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PG&E Letter HBL-21-017

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Humboldt Bay Power Plant, Unit 3
Docket No. 50-133, DPR-7
Clarification Regarding Final Status Survey Report for Humboldt Bay Power Plant

Reference:

1. PG&E Letter HBL-21-010, "Final Status Survey Reports for the Humboldt Bay Power Plant," dated June 8, 2021 (ML21160A224)
2. Email from NRC Project Manager, Amy Snyder, "Humboldt Bay Unit 3 Clarification Question," dated October 26, 2021
3. PG&E Letter HBL-21-011, "Final Status Survey Report for Humboldt Bay Power Plant," dated July 13, 2021 (ML21194A441)

Dear Commissioners and Staff:

Pacific Gas and Electric Company (PG&E) is providing this letter to clarify three different items associated with NRC review of various Humboldt Bay Power Plant (HBPP) Final Status Survey (FSS) Reports.

In Reference 1, PG&E submitted three FSS Reports for HBPP. Per a clarification phone call with the NRC on October 21, 2021, PG&E is clarifying information included in Enclosure 3 of Reference 1. Enclosure 3 of Reference 1 described an instance where investigative sample OOL01-03-027-F-I, collected during a walkover survey, indicated elevated Cesium-137 at 2.68E+01 picocuries per gram. The elevated reading was bounded and a pre-sample one minute static count confirmed its location. An investigation sample was taken and a post sample one minute static count survey was performed. The post sample survey result was consistent with survey area background levels. This process ensured the area was remediated by sampling. An in situ object characterization system shot over the investigative sample location was taken as additional verification that the as-left location was less than the derived investigation levels specified in the FSS Plan.

Per a clarification phone call with the NRC on October 21, 2021, PG&E is following up to provide additional clarifying information regarding the process for radionuclides of concern (ROCs) in the FSS Reports (FSSRs). For any specific survey unit, if any ROCs were neither deselected nor reported (e.g., Nb-94, Eu-152, Eu-154, Np-237, and Am-

241 are typically not reported in most of the FSSRs), then those ROCs were not detected at concentrations above their respective minimum detectable concentration and/or were of such low concentration that it had, on average, negligible potential dose impact. As a result, those ROCs were not reported for that particular survey unit.

In Reference 2, NRC requested that PG&E provide the analytical results associated with the composite sample of the Waste Management Facility Pad described in Reference 3. The Enclosure, "Gamma Spectrum Analysis," provides the analytical results of the Waste Management Facility Pad composite sample associated with survey unit OOL10-24-FSR.

PG&E makes no new or revised regulatory commitments (as defined in NEI 99-04) in this letter.

If you have any questions or require additional information, please contact Mr. Philippe Soenen at (805) 459-3701.

Sincerely,

Maureen R. Zawalick
Vice President Generation, Business and Technical Services

Enclosure
cc: Humboldt Distribution
cc/enc: Scott A. Morris, NRC Region IV Administrator
Amy M. Snyder, NRC Reactor Decommissioning Branch Project Manager

Gamma Spectrum Analysis

FSS-2489, OOL10-24-002-M-C Composite

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***** GAMMA SPECTRUM ANALYSIS *****
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Detector DET0848

Report Generated On : 10/30/2019 1:01:18 PM

Sample Identification : FSS-2489
Sample Title : OOL10-24-002-M-C Composite
Sample Information :
:
Sample Type : Media
Sample Geometry :

Peak Locate Threshold : 3.00
Peak Locate Range (in channels) : 100 - 4096
Peak Area Range (in channels) : 100 - 4096
Identification Energy Tolerance : 1.000 keV

Sample Size : 3.770E+002 g

Sample Taken On : 10/30/2019 11:05:00 AM
Acquisition Started : 10/30/2019 11:49:05 AM

Live Time : 3600.0 seconds
Real Time : 3607.6 seconds

Dead Time : 0.21 %

Energy Calibration Used Done On : 12/4/2015
Efficiency Calibration Used Done On : 6/11/2019
Efficiency ID : 500ml BeakerD1.6

Performed by Ron Burrell Date 10-30-19
Alderman, Anderson, Burrell, Eckhardt, Stephens

Reviewed by [signature] Date 10-30-19
Alderman, Anderson

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***** P E A K L O C A T E R E P O R T *****
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Detector Name: DET0848
Sample Title: OOL10-24-002-M-C Composite
Peak Locate Performed on: 10/30/2019 1:01:18 PM
Peak Locate From Channel: 100
Peak Locate To Channel: 4096
Peak Search Sensitivity: 3.00

