R2/E30
2-29-00

FUEL FACILITY EVENT EVALUATION

EVENT # 36727
FACILITY: Westinghouse
EVALUATOR: David Ayres
EVALUATION DATE: February 29, 2000
UPDATED ON: March 2, 2000

NOTE: CONTACT EDO OFFICE COORDINATOR

DESCRIPTION OF EVENT:

On February 7, 2000, a spill of uranyl nitrate solution occurred in the UF_6 bay near the HF Spiking Station. The solution seeped through a wall around piping penetrations and onto an outdoor concrete pad. Initial surveys of the pad showed contamination levels below reportable limits. However, a layer of soil was removed from the top of the pad during the cleanup operation, and subsequent surveys on 2/25/00 revealed a more significant amount of contamination in the concrete. Contamination levels averaged 133 dpm/100 cm^2 alpha removable and 6,000 dpm/100 cm^2 fixed alpha in the concrete. The licensee determined that the fixed contamination was reportable per 10 CFR 70.50(b)(1). UPDATE: Subsequent surveys showed that a small amount of contamination was found on an adjacent concrete pad. It was not clear whether this contamination was due to the same incident.

Background/Causes/Precursors

The cause of the spill inside the UF_6 bay was due to the failure of a threaded flange on the uranyl nitrate line connected to a distribution manifold. This pipe enters the process building from the UN storage tank area at a point below the floor level. The pipe enters the outer wall and bends upwards through the floor and thus is embedded in the concrete wall/floor of the UF6 bay. The spilled material escaped from the process area by seeping out around the pipe penetration through the wall.

Safety significance (Actual and Potential)

The actual safety significance of the event is minimal. Since the spill was soaked into concrete, airborne activity was not significant. Clean-up crews would have had the majority of exposure opportunities to receive any internal dose. Potential inhalation dose could be possible if the concrete is to be removed and proper airborne prevention techniques are not used. There were no apparent criticality safety implications. The actual removal of the contaminated concrete may be more hazardous (due to airborne contamination) than leaving the contaminated concrete in place.

Corrective Actions

The licensee began by reviewing all exterior piping penetrations through the process walls. They found two other areas where small amounts of contamination had seeped through the walls around pipe penetrations. One was near the UF_6 cylinder wash station and was evidently due to an incident where the wash system was over-pressurized and sprayed contaminated solution on the wall. This pipe penetration is over the concrete pad adjacent to the one involved in the subject event. The other contamination found around a pipe penetration was a small

area on the wall outside the solvent extraction area. The cause of this is being investigated. The actions to address these contaminated areas are still being considered as of 3/2/00.

IS A MEDICAL CONSULTANT NEEDED? NO

IS A SPECIAL INSPECTION NEEDED? NO

IS ASSISTANCE FROM OTHER FEDERAL OR STATE AGENCIES NEEDED? NO

IS A PRELIMINARY NOTIFICATION AND/OR MORNING REPORT NEEDED? YES, PN-200010 was issued.

WAS THE EVENT REPORTED IN ACCORDANCE WITH APPLICABLE REGULATIONS AND LICENSE CONDITIONS?

A preliminary NRC calculation of the contamination showed that the amount may actually be below the reportable levels. I calculated that the total activity of the contaminated area was about 2.5 microcuries. The ALI from Appendix B of 10 CFR 20 was 1.0 microcurie. Thus the reportable limit (5 times the ALI) is 5.0 microcuries.

DOCUMENT REGIONAL DECISIONS AND ACTIONS TAKEN

Monitor the licensee's corrective actions and follow up at next regularly scheduled inspection (planned for March 27-31, 2000). Focus will largely be on the cause of the spill, materials of construction, surveillance of piping systems, and cleanup efforts.

MC 1360-04 POLICY ON USE OF MEDICAL CONSULTANTS

04.01 The time frame for initial activation of the procedures in this Manual Chapter should be based on the initial assessment of the severity of the event. This assessment will typically be performed by the regional office, with input from IMNS/NMSS, as necessary.

The following guidelines may be used when establishing the time frame for activation:

a. Radiation Exposure Incident resulting in a fatality - 2 working days after NRC is informed of the event.

b. Radiation Exposure Incident that has not resulted in a fatality - 5 working days after NRC is informed of the event.

04.02 Medical Consultants must be used under the following circumstances:

a. Incidents where an individual has received one or more of the following doses:

1. A suspected total effective dose equivalent of 25 rem (0.25 Sv) or more.
2. A suspected eye dose equivalent of 75 rem (0.75 Sv) or more.
3. A shallow-dose equivalent to the skin or extremities of 250 rad (2.5 Gy) or more.
4. A suspected committed effective dose of 250 rem (2.5 Sv) or more to any individual organ or tissue other than the lens of the eye.

b. Incidents where an individual is demonstrating physical symptoms (erythema, nausea, vomiting, etc.) consistent with radiation syndromes, and the source of the radiation may be attributable to NRC-licensed radioactive material.

e. Incidents where a nursing infant or an embryo/fetus may have been inadvertently exposed to radiation or radioactive material as a result of the intentional or unintentional exposure of the mother of the nursing infant or an embryo/fetus to radiation or radioactive material.

