#### RESL CUSTOMER EXPORT CONTROL AGREEMENT

It is the Radiological and Environmental Sciences Laboratory's (RESL) policy to conduct business in accordance with all applicable U.S. export control laws and regulations. It is also RESL's policy that its Customers comply with U.S. export control laws and regulations. Therefore, Customer agrees to the following:

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- 2. Customer acknowledges that it is responsible for its own compliance with U.S. export control laws and regulations. Customer further agrees that it assumes the responsibility to obtain all necessary U.S. export licenses or other U.S. governmental authorizations, as well as all liability for the failure to do so.
- 3. Customer acknowledges that export control requirements may change and that the export or reexport of RESL products, technical data, and services without an export license or other appropriate governmental authorization may result in criminal and/or civil liability.
- 4. The obligations and requirements described herein shall survive the expiration or termination of any agreement or contract between RESL and Customer.

## **RaW42 Participating Laboratories**

Lab Code	Lab Name	<b>Matrix Code</b>
CMRC01	Carlsbad Environmental Monitoring and Research Center	RaW
DLEA01	DLE Associates	RaW
ERCL01	Washington State Public Health Laboratories	RaW
EULC01	EnergySolutions, LLC	RaW
FDHE01	Florida Dept of Health Environmental Laboratory	RaW
FDOH01	Florida Dept. of Health, Mobile Environmental Radiological Lab	RaW
GENE01	GEL Laboratories, LLC	RaW
ODHL01	Ohio Department of Health Laboratory	RaW
TELE02	ATI Environmental, Inc., Midwest Lab	RaW

## **Laboratories Not Reporting**

Lab Code	Lab Name	Matrix Code
NARL01	National Analytical Radiation Environmental Laboratory	RaW
NARL02	USEPA - NAREL - MERL	RaW



### **Study Reference Values**

#### MAPEP-20-RaW42

Radiological Reference Date: 02/01/2020

Analyte	Ref Value	Ref Unc
Radiological		Units: (Bq/L)
Radium-226	189	19
Radium-228	75	5



### **Sample Statistical Summary**

### MAPEP-20-RaW42

Radiological Reference Date: 02/01/2020

Analyte	T(1)	Grand(2) Mean	Std Dev	Ref Value	Ref Unc
Radiological				Units: (I	3q/L)
Radium-226	9	150	13	189	19
Radium-228	9	74	13	75	5

Note: (1) T = Total number of laboratories reporting analyte. (2) Mean excludes values outside of a bias range of +/- 30%.

#### **Uncertainty Flags:**

NOT ACCEPTABLE	RP<2%
ACCEPTABLE	2%<=RP<=15%
ACCEPTABLE WITH WARNING	15% <rp<=30%< td=""></rp<=30%<>
NOT ACCEPTABLE	RP>30%

RP = Relative Precision



Laboratory Results For MAPEP-20-RaW42 (CMRC01) Carlsbad Environmental Monitoring and Research Center 1400 University Dr. Carlsbad, NM 88220

Radiological						Units: (Bq/L)
		Ref		Bias	Acceptance	Unc Unc
Analyte	Result	Value	Flag Notes	(%)	Range	Value Flag
Radium-226	22.7	189	9 (6)	-88.0	132 - 246	4.82 W
Radium-228	18.75	75	5 (6)	-75.0	53 - 98	3.85 W

Radiological Reference Date: February 1, 2020

#### **Uncertainty Flags:**

NOT ACCEPTABLE.....RP<2%

ACCEPTABLE......2%<=RP<=15%

ACCEPTABLE WITH WARNING......15%<RP<=30%

NOT ACCEPTABLE.....RP>30%

RP = Relative Precision

#### **Notes:**

(6) = Not Evaluated



Laboratory Results For MAPEP-20-RaW42 (DLEA01) DLE Associates 730 Alfred Nobel Drive Hercules, CA 94547

Radiological						Units: (Bq/L)
		Ref		Bias	Acceptance	Unc Unc
Analyte	Result	Value	Flag Notes	(%)	Range	Value Flag
Radium-226	140.49	189	(6)	-25.7	132 - 246	3.72 A
Radium-228	26.02	75	(6)	-65.3	53 - 98	1.77 A

