



# **Inspectorate Australia**

**Audit Report – May 2010**

**Six Monthly Process Audit - Packaging and  
transport for lead carbonate concentrate**

**Magellan Lead Project**

## **Executive Summary**

The routine six monthly compliance process audit of the packaging and transport process of Magellan's lead carbonate concentrate packaging and transport from the mine site to the port of Fremantle were conducted between 12<sup>th</sup> and 14<sup>th</sup> of May 2010. The Auditor reviewed and evaluated the level of compliance of the equipment, procedures and processes for packaging and transport of the lead carbonate concentrate with approved management plans and applicable standards.

The audit results indicate that on the days of the audit Magellan was complying with all but one of their approved management plans and procedures in regards to packaging and transportation of lead carbonate concentrate from mine site to the export Port. A non-compliance was issued for one process where Magellan was not complying with its management plans. This non-compliance is explained in the Audit Findings section of this report.

The auditor was unable to verify the processes at the container transfer at Leonora and is explained in the Audit Checklist rows 27 to 31 and in the Audit Findings.

This report also includes some observations. These are improvement opportunities recommended by the auditor and Magellan is not obligated to action them.

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# 1. Company Background

Magellan Metals Pty Ltd (Magellan) is the principal operating asset of Ivernia Inc., an international base metals, exploration, development and operating company listed on the Toronto Stock Exchange. Magellan owns and operates an open-cut lead carbonate mine and concentrating facility located 30 km from Wiluna in Western Australia's Mid-West region. Commissioned in October 2005, the mine produces lead carbonate concentrate for export mainly to China.

As of August 13 2009, Magellan has approval from the State Government of Western Australia to handle and transport lead carbonate concentrate in sealed bulk bags inside locked shipping containers through the Port of Fremantle. The bags are filled, sealed and placed inside shipping containers at the mine site, before being transported by road to Leonora and then transported by rail to the Port of Fremantle.

Specifically, Magellan must comply with Ministerial Statement 783, with respect to the implementation of the handling and transport of lead carbonate concentrate inside sealed bags locked within shipping containers.

## 2. Requirements

Ministerial Statement 783 was released in February 2009 (Appendix 1). Condition 10 of Statement 783 requires Magellan to engage the services of, and provide necessary funds for, and independent Inspector/Auditor accredited by an appropriate national body.

Specifically condition 10 states:

### **“10 Accredited Auditor**

10-1 Prior to removing shipping containers of lead carbonate concentrate from the mine-site at any time after 1 January 2009, the proponent is to engage the services of, and provided necessary funding for, an independent auditor accredited by an appropriate national body, to be approved by the Minister for Environment on the advice of the CEO. The auditor is to be engaged and funded to undertake the following in an independent manner:

1. Auditing the processes for the packaging and transport of the lead carbonate concentrate from the mine-site through to export from the Port, including the use of top-loading machines for the transport of the shipping containers;
2. Inspecting all bags of lead carbonate concentrate after they are sealed, prior to and after they are loaded into shipping containers, and inspecting all shipping containers after they are loaded and locked and prior to their removal from the mine-site for the presence of material containing lead carbonate outside the sealed bags;
3. Carry out random dust monitoring inside shipping containers, by selecting containers at random, without the knowledge of the proponent, and place dust monitors inside those containers prior to their removal from the mine-site, removing the monitors at the port to test for the presence of lead carbonate dust;

4. Immediately reporting any findings to the CEO and the proponent of material containing lead carbonate outside the sealed bags after a shipping container is removed from the mine site; and

5. Reporting the findings of the inspections, auditing and monitoring to the reference group referred to in Condition 11-1.

10-2 Prior to removing shipping containers of lead carbonate concentrate from the mine-site at any time after 1 January 2009, the proponent shall, in consultation with the Department of Environment and Conservation, the Department of Health, and the Department of Mines and Petroleum establish and document the detailed roles and responsibilities of the auditor engaged under condition 10.

### **3. Independent Auditor/Inspector**

Inspectorate Australia Pty Ltd is part of the Inspectorate Group of Companies, a major independent Inspection and Testing Company present in over 125 countries.

The company has 8,000 employees around the world and its services include the Inspection, Testing and Analysis/Certification of Metals and Minerals, Oil & Petrochemicals, Agricultural & Food and Consumer Products. ([www.inspectorate.com](http://www.inspectorate.com))

Inspectorate Australia Pty Ltd was approved by the Minister for Environment on the advice of the Chief Executive Officer of the Department for Environment and Conservation to undertake the auditing of conditions 10-1-1 to 10-1-5 in accordance with Magellan's 'Implementation of Condition 10 Document', which was approved by the Minister for Environment on 13 August 2009.

## 4. Scope

In accordance with Magellan's "Implementation of Condition 10 Document", the Independent Auditor carried out the routine six-monthly compliance audit from the mine-site through to export from the Port on the 12<sup>th</sup> – 14<sup>th</sup> May 2010. This coincided with Magellan's handling and transport of lead carbonate concentrate from the mine site to the Port of Fremantle. The Audit ascertained the level of compliance of the equipment, procedures and processes for packaging and transport of the lead carbonate concentrate with approved management plans and applicable standards.

This process audit included:

- safety labelling of bulk bags and shipping containers in accordance with the Australian Dangerous Goods Code and International Maritime Dangerous Goods Code
- filled bag sealing, cleaning and inspection in accordance with the HHE Management Program
- ensuring the chain of custody information for bag and container record keeping is in place in accordance with the HHE Management Program
- ensuring filled bag storage area is separated from the bagging area in accordance with the HHE Management Program
- ensuring container loading, closure, sealing, identification and record keeping procedures and documents are in place in accordance with the HHE Management Program
- ensuring container wash-down procedures are in place in accordance with the HHE Management Program
- ensuring container handling equipment (specifically the use of top-loading machines) and procedures are in accordance with the HHE Management Program

- ensuring the procedure for the inspection of container integrity at Fremantle is in accordance with the HHE Management Program
- ensuring chain of custody procedures and documents are in place in accordance with the HHE Management Program.

