



## MEMO

TO: Mound Work Group  
FROM: Joseph Fitzgerald, SC&A  
DATE: April 19, 2012  
SUBJECT: Interview with Former Mound HVAC Worker Conducted April 5, 2012

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### **PARTICIPANTS:**

**ABRWH:** Josie Beach, Paul Ziemer, Brad Clawson  
**SC&A:** Joe Fitzgerald, Joe Porrovecchio, Aris Papadopoulos, John Stiver

### **BACKGROUND:**

An interview was scheduled with a former Mound worker given his earlier work status as a maintenance worker at Mound Laboratory in the 1980–1990s era, which included responsibilities for maintaining the HVAC systems in R/SW buildings. The operation of and experience with those systems has become of interest in an ongoing assessment by the Advisory Board on Radiation and Worker Health (ABRWH) Mound Work Group regarding the degree to which potential exposure of R Building occupants on the far east side (opposite from SW Building interface) would have been diminished, if not eliminated, by the exhausting of intervening building air.

To facilitate discussion, a list of questions was provided to this former worker prior to the interview. This list is attached (questions 1–6 were provided by SC&A; questions 7–11 were provided by NIOSH). The questioning did not necessarily follow the order of this set of questions, although all of them were posed (the interviewee was given the option of providing written responses, if he so desired). The interviewee was provided this summary and agreed that it represented his responses accurately.

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Q – When did you work at Mound?

A – I began work in the early 1980s until closure of Mound in the early 1990s.

Q – How would operations of the ventilation systems in R/SW compare from when you started to the immediately prior years in the 1970s from what you know?

A – To my knowledge, there were no substantial changes to buildings R/SW HVAC systems or their operation in those preceding years – the systems were substantially the same.

Q – What were your duties at Mound?

A – I was variously a laborer, custodian, material handler, electrician, HVAC mechanic and maintenance worker for building ventilation systems in R, SW, P, WD, and T buildings.

Q – Were both R and SW buildings maintained at negative pressure to the outside? Were laboratory rooms likewise maintained at negative pressure to adjacent corridors? Was the ventilation system maintained at a uniform level 24/7? Did the relative pressures between rooms and corridors, room to room, and between R and SW, themselves, fluctuate over time? How so?

A – Yes, the buildings were always maintained at negative pressure to the outside; the systems operated 24/7. Rooms were maintained at negative pressure to the corridors with some exceptions. Depending upon the operation in the room, some rooms were adjusted to be at positive pressure to the corridors – this was done on a case-by-case basis, with those wall-mounted pressure gauges distinctively red marked. All rooms were monitored closely with the room differential pressure gauges. Pressure was controlled by way of exhaust system fan speed and dampers adjustment. There were also “air-tight” doors between rooms and the corridor, and between the two buildings; called “air-lock doors,” but these were not “air-locks” in the conventional sense (not a “two-door interlocking” system), but doors that restricted movement of room air when closed.

Q – For the time period between 1959 and 1980, were the SW and R Building Differential Pressure Reports made before operation every day? If there were times when laboratory room(s) were not maintained at negative pressure, did operations continue as normal during those times? If not, what happened during these times? Was the negative pressure re-established immediately?

A – For the time period of the early 1980s (which, in his estimation, was the same as the earlier periods), differential pressure gauges were used to constantly monitor room pressure, and “weekly” reports were submitted to validate routine inspections of these gauges. (He noted that the gauges may have been inspected daily, but actual recordings were weekly). He indicated that operations would have been stopped if an abnormal pressure differential was detected, and work would not have been resumed until the appropriate negative pressure differential was restored. Supply air filter differential pressure gauges were monitored and filters were regularly changed. Exhaust fans also had HEPA filters and differential pressure monitoring; filters were changed on an annual basis and were changed at less frequent intervals than supply system filters, except where construction was going on.

Q – Were the R and SW buildings isolated in terms of their respective internal atmospheres (i.e., no mixing of operational air)? Did the two have their own independent ventilation systems? Would R Building be at negative pressure to SW at times, and would that have resulted in an influx of SW building air?

A – Yes, the two had independent HVAC systems, although the closest corridor and rooms of R Building to SW (including room R-128) was part of the SW ventilation system, not that of R Building’s system.

Q – Did fume hood operation significantly influence the balance of ventilation at different locations at different times in R/SW?

A – Yes, they would draw more negative pressure in the room in which they were operating, but would not change the overall balance of ventilation elsewhere in the building.

Q – Was access by workers to “tritium” handling areas/rooms within R/SW buildings restricted to only workers under prescribed tritium bioassay regimes? How was such access controlled in that regard? Was there free or restricted movement of workers within and between R and SW buildings? To what extent did non-bioassayed workers (e.g., non-tritium workers) have access to “tritium handling areas” of R/SW?

