Department of Transport

Project Closure Report

PROJECT	
Project Name	Esperance Clean-up and Recovery Project (ECRP)
Project Executive	Catherine Wallace
Project Director	Wayne Winchester
Project Manager	Matthew Devenish
Project Start Date	December 2008
Project End Date	June 2012 - Sampling and Cleaning June 2015 - Sentinel Monitoring, Audit and Close-out

DOCUMENT CONTROL	
Objective File Name	Esperance Clean-up and Recovery Project
Objective ID / Link	fA49477
Document Version	V1.1 30/06/2015

1. INTRODUCTION

Bulk handling of lead carbonate at the Port of Esperance between July 2005 and March 2007 caused widespread lead contamination across the Esperance townsite.

In December 2006, a significant number of bird deaths were reported in and around Esperance. Tests on these birds revealed elevated levels of lead in their bodies.

The Esperance community was outraged at the contamination and the potential impact on their health, their previously pristine environment, their rain water supplies, home grown food and local seafood.

Parents of young children were especially concerned that the lead contamination had impacted on blood lead levels in their children and would have a long lasting effect.

Some residents moved away from Esperance and the wider impact of the lead contamination, fuelled by the ongoing adverse media, resulted in significant damage to the tourism industry with subsequent downturn flow-on to local businesses.

Early responses by the Department of Environment and Conservation (DEC), and the Department of Health (DoH) included sampling and testing of rainwater tanks, soil and the blood of adults and children living in Esperance.

Amid mounting public pressure, the State Government commissioned a Parliamentary Inquiry in April 2007. The inquiry sought submissions and conducted an extensive series of hearings that included government officers, senior officers and board members of the Port of Esperance, representatives of the mining industry, councillors and staff of the Shire of Esperance and members of the Esperance community.

The report from the Parliamentary Inquiry, including recommendations and findings, was tabled in the Western Australian Legislative Assembly in September 2007. A key finding of the inquiry was that as a result of emissions of lead from the Port of Esperance, residential and commercial premises in the town of Esperance, as well as the environment, had been contaminated by lead dust, with consequential impacts on the community including elevated blood lead levels in children.

In order to mount a coordinated and consolidated government response to the issue, the Esperance Clean Up and Recovery Project (ECRP) was established following a decision by Government on 3 November 2008. The Department of Transport was given the responsible agency status, a Project Director was appointed and the project commenced in December 2008.

1.1. Project Purpose

The purpose of the ECRP was to undertake a thorough and comprehensive clean-up of the lead contamination across the Esperance townsite, where it was found to be above agreed guidelines (ECRP guidelines were developed and recommended by the Department of Health and other agencies and endorsed by the ECRP Steering Committee – see section 4.1 for the list of guidelines).

1.2. Project Objectives

The ECRP was tasked with the following specific objectives:

- Assess/audit levels of lead and nickel in homes, premises and public places in Esperance and determine the need for cleaning by reference to agreed standards and guidelines;

- Remove lead and nickel residues in homes, premises and in public places to acceptable standards so that these contaminants do not pose a risk to the health of the Esperance community;

- Validate the cleaning process;

- Work with the Esperance community in this project and provide ongoing progress reporting; and

- Provide sentinel monitoring of homes to ensure no recontamination occurs.

1.3. Project Strategic Links

The ECRP was established following a decision by the Western Australian State Government. The Department of Transport (DoT) was tasked as the responsible agency for the ECRP; however, to effectively deliver the outcomes of this project required significant cross government cooperation and coordination.

In order to provide strategic guidance and to oversee the project, the ECRP Steering Committee was established in December 2008. The Committee was chaired by the Department of Transport and comprised representation from the Department of Health, Department of Environment and Conservation, ChemCentre, the Shire of Esperance, the Port of Esperance, the local Chamber of Commerce and Industry, and importantly, community representatives.

2. OVERVIEW

The lead contamination event that occurred over a period of time in and around Esperance was unprecedented in Western Australia and the work of the ECRP was possibly the largest environmental clean-up of its kind ever undertaken in Australia.

