 and adopt the following **new** chapter in lieu thereof:

CHAPTER 63
SAFETY RULES FOR BUNGEE JUMPS

875—63.1(88A) Definitions.

"Air bag" means a device that cradles the body by using an air release breather system to dissipate the energy due to a fall, thereby allowing the jumper to land without an abrupt stop or bounce.

"Approved operating site" means the area, including the preparation area, the jump space, the landing area and the recovery area, reflected on the site plan drawings submitted to the director by the operator.

"Bungee catapulting" means the action by which a jumper is held on the ground while the bungee cord is stretched causing the jumper to fly up when the jumper is released.

"Bungee cord" means the elastic rope to which the jumper is attached.

"Bungee jump" means the covered amusement device. "Bungee jump" does not mean a device allowing a patron to jump on a trampoline while attached to one or more bungee cords.

"Bungee jumping" means the action by which a jumper free falls from a height and the jumper's descent is limited by attachment to the bungee cord.

"Bungee jump operation" means a site at which bungee jumping is conducted.

"Carabiner" means a shaped metal or alloy device used to connect sections of the jump rigging, equipment or safety gear.

"Cord" means a bungee cord.

"Dynamic load" means the load placed on the rigging and attachments by the initial free fall of the jumper and the bouncing movements of the jumper.

"Equipment" means each component that is utilized in a bungee jump operation, including devices used to raise, lower, and hold loads.

"Fence" means a structure designed and constructed to restrict people, animals and objects from entering the jump area.

"G-force" means acceleration felt as weight.

"Jump area" means the ground level area of the jump space.

"Jump direction" means the direction a jumper jumps when leaving the platform from the jump point. Jump direction is not affected by whether the jumper faces forward, backward or sideways.

"Jumper" means the person who, while attached to a bungee cord, falls or jumps from a platform or structure.

"Jump harness" means an assembly worn by a jumper and attached to a bungee cord.

"Jump height" means the distance from the jump point to the position on the ground where an object dropped from the jump point would impact in the absence of an air bag or other impediment.

"Jump master" means the person who is responsible for the bungee jump operation and who takes a jumper through the final stages to the actual jump or release.

"Jump point" means the location on the platform from which the jumper leaves the platform.

"Jump space" means the cylinder-shaped space with a center line extending downward from the jump point along the line of the jump height. The top of the jump space cylinder is at least 10 feet above the jump point. For jumps over land, the bottom of the jump space cylinder is the air bag. For jumps over water, the bottom of the jump space cylinder is the water surface. The distance from the jump point to the bottom of the jump space must be the maximum system length plus at least 30 feet. The radius of the cylinder must be at least 70 percent of the jump height.

"Landing area" means the surface where the jumper lands. If a lifting device moves the jumper so that landing occurs away from the jump area, the area covered by the movement of the lifting device is considered part of the landing area.

"Loaded length" means the length of the bungee cord when the cord is extended to its fullest designed length.

"Lowering system" means manual or mechanical equipment capable of lowering a jumper to the designated landing area.

"Maximum system length" means the maximum extended length of a bungee cord system including all attachments.

"Mechanically powered lowering system" means a system that utilizes a machine, rather than a human or other power source, to lower the jumper to the landing area.

"Platform" means the apparatus that is attached to a structure and from which a jumper falls or jumps.

"Preparation area" means the area where the jumper is registered, weighed, notified of potential risks, and otherwise prepared for the jump.

"Recovery area" means the area next to the landing area where the jumper may recover from the jump before exiting the bungee jump operation site.

"Rigging system" means the bungee cord plus any combination of components that connect the jumper through the bungee cord to an attachment point on the structure, lifting device or platform.

"Rigging system attachment point" means a device on the structure, lifting device or platform to which the rigging system is connected.

"Safety line" means a line used to connect a safety harness or belt to an anchor point.

"Sandbagging" means the practice of loading excess weight to a jumper in order to gain extra momentum on the rebound.

"Site operating manual" means the document containing the procedures and forms for the operation of bungee jumping activities and equipment.

"Structure" means a tower or similar structure used for bungee jumping.

