Lewis Energy Group®

STANDARD OPERATING PRACTICE

Control of Hazardous Energy:

Lockout/Tagout (LOTO)

Lewis Energy Group
Version 1.2
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1.0 Purpose & Policy Statement

The purpose of this Standard Operating Procedure (SOP) is to provide information for the control of hazardous energy through the Lockout/Tagout (LO/TO) procedure to ensure the safety of Lewis Energy Team Members and contractor personnel.

LEG Policy Statement

Lewis Energy Group's (LEG's) Lockout/Tagout (LO/TO) policy is established to safely isolate potentially hazardous energy sources in the work area during service or maintenance activities. Lockout/Tagout requirements and guidelines will help protect Team Members from injury resulting from the unexpected startup of equipment or machinery or from a sudden release of energy. Contractors must have their own locking and tagging devices and also follow the LEG LO/TO procedures outlined in the SOP, along with other LEG contractor safety requirements.

2. Applicability

Title 29 Code of Federal Regulations (CFR) Part 1910.147 addresses the practices and procedures necessary to disable machinery or equipment. Title 29 CFR 1910.333 covers the requirements to protect Team Members/contractors working on electrical circuits and equipment.

This federal standard does **NOT** apply to the following:

- Minor tool changes and adjustments and other minor servicing activities which take place during normal Production operations if they are routine, repetitive and integral to the use of the equipment provided that the work is performed using alternative measures which provide effective protection.
- Work on cord and plug connected electric equipment for which exposure to the hazards of unexpected energization or startup of the equipment is controlled by unplugging of the equipment or machine from its single energy source. The plug must be under the exclusive control of the Team Member/contractor performing the servicing.
- Hot tap operations involving transmission and distribution systems for substances such as gas, water or petroleum products when they are performed on pressurized pipelines; however, the Business Unit (BU) manager where these activities are taking place must demonstrate to the Safety Manager or Authorized Company Representative (ACR) that: (1) continuity of service is essential; (2) shutdown of the system is impractical; (3) documented procedures are followed, and special equipment is used which will provide proven and effective protection for the Team Member/contractor.

3. Requirements

The requirements discussed herein are established by the Occupational Safety and Health Administration (OSHA). This SOP will be followed by Team Members/contractors when exposed to hazardous energy while servicing or maintaining equipment and machinery. All equipment shall be locked out or tagged out to protect against accidental or inadvertent operation. Operation of switches, valves or other energy-

isolating device where they are locked out or tagged out is prohibited. The following program procedures will be followed for LO/TO:

Energy Isolation

Implementation of the LO/TO program shall be performed by authorized Lewis Energy Team Members/contractors.

Notification of Team Members/contractors

Affected personnel shall be notified by the ACR and BU supervisor of the application and removal of LO/TO devices. Notification shall be given before controls are applied and after they are removed from the machine or equipment.

Tagout (TO)

OSHA has determined that lockout is a more effective means of ensuring the de-energization of equipment and is the preferred method. OSHA recognizes that TO must be used where the energy control device cannot accept a lock. If the energy isolating device is capable of being locked out, the standard requires that a lockout be used unless the ACR or BU supervisor can demonstrate that TO will provide "full Team Member/contractor protection," ("Tags Plus") – i.e., a level of protection that is equivalent to lockout. Refer to Section 4 of this SOP for clarification of responsibilities in making this determination. Refer to other topics within this Section for training when TO systems are used.

Preparation for LO/TO

Team Members/contractors authorized to perform LO/TO shall be certain as to which switch, valve or other energy isolating devices apply to the equipment being locked out or tagged out. More than one energy source (electrical, mechanical or others) may be involved. Any questionable identification of sources shall be cleared by the ACR or BU supervisor. Before LO/TO commences, job authorization should be obtained from the ACR or BU supervisor. See "Energy Isolation Work Plan" in Appendix A of this SOP.

Sequence of LO/TO Procedures

These activities should only be carried out by authorized Team Members/contractors.