The scientific developments and logistics necessary to successfully undertake such a large scale clean-up of a townsite were unprecedented worldwide, and the international scientific community was paying close attention to the Esperance scenario.

The work undertaken involved characterisation and assessment of the extent of contamination, development of remediation techniques and validation procedures to ensure that the cleaning had been successful.

The project identified 2,502 premises within a likely area of contamination covering approximately half of the townsite. Sampling undertaken by the ECRP resulted in over 120,000 samples being sent to the ChemCentre for testing. Further data analysis by the ECRP identified 1,847 premises that required some form of cleaning.

The assessment and subsequent remediation of the widespread lead contamination of the Esperance townsite was achieved via a multi-skilled collaborative approach, employing the professional capabilities of project managers, analytical chemists, environmental health practitioners, doctors, epidemiologists, sampling and cleaning teams, and members of the community. Approximately 300 personnel were employed over the 4 year duration of the project.

Map showing final extent of Magellan lead contamination (approximately within a 2.5km radius of the Esperance Port)

Higher levels were generally identified closer to the Port and rail, although no clear or consistent pattern formed.

The extent of contamination was ultimately identified from a number of datasets, including:

- Plume modelling;
- Broad based soil sampling;
- Detailed sample results;
- Nickel to lead ratios; and
- Isotopic testing.

2.1. Project Justification

The ECRP addressed a significant contamination event that had human health, environmental and economic impacts on a small tourist town on the remote south coast of Western Australia. The contamination was unprecedented worldwide and the Western Australian State Government was compelled to respond in an appropriate way.

2.2. Strategic Importance

The role of the ECRP in undertaking a successful clean-up operation and restoring the faith of the Esperance community was of paramount importance to the State Government.

The Premier of Western Australia took a personal interest in the issue and made several visits to Esperance, specifically to meet with the community and the project team. The ECRP was on the Premier's watch list and regular briefings were made to the relevant Ministers and the Premier during the course of the project.

Given the unprecedented nature of the contamination event, the international scientific community was also paying close attention to the methodologies and processes developed by the ECRP in addressing the issue and remediating the townsite.

International scientific papers were published and the ECRP has developed a framework and set of methodologies to deal with such an issue, should it ever happen again anywhere in the world.

3. GOVERNANCE

3.1. Accountabilities

3.1.1. Project customer

The work of the ECRP was undertaken for the government of Western Australia, with the Department of Transport as the responsible agency, and the Minister for Transport as the responsible Minister. The ultimate project customer was the Esperance community.

3.1.2. Project oversight

One of the key successes of the ECRP was to base the project team in Esperance. The project was overseen by a Steering Committee that provided guidance and direction, yet allowed day-to-day management of the ECRP to be undertaken by the project team, on the ground in Esperance. The ECRP Project Director also reported to a Perth-based Executive Director, who provided high level support to the project team.

3.1.3. Project management

The Esperance based project team initially comprised a Project Director, a Project Manager Sampling, a Project Manager Cleaning and a Project/Administration Officer. As the project unfolded and the sampling component of the project was completed, the two Project Manager (Sampling and Cleaning) positions were merged into one single Project Manager.

3.2. Monitoring & Reporting

3.2.1. Performance reports

Project performance reports were prepared on a monthly basis for the duration of the project. These reports were made available to all stakeholders identified in the Communications Plan and were also published on the project's "OnCue" website.

Financial performance monitoring was undertaken on a monthly basis.

3.2.2. Briefings to Government

Regular Briefing Notes were prepared for the relevant Ministers and Premier during the course of the project, primarily to ensure they were kept abreast of the project progress and to highlight contentious or sensitive issues as the project unfolded.

In-person briefings and presentations were also made by the Project Director to the Premier, Minister for Transport, Director General of Transport and the Department of Transport executive.

3.2.3. Internal project monitoring

The project team regularly monitored the health of the project itself.

This check was based around the "Five Pillars of a Healthy ECRP", which was a statement developed by the Project Director and supported by the Project Management team.

Pillar 1. **Financial**
We must source adequate funds to successfully complete the project, closely monitor our expenditure and provide transparent reporting.