Radiological Reference Date: February 1, 2020

#### **Uncertainty Flags:**

NOT ACCEPTABLE.....RP<2%

ACCEPTABLE......2%<=RP<=15%

ACCEPTABLE WITH WARNING......15%<RP<=30%

NOT ACCEPTABLE.....RP>30%

RP = Relative Precision

#### **Notes:**

(6) = Not Evaluated



Laboratory Results For MAPEP-20-RaW42 (ERCL01) Washington State Public Health Laboratories 1610 N.E. 150th Street Shoreline, WA 98155-9701

Radiological						Units: (Bq/L)
		Ref		Bias	Acceptance	Unc Unc
Analyte	Result	Value	Flag Notes	(%)	Range	Value Flag
Radium-226	133	189	9 (6)	-29.6	132 - 246	4 A
Radium-228	64.0	75	5 (6)	-14.7	53 - 98	1.7 A

Radiological Reference Date: February 1, 2020

#### **Uncertainty Flags:**

NOT ACCEPTABLE.....RP<2%

ACCEPTABLE......2%<=RP<=15%

ACCEPTABLE WITH WARNING......15%<RP<=30%

NOT ACCEPTABLE.....RP>30%

RP = Relative Precision

#### **Notes:**

(6) = Not Evaluated



Laboratory Results For MAPEP-20-RaW42 (EULC01) EnergySolutions, LLC I-80, Exit 49 Clive, UT 84029

Radiological						Units: (Bq/L)
		Ref		Bias	Acceptance	Unc Unc
Analyte	Result	Value	Flag Notes	(%)	Range	Value Flag
Radium-226	158.915	189	(6)	-15.9	132 - 246	24.476 W
Radium-228	96.940	75	6 (6)	29.3	53 - 98	18.778 W

Radiological Reference Date: February 1, 2020

#### **Uncertainty Flags:**

NOT ACCEPTABLE.....RP<2%

ACCEPTABLE......2%<=RP<=15%

ACCEPTABLE WITH WARNING......15%<RP<=30%

NOT ACCEPTABLE.....RP>30%

RP = Relative Precision

#### **Notes:**

(6) = Not Evaluated



Laboratory Results For MAPEP-20-RaW42 (FDHE01) Florida Dept of Health Environmental Laboratory PO Box 680069 Orlando, FL 32868-0069

Radiological						Units: (Bq/L)
		Ref		Bias	Acceptance	Unc Unc
Analyte	Result	Value	Flag Notes	(%)	Range	Value Flag
Radium-226	154.362	189	(6)	-18.3	132 - 246	1.619 N
Radium-228	74.217	75	(6)	-1.0	53 - 98	1.082 N

Radiological Reference Date: February 1, 2020

#### **Uncertainty Flags:**

NOT ACCEPTABLE.....RP<2%

ACCEPTABLE......2%<=RP<=15%

ACCEPTABLE WITH WARNING......15%<RP<=30%

NOT ACCEPTABLE.....RP>30%

RP = Relative Precision

#### **Notes:**

(6) = Not Evaluated



Laboratory Results For MAPEP-20-RaW42 (FDOH01) Florida Dept. of Health, Mobile Environmental Radiological Lab PO Box 680069 Orlando, FL 32868-0069

Radiological						Units: (Bq/L)
		Ref		Bias	Acceptance	Unc Unc
Analyte	Result	Value	Flag Notes	(%)	Range	Value Flag
Radium-226	150.39	189	(6)	-20.4	132 - 246	2.34 N
Radium-228	78.274	75	(6)	4.4	53 - 98	2.489 A

Radiological Reference Date: February 1, 2020

#### **Uncertainty Flags:**

NOT ACCEPTABLE.....RP<2%

ACCEPTABLE......2%<=RP<=15%

ACCEPTABLE WITH WARNING......15%<RP<=30%

NOT ACCEPTABLE.....RP>30%

RP = Relative Precision

#### **Notes:**

(6) = Not Evaluated



Laboratory Results For MAPEP-20-RaW42 (GENE01) GEL Laboratories, LLC 2040 Savage Road Charleston, SC 29407

Radiological						Units: (Bq/L)
		Ref		Bias	Acceptance	Unc Unc
Analyte	Result	Value	Flag Notes	(%)	Range	Value Flag
Radium-226	141	189	(6)	-25.4	132 - 246	10.1 A
Radium-228	59.3	75	(6)	-20.9	53 - 98	3.51 A

