DOCKET NO.: 70-3103
LICENSE NO.: SNM-2010

LICENSEE: Louisiana Energy Services
National Enrichment Facility
Lea County, New Mexico

SUBJECT: SAFETY EVALUATION REPORT FOR APPROVAL OF LOUISIANA ENERGY SERVICES EXCEPTION REQUEST FOR ITEMS RELIED ON FOR SAFETY 42 (TAC NO L33009)

PROPOSED CHANGES

On July 26, 2010, Louisiana Energy Services (LES) transmitted a request for an exception to License Condition (LC) 20 for items relied on for safety (IROFS) 42 for Monitoring Support Equipment (MSE). An exception to LC20 is requested because IROFS42 relies on a Programmable Logic Controller (PLC) to carry out its described function. The exception and definitions for MSE were submitted May 2, 2010, in License Amendment Request (LAR-10-04) for exceptions to the same LC for IROFS38 and IROFSC22. A subsection to the Quality Assurance Program Description (QAPD) for Title 10 of the *Code of Federal Regulations* (10 CFR) Part 21, Applicability of Support Equipment, was submitted with LAR-10-04, and is included as part of this exception request. The MSE is Quality Assurance (QA) Level 2AC (QL-2AC).

BACKGROUND

LAR-10-04 was an exception request for IROFS38 and IROFSC22 to LC 20 for MSE, because these IROFS relied on a PLC. The LAR stated that, in the future, where additional oversight and enhancement and/or oversight is deemed worthwhile to address any similar changes to other Administrative Control IROFS, LES would address such changes in the same manner as LAR-10-04. IROFS42 utilizes the same QL-2AC product Station Weigh Scales as the MSE identified in LAR-10-04.

The IROFS42 function is to administratively limit the cylinder fill mass to ensure cylinder integrity when heated. This is implemented by determining the weight of product cylinders before placement and heating in the Product Liquid Sampling Autoclave. The weight limit is conservative with respect to ensuring cylinder integrity. If the acceptance criterion is not met, then the associated product cylinder will not be heated.

REGULATORY REQUIREMENTS

Under 10 CFR 70.61, a licensee is required to ensure the risk of credible, high consequence events must be limited. Engineered controls, administrative controls, or both shall be applied to the extent needed to reduce the likelihood of such an event so that, upon implementation of such controls, the event is highly unlikely. The same principle applies to credible intermediate consequence events, such that, through the application of such controls, the event is unlikely. This includes that the risk of nuclear criticality events must be limited by assuring that under normal and credible abnormal conditions, all nuclear processes are subcritical.

Under 10 CFR 70.62, a licensee is required to establish and maintain a safety program including management measures that demonstrates compliance with the performance

requirements of § 70.61. The licensee's management measures are required to ensure that engineered and administrative controls and control systems that are identified as IROFS are designed, implemented, and maintained, as necessary, to ensure they are available and reliable to perform their function when needed, to comply with the performance requirements of § 70.61.

Under 10 CFR 70.64, an applicant or licensee is required to apply baseline design criteria including quality standards and records to the design of new facilities and new processes, and to develop and implement the design in accordance with management measures.

Under 10 CFR 70.62(d), the management measures shall ensure that engineered and administrative controls and control systems that are identified as IROFS pursuant to 70.61(e) of this subpart are designed, implemented and maintained, as necessary, to ensure that they are available and reliable to perform their function when needed, to comply with the performance requirements of 70.61 of this subpart.

Under 10 CFR 50, Appendix B, a licensee is required to establish a QA program to be applied to the design, fabrication, construction, and testing of structures, systems, and components of a facility.

GUIDANCE

The U.S. Nuclear Regulatory Commission (NRC) staff conducted its safety review in accordance with NUREG-1520, "Standard Review Plan for the Review of a Safety Analysis Report (SAR) for a Fuel Cycle Facility."

STAFF REVIEW AND EVALUATION

LC 20 of SNM-2010 states that there are no IROFS specified as using software, firmware, microcode, programmable logic controllers, and/or any digital device, including hardware devices which implement data communication protocols (such as fieldbus devices and Local Area Network controllers), etc. Should the design of any IROFS be changed to include any of the aforementioned features, LC 20 requires the licensee to obtain Commission approval prior to implementing the change(s). LC 20 also requires the licensee's design change(s) to adhere to the accepted best practices in software and hardware engineering, including software QA controls as discussed in the QAPD throughout the development process and be in accordance with the applicable guidance of specific industry standards and regulatory guides as cited in License Condition 20.

IROFS42 is identified as using MSE, i.e., installed plant instrumentation providing accurate and reliable indication to the worker performing the safety function. This MSE is within the boundary of the IROFS and is designated a QA level of QL2-AC. Because the MSE utilizes a Programmable Logic Controller (PLC), LC 20 is applicable.

Each station weighing system consists of four load cells which determine the weight of the cylinder using strain gauges. When weight is placed on the frame, the strain gauge converts the deformation (strain) to an electrical signal. Each load cell sends an electrical signal to a junction box where the signals are electrically combined in a summing junction to provide a single output signal. This junction box is a very simple device consisting of five terminal blocks, one for each load cell, and one for the output signal. Incoming and outgoing signals from the junction box cannot be manipulated. The summed signal is then sent to the SD2100 Weighing Amplifier.

The SD2100 receives the summed signal from the junction box, amplifies it, and coverts it to a digital signal so that it can be displayed in an appropriate weight format. The amplified signal from the SD2100 is then sent to the SD2200 CAN-bus display mounted on the outside of the station. In addition, the amplified signal from the SD2100 is sent to the RS485 bus, which relays the signal to the Plant Control System. The SD2100 has the capability of executing user defined code, but these features are not used in this application. Entering code into the SD2100 Weighing Amplifier would require a change in configuration of the device as currently installed. Management measures are in place to control the configuration of this device as stated in the QAPD. The QAPD provides reasonable assurance that QA Level 2AC Support Equipment will fulfill their intended function commensurate with worker reliance on the equipment. For this reason, the new section does not constitute a reduction in commitments, continues to meets 10 CFR 70.62 and ASME NQA-1 Basic Requirement 2, and is acceptable.

For IROFS 42, an exception to the requirements of LC 20 is granted. The exception to LC 20 is acceptable because this equipment has no impact on the IROFS safety function; therefore, this equipment cannot introduce a significant safety hazard.

FINDINGS

The exception request provides reasonable assurance that all credible intermediate consequences, from radiological or chemical releases, are unlikely; and all credible high consequence accidents are highly unlikely. The NRC finds the licensee provides reasonable assurance that the IROFS addressed by this licensing action will ensure compliance with the performance requirements of 10 CFR 70.61. The exception to LC 20 for IROFS42 has been reviewed and is acceptable.

ENVIRONMENTAL REVIEW

Issuance of the requested amendment to the LES license is subject to the categorical exclusion provided in 10 CFR 51.22(c)(11) and will not have a significant impact on the human environment. Therefore, neither an environmental assessment nor an environmental impact statement is required for the proposed action.

CONCLUSIONS

Based on its review and evaluation provided by LES in its Exception Request for IROFS42 dated July 26, 2010, the NRC staff finds that the proposed revisions to the LES license to be acceptable, consistent with the requirements of 10 CFR Parts 20, 30, 40, and 70, and should be approved. License Condition 20 is modified by the addition of the following text:

> Exception to License Condition 20 is granted for IROFS 42, as amended by correspondence dated July 26, 2010.

PRINCIPAL CONTRIBUTORS

Ty Naquin