- Notify all affected Team Members/contractors that a LO/TO procedure will be utilized and the reason for the LO/TO.
- If the equipment is operating, shut it down by the normal shutdown procedure.
- Operate the switch, valve or other energy isolating devices so that all of the energy sources are disconnected or isolated from the equipment.
- Lockout energy isolating devices with an assigned individual lock.
- Stored energy such as capacitors, springs, elevated machine members, rotating fly wheels, hydraulic systems and air, gas, steam or water pressure must also be dissipated or restrained by methods such as grounding, repositioning, blocking or bleeding down

- Ensure no Team Members/contractors are exposed and a check has been performed to ensure that energy sources are disconnected making certain the equipment will not operate. **CAUTION: Return operating controls to neutral position after test.**
- If the equipment is operated from a remote station or computer control system, the authorized Team Member/contractor MUST verify that the equipment will not start remotely. The equipment is now locked out/tagged out.

Restoring Machines or Equipment to Normal Production Operations

After servicing or maintenance is completed and equipment is ready for normal production operations, notify each affected Team Member/contractor and check the area around the machines or equipment to ensure that no one is exposed. After all tools have been removed from the machine or equipment, guards have been reinstalled and Team Members/contractors are in the clear, remove all LO/TO devices. All personnel, tags, locks and isolation devices must be accounted for before start-up or restoring equipment is initiated.

Procedures Involving More Than One Person

If more than one individual is required to LO/TO equipment as detailed in the preceding steps; each individual shall place a personal LO/TO device on the energy-isolating devices. When an energy-isolating device cannot accept multiple locks or tags a multiple LO/TO device (hasp) may be used. If LO is used, a single lock may be used to LO the machine or equipment with the key being placed in a lockout box or cabinet which allows the use of multiple locks to secure it. All Team Members/contractors will then use their own lock to secure the box or cabinet. Once the Team Member's/contractor's portion of the work is complete each LO/TO device shall be removed from each energy-isolating device by the Team Member/contractor who applied the device (see "Group Lockout/Tagout" Section below).

Removal of Lockout or Tagout Device by Others

Each LO/TO device shall be removed from each energy-isolating device by the Team Member/contractor who applied the device.

Exception: The ACR or BU supervisor may remove a LO/TO device provided a documented procedure is followed. At a minimum this procedure shall include but not be limited to the following actions by the ACR or BU supervisor:

- Verification that the authorized Team Member/contractor who applied the device is not on location.
- Making all reasonable efforts to contact the authorized Team Member/contractor to inform him/her that his/her device will be removed.
- Ensuring the authorized Team Member/contractor has this knowledge before he/she resumes work on the site.

Group Lockout/Tagout

It is imperative that each Team Member/contractor understands the hazards of the work and how to control the hazards. It is required that the Team Member/contractor have knowledge of the type and magnitude of the energy, the hazards of the energy to be controlled and the procedure to be used to control it.

When servicing or maintenance is performed by a crew, department or other group, a procedure shall be utilized which affords the Team Members/contractor a level of protection equivalent to that provided by implementation of a personal LO/TO device.

Group lockout shall be utilized where complex LO/TO operations involve many Team Members/contractors and numerous energy-isolating devices. In such situations the BU supervisor or authorized Team Member will be responsible for personnel working under the group LO/TO. The authorized person for each BU must implement and coordinate the LO/TO of hazardous energy sources and verify the steps taken in accordance with the LO/TO procedure. This authorized person will be responsible to ensuring that energy sources have been isolated effectively. These steps must be accomplished prior to Team Member/contractors affix their personal lockout device to the box before performing servicing/maintenance activities.

Each authorized Team Member/contractor participating in the group LO/TO must be informed of their right to verify the effectiveness of the lockout measures. The Team Member/contractor must be allowed to personally verify that hazardous energy sources have been effectively isolated.

Each Team Member/contractor shall affix a personal LO/TO device to the group lockout device, lockbox or comparable mechanism before the work takes place. The devices shall be removed when work on the machine or equipment is complete.

Shift or Personnel Change

At locations where shift work occurs, a method of transferring the control of LO/TO devices from one group to another must be developed. The procedures for shift change must address the following:

- Notifying the replacement authorized employee of the status of the service or maintenance operation.
- Removing locks and tags from a previous shift or personnel change and replacing them with locks and tags from current shift or personnel.
- Keeping a log of employees installing and removing locks and tags.
- Informing affected employees of the status of the equipment being locked out or tagged out.

