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## Energized Work Form

Requesting Person \_\_\_\_\_ Division \_\_\_\_\_

Job Number \_\_\_\_\_ Job Name \_\_\_\_\_

Equipment/Machine to be Locked Out and Tagged Out \_\_\_\_\_

Equipment and/or Circuits to be worked on energized \_\_\_\_\_

Date(s) of work to be performed \_\_\_\_\_

Work to be performed \_\_\_\_\_

Energy Source and Location \_\_\_\_\_

Statement of why equipment cannot be de-energized \_\_\_\_\_

Is it possible to reschedule work at a later date when equipment may be de-energized? YES NO

Hazards (risk to personnel, property, production) \_\_\_\_\_

### Results of Shock/Flash Hazard Analysis:

Hazard Risk Category \_\_\_\_\_

Flash Protection Boundary \_\_\_\_\_

Limited Approach Boundary \_\_\_\_\_

Restricted Approach Boundary \_\_\_\_\_

Prohibited Approach Boundary \_\_\_\_\_

Employees who will be performing the energized work \_\_\_\_\_

Have employees been properly trained? Yes No

Have affected employees been notified of procedures and hazards? Yes No

Date of Notification \_\_\_\_\_ Competent person assigned \_\_\_\_\_

Energized Work Category: < 50v 50 – 250v 250 - 600v ≥600v

List personal protective equipment needed \_\_\_\_\_

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Date equipment last tested \_\_\_\_\_ Tested by: \_\_\_\_\_

Has written plan/Task Safety Analysis (TSA) been completed for energized work? \_\_\_\_\_ attach copy.

Authorized Customer representative approval \_\_\_\_\_

Date \_\_\_\_\_

## Lock-Out / Tag-Out Procedures

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When you have to perform maintenance work on a machine, take these four steps to protect yourself and your co-workers from injury:

- 1) De-energize the machine if possible. Positively disconnect the machine from the power source. If there is more than one source of power, then disconnect them all.
- 2) If possible, lock out all disconnect switches. You must be given a lock and a key for each disconnect before you begin working on the machine.
- 3) Tag all disconnect switches. Use the yellow or Red safety tags which state in large letters

**"Danger! Do Not Operate," or "Danger! Do Not Energize"**

and which give the name of the individual who locked out the equipment, date and time. The tag must also state

**"DO NOT REMOVE THIS TAG"**

(The person who placed the tag may remove it only after the machinery maintenance has been completed.)

- 4) Test the equipment to ensure it is de-energized before working on it. First, attempt to operate the equipment by turning it on normally. Next, check all electrical lines and exposed areas with test equipment or a "lamp." Finally, short to ground any exposed connections using insulated grounding sticks. This test must be done even if the electrical connection is physically broken, such as pulling out a plug, because of the chance of discharging components.

**A TAG OUT ONLY PROCEDURE MAY BE USED IF THE MACHINE CANNOT BE LOCKED OUT. IF THE MACHINE IS SUPPLIED ELECTRICAL POWER FROM A SINGLE SOURCE, WHICH IS UNDER THE EXCLUSIVE CONTROL OF A TRAINED AND QUALIFIED REPAIR PERSON AT ALL TIMES AND THERE ARE NOT ANY OTHER PERSONS IN THE REPAIR AREA WHO COULD BE HARMED BY THE ACCIDENTAL ENERGIZING OF THE MACHINERY, THEN TAG OUT MAY BE USED INSTEAD OF LOCK-OUT/TAG OUT.**

Be aware that many accidents occur at the moment of re-energizing. If the machinery is to be re-energized, all persons must be kept at a safe distance away from the machinery. The re-energization can be performed only by a person who either performed the lock-out/tag out, a person acting under the immediate and direct commands of the original

lock-out/tag out person, or in the event of a shift change, or otherwise unavailability of the original person, then the original shall, before leaving, appoint a surrogate original person and show him or her all steps taken to lock-out/tag-out the equipment.

power supply is not equipped with a Kirk (trademark) or equivalent interlock, turn off and tag the input circuit breaker.

### **Working on Power Supplies**

The minimum requirement for working on any power supply is to turn the power off and properly tag the feeder circuit breaker external to the power supply.

