

**From:** [Yadav, Priya](#)  
**To:** [Cherry, Robert N CIV USARMY IMCOM HQ \(USA\)](#)  
**Cc:** [Koenick, Stephen](#); [Ridge, Christianne](#)  
**Subject:** RE: Davy Crockett 3Q 2020 - SW above 30 ug/L  
**Date:** Tuesday, December 15, 2020 3:08:00 PM

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Bob,

Thank you for notifying the NRC of a sample result above the 30 µg/L action level defined in the UFP-QAPP. We reviewed the uranium concentrations and isotope ratios in the attached spreadsheet of Q3 sampling results and concluded that none of the surface water or sediment samples demonstrated a significant concentration of depleted uranium (DU). The highest total uranium concentration measured in surface water was 53 +/- 5.15 pCi/L, at Fort Carson, Colorado, and we agree that the conversion from activity to mass based on isotopic concentrations and specific activity corresponds to 63 +/- 9 µg/L. That measurement is well below the NRC 10 CFR Part 20 Appendix B effluent limits of 300 pCi/L each for U-238, U-235, and U-234.

The highest concentration measured in sediment was 7.8 pCi/g at the Yakima Training Center, Washington. The highest U-238 to U-234 ratio measured in either surface water or sediment was measured at Fort Hunter-Liggett, California. That measurement, 1.5 +/- 0.7, is within the normal variation of U-238 to U-234 ratios in natural uranium in environmental samples. We will enter your notification, this email, and the attached spreadsheet into ADAMS on the license docket.

Please contact me with any questions,

*Priya Yadav, P.E.*

Project Manager

U.S. Nuclear Regulatory Commission

Low-level Waste and Projects Branch

Division of Decommissioning, Uranium Recovery, and Waste Programs

Office of Nuclear Material Safety and Safeguards

Office phone: 301-415-6667

**Work at home phone: 650-274-9376**

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**From:** Cherry, Robert N CIV USARMY IMCOM HQ (USA) <robert.n.cherry.civ@mail.mil>  
**Sent:** Monday, December 14, 2020 11:50 AM  
**To:** Johnson, Jamie R. <JAMIE.R.JOHNSON@leidos.com>; 'Andrew.B.Evens@usace.army.mil' <Andrew.B.Evens@usace.army.mil>  
**Cc:** Valadez, Ernesto Jr CIV USARMY IMCOM HQ (USA) <ernesto.valadez.civ@mail.mil>; John Ford <jford@aar-llc.com>; Hutchinson, Bennie S CIV USARMY IMCOM CENTRAL (USA) <bennie.s.hutchinson.civ@mail.mil>; Yadav, Priya <Priya.Yadav@nrc.gov>; Cerar, Randall J CIV USARMY IMCOM AEC (USA) <randall.j.cerar.civ@mail.mil>  
**Subject:** [External\_Sender] RE: Davy Crockett 3Q 2020 - SW above 30 ug/L

Thank you, Jamie. Fortunately, you did not see any indication that DU is in this sample with a U238/U234 ratio of 0.60 +/- 0.13. This result implies that the U-234 concentration was enhanced by

its recoil out of rock crystal structure when the parent U-238 nucleus decayed.


The EPA says we can equate 27 pCi U/L with 30 ug U/L, which assumes natural uranium. That would make the activity concentration equivalent to 59 +/- 6 ug/L. However, we have the actual isotope distribution, so I set up a spreadsheet using the specific activity for each uranium isotope and calculated 63 +/- 9 ug/L, which is close to the assumed value for natural uranium.

I will CC this email to the NRC as our notification and to the Fort Carson garrison RSO, so he can inform the garrison environmental staff, in case they want to follow up.

In any event, elevated results for uranium concentrations in water is not a surprise for Colorado. It is safe to say our DU did not contribute to this result in any significant way.

Bob

Bob Cherry

Health Physicist 

210-466-0368 

Cell 210-618-8059

[robert.n.cherry.civ@mail.mil](mailto:robert.n.cherry.civ@mail.mil)

US Army Installation Management Command

ATTN: IMSO/106

Building 2261

2405 Gun Shed Road

JBSA Fort Sam Houston, Texas 78234-1223

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**From:** Johnson, Jamie R. <[JAMIE.R.JOHNSON@leidos.com](mailto:JAMIE.R.JOHNSON@leidos.com)>

**Sent:** Thursday, December 10, 2020 5:09 PM

**To:** Cherry, Robert N CIV USARMY IMCOM HQ (USA) <[robert.n.cherry.civ@mail.mil](mailto:robert.n.cherry.civ@mail.mil)>;

'Andrew.B.Evens@usace.army.mil' <[Andrew.B.Evens@usace.army.mil](mailto:Andrew.B.Evens@usace.army.mil)>

**Cc:** Valadez, Ernesto Jr CIV USARMY IMCOM HQ (USA) <[ernesto.valadez.civ@mail.mil](mailto:ernesto.valadez.civ@mail.mil)>; John Ford <[jford@aar-llc.com](mailto:jford@aar-llc.com)>

**Subject:** [Non-DoD Source] Davy Crockett 3Q 2020 - SW above 30 ug/L

Brooks and Bob,

Within the 3Q 2020 surface water data, there is a project action level exceedance.

The total uranium concentration detected in surface water at Fort Carson SWS-03 was 53 +/- 5.15 pCi/L, which is above the 30 ug/L level defined in the UFP-QAPP.

The 3Q results are summarized in the attached spreadsheet.

While the total uranium concentrations detected in surface water at Fort Carson SWS-02 and SWS-03 have historically exceeded this level, this is the first detection above 30 ug/L in 2020.

The 4Q 2020 sampling at Fort Carson is scheduled for 14-16 December.

Let me know if you have any additional questions.

Thanks,

Jamie

**Jamie Johnson, PMP | Leidos**

Project Manager | Environmental Restoration  
phone: 571.526.7746 | mobile: 571.328.8496