

metals
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MATRIX SPIKE SUMMARY

client: Langan Engineering and Environmental Services, Inc. **level:** low **sdg no.:** Q3323
contract: LANG01 **lab code:** ACE
matrix: Solid **sample id:** Q3327-01 **client id:** HADLEY-ROAD-TPMS
Percent Solids for Sample: 88.2 **Spiked ID:** Q3327-01MS **Percent Solids for Spike Sample:** 88.2

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Aluminum	mg/Kg	75 - 125	12300		12200		94.5	178		P
Antimony	mg/Kg	75 - 125	23.9		2.31	U	37.8	63	N	P
Arsenic	mg/Kg	75 - 125	28.6		3.70		37.8	66	N	P
Barium	mg/Kg	75 - 125	90.3		85.7		9.4	49		P
Beryllium	mg/Kg	75 - 125	7.60		1.01		9.4	70	N	P
Cadmium	mg/Kg	75 - 125	10.4		1.34		9.4	96		P
Calcium	mg/Kg	75 - 125	1740		1730		47.2	36		P
Chromium	mg/Kg	75 - 125	33.5		20.9		18.9	67	N	P
Cobalt	mg/Kg	75 - 125	32.9		26.4		9.4	69	N	P
Copper	mg/Kg	75 - 125	33.7		23.9		14.2	69	N	P
Iron	mg/Kg	75 - 125	29800		30700		140	-631		P
Lead	mg/Kg	75 - 125	71.0		26.0		47.2	95		P
Magnesium	mg/Kg	75 - 125	5930		5820		94.5	113		P
Manganese	mg/Kg	75 - 125	790		825		9.4	-381		P
Mercury	mg/Kg	80 - 120	0.25		0.013	J	0.28	85		CV
Nickel	mg/Kg	75 - 125	61.3		40.9		23.6	86		P
Potassium	mg/Kg	75 - 125	2390		2160		470	49		P
Selenium	mg/Kg	75 - 125	62.4		0.51	J	94.5	65	N	P
Silver	mg/Kg	75 - 125	1.69		0.46	U	3.5	48	N	P
Sodium	mg/Kg	75 - 125	1110		1050		140	47		P
Thallium	mg/Kg	75 - 125	81.5		0.23	J	94.5	86		P
Vanadium	mg/Kg	75 - 125	39.2		29.2		14.2	71	N	P
Zinc	mg/Kg	75 - 125	69.0		66.1		9.4	31		P

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MATRIX SPIKE DUPLICATE SUMMARY

client: Langan Engineering and Environmental Services, Inc. **level:** low **sdg no.:** Q3323
contract: LANG01 **lab code:** ACE
matrix: Solid **sample id:** Q3327-01 **client id:** HADLEY-ROAD-TPMSD
Percent Solids for Sample: 88.2 **Spiked ID:** Q3327-01MSD **Percent Solids for Spike Sample:** 88.2

Analyte	Units	Acceptance Limit %R	MSD Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Aluminum	mg/Kg	75 - 125	11900		12200		98.6	-279		P
Antimony	mg/Kg	75 - 125	25.8		2.31	U	39.4	66	N	P
Arsenic	mg/Kg	75 - 125	30.5		3.70		39.4	68	N	P
Barium	mg/Kg	75 - 125	90.9		85.7		9.9	52		P
Beryllium	mg/Kg	75 - 125	8.02		1.01		9.9	71	N	P
Cadmium	mg/Kg	75 - 125	10.4		1.34		9.9	92		P
Calcium	mg/Kg	75 - 125	1740		1730		49.3	19		P
Chromium	mg/Kg	75 - 125	35.4		20.9		19.7	74	N	P
Cobalt	mg/Kg	75 - 125	31.3		26.4		9.9	49	N	P
Copper	mg/Kg	75 - 125	35.4		23.9		14.8	78		P
Iron	mg/Kg	75 - 125	31200		30700		150	368		P
Lead	mg/Kg	75 - 125	75.3		26.0		49.3	100		P
Magnesium	mg/Kg	75 - 125	5830		5820		98.6	10		P
Manganese	mg/Kg	75 - 125	752		825		9.9	-744		P
Mercury	mg/Kg	80 - 120	0.27		0.013	J	0.29	89		CV
Nickel	mg/Kg	75 - 125	61.0		40.9		24.6	82		P
Potassium	mg/Kg	75 - 125	2510		2160		490	71		P
Selenium	mg/Kg	75 - 125	66.6		0.51	J	98.6	67	N	P
Silver	mg/Kg	75 - 125	2.02		0.46	U	3.7	55	N	P
Sodium	mg/Kg	75 - 125	1180		1050		150	86		P
Thallium	mg/Kg	75 - 125	84.9		0.23	J	98.6	86		P
Vanadium	mg/Kg	75 - 125	39.8		29.2		14.8	72	N	P
Zinc	mg/Kg	75 - 125	71.5		66.1		9.9	55		P