### ***Storage Batteries***

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(a) Battery charging installations shall be located in areas designated for that purpose. Employees assigned to work with storage batteries shall be instructed in emergency procedures such as dealing with accidental acid spills.

(b) The area shall be adequately ventilated to prevent concentrations of flammable gases exceeding 20 percent of the lower explosive limit and to prevent a harmful concentration of mist from the electrolyte.

(c) Where corrosive liquids are regularly or frequently handled in open containers or drawn from reservoirs or pipelines, adequate means shall be provided to neutralize or dispose of spills and overflows promptly and safely.

(d) Carboy tilter, siphon, hand-operated bulb or hand-operated pump shall be provided and used for dispensing electrolyte or acid.

(e) Facilities shall be provided for protecting the charging apparatus from damage by mobile equipment.

(f) Appropriate mechanical lifting and material handling devices or equipment shall be provided for handling batteries.

(g) Smoking shall be prohibited in the charging area.

(h) Precautions shall be taken to prevent open flames, sparks, or electric arcs in battery charging areas. When racks are used for support of batteries, they shall be made of materials nonconductive to spark generation or coated or covered to achieve this objective. Tools and other metallic objects shall be kept away from the top of uncovered batteries. Chargers shall be turned off when leads are being connected or disconnected.

(i) Electrolyte (acid or base, and distilled water) for battery cells shall be mixed in a well-ventilated room. Acid or base shall be poured gradually into the water while stirring. Water shall never be poured into concentrated (greater than 75 percent) acid solutions.

(j) Mobile equipment shall be properly positioned and brake applied before attempting to change or charge batteries.

(k) When charging batteries, the vent caps shall be kept firmly in place to avoid electrolyte spray. Care shall be taken to assure that vent caps are functioning. The battery

# Environmental Protection

## Purpose

To provide specific guidelines for handling hazardous waste in ways that will protect human health and the environment and to provide a means to control hazardous waste from the moment it is generated until its ultimate disposal.

## References

Except to the extent that more explicit or more stringent requirements are written directly into these procedures, the primary regulatory references relating to environmental protection practices during the conduct of S.C. Swiderski, LLC operations shall be:

- Title 40 Code of Federal Regulations Part 261
- Title 49 Code of Federal Regulations Part 172
- Title 29 Code of Federal Regulations Part 1910

Additional references:

- US EPA Document #530-SW-86-019; *Understanding the Small Quantity Generator Hazardous Waste Rules: A Handbook for Small Business*, September 1986.
- US EOA Document #530-SW-90-027; *Does Your Business Produce Hazardous Waste?* January 1990
- Federal Register: March 24, 1986

## Policy

### Risk Reduction

S.C. Swiderski, LLC operation will operate in a manner designed to minimize environmental, health, or safety hazards. S.C. Swiderski, LLC will minimize risk and protect our employees, and others in the vicinity of our operations, by providing specific hazard awareness training and information programs to employees, and where applicable, community residents. Additional chemical protection safeguards will be provided through the application of safe management technologies and operating procedures and by being prepared for emergencies.

S.C. Swiderski, LLC will make available to our employees, and to the public, information related to any of our operations that we believe could cause environmental harm or pose health or safety hazards.

S.C. Swiderski, LLC will encourage employees to report any condition that creates a

regulation. The generator designation determines who is responsible for recordkeeping and compliance.

**RCRA** – Resource Conservation and Recovery Act (1976, 1984); Administered by the US EPA, the act regulates management and disposal of hazardous materials and disposal of hazardous materials and wastes currently generated, treated, stored, disposed or distributed.

**Hazardous Waste** – A waste solid or liquid form, which is no longer used. IT is material that is thrown away or stored until the quantity warrants disposal. The material is deemed hazardous if it has certain properties that could pose dangers to human health and the environment after it is discarded. Hazardous wastes are classified by the US EPA as either “listed” or “characteristic” waste, depending on specific criteria.

**Limited Waste** – Material considered to be hazardous, based on the material appearing on any one of four hazardous waste lists contained in the US EPA regulations. These wastes have been listed because they either exhibit characteristics or contain any number of toxic constituents that have been shown to be harmful to health and the environment. The regulations list over 400 hazardous wastes, including wastes derived from manufacturing processes and discarded commercial chemical products.