"Tandem jumping" means the practice of having two or more people harnessed together while they jump or fall simultaneously from the same jump platform.

875—63.2(88A) Prohibited activities. The following activities are prohibited:

1. Bungee catapulting where an overhead obstruction exists;
2. Sandbagging;
3. Tandem jumping; and
4. Jumping from a bridge, television tower, crane, grain bin, hot air balloon or any height not designed for the purpose of bungee jumping.

875—63.3(88A) Site requirements.

63.3(1) *Storage.* Adequate storage will be provided to protect equipment from physical, chemical and ultraviolet-ray damage. The storage area will be secured against unauthorized entry.

63.3(2) *Communications.* There will be:

a. A public address system in operation during the hours of business.

b. A radio communication link between the platform and the staff responsible for jumper registration, landing, and recovery.

c. A means on site to communicate with local emergency responders.

d. A clearly visible sign at the entrance to the operating site setting forth medical restrictions for jumpers, the minimum-age requirement of 18 years of age, and instructions for jumpers.

63.3(3) *Wind meter.* An anemometer will be installed in accordance with the manufacturer's recommendations and in a location easily visible to the staff.

63.3(4) *Lighting.* Adequate lighting will be provided at a site that operates at any time during the period of one-half hour prior to sunset until one-half hour after sunrise. At a minimum, the lighting system will be capable of lighting the jump platform, the jump space and the landing area.

63.3(5) *Fences.* The operator will use fences in compliance with ASTM 2291-14, Part 14, to limit access to the site.

875—63.4(88A) Design requirements.

63.4(1) *Platform.* A platform shall:

a. Be capable of supporting at least five times the rated capacity or maximum intended load of the platform. If the jump equipment is attached to the platform as distinct from the structure, the dynamic load factor is added to the rated capacity or maximum intended load;

b. Be attached with devices and to a part of the structure that is able to support at least five times the weight of the platform plus the rated capacity or maximum intended load;

c. Have a slip-resistant floor surface;

d. Have safety harness anchor points that are designed and located to facilitate ease of movement on the platform;

e. Have a permanent enclosure, separate from the jump point, to contain the jumper during preparations such as fitting the jumper with a jump harness;

f. Be equipped with a gate across the jump point. The gate will open to the inside of the platform and will have a safety lock or restraining device to prevent accidental opening;

g. Be permanently marked with the maximum capacity of the platform and the rated capacity or maximum intended load; and

h. Be configured to ensure that a jumper will not come into contact with the supporting structure or tower during the jump.

63.4(2) *Lowering system.*

a. The system for lowering the jumper to the landing area will be capable of supporting at least five times the rated capacity or maximum intended load of the system. The lowering system will be mechanically powered and will not be capable of free fall.

b. There will be, under the control of site personnel and described in the site emergency plan, an alternative method for jumper recovery.

63.4(3) *Bungee cord specifications.*

a. The bungee cords will be designed and tested to perform within the prescribed limits of stretch and load as stated in this subrule. The cord will be made from natural or synthetic rubber or rubber blend. The extended length of the cord will be consistent each time the same load is applied.

b. The G-force on a jumper using a waist and chest harness will not exceed 4.5. The G-force on a jumper using an ankle harness will not exceed 3.5.

c. The cord configuration's minimum breaking strength divided by the maximum dynamic load possible for a jumper will be equal to or greater than 5.

d. The design, manufacturing and testing of the bungee cords will meet the following specifications:

(1) In a single-cord system, the binding will hold the cord threads in the designed positions. The binding will have the same characteristics as the cord itself. In a multiple-cord system, the cords will be bound together in a manner that prevents potential entanglement of the jumper. The binding will not damage or affect the performance of the cords.

(2) A load-versus-elongation curve will be used to calculate the maximum G-force and factor of safety of the lot of bungee cords tested. These test results will be readily available to the director upon request.

(3) The end connections will have a minimum safety factor of five times the maximum dynamic load for the bungee cord configuration. End connections will be of a size and shape to allow easy attachment to the jumper harnesses and to the rigging. On multiple-cord systems, each cord will meet its own independent end connection. On multiple-cord systems, end attachment points will be bound together in a protective sheath that allows the individual ends to move with respect to each other.