Protective Materials and Hardware

LO/TO devices shall be singularly identified, the only devices used for controlling energy, not used for other purposes and meet the following requirements:

- LO/TO devices will be durable and capable of withstanding the environment to which they are exposed for the maximum period of time that exposure is expected.
- LO/TO devices will be standardized within the facility in the following criteria: color, shape or size, print and format.
- LO/TO devices will be substantial enough to prevent removal without the use of excessive force or other techniques such as bolt cutters or other metal cutting tools.
- TO devices including their means of attachment will be substantial enough to prevent inadvertent or accidental removal. The TO device attachment will be a non-reusable device that can be attached by hand, is self-locking and non-releasable with a minimum unlocking strength of no less than fifty pounds (i.e., nylon cable tie).
- LO/TO devices will indicate the identity of the Team Member/contractor applying the device, reasons for the equipment isolation, date and standardized terminology such as "Do Not Operate", "Do Not Start", "Do not Open" or "Do Not Energize".
- Only LO/TO devices approved by the ACR will be used and signed off. The Energy Isolation sign off form is provided in Appendix A of this document.

Periodic Inspections

The BU supervisor and the ACR shall continually monitor Team Member/contractor performance with regard to compliance with this program and shall correct any deviations or inadequacies observed. At least annually BU supervisors and the ACR shall conduct a periodic inspection including but not limited to the following:

- A separate review of each written energy control procedure to ensure that the procedures are adequate to provide the necessary protection and to identify what changes, if any, are needed.
- Observation of the implementation of the energy control procedures.
- The authorized Team Member/contractor performing the inspection shall not be a Team Member/contractor that is currently utilizing the energy control procedure being inspected.
- The authorized Team Member/contractor performing the inspection does not have to observe every authorized Team Member/contractor implementing the LO/TO procedure on the machine or equipment.

The review should include but not be limited to the following:

- Observation of a representative number of Team Members/contractors while they are implementing the procedure.
- Communication with all Team Members/contractors even though they may not be implementing the LO/TO procedure.

This review may be completed in one or more meetings in which all authorized and affected Team Members/contractors will be in attendance to review the specific energy control procedures.

Where lockout is used for energy control, the periodic inspection shall include a review between the Team Member/contractor inspector and each authorized and affected Team Member/contractor that includes the responsibilities under the energy control procedure being inspected.

Where tagout is used for energy control the periodic inspection will include a review between the Team Member/contractor inspector and each authorized and affected Team Member/contractor that includes the Team Member/contractor responsibilities under the energy control procedures being inspected.

The BU supervisor shall certify in writing that the periodic inspections have been performed. The certification shall identify the machine or equipment on which the energy control procedure was being utilized, date of inspection, Team Member/contractor included in the inspection and the person performing the inspection. The inspection certification shall be maintained on file in the Safety Department. Appendix C provides the Periodic Inspection of Energy Control Procedures.

Team Member/Contractor Training and Communication

The BU supervisor shall provide initial training to ensure that the purpose and function of the LO/TO program is understood by all Team Members/contractors and the knowledge and skills required for the safe application, usage and removal of energy controls are acquired by Team Members/contractors. Training shall include but not be limited to the following:

- Each authorized Team Member/contractor shall receive training in the recognition of applicable hazardous energy sources, type and magnitude of energy in the workplace and the methods and means necessary for energy isolation and control.
- Each affected Team Member/contractor shall be instructed in the purpose and use of the energy control program.
- All other Team Members whose work operations are or may be in an area where energy control procedures may be utilized shall be instructed about the procedures and the prohibition relating to attempts to restart and reenergize machines or equipment which are LO/TO.
- BU supervisors shall maintain a current list of authorized Team Members/contractors

Employee Retraining

The BU supervising department will maintain all LO/TO records. These records must include:

- Certification that Team Member/contractor training has been accomplished and is being kept up-to-date. The certification shall contain at a minimum each Team Member/contractor name and dates of training and a training summary. A copy of the training record will be maintained in Skill Soft
- Specific written LO/TO procedures for equipment/machines covered by the program (see "Machine/Equipment Specific Procedures" Appendix B)
- Completed Periodic Inspection of Energy Control Procedures forms for this equipment/machinery conducted annually (see "Periodic Inspections" Section 3.0 and Appendix C)
- Any completed Exchange of LO/TO forms (see "Outside Personnel" Section 3.0 and Appendix D)

Outside Personnel

Whenever outside contractors and servicing personnel are to be engaged in activities covered by the scope and application of this procedure the BU supervising department and the outside company representative shall inform each other of their specific LO/TO procedures.