Pillar 2. **Technical**
Procedures and methodologies must be well documented and readily available, now and into the future. We must embrace new technology, seek continuous improvement and train staff to have the skills required for their job. Decision making must be driven through the analysis of quality data. We must allow and encourage innovative solutions.

Pillar 3. **Physical**
The project team and contract personnel must be resourced with the appropriate tools, equipment and safety protocols to ensure an efficient, effective and safe working environment.

Pillar 4. **Emotional**
We must reward, recognise, empower and develop staff and contract personnel to ensure their personal development and emotional wellbeing.

Pillar 5. **Spiritual**
We all must believe in the project. We must share the vision, articulate clear direction and provide positive belief to staff and stakeholders. We must celebrate our success.

3.3. Key Performance Indicators

The ECRP developed the following Key Performance Indicators that were used to determine the ultimate success of the project:

- Customer Satisfaction Rating;
- Removal of Magellan lead contamination from the townsite to agreed guidelines;
- Achieve agreed turnaround times to customers for test results;
- Achieve monthly sampling targets;
- Achieve monthly cleaning targets;
- Achieve data analysis turnaround times;
- No Lost Time Injury during the course of the project;
- No blood lead level increases to project personnel during course of the project; and
- Achieve a satisfactory independent closeout audit of the project.

All of the above KPI's were developed with established targets and measurable performance indicators, and agreed at ECRP Steering Committee level.

The ECRP team closely monitored performance against the KPI's as the project was rolled out. Performance was reported through the monthly project reports and within the minutes of the regular ECRP Steering Committee meetings.

The ECRP management team and the ECRP Steering Committee were satisfied that all project KPI's were met to an acceptable standard and targets were achieved.

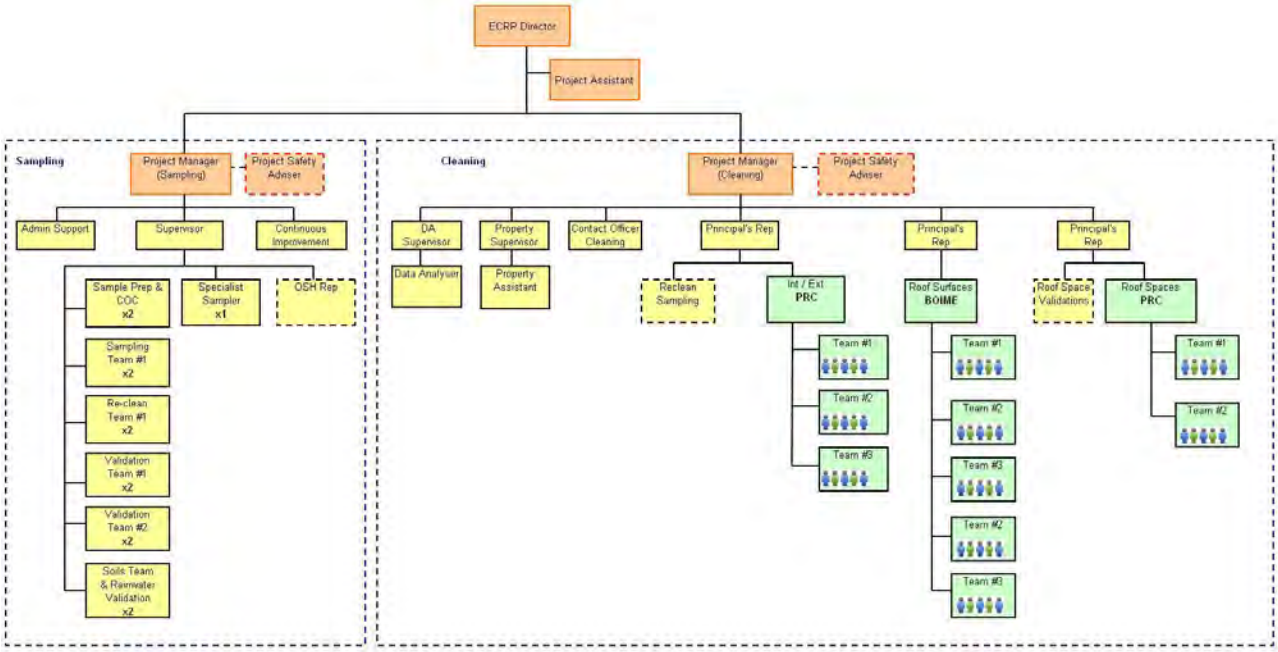
3.4. Governance Structure

Minister for Transport

Department of Transport
Director General and Executive Director, Major Transport Projects