**Characteristic Waste** – Even if a waste does not appear on one of the US EPA lists, it is considered hazardous if it has one or more of the following characteristics:

- **Ignitable:** it is easily combustible or flammable, e.g., degreasers, paint waste, solvents.
- **Corrosive:** it dissolves metals, other materials, or burns the skin, e.g., rust removers, waste acids, alkaline cleaning fluids, waste battery acid.
- **Reactive:** it is unstable or undergoes rapid or violent chemical reaction with water or other materials, e.g., metal plating, wastes, waste bleaches, and waste oxidizers.
- **Toxic:** if an extract from the waste is tested and found to contain high concentrations of heavy metals (e.g., lead, cadmium, mercury, and certain pesticides) that could be released into the ground water.

**Acutely Hazardous Waste** – Wastes that the US EPA had determined to be so dangerous in small amounts that they are regulated the same way, as are large amounts of other hazardous wastes. This waste may include, but may not be limited to, certain pesticides and dioxin containing wastes.

## Excavation and Trenching

### Purpose

**"Cross braces"** mean the horizontal members of a shoring system installed perpendicular to the sides of the excavation, the ends of which bear against either uprights or wales.

**"Excavation"** means any man-made cut, cavity, trench, or depression in an earth surface, formed by earth removal.

**"Faces" or "sides"** means the vertical or inclined earth surfaces formed as a result of excavation work.

**"Failure"** means the breakage, displacement, or permanent deformation of a structural member or connection so as to reduce its structural integrity and its supportive capabilities.

**"Hazardous atmosphere"** means an atmosphere which by reason of being explosive, flammable, poisonous, corrosive, oxidizing, irritating, oxygen deficient, toxic, or otherwise harmful, may cause death, illness, or injury.

**"Kickout"** means the accidental release or failure of a cross brace.

**"Protective system"** means a method of protecting employees from cave-ins, from material that could fall or roll from an excavation face or into an excavation, or from the collapse of adjacent structures.

**"Protective systems"** include support systems, sloping and benching systems, shield systems, and other systems that provide the necessary protection.

**"Ramp"** means an inclined walking or working surface that is used to gain access to one point from another and is constructed from earth or from structural materials such as steel or wood.

**"Registered Professional Engineer"** means a person who is registered as a professional engineer in the state where the work is to be performed. However, a professional engineer, registered in any state is deemed to be a "registered professional engineer" within the meaning of this standard when approving designs for "manufactured protective systems" or "tabulated data" to be used in interstate commerce.

**"Sheeting"** means the members of a shoring system that retain the earth in position and in turn are supported by other members of the shoring system.

**"Shield (Shield system)"** means a structure that is able to withstand the forces imposed on it by a cave-in and thereby protect employees within the structure. Shields can be permanent structures or can be designed to be portable and moved along as work

progresses. Additionally, shields can be either pre-manufactured or job-built in accordance with 1926.652(c)(3) or (c)(4). Shields used in trenches are usually referred to as "trench boxes" or "trench shields."

**"Shoring (Shoring system)"** means a structure such as a metal hydraulic, mechanical or



**"Trench shield"** See "Shield."

**"Uprights"** means the vertical members of a trench shoring system placed in contact with the earth and usually positioned so that individual members do not contact each other. Uprights placed so that individual members are closely spaced, in contact with or interconnected to each other, are often called "sheeting."

**"Wales"** means horizontal members of a shoring system placed parallel to the excavation face whose sides bear against the vertical members of the shoring system or earth.

**Surface encumbrances.**

All surface encumbrances that are located so as to create a hazard to employees shall be removed or supported, as necessary, to safeguard employees.

**Underground installations.**

The estimated location of utility installations, such as sewer, telephone, fuel, electric, water lines, or any other underground installations that reasonably may be expected to be encountered during excavation work, shall be determined prior to opening an excavation.

Utility companies or owners shall be contacted within established or customary local response times, advised of the proposed work, and asked to establish the location of the utility underground installations prior to the start of actual excavation. When utility companies or owners cannot respond to a request to locate underground utility installations within 24 hours (unless a longer period is required by state or local law), or cannot establish the exact location of these installations, the employer may proceed, provided the employer does so with caution,

and provided detection equipment or other acceptable means to locate utility installations are used.

