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NSA CRANE
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EMAIL AND ATTACHED RESPONSE TO U S EPA REGION V COMMENTS REGARDING THE PASSIVE TREATMENT SYSTEM AT SPRINGS A AND C FOR THE CORRECTIVE MEASURES PROPOSAL SOLID WASTE MANAGEMENT UNIT 3 (SWMU 3) AMMUNITION BURNING GROUNDS NSA CRANE IN
05/27/2015
NAVFAC MID ATLANTIC

Cohen, Deborah

From: Brent, Thomas CIV NAVFAC MIDLANT, PWD Crane <thomas.brent@navy.mil>
Sent: Wednesday, May 27, 2015 12:37 PM
To: Ramanauskas, Peter
Cc: Cole, Linda L CIV NAVFAC MIDLANT, IPTNE; Cohen, Deborah; Basinski, Ralph; Lyons, Karen
Subject: SWMU 3 CMP "FINAL" RTC - PASSIVE TREATMENT FOR SPRING DISCHARGE
Attachments: NSA Crane_SWMU 3_RTC on Springs A C Passive Treatment_042315 (with figur....pdf

Pete,

Based upon conversations during your September 2014 trip to Crane, the understanding was that the remaining issue regarding approval of the SWMU 3 CMP concerns evaluating the viability of treatment options for the Spring discharges. As such, we're submitting the attached in hopes of finally resolving the issue. Please review and let us know if this satisfies your comment.

Sincerely,
Tom

Follow-on US EPA Region 5 Comment Dated 09/04/14

NSA Crane SWMU 3 Ammunition Burning Grounds

Corrective Measures Proposal

Comment: What is the feasibility of a passive treatment system at springs A and C?

Response: Passive treatment of RDX contamination in Springs A and C is not considered to be feasible and was not considered in the Corrective Measures Proposal (CMP) to address low level concentrations of RDX ranging from non-detectable to approximately 140 micrograms per liter (ug/L) in the springs.

Actual variations in flow rate would be a major consideration with passive treatment options such as constructed wetlands or carbon filtration. In March and April 1996, continuous flow measurements were conducted for Springs A and C (Baedke, 2002). During these measurements, the flow rates of Springs A and C rose rapidly in response to rain events and declined fairly rapidly within a few days. At low flow, discharges from the springs were a few gallons per minute. The peak flows in each of the two springs during the 2-month time period were estimated to be well in excess of 10,000 gallons per minute (gpm) or 22.3 cubic feet per second (ft^3/s), when the capacity of the flow measuring devices was exceeded. The attached Figure 14 shows the hydrographs. These flow estimates are consistent with previous reports (e.g., Hunt, 1988; Murphy and Ciocco, 1990) that indicated the springs become turbid during high flow events and then clear up and return to normal flow within a day or two after a storm event.

These measurements considered only Springs A and C flow rates into Little Sulphur Creek (LSC). They did not take into account surface storm water flow going directly into LSC and flow from other springs discharging into LSC. These flow rates would only be significant during high precipitation events and would be expected to exceed flows from Springs A and C.

The extreme variations in the spring discharge and LSC surface water flow present a significant impact on the feasibility of passive treatment such as a wetlands system at both Springs A and C.

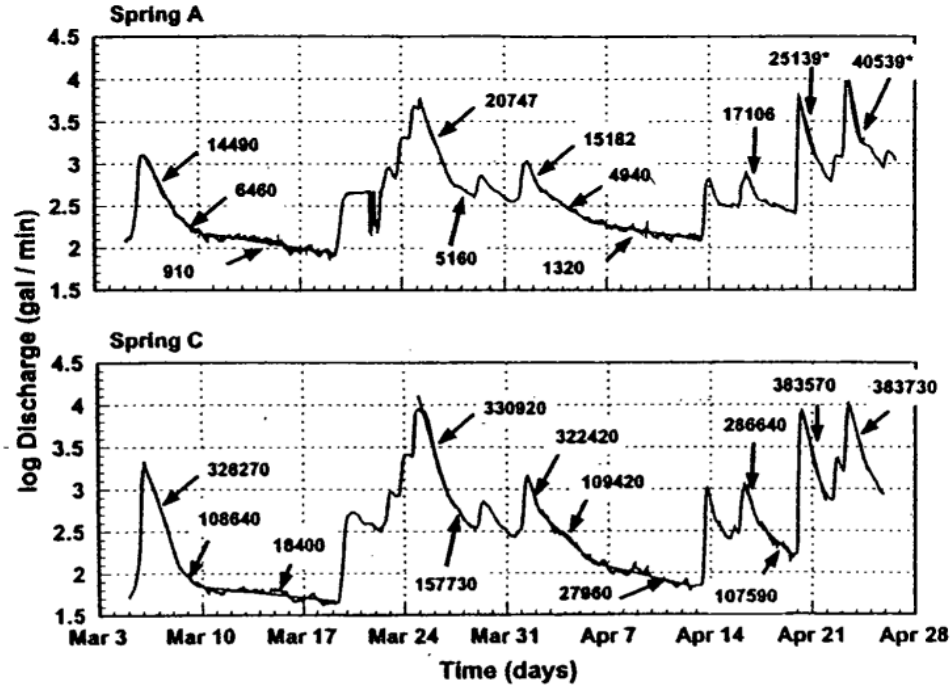
Seasonal variations in temperature also present an issue. During much of the year when vegetation is minimal or absent, passive wetlands treatment would not be effective or would be greatly diminished in effectiveness.

A flow-through carbon filtration system consisting of a carbon bed placed in LSC at the Spring A and C discharge points also is not feasible because of the size required to sufficiently treat high flows. Carbon filtration systems designed for base flow would be periodically washed out under high flow conditions. As the flow increases, the turbidity of the spring waters also increases resulting in fouling of the carbon.

Conclusion

Passive treatment of RDX contamination in Springs A and C is not considered to be feasible and was not considered in the CMP.

Surface water quality criteria have been established for the protection of LSC uses. Monitoring of LSC has been conducted since 2004. To date, there have been no exceedances of the established surface water quality criteria.



Two-month hydrographs for Springs A and C (thin lines) during March – April 1996. Heavy lines show the conduit-, mixed-, and diffuse-flow systems. Numbers correspond to the ratio of T/Sy calculated from the corresponding segment of the hydrograph. An * next to the values of T/Sy indicates that discharges exceeded the calibrated range of the weir and pressure transducers for the rain event

SOURCE: JOCK AND KROTHE, 2002

DRAWN BY A. JANOCHA	DATE 7/21/02	FLOW HYDROGRAPHS FOR SPRINGS A AND C, MARCH-APRIL 1996 CONCEPTUAL SITE MODEL REPORT FOR SWMU 3 - AMMUNITION BURNING GROUNDS NSWC CRANE CRANE, INDIANA	CONTRACT NUMBER CTO 0311
CHECKED BY J. SCHUBERT	DATE 7/21/02		APPROVED BY — DATE —
COST/SCHEDULE-AREA			APPROVED BY — DATE —
SCALE AS NOTED			DRAWING NO. FIGURE 14 REV 0

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