A – Any Mound worker could access R/SW buildings without leaving a bioassay sample; there was no restriction for entry into the buildings (he said there were booties and smocks supplied at the corridor entry points and one would be noticed right away if they were not worn). He also noted that while there was a sign-in log at entry points, signing in by workers was on their own volition – there was no one monitoring who was entering. However, any work activity by support workers (e.g., maintenance) in the controlled tritium areas would require an RWP [that would include bioassay as a requirement]. Once inside the R/SW buildings, entry to the corridors and rooms on the tritium or “hot” side of R and SW buildings would require non-tritium workers to don smocks and shoe covers in order to proceed through those areas.

Q – Would it be readily possible for workers from the far side of R Building (opposite side of R from the SW side) to routinely walk through R Building to SW? How would that have been done, and were there any contamination control or monitoring requirements for doing so? Were there any physical or radiological zoning barriers or restrictions? For the time period between 1959 and 1980, is it plausible that a worker could have spent 250 days or more in SW-19 without ever leaving a tritium urine sample?

A – Other than donning of a smock and shoe covers, there was no entry restrictions for movement throughout these areas of R and SW; no other barriers restricted movement. Workers routinely moved about the R/SW buildings and wore smocks and shoe covers, as required (it was noted that not doing so would have been observed immediately, and would have been brought to the worker’s attention; smocks and shoe covers were made available at radiological entry points in R and SW buildings). He stated he did not know what went on prior to 1980, but noted that SW-19 was always locked and not accessible during his tenure (which post-dated the 1980 remedial venting). However, a worker could walk right up and be in the vicinity of the locked room SW-19 [albeit, he observed later in his validation of these notes that it would be unlikely anyone would have had a residence time of 250 days in the area around SW-19].

Q – For the time period between 1959 and 1980, would it have been plausible for significant quantities of radon from the tunnel under SW-19 to have been delivered to rooms in the eastern side of R Building through the ventilation system of the two buildings?

A – From his experience, for the time period he worked in R and SW, there likely would not have been much air movement beyond north-south-running “corridor 2” of R Building, which is the corridor that divided the “hot” and “cold” sides of the building, to the east side of R Building. Air movement eastward toward north-south-running corridor 5 would likely have been exhausted

before reaching that point (i.e., corridor 5), and even less likely to move to corridor 3, which is north-south-running and further east of corridor 5.

Q – Drawings c. 1960 indicated that HVAC ductwork were capped. Some stack tie-ins were also indicated capped. Are you aware of capped ductwork, and do you know when or why they were installed?

A – Ductwork terminations were before my time and I was not aware of ductwork capping.



**Attachment: Questions for Mound interviewee**

1. Were both R and SW buildings maintained at negative pressure to the outside? Were laboratory rooms likewise maintained at negative pressure to adjacent corridors?
2. Were the R and SW buildings isolated in terms of their respective internal atmospheres (i.e., no mixing of operational air)? Did the two have their own independent ventilation systems? Would R building be at negative pressure to SW at times and would that have resulted in influx of SW building air?
3. Was the ventilation system maintained at a uniform level 24/7? Did the relative pressures between rooms and corridors, room to room, and between R and SW, themselves, fluctuate over time? How so?
4. Did fume hood operation significantly influence the balance of ventilation at different locations at different times in R/SW?
5. Was access by workers to “tritium” handling areas/rooms within R/SW buildings restricted to only workers under prescribed tritium bioassay regimes? How was such access controlled in that regard? Was there free or restricted movement of workers within and between R and SW buildings? To what extent did non-bioassayed workers (e.g., non-tritium workers) have access to “tritium handling areas” of R/SW?
6. Would it be readily possible for workers from the far side of R building (opposite side of R from the SW side) to routinely walk through R building to SW? How would that have been done and were there any contamination control or monitoring requirements for doing so? Was there any physical or radiological zoning barriers or restrictions?
7. When did you work at Mound?
8. What were your duties at Mound?
9. For the time period between 1959 and 1980, were the SW and R Building Differential Pressure Reports made before operation every day? If there were times when laboratory room(s) were not maintained at negative pressure (question 1 above), did operations continue as normal during those times? If not, what happened during these times? Was the negative pressure reestablished immediately?
10. For the time period between 1959 and 1980, is it plausible that a worker could have spent 250 days or more in SW-19 without ever leaving a tritium urine sample?
11. For the time period between 1959 and 1980, would it have been plausible for significant quantities of radon from the tunnel under SW-19 to have been delivered to rooms in the eastern side of R building through the ventilation system of the two buildings?