04.03. Medical Consultants may be used under the following circumstances:

a. Incidents where members of the public or occupationally exposed individuals may have been exposed to radiation during a radiation exposure incident.

b. Incidents where the staff believes that the assistance of a medical consultant would be beneficial to fulfilling the NRC mission.

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IS A SPECIAL INSPECTION NEEDED?

1. Examples that normally require consideration of immediate dispatch (typically within 2 days) of one or more inspectors for follow-up action - depending on the information available, the immediate implications of the accident, and at the discretion of the regional office - and *preparation of a PN or a daily report item include the following*:

(a) Single exposure of an occupational worker in excess of the dose limits in 10 CFR 20.1201.

(b) Loss of control of radioactive material that caused a member of the public to receive an exposure in excess of the limits in 10 CFR 20.1301.

(c) Discovery of NRC-licensed material in an unrestricted area (see section 06.01).

(d) An unplanned contamination event that requires reporting as per 10 CFR 30.50(b), 40.60(b) or 70.50(b), as applicable.

(e) An intake of radioactive material in excess of an annual limit on intake (ALI).

NOTE: In the event that a decision is made not to dispatch an inspector immediately, consideration should be given to conducting a special inspection.

2. Examples that normally require consideration of a special inspection before the next routine inspection (typically within a few weeks) may include the following:

(a) Medical misadministrations that meet the abnormal occurrence threshold. See MD 8.1, "Abnormal Occurrence Reporting Procedure," and MD 8.10, "NRC Medical Event Assessment Program."

(b) Release of radioactive material to an unrestricted area in excess of 2 times the concentration limits in 10 CFR 20.1302.

(c) Disposal of license material in quantities or concentrations in excess of the limits in 10 CFR 20.2003, 2004, or 2005.

(d) Loss of control of radioactive material that could have caused a member of the public to receive an exposure in excess of the limits in 10 CFR 20.1301.

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IS ASSISTANCE FROM OTHER FEDERAL OR STATE AGENCIES NEEDED?

(excerpt from MC 1301)
06.01 If the incident involves the discovery of radioactive material in an unrestricted area and the material is known to be licensed (not just licensable) by NRC or an Agreement State under the Atomic Energy Act, then NRC is the lead Federal agency for the Federal response under the
FRERP and the Region should follow-up as specified in the remainder of this inspection manual chapter. (This means that the radioactive material has been traced to an NRC or Agreement State licensee.) If the incident involves radioactive material owned by or for the Department of Defense (DOD) or the Department of Energy (DOE), then DOD/DOE is the lead agency for the Federal response. If the incident involves any other kind of radioactive material (foreign, NARM, or unknown), the Environmental Protection Agency (EPA) is the lead agency for the Federal response. When another Federal agency has the lead for an incident, any reports shall be referred to that agency. Phone numbers for referring reports to EPA are provided in Appendix B. The NRC Operations Center can assist with contacting other Federal agencies if a regional point of contact has not been established. Any transfer of lead Federal agency status from another Federal agency to NRC shall be approved by NMSS management (Division Director or higher) before the transfer is accepted.

NOTE: State and local governments have primary responsibility for determining and implementing emergency measures to protect life, property, and the environment in areas not under the control of a Federal agency. In these areas, Federal agencies typically respond only at the request of State or local governments unless their regulatory responsibilities require a response. Any request for a Federal response shall be referred to the lead Federal agency identified in the Federal Radiological Emergency Response Plan (FRERP)

When another Federal agency has the lead for the Federal response, regional staff shall operate in accordance with the following guidelines:

a. The Region may respond to State/local requests for information or equipment. The Region shall inform the lead Federal agency (LFA) of the request and the response before, if possible, or immediately after responding. The NRC Operations Center can assist with contacting other Federal agencies if a regional point of contact has not been established.

b. The Region may respond to State/local requests for NRC presence at the site only if the applicable Regional Division Director and the LFA approve before any regional staff are dispatched. If approved, regional staff shall respond in an advisory capacity to the LFA forwarding all findings and questions to the LFA for action.

c. The Region shall respond to LFA requests for assistance as appropriate. NMSS management should be informed of such requests. If the LFA requests NRC assistance at the site and regional staff are dispatched, they shall act in an advisory capacity forwarding all findings
and questions to the LFA for action.

