

metals
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MATRIX SPIKE SUMMARY

client: Langan Engineering and Environmental Services, Inc. **level:** low **sdg no.:** Q3310
contract: LANG01 **lab code:** ACE
matrix: Solid **sample id:** Q3315-03 **client id:** 72-11989MS
Percent Solids for Sample: 96.2 **Spiked ID:** Q3315-03MS **Percent Solids for Spike Sample:** 96.2

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Mercury	mg/Kg	80 - 120	0.38		0.074		0.28	109		CV

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MATRIX SPIKE DUPLICATE SUMMARY

client: <u>Langan Engineering and Environmental Sei</u>	level: <u>low</u>	sdg no.: <u>Q3310</u>
contract: <u>LANG01</u>		lab code: <u>ACE</u>
matrix: <u>Solid</u>	sample id: <u>Q3315-03</u>	client id: <u>72-11989MSD</u>

Percent Solids for Sample: 96.2	Spiked ID: Q3315-03MSD	Percent Solids for Spike Sample: 96.2
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Analyte	Units	Acceptance Limit %R	MSD Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Mercury	mg/Kg	80 - 120	0.47		0.074		0.26	151	N	CV

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MATRIX SPIKE SUMMARY

client: Langan Engineering and Environmental Services **level:** low **sdg no.:** Q3310
contract: LANG01 **lab code:** ACE
matrix: Solid **sample id:** Q3322-01 **client id:** OR-02-100925MS
Percent Solids for Sample: 93 **Spiked ID:** Q3322-01MS **Percent Solids for Spike Sample:** 93

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Aluminum	mg/Kg	75 - 125	8120		8280		92.7	-175		P
Antimony	mg/Kg	75 - 125	15.7		2.40	U	37.1	42	N	P
Arsenic	mg/Kg	75 - 125	33.9		2.89		37.1	84		P
Barium	mg/Kg	75 - 125	43.6		35.7		9.3	86		P
Beryllium	mg/Kg	75 - 125	8.31		0.52		9.3	84		P
Cadmium	mg/Kg	75 - 125	9.62		0.46		9.3	99		P
Calcium	mg/Kg	75 - 125	5130		3470		46.3	3595		P
Chromium	mg/Kg	75 - 125	26.3		9.23		18.5	92		P
Cobalt	mg/Kg	75 - 125	17.2		7.47		9.3	105		P
Copper	mg/Kg	75 - 125	25.4		14.9		13.9	76		P
Iron	mg/Kg	75 - 125	14600		14000		140	451		P
Lead	mg/Kg	75 - 125	77.8		23.3		46.3	118		P
Magnesium	mg/Kg	75 - 125	3850		3290		92.7	604		P
Manganese	mg/Kg	75 - 125	227		238		9.3	-124		P
Nickel	mg/Kg	75 - 125	36.1		12.3		23.2	103		P
Potassium	mg/Kg	75 - 125	1230		636		460	129	N	P
Selenium	mg/Kg	75 - 125	71.2		0.96	U	92.7	77		P
Silver	mg/Kg	75 - 125	3.54		0.24	J	3.5	94		P
Sodium	mg/Kg	75 - 125	562		414		140	105		P
Thallium	mg/Kg	75 - 125	80.6		1.92	U	92.7	87		P
Vanadium	mg/Kg	75 - 125	35.8		25.1		13.9	77		P
Zinc	mg/Kg	75 - 125	43.1		34.6		9.3	91		P

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MATRIX SPIKE DUPLICATE SUMMARY

client: Langan Engineering and Environmental Services **level:** low **sdg no.:** Q3310
contract: LANG01 **lab code:** ACE
matrix: Solid **sample id:** Q3322-01 **client id:** OR-02-100925MSD
Percent Solids for Sample: 93 **Spiked ID:** Q3322-01MSD **Percent Solids for Spike Sample:** 93

Analyte	Units	Acceptance Limit %R	MSD Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Aluminum	mg/Kg	75 - 125	8270		8280		94.3	-13		P
Antimony	mg/Kg	75 - 125	19.0		2.40	U	37.7	50	N	P
Arsenic	mg/Kg	75 - 125	34.4		2.89		37.7	83		P
Barium	mg/Kg	75 - 125	43.9		35.7		9.4	88		P
Beryllium	mg/Kg	75 - 125	7.95		0.52		9.4	79		P
Cadmium	mg/Kg	75 - 125	9.49		0.46		9.4	96		P
Calcium	mg/Kg	75 - 125	4310		3470		47.2	1769		P
Chromium	mg/Kg	75 - 125	26.9		9.23		18.9	94		P
Cobalt	mg/Kg	75 - 125	16.8		7.47		9.4	99		P
Copper	mg/Kg	75 - 125	24.8		14.9		14.1	70	N	P
Iron	mg/Kg	75 - 125	15100		14000		140	773		P
Lead	mg/Kg	75 - 125	71.7		23.3		47.2	102		P
Magnesium	mg/Kg	75 - 125	3690		3290		94.3	420		P
Manganese	mg/Kg	75 - 125	223		238		9.4	-167		P
Nickel	mg/Kg	75 - 125	35.7		12.3		23.6	99		P
Potassium	mg/Kg	75 - 125	1250		636		470	130	N	P
Selenium	mg/Kg	75 - 125	72.5		0.96	U	94.3	77		P
Silver	mg/Kg	75 - 125	3.86		0.24	J	3.5	103		P
Sodium	mg/Kg	75 - 125	591		414		140	126	N	P
Thallium	mg/Kg	75 - 125	82.2		1.92	U	94.3	87		P
Vanadium	mg/Kg	75 - 125	36.1		25.1		14.1	78		P
Zinc	mg/Kg	75 - 125	41.8		34.6		9.4	77		P