

Preliminary Waste Classification – Suburbs Surrounding the Former Pasminco Smelter

1. Introduction

This Preliminary Waste Classification has been prepared to assess the nature of contaminated surface soil in the suburbs surrounding the former Pasminco Lead Smelter located in North Lake Macquarie, New South Wales. The result from the work will be to inform a 'Slag and Lead in Soil Management Strategy' (SALSMS) for a future waste classification process and management for lead slag and lead impacted soil from the suburbs surrounding the former Pasminco lead and zinc smelter, Boolaroo, Argenton and Speers Point.

2. Objective

The objective of this report is to provide data to inform a preliminary Waste Classification decision for contaminated land surrounding the former Pasminco Smelter which has been informed by soil sampling conducted in January 2015.

The *Preliminary Waste Classification Sampling Plan – Suburbs Surrounding the Former Pasminco Smelter* dated January 2015 (Sampling Plan) sets out the methodology that was followed in this preliminary assessment.

3. Field Works

3.1. Site Works and Sampling Methodology

The site works were completed on 12 January 2015. Nineteen surface soil samples were collected from seven Council land locations around the former Smelter site. Figure 1, provided in **Attachment 7.1**, shows the location of the targeted Council sites.

The surface soil samples were collected with a hand trowel using disposable nitrile gloves. Where grass or mulch was present, the soil sample was taken immediately below the layer of grass or mulch. The samples were screened onsite to identify the possible presence of lead slag by:

- Visual assessment - for black sand like particles (slag); and
- Hand held portable XRF scanning for the heavy metal (Pb) content and the zinc/lead ratio (In the instance where zinc concentrations exceed lead concentrations, the material may be identified as slag. It is noted that this is only relevant when there is an elevated concentration of lead).

Surface soil samples were described in field logs and sent to the Office of Environment Laboratory for metals analysis with recorded chain of custody documentation. The individual sample IDs and description from each sampling location are provided in **Table 1**.

It was proposed within the Sampling Plan to collect approximately ten samples that screened greater than 1500 ppm for lead. Only two samples screened over this amount (SS09 and SS18) and two samples between 1000 ppm and 1500ppm (SS04 and SS17). Therefore all samples were collected and submitted to the project laboratory except sample SS15 which had an infestation of ants and was returned to the sampling location.

3.3. Quality Assurance / Quality Control (QA/QC) procedures

Standard quality assurance undertaken for this project included the following:

- Samples were collected using a new pair of disposable nitrile gloves between samples;
- Samples were transported under appropriate chain of custody documentation;
- Samples were analysed by a National Association of Testing Authorities (NATA) accredited laboratory; and
- The works were undertaken by suitably qualified professionals.

All proposed field QA/QC was followed as described in the Sampling Plan except for the collection of duplicate soil samples. Duplicate soil samples were not collected at the time of sampling due to the following:

- All of the sampling sites contained heterogeneous soil or fill for which duplicate sampling may result in erroneous data due to the variability in sub samples.
- Laboratory duplicate samples provide a better assessment for sample QA/QC

The laboratory QA/QC report has been provided in **Attachment 7.3**. It was considered that the data was of suitable quality to support the conclusions made in this report.

3.4. Sampling Locations and Descriptions

Council land sampling locations and descriptions are provided in **Table 1**. GPS locations have not been provided.

Table 1: Sample ID Location and Descriptions



Council Land Address	Sample ID	Soil Description
39 First Street Boolaroo	SS01, SS02, SS03	Silty clay/fill (all)
531A Lake Road Argenton	SS04	Clayey sand
	SS05	Sandy fill
	SS06	Sandy topsoil
	SS07	Organic mulch around tree
	SS08	Topsoil
	SS09	Topsoil / slag present
134 Montgomery Street Argenton	SS10	Topsoil
	SS11	Topsoil / sandy clay
50A Munibung Road Cardiff	SS12	Silty clay
	SS13	Clay
	SS14	Clay/fill
81C Delaware Drive Macquarie Hills	SS15	Sandy clay ⁽¹⁾
	SS16	Sandy clay
	SS17	Silty clay
Road Reserve First Street Boolaroo	SS18	Sandy fill
Road Reserve Second Street Boolaroo	SS19	Sandy fill




⁽¹⁾ Sample SS15– laboratory analysis was not conducted

3.5. Photographs

Photographs were taken during the site investigation on the 12 January 2015. They are provided along Sample ID descriptions in **Table 2**.

Table 2: Photographs

Location and Sample IDs	Photograph
39 First Street Boolaroo Sample SS03	
531A Lake Road Argenton Samples: SS04 (top left) SS06 (top right) SS07 (bottom left) SS08 (bottom right)	
134 Montgomery Street Argenton Sample SS10	

<p>50A/51A Munibung Road Cardiff</p> <p>Sample SS13</p>	
<p>81C Delaware Drive Macquarie Hills</p>	<p>No photo</p>
<p>Road Reserve First Street Boolaroo</p> <p>Sample SS18</p>	
<p>Road Reserve Second Street Boolaroo</p> <p>Sample SS18</p>	

4. Adopted Assessment Criteria

The EPA *Waste Classification Guidelines* (EPA, 2014) are the principal guidelines for assessment of the waste classification sampling results. The EPA General Immobilisation Approval (GIA-2009/07 - Metallurgical furnace slag or metallurgical furnace slag contaminated natural excavated materials) applies to the waste classification for a waste only containing metallurgical slag or natural excavated materials contaminated by metallurgical slag. Under this GIA-2009/07 the waste can be classified according to their leachable concentration based on toxicity characteristic leaching procedure (TCLP) values alone, for analytes Beryllium, Chromium (VI), Lead, Nickel and Benzo[a]Pyrene.

The surface soils surrounding the former smelter also contain metallurgical furnace flue dust from historical emissions from the Pasminco furnace stack. Hence it is not possible to use this GIA-2009/07 for the metallurgical flue dust impacted natural excavated materials.

The data achieved from the sampling and analysis will be used to inform a new GIA under the EPA Waste Classification Guidelines (EPA, 2014).

4.1. Analytical Methodology

All chemical analysis was conducted by the NATA accredited NSW OEH laboratory in accordance with laboratory testing quality assurance protocols. Leachable metals were determined using the Australian Standard Leaching Procedure (ASLP) as per Australian Standards 4439.2 and 4439.3. This standard has a wider range of leaching reagents allowed, with the sampling methodology designed to simulate leaching conditions in the environment to determine available pollutants.

