

**UNITED STATES DEPARTMENT OF THE INTERIOR  
MINERALS MANAGEMENT SERVICE  
GULF OF MEXICO OCS REGION**

NTL No. 2002-G03

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NOTICE TO LESSEES AND OPERATORS OF FEDERAL OIL, GAS, AND SULPHUR  
LEASES IN THE OUTER CONTINENTAL SHELF, GULF OF MEXICO OCS REGION

**Supervisory Control and Data Acquisition (SCADA) Systems**

This Notice to Lessees and Operators (NTL) supersedes NTL No. 2000-G06, effective February 4, 2000, on this subject and makes minor technical amendments. It provides guidance and conveys the current MMS Gulf of Mexico OCS Region (GOMR) procedures on SCADA systems.

**Background**

SCADA systems have varied designs and applications. They can be quite simple or very complex. In the past, these systems were used primarily to monitor facilities and remotely restart production components following a command shut-in or process upset within a production system. The majority of these systems were installed on satellite facilities to perform remote well opening operations. However, with the progression of technology, systems are now being developed to execute many operations that previously required human intervention, e.g., remote startup of compressors.

The GOMR has approved the use of several SCADA systems throughout the Gulf of Mexico. Although there has been some collaboration among GOMR District offices on acceptable procedures, it has become increasingly necessary that the GOMR develop clear and consistent procedures to deal with the more sophisticated technologies. This NTL is being issued to accomplish that goal.

**Definitions**

Terms used in this NTL have the meanings as defined below:

1. Sustained wind speed. A three-minute *average* speed of the wind, excluding gusts.
2. Downstream components. Those components, such as flowlines, pipelines, and separators, located between the hydrocarbon source and the sensing point.
3. All essential operating conditions. These include pressure, status of the safety devices, appropriate liquid levels, temperature, and flow rates and/or pressures on specific downstream components.

4. Static pressure. The pressure at which the specific system should become stabilized if the pressure source is rendered inoperative (shut-in) during *normal* operations.
5. Dry gas facility. A facility producing from a reservoir that has a gas/oil ratio (GOR) greater than 100,000 SCF/bbl, a concentration of C<sub>1</sub> and C<sub>2</sub> greater than 96 percent, and a concentration of C<sub>7+</sub> less than 1 percent.
6. Electro-mechanical devices. Devices that contain mechanical parts that are in contact with the process fluid or that are subject to wear, sticking, or corrosion, e.g., devices that utilize a float attached to a mechanical lever with pivot points that activate an electronic switch.
7. Operator interventions. These include changes to sensor set points and changes to commands from a central facility to a remote satellite.
8. Local storm timers. Time delay circuitry that is an integral part of the SCADA logic located in the program logic controller (PLC) at the remote facility. Generally, this logic must be initiated on the remote facility.

### **Approval conditions**

According to 30 CFR 250.800, you may not conduct production operations until the MMS has approved the production safety system. Under this approval authority, the appropriate GOMR District Supervisor may authorize you to use a SCADA system to monitor, control, open, close, and restart specific wells, pipelines, and process components remotely, provided that you meet the following conditions:

1. The SCADA system is capable of monitoring *all essential operating conditions* that affect the subject wells, pipelines, and process components.
2. You conduct an on-site investigation if you cannot ascertain the primary cause of a shut-in by diagnosing the data available from the monitored operating conditions.
3. All detected abnormal operating conditions that indicate a shut-in of a component or process return to a “normal” status (clear) before you remotely reactivate the process or return the source to an operational status.
4. You may temporarily bypass safety sensors and their associated shut-in devices on process components for a period as specified in paragraph 10 of this section during remote startup operations provided you:
  - a. Ensure that the system pressure does not exceed the MAOP/MAWP of the system’s limiting component; and
  - b. Continuously monitor all essential operating conditions, *including those on downstream components*.

These safety device bypass provisions apply only during remote control and start-up operations for SCADA systems with remote monitoring, control, and shutdown capabilities; and only when each safety device has remote monitoring and control capabilities (i.e., the SCADA system allows for each safety device to be put into bypass and taken out of bypass remotely).