Additionally, the Independent Auditor undertook the following:

- Reported to Magellan on any non-conformances of the equipment, processes or procedures for packaging and transport with the HHE Management Program, HHE Monitoring Program or applicable standards; and worked with Magellan to address them.
- Advised Magellan and the community reference group, when satisfied that the procedures and processes were in compliance with the HHE Management Program, HHE Monitoring Program or applicable standards.
- Reported (this Report) to Magellan, the community reference group and DEC Regional Offices (Goldfields, Wheatbelt and Swan), Project Implementation Monitoring Section of the Office of the Environmental Protection Authority (EPA) and made publicly available the results of audits and any changes to the procedures and processes which are required to address any shortcomings encountered.

It is a requirement of the Project, to ensure an audit of the procedures and processes is undertaken at least every six months, taking into account the results of inspections and monitoring. A summary of the Independent Auditor's findings shall be included in Magellan's Annual Environmental Report, which is submitted to DEC, DMP and Department of Water by 31<sup>st</sup> March each year for the reporting period 1st January to 31<sup>st</sup> December.

## 5. Approach

The approach was to:

- Document, evaluate and review whether the associated systems and processes are appropriately designed to achieve the organization's objectives for compliance. This includes comparison of the controls in place against those stated in HHE management program for packaging and transportation of lead carbonate concentrate.
- Discuss with relevant personnel and develop an understanding of the processes and procedures established.
- Ascertain staff awareness of their roles and responsibilities in regards to HHE Management program for packaging and transportation of lead carbonate concentrate.

Determine whether the system is effective through testing, where appropriate, that the controls are operating in practice, and if not establish the likely impact and results of the weakness in control

## 6. Rating

The findings in the audit report have been classified and marked as follows:

- **Compliance:** indicates that the criterion has been met.
- **Non-Compliance:** indicates that the criterion has not been met.
- **Not able to verify:** indicates that the organization has documented procedures in classification will only be used in limited circumstances and where applied, the reasons for the finding will be explained by the auditor.

## 7. Audit Checklist

C = Compliance

NC=Non Compliance

NV=Not able to Verify

		C	NC	NV	Remarks
<b>Health, Hygiene and Environmental Program</b>					
<b>Documentation</b>					
1	Is a documented Health, Hygiene and Environmental Management Program in place?	✓			MME08044_HHE Management P-Final 3-23 June 2009
2	Are key personnel roles and responsibilities documented?	✓			Section 1.4 of HHE, Page 7 and Section 4 pages 26-32
3	Is a procedure for chain of custody for bag and container record keeping in place?	✓			SOP-2 Page 3 Daily record sheet form
4	Are bagging, cleaning and transportation processes documented?	✓			SOP-1, SOP- 4, SOP-6 and HHE Tables 8,9, 10 and 11.
<b>Mine Site Bagging, Storage and Loading</b>					
5	Are bags used approved by the relevant government authority?	✓			Sighted approval Letter from DMP (04 Sep 09)

6	Are bags used meeting the United Nations (UN) packaging standards for transport of lead carbonate?	✓			All bags are marked with appropriate UN packaging signs  Appendix 3 -Photos
7	Is there a system in place to ensure bags do not weight more than 2000Kg?	✓			SOP-1 page 3 and SOP-6 Page 3.  All bags are weighed and weights are recorded on the bags, and on a log sheet.
8	Are all bags sealed in accordance with Magellan's SOP/work procedures?	✓			SOP-1 and SOP-6  Inner bag sealed with plastic cable tie, outer bag seal with manufacture's outer ties.
9	Are measures in place to prevent the release of lead carbonate concentrate from bags?	✓			Lead carbonate is placed in double layer bag. Bags are sealed. Damaged bags are removed and content is re-bagged
10	Is the filled bag storage area separated from the bagging area?		✓		Observation #1  NC #1
11	Are measures in place to remove external traces of lead carbonate before placing bags in the containers?	✓			Exterior surfaces of the Bags are vacuumed (SOP-1). Visual inspection by operator.

					Visual Inspection by Inspector. Appendix 3 –Photos
12	Are external traces of lead carbonate removed from the bags by vacuuming?	✓			SOP-1
13	Is the moisture content of the bags measured/controlled?	✓			SOP-1 Observation #2
14	Is there evidence to show that moisture content of the bags are maintained at a minimum 7.5% prior to departure from the mine site to the point when they leave the state?	✓			Observation #3
15	Are bags appropriately labeled and do labels have appropriate safety information on them?	✓			Sighted bags- all have UN Dangerous Goods and Marine Pollutant signs. Appendix 3 –Photos
16	Do labels have relevant dangerous goods classifications?	✓			Bags have DG classification 6.1. Appendix 3 –Photos
17	Are all bags inspected by the independent inspector before and after being placed in a suitable shipping container?	✓			Independent inspector visually inspects all bags before being placed in containers Appendix 3 –Photos