The leaching reagent should be chosen according to the environmental conditions the waste are, or will be, exposed to. In addition, ASLP is suitable for assessment of contaminated soils to be either left in-situ, spread over a site and capped or disposed of in a mono cell, as it allows for the use of reagent water for the leaching medium. This investigation applied deionised water within the ASLP test to meet the adopted waste classification criteria presented below.

Table 3: Waste Classification Criteria

	General Solid Waste	Restricted Solid Waste
	Leachable concentration (Deionised water ASLP)	Leachable concentration (Deionised water ASLP)
	mg/L	mg/L
Arsenic	5	20
Beryllium	1	4
Cadmium	1	4
Chromium	5	20
Lead	5	20
Molybdenum	5	20
Nickel	2	8
Selenium	1	4
Silver	5	20
Mercury	0.2	0.8

5. Results

5.1. Field Records Summary

Table 4 summarises the XRF screening data. The XRF data was compared against the laboratory analytical results which verified the data is suitable for screening purposes. XRF Calibration records are available in **Attachment 7.4**.

Table 4: Field Records Summary

SAMPLE	Units	Pb	As	Hg	Zn	Zn/Pb*	Notes
ss01	ppm	254	25	< LOD	1019	4.0	
ss02	ppm	44	< LOD	< LOD	111	2.5	
ss03	ppm	220	36	< LOD	582	2.6	
ss04	ppm	1321	60	< LOD	1949	1.5	Elevated Pb
ss05	ppm	14	12	< LOD	56	4.0	
ss06	ppm	614	23	< LOD	501	0.8	
ss07	ppm	663	89	< LOD	887	1.3	
ss08	ppm	649	22	< LOD	593	0.9	
ss09	ppm	4280	603	64	25939	6.0	SLAG
ss10	ppm	611	46	< LOD	1895	3.1	
ss11	ppm	454	20	< LOD	748	1.7	
ss12	ppm	106	13	< LOD	107	1.0	
ss13	ppm	189	11	< LOD	242	1.3	
ss14	ppm	113	10	< LOD	162	1.4	
ss15	ppm	319	25	< LOD	602	1.9	
ss16	ppm	599	58	< LOD	878	1.5	
ss17	ppm	1421	80	< LOD	3277	2.3	Elevated Pb
ss18	ppm	6042	375	< LOD	3518	0.6	Elevated Pb
ss19	ppm	353	< LOD	< LOD	333	1.0	

*Where there is a substantial amount of both Pb and Zn present, a Pb/Zn ratio much greater than 1 may indicate the presence of slag. This was also confirmed through visual observation.

5.2. Analytical Results

The XRF screening results were used to guide if enough samples of sufficient concentrations were collected and to screen for the presence of slag. All samples were analysed for metals concentration and leachability (ASLP) to gain a preliminary estimate of the characteristics of the material presented for disposal. ASLP allows site and waste specific assessment of leachability and was considered suitable to meet the objectives of the NSW EPA. For this investigation, deionised water was applied within the ASLP test to meet the adopted criteria.

Table 5 provides a summary of the analytical data against the Waste Classification Criteria. Laboratory chain of custody forms and result certificates are included in **Attachment 7.3**.

Table 5: Analytical Results

	Soil		deionised water TCLP		General Solid Waste	Restricted Solid Waste
	Average concentration	Maximum concentration	Average concentration	Maximum concentration	Leachable concentration	Leachable concentration
	mg/kg		mg/L			
Arsenic	21	86	<0.02	0.03	5	20
Beryllium	0.29	0.66	<LOR	<0.01	1	4
Cadmium	12	74	<LOR	<0.01	1	4
Chromium	8.8	20	<LOR	<0.01	5	20
Lead	905	7300	0.02	0.09	5	20
Molybdenum	1.27	5.6	<LOR	<0.01	5	20
Nickel	8.0	32	<LOR	<0.02	2	8
Selenium	2.5	10	<LOR	<0.04	1	4
Silver	0.57	6.2	<LOR	<0.0050	5	20
Zinc	1185	4300	0.13	0.52	no criteria	no criteria
Mercury	0.89	8.1	0.0006	0.00015	0.2	0.8

6. Conclusion and Recommendations

The objective of this report was to provide data to inform a preliminary Waste Classification decision for contaminated land surrounding the former Pasmenco Smelter. Surface soil samples were collected onsite, screened to identify the possible presence of lead slag and scanned for heavy metal concentrations using a hand held portable XRF. Results of the XRF data were compared against the laboratory analytical results which verified the data suitable for screening purposes.

Following a review of the ASLP laboratory data from assessment of these materials (natural excavated materials contaminated with metallurgical flue dust and/or slag) surrounding the former smelter, it is considered that the material would require an isolated burial under neutral conditions at a suitably licensed landfill under an EPA General Immobilisation Approval.

7. Attachments

- 7.1. Figure 1 – Location of Council Areas
- 7.2. Table A – Analytical Results
- 7.3. Laboratory Reports
 - Laboratory Results
 - Laboratory Quality Assurance / Quality Control Report
 - Chain of Custody Form
- 7.4. XRF Calibration Records



