

From: [Yadav, Priya](#)
To: [Cherry, Robert N CIV USARMY IMCOM HQ \(USA\)](#)
Cc: [Koenick, Stephen](#); [Valadez, Ernesto Jr CIV USARMY IMCOM HQ \(USA\)](#); [Evans, Andrew B CIV USARMY CFLRL \(USA\)](#)
Subject: NRC response to Army email: JPG Spring 2021 sample_ MW-DU-006
Date: Wednesday, May 11, 2022 1:58:00 PM
Attachments: [image002.png](#)

Bob,

We agree with your assessment about the June 2021 sample result at JPG well MW-DU-006, as described below.

Although, according to the license, the notification and sampling requirements are invoked for samples that exceed total uranium of 150 pCi/L, it would be good to have procedures in place with the laboratory and your contractor that results near this action level are acted on more quickly.

Please send the October 2021 and the Spring 2022 results when available, and also any additional information you get from the lab. We also agree with including this information in the annual monitoring report.

Thanks,



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
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From: Ridge, Christianne <Christianne.Ridge@nrc.gov>
Sent: Wednesday, May 11, 2022 9:40 AM
To: Yadav, Priya <Priya.Yadav@nrc.gov>
Cc: Koenick, Stephen <Stephen.Koenick@nrc.gov>
Subject: RE: [External_Sender] RE: PLEASE REVIEW_JPG Spring 2021 sample_ MW-DU-006 (UNCLASSIFIED)

Priya,

I agree with Dr. Cherry's assessment that the measurements do not reflect depleted uranium (DU). I also agree that the sample seems anomalous because of the high U-234 (relative to other isotopes).

I do not have a safety concern for two reasons: (1) the measurement is well below the 10 CFR Part 20 effluent limit of 300 pCi/L, which is based on exposure for a year and (2) the values went back to typical JPG values in the October 2021 sample.

I'm hesitant to hypothesize about the cause, though I will say the confirmation in the re-analysis seems to exclude a counting error. I will also venture that if the sample were somehow enriched (not expected), I'd expect U-235 to be elevated too, which the measurements did not show. Given that, it seems more likely to me that sample contamination could be the explanation, as the Army suggested. If the Army wanted to follow up with the laboratory, I would suggest that they put any explanation the laboratory offers in the report. However, I do not think we need to require that.

Given the anomalous isotopic distribution, the values below the effluent limit, and the return to typical JPG results in the October 2021 sample, I agree it is reasonable to exclude this point from trending. However, it is very important they include it in the report for institutional knowledge, in case another sample returns similar results.

Thanks,

A. Christianne Ridge, Ph.D.
Sr. Risk Analyst
U.S. Nuclear Regulatory Commission
Risk and Technical Analysis Branch

From: Yadav, Priya <Priya.Yadav@nrc.gov>
Sent: Tuesday, May 10, 2022 4:05 PM
To: Ridge, Christianne <Christianne.Ridge@nrc.gov>
Cc: Koenick, Stephen <Stephen.Koenick@nrc.gov>
Subject: FW: [External_Sender] RE: PLEASE REVIEW_JPG Spring 2021 sample_ MW-DU-006 (UNCLASSIFIED)

Dr. Ridge,

Please see the email from the Army license RSO and let me know if you agree with his assessment. This original sample was taken in June 2021 and sample remained for the re-analysis in April 2022. The April 2022 sample results exceeded the 150 pCi/L action level in License SUB-1435, therefore, this

is the Army notification of the exceedance.



Priya Yadav, P.E.

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From: Cherry, Robert N CIV USARMY IMCOM HQ (USA) <robert.n.cherry.civ@army.mil>
Sent: Wednesday, May 4, 2022 9:05 PM
To: Evens, Andrew B CIV USARMY CELRL (USA) <Andrew.B.Evens@usace.army.mil>
Cc: Heather McPherson <heather.mcperson@northwindgrp.com>; Johnson, Jamie R. [US-US] <JAMIE.R.JOHNSON@leidos.com>; Yadav, Priya <Priya.Yadav@nrc.gov>; Valadez, Ernesto Jr CIV USARMY IMCOM HQ (USA) <ernesto.valadez.civ@army.mil>
Subject: [External_Sender] RE: PLEASE REVIEW_JPG Spring 2021 sample_ MW-DU-006 (UNCLASSIFIED)

CLASSIFICATION: UNCLASSIFIED

Brooks,

This is definitely a strange result for Jefferson Proving Ground or for any Army site. I am surprised re-analysis confirmed the first result. I am relieved that the October sampling result is back to normal.

