Cabot Performance Materials

Memo

To: File

From: Timothy M. Knapp, Radiation Safety Officer

CC:

Date: 06/29/01

Re: Results of MMW3

Over the past 18 months the results form MMW3 have been somewhat erroneous. In an effort to identify the source of the problem Environmental Standards Inc. was brought in to evaluate the integrity of the well and the well head.

ESI's results are attached and document the fact that the well head is in fact in need of repair. They document that ground water runoff can easily enter the well as well as broken pieces of the protective casing.

ESI has recommended that pad be replaced and possibly installing ballards around the wells.

Over the course of the past 18 months there has been significant heavy machinery activity in and around this well and the likely-hood that the head was struck or run over is high. Most of this activity occurred while, approximately 1500 cubic yards of contaminated debris were removed from the Bulk Storage Bins.

ESI will be contracted to make the necessary repairs to the well in the third quarter of 2001.

ENVIRONMENTAL STANDARDS

Setting the Standards for Innovative Environmental Solutions

Business Confidential Memorandum

To: Tim Knapp
Cabot Performance Materials

cc: Martin O'Neill
Cabot Performance Materials

Gerry Kirkpatrick
Environmental Standards, Inc.

From: Brian Carling BSC
Environmental Standards, Inc.

Regarding: Radiological Groundwater Monitoring Network

Date: June 27, 2001

As you requested prior to implementation of the Second Quarter 2001 Radiological Sampling event (performed on June 20, 2001), Environmental Standards conducted an assessment of the nine monitoring wells that are sampled on a quarterly basis in accordance with the Nuclear Regulatory Commission (NRC) permit compliance sampling program. A detailed summary of our assessment, the potential impact to groundwater sample quality, and a recommendation for each issue identified is presented below.

Issue: Well 1A, also known as former Production Well #9, is a 6-inch open borehole well that was installed to a total depth of 360 feet below ground surface (ft bgs). This well contains a very large volume of water and is, therefore, expensive to properly purge and sample. Accordingly, Environmental Standards employs only a limited purge. This limited purge is performed at your direction such that sampling is consistent with the procedures historically used by CPM at the site.

Recommendation: Environmental Standards recommends that CPM sample monitoring well MW 97-07, which is a well that is completed within the same interval as the current "mausoleum" area monitoring wells. This well will provide a more appropriate assessment of water quality in the shallow portion of the bedrock aquifer, and this well is already equipped with a dedicated pump system. This well requires considerably less effort and a small water removal volume to achieve proper purging relative to Well 1A.

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Issue: MW-3 currently functions as the NRC-compliance program "background" monitoring well. This well is a 4-inch diameter PVC screened well completed at 15.5 ft bgs and is not equipped with any surface protection; however, the well is located in an extremely remote location that minimizes the potential for physical impact to the casing. The well is completed in shallow soil and monitors a shallow water table aquifer instead of the bedrock in which the remaining "mausoleum" groundwater wells are completed.

Recommendation: Environmental Standards recommends installing a shallow bedrock well in the vicinity of existing MW-3 to serve as the new "background" well. This well would be constructed in a similar manner to other existing shallow bedrock wells that are part of the NRC-compliance program. We recommend abandonment of MW-3 in conjunction with drilling of the new background well; thus, the same number of monitoring wells would be included in the sampling program and there would be no increase to sampling-related costs. Installation of this replacement well and abandonment of the existing MW-3 would need to be approved by the NRC.

Issue: MW-4 is a 4-inch PVC well that is located on the floodplain of Swamp Creek and is not equipped with a protective outer casing. This well has the potential to be physically impacted in the event of a flood (*i.e.*, the possible inflow of surface water into the shallow water table aquifer).

Recommendation: Environmental Standards recommends installing a protective casing to minimize the potential to damage the PVC casing.

Issue: Although our hydrogeologic conceptual model indicates that groundwater at the site discharges to Swamp Creek, only a shallow water table well is being sampled for radiological parameters in the area near MW-4. If shallow bedrock groundwater in this area were impacted with radiological constituents, this impact would likely go undetected.

Recommendation: Environmental Standards recommends adding existing monitoring well MW 90-7S to the radiological groundwater sampling program. This well is designed to monitor shallow bedrock and the only additional cost will be the cost of laboratory analytical.

Issue: Groundwater monitoring well MMW-2 has a damaged protective casing and locking cap that allow rainfall to infiltrate directly into the well and allow insects to nest in the wellbore.

Recommendation: Environmental Standards recommends that we cut and replace the damaged portion of the 6-inch protective casing and install a new locking cap.

Issue: Groundwater monitoring well MMW-3 is susceptible to surface water runoff or rainfall infiltration due to the design of the well pad and the short distance between the inner annular seal and the top of the inner casing. As a result, water that may infiltrate into the well cap can

enter the well. Additionally, pieces of the steel protective casing were observed to have accumulated at the top of the well and could easily migrate down the wellbore.

Recommendation: Environmental Standards recommends that we remove the existing well pad, remove a portion of the annular seal to create a small sump for water accumulation, add a piece of 6-inch steel casing (if necessary), and reinstall a new well pad.

Issue: None of the Radiological Groundwater Sampling Program wells is equipped with ballards to protect the wells from vehicle impact. The lack of ballard protection has resulted in one of the wells being damaged; others remain unprotected.

Recommendation: Environmental Standards recommends that CPM (or Environmental Standards) install ballards around each well to minimize the potential for vehicular impact.