4.0 Responsibilities

The initial step in developing a LO/TO energy control program is for each Lewis Energy BU to conduct a hazard assessment in the area of control to determine whether the program applies to the processes and equipment under the control of the BU. Each BU supervisor is responsible for adopting, incorporating and implementing the information in this SOP for the BU the supervisor is responsible for. Team Members/contractors are responsible to observe safety practices contained in this program and to point out unsafe conditions to the ACR or BU supervisor.

The BU supervisor shall develop, document and implement identified energy isolation procedures before workers perform service or maintenance activities covered by this SOP. This may be accomplished by using the Equipment/Machine Specific Energy Control Procedure (Appendix B). These specific procedures shall identify the practices and procedures to shut down and isolate equipment from its energy source preventing the release of potentially hazardous energy.

If the information developed, documented, and implemented is the same for more than one machine or piece of equipment or if other means of logical groupings exist, a single LO/TO procedure may be sufficient. If there are other conditions such multiple energy sources, different connecting means or a particular sequence that must be followed to shut down the machine or equipment the BU supervisor must develop separate specific written energy control procedures to protect Team Members/contractors.

5.0 Job Safety Analysis (JSA)

A JSA must be performed prior to beginning hazardous energy isolation activities. This discussion should involve Team Members/contractors who will be affected and include but not be limited to the following:

- Key job steps.
- Potential hazards.
- Elimination or mitigation of potential hazards.
- Team Member responsible for mitigation/elimination.

Team Members/contractors should be informed of any other work in the area that could adversely affect the isolation of energy sources while servicing of machines or equipment.

6.0 Definitions

Authorized Company Representative (ACR) **–-** The ACR is capable of identifying existing and predictable hazards in the surroundings, or working conditions which are hazardous to contract employees. The ACR has authorization to take prompt corrective measures to eliminate these hazards. This ACR individual

assures that all required preparations and precautions concerning the work site have been taken and then signs the permit.

Affected Employee – A Team Member whose job requires operation or use of a machine or equipment on which servicing or maintenance is being performed under LO/TO, or whose job requires work in an area in which such servicing or maintenance is being performed.

Authorized Employee – A Team Member who uses LO/TO on machines or equipment in order to perform servicing or maintenance on that machine or equipment. An affected employee becomes an authorized employee when that Team Member's duties include performing servicing or maintenance covered under this section.

Capable of Being Locked out – An energy isolating device is capable of being locked out if it has a hasp or other means of attachment to which, or through which, a lock can be affixed, or it has a locking mechanism built into it. Other energy isolating devices are capable of being LO, if LO can be achieved without the need to dismantle, rebuild, or replace the energy isolating device or permanently alter its energy control capability.

Energized – Connected to an energy source or containing residual or stored energy.

Energy Isolating Device – A mechanical device that physically prevents the transmission or release of energy, including but not limited to the following:

- A manually operated electrical circuit breaker;
- A disconnect switch;
- A manually operated switch by which the conductors of a circuit can be disconnected from all ungrounded supply conductors, and in addition, no pole can be operated independently; a line valve; a block; and any similar device used to block or isolate energy.

Note: Push buttons, selector switches and other control circuit type devices are not energy isolating devices.

Hot Tap – A procedure used in the repair, maintenance and services activities which involves welding on a piece of equipment (pipelines, vessels, or tanks) under pressure, in order to install connections or appurtenances. It is commonly used to replace or add sections of pipeline without interruption of service for air, gas, water, steam, and petrochemical distribution systems.

Lockout – The placement of a LO device on an energy isolating device, in accordance with an established procedure that ensures the energy isolating device and the equipment being controlled cannot be operated until the lockout device is removed.

Lockout Device – A device that utilizes a positive means such as a lock, either key or combination type, to hold an energy isolating device in a safe position and prevent the energizing of a machine or equipment until the energy isolating device is removed. This includes blind flanges and bolted slip blinds.

Normal Production Operations – The utilization of a machine or equipment to perform its intended production function.