18	In there a procedure in place to ensure containers are in good condition?	✓			SOP-5  Container Register  Independent inspector's checklist.
19	Are containers appropriately labeled?	✓			All containers have Dangerous Goods and Marine Pollutant stickers on four sides, front, back and sides.
20	Are bags loaded into the containers in a manner that will not result in damage and in accordance with the Sites SOP?	✓			SOP-3  Observation #4
21	Are containers securely locked using a standard hardened steel bolt with unique numbering?	✓			Hardened steel bolts are used to lock containers.  SOP-2 page 3
22	Are lock numbers for each container recorded?	✓			Lock numbers are recorded on Cargo Inventory Register.
23	Do loaded trucks go through the wash down facility before leaving the site to remove external dust?	✓			SOP-4  All loaded trucks go through the wash station before leaving the site.
24	Is entire body of containers washed (sides, bottom and top)?	✓			Observation #5

25	Are containers inspected before leaving the site?	✓			Containers are inspected by independent inspector while they go through and after the wash station.
26	Are transport units specifically designed to carry containers? Do the locking pins function correctly and what checks are in place to ensure this is the case?	✓			All trailers have locking pins. Locking pins are checked by truck drivers.
<b>Container Transfer at Leonora (As informed that there has been no changes made at this facility, no physical check of the facility was carried out)</b>					
27	At Leonora is a top lifting container handling machine used to transfer the locked containers from incoming trucks to storage area			✓	
28	Is the storage area secure?			✓	Storage Area is not monitored, door to area was left open.  Observation #6
29	Is a top lifting container handling machine used to transfer containers onto the train wagons			✓	
30	Is there a SOP to ensure container transfer at Leonora maintains container integrity and security?			✓	ARG Operating Procedures.

31	Are rail wagons fitted with twist locks to prevent containers shifting during transport?			✓	
<b>Port of Fremantle</b>					
32	Is there a procedure for inspection of container integrity at Fremantle?	✓			The containers are checked for integrity when arriving at ILS terminal in Fremantle.  Observation #7
33	Is a top lifting container handling machine used to unload the containers from rail wagons?	✓			Appendix 3 –Photos
34	Is there a procedure in place to replace the bolt lock in the event that a container is opened by the Independent Inspector or Customs at the Port?	✓			Inspectorate Form “Dust Monitoring Program Chain of Custody”
35	Are all containers locked? (with exception of those opened by public authority)	✓			All containers that were in transit at the ILS yard were locked, with a suitable hardened steel bolt seal.
36	Are containers handled within the port by top lifting machines?	✓			Top-lift container handling machinery were observed.
<b>Records</b>					

37	Are results of individual bag inspections maintained by the Independent Inspector?	✓			Inspectorate form "Bag and Container Inspection Report"
38	Are all bags, containers and bolt seal numbers recorded and maintained by the Independent Inspector?	✓			Details of bags, containers and lock numbers are recorded by operators and made available to inspector for verification
39	Are records of individual container and trucks wash down kept by the Independent Inspection Company?	✓			Inspectorate form "Bag and Container Inspection Report"

## 8. Audit Findings

There was one (1) non compliance (NC) identified during the audit. Additionally a number of observations identified during the audit which are of relevance to the audit.

NC1.

At the time of audit there were a number of bags stored inside the lead storage shed in close proximity to the open lead stockpile. It was noted that the outside of the bags in the storage shed had lead dust accumulation on them. This was due to limited bag storage outside the shed. All bags are cleaned and independently verified appropriately before being loaded into containers.

### OBSERVATION 01

The dust extraction system on the bagging machine was not in operation, however the moisture levels of the product being relatively high over 8% (between 8 -11%) and this means that minimal dust was being generated.

### OBSERVATION 02

The moisture content in each bag is determined in the refining process with typical moistures found between 8 and 11%. The moisture is laboratory tested for every 20 bags filled by random composite samples. Once the lead carbonate concentrate is bagged, the bags moisture content should not change as the bags are lined with plastic none porous material which is dust proof and water resistant. Moisture limits are controlled and monitored in the process and samples taken and assayed and tested in grab sample lots.

#### OBSERVATION 03

Noted is that personnel inspecting the containers prior to loading have had very limited training with respect to the requirements in SOP-5 (independent inspectors comments on reports show that containers are being presented poorly prepared).

#### OBSERVATION 04

The containers pass through a wash-down facility where the top, bottom and sides of the containers were washed. However, there is a small possibility that containers that are loaded and transported on the flat-bed trailers have areas on the bottom of the containers that are not washed. Washing of the bottom of the containers appear to be better and easier to monitor when loaded on skeletal trailers.

#### OBSERVATION 05

Forms in use do not have version numbers inserted on the form to ensure that superseded forms are not kept in use.

#### OBSERVATION 06

There have been no changes at the Container Transfer at Leonora, since the pre-start process audit. The auditor has been previously informed that discussions had taken place with ARG regarding security at the site, and on going discussions are still occurring.

The storage area at Leonora had poor security. The doors to the site were left open and there was no site security monitoring in place.

#### OBSERVATION 07

All the containers are inspected on arrival into the North Quay Rail Terminal (ILS), so to ensure they are not damaged and the seals are intact. Neither of the ship loading

terminals have a specific process for individual containers to be inspected, either for damage nor that the seals are intact. However should obvious damage be noted or container leakage occur both, Patrick and DP World terminals have emergency procedures in place. Both Patrick and DP World are customs bonded areas and access to the terminals are well controlled.

For and on behalf of  
Inspectorate Australia Pty Ltd

## **9. Appendixes**

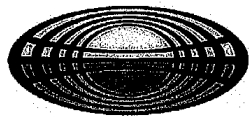
**Appendix 1** - Ministerial Statement 783

**Appendix 2** - The PDF version of Magellan Ministerial Approval and confirmation of Inspectorate Australia (Assay) Pty Ltd as Independent Auditor

**Appendix 3** - Photos

### **Appendix 1**

Ministerial Statement 783



strategen

**Implementation of  
Condition 10 of EPA  
Assessment No. 1773**

**Magellan Lead Carbonate  
Concentrate**

Prepared for  
Magellan Metals Pty Ltd  
by Strategen

June 2009

**Implementation of Condition  
10 of EPA Assessment No.  
1773**

Magellan Lead Carbonate  
Concentrate

Strategen is a trading name of  
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June 2009

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Strategen has not attempted to verify the accuracy or completeness of the information supplied by the Client.

