

April 24, 2013

Mr. George Alexander
Nuclear Regulatory Commission
11545 Rockville Pike
Mail stop T8F5
Rockville, MD 20852

RE: Groundwater Pathway Elimination – Dose Modeling
NRC Decommissioning License 24-16273-01
Sigma-Aldrich Corporation, 11542 Fort Mims Dr., St. Louis, MO 63146

Dear Mr. Alexander:

In the course of dose modeling in conjunction with the license decommissioning process, Sigma-Aldrich Corporation (“Sigma-Aldrich”) proposes that the drinking water pathway be eliminated from consideration for the site-specific dose modeling. Sigma-Aldrich believes this is an acceptable proposal for the following reasons:

1. The property is located within a heavily developed portion of St. Louis County (refer to aerial photo, Attachment #1). The property is connected to Missouri-American Water’s public drinking water system, which also serves St. Louis County. Missouri-American Water pulls its drinking water from the Missouri and Mississippi Rivers.
2. While St. Louis County Ordinance does not specifically prohibit drinking water wells, St. Louis City Ordinance does prohibit drinking water wells (city-county line is approximately 5 miles from the subject property).
3. Geology within this part of the County presents challenges for sustainable groundwater aquifers as a source of drinking water. The upper water-bearing unit within the North St. Louis County region, HZ-A, is not a current or future potential source of drinking water due to its poor quality and very low yields. The soils and shale of units HZ-A through HZ-D have such fine-grained matrix that the recovery rates for sampling are extremely low. Although not equivalent to wells for the purpose of water production, the low recovery rates in the monitoring wells indicate that water wells placed in these units would not be able to sustain pumping rates capable of meeting the needs of individual private residences. There is no known use for water of such poor quality under any of the current land uses. Additionally, a geological report was run by Environmental Data Resources Inc. (EDR) to evaluate well data within a one mile radius of the subject property. The report indicated no successful/active wells in the area. There were a couple of wells that identified groundwater at ~250 feet bgs, but with no indications of water quality or viability.
4. The subject property is in close proximity to other sites that have been registered as brownfields sites (with on-site chemical contamination). The Flow Controls/Emerson Electric brownfield site is located approximately 1 mile NW of the subject property. The Prestwick Schuetz LLC

brownfield site is located approximately 2,000 ft N-NW of the subject property. Additionally, the subject property has Superfund sites located within 5 miles. Lambert Airport Superfund site is approximately 4 miles away, and the Westlake Superfund site is approximately 5 miles away. With contaminated sites situated in the general area of the subject property, it is highly unlikely that groundwater would be an acceptable drinking water source.

In light of these facts, we respectfully request that the drinking water pathway be eliminated from consideration for the site-specific dose modeling. If you need additional data or discussion on this subject, please do not hesitate to contact me directly at (314) 286-7686 or thomas.spencer@sial.com. We appreciate your consideration.

Sincerely,

SIGMA-ALDRICH MFG LLC



Thomas K Spencer
Radiation Safety Officer

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ATTACHMENT #1 – Aerial Photo of Subject Property “A” (11542 Fort Mims Drive)