TABLE A

	GSW Leachable concentration	RSW Leachable concentration	Laboratory number	201500033	201500034	201500035	201500036	201500037	201500038	201500039	201500040	201500041	201500042	201500043	201500044	201500045	201500046	201500047	201500048	201500049	201500050	
			Client sample	SS01	SS02	SS03	SS04	SS05	SS06	SS07	SS08	SS09	SS10	SS11	SS12	SS13	SS14	SS16	SS17	SS18	SS19	
			ID Sample type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
			Date started	12/02/2015	12/02/2015	12/02/2015	16/01/2015	12/02/2015	12/02/2015	12/02/2015	12/02/2015	12/02/2015	12/02/2015	12/02/2015	12/02/2015	12/02/2015	12/02/2015	12/02/2015	12/02/2015	16/01/2015	16/01/2015	12/02/2015
Arsenic (acid extractable)			mg/kg	16	5.0	15	30	7	15	11	14	1200	20	13	12	6.3	13	35	44	86	9.5	
Arsenic (deionised water TCLP)	5	20	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.03	<0.03	
Beryllium (acid extractable)			mg/kg	0.44	0.16	0.66	0.36	0.39	0.25	0.16	0.14	1.2	0.37	0.27	0.37	0.26	0.35	0.38	0.53 mg/kg	0.3	<0.1	
Beryllium (deionised water TCLP)	1	4	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
Cadmium (acid extractable)			mg/kg	0.8	2.1	4.8	14	<0.5	9.9	15	8.7	9.0	8.9	2.6	4.6	2.7	11	30	74	7.1		
Cadmium (deionised water TCLP)	1	4	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
Chromium (acid extractable)			mg/kg	16	6.1	14	18	12	4.8	4.7	4.6	31	9.9	7.1	9.2	3.6	6.1	3.6	6.9	20	3.8	
Chromium (deionised water TCLP)	5	20	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
Lead (acid extractable)			mg/kg	78	76	370	1200	13	650	710	700	3900	600	470	100	150	140	630	1700	7300	490	
Lead (deionised water TCLP)	5	20	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	0.09	0.04	0.36	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.09	0.04	
Molybdenum (acid extractable)			mg/kg	<2.0	5.6	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	12	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	
Molybdenum (deionised water TCLP)	5	20	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
Nickel (acid extractable)			mg/kg	8.9	<3.0	13	8.6	12	4.4	3.8	3.8	14	9.0	4.8	7.7	<3.0	5.2	14	32	8.5	<3.0	
Nickel (deionised water TCLP)	2	8	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	
Selenium (acid extractable)			mg/kg	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	10	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0 mg/kg	10	<4.0	
Selenium (deionised water TCLP)	1	4	mg/L	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	
Silver (acid extractable)			mg/kg	<0.5	<0.5	<0.5	0.95	<0.5	0.58	<0.5	<0.5	5.7	<0.5	<0.5	<0.5	<0.5	0.6	1.7	6.2	0.54		
Silver (deionised water TCLP)	5	20	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
Zinc (acid extractable)			mg/kg	630	150	1400	2900	73	520	690	760	43000	2700	890	130	190	160	1100	3200	4300	360	
Zinc (deionised water TCLP)			mg/L	0.02	0.05	<0.02	0.3	<0.02	0.11	0.35	0.11	0.46	0.23	0.09	<0.02	0.05	0.08	0.1	0.52	0.21		
Mercury			mg/kg	0.35	0.17	0.45	0.75	0.042	0.6	0.84	0.5	0.36	0.48	0.47	0.85	0.24	0.091	0.46	0.4	8.1	0.42	
Mercury (deionised water TCLP)	0.2	0.8	mg/L	<0.00005	<0.00005	0.00008	<0.00005	<0.00005	0.00008	0.00015	0.00007	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.00012	0.00006	
Zn/Pb				8.1	2.0	3.8	2.4	5.6	0.8	1.0	1.1	11.0	4.5	1.9	1.3	1.3	1.1	1.7	1.9	0.6	0.7	



Environmental Forensics

Report of Analysis

Report 201500006

27 February 2015

Sample source: **Pasminco Waste Classification**

Report to: **Matthew James**
Environment Protection Authority
PO Box A290
Sydney South NSW 1232

Date received: **13-Jan-2015**

Environmental Forensics

Report of Analysis

Report number: 201500006
Report date: 27-Feb-2015
Date received: 13-Jan-2015 9:25
Sample source: Pasmenco Waste Classification

Sample details

Lab number	Client reference	Sample type	Date sampled	Sample description
201500033	SS01	SOLID	12-Jan-2015 9:50	
201500034	SS02	SOLID	12-Jan-2015 9:55	
201500035	SS03	SOLID	12-Jan-2015 10:01	
201500036	SS04	SOLID	12-Jan-2015 10:19	
201500037	SS05	SOLID	12-Jan-2015 10:27	
201500038	SS06	SOLID	12-Jan-2015 10:31	
201500039	SS07	SOLID	12-Jan-2015 10:37	
201500040	SS08	SOLID	12-Jan-2015 10:39	
201500041	SS09	SOLID	12-Jan-2015 10:43	
201500042	SS10	SOLID	12-Jan-2015 10:59	
201500043	SS11	SOLID	12-Jan-2015 11:06	
201500044	SS12	SOLID	12-Jan-2015 11:25	
201500045	SS13	SOLID	12-Jan-2015 11:30	
201500046	SS14	SOLID	12-Jan-2015 11:37	
201500047	SS16	SOLID	12-Jan-2015 11:53	
201500048	SS17	SOLID	12-Jan-2015 12:03	
201500049	SS18	SOLID	12-Jan-2015 12:25	
201500050	SS19	SOLID	12-Jan-2015 12:30	
201500051	SW01	LIQUID	12-Jan-2015 0:00	
201500052	SW02	LIQUID	12-Jan-2015 0:00	
201500053	SW03	LIQUID	12-Jan-2015 0:00	