Servicing or Maintenance – Workplace activities such as constructing, installing, setting up, adjusting, inspecting, modifying, and maintaining or servicing machines or equipment. These activities include lubrication, cleaning, or unjamming of machines or equipment and making adjustments or tool changes where an employee may be exposed to the unexpected energization or startup of the equipment or release of hazardous energy.

Setting up – Any work performed to prepare the machine or equipment to perform its normal production operation.

Tagout – The placement of a TO device on an energy isolating device, in accordance with the established procedure, to indicate that the energy isolating device and the equipment being controlled may not be operated until the TO device is removed.

Tagout Device – A prominent warning device, such as a tag and a means of attachment, which can be securely fastened to an energy isolating device in accordance with an established procedure, to indicate that the energy isolating device and the equipment being controlled may not be operated until the TO device is removed. LEG has a commitment to provide a work environment where no injury/illness is considered acceptable and all activities are undertaken without compromising safety and health. All work-related incidents involving team members shall be reported to the person in charge (PIC) immediately. All contractors that perform work at LEG facilities shall report any incident to the LEG PIC immediately. Contractors must fully cooperate with LEG's investigation of any injury/illness, spills, near miss, hazardous situations or vehicle/property damage.

7.0 Document Control

Version	Change Date	Change Description	Changed by	Approved by	Approval Date
1.0	8/20/19	• Changed Business Objective to Purpose and Policy Statement • Added Policy Statement • Revised Purpose Statement	Colin Clark	Ken Phillips	8/20/19
1.1	10/17/19	• Changed Cover Page • Update Spacing/Formatting • Update TOC	Colin Clark	Ken Phillips	10/17/19
1.2	6/20/24	• Review Only	Colin Clark		6/20/24

NOTE: Changes to this document shall be reviewed by the Sub-Committee and approved by the Executive Safety Committee (ESC). Any document revisions are to be noted on the Document Review Change Log. This form shall be kept current to maintain audit compliance.

Appendix A

ENERGY ISOLATION WORK PLAN

Energy Isolation Work Plan

Lewis Energy Group

Machine/Equipment: _____ Location: _____

Work Scope: _____

Contact Person(s): _____

Special Notes: _____

Energy to be Controlled (Check all that apply)

☐ Electrical	☐ Thermal	☐ Hydraulic	☐ Pneumatic
☐ Mechanical	☐ Chemical	☐ Radiological	☐ Radio Frequency

Lockout/Tagout Checklist: (Check all that apply)

1. **Conduct JSA:**
   - ☐ Discuss types of energy and hazards
   - ☐ Discuss energy isolation
2. **Machine/equipment shutdown:**
   - ☐ Use normal shutdown procedure
   - ☐ Turn all switches off
   - ☐ Shut all control valves
   - ☐ Disable all sources of energy
3. **Machine/equipment isolation:**
   - ☐ Secure valves with wire rope/chain
   - ☐ Open breakers and disconnects
4. **Release or block stored energy**:
   - ☐ Discharge capacitors
   - ☐ Block/release springs
   - ☐ Block elevated part
   - ☐ Secure flywheels
   - ☐ Relieve pressure
   - ☐ Drain fluids
   - ☐ Vent Gases
   - ☐ Allow system to cool
5. **Install lock and/or tags:**
   - ☐ Valves
   - ☐ Breakers/electrical disconnects
   - ☐ Block or disconnect all lines
   - ☐ Tag all blind plates
6. **Verification of Isolation:**
   - ☐ Verify that all locking devices are securely installed
   - ☐ Attempt normal startup
   - ☐ Return controls to off
7. **Release from Lockout/tagout:**
   - ☐ Inspect area around equipment
   - ☐ Replace machine guards
   - ☐ Remove tools from equipment
   - ☐ Inform others of startup
   - ☐ Restore system connections
   - ☐ Remove locks and tags
   - ☐ Conduct normal startup

Authorized Company Representative: _____ Date: _____

Lockout/Tagout Log

Craft Lock	Energy Isolated	Isolation Location	Date On	Time On	Date Off	Time Off

Removal of Another Person's Lockout Device:

Each lockout or tagout device shall be removed from each energy-isolating device by the LEG Team Member or contractor who applied the device.