**Client: Magellan Metals Pty Ltd**

Report	Version	Prepared by	Reviewed by	Submitted to Client	
				Copies	Date
Preliminary Draft Report	V1	EP	LC	1 electronic	24 Apr 08
Draft Report	V2	EP/PB	CW and Magellan	1 electronic	21 May 08
Draft Report	V3	EP/PB/LC	Magellan	1 electronic	30 May 08
Draft Report	V4	EP/PB/LC	Magellan/KO	Hard copy	28 June 08
	V5	PB/LC	Magellan	Hard copies to agencies	3 July 08
Final Report	Final	LC/JM	Magellan	1 electronic	19 August 08
Final Report (updated)	Final2	KB	Magellan	1 electronic	14 November 08
Final Report (updated)	Final3	KB	Magellan	1 electronic	18 April 08

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## 1. INTRODUCTION

### 1.1 BACKGROUND

Magellan Metals Pty Ltd (Magellan) operates an open-cut lead carbonate mine and processing facilities approximately 30 km west of Wiluna, Western Australia.

The implementation of the original proposal was approved by the Minister for the Environment in November 2000, with the issue of Statement No. 559. The original proposal was for mining and processing facilities at Wiluna and for the bulk export of lead carbonate concentrate through the Port of Geraldton. On 29 December 2004, the Minister for the Environment approved a variation of the original proposal to export concentrate through the Port of Esperance rather than the Port of Geraldton. Mining commenced in November 2004 and bulk concentrate was exported through the Port of Esperance from June 2005 until 12 March 2007.

Magellan sought to change the export handling and transport procedures so that lead carbonate concentrate is shipped through Fremantle Ports in sealed bulk bags inside locked shipping containers. Under the changed proposal, concentrate produced, bagged and locked in steel shipping containers at the mine site will be transported by road to Leonora and then by rail to Fremantle Ports, where it will be exported.

### 1.2 STATEMENT

Statement 783 was released in February 2009. Condition 10 of Statement 783 requires Magellan to engage the services of, and provide necessary funding for, an independent inspector/auditor accredited by an appropriate national body. Specifically, Condition 10 states:

**"10 Accredited auditor**

*10-1 Prior to removing shipping containers of lead carbonate concentrate from the mine-site at any time after 1 January 2009, the proponent is to engage the services of, and provided necessary funding for, an independent auditor accredited by an appropriate national body, to be approved by the Minister for Environment on the advice of the CEO. The auditor is to be engaged and funded to undertake the following in an independent manner:*

- 1. Auditing the processes for the packaging and transport of the lead carbonate concentrate from the mine-site through to export from the Port, including the use of top-loading machines for the transport of the shipping containers;*
- 2. Inspecting all bags of lead carbonate concentrate after they are sealed, prior to and after they are loaded into shipping containers, and inspecting all shipping containers after they are loaded and locked and prior to their removal from the mine-site for the presence of material containing lead carbonate outside the sealed bags;*
- 3. Carry out random dust monitoring inside shipping containers, by selecting containers at random, without the knowledge of the proponent, and place dust monitors inside those containers prior to their removal from the mine-site, removing the monitors at the port to test for the presence of lead carbonate dust;*

4. *Immediately reporting any findings to the CEO and the proponent of material containing lead carbonate outside the sealed bags after a shipping container is removed from the mine-site; and*
5. *Reporting the findings of the inspections, auditing and monitoring to the reference group referred to in Condition 11-1.*

10-2 *Prior to removing shipping containers of lead carbonate concentrate from the mine-site at any time after 1 January 2009, the proponent shall, in consultation with the Department of Environment and Conservation, the Department of Health, and the Department of Mines and Petroleum establish and document the detailed roles and responsibilities of the auditor engaged under condition 10.*

### 1.3 DEFINITION OF THE INSPECTOR/AUDITOR

The Condition requires three distinct tasks to be undertaken by an independent entity (ies) referred to in the condition as the "*independent auditor accredited by an appropriate national body*". The three tasks are auditing, inspecting and monitoring. Auditing and inspecting are quite different processes and require different skills and qualifications.

This document breaks the three tasks required under Condition 10 into two separate and distinct roles:

1. An independent accredited inspector (herein referred to as the Independent Inspector) to undertake inspections and monitoring as per Condition 10-1(2), 10-1(3), 10-1(4) and 10-1(5).
2. An independent accredited auditor (herein referred to as the Independent Auditor) to undertake auditing as per Condition 10-1(1) and 10-1(5).

These roles will require more than one person (nominally two persons) to fulfil the required tasks, but they will be undertaken by one qualified organisation, which is accredited by an appropriate national body. It is also important to note that more than one Independent Auditor and Independent Inspector is required (nominally two auditors) as there are duties that are to be undertaken simultaneously at the mine and at Fremantle Ports. Should an auditor be required to take a leave of absence for any reason from their duties, an appropriately trained and qualified individual from the organisation undertaking the work will be appointed as a replacement.

Magellan will ensure that the appointed auditor(s) will report the findings of the inspections, auditing and monitoring, in the first instance, to an appropriate reference group with relevant community representation, as determined by the Minister, and make publicly available immediately thereafter. Unless and until otherwise determined by the Minister, the reference group will be the Fremantle Ports Inner Harbour Community Liaison Group established by Fremantle Ports.