When excavation operations approach the estimated location of underground installations, the exact location of the installations shall be determined by safe and acceptable means.

While the excavation is open, underground installations shall be protected, supported or removed as necessary to safeguard employees.

**Access and egress - Structural ramps.**

Structural ramps that are used solely by employees as a means of access or egress from excavations shall be designed by a competent person. Structural ramps used for access or egress of equipment shall be designed by a competent person qualified in structural



not have a clear and direct view of the edge of the excavation, a warning system shall be utilized such as barricades, hand or mechanical signals, or stop logs. If possible, the grade should be away from the excavation.

### **Hazardous atmospheres**

Testing and controls. In addition to the requirements set forth in subparts D and E of OSHA and (29 CFR 1926.50 - 1926.107) to prevent exposure to harmful levels of atmospheric contaminants and to assure acceptable atmospheric conditions, the following requirements shall apply:

Where oxygen deficiency (atmospheres containing less than 19.5 percent oxygen) or a hazardous atmosphere exists or could reasonably be expected to exist, such as in excavations in landfill areas or excavations in areas where hazardous substances are stored nearby, the atmospheres in the excavation shall be tested before employees enter excavations greater than 4 feet (1.22 m) in depth.

Adequate precautions shall be taken to prevent employee exposure to atmospheres containing less than 19.5 percent oxygen and other hazardous atmospheres. These precautions include providing proper respiratory protection or ventilation in accordance with subparts D and E of OSHA respectively.

Adequate precaution shall be taken such as providing ventilation, to prevent employee exposure to an atmosphere containing a concentration of a flammable gas in excess of 20 percent of the lower flammable limit of the gas.

When controls are used that are intended to reduce the level of atmospheric contaminants to acceptable levels, testing shall be conducted as often as necessary to ensure that the atmosphere remains safe.

### **Emergency rescue equipment.**

Emergency rescue equipment, such as breathing apparatus, a safety harness and line, or a basket stretcher, shall be readily available where hazardous atmospheric conditions exist or may reasonably be expected to develop during work in an excavation. This equipment shall be attended when in use.

Employees entering bell-bottom pier holes, or other similar deep and confined footing excavations, shall wear a harness with a lifeline securely attached to it. The lifeline shall be separate from any line used to handle materials and shall be individually attended at all times while the employee wearing the lifeline is in the excavation.

### **Protection from hazards associated with water accumulation.**

Employees shall not work in excavations in which there is accumulated water, or in excavations in which water is accumulating, unless adequate precautions have been taken to protect employees against the hazards posed by water accumulation. The precautions necessary to protect employees adequately vary with each situation but could include special support or shield systems to protect from cave-ins, water removal

### **Protection of employees from loose rock or soil.**

Adequate protection shall be provided to protect employees from loose rock or soil that could pose a hazard by falling or rolling from an excavation face. Such protection shall consist of scaling to remove loose material; installation of protective barricades at intervals as necessary on the face to stop and contain falling material; or other means that provide equivalent protection.

Employees shall be protected from excavated or other materials or equipment that could pose a hazard by falling or rolling into excavations. Protection shall be provided by placing and keeping such materials or equipment at least 2 feet (.61 m) from the edge of excavations, or by the use of retaining devices that are sufficient to prevent materials or equipment from falling or rolling into excavations, or by a combination of both if necessary.

### **Inspections.**

Daily inspections of excavations, the adjacent areas, and protective systems shall be made by a competent person for evidence of a situation that could result in possible cave-ins, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions. An inspection shall be conducted by the competent person prior to the start of work and as needed throughout the shift. Inspections shall also be made after every rainstorm or other hazard increasing occurrence. These inspections are only required when employee exposure can be reasonably anticipated.

Where the competent person finds evidence of a situation that could result in a possible cave-in, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions, exposed employees shall be removed from the hazardous area until the necessary precautions have been taken to ensure their safety.

### **Fall protection.**

Each employee in an excavation shall be protected from cave-ins by an adequate protective system designed in accordance with this section except when:

Excavations are made entirely in stable rock; or

Excavations are less than 5 feet (1.52 m) in depth and examination of the ground by a competent person provides no indication of a potential cave-in.