Metals by ICP-AES

Laboratory number	201500033	201500034	201500035	
Client sample ID	SS01	SS02	SS03	
Sample type	SOLID	SOLID	SOLID	
Date started	12/02/2015	12/02/2015	12/02/2015	
Method used	ICPAES	ICPAES	ICPAES	
Arsenic (acid extractable)	16 mg/kg	5.0 mg/kg	15 mg/kg	
Beryllium (acid extractable)	0.44 mg/kg	0.16 mg/kg	0.66 mg/kg	
Cadmium (acid extractable)	0.8 mg/kg	2.1 mg/kg	4.8 mg/kg	
Chromium (acid extractable)	16 mg/kg	6.1 mg/kg	14 mg/kg	
Lead (acid extractable)	78 mg/kg	76 mg/kg	370 mg/kg	
Molybdenum (acid extractable)	<2.0 mg/kg	5.6 mg/kg	<2.0 mg/kg	
Nickel (acid extractable)	8.9 mg/kg	<3.0 mg/kg	13 mg/kg	
Selenium (acid extractable)	<4.0 mg/kg	<4.0 mg/kg	<4.0 mg/kg	
Silver (acid extractable)	<0.5 mg/kg	<0.5 mg/kg	<0.5 mg/kg	
Zinc (acid extractable)	630 mg/kg	150 mg/kg	1400 mg/kg	
Laboratory number	201500037	201500038	201500039	201500040
Client sample ID	SS05	SS06	SS07	SS08
Sample type	SOLID	SOLID	SOLID	SOLID
Date started	12/02/2015	12/02/2015	12/02/2015	12/02/2015
Method used	ICPAES	ICPAES	ICPAES	ICPAES
Arsenic (acid extractable)	7.0 mg/kg	15 mg/kg	11 mg/kg	14 mg/kg
Beryllium (acid extractable)	0.39 mg/kg	0.25 mg/kg	0.16 mg/kg	0.14 mg/kg
Cadmium (acid extractable)	<0.5 mg/kg	9.9 mg/kg	15 mg/kg	8.7 mg/kg
Chromium (acid extractable)	12 mg/kg	4.8 mg/kg	4.7 mg/kg	4.6 mg/kg
Lead (acid extractable)	13 mg/kg	650 mg/kg	710 mg/kg	700 mg/kg
Molybdenum (acid extractable)	<2.0 mg/kg	<2.0 mg/kg	<2.0 mg/kg	<2.0 mg/kg
Nickel (acid extractable)	12 mg/kg	4.4 mg/kg	3.8 mg/kg	3.8 mg/kg
Selenium (acid extractable)	<4.0 mg/kg	<4.0 mg/kg	<4.0 mg/kg	<4.0 mg/kg
Silver (acid extractable)	<0.5 mg/kg	0.58 mg/kg	<0.5 mg/kg	<0.5 mg/kg
Zinc (acid extractable)	73 mg/kg	520 mg/kg	690 mg/kg	760 mg/kg
Laboratory number	201500041	201500042	201500043	201500044
Client sample ID	SS09	SS10	SS11	SS12
Sample type	SOLID	SOLID	SOLID	SOLID
Date started	12/02/2015	12/02/2015	12/02/2015	12/02/2015
Method used	ICPAES	ICPAES	ICPAES	ICPAES
Arsenic (acid extractable)	1200 mg/kg	20 mg/kg	13 mg/kg	12 mg/kg
Beryllium (acid extractable)	1.2 mg/kg	0.37 mg/kg	0.27 mg/kg	0.37 mg/kg
Cadmium (acid extractable)	8.7 mg/kg	9.0 mg/kg	8.9 mg/kg	2.6 mg/kg
Chromium (acid extractable)	31 mg/kg	9.9 mg/kg	7.1 mg/kg	9.2 mg/kg
Lead (acid extractable)	3900 mg/kg	600 mg/kg	470 mg/kg	100 mg/kg
Molybdenum (acid extractable)	12 mg/kg	<2.0 mg/kg	<2.0 mg/kg	<2.0 mg/kg
Nickel (acid extractable)	14 mg/kg	9.0 mg/kg	4.8 mg/kg	7.7 mg/kg
Selenium (acid extractable)	10 mg/kg	<4.0 mg/kg	<4.0 mg/kg	<4.0 mg/kg
Silver (acid extractable)	5.7 mg/kg	<0.5 mg/kg	<0.5 mg/kg	<0.5 mg/kg
Zinc (acid extractable)	4.3 % w/w	2700 mg/kg	890 mg/kg	130 mg/kg
Laboratory number	201500045	201500046	201500047	201500048
Client sample ID	SS13	SS14	SS16	SS17
Sample type	SOLID	SOLID	SOLID	SOLID
Date started	12/02/2015	12/02/2015	12/02/2015	16/01/2015
Method used	ICPAES	ICPAES	ICPAES	ICPAES
Arsenic (acid extractable)	6.3 mg/kg	13 mg/kg	35 mg/kg	44 mg/kg
Beryllium (acid extractable)	0.26 mg/kg	0.35 mg/kg	0.38 mg/kg	0.53 mg/kg
Cadmium (acid extractable)	4.6 mg/kg	2.7 mg/kg	11 mg/kg	30 mg/kg

	201500045	201500046	201500047	201500048
	SS13	SS14	SS16	SS17
	SOLID	SOLID	SOLID	SOLID
	12/02/2015	12/02/2015	12/02/2015	16/01/2015
	ICPAES	ICPAES	ICPAES	ICPAES
Chromium (acid extractable)	3.6 mg/kg	6.1 mg/kg	3.6 mg/kg	6.9 mg/kg
Lead (acid extractable)	150 mg/kg	140 mg/kg	630 mg/kg	1700 mg/kg
Molybdenum (acid extractable)	<2.0 mg/kg	<2.0 mg/kg	<2.0 mg/kg	<2.0 mg/kg
Nickel (acid extractable)	<3.0 mg/kg	5.2 mg/kg	14 mg/kg	32 mg/kg
Selenium (acid extractable)	<4.0 mg/kg	<4.0 mg/kg	<4.0 mg/kg	<4.0 mg/kg
Silver (acid extractable)	<0.5 mg/kg	<0.5 mg/kg	0.6 mg/kg	1.7 mg/kg
Zinc (acid extractable)	190 mg/kg	160 mg/kg	1100 mg/kg	3200 mg/kg
Laboratory number	201500049	201500050		
Client sample ID	SS18	SS19		
Sample type	SOLID	SOLID		
Date started	16/01/2015	12/02/2015		
Method used	ICPAES	ICPAES		
Arsenic (acid extractable)	86 mg/kg	9.5 mg/kg		
Beryllium (acid extractable)	0.3 mg/kg	<0.1 mg/kg		
Cadmium (acid extractable)	74 mg/kg	7.1 mg/kg		
Chromium (acid extractable)	20 mg/kg	3.8 mg/kg		
Lead (acid extractable)	7300 mg/kg	490 mg/kg		
Molybdenum (acid extractable)	<2.0 mg/kg	<2.0 mg/kg		
Nickel (acid extractable)	8.5 mg/kg	<3.0 mg/kg		
Selenium (acid extractable)	10 mg/kg	<4.0 mg/kg		
Silver (acid extractable)	6.2 mg/kg	0.54 mg/kg		
Zinc (acid extractable)	4300 mg/kg	360 mg/kg		
Laboratory number	201500036			
Client sample ID	SS04			
Sample type	SOLID			
Date started	16/01/2015			
Method used	ICPAES			
Arsenic (acid extractable)	30 mg/kg			
Beryllium (acid extractable)	0.36 mg/kg			
Cadmium (acid extractable)	14 mg/kg			
Chromium (acid extractable)	18 mg/kg			
Lead (acid extractable)	1200 mg/kg			
Molybdenum (acid extractable)	<2.0 mg/kg			
Nickel (acid extractable)	8.6 mg/kg			
Selenium (acid extractable)	<4.0 mg/kg			
Silver (acid extractable)	0.95 mg/kg			
Zinc (acid extractable)	2900 mg/kg			
Laboratory number	201500051			
Client sample ID	SW01			
Sample type	LIQUID			
Date started	20/01/2015			
Method used	ICPAES			
Arsenic (Lab. filtered)	<0.03 mg/L			
Beryllium (Lab. filtered)	<0.01 mg/L			
Cadmium (Lab. filtered)	<0.01 mg/L			
Chromium (Lab. filtered)	<0.01 mg/L			
Lead (Lab. filtered)	<0.02 mg/L			
Molybdenum (Lab. filtered)	<0.01 mg/L			