The findings of the inspections, auditing and monitoring will also be reported to Magellan, and DEC Compliance Branch and Regional Offices<sup>1</sup> as detailed in Section 2.2.4.

### 1.4 PURPOSE OF DOCUMENT

The purpose of this document is to detail how Magellan will implement Condition 10 of Statement 783.

<sup>1</sup> DEC Goldfields, DEC Wheatbelt and DEC Swan

## 2. IMPLEMENTATION OF CONDITION 10

### 2.1 APPOINTMENT OF INDEPENDENT ACCREDITED INSPECTOR/AUDITOR

Accreditation of the inspectors and auditors by an appropriate national body provides formal recognition of the competence of a company and its staff to undertake inspections and process audits.

The Independent Auditor and the Independent Inspector will<sup>2</sup>:

- exercise due care and professional judgement which may be reasonably expected of an independent inspector/auditor accredited by an appropriate national body;
- avoid situations that may lead to conflict of interest;
- demonstrate a sufficient level of independence from Magellan to satisfy a reasonable person that the outcome of the audit will not be influenced by the relationship.

The appointment of the Independent Auditor and Independent Inspector by Magellan must be approved by the Minister for Environment on the advice of the Chief Executive Officer (CEO) of the DEC prior to removing shipping containers of lead carbonate concentrate from the mine-site at any time after 1 January 2009.

### 2.2 ROLES AND RESPONSIBILITIES

Condition 10-2 requires Magellan to establish and document the detailed roles and responsibilities of the Independent Auditor and the Independent Inspector, in consultation with Department of Environment and Conservation (DEC), Department of Health (DoH) and the Department of Mines and Petroleum (DMP). The DEC, DoH and DMP have been previously consulted during the preparation of this document, which has been reviewed by DEC, DoH and DMP prior to finalisation to comply with this requirement.

The roles and responsibilities of the Independent Auditor and the Independent Inspector are detailed in the following sections.

#### 2.2.1 Auditing

Condition 10-1(1) requires the auditing of processes for the packaging and transport of lead carbonate concentrate from the mine-site through to export from Fremantle Ports. This condition specifically includes the use of top-loading machines for the transport of the shipping containers.

Equipment, management actions and procedures that will be used in the packaging and transport of lead carbonate concentrate from the mine site to export from the Port are set out as auditable elements in Magellan's Health, Hygiene and Environmental Management Program (HHE Management Program) (Strategen 2009a); the monitoring measures are outlined in the HHE Monitoring Program (Strategen 2009b). The Independent Auditor will audit the use of equipment and the implementation of management actions and procedures to fulfil the requirements of Condition 10-1(1). This will

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<sup>2</sup> Adapted from "Contaminated Sites Auditors: Guidelines for Accreditation, Conduct and Reporting"; DEC; August 2006; Section 7.2

include ensuring no equipment other than top-loading machines for the transport of shipping containers is used.

The Independent Auditor will:

1. Carry out an initial process audit from the mine-site through to export from the Port, prior to the commencement of lead carbonate concentrate transport. The audit will assess compliance of the proposed equipment, procedures and processes for packaging and transport of the lead carbonate concentrate with approved management plans and applicable standards. This process audit will include checking that:
  - safety labelling of bulk bags and shipping containers is in accordance with the Australian Dangerous Goods Code and International Maritime Dangerous Goods Code;
  - filled bag closure, cleaning and inspection is in accordance with the HHE Management Program;
  - the chain of custody information for bag and container record keeping is in place in accordance with the HHE Management Program;
  - filled bag storage area separation from the bagging area is in accordance with the HHE Management Program;
  - container loading, closure, sealing, identification and record keeping procedures and documents is in accordance with the provisions of the HHE Management Program;
  - container wash-down procedures are in place in accordance with the HHE Management Program;
  - container handling equipment (specifically the use of top-loading machines) and procedures are in accordance with the HHE Management Program;
  - the procedure for the inspection of container integrity at Fremantle Ports is in accordance with the HHE Management Program;
  - the chain of custody procedures and documents are in place in accordance with the HHE Management Program.
2. Report to Magellan on any non-compliances against the HHE Management Program, HHE Monitoring Program or applicable standards of the proposed equipment, processes or procedures for packaging and transport, and work with Magellan to address any non-compliance issues which are identified.
3. Advise Magellan and the community reference group when satisfied that the proposed procedures and processes are in compliance with the HHE Management Program, HHE Monitoring Program and applicable standards.
4. Audit the procedures and processes at least every at six-monthly intervals, taking into account the results of inspections, monitoring and monitoring.
5. Report to Magellan, the community reference group and DEC Regional Offices<sup>1</sup> and Project Implementation Monitoring Section and make publicly available the results of audits and any changes to the procedures and processes which are required to address any shortcomings encountered.

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<sup>1</sup> DEC Goldfields, DEC Wheatbelt and DEC Swan

A summary of the Independent Auditor's findings will be included in Magellan's Annual Environmental Report, which is submitted to DEC, DMP and Department of Water by 31<sup>st</sup> March each year for the reporting period 1<sup>st</sup> January to 31<sup>st</sup> December.

### 2.2.2 Inspections

Condition 10-1(2) requires the Independent Inspector to inspect all bags of lead carbonate concentrate for the presence of material containing lead carbonate on the outside of the bags after they are sealed, and prior to and after they are loaded into shipping containers, and to inspect all shipping containers for the presence of material containing lead carbonate on the outside after they are loaded and locked, prior to their removal from the mine-site.