Protective systems shall have the capacity to resist without failure all loads that are intended or could reasonably be expected to be applied or transmitted to the system.

### **Design of sloping and benching systems.**

The slopes and configurations of sloping and benching systems shall be selected and constructed by the employer or his designee and shall be in accordance with the requirements of paragraph (b)(1); or, in the alternative, paragraph (b)(2); or, in the

At least one copy of the tabulated data which identifies the registered professional engineer, who approved the data, shall be maintained at the jobsite during construction of the protective system. After that time the data may be stored off the jobsite, but a copy of the data shall be made available to the Secretary upon request.

[\(b\)\(4\)](#)

**Option (4)** - Design by a registered professional engineer.

Sloping and benching systems not utilizing Option (1) or Option (2) or Option (3) under paragraph (b) of this section shall be approved by a registered professional engineer.

Designs shall be in written form and shall include at least the following:

The magnitude of the slopes that were determined to be safe for the particular project;

The identity of the registered professional engineer approving the design.

At least one copy of the design shall be maintained at the jobsite while the slope is being constructed. After that time the design need not be at the jobsite, but a copy shall be made available to the Secretary upon request.

Designs of support systems, shield systems, and other protective systems shall be selected and constructed by the employer or his designee and shall be in accordance with the requirements of paragraph (c)(1); or, in the alternative, paragraph (c)(2); or, in the alternative, paragraph (c)(3); or, in the alternative, paragraph (c)(4) as follows:

[\(c\)\(1\)](#)

**Option (1)** - Designs using appendices A, C and D. Designs for timber shoring in trenches shall be determined in accordance with the conditions and requirements set forth in appendices A and C to this subpart. Designs for aluminum hydraulic shoring shall be in accordance with paragraph (c)(2) of this section, but if manufacturer's tabulated data cannot be utilized, designs shall be in accordance with appendix D.

[\(c\)\(2\)](#)

**Option (2)** - Designs Using Manufacturer's Tabulated Data.

Design of support systems, shield systems, or other protective systems that are drawn from manufacturer's tabulated data shall be in accordance with all specifications, recommendations, and limitations issued or made by the manufacturer.

Deviation from the specifications, recommendations, and limitations issued or made by the manufacturer shall only be allowed after the manufacturer issues specific written approval.

Manufacturer's specifications, recommendations, and limitations, and manufacturer's

Provide a plan indicating the sizes, types, and configurations of the materials to be used in the protective system; and to identify the registered professional engineer approving the design.

At least one copy of the design shall be maintained at the jobsite during construction of the protective system. After that time, the design may be stored off the jobsite, but a copy of the design shall be made available to the Secretary upon request.

### **Materials and equipment.**

Materials and equipment used for protective systems shall be free from damage or defects that might impair their proper function.

Manufactured materials and equipment used for protective systems shall be used and maintained in a manner that is consistent with the recommendations of the manufacturer, and in a manner that will prevent employee exposure to hazards.

When material or equipment that is used for protective systems is damaged, a competent person shall examine the material or equipment and evaluate its suitability for continued use. If the competent person cannot assure the material or equipment is able to support the intended loads or is otherwise suitable for safe use, then such material or equipment shall be removed from service and shall be evaluated and approved by a registered professional engineer before being returned to service.

## **INSTALLATION AND REMOVAL OF SUPPORT**

### **General.**

Members of support systems shall be securely connected together to prevent sliding, falling, kickouts, or other predictable failure.

Support systems shall be installed and removed in a manner that protects employees from cave-ins, structural collapses, or from being struck by members of the support system.

Individual members of support systems shall not be subjected to loads exceeding those which those members were designed to withstand.

Before temporary removal of individual members begins, additional precautions shall be taken to ensure the safety of employees, such as installing other structural members to carry the loads imposed on the support system.

Removal shall begin at, and progress from, the bottom of the excavation. Members shall be released slowly so as to note any indication of possible failure of the remaining members of the structure or possible cave-in of the sides of the excavation.

Backfilling shall progress together with the removal of support systems from



is open of a possible loss of soil from behind or below the bottom of the shield.