Radiological Reference Date: February 1, 2020

#### **Uncertainty Flags:**

NOT ACCEPTABLE.....RP<2%

ACCEPTABLE......2%<=RP<=15%

ACCEPTABLE WITH WARNING......15%<RP<=30%

NOT ACCEPTABLE.....RP>30%

RP = Relative Precision

#### **Notes:**

(6) = Not Evaluated



Laboratory Results For MAPEP-20-RaW42 (ODHL01) Ohio Department of Health Laboratory 8995 E Main Street Reynoldsburg, OH 43068

Radiological						Units: (Bq/L)
		Ref		Bias	Acceptance	Unc Unc
Analyte	Result	Value	Flag Notes	(%)	Range	Value Flag
Radium-226	126	189	(6)	-33.3	132 - 246	5.31 A
Radium-228	79.7	75	6 (6)	6.3	53 - 98	2.62 A

Radiological Reference Date: February 1, 2020

#### **Uncertainty Flags:**

NOT ACCEPTABLE.....RP<2%

ACCEPTABLE......2%<=RP<=15%

ACCEPTABLE WITH WARNING......15%<RP<=30%

NOT ACCEPTABLE.....RP>30%

RP = Relative Precision

#### **Notes:**

(6) = Not Evaluated



Laboratory Results For MAPEP-20-RaW42 (TELE02) ATI Environmental, Inc., Midwest Lab 700 Landwehr Road Northbrook, IL 60062-

Radiological						Units: (Bq/L)
		Ref		Bias	Acceptance	Unc Unc
Analyte	Result	Value	Flag Notes	(%)	Range	Value Flag
Radium-226	172	189	(6)	-9.0	132 - 246	1 N
Radium-228	65	75	(6)	-13.3	53 - 98	1 N

Radiological Reference Date: February 1, 2020

#### **Uncertainty Flags:**

NOT ACCEPTABLE.....RP<2%

ACCEPTABLE......2%<=RP<=15%

ACCEPTABLE WITH WARNING......15%<RP<=30%

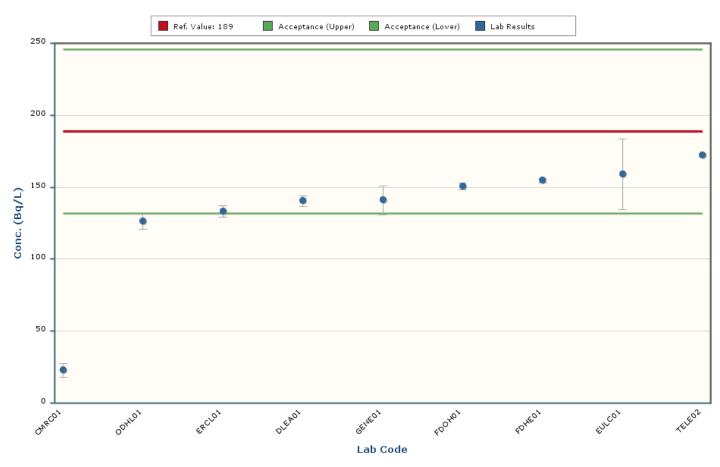
NOT ACCEPTABLE.....RP>30%

RP = Relative Precision

#### **Notes:**

(6) = Not Evaluated

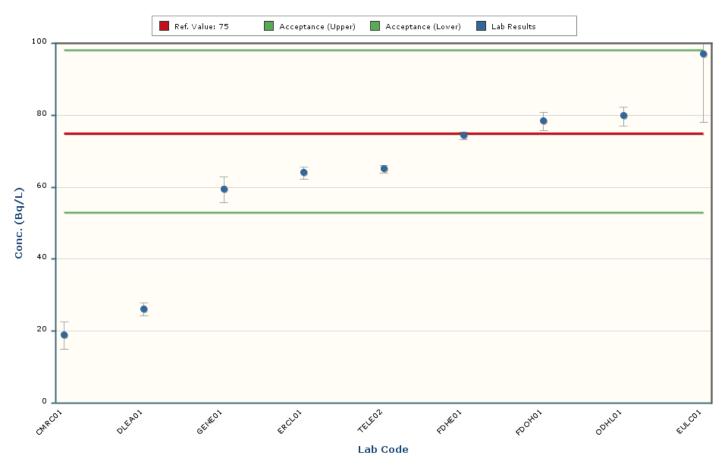
# MAPEP-20-RaW42: Radium-226



Notes:

The error bars encompassing each result are plotted at  $\pm$  one standard deviation.

# MAPEP-20-RaW42: Radium-228



Notes:

The error bars encompassing each result are plotted at  $\pm$  one standard deviation.