INSPECTION PROCEDURE 88100

PLANT OPERATIONS

PROGRAM APPLICABILITY: 2630

FUNCTIONAL AREA: OPERATIONS

88100-01 INSPECTION OBJECTIVES

01.01 Ensure that the facility is being operated safely and in conformance with the certificate and regulatory requirements.

01.02 Ensure that certificant's management controls are effective in achieving continued safe operation of the facility.

01.03 Verify, independently, the status of facility safety features.

88100-02 INSPECTION REQUIREMENTS

02.01 Daily Inspections. Conduct selective examinations of the following items, on a day-to-day basis, with the goal of sampling all areas with a frequency commensurate with their current safety significance.

a. Area Control Room Observations

1. Determine whether proper control room staffing is maintained, access to the control room is properly controlled, and operator behavior is commensurate with the plant configuration and plant activities in progress. Determine the attentiveness of the operators in carrying out their assigned duties and ensure that the control room is free of distractions, such as radios and non-work-related reading materials.

2. Determine whether operators are adhering to approved procedures, including normal, abnormal, alarm response, and emergency procedures, for any ongoing activity.

Procedures should be of the correct revision, and should be obviously useful (i.e., legible, complete, etc.).

3. Determine that the certificant is complying with the appropriate technical safety requirements (TSRs) Limiting Condition for Operation (LCO) action statements when abnormal conditions exist. Place emphasis on inspection of safety features' and safety features electrical alignments. Selectively review the liquid Uranium Hexafloride (UF_6) handling and nuclear criticality system lineups, using the control room indication, to determine proper configuration and safety system operability. Look for indications that the system lineup does not meet the TSR requirements for the current plant operating mode. Determine the operability of valves, pumps, and control and indication instrumentation.

4. Observe instrumentation and recorder traces, as appropriate to their safety significance, for abnormalities, including differences between channels monitoring the same parameter, to detect inoperable channels.

5. Examine the status of selected control room annunciators. Ensure that control room operators understand the reasons why annunciators are in an alarm condition or why annunciators are removed from service. If an off-normal condition or false annunciation signal exists, determine whether timely and appropriate actions were taken to correct the situation. Ensure that administrative controls were followed to remove annunciators from service.

6. Inspect panels containing liquid UF_6 handling and nuclear criticality safety instruments and other safety system elements to determine whether required equipment is operable.

7. Verify, by examining the panel indications, the availability of process gas leak and criticality detection equipment as required by the TSR for the plant/building/area's current condition.

8. Review control room, shift supervisor and tagout log books, operating orders, and plant trouble reports to obtain information concerning operating trends and activities, and to note any out-of-service safety system. Visually inspect tags on the control panels to determine their ages, whether they are consistent with the tagout log, and how they impact plant operations.

9. Review the certificant's jumper/bypass log to verify that there are no conflicts with TSR and, if required, that safety evaluations have been performed, that the certificant is actively pursuing correction to conditions requiring jumpers, and that jumpers/bypasses have been installed and removed properly. Apparent anomalies may

require follow-up to ensure that adequate safety practices are followed and that appropriate corrective actions are completed.

When the use of jumpers or lifted leads results in inoperability of safety systems, determine whether appropriate actions have been implemented. These actions include clear, unambiguous indication of the inoperable status of all affected systems in the control room and ensuring that operators are knowledgeable of resultant plant limitations for as long as the inoperable condition exists.

10. Observe available control room instrumentation to inspect for autoclave containment integrity, including the positions of isolation valves and the operability of any building isolation dampers and emergency autoclave shutoff systems.

11. Determine if TSR safety limits are exceeded for current plant condition. Examples include autoclave pressure and temperature limits, nuclear criticality controls, product and tails withdrawal limits and weights, process gas leak detection monitoring, criticality alarm system, or cylinder solidification times.

12. Audit the performance of periodic surveillances required by the TSR or certificant procedures, and determine whether their results comply with requirements. Examples include autoclave pressure decay tests, crane preoperational reviews, safety system availability, nuclear criticality controls, and material control and accountability scales.

13. Verify operability of the autoclave, liquid UF_6 handling, and nuclear criticality control systems, through direct observation of associated activities, review of surveillances, and tag-out records. Verify operability of sensors providing inputs, current calibration, and operability of the required number of channels. (Note: Because of the size of the Gaseous Diffusion Plant (GDP) facilities, this verification shall be performed on a sampling basis each day.)

