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DATE: 21 August 2023 (*Updated from 03 January 2023*)

SUBJECT: FSU Ragans Hall #2 - Radon Evaluation (*Annual Follow-up Testing*)

The Ragans Hall #2 residence hall building (Ragans #2) at Florida State University (FSU) has been evaluated for radon content due to indoor air quality questions that have been raised regarding other buildings on the FSU campus. Initial radon testing was conducted from May 3 to May 5, 2022, at five (5) locations at Ragans #2. The 48-hour charcoal canister measurements were collected by a state-certified radon contractor, in accordance with standard protocols of the United States Environmental Protection Agency (USEPA) and the Florida Department of Health (FDOH). One of the five radon results exceeded the 4 pCi/L (picoCurie/liter) USEPA Action Level. That radon result was from the sample that was collected in a ground floor common recreational area (*Rec Room*) of approximately 1,900 square feet. The results ranged from 1.1 pCi/L to 5.5 pCi/L. From May 23 to May 25, 2022, seven additional 48-hour charcoal canister measurements were collected at previously unsampled ground floor and first floor locations at Ragans #2, as well as the single original location where the radon sampling result exceeded the USEPA Action Level. None of the seven new location results exceeded the 4 pCi/L Action Level. The radon result for the resampled Rec Room area dropped from 5.5 to 4.4 pCi/L, slightly exceeding the Action Level. The Rec Room area was resampled once again in August 2022, along with four previously unsampled areas of the ground floor. The Rec Room area again reported a result greater than the 4 pCi/L Action Level [5.5 pCi/L via Continuous Radon Measurement (CRM) testing]. None of the other ground floor samples were greater than the Action Level (range of 1.0 pCi/L to 2.8 pCi/L).

The initial May and August 2022 sampling results reflected a condition that is consistent with many buildings in Florida and throughout the United States, and the radon conditions at Ragans Hall #2 did not represent a health concern. However, due to the single localized area with repeated results slightly above the USEPA Action

Level, the University proactively contracted for installation of a subslab depressurization radon mitigation system in the ground floor Rec Room area of Ragans Hall #2. Installation of the system was completed in late December 2022 and post-mitigation CRM and charcoal canister clearance sampling was conducted from December 21 to December 23, 2022, in accordance with USEPA and FDOH protocols. All post-mitigation sampling results were below the USEPA Action Level. Based on the initial exceedance of the Action Level, the mitigation system installation, and post-mitigation clearance testing, Ragans Hall #2 was placed on the annual maintenance and monitoring program with respect to radon, in accordance with FDOH guidance and FSU policy.

That agency guidance and FSU policy dictate that annual follow-up testing be conducted in the areas of previously elevated (greater than the Action Level) radon levels. The 2023 annual testing for Ragans #2 was completed from May 23 to 25 in the ground floor Rec Room. The 2023 annual testing result was less than the USEPA Action Level of 4 pCi/L. The attached table summarizes the initial testing from May and August 2022, the results of the December 2022 post-mitigation clearance testing, and the 2023 annual follow-up testing.

Detectable radon levels are ubiquitous throughout the state, with most areas of Florida exhibiting low radon. Outdoor levels typically are in the 0.4 to 0.5 pCi/L range, and indoor levels regularly range from 1 to 2 pCi/L. Radon comes from decay of natural radium, and elevated indoor radon is related to local geology. Radon often is present in clays, phosphate rock, and igneous rocks, like granite, and can originate from bedrock far below land surface. Because it is a naturally occurring substance, exposure is common and unavoidable.

RADON MEASUREMENTS - Ragans Hall #2, Florida State University

Location	Sampling Dates	Number of Samples	Min pCi/L	Max pCi/L	Notes
GF	3 to 5 May 2022	1	5.5	5.5	1 sample missing at retrieval; One result > Action Level 4.0
1st Floor	3 to 5 May 2022	4	1.1	3.9	No results > Action Level 4.0
GF (resamples)	23 to 25 May 2022	4	1.1	4.4	One result > Action Level 4.0
1st Floor (resamples)	23 to 25 May 2022	4	0.3	3.6	No results > Action Level 4.0
GF (resamples)	23 to 25 August 2022	4	1.0	2.8	No results > Action Level 4.0
GF (resample Rec Room CRM)	19 to 22 August 2022	1	5.5 average		CRM result > Action Level 4.0
GF (Rec Room post mitigation CRM)	21 to 23 December 2022	1	2.5 average		CRM result < Action Level 4.0
GF (Rec Room post mitigation charcoal canisters)	21 to 23 December 2022	2	2.0	2.5	No results > Action Level 4.0

Annual Follow-Up Testing

2023 (May 23-25): Rec Room CRM sample < 4 pCi/L (1.2 pCi/L)

pCi/L = picocuries per liter

CRM = Continuous Radon Measurement (48-hour test)

Shaded results indicate the post-mitigation clearance sampling.