The anomalous result, if real, indicates highly enriched (weapons grade) uranium, which should not be at JPG or anywhere near JPG. (It is not DU. Whew!) I can offer no explanation for it. I can make some wild guesses but can't prove any of them. My most plausible guesses for now are that the laboratory may have accidentally contaminated the sample with a calibration sample or another alpha emitter with similar alpha energies similar to U-234 and U-235 (thorium-232?) popped up for this one time. I suppose we could ask them to review their procedures, but that is up to you. I am content to take no action at this time unless it happens again.

I am notifying our NRC PM (as required) on this for her take and, if any, her input. I can think of no further action except to remember this in case it happens again. For that reason at the minimum, please include this in the annual report.

Bob

Bob Cherry
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From: Evens, Andrew B CIV USARMY CELRL (USA) <Andrew.B.Evens@usace.army.mil>
Sent: Wednesday, May 4, 2022 11:21 AM
To: Cherry, Robert N CIV USARMY IMCOM HQ (USA) <robert.n.cherry.civ@army.mil>
Cc: Heather McPherson <heather.mcperson@northwindgrp.com>; Johnson, Jamie R. [US-US] <JAMIE.R.JOHNSON@leidos.com>
Subject: FW: PLEASE REVIEW_JPG Spring 2021 sample_ MW-DU-006

Bob here is the reanalyzes of the MW-06 spring 2021 result.

I agree with it being an outlier

From: Kimberley Kearney, PMP <kkearney@northwindgrp.com>
Sent: Wednesday, May 4, 2022 12:11 PM
To: Evens, Andrew B CIV USARMY CELRL (USA) <Andrew.B.Evens@usace.army.mil>
Cc: Kimberley Kearney, PMP <kkearney@northwindgrp.com>; Jill Jones <jill.jones@northwindgrp.com>; Heather McPherson <heather.mcperson@northwindgrp.com>; Johnson, Jamie R. [US-US] <JAMIE.R.JOHNSON@leidos.com>
Subject: [Non-DoD Source] PLEASE REVIEW_JPG Spring 2021 sample_ MW-DU-006

Brooks,

Good morning.

The MW-DU-006 groundwater sample collected June 9th, 2021 was reanalyzed in April 2022 to confirm results that were obtained during the initial analysis in 2021.

The alpha spectroscopy and ICP/MS re-analysis performed in April 2022 had the following results:

	Activity Concentration (pCi/L)				Ratio U-238/U-234
	U-234	U-235	U-238	Total Uranium	
MW-DU-006 – Initial AlphaSpec Analysis	138 ± 12	5.5 ± 0.6	3.7 ± 0.4	147 ± 12	0.03 ± 0.003
MW-DU-006 – April 2022 AlphaSpec Re-analysis	145 ± 13	5.5 ± 0.7	4.4 ± 0.6	155 ± 13	0.03 ± 0.005

ICP/MS – April 2022 Re-analysis

- U-235 - 2.3 ug/L
- U-238 - 10 ug/L
- Other Uranium isotopes < DL (DL- 0.03 ug/L)
- Total Uranium of 12 ug/L

These alpha spectroscopy re-analysis results were similar to initial results in 2021; however, the total uranium re-analysis is just above the action level of 150 pCi/L. When above an action level, re-sampling is required and the well was resampled in October with normal results and the well was sampled again this spring and results are pending. Presently, the result for MW-DU-006 from the spring 2021 result has been excluded from the trending in the 2021 Annual ERM Report as an outlier.

Would the Army like to revise the draft 2021 Annual ERM Report to include the re-analysis? Does the Army agree with proceeding assuming these results are outliers?

Thank you for your assistance with these questions.

Warm Regards,

Kim

CLASSIFICATION: UNCLASSIFIED