14. Verify that control room operators are aware of activities in progress that could influence safe operation of the plant. Verify that these activities are being conducted in accordance with the certificant's administrative controls and that they do not interfere, or have the potential to interfere, with the safe operation of the facility.

15. Verify that all necessary information concerning plant systems status is discussed during shift turnover and understood by the oncoming shift.

b. Plant Tour. Tour portions of the accessible plant area, including exterior areas, such that the entire plant is toured with a frequency appropriate to the current safety significance of plant activities. Independently assess the safety conditions and adequacy of plant equipment. Observe or verify a sampling of the following items during the tour:

1. General plant cleanliness and equipment conditions, including operability of standby equipment (items such as correct positioning of suction or discharge valves, leaks, etc.).

2. Plant areas for missile hazards caused by improper or unauthorized handling or storage of portable gas cylinders that could cause unacceptable damage to equipment with safety significance.

3. General plant areas for the unauthorized storage of flammable material or excessive fire loads.

c. Plan-of-the-Day-Meeting. Attend appropriate portions of the certificant's plan-of-the-day meeting to determine overall status of the plant.

02.02 Biweekly Inspections. Evaluate the operability of selected safety equipment by performing the following:

a. Verify that each accessible valve selected (manual or power-operated) in the main system flow path is in its correct position, by either visual observation of the valve, by flow indication; or by stem, local, or remote position indication. Confirm proper labeling.

b. Verify that power supplies and breakers examined, including control room fuses (if visible), are aligned for components that must activate on receiving an initiation signal.

c. Visually inspect the major components selected for leakage, proper lubrication, cooling water supply, and any general condition that might prevent fulfillment of their functional requirements.

d. Verify that the instrumentation and support systems selected for inspection which are essential to system actuation or performance (interlocks, equipment protective trips, ventilation/cooling systems etc.) are operational by observing instrumentation indication or proper valve lineup, if accessible.

e. Review the tagout and jumper/bypass logs for the selected system and determine if there is an impact on the system's operability status. For recent tagouts and jumpers/bypasses, verify that the system was properly returned to the normal configuration.

f. Select a safety system and review the nuclear criticality safety controls identified in the nuclear criticality safety

analysis/evaluations. For a sample of those controls, verify proper implementation in the field through engineered and administrative controls. Determine whether plant personnel are aware of those controls and have received appropriate training.

02.03 Monthly Inspections

a. Select two safety-related tagouts or jumper/bypasses in effect and independently ensure they were properly prepared and implemented by verifying proper selection and placement of tags on breakers, switches, and valves. Additionally, verify that tagged components are in the required positions. Focus inspection on those items from which the certificant might inadvertently remove redundant components from service by such actions as placing a control switch in the lockout position and then closing the suction valve on the redundant component.

b. Review the "problem-identification system" (trouble reports, nonconformance reports, etc.) to verify that the certificant's system is functioning. Verify that known deficiencies (identified during other inspection activities) are tracked via the certificant's problem-identifi-cation system, and evaluated for reportability. For selected items, determine whether the appropriate level of plant management has been informed.

c. Verify that a selected portion of the autoclave containment lineups and nuclear criticality controls are correct. Alter the sample so that all autoclaves and nuclear criticality controls are periodically inspected, with a frequency commensurate with their safety significance.

d. Contact the certificant to keep informed of any third-party reviews, evaluations, inspections and results addressing safety significant issues.

e. Conduct a fire safety tour of various sections of the plant such that the entire plant is covered on an annual basis. Look for potential fire hazards, especially in areas where UF_6 is stored or processed. Also, walkdown portions of the fire protection system to verify the correct alignment, equipment condition, and operability.

02.04 Quarterly Inspections

a. Verify that the certificant's use of overtime for individuals engaged in safety related activities is consistent with regulatory requirements.

b. Determine if all required notices to workers are appropriately and conspicuously posted in accordance with 10 CFR 19.11.

c. Select a specific section of the worker protection TSR and determine whether it is being adequately implemented. A different section should be inspected each time.