201500051
SW01
LIQUID
20/01/2015
ICPAES

Nickel (Lab. filtered)	<0.02 mg/L
Selenium (Lab. filtered)	<0.04 mg/L
Silver (Lab. filtered)	<0.005 mg/L
Zinc (Lab. filtered)	0.07 mg/L

Laboratory number	201500033	201500034	201500035	201500036
Client sample ID	SS01	SS02	SS03	SS04
Sample type	SOLID	SOLID	SOLID	SOLID
Date started	13/02/2015	13/02/2015	13/02/2015	13/01/2015
Method used	ICPAES	ICPAES	ICPAES	ICPAES
Arsenic (deionised water TCLP)	<0.03 mg/L	<0.03 mg/L	<0.03 mg/L	<0.03 mg/L
Beryllium (deionised water TCLP)	<0.01 mg/L	<0.01 mg/L	<0.01 mg/L	<0.01 mg/L
Cadmium (deionised water TCLP)	<0.01 mg/L	<0.01 mg/L	<0.01 mg/L	<0.01 mg/L
Chromium (deionised water TCLP)	<0.01 mg/L	<0.01 mg/L	<0.01 mg/L	<0.01 mg/L
Lead (deionised water TCLP)	<0.02 mg/L	<0.02 mg/L	<0.02 mg/L	<0.02 mg/L
Molybdenum (deionised water TCLP)	<0.01 mg/L	<0.01 mg/L	<0.01 mg/L	<0.01 mg/L
Nickel (deionised water TCLP)	<0.02 mg/L	<0.02 mg/L	<0.02 mg/L	<0.02 mg/L
Selenium (deionised water TCLP)	<0.04 mg/L	<0.04 mg/L	<0.04 mg/L	<0.04 mg/L
silver (deionised water TCLP)	<0.0050 mg/L	<0.0050 mg/L	<0.0050 mg/L	<0.0050 mg/L
Zinc (deionised water TCLP)	0.02 mg/L	0.05 mg/L	<0.02 mg/L	0.30 mg/L

Laboratory number	201500037	201500038	201500039	201500040
Client sample ID	SS05	SS06	SS07	SS08
Sample type	SOLID	SOLID	SOLID	SOLID
Date started	13/02/2015	13/02/2015	13/02/2015	13/02/2015
Method used	ICPAES	ICPAES	ICPAES	ICPAES
Arsenic (deionised water TCLP)	<0.03 mg/L	<0.03 mg/L	<0.03 mg/L	<0.03 mg/L
Beryllium (deionised water TCLP)	<0.01 mg/L	<0.01 mg/L	<0.01 mg/L	<0.01 mg/L
Cadmium (deionised water TCLP)	<0.01 mg/L	<0.01 mg/L	<0.01 mg/L	<0.01 mg/L
Chromium (deionised water TCLP)	<0.01 mg/L	<0.01 mg/L	<0.01 mg/L	<0.01 mg/L
Lead (deionised water TCLP)	<0.02 mg/L	0.04 mg/L	0.09 mg/L	0.04 mg/L
Molybdenum (deionised water TCLP)	<0.01 mg/L	<0.01 mg/L	<0.01 mg/L	<0.01 mg/L
Nickel (deionised water TCLP)	<0.02 mg/L	<0.02 mg/L	<0.02 mg/L	<0.02 mg/L
Selenium (deionised water TCLP)	<0.04 mg/L	<0.04 mg/L	<0.04 mg/L	<0.04 mg/L
silver (deionised water TCLP)	<0.0050 mg/L	<0.0050 mg/L	<0.0050 mg/L	<0.0050 mg/L
Zinc (deionised water TCLP)	<0.02 mg/L	0.11 mg/L	0.35 mg/L	0.11 mg/L

Laboratory number	201500041	201500042	201500043	201500044
Client sample ID	SS09	SS10	SS11	SS12
Sample type	SOLID	SOLID	SOLID	SOLID
Date started	13/02/2015	13/02/2015	13/02/2015	13/02/2015
Method used	ICPAES	ICPAES	ICPAES	ICPAES
Arsenic (deionised water TCLP)	<0.03 mg/L	<0.03 mg/L	<0.03 mg/L	<0.03 mg/L
Beryllium (deionised water TCLP)	<0.01 mg/L	<0.01 mg/L	<0.01 mg/L	<0.01 mg/L
Cadmium (deionised water TCLP)	<0.01 mg/L	<0.01 mg/L	<0.01 mg/L	<0.01 mg/L
Chromium (deionised water TCLP)	<0.01 mg/L	<0.01 mg/L	<0.01 mg/L	<0.01 mg/L
Lead (deionised water TCLP)	0.36 mg/L	0.02 mg/L	<0.02 mg/L	<0.02 mg/L
Molybdenum (deionised water TCLP)	<0.01 mg/L	<0.01 mg/L	<0.01 mg/L	<0.01 mg/L
Nickel (deionised water TCLP)	<0.02 mg/L	<0.02 mg/L	<0.02 mg/L	<0.02 mg/L
Selenium (deionised water TCLP)	<0.04 mg/L	<0.04 mg/L	<0.04 mg/L	<0.04 mg/L
silver (deionised water TCLP)	<0.0050 mg/L	<0.0050 mg/L	<0.0050 mg/L	<0.0050 mg/L
Zinc (deionised water TCLP)	0.46 mg/L	0.23 mg/L	0.09 mg/L	<0.02 mg/L