(4) The operator will ensure that the manufacturer of a bungee cord performs conclusive minimum break strength testing on a representative sample of all manufactured bungee cords. Construction of bungee cord samples will be consistent with the manufacturer's standard methods, including bungee cord loop end connections that meet the specifications in this rule. The tests will be performed or supervised by an independent certified testing authority or an independent licensed professional engineer. The testing authority will determine the ultimate tensile strength of each test specimen and use the lowest failure value recorded as the ultimate tensile strength value for the corresponding lot of bungee cords. The ultimate tensile strength is reached when the applied load reaches a maximum before failure. Test results will be readily available to the director upon request.

63.4(4) *Jump harness and hardware.*

a. The harnesses, webbing, bindings, ropes and hardware will be capable of supporting at least five times the rated capacity or maximum intended load.

b. A jumper will be secured to the bungee cord at two separate points on the jumper's body. The jump harness system will be one of the following:

(1) A full body harness with two different and separate attachment points.

(2) A waist harness used with a shoulder harness.

(3) An ankle harness system with a safety line to a waist harness or a full body harness.

c. Harnesses will be available to fit the range of patron sizes accepted for jumping.

d. Harnesses will be specifically designed and manufactured for mountaineering or bungee jumping.

e. The load-supporting slings or webbing will be flat or tubular mountaineering webbing or its equivalent. Minimum breaking strength will be 6,000 pounds. Slings or webbings will be formed by sewing or will be tied properly with a water knot with taped ends.

f. Carabiners will be the steel screw, gate type with a minimum breaking strength of 6,000 pounds. The carabiners will be designed and constructed using the standards for mountaineering gear.

g. The ropes, pulleys and shackles used to raise, lower or hold the jumper will have a minimum breaking strength of 6,000 pounds. The pulleys will be compatible with the rope.

h. The rigging system will be attached to at least two rigging system attachment points. Each rigging system attachment point will meet or exceed the following:

(1) Each rigging system attachment point will have a safety factor of 5 and will be capable of bearing a weight of at least 8,000 pounds.

(2) If a rigging system attachment point is made of wire rope, it will have swaged ends with the thimble eyes.

(3) If a rigging system attachment point is made of webbing, it will be manufactured by a company that manufactures the devices for crane and rigging companies.

63.4(5) *Landing area, recovery area and jump area.*

a. A jump over land requires the use of an air bag certified by the manufacturer to be capable of protecting a body falling from the height of the jump point.

(1) The minimum impact surface area of the air bag will be as follows:

Jump Height	**Minimum Impact Surface Area**
0 - 99 feet	20 feet by 25 feet
100 - 149 feet	23 feet by 35 feet
150 - 200 feet	25 feet by 40 feet

(2) The air bag will be in position before jumper preparation begins on the platform.

(3) Upon completion of a jump, the jumper will be lowered into the landing area.

(4) The landing area will be free of spectators at all times.

(5) The jump space will be free of equipment and people when a jumper is being prepared on the jump platform and until the jumper lands in the landing area.

(6) A place for the jumper to sit and recover will be provided close to but outside the landing area.

b. The following requirements apply where a body of water is used instead of an air bag:

(1) The size of the body of water will meet the requirements for the minimum impact surface area set forth in this subrule for air bags.

(2) The minimum water depth of the minimum impact surface area will be 10 feet.

(3) A vessel with at least two staff members will be positioned nearby to recover jumpers. The recovery vessel's crew will wear U.S. Coast Guard-approved life jackets. The recovery vessel will be equipped with U.S. Coast Guard-approved life jackets for jumpers and with rescue equipment.

(4) The jump area will be free of other vessels, floating or submerged objects, the public, and spectators. When the landing area is in open waters, it will be defined by the deployment of buoys. Signs of appropriate size stating "BUNGEE JUMPING—KEEP CLEAR" will be displayed.

c. The following requirements apply where a pool of water is used instead of an air bag:

(1) The pool size will meet the requirements for the minimum impact surface area set forth in this subrule for air bags.