02.05 Semiannual Inspections

a. Seismic Monitors. Periodically, but at least once a year, observe the seismic monitoring instrumentation operability tests (i.e., channel checks, channel calibrations, channel functional tests) performed by the certificant.

b. Safety System Walkdown. Perform a detailed walkdown of a representative sample of the accessible portion of selected safety system components to verify their operability. Perform the following:

1. Examine whether the certificant's system lineup procedure matches plant drawings and the as-built configuration.

2. Identify equipment conditions and items that might degrade plant performance. Specifically, verify that:

(a) Hangers and supports are made up properly, aligned correctly, and have sufficient hydraulic fluids levels.

(b) Housekeeping is adequate and appropriate levels of cleanliness are being maintained.

(c) Freeze protection, such as insulation, heaters, air circulation systems, and other equipment, is installed and operational.

(d) Valves in the system are installed correctly and do not exhibit gross packing leakage, bent stems, missing handwheels, or improper labeling.

(e) No prohibited ignition sources or flammable materials are present in the vicinity of the system being inspected unless proper authorization has been granted.

(f) Major system components are properly labeled, lubricated, cooled (cooling water/ventilation), and no leakage exists.

(g) System performance is not degraded by ancillary equipment (i.e., scaffolding, ladders, tape, electrical cords, portable air samplers, etc.).

3. With assistance from certificant personnel, inspect the interior of breakers and electrical or instrumentation cabinets for debris, loose material, jumpers, and evidence of rodents.

4. Verify that instrumentation is properly installed, currently calibrated and functioning, and significant process parameter values are consistent with normal expected values.

5. Verify that valves in the flow path are in the correct positions, as required by procedure, by either flow indication, visual observation, or remote position indication; that power, if required, is available to the valve; that valves are locked as appropriate; and that local and remote position indications are functional and indicate the same values.

6. Verify that support systems essential to system actuation or performance (interlock, pump trip, cooling water, ventilation, lubrication, compressed air, etc.) are operational.

7. Verify proper breaker position at local electrical boards and indications on control boards.

88100-03 INSPECTION GUIDANCE

General Guidance

The safety bases for the GDPs rest in the Certificate of Compliance, and any identified certificate conditions; the application, including the Safety Analysis Report (SAR) and any NRC questions and replies; the Compliance Plan (CP) and any associated Justification for Continued Operation (JCO); and the facility TSRs. The inspectors are expected to become familiar with these documents and methods by which the certificant implements them.

To the maximum extent practicable, accomplish the selective examination requirements of this IP by direct observation of safety significant activities and equipment, tours of the facility, interviews and discussions with certificant personnel, and independent verification of safety system status and LCO, corrective actions, and review of facility records.

a. Inspection Hazards. The inspectors must be aware of the hazards associated with entry into various areas of the facility and take appropriate precautions, including adhering to the certificant's rules for entry and work in these areas. Climbing and engaging in other hazardous activities should not be done alone. Conduct this type of activity in the company of another inspector or a certificant's representative, if appropriate.

   Inspectors touring a facility, particularly on backshifts, are subject to occupational hazards, the effects of which would be exacerbated if an injury occurred in a remote, seldom visited area. For that reason inspectors need to be particularly safety conscious during the required backshift inspection, and may wish to notify the control room of their itinerary or accompany an operator conducting equipment rounds.

   The inspector is expected, during the course of these tours and inspection activities, to enter contaminated areas and radiation areas. It also will be necessary, periodically, to

enter areas requiring respiratory protection. Attempt to minimize personnel exposure and balance such exposure among inspectors assigned to the site. Inspection tasks such as routine valve lineup verifications, housekeeping inspections, and fire protection observations can normally wait until the plant's operational condition is such that entry can be made without unwarranted exposure, and without degrading the effectiveness of the inspection program.

b. Determination of Valve Positions. Some inspection activities require the inspector to independently verify valve positions. This means the inspector observes the positioning of the valve stem, position markings, etc. Valve position verification is to be accomplished visually or by flow indication. If the inspector requires more than visual verification, request the assistance of an operator. Inspectors and certificant personnel alike sometimes have difficulty in ascertaining valve position using visual inspection alone, and the common practice of attempting to close the valve to verify position does not always detect the open position of the seldom operated valve frozen open on its backseat. Valve stem indication is not always operational or available.