Exception: The ACR or BU supervisor may remove a lockout or tagout device provided a documented procedure is followed. At a minimum, this procedure shall include, but not be limited to, these actions by the ACR or supervisor:

- Verify that the authorized LEG Team Member or contract personnel who applied the device is not on location;
- Make all reasonable efforts to contact the authorized LEG Team Member or contract personnel to inform him/her that his/her device will be removed; and
- Ensure that the authorized LEG Team Member or contract employee has this knowledge before he/she resumes work on the site.

Authorized Company Representative: _____ Date: _____

Appendix B

MACHINE/EQUIPMENT SPECIFIC PROCEDURES

Machine/Equipment Specific Procedures

Lewis Energy Group

Energy Control Procedure for (BU): _____

Machine/Equipment name: _____

Location: _____

Special Notes: _____

Energy Sources Applicable to This Equipment:

☐ Electrical	☐ Thermal	☐ Hydraulic
☐ Pneumatic	☐ Mechanical	☐ Chemical
☐ Radiological	☐ Radio Frequency	

Energy Control Devices:

☐ Lock(s)	☐ Tag(s)	☐ Disconnect
☐ Chain/cable	☐ Blind plate	☐ Double block/bleed
☐ Appendix Device _____	☐ Other _____	

Lockout/Tagout Procedure:

Machine/Equipment energy isolation process:

1. Describe the normal operating procedures, for shutting down the machine/equipment.
   _____

   _____
2. Describe what steps are taken to verify that all energy sources have been removed and the equipment is at zero energy state.
   _____

   _____
3. Describe where lockout or tagout devices need to be installed.
   _____

   _____

4. What identification features best describes your locking devices (i.e. color, name, label, etc.)
   _____

   _____
5. Describe work that is covered by this procedure and who completes LO/TO work plan.
   _____

   _____
6. Describe who needs to be notified when work is completed so machine/equipment can be returned to normal operation.
   _____

   _____
7. Describe normal start-up procedure for the machine/equipment.
   _____

   _____

Business Unit Supervisor: _____

Business Unit Manager: _____

Appendix C

PERIODIC INSPECTION OF ENERGY CONTROL PROCEDURES

Periodic Inspection of Energy Control Procedures

Lewis Energy Group

Business Unit: _____ Date: _____

Location/Area:

_____

Inspector(s):

_____

Authorized Team Member /Contractor Involved:

_____

Affected Team Members:

_____

Service/Maintenance Activities Requiring lockout/tagout:

_____

_____

Review the current lockout/tagout procedures and indicate whether procedures are satisfactory. Any procedures marked **NO** must be explained under Comments/Deficiencies below.

1.	Control methods	Satisfactory	☐ Yes	☐ No
2.	General review or responsibilities/procedures	Satisfactory	☐ Yes	☐ No
3.	Energy identification	Satisfactory	☐ Yes	☐ No
4.	Lockout device	Satisfactory	☐ Yes	☐ No
5.	Tagout device	Satisfactory	☐ Yes	☐ No
6.	Energy release method(s)	Satisfactory	☐ Yes	☐ No
7.	Lockout/tagout steps	Satisfactory	☐ Yes	☐ No

8. Comments/Deficiencies: _____

_____

Certification:

This energy control procedure is compliant with Lewis Energy Group's Standard Operating Procedure. The inspector has reviewed appropriate responsibilities with the Authorized Employee.

Inspector Signature: _____

Business Unit Supervisor: _____

Appendix D

EXCHANGE OF LOCKOUT/TAGOUT PROGRAM

This lockout/tagout program requires that LEG exchange energy control procedures with outside third party employees who service or maintain LEG equipment/machines. This form is used to notify both parties that they must comply with the restrictions and prohibitions of those procedures. It should be completed by the ACR or BU Supervisor contact person in conjunction with the third party employer's representative. The exchange of information must occur before service/maintenance activities begin.

Identification of Third Party Employer

Name: _____ Phone: _____

Address: _____

Project Name/Equipment: _____

☐ Check here to indicate that energy control procedures for the equipment/machine have been exchanged.

Comments: _____

After comparing the two Lockout/Tagout programs, note any additional restrictions/prohibitions:

_____

Affected Personnel (listed below) shall understand and comply with these differences.

Printed Name	Signature
_____	_____
_____	_____

Acknowledge acceptance of the provisions on this form:

Third Party Outside Representative: _____ _____
Signature Date

LEG Team Member Contact: _____ _____
Signature Date