(2) The minimum water depth will be 10 feet.

(3) Rescue equipment will be available.

(4) Only the operators and participants of the bungee jump will be within the landing area.

(5) The landing area will be enclosed by a fence of adequate height and design to prevent persons other than operators and jumpers from entering.

(6) The pool will conform to any applicable requirements enforced by the department of public health.

875—63.5(88A) Maintenance requirements. The operator will follow the inspection and testing recommendations of the equipment manufacturers. When those recommendations conflict with the testing and inspection provisions of this rule, the provisions affording the higher degree of safety will be followed. Inspections, findings and corrective action will be recorded in the site log.

63.5(1) *Tests and inspections by the operator.*

a. The jump rigging, harness, lowering system and safety gear will be regularly inspected and tested as set forth in the site operating manual.

b. In accordance with the site operating manual, the ropes, webbing and bindings will be inspected visually and by feel for signs of wear, fraying or damage.

c. The cord ends will be inspected as often as the manufacturer specifies or no less than daily for wear, slippage or other abnormalities.

63.5(2) *Replacement of rigging and equipment.*

a. Hardware that displays surface damage will be replaced immediately.

b. Hardware that has been subjected to an abnormal loading or impact against hard surfaces will be replaced immediately.

c. Substandard equipment, rigging or personal protective equipment will be replaced immediately.

d. Bungee cords will be replaced when they have been subjected to the maximum number of jumps recommended by the manufacturer, when they exhibit deterioration or damage, or when they do not react according to specifications. Retired bungee cords will be cut into lengths of not more than 75 inches. The attachment points will be retired when the cord is retired.

63.5(3) *Replacement equipment.* Replacement equipment will be stored in a secure area to prevent tampering or vandalism. Replacement equipment for the following will always be available on the approved operating site:

a. Bungee cords;

b. Rigging ropes;

c. Binding and ankle straps for jumpers;

d. Jump harnesses; and

e. Lifelines and clips.

63.5(4) *Identification of equipment.*

a. Each bungee cord will have its own permanent identification number.

b. The form of identification may not damage or detract from the integrity of the material.

c. The identification will be clearly visible to the operators during daily operations.

d. The identification of each piece of equipment will be recorded in the site operating manual.

875—63.6(88A) Operations requirements.

63.6(1) *Site operating manual.* The operator will ensure that the site has an operating manual that includes the following elements:

a. A site plan showing the fencing, the site furniture, the preparation area, the jump space, the jump area, the jump direction, the landing area and the recovery area.

b. A site plan showing a profile of the site and defining the jump platform and its supporting structure, the maximum system length of the bungee cord, the jump space and the jump area.

c. A complete description of each of the following:

(1) The system of operation;

(2) The components in the rigging system, including the manufacturer’s specification or a laboratory test certificate of each component;

(3) All safety and rescue equipment;

(4) A job description for the personnel employed on the site and the minimum qualifications for each person;

(5) Emergency procedures for all foreseeable scenarios;

(6) Standard operating procedures for every person employed in processing the jumper;

(7) The procedure for reporting accidents and reportable incidents to the director;

(8) Equipment inspection procedures, including inspection recordkeeping;

(9) Maintenance procedures; and

(10) The method of verifying and recording each jump master's qualifications.

63.6(2) *Emergency provisions and procedures.*

a. Each approved operating site will have a written emergency plan. The plan will be made available to any local emergency service responsible for providing emergency rescue service.

b. At least one member of a bungee jump operation staff will have current first-aid and cardiopulmonary resuscitation certification and will complete an annual refresher course that includes evaluation of hands-on skills from the American Red Cross or equivalent.

c. For a jump over water, the jump master and at least one landing assistant will have current lifeguarding certification from the American Red Cross or equivalent.

d. Emergency lighting will be available in case of power failure at a site that operates at any time during the period of one-half hour prior to sunset until one-half hour after sunrise. The emergency lighting system will be capable of lighting the jump platform, the jump space and the landing area. The emergency lighting system will have its own power source.

e. A backup means of communication will be available in case of a power failure.

f. The jump master or operator will cease jumping operations if wind speed exceeds 25 miles per hour or thunder is audible.