c. Electrical Inspection Guidance. Some inspection activities require access to the interior of electrical panels and breaker cabinets. In those cases the inspector will have the doors opened and closed by certificant personnel and will avoid physical contact with this equipment.

d. Risk-Based Inspection Guidance. Consider the associated risk significance when selecting the inspection sample of components and systems. Emphasis should be placed on liquid UF_6 systems and components, high enriched uranium interfaces, if present, and potential fire hazards that could provide a driving force to spread a hypothetical release offsite. Inspector judgement will also be necessary in determining those activities that pose the greatest risk to personnel on site. The sample lots chosen should be varied from inspections periods to obtain input from all areas of the plant.

e. Evaluation of Certificant Self-Assessment Capability. NRC experience indicates that licensees with effective self-assessment and corrective action programs achieve superior operating performance. Self-assessment organizations act in a measurement and advisory capacity, monitoring the overall performance of the plant; identifying substandard or anomalous performance and precursors of potential problems; reporting findings in an understandable form and in a timely fashion to a level of line management having the authority to effect corrective action; and reporting those assessment results to line management. An effective self-assessment organization is technically and performance oriented. The absence of recurring problems is one measure of the effectiveness of self-assessment programs.

This inspection provides a means to ensure that self-assessments are effectively contributing to the identification, correction, and prevention of safety significant technical problems and deficiencies in plant systems and operations. This inspection requires the inspector to make objective and subjective judgments based on information obtained through interviews, observations, and review of available documentation.

Specific Guidance

03.01 Daily Inspections. Conduct selective examinations of the following daily inspections.

a. Control Room Observations

The intent of this inspection requirement is to verify that appropriate controls have been established and implemented to ensure that any outside group whose activities could affect the operability of safety equipment, components, systems, or structures, coordinates its planned work with operations ahead of time so that any required compensatory measures can be taken. It also ensures that the operations staff knows the current status of the facility, to properly respond to real off-normal conditions and not to a simulated condition.

The major operating logs (control room, shift supervisor, operating orders, etc.) should be reviewed daily (or as frequently as practicable). The inspector should cover the period back to the last time the log was reviewed. For events or malfunctions reported in the logs, ensure that proper corrective action was taken by the certificant.

Other operating logs and records (operator logs, etc.) should be identified and reviewed on a sampling basis during the reporting interval so that all logs and records receive some review. The size of the sample and attention given these logs is left to the inspector's judgment and knowledge, and competing safety significant activities in progress within the facility.

Use information gained from reviewing logs and documents to assess, through direct interview of on-shift operators, the operating staff's current knowledge of plant conditions, awareness of off-normal conditions and trends, LCOs in effect, work and tests in progress, and the effectiveness of shift turnover. Also, use the log and document review to look for indications that the facility does not meet the minimum TSR requirements for equipment and instrumentation availability.

Be attentive to any indications of incomplete or inaccurate records at facilities. On April 23, 1992, the Nuclear Regulatory Commission issued Information Notice 92-30, "Falsification of Plant Records," to alert the industry to NRC concerns regarding record falsification, which had occurred at several plants. On October 20, 1993, NRC issued Generic Letter 93-03, "Verification of Plant Records," to inform

certificants of the results of the inspections conducted to address incomplete or inaccurate records.

Verify that for work observed in progress, procedural controls, including work authorizations, tagouts, and equipment lineup verifications, are in place. Question operators regarding tagout actions required by tags hung on the control panels, as well as what action is being taken to remove old tags.

The intent of the review of the logs and records is to:

(a) Obtain information to enable the inspector to remain cognizant of facility operations and problems.

(b) Detect significant changes and trends in performance.

(c) Detect possible conflicts with TSR or inadequate safety practices, including indications that prerequisites of TSR and administrative procedures have not been satisfied before startup, shutdown, or mode change.

(d) Identify problem areas for future followup.

(e) Determine whether records are being maintained and reviewed as required by the facility's administrative procedures.

(f) Assess the effectiveness of the communications provided by the logs and determine whether management is appropriately knowledgeable of problems identified in these logs.

(g) Selectively verify that required tests, surveillances and surveys have been performed on schedule, including equipment operability surveillances, radiation protection surveys, and special samples or tests required as compensatory measures for equipment out of service.

(h) Verify that the NRC Operations Center has been notified of any reportable events, as appropriate.