Laboratory number	201500045	201500046	201500047
Client sample ID	SS13	SS14	SS16
Sample type	SOLID	SOLID	SOLID
Date started	13/02/2015	13/02/2015	13/02/2015
Method used	ICPAES	ICPAES	ICPAES
Arsenic (deionised water TCLP)	<0.03 mg/L	<0.03 mg/L	<0.03 mg/L
Beryllium (deionised water TCLP)	<0.01 mg/L	<0.01 mg/L	<0.01 mg/L
Cadmium (deionised water TCLP)	<0.01 mg/L	<0.01 mg/L	<0.01 mg/L
Chromium (deionised water TCLP)	<0.01 mg/L	<0.01 mg/L	<0.01 mg/L
Lead (deionised water TCLP)	<0.02 mg/L	<0.02 mg/L	<0.02 mg/L
Molybdenum (deionised water TCLP)	<0.01 mg/L	<0.01 mg/L	<0.01 mg/L
Nickel (deionised water TCLP)	<0.02 mg/L	<0.02 mg/L	<0.02 mg/L
Selenium (deionised water TCLP)	<0.04 mg/L	<0.04 mg/L	<0.04 mg/L
silver (deionised water TCLP)	<0.0050 mg/L	<0.0050 mg/L	<0.0050 mg/L
Zinc (deionised water TCLP)	<0.02 mg/L	0.05 mg/L	0.08 mg/L

Laboratory number	201500050
Client sample ID	SS19
Sample type	SOLID
Date started	13/02/2015
Method used	ICPAES
Arsenic (deionised water TCLP)	<0.03 mg/L
Beryllium (deionised water TCLP)	<0.01 mg/L
Cadmium (deionised water TCLP)	<0.01 mg/L
Chromium (deionised water TCLP)	<0.01 mg/L
Lead (deionised water TCLP)	0.04 mg/L
Molybdenum (deionised water TCLP)	<0.01 mg/L
Nickel (deionised water TCLP)	<0.02 mg/L
Selenium (deionised water TCLP)	<0.04 mg/L
silver (deionised water TCLP)	<0.0050 mg/L
Zinc (deionised water TCLP)	0.21 mg/L

Laboratory number	201500048
Client sample ID	SS17
Sample type	SOLID
Date started	13/01/2015
Method used	ICPAES
Arsenic (deionised water TCLP)	<0.03 mg/L
Beryllium (deionised water TCLP)	<0.01 mg/L
Cadmium (deionised water TCLP)	<0.01 mg/L
Chromium (deionised water TCLP)	<0.01 mg/L
Lead (deionised water TCLP)	<0.02 mg/L
Molybdenum (deionised water TCLP)	<0.01 mg/L
Nickel (deionised water TCLP)	<0.02 mg/L
Selenium (deionised water TCLP)	<0.04 mg/L
Silver (deionised water TCLP)	<0.0050 mg/L
Zinc (deionised water TCLP)	0.1 mg/L

Laboratory number	201500049
Client sample ID	SS18
Sample type	SOLID
Date started	13/01/2015
Method used	ICPAES
Arsenic (deionised water TCLP)	0.03 mg/L
Beryllium (deionised water TCLP)	<0.01 mg/L
Cadmium (deionised water TCLP)	<0.01 mg/L
Chromium (deionised water TCLP)	<0.01 mg/L
Lead (deionised water TCLP)	0.09 mg/L

201500049
SS18
SOLID
13/01/2015
ICPAES

Molybdenum (deionised water TCLP)	<0.01 mg/L
Nickel (deionised water TCLP)	<0.02 mg/L
Selenium (deionised water TCLP)	<0.04 mg/L
Silver (deionised water TCLP)	<0.0050 mg/L
Zinc (deionised water TCLP)	0.52 mg/L

Metals by FIMS

Laboratory number	201500033	201500034	201500035	201500036
Client sample ID	SS01	SS02	SS03	SS04
Sample type	SOLID	SOLID	SOLID	SOLID
Date started	10/02/2015	10/02/2015	10/02/2015	19/01/2015
Method used	ICVAASS	ICVAASS	ICVAASS	ICVAASS
Mercury	350 µg/kg	170 µg/kg	450 µg/kg	750 µg/kg
Laboratory number	201500037	201500038	201500039	201500040
Client sample ID	SS05	SS06	SS07	SS08
Sample type	SOLID	SOLID	SOLID	SOLID
Date started	10/02/2015	10/02/2015	10/02/2015	10/02/2015
Method used	ICVAASS	ICVAASS	ICVAASS	ICVAASS
Mercury	42 µg/kg	600 µg/kg	840 µg/kg	500 µg/kg
Laboratory number	201500041	201500042	201500043	201500044
Client sample ID	SS09	SS10	SS11	SS12
Sample type	SOLID	SOLID	SOLID	SOLID
Date started	10/02/2015	10/02/2015	10/02/2015	10/02/2015
Method used	ICVAASS	ICVAASS	ICVAASS	ICVAASS
Mercury	360 µg/kg	480 µg/kg	470 µg/kg	85 µg/kg
Laboratory number	201500045	201500046	201500047	201500048
Client sample ID	SS13	SS14	SS16	SS17
Sample type	SOLID	SOLID	SOLID	SOLID
Date started	10/02/2015	10/02/2015	10/02/2015	19/01/2015
Method used	ICVAASS	ICVAASS	ICVAASS	ICVAASS
Mercury	240 µg/kg	91 µg/kg	460 µg/kg	400 µg/kg
Laboratory number	201500049	201500050		
Client sample ID	SS18	SS19		
Sample type	SOLID	SOLID		
Date started	19/01/2015	10/02/2015		
Method used	ICVAASS	ICVAASS		
Mercury	8100 µg/kg	420 µg/kg		
Laboratory number	201500033	201500034	201500035	201500036
Client sample ID	SS01	SS02	SS03	SS04
Sample type	SOLID	SOLID	SOLID	SOLID
Date started	25/02/2015	25/02/2015	25/02/2015	13/01/2015
Method used	ICVAASW	ICVAASW	ICVAASW	ICVAASW
Mercury (deionised water TCLP)	<0.05 µg/L	<0.05 µg/L	0.08 µg/L	<0.05 µg/L