## SOIL CLASSIFICATION

### Scope and application

**(1) Scope.** This appendix describes a method of classifying soil and rock deposits based on site and environmental conditions, and on the structure and composition of the earth deposits. The appendix contains definitions, sets forth requirements, and describes acceptable visual and manual tests for use in classifying soils.

**(2) Application.** This appendix applies when a sloping or benching system is designed in accordance with the requirements set forth in 1926.652(b)(2) as a method of protection for employees from cave-ins. This appendix also applies when timber shoring for excavations is designed as a method of protection from cave-ins in accordance with appendix C to subpart P of part 1926, and when aluminum hydraulic shoring is designed in accordance with appendix D. This Appendix also applies if other protective systems are designed and selected for use from data prepared in accordance with the requirements set forth in 1926.652(c), and the use of the data is predicated on the use of the soil classification system set forth in this appendix.

### Definitions

The definitions and examples given below are based on, in whole or in part, the following; American Society for Testing Materials (ASTM) Standards D653-85 and D2488; The Unified Soils Classification System; The U.S. Department of Agriculture (USDA) Textural Classification Scheme; and The National Bureau of Standards Report BSS-121.

**"Cemented soil"** means a soil in which the particles are held together by a chemical agent, such as calcium carbonate, such that a hand-size sample cannot be crushed into powder or individual soil particles by finger pressure.

**"Cohesive soil"** means clay (fine grained soil), or soil with a high clay content, which has cohesive strength. Cohesive soil does not crumble, can be excavated with vertical side slopes, and is plastic when moist.

Cohesive soil is hard to break up when dry and exhibits significant cohesion when submerged. Cohesive soils include clayey silt, sandy clay, silty clay, clay and organic clay.

**"Dry soil"** means soil that does not exhibit visible signs of moisture content.

**"Fissured"** means a soil material that has a tendency to break along definite planes of fracture with little resistance, or a material that exhibits open cracks, such as tension cracks, in an exposed surface.

**"Granular soil"** means gravel, sand, or silt (coarse grained soil) with little or no clay

1. The soil is fissured; or
2. The soil is subject to vibration from heavy traffic, pile driving, or similar effects; or
3. The soil has been previously disturbed; or
4. The soil is part of a sloped, layered system where the layers dip into the excavation on a slope of four horizontal to one vertical (4H:1V) or greater; or
5. The material is subject to other factors that would require it to be classified as a less stable material.

**"Type B" means:**

1. Cohesive soil with an unconfined compressive strength greater than 0.5 tsf (48 kPa) but less than 1.5 tsf (144 kPa); or
2. Granular cohesionless soils including angular gravel (similar to crushed rock), silt, silt loam, sandy loam and, in some cases, silty clay loam and sandy clay loam.
3. Previously disturbed soils except those which would otherwise be classed as Type C soil.
4. Soil that meets the unconfined compressive strength or cementation requirements for Type A, but is fissured or subject to vibration; or
5. Dry rock that is not stable; or
6. Material that is part of a sloped, layered system where the layers dip into the excavation on a slope less steep than four horizontals to one vertical (4H:1V), but only if the material would otherwise be classified as Type B.

**"Type C" means:**

1. Cohesive soil with an unconfined compressive strength of 0.5 tsf (48kPa) or less; or
2. Granular soils including gravel, sand, and loamy sand; or
3. Submerged soil or soil from which water is freely seeping; or
4. Submerged rock that is not stable, or
5. Material in a sloped, layered system where the layers dip into the excavation on a slope of four horizontal to one vertical (4H:1V) or steeper.

"Unconfined compressive strength" means the load per unit area at which a soil will fail in compression. It can be determined by laboratory testing, or estimated in the field using a pocket penetrometer, by thumb penetration tests, and other methods.

"Wet soil" means soil that contains significantly more moisture than moist soil, but in such a range of values that cohesive material will slump or begin to flow when vibrated. Granular material that would exhibit cohesive properties when moist will lose those cohesive properties when wet.

**Requirements**

**(1)** Classification of soil and rock deposits. Each soil and rock deposit shall be classified by a competent person as Stable Rock, Type A, Type B, or Type C in accordance with the definitions set forth in paragraph (b) of this appendix.

**(2)** Basis of classification. The classification of the deposits shall be made based on the

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