(i) Remain cognizant of maintenance work planned, underway, or completed; and integrate this information into inspection activities to verify proper system removal and restoration, compliance with tagging and isolation requirements, effectiveness of Quality Assurance (QA) and Quality Control (QC) and radiation protection practices, compliance with TSR for equipment out of service, and effectiveness of the maintenance organization.

Develop unit-specific checklists for the various operating modes to be used in verifying the certificant's adherence to an LCO. Include items that are observable at the control room panels or in the control room. Place specific emphasis on safety systems, criticality controls, and electrical

alignments. Consider the following types of items when developing the checklists:

(a) Switch and valve positions required to satisfy the LCO.

(b) Alarms or absence of alarms.

(c) Meter indications and recorder values that are important to safety.

(d) Status lights and power-available lights.

(e) Front panel bypasses (mode switches, knife switches, test switches, etc.).

(f) Computer printouts.

(g) Comparisons of redundant readings.

b. Plant Tour. Facility tours need not be completed at one time, but can be a series of shorter tours of various areas of the facility conducted on a systematic basis so that important areas are covered with a frequency appropriate to their current safety significance.

Be attentive to possible conflicts between safeguard measures and operational safety and emergency requirements. For example, access control might interfere with essential (though perhaps unforeseeable) emergency actions, or emergency actions might compromise necessary access controls. Problems of this sort must be brought to regional management attention.

Plant procedures should require that portable gas cylinders not be allowed in areas containing safety related equipment unless:

1. Analysis indicates that portable gas cylinder missiles would not damage safety equipment to the extent that safety functions were compromised.

2. Procedures are developed to protect the cylinders and prevent them from becoming missiles.

For portable gas cylinders stored in the plant, the inspector will ensure that at least one of the above conditions is met.

In addition, the inspectors should be aware of the potential fire hazards associated with flammable material storage, and fire loading, whether in leased spaces or adjacent to leased spaces. If potential concerns are identified in non-leased spaces, the Department of Energy (DOE) site safety representative should be notified in accordance with the NRC-DOE Memorandum of Understanding.

c. Plan-of-the-Day-Meeting. Attendance at a selected sampling of certificant's plan-of-the-day meetings can be beneficial

for both the certificant and the inspectors. The residents get the advantage of hearing the facts on significant issues first-hand from those individuals most closely involved.

The inspector will be able to evaluate the adequacy of the certificant's approach to resolving problems by being knowledgeable of current issues. Additionally, the inspector will know which certificant individual or group is responsible for followup, making it more efficient for the inspectors to follow corrective action or to obtain additional details later, if necessary. Inspectors are encouraged to obtain plan-of-the-day documents when not in attendance at the meeting, to stay current on certificant activities.

03.02 Biweekly Inspections. The biweekly review of selected systems is intended to be a check of the major flow paths and components from "Q" and "AQ" systems to provide an overview of operability and not a verification of every valve and breaker. The systems selected will be varied on a rotating basis so that all "Q" and "AQ" systems are periodically verified.

If there has been significant activity in or near a system, such as repairs to the equipment or for a recurring problem affecting operation, it should receive priority even if it has been recently verified. The evaluation also should include other systems, subsystems, or components that may have an impact on facility safety. This additional effort may be based on incidents that occurred at a similar facility, recurring events, or items that result from NRC-sponsored reviews, evaluations, and such.

The inspector should prepare a checklist for valve and circuit breaker lineups and equipment checks. The certificant's checklists may be used if they are adequate to accomplish the task, provided the inspector has verified their adequacy and accuracy. The position of locked and sealed valves should be verified (if they are accessible). The verification of instrumentation is not intended to duplicate the daily control board checks where an LCO exists for the instrumentation, but to check essential instruments that are not specifically identified as having an LCO.

The inspectors are not expected to conduct indepth criticality safety reviews. Rather, this item traces the controls that are established by the criticality safety department to the field to determine whether the other departments are actually implementing the designated controls. The primary purpose of this item is to conduct a performance-based check on the adequacey of communications between the Nuclear Criticality Safety (NCS) department and the other departments. Potential descrepancies should be brought to the attention of the NCS department for prompt resolution.