The Independent Inspector will inspect the following to ensure ongoing compliance with the procedures in the HHE Management Program, as follows:

- all filled bags of lead carbonate concentrate are vacuumed and stored in an appropriate licensed dangerous goods storage area;
- inspect all filled bags of lead carbonate concentrate after they are sealed for damage and visible lead carbonate concentrate dust, after they are sealed and prior to and after they are loaded in shipping containers. In the event of the inspector identifying lead carbonate concentrate dust on the exterior of the filled bags, the inspector will instruct the operator to re-vacuum the identified bag(s), and then subsequently re-inspect, prior to allowing the bags to be loaded into the shipping container;
- inspect all shipping containers for damage before loading with filled bags of lead carbonate concentrate;
- inspect all shipping containers after they are loaded, after they are locked and prior to their removal from the mine-site to ensure that:
  - they are safety placarded and numbered;
  - there is no evidence that bags have been damaged during loading;
  - no material is present containing lead carbonate concentrate on the outside of the sealed bags;
  - containers are closed and locked with a numbered steel bolt or bolts;
- inspect all trucks loaded with locked shipping containers containing filled bulk bags of lead carbonate concentrate to ensure they are washed down and that no material containing lead carbonate concentrate is present outside of the container. In the event of the inspector identifying lead carbonate concentrate dust on the exterior of the washed containers and/or trucks, the inspector will instruct the operator to re-wash the container and/or trucks, prior to allowing the truck and shipping container to leave the mine site;
- chain of custody data are recorded and procedures followed.

Inspections will be carried out on all filled bulk bags, shipping containers and trucks leaving the mine site. All original copies of inspections and audits will be kept by the Independent Inspector and a copy provided to Magellan's Occupational Health, Safety and Environment Manager (OHS&E Manager).

### 2.2.3 Monitoring

Condition 10-1(3) requires the Independent Inspector to carry out random dust monitoring inside shipping containers ('internal dust monitoring'), by selecting containers at random, without the knowledge of the proponent, and placing dust monitors inside those containers prior to their removal from the mine-site, removing the monitors at the port to test for the presence of lead carbonate dust.

Subject to any required improvements that may be identified in the initial process audit referred to in Section 2.2.1, the Independent Inspector will:

- select containers at random, at a rate of approximately 1% of all locked containers for internal dust monitoring;
- maintain strict confidentiality in respect of the identity of containers being monitored until loading of the container has been completed and it is about to be closed;
- install dust monitoring equipment inside selected shipping container(s);
- close and lock the shipping container(s) after installation of the dust monitor(s);
- when the shipping container arrives at Fremantle Ports:
  - have the container opened;
  - remove the dust monitor;
  - inspect for any bags that have been compromised or for the presence of material containing lead carbonate concentrate;
  - have the container closed and locked with a numbered bolt; and
  - have the bolt number recorded on the chain of custody form.
- ensure safe custody of the dust monitor for sample analysis by a NATA accredited laboratory, including chain of custody documentation;
- following receipt of the laboratory results, review the data and provide a report as per the schedule in Table 1.

The monitoring method is further described in the HHE Monitoring Program (Strategen 2009b).

### 2.2.4 Condition 10-1 (4) and 10-1(5) Reporting

The Independent Auditor and the Independent Inspector will be responsible for immediately reporting any findings to the CEO and the proponent of material containing lead carbonate outside the sealed bags after a shipping container is removed from the mine-site. The Independent Auditor and the Independent Inspector will also report the findings of the inspections, auditing and monitoring to the reference group referred to in Condition 11-1. A summary of the reporting requirements of the accredited inspector/auditor is shown in Table 1. Magellan will ensure that these findings will be made publicly available.

The Independent Auditor and Independent Inspector will provide their reports directly to Magellan, the community reference group and to the CEO as shown in Table 1. If the Independent Inspector observes a non-compliance in regards to the packaging and/or transport procedures, the Magellan OHS&E Manager and the registered Mine Manager will be immediately alerted. The non-compliance will be treated and reported as an Environmental Incident as per the HHE Management Program.

**Table 1 Summary of reporting requirements of the Independent Auditor**

Relevant Ministerial condition	Report description	Frequency of reporting	Distribution of report
10-1(1)	Audit report for the packaging and transport of lead carbonate concentrate	Prior to removing shipping containers of lead carbonate concentrate from the mine-site; and  At least six monthly thereafter	Magellan Community Reference Group DEC (including Regional Offices <sup>1</sup> and Project Implementation Monitoring Section) Website
10-1(2)	Inspection report of all bulk bags and shipping containers	Immediately - whenever an anomaly is encountered	Magellan Community Reference Group CEO of DEC. DEC (including Regional Offices and Project Implementation Monitoring Section)
		Monthly	Magellan Community Reference Group DEC (including Regional Offices and Project Implementation Monitoring Section) Website
10-1(3)	Monitoring report of random dust monitoring results inside shipping containers	Whenever an anomaly is encountered	Magellan Community Reference Group DEC (including Regional Offices and Project Implementation Monitoring Section) Website
		Monthly	Magellan Community Reference Group DEC (including Regional Offices and Project Implementation Monitoring Section) Website

<sup>1</sup>DEC Goldfields, DEC Wheatbelt and DEC Swan

A summary of the reports shown in Table 1 will be provided by Magellan in its Annual Environmental Report to the DEC. Magellan will also provide DEC, DoH and DMP and other stakeholders with a link to their website ([www.magellanmetals.com.au](http://www.magellanmetals.com.au)) which will contain all the above-mentioned reports.

The auditor engaged under Condition 10 will report the findings of the inspections, auditing and monitoring, in the first instance, to the community reference group. All of the above mentioned reports will be also publicly available on the Magellan website as described above.