5. You install, test, and maintain required safety devices and their associated electronic, electrical, pneumatic, or hydraulic circuitry to reflect a “fail safe” status.
6. According to 30 CFR 250.803(b)(3), all shutdown devices, valves, and pressure sensors must function in a manual reset mode. Accordingly, you may not initiate remote restart capabilities for the following function shut-ins unless you obtain explicit written approval from the appropriate GOMR District Supervisor to use an alternate procedure under 30 CFR 250.141:
  - a. Shut-in actions detected by
    - i. Level Safety Low (LSL);
    - ii. Emergency Shutdown (ESD), Fireloop (TSE), and Temperature Safety High (TSH); and
    - iii. Level Safety High (LSH) on sump tanks/piles, water skimmers, flare scrubbers, and stock tanks.
  - b. Components
    - i. Compressors; and
    - ii. All fired components.
7. The operator of the SCADA system is qualified and knowledgeable of the specific SCADA system and its related production process system.
8. Any system capable of electronic data storage records operator interventions.
9. You satisfy the following conditions before you commence restart operations after a low-pressure condition shut-in (i.e., the Pressure Safety Low (PSL) is the first out):
  - a. You do not remotely reset a PSL sensor unless you obtain approval from the appropriate GOMR District Supervisor to use an alternate procedure under 30 CFR 250.141;
  - b. The system pressure is allowed to reach a static state, i.e., the static pressure of the component is equal to or above the stabilized or “normal” shut-in system pressure; and
  - c. You continuously monitor all essential process parameters, *including those on downstream components*.
10. You may not bypass required safety devices for more than a total of 30 minutes. If you do, issue an acknowledged command at least once every five minutes during the bypass to keep the reset timer active. Once the bypassed devices are cleared, the reset timer should automatically cancel.

## Electronic pressure transmitters and level sensors

1. Testing - Experience demonstrates that electronic sensing devices used in conjunction with appropriate production safety systems provide far greater reliability and repeatability than standard pneumatic pressure pilots and level sensors. Therefore, if you use electronic-based sensing devices, you may request that the appropriate GOMR District Supervisor grant you a departure from the requirement to test these devices monthly (see 30 CFR 250.804). If granted, this departure will allow you to test electronic pressure transmitters and level sensors on a quarterly basis, not to exceed 120 days between tests. The appropriate GOMR District Supervisor will not grant these departures for *electro-mechanical* devices. If you are granted a departure, maintain a copy of the departure approval at your nearest field location and note your test records to reflect the safety devices and sensors for which the departure applies.
2. Transmitter ranges - When you use analog transmitters in electronic safety systems to sense process safety components (i.e., pressure, temperature, level), set the transmitter so that the upper limit of the operating range of the process safety component is between 30 percent and 100 percent of the upper limit of the transmitter. For example, if the upper limit of the operating pressure range of a test separator is 150 pounds per square inch (psi), set the upper limit of the of the electronic pressure safety high (PSH) transmitter between 150 psi (150 psi divided by 100 percent) and 500 psi (150 psi divided by 30 percent).
3. Modifications - When you modify the control system logic in a platform electronic safety system, such modification is subject to verification in accordance with API RP 14C, Appendix D.

## Remote operations during hurricane conditions

You may conduct remote operations during hurricane conditions, provided you meet the following conditions:

1. You request this action in writing as a part of your remote operations proposal in your initial or modified production safety system application required by 30 CFR 250.800;
2. Your facility has remote monitoring and remote shut-in capabilities;
3. If you have temporarily removed the subsurface safety device in a well to conduct routine operations under 250.801(h), you are successful in reinstalling the subsurface safety device before your personnel abandon the facility;
4. You design time-delay circuitry (local storm timers) to shut in a facility four hours after the capability to monitor and control a process is lost. Include this circuitry in the SCADA logic;
5. After the storm passes, you may restart a facility provided the sustained wind speeds have not exceeded 74 miles per hour (mph) at the approved location; and

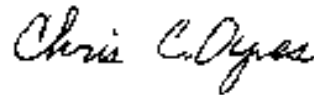
6. If *sustained* wind speeds have exceeded 74 mph:
  - a. You shut in a liquid hydrocarbon facility immediately. When you restart the facility, you cannot do so remotely.
  - b. You shut in a hydrogen sulfide (H<sub>2</sub>S) bearing facility immediately. When you restart the facility, you cannot do so remotely.
  - c. You may continue to produce a dry gas facility. However, if an upset condition occurs, you must shut in the facility immediately (including an ESD). When you restart the facility, you cannot do so remotely.

### **Paperwork Reduction Act of 1995 Statement**

The information collection referred to in this NTL provides clarification, description, or interpretation of requirements contained in 30 CFR 250, subparts A and H. The Office of Management and Budget (OMB) approved the information collection requirements for these regulations and assigned OMB Control Numbers 1010-0114 and 1010-0059, respectively. This NTL does not impose additional information collection requirements subject to the Paperwork Reduction Act of 1995.

### **Contacts**

Please direct any questions you may have regarding this NTL to the Production Engineer in the appropriate GOMR District Office.



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