Report number 201500006

Laboratory number	201500037	201500038	201500039	201500040
Client sample ID	SS05	SS06	SS07	SS08
Sample type	SOLID	SOLID	SOLID	SOLID
Date started	25/02/2015	25/02/2015	25/02/2015	25/02/2015
Method used	ICVAASW	ICVAASW	ICVAASW	ICVAASW

Mercury (deionised water TCLP) <0.05 µg/L 0.08 µg/L 0.15 µg/L 0.07 µg/L

Laboratory number	201500041	201500042	201500043	201500044
Client sample ID	SS09	SS10	SS11	SS12
Sample type	SOLID	SOLID	SOLID	SOLID
Date started	25/02/2015	25/02/2015	25/02/2015	25/02/2015
Method used	ICVAASW	ICVAASW	ICVAASW	ICVAASW

Mercury (deionised water TCLP) <0.05 µg/L <0.05 µg/L <0.05 µg/L <0.05 µg/L

Laboratory number	201500045	201500046	201500047	201500048
Client sample ID	SS13	SS14	SS16	SS17
Sample type	SOLID	SOLID	SOLID	SOLID
Date started	25/02/2015	25/02/2015	25/02/2015	13/01/2015
Method used	ICVAASW	ICVAASW	ICVAASW	ICVAASW

Mercury (deionised water TCLP) <0.05 µg/L <0.05 µg/L <0.05 µg/L <0.05 µg/L

Laboratory number	201500049	201500050
Client sample ID	SS18	SS19
Sample type	SOLID	SOLID
Date started	13/01/2015	25/02/2015
Method used	ICVAASW	ICVAASW

Mercury (deionised water TCLP) 0.12 µg/L 0.06 µg/L

Inorganics

Laboratory number	201500036	201500048	201500049
Client sample ID	SS04	SS17	SS18
Sample type	SOLID	SOLID	SOLID
Date started	14/01/2015	14/01/2015	14/01/2015
Method used	IISEPH	IISEPH	IISEPH

pH in Solids 5.6 pH units (calcium 5.6 pH units (calcium 5.4 pH units (calcium

Miscellaneous

<i>Result Note:</i>	Method	Date started
	Hold	13-Jan-2015
201500052	Hold	<i>Sample 201500051, 201500052 and 201500053 are triplicate samples. Analysis not required on 201500052.</i>
	Hold	13-Jan-2015
201500053	Hold	<i>Sample 201500051, 201500052 and 201500053 are triplicate samples. Analysis not required on 201500053.</i>

Released by:

Anil Gautam - Senior Scientist

Date: 27/02/2015

This document has been digitally signed by the name that appears on this report. Digital signing has been carried out using private key encryption code.

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Samples analysed as received and non-legal samples will be discarded one month from report date.

Soil samples are reported on a dry weight basis, except when analysed in accordance with the NSW EPA Waste Guidelines.

Submission 201500006
Pasmenco Waste Classification

QC Report

Mercury in Solids (Batch 1)

	Blank	CRM		Replicate 1	Replicate 2	
Analyte	Concentration (µg/kg) <i>Acceptance criteria</i> <PQL	Concentration (µg/kg)	Recovery <i>Acceptance criteria</i> 80-120%	Concentration (µg/kg)	Concentration (µg/kg)	Relative percent difference <i>Acceptance criteria</i> 0 – 3 x PQL ± 100% 3 – 10 x PQL ± 25% >10 x PQL ± 10%
Mercury	<10	3600	96%	400	370	6.5%

Mercury in Solids (Batch 2)

	Blank	CRM		Replicate 1	Replicate 2	
Analyte	Concentration (µg/kg) <i>Acceptance criteria</i> <PQL	Concentration (µg/kg)	Recovery <i>Acceptance criteria</i> 80-120%	Concentration (µg/kg)	Concentration (µg/kg)	Relative percent difference <i>Acceptance criteria</i> 0 – 3 x PQL ± 100% 3 – 10 x PQL ± 25% >10 x PQL ± 10%
Mercury	<10	3700	97%	450	410	9.3%

Mercury in Liquids

	Blank	Spike		Replicate 1	Replicate 2	
Analyte	Concentration (µg/L) <i>Acceptance criteria</i> <PQL	Concentration (µg/L)	Recovery <i>Acceptance criteria</i> 90-110%	Concentration (µg/L)	Concentration (µg/L)	Relative percent difference <i>Acceptance criteria</i> 0 – 3 x PQL ± 100% 3 – 10 x PQL ± 25% >10 x PQL ± 10%
Mercury	<0.05	2.1	105%	<0.05	<0.05	N/A

pH in Solids

	Replicate 1	Replicate 2	
Analyte	pH units	pH units	Difference <i>Acceptance criteria</i> Within 0.1 pH units
pH	5.6	5.6	0.0

Metals in Solids (Batch 1)

Analyte	Blank	CRM		Spike 1	Spike 2	Relative percent difference <i>Acceptance criteria</i> <i>RPD < 20%</i>
	Concentration (mg/kg) <i>Acceptance criteria</i> <i><PQL</i>	Concentration (mg/kg)	Recovery <i>Acceptance criteria</i> <i>80-120%</i>	Concentration (mg/kg)	Concentration (mg/kg)	
Silver	<0.5	<0.5	Not certified	210	210	2.1%
Arsenic	<2	20	119%	250	250	0.3%
Beryllium	<0.1	0.54	92%	210	210	2.7%
Cadmium	<0.5	9.9	106%	220	230	2.1%
Chromium	<1	89	108%	230	240	1.9%
Molybdenum	<2	7.6	104%	200	210	3.1%
Nickel	<3	20	88%	210	210	1.8%
Lead	<2	42	100%	1600	1400	12%
Selenium	<4	11	98%	210	210	2.4%
Zinc	<2	60	106%	Overscale *	Overscale *	

* Sample had high concentrations of lead and zinc compared to method spike concentration.

