SUBJECT:  Conversation with Paul Waite Regarding RHMF Site History

DISCUSSION:

Building 4688 was transferred from the SRE when the SRE became inactive. Building 4563 was also transferred from a DOE facility that became inactive, but is unsure which building/facility.

Building 4075 floor drain drained to the asphalt/concrete-lined channel on the West RMHF slope and joined the surface water effluent that drained to the RMHF Catch Basin. The floor drain was controlled by a valve located on the western face of the building. Facility personnel don’t recall the valve ever needing to be operated.

Paul recalls discussions regarding whether Building 4075 should be listed as one of the facilities permitted storage units, specifically questions regarding whether the building had been or ever would be needed to store mixed waste. The final decision was not to include Building 4075 as a permitted unit. However, the building has been and is inspected on a weekly basis.

Building 4665 floor drain appears to drain to the northern RMHF slope. It is unclear whether the pipeline we located during our field work is from the Building 4665 floor drain or the three trenches located in the blower area between Building 4021 and 4022. It has been confirmed that the trenches in the blower area did drain to the northern RMHF slope.

The two large “fresh air inlets” on the eastern side of Building 4022, which are approximately 15-feet below grade, were used to provide a source of makeup air for the HEPA filtered blowers servicing the subsurface vaults. The air was pulled through the vents by the blowers located in the filter/blower area between 4021 and 4022. Water collect in the inlets primarily during the wet winter months. Each inlet is equipped with a sump and sump pump to remove water that may enter the inlets. The water is conveyed to the asphalt-covered ground surface and allowed to flow on the surface, entering the asphalt drainage swale that conveyed surface water to the catch basin. In the event of pump failure, water could have reached the vaults by the ducts connecting the subsurface vaults and blowers. It is unlikely that water collected in the inlets could enter the vaults in the event of pump failure since the water would have had to reach over 2-ft deep to overcome the change in incline. Facility personnel do not recall, and there is no record of, water entering the vaults via the makeup air system. However, in the event that water entered into the vaults, it would be diverted to the RA water system through vault-to-vault wall penetrations leading to the vault 6 floor drain and into the vault sump.

The RMHF received water from the RIHL, SRE, and any other DOE facilities that generated radioactive water as a part of operations. The 4022 and 4021 sumps are both part of, and interconnected to, the facility radioactive water system. The 4022 sump was intended to collect any water that entered the Building 4022 below grade vaults. Vault 6 contains a floor drain that conveyed water to the 4022 sump. All other vaults in Building 4022 were designed to drain to Vault 6 through vault-to-vault wall penetrations. The slight amount of groundwater and occasional wind-driven rain water that entered the vaults was unlikely to be of sufficient volume to reach the sump. However, the 4022 sump manhole cover was a source of rainwater intrusion. Since the cover was sealed rainwater intrusion has been eliminated. The 4022 sump has had some groundwater intrusion, however, frequent inspections of the sump indicate that little or no groundwater is entering and the sump has not required pumping since the cover was sealed.
The 4022 sump was connected to the 4021 treatment system by a pipeline that extended from the 4022 sump to the blower area, where it intersects with the building 4021 drain line. The drain line runs below grade along the outside of building 4021. A number of Tee joints intersect the drain line from both inside building 4021 and from condensation drains in the HEPA system ducting before it enters Building 4021 and continues to the Building 4021 Sump. There are four cleanouts located along the pipeline indicating its extent in the area.

The 4021 sump conveyed water to the evaporator and briefly to the flocculation tower. The natural gas-powered evaporator was taken off line following a fire inside B4021 and the 4664 flocculation system was put online. The system was experimental and not very successful, so it was taken offline and an electric evaporator was installed.

The 4022 Vault 2 Tank replaced the T-1 tank located adjacent to Building 4021 Sump. The 4022 Vault 2 Tank, originally located in the SRE, was connected to the 4021 treatment system via an above ground pipeline (pipeline points shown in BFD photos). The pipeline was double-walled where it passed over the filter/blower area and into vault 1. The pipeline entered Vault #1 and was routed to Vault #2 through a hole that was drilled between the two vaults.