Peak No.	Centroid Channel	Centroid Uncertainty	Energy (keV)	Peak Significance
1	127.13	0.4903	63.32	3.62
2	150.12	0.3864	74.78	4.08
3	154.80	0.3779	77.10	5.57
4	477.48	0.2658	238.66	7.29
5	484.67	0.4191	242.16	3.79
6	590.55	0.3364	295.25	4.87
7	704.13	0.2417	352.08	8.49
8	955.22	0.1017	477.72	45.59
9	1166.35	0.2938	583.33	5.19
10	1218.78	0.2373	609.46	7.91
11	1322.95	0.3097	661.62	4.86
12	1536.84	0.4108	768.60	3.17
13	1822.59	0.3141	911.42	3.90
14	1938.27	0.3352	969.30	3.36
15	2922.61	0.1823	1461.26	9.56

? = Adjacent peak noted

Errors quoted at 2.000 sigma

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***** P E A K A N A L Y S I S R E P O R T *****
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Detector Name: DET0848
Sample Title: OOL10-24-002-M-C Composite
Peak Analysis Performed on: 10/30/2019 1:01:18 PM
Peak Analysis From Channel: 100
Peak Analysis To Channel: 4096

	Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
F	1	123-	130	127.22	63.32	0.68	6.89E+001	39.98	3.25E+002
M	2	146-	158	150.12	74.78	0.90	1.44E+002	37.76	3.42E+002
m	3	146-	158	154.75	77.10	0.90	1.56E+002	40.06	3.41E+002
M	4	473-	489	477.48	238.66	1.17	3.35E+002	45.02	2.66E+002
m	5	473-	489	484.48	242.16	1.17	1.11E+002	29.56	2.54E+002
F	6	586-	595	590.56	295.25	1.07	1.31E+002	34.92	3.18E+002
F	7	699-	709	704.14	352.08	1.26	2.84E+002	37.42	1.68E+002
F	8	949-	960	955.26	477.72	1.26	6.39E+003	154.74	1.20E+002
F	9	1162-	1170	1166.42	583.33	1.36	1.02E+002	20.27	2.20E+001
F	10	1214-	1224	1218.66	609.46	1.34	1.98E+002	28.11	4.03E+001
F	11	1319-	1328	1322.96	661.62	1.08	5.29E+001	17.13	3.93E+001
F	12	1534-	1540	1536.90	768.60	0.99	1.91E+001	11.49	1.83E+001
F	13	1817-	1827	1822.58	911.42	1.44	5.53E+001	16.48	2.74E+001
F	14	1934-	1943	1938.36	969.30	1.47	4.13E+001	14.98	2.67E+001
F	15	2917-	2929	2922.75	1461.26	1.89	3.88E+002	38.43	1.81E+001

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

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***** NUCLIDE IDENTIFICATION REPORT *****
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Sample Title: OOL10-24-002-M-C Composite
Nuclide Library Used: C:\GENIE2K\CAMFILES\HBPP.NLB

..... IDENTIFIED NUCLIDES .....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/g)	Activity Uncertainty
Bi-xRay	0.554	77.11*	100.00	6.02527E-002	1.95979E-002
		87.20	36.00		
Pb-xRay	0.437	72.80	55.00		
		74.97*	100.00	5.81523E-002	1.91561E-002
Be-7	0.997	477.59*	10.42	3.75168E+001	4.75672E+000
K-40	0.968	1460.81*	10.67	4.83111E+000	6.15037E-001
Cs-137	1.000	661.65*	85.12	4.75849E-002	1.64414E-002
Tl-208	0.691	277.35	6.80		
		583.14*	84.20	8.53015E-002	1.97721E-002
		860.37	12.46		
Pb-212	0.894	238.63*	44.60	2.81488E-001	5.88232E-002
		300.09	3.41		
Bi-214	0.465	609.31*	46.30	3.09928E-001	5.75907E-002
		1120.29	15.10		
		1764.49	15.80		
Pb-214	0.997	241.98*	7.49	5.63247E-001	1.74448E-001
		295.21*	19.20	2.96758E-001	9.20350E-002
		351.92*	37.20	3.75093E-001	7.47826E-002
Ac-228	0.559	338.32	11.40		
		911.07*	27.70	1.90279E-001	5.93854E-002
		969.11*	16.60	2.47489E-001	9.21869E-002

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 1.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 2.000 sigma

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***** I N T E R F E R E N C E C O R R E C T E D R E P O R T *****
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Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/g)	Wt mean Activity Uncertainty
Bi-xRay	0.554	6.025274E-002	1.959792E-002
Pb-xRay	0.437	5.815228E-002	1.915606E-002
Be-7 Cosmogenic	0.997	3.751678E+001	4.756716E+000
K-40	0.968	4.831114E+000	6.150366E-001
Cs-137	1.000	4.758488E-002	1.644141E-002
Tl-208	0.691	8.530150E-002	1.977213E-002
Pb-212	0.894	2.814882E-001	5.882321E-002
Bi-214	0.465	3.099282E-001	5.759072E-002
Pb-214	0.997	3.657965E-001	5.507068E-002
Ac-228	0.559	2.070573E-001	4.992354E-002