03.03 Monthly Inspections

a-b. No additional guidance.

c. Inspections will include, as appropriate:

1. Verification that manual valves are shut, capped, and locked.

2. Verification that motor- and air-operated valves are not mechanically blocked and power is available, unless blocking or power removal is required.

d. The intent is to ensure, on a continuing basis, that NRC is cognizant of certificant's third-party efforts initiated to address and resolve significant safety issues identified by the certificant or NRC. The resident inspector will keep regional management informed of such certificant initiatives. Be sensitive to the fact that NRC efforts to improve the staff's awareness of these audits could stifle or prevent critical self-evaluations of this type. However, certificants are still responsible for all applicable reporting requirements should an internal investigation discover a reportable condition or event.

e. Fire protection system should be walked down monthly to ensure that all major sections are reviewed yearly. Emphasis should be placed on those areas with the greatest fire hazard within the facility.

03.04 Quarterly Inspections

a. Maximum overtime limits are specified in the facility TSR. Deviation from these limits must be documented and authorized by the plant manager, the manager's deputy, or a high level of management.

b. The certificant is required to conspicuously post copies of NRC Form-3, "Notice to Employees," in sufficient quantities and locations to permit workers engaged in licensed activities to observe them on the way to or from any activity location to which the document is applicable.

Any notices of violation involving radiological working conditions, proposed impositions of civil penalties, or NRC orders shall be posted by the certificant within 2 working days of its receipt from NRC. Certificant responses shall be posted within 2 working days of their dispatch. These documents shall remain posted at least 5 days or until corrective action for the violation is complete, whichever is later.

c. No additional guidance.

03.05 Semiannual Inspections

a. Seismic Monitors. No additional guidance.

b. Safety System Walkdown. This safety system inspection is intended to be a selective in-depth verification of system operability and is intended to be a more comprehensive

inspection than the biweekly safety system train inspection. Before conducting inspection activities, review the SAR, TSRs, Compliance Plan (if still in effect), system design requirements, and NQA-1. Inspection effort devoted to the semiannual system inspection also fulfills the biweekly safety system train inspection requirement.

The walkdown can be accomplished using the certificant's system lineup procedures provided they have been verified as correct by the inspector before use. The as-built prints should periodically be verified correct by comparing them with the selected as-installed system.

Strive to inspect all "Q" and "AQ" safety systems before repeating any inspection. However, this general rule should not necessarily be followed where modifications to a particular safety system, or problems with it, may make it a candidate for reinspection, even if the system was recently inspected. When a system is shut down, normally inaccessible portions of the systems should be inspected.

1. No additional guidance.

2. Assess the overall conditions observed during the walkdown to identify any problems that could have an impact on system performance. Remember that a single problem may not make a system inoperable, but multiple problems may interrelate and render the system inoperable or marginal.

   In any case, verify that the certificant has identified any problems and taken appropriate actions. If the inspector observed a significant number of deficiencies of which the certificant is unaware, or non-trivial problems that the certificant is remiss in correcting, take action to increase the certificant's awareness in this area to prevent recurrences and to foster timely corrective actions. Additionally, verify that maintenance request tags attached to equipment are not outdated and that items obviously in need of maintenance (i.e., valve packing leaks) have been entered into the certificant's maintenance request systems.

   a. See IP 70370, "Testing Piping Support and Restraint Systems," for further guidance and references.

   b. No additional guidance.

   c. Additional guidance on freeze protection surveillance is found in IP 71714, "Cold Weather Preparations."

   d. No additional guidance.

   e. Refer to the certificant's procedures or policies that deal with limits on the types and amounts of combustibles and ignition sources that are allowed in various plant locations.

f-g. No additional guidance.

3. Electrical components should be free from signs of overheating; and all solder joints should be shiny, indicating a good connection. In addition, pins should not be loose or bent.

4. Consult the operator logs to compare significant process parameter instrumentation readings with those observed during the walkdown. Request the certificant to explain any discrepancies or abnormal readings.

5-7. No additional guidance.

88100-04 RESOURCE ESTIMATE

An inspection performed using this IP is estimated to require 120 hours of inspector resources per month. This estimate is only for the direct inspection effort and does not include preparation for and documentation of the inspection.

88100-05 REFERENCES

Facility Technical Safety Requirements.

SAR Commitments.

Compliance Plan

10 CFR Part 76, as applicable.

NRC Bulletins and Information Notices, as applicable.

END