TRIP REPORT

October 29, 2008

MEMORANDUM TO: License File
Sigma-Aldrich Company
St. Louis, MO
License No. 24-16273-01
Docket No. 030-10716

THRU: Christine Lipa, Chief ***/RA/***
Decommissioning Branch
Division of Nuclear Materials Safety, Region III

FROM: George M. McCann, Senior Health Physicist ***/RA/***
Decommissioning Branch
Division of Nuclear Materials Safety, Region III

SUBJECT: OCTOBER 1, 2008, PRE-DECOMMISSIONING PLAN LICENSE MEETING

Meeting Participants:

NRC Region III
- George (Mike) McCann, Senior Health Physicist, Decommissioning Branch, DNMS
- Peter Lee, PhD, CHP, Decommissioning Branch, DNMS

Sigma-Aldrich
- Bob Ringering, Director of Manufacturing, 314-771-5765, x3165
- Cheryl Stipsits, Director, Environmental, Health & Safety, 314-286-7931
- Thomas Spencer, Production Manager, RSO, 314-286-7686

Philotechnics
- Matt Norton, Vice President, 781-222-5047
- Gary S. Nadeau, Director of Health Physics Operations, 781-222-5048
- Ryan Fahey, Project Manager, 978-844-4560
- Tracie Clemons, Senior Health Physicist, 978-844-2008
- Tim Pratt, Technical Manager, 865-386-8066

Background: A meeting between representatives from the Sigma-Aldrich Company (Sigma), Philotechnics, Ltd. (decommissioning service contractor), and NRC Region III staff was held to discuss Sigma's plan to cease license operations at its Ft. Mims byproduct materials production facility. The meeting was held at Sigma's production facility, which is located at 11542 Fort Mims Drive, Maryland Heights, Missouri.

Sigma's radioactive materials usage at the Ft. Mims site consisted of research and development activities as defined in 10 CFR 30.4, and storage, processing and use in the production of labeled compounds for distribution to authorized customers. The licensee used radioactive materials in specific areas of the building since 1975. The licensee ceased production activities at the facility on September 30, 2008. The radioactive materials of significance with regards to

decommissioning used at the Fort Mims facility consisted of carbon-14 and hydrogen-3. The licensee was authorized at the time of cessation of activities to possess 800 curies of carbon-14 and 1000 curies of hydrogen-3.

The Sigma-Aldrich property in Maryland Heights, Missouri consists of a two-story building of approximately 20,000 square feet. The building is constructed on a concrete slab. The building exterior walls are a combination of cinder block, sheet metal and wood. The building roof is sheet metal and foam. Interior floors are a combination of carpeted concrete, tile over concrete and painted concrete. Interior walls are primarily painted drywall with a few painted cinder block walls. The facility is located on approximately a one-acre parcel in a commercial/light industrial park.

Sigma is proposing to use Philotechnics to perform the decommissioning activities including characterization, remediation, final status surveys and development of a final report. Philotechnics intends to perform onsite activities under a reciprocity agreement with the NRC using Philotechnics' Massachusetts Radioactive Materials License No. 56-0543. The licensee projects that the decommissioning of the facility will take approximately 3 to 4 months. The end goal is to remediate the facility to below the NRC screening values, with a projected ALARA dose limit of 10 mrem annual dose.

Discussion: NRC staff noted that the applicable regulatory guidance for addressing decommissioning requirements is the NUREG-1757 series. The order and manner for providing official notification of ceasing licensed activities was discussed. Specifically, the elements and requirements of 10 CFR 30.36 were discussed. NRC staff emphasized the importance of following the checklist in Appendix D of NUREG-1757. Additionally, NRC staff emphasized that it was important to include, as an attachment to the decommissioning plan (DP), an administrative agreement between Sigma-Aldrich and Philotechnics, the decommissioning contractor. Specifically, the agreement should explain:

- Management oversight of the facility
- Plans for Sigma-Aldrich to audit the decommissioning activities, and
- Plans for how tasks will be managed -- define decision making authority

NRC staff informed the licensee that review of a DP could not begin until an official notification that licensed activities have ceased has been made, and a DP is submitted. Once these submissions are made, future NRC activities related to decommissioning would be on a fee basis.

NRC staff informed the licensee regarding the DP review process as follows:

- 90-day review process. During this review staff determines if the application is adequate, such that a formal technical review can start. If staff determines that the application is significantly deficient, then the application is rejected and the licensee must resubmit the DP.

- If the application is determined to be acceptable for full technical review (6-month period allowed), staff notices the receipt of the DP in the Federal Register (FRN), and starts technical review. Any deficiencies are addressed to the licensee as requests for additional information (RAIs). During this period, a public meeting may be held. The meeting is contingent on public interest and significance of the clean up. It may not be necessary to have a public meeting, since this is a Group 3 project. A final decision will be made based on determination of public interest and NRC management review.

- Once the RAIs, if any, have been addressed and staff determines that the DP is acceptable, another FRN is issued. This FRN describes the license amendment to be issued, and the Environmental Assessment and Finding of No Significant Impact (FONSI), which is written by NRC staff to support the amendment. On issuance of the FRN, staff can immediately issue the amendment approving the DP.

There was discussion regarding what activities could be performed prior to the approval of the decommissioning plan. NRC staff indicated that the licensee could potentially use two avenues as follows:

- Routine Sigma decontamination and clean-up activities, which had been performed by Sigma personnel during production operations could be used. These activities could be performed under the authority of the Sigma license using approved in-house Sigma procedures prior to the DP being approved.

- The decommissioning contractor could proceed on clean up of contamination, remediation of systems, and packaging of waste for shipment to an approved recipient using the provisions of its Agreement State license. However, NRC staff indicated that the contractor would be in conflict with the NRC DP requirements, if the remediation breached the facility or created an environmental release. Also, NRC staff requested background information regarding the Agreement State license. Specifically, what types and limitation of decommissioning is discussed in the contractor's decommissioning license. It was believed that activities such as decontamination of equipment, collection of contaminated wastes, removal of furniture, removal of equipment, which is not integrally attached or part of the building structure and the like, would be allowed. Activities that may not be allowed would include aggressive grinding, cutting, removal of ductwork, and demolition building structures.

During the site visit the decommissioning contractor provided the NRC staff with a copy of their Agreement State license, and safety manual and procedures.

Sigma staff indicated that a formal notification regarding cessation of activities and a DP would be submitted within the week.

Tim Prat presented the Philotechnics proposed soil sampling approach. This was a high-level view of the plan.
- Computed using Visual Sample Plan (VSP) version 5
- Based upon inability to scan for beta emitting isotopes
- MARSSIM modeling of survey units combined with Singer and Wickman

Dr. Lee commented that the lack of scanning surveys may make sample number determination difficult. Philotechnics pointed out that this method was approved by the NRC in two other decommissioning projects. NRC staff indicated that information regarding those projects would be helpful in resolving the issue. Tim Prat indicated that he would consider including some survey scanning to the plan.

During a subsequent conversation with Mr. Spencer on October 15, 2008, NRC staff requested that the decommissioning contractor provide back-up information referenced in the tie down condition of their license, which describes the decommissioning work to be performed. Also, it was requested that the service licensee provide evidence that they have sufficient number of days left under reciprocity to complete the decommissioning work.

Following the meeting, NRC staff toured the facility.

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