? = nuclide is part of an undetermined solution
X = nuclide rejected by the interference analysis
@ = nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 2.000 sigma

********** U N I D E N T I F I E D P E A K S **********

Peak Locate Performed on: 10/30/2019 1:01:18 PM
Peak Locate From Channel: 100
Peak Locate To Channel: 4096

	Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
F	1	63.32	1.9136E-002	58.03	Tol.	Th-234
F	12	768.60	5.3160E-003	60.04		Bi-214

REB 10-30-19

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 2.000 sigma

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***** NUCLIDE MDA REPORT *****
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Detector Name: DET0848
Sample Geometry:
Sample Title: OOL10-24-002-M-C Composite
Nuclide Library Used: C:\GENIE2K\CAMFILES\HBPP.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/g)	Nuclide MDA (pCi/g)	Activity (pCi/g)	Dec. Level (pCi/g)
+	K-40	1460.81*	10.67	3.18E-001	3.18E-001	4.83E+000	1.42E-001
	Co-60	1173.22	100.00	4.12E-002	3.66E-002	1.43E-002	1.91E-002
		1332.49	100.00	3.66E-002		1.96E-002	1.66E-002
	Nb-94	702.63	100.00	2.87E-002	2.87E-002	-1.22E-002	1.33E-002
		871.10	100.00	3.35E-002		2.20E-002	1.55E-002
	Ag-108m	433.93	89.90	3.75E-002	3.75E-002	-2.71E-002	1.79E-002
		614.37	90.40	5.06E-002		-3.22E-003	2.42E-002
		722.95	90.50	3.99E-002		-3.13E-002	1.87E-002
	Cs-134	569.31	15.43	1.91E-001	3.56E-002	4.27E-002	8.96E-002
		604.70	97.60	4.45E-002		-9.19E-003	2.12E-002
		795.84	85.40	3.56E-002		1.10E-002	1.64E-002
+	Cs-137	661.65*	85.12	3.33E-002	3.33E-002	4.76E-002	1.54E-002
	Eu-152	121.78	28.40	1.09E-001	1.09E-001	8.01E-003	5.33E-002
		244.69	7.49	5.27E-001		1.53E-003	2.57E-001
		344.27	26.50	1.45E-001		3.48E-002	7.01E-002
		778.89	12.74	2.56E-001		1.58E-001	1.19E-001
		964.01	14.40	3.09E-001		-4.27E-002	1.45E-001
		1085.78	10.00	3.57E-001		-3.49E-002	1.64E-001
		1112.02	13.30	2.61E-001		-2.94E-001	1.20E-001
		1407.95	20.70	1.76E-001		7.34E-002	7.96E-002
	Eu-154	123.07	40.50	7.62E-002	7.62E-002	1.71E-002	3.71E-002
		723.30	19.70	1.92E-001		2.64E-002	9.02E-002
		873.19	11.50	2.79E-001		6.14E-002	1.28E-001
		996.32	10.30	3.16E-001		-6.23E-002	1.45E-001
		1004.76	17.90	2.10E-001		1.17E-001	9.74E-002
		1274.45	35.50	9.85E-002		-1.03E-001	4.46E-002
	Eu-155	105.31	20.70	1.29E-001	1.29E-001	-2.88E-004	6.26E-002
+	Ac-228	338.32	11.40	3.57E-001	1.09E-001	2.80E-001	1.73E-001
		911.07*	27.70	1.09E-001		1.90E-001	4.99E-002
		969.11*	16.60	1.83E-001		2.47E-001	8.34E-002
	Th-234	63.29	3.80	1.52E+000	6.54E-001	1.51E+000	7.40E-001
		92.59	5.41	6.54E-001		6.94E-001	3.19E-001
	U-235	143.76	10.50	2.79E-001	7.19E-002	-1.52E-001	1.36E-001
		185.72	54.00	7.19E-002		6.49E-002	3.51E-002
	Np-237	311.98	38.60	1.09E-001	1.09E-001	1.31E-001	5.28E-002
	U-238	1001.03	0.84	4.35E+000	4.35E+000	1.53E+000	2.01E+000
	Am-241	59.54	35.90	1.71E-001	1.71E-001	-1.64E-001	8.33E-002

\+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or the region is outside the spectrum, or MDA has not been calculated
@ = Half-life too short to be able to perform the decay correction