63.6(3) *Minimum staff.*

a. Prior to the opening of a bungee jump operation, the operator will train site personnel to be familiar with the boundaries of the jump space, the jump area, the site operating manual and the emergency plan.

b. A bungee jump operation will have at least one jump master, one jump assistant, one landing assistant, and one registration assistant present at all times during which jumping is being conducted.

c. The staff will be easily identifiable by their clothing.

d. Staff will be briefed for each day's operations. This briefing will include assignment of the designated jump master.

e. Each jump will be directly controlled by a jump master.

63.6(4) *Jump master.*

a. A jump master will be at least 18 years of age, will have assisted at least 25 jumpers, and will have received a minimum of 30 hours of jump training.

b. A jump master will have a thorough knowledge of the bungee jump site, its equipment, operating manual, procedures, emergency plan and staff duties.

c. A jump master will:

(1) With the jump assistant, escort the jumper from the preparation area to the jump point;

(2) Select the appropriate bungee cord and adjust the rigging for each jump;

(3) Brief each jumper on the procedures for jumping, landing, lowering and recovery;

(4) Take the jumper through the final stages before the jump;

(5) Securely attach to the platform rigging bar or to the rigging the top end of the bungee cords before preparing the jumper;

(6) Be present at the jump point during each jump;

(7) Close the platform gate while no jumper is present;

(8) Direct the operation of the lowering system;

(9) Train other bungee jump operation staff; and

(10) Ensure that the procedures set out in the site operating manual are followed.

63.6(5) *Jump assistant.* The operator or jump master will designate at least one individual to act as a jump assistant. The jump assistant will:

a. With the jump master, escort the jumper from the preparation area to the jump point;

b. Assist the jump master in preparing the jumper;

c. Assist in attaching the jumper to the harness and rigging;

d. Perform check procedures;

e. Operate the lowering system; and

f. Assist in controlling the public.

63.6(6) *Landing assistant.* The operator or jump master will designate at least one individual to act as a landing assistant. The landing assistant's duties include the following:

a. Assisting the jumper to the landing pad;

b. Assisting the jumper to the recovery area;

c. Overseeing the recovery of the jumper; and

d. Assisting in controlling the public.

63.6(7) *Registration assistant.* The operator or jump master will designate at least one individual to act as a registration assistant at each bungee jump operation site. The registration assistant will:

a. Register the jumper;

b. Inform each jumper that there are medical conditions that could be adversely affected by bungee jumping and that prior to jumping, the jumper should consult with a physician for more specific information regarding the medical risks;

c. Weigh the jumper and mark the jumper's weight on the jumper;

d. Control the movement of the jumper to the jump platform; and

e. Assist in controlling the public.

63.6(8) *Jumper restrictions.*

a. The minimum age for jumping is 18 years of age.

b. A person who is visibly intoxicated or who is otherwise impaired will not be allowed to jump.

63.6(9) *Jumper registration.* The operator will ensure that a jumper provides the following information on the operator's registration form:

a. The jumper's contact information, including name, address, and telephone number.

b. The jumper's age and weight.

63.6(10) *Equipment replacement.*

a. Jumping will cease immediately when substandard equipment is identified.

b. The operator will obtain from the bungee cord manufacturer a written verification of the maximum number of jumps for which a particular cord may be used. The written verification will be kept on site and will be available to the director.

c. The operator will keep a current, written record of each bungee cord used at the site. The bungee cord records will be organized by permanent, unique identification number and will include the number of jumps for each cord by date. The bungee cord records will be available to the director.

63.6(11) *Jump space and jump area.*

a. Persons other than a jumper and objects other than the jumper's equipment will not be in the jump space at any time during jump operations.

b. Persons other than site personnel and objects other than air bags and similar safety devices will not be in the jump area at any time during jump operations.

c. The jump space and jump area will be identical to the jump space and jump area that the director approved.

d. The preparation area will be separate from the jump area.

These rules are intended to implement Iowa Code chapter 88A.