The Magellan website will be updated within seven business days of the abovementioned reports being made available to Magellan. The abovementioned reports will be available on the Magellan website for the life of the project. If the abovementioned reports are no longer available on the Magellan website, Magellan will make the report available on request.

#### **2.2.5 Training**

Both the Independent Auditor and Independent Inspector will be required to complete specific lead awareness training during induction to the mine site. It is a Magellan requirement that all personnel, visitors and contractors complete the induction process. This includes a general site induction and a lead awareness program that details the biological effects of lead, the exposure pathways and preventive strategies. This training will include a competency assessment.

### 3. REFERENCES

Department of Environment and Conservation (DEC) 2006, *Contaminated Sites Auditors: Guidelines for Accreditation, Conduct and Reporting*, DEC, Perth, August 2006

Strategen 2009a, *Health, Hygiene and Environment Management Program* prepared for Magellan Metals Pty Ltd, April 2009.

Strategen 2009b, *Health, Hygiene and Environment Monitoring Program* prepared for Magellan Metals Pty Ltd, June 2009.

## **Appendix 2**

**The PDF version of Magellan Ministerial Approval and confirmation of  
Inspectorate Australia (Assay) Pty Ltd as Independent Auditor**



Government of Western Australia  
Department of the Premier and Cabinet

## Minister for Environment

13/8/09

### Media Statement

#### **Magellan allowed to resume lead exports.**

Magellan Metals has been allowed to resume lead exports from its Wiluna mine in the north-west Goldfields, through the port of Fremantle.

Environment Minister Donna Faragher said today she had approved several health, hygiene and environmental management and monitoring and emergency response plans the company had prepared under stringent environmental conditions she had set last February.

"Each of these plans has been reviewed by a number of agencies including the departments of Environment and Conservation; Health; Mines and Petroleum, the Fremantle Port Authority and the Fire Emergency Services Authority," Mrs Faragher said.

"In approving the plans, I have received advice from those agencies and I am satisfied the plans meet the Ministerial conditions - the most stringent placed on a proposal of this kind."

The Minister said the health and safety of the Western Australian community was the top priority of the Liberal-National Government and this was reflected in the Ministerial conditions.

"Importantly, all transport of lead concentrate will cease should Magellan's lead be detected in the environment along the transport route," she said.

"Magellan will only be allowed to transport lead carbonate in double laminated and sieve-proof bags. After being sealed, each and every bag will be inspected by an independent auditor, then placed in containers at the mine site."

The accredited auditor is Inspectorate Australia (Assay) Pty Ltd.

Mrs Faragher said Magellan had also provided an unconditional and irrevocable bank guarantee of \$5million as a bond to cover costs associated with any clean-up required in the event of a spill of lead along the transport route.

"The conditions I have set are explicit and enforceable and are over and above what the previous Labor government thought was adequate.

"It remains my very clear expectation that Magellan will not only meet the conditions but exceed them. Any transgression will be dealt with swiftly."

Media contact: Dean Roberts - 9213 7250 or 0437 209 065

You can subscribe to have media releases emailed automatically from the Government's website: <http://www.mediastatements.wa.gov.au>