Metals in Solids (Batch 2)

Analyte	Blank	CRM		Spike 1	Spike 2	Relative percent difference <i>Acceptance criteria</i> <i>RPD < 20%</i>
	Concentration (mg/kg) <i>Acceptance criteria</i> <i><PQL</i>	Concentration (mg/kg)	Recovery <i>Acceptance criteria</i> <i>80-120%</i>	Concentration (mg/kg)	Concentration (mg/kg)	
Silver	<0.5	<0.5	Not certified	180	190	1.7%
Arsenic	<2	17	97%	190	200	2.5%
Beryllium	<0.1	0.58	98%	190	190	0.5%
Cadmium	<0.5	8.9	95%	200	200	2.0%
Chromium	<1	72	88%	200	210	2.5%
Molybdenum	<2	7.0	112%	190	190	2.1%
Nickel	<3	18	82%	190	190	1.5%
Lead	<2	39	104%	830	750	11%
Selenium	<4	9.1	83%	170	170	0.3%
Zinc	<2	53	94%	720	690	3.6%

Metals in Liquids

Analyte	Blank	Spike		Replicate 1	Replicate 2	Relative percent difference <i>Acceptance criteria</i> 0 – 3 x PQL ± 100% 3 – 10 x PQL ± 25% >10 x PQL ± 10%
	Concentration (mg/L) <i>Acceptance criteria</i> <PQL	Concentration (mg/L)	Recovery <i>Acceptance criteria</i> 75-125%	Concentration (mg/L)	Concentration (mg/L)	
Silver	<0.005	2.0	101%	<0.005	<0.005	N/A
Arsenic	<0.03	2.0	98%	<0.03	<0.03	N/A
Beryllium	<0.01	1.9	96%	<0.01	<0.01	N/A
Cadmium	<0.01	2.1	104%	<0.01	<0.01	N/A
Chromium	<0.01	2.0	100%	<0.01	<0.01	N/A
Molybdenum	<0.02	1.9	97%	<0.02	<0.02	N/A
Nickel	<0.02	2.0	100%	<0.02	<0.02	N/A
Lead	<0.02	2.0	100%	<0.02	<0.02	N/A
Selenium	<0.04	2.1	103%	<0.04	<0.04	N/A
Zinc	<0.02	2.1	104%	<0.02	<0.02	N/A

**ENVIRONMENT PROTECTION AUTHORITY/OFFICE OF ENVIRONMENT AND HERITAGE
CHAIN OF CUSTODY**

SUBMISSION/PROJECT No. <u>201500006</u>		Page <u> </u> of <u> </u>
<u>Shipping container</u>		<u>Sample bottles</u>
Type of container	Type of seal	Type of bottle
<input type="checkbox"/> White Plastic Box	<input type="checkbox"/> EPA	<input type="checkbox"/> EPA
<input checked="" type="checkbox"/> Esky	<input checked="" type="checkbox"/> Other <u>Not sealed</u>	<input checked="" type="checkbox"/> Other <u>Plastic bag</u>
<input type="checkbox"/> Other	<input type="checkbox"/> Signed or Initialled	<input checked="" type="checkbox"/> Sealed
Condition: on arrival: Cooled..... Frozen..... Ambient..... <input checked="" type="checkbox"/> Alkali..... Acid..... Other.....		

If seal is intact place a tick in the appropriate box If seal is missing or broken place a cross in the appropriate box

Details if seals not intact or missing: Samples not sealed

		<u>Sample Collector</u>	<u>Mobile contact:</u>			
Shipping container	Sample bottle/s	Representative's name <small>(Print & sign)</small>	Organisation/Employer	Collected <small>Date</small>	Time	Contact phone no.
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Print <u>Matthew James</u> Sign <u>[Signature]</u>	<u>EPA Matt James</u>	<u>12/01/2015</u>	<u>9:50</u>	<u>0411752777</u>
<u>Submitter/Sender/Handler/Analyst</u>						
Shipping container	Sample bottle/s	Representative's name <small>(Print & sign)</small>	Organisation/Employer	Received <small>Date</small>	Time	Contact phone no.
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Print <u>Andrew Symons</u> Sign <u>[Signature]</u>	<u>OEH</u>	<u>13/1/15</u>	<u>9:25</u>	<u>99955060</u>
<input type="checkbox"/>	<input type="checkbox"/>	Print _____ Sign _____				
<input type="checkbox"/>	<input type="checkbox"/>	Print _____ Sign _____				
<input type="checkbox"/>	<input type="checkbox"/>	Print _____ Sign _____				
<input type="checkbox"/>	<input type="checkbox"/>	Print _____ Sign _____				

RENTALS

Equipment Report – Niton XL 3

This XL 2 has been performance checked* as follows:

Operations Check			
<input checked="" type="checkbox"/>	Performance Check		
<input checked="" type="checkbox"/>	Battery Charged	<input checked="" type="checkbox"/> 100%	<input checked="" type="checkbox"/> Spare battery Voltage (5.5v minimum) 100%
<input checked="" type="checkbox"/>	Electrical Safety Tag attached (AS/NZS 3760)	Tag No: TTT03771	Valid to:
<input checked="" type="checkbox"/>	Checked against supplied Standard and reference sheet.		

Date: 08/01/2015 Checked by: MILENKO

Signed: _____

Please check that the following items are received and that all items are cleaned and decontaminated before return. A minimum \$20 cleaning / service / repair charge may be applied to any unclean or damaged items. Items not returned will be billed for at the full replacement cost.

Sent	Returned	Item
<input checked="" type="checkbox"/>	<input type="checkbox"/>	XL 3 Instrument, plus Battery Voltage @ 100%
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Battery Charger, including base
<input checked="" type="checkbox"/>	<input type="checkbox"/>	1 Spare Lithium Ion battery (Includes holster)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Holster for unit
<input checked="" type="checkbox"/>	<input type="checkbox"/>	USB Cable 2.0 (Type A to Mini B)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	RS232 Download cable
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Quick Use Guide (behind foam on the lid of case)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Niton Software , Version 7.1.1
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Analytical Reference Data Sheet for Metals/Consumer/Soil/Mining/ <u>LOT#T-36 & 180606</u>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Prolene Windows (1 pkt)
<input type="checkbox"/>	<input type="checkbox"/>	Carry Case
<input type="checkbox"/>	<input type="checkbox"/>	Check to confirm electrical safety (tag must be valid)

Calibrations included on Unit: (circle) Soil Metal, Consumer, Mining, TestAll, _____

Processors Signature/ Initials _____

Quote Reference	<u>C5001948</u>	Condition on return
Customer Ref		
Equipment ID	<u>Niton XL3 -1</u>	
Equipment serial no.	<u>56957</u>	
Return Date	<u>/ /</u>	
Return Time		

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