NOTE: Under the FRERP, DOE is responsible for initial Federal radiological monitoring and assessment assistance. If an urgent request for monitoring assistance is received, ask the NRC Operations Center to coordinate the request with DOE immediately. DOE has Radiological Assistance Program (RAP) teams that can be dispatched within a few hours. Inform the LFA

and NMSS management after the request has been coordinated with DOE.
06.02 Follow-up Actions to Incidents Occurring in Agreement States

State officials will provide follow-up actions to incidents at byproduct, source, or special nuclear material operations that Agreement States license. If State officials request onsite NRC assistance, NRC staff or consultants may be dispatched to the State if approved by regional management (Division Director or higher). NMSS management should be consulted before onsite assistance is approved, whenever possible. In such cases, however, NRC has no direct regulatory jurisdiction, and the NRC personnel sent to the site will act in an advisory capacity to the State. Some facilities may hold licenses from both NRC and the State. It is possible that State and NRC personnel may both take follow-up action to incidents at such facilities, until the regulatory jurisdiction of the incident has been established. The cognizant regional office and the
Office of State Programs (OSP) will coordinate NRC assistance to the State and review the response of the State to assure its actions are appropriate to protect public health and safety. When incidents involve multiple States and at least one is an Agreement State, NMSS and OSP
shall consult with the applicable Agreement States and determine which regulatory agency should take the lead for various follow-up actions.

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MORNING REPORTS
(from ROI 0213)

The Morning Report was established to serve as the primary input to the evaluation process for licensee events and generic problems. Additional guidance and background pertaining to Morning Reports can be found in NRC Management Directive 3.54, Collections of Information and Reports Management.

a. Items to be Included

Significant items such as an event, problem, or piece of information the Region believes does, will, or may affect the safe and secure conduct of a licensed activity, should be included in the Morning Reports. Generally, events which require the licensee to notify the NRC within 48 hours should be considered significant for the purpose of the Morning Reports. Items with little or no safety significance should not be reported. In the case of an event, the report should provide clarifying supplemental information rather than duplicate licensee reporting.

Morning Report entries should not include: allegations unless they have a potential impact on the safety of the public; and items exempt from public disclosure such as classified, safeguards, and proprietary information. Similarly, if an event warrants the preparation of a Preliminary Notification, it is acceptable not to duplicate the reporting of the event in the Morning Report.

Items appropriate for inclusion in the Morning Report are:

(1) Reports of licensee events for which supplemental information (beyond that provided by the licensee) would enhance staff understanding of the occurrence by; a) more completely characterizing the event chronology or the underlying cause; b) providing independent assessment of the licensee's response; c) providing an independent view on the safety significance or generic implications of the event and; d) discussion of specific licensee or Regional follow-up activities. Supplemental information should usually be provided one to three days after an event.

(2) Potentially risk significant events not reported in an LED, EN, or P.N. Attachment 2 provides guidance for identifying such events.

(3) Significant inspection findings that are similar to recent reportable events.

(4) Follow-up reports when the underlying cause of an event has been identified and the course of corrective action established.

(5) Significant inspection findings from team inspections that have potential generic or site specific reactor safety implications.

(6) Significant fitness-for-duty issues outside the scope of 10 CAR 26.73.

(7) Public-interest visitors to a Region II facility.

(8) Senior licensee or public-interest visitors to the Region II Office.

(9) Important or unusual meetings with licensees or other groups.

(10) Other information which may be of interest to the Headquarters staff.

b. Preparation

(1) Morning Report entries generally are prepared by the person receiving the information and submitted to the appropriate Branch Chief.

(2) The report should then be typed on the computer and sent to the branch secretary for formatting.

(3) After the item has been typed, it is initialed by the Branch Chief, Division Director or alternate, and hand-carried by the Division Secretary to the designated box in the Office of the Regional Administrator by 11:00 a.m. for approval by the Regional Administrator.

(4) For items prepared by a Division other than the Division having program responsibility, the secretary of the originating Division will hand carry a copy to the appropriate Project Engineer, Project Branch Chief, or Region II staff member for informational purposes.

c. Content

(1) Site, Unit(s), docket number(s), facility type, source, subject, Headquarters Duty Officer Reportable Event Number (REN), and date of receipt of information will be entered as shown on the attached example. Typically, notification will be from the Resident Inspector, Headquarters Duty Officer, or the licensee.

(2) Part 21 may be included as part of the subject.

(3) If the item is an update, this should be stated and should precede the text.

(4) Quantify information in the text to the extent possible. This is particularly important for entries related to liquid discharges, radioactive releases or exposures which should specify the isotope, quantity, and percent of applicable limits, if known. The report should also state the amount by which a limit was exceeded.

(5) Use civilian eastern time and express dates as month/day/year (e.g., 2:20 p.m., and 5/27/93, or 5/27 as appropriate).

(6) Identify defective equipment as to manufacturer, vendor, model number, etc.

(7) Text should be brief; however, text should not be abbreviated if there is any doubt as to the meaning. Abbreviations should not be used on the first appearance of a word or phrase unless the meaning is clear throughout the NRC. Do not use symbols.

(8) NRR/Headquarters reviews each morning report for generic applicability. If there is any indication that the item is potentially generic, this should be amplified and, while it is not required, it may be highlighted as follows for action by NRR/Headquarters (NRR review for generic applicability).

(9) Regional action taken or planned will be shown as a separate paragraph in the write-up. Such actions include Vendor Inspection Branch notified, state informed, routine follow-

up, etc. If submitted for information only, this should also be stated.

d. Review and Dispatch

After approval, the Regional Administrator's Secretary will notify the Information Management Section to transmit the report to Headquarters by 1:30 p.m. as discussed in NRC Inspection Manual Chapter 0230.

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