## Appendix 3



**Truck Wash Facility**



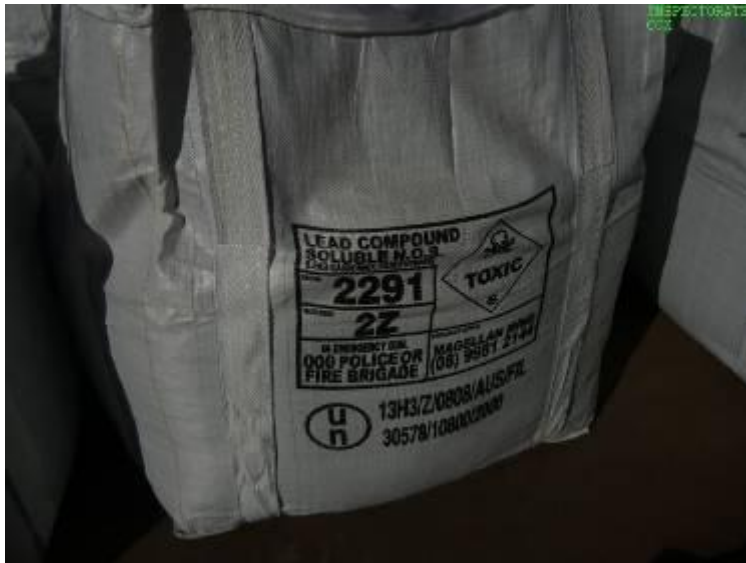
**Truck Wash Facility**



**Bagging and Storage Shed**



**Bags held outside prior to being packed in containers**



**Bag labels**



**Bags packed in Container**



**Vacuuming bags, and inspection prior to vanning**



**Vacuuming bags, and inspection prior to vanning**



**Bags at the door of the bagging and storage shed**



**Vacuum inside the storage shed**



**Moving bag in storage shed**



**Stockpile of "fresh" product**



**Bagging Machine**



**Bags inside storage shed close to stockpiles**



**Manual bagging facility**



**Bags stored close to stockpile in storage shed**



**Toplifter handling containers**



**Loading containers onto road transport**



**Containers passing through the truck wash**



**Truck wash observed by Inspector**



**Trailer with skeleton frame**



**Top bagging facility**



**Stored Bags in top shed**



**MAGELLAN LEAD PROJECT**

**DUST MONITORING INSIDE SHIPPING CONTAINERS**

**CHAIN OF CUSTODY FORM**

<p><b>Magellan Mine Site:</b>  <b>Independent Inspector to randomly select a container without the knowledge of Magellan, to place a dust monitor inside that container prior to removal of the container from the mine site</b></p>			
Container number:			
Date loaded:			
Dust monitor calibrated:			
Number of dust monitor:			
Time of sampling commencement:			
Flow rate:			
Container closed, locked and bolt seal applied. Bolt seal number:			
Number of REPLACEMENT bolt seal placed inside container:			
Magellan notified of the container number and seal number (existing and replacement) for identification at the Port			
Name of inspector placing monitor:		Signature	
<p>Note: The Independent Inspector is to place this partly completed chain of custody document and a new / replacement bolt seal into an envelope/plastic bag taped to the inside door of the container prior to the closure of the container at the mine site</p>			
<p><b>Intermodal Link Services (ILS) – Port of Fremantle:</b>  <b>Independent inspector from Fremantle office notified by (XXXX) of the arrival of the container (containing dust monitor). Independent inspector to attend to the container without delay, ensuring that the following section of the chain of custody document is completed:</b></p>			
Date and time of container opening:			
Time of sampling completion:			
Run time of dust monitor:			
Container closed, locked and replacement bolt seal applied. Replacement bolt seal number:			
Name of inspector Retrieving monitor		Signature	
<p><b>Independent Inspector Office (Fremantle):</b>  <b>The filter from the dust monitor is removed and placed in a plastic sealable bag, within an padded envelope and dispatched together with this chain of custody document to SGS Australia:</b></p>			
<p><b>SGS Australia Pty Ltd, 10 Reid Road, Perth International Airport, Newburn WA 6105. Attn: Mr Said Hira</b></p>			



# MAGELLAN LEAD CARBONATE CONCENTRATE

## Bag and Container Inspection Report – Wiluna Mine Site, Western Australia

	<b>CONTAINER NUMBER</b>	
DATE OF CONTAINER LOADING		
CONTAINER CLEAN, FREE FROM DAMAGE AND UNNECESSARY MATERIALS (RUBBISH AND PACKING MATERIALS)?		
WAS CONTAINER CLOSED, LOCKED AND SEALED UPON COMPLETION OF BAG LOADING?		
WAS CONTAINER BOLT LOCK SEAL WITH NUMBER PLACED ON THE CONTAINER?		
ARE MARINE POLLUTANT LABELS AND CLASS 6 DIAMOND LABELS PLACED ON ALL 4 SIDES?		
WAS THE CONTAINER & TRANSPORT UNIT WASHED DOWN AND FREE FROM LEAD DUST BEFORE LEAVING THE WILUNA SITE?		
HAS THE BAG RECORD SHEET BEEN COMPLETED?		

	Is the bag gross weight at or below 2 metric tonnes?	Is the bag in good physical (undamaged) condition	Does the bag have any evidence of lead carbonate dust on the outside?	If YES, was the bag re-vacuumed and made clean?	Does the bag have the required labels and markings?
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					

Name of Attending Inspector		Signature of Attending Inspector		Date container signed off	
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**Container Loading Logsheet**

Vessel	Date Loaded	ContainerTare	Container Checks			Comments (eg. Rejected)
			Pass	Fail	(circle which)	
Bag #	Bag Weight	Moisture	Water Added	If water added New Weight		
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
	<b>Seal #</b>	<b>Total</b>	Logsheet completed by:			

## BAGGING MACHINE DAILY PRE-START CHECK-LIST

Item to be checked	OK ✓	Comment
<b>ALL Operators Equipped with appropriate PPE</b>		
Visual check of work platform at bag head		
Visual checks on bag head & components		
Check electrical leads & connections		
Check bags on dust collector		
Check grizzly & hopper for rocks/build-up etc		
Check belt chamber for rocks/foreign material etc		
Ensure all inspection hatches are closed securely		
Check conveyor underpan & tail pulley for build-up		
Check gen-sets, pumps, hoses all ok		
Check air guages for correct settings/ check oil in comp		
Check conveyor covers fitted securely		
Check lift table for damage, obstructions etc		
Check structural beams & components for loose bolts etc		

**End of Week (Thurs PM) Clean & Inspect -:** At a time specified with Prod Supt & Supervisor bagging is to cease and the entire bagging machine is to be cleaned inc Feed Hopper, belt Chamber, Conveyor underpan (covers to be removed), Mobile Equipment, Light Vehicles etc - Once complete then the Mtce & Prod Supt to inspect & action/plan mtce items as required.

### Plant Downtime Record

From	To	Reason

### END OF SHIFT CHECKS - To be completed by Supervisor or designate

ITEM	OK ✓	COMMENT
Machine shut-down in an orderly manner		
Machine & bagging area cleaned		
Bagging Conveyor Underpan cleaned		
All Bags checked for cleanlines & damage		
All Bags Stacked in Stockpile		
Composite Sample correctly labelled & Delivered to Lab		
Compressor Drained		
[Other]		
<b>Signed -:</b>	<b>Date-:</b>	<b>Thursday, 13 May 2010</b>   <b>Time-:</b>

**Return Completed form to Production Supt/Mgr by 6:00PM Daily**

<b>DAILY BAGGING LOG</b>			
<b>Bag #</b>	<b>Weight</b>	<b>Moisture</b>	<b>Old Bag Numbers</b>
130510001			
130510002			
130510003			
130510004			
130510005			
130510006			
130510007			
130510008			
130510009			
130510010			
130510011			
130510012			
130510013			
130510014			
130510015			
130510016			
130510017			
130510018			
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130510027			
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130510029			
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130510031			
130510032			
130510033			
130510034			
130510035			
130510036			
130510037			
130510038			