ECRP Steering Committee
Department of Transport [Chair], Department of Health, Department of Environment and Conservation, ChemCentre, Shire of Esperance, Port of Esperance, Esperance Chamber of Commerce and Industry, and community representatives

ECRP Project Team
Esperance based project team (refer organisational chart below)



Stakeholder Group
In addition to the ECRP Steering Committee membership, the following were key stakeholders in the Project - Local Members of Parliament, Magellan Metals, Goldfields Esperance Development Commission, International scientific community, Australian Local Government Authorities, environmental groups, media, and tourists.

3.5. Project Roles and Responsibilities

- **Project Sponsor** - Minister for Transport:
  - Objectives;
  - Scope;
  - Funding; and
  - Progress monitoring.

- **Project Executive** - Department of Transport (Director General, Deputy Director General and Executive Director, Major Transport Projects):
  - Progress monitoring and review;
  - High level support and advice; and
  - Approvals.

- **Project Guidance** – ECRP Steering Committee**:**
  - Strategic Direction / Policy development;
  - Oversee project implementation;
  - Progress monitoring;
  - Reporting on deliverables; and
  - Working Groups.

- **Project Delivery** - A core of Esperance-based Department of Transport employees**:**

  Project Director:
  - Overall management responsibility;
  - Working with the ECRP Steering Committee to drive strategic direction and performance;
  - Delivering outputs within financial constraints;
  - Ensuring sufficient resources and the capacity to deliver outputs;
  - Catering effectively for the diverse range of stakeholder requirements;
  - Oversight of risk mitigation strategies; and
  - Reporting to the Steering Committee and all stakeholders.

  Project Manager:
  - Project governance including starting, monitoring and stopping activities;
  - Budget management;
  - Risk assessment and management; and
  - Safety controls and management.

  Project Officer:
  - Day to day and front office support.

- **Internal Corporate Support** – DoT Corporate Services:
  - Procurement;
  - Records;
  - Information Technology;
  - Finance;
  - Media;
  - Legal; and
  - Human Resources.

- **External Technical Support** – ChemCentre, IFAP, consultants as required.

4. SCOPE

The Premier of Western Australia tasked the ECRP to undertake a thorough and comprehensive clean-up of the lead contamination across the Esperance townsite, where it was found to be above agreed guidelines. The Premier also noted that nickel residues will be removed as a consequence of undertaking the clean-up of lead.

The full extent of the contamination of the Esperance townsite was unknown at the time of commencement of the ECRP.

Although preliminary analysis of available datasets had indicated a likely extent of contamination, the data was not detailed enough to develop a full project plan.

These available datasets included:

- **Air** Deposition Gauges and Hivol samplers (Esperance Port)
- **Rainwater** approx. 1500 tanks in 2007 (DoH/UWA/Shire/Port)
- **Homes** samples from 21 homes in 2009 (DoH) and 11 homes in 2008 (Locals for Esperance Development)
- **Vegetation** Leaves, flowers during 2008 and 2009 (DEC)
- **Bird feathers** 4 sites during 2007 and 2008 (Conservation Council WA)
- **Playgrounds** 10 sites during 2008 and 2009 (Shire of Esperance)
- **Roof cavities** approx. 20 homes in both Albany and Esperance (ECRP)

It was therefore necessary to undertake further sampling to determine a likely area of contamination. The sampling program initially focussed on soil sampling at intervals along concentric rings moving outwards from the Port. This broad-based soil sampling program, along with scientific desk-top plume modelling, allowed the ECRP team to determine a more refined “likely area of contamination”. This likely area was then divided into a series of stages and detailed sampling of individual premises within these stages commenced.

The results of the detailed sampling at each premise determined the scope of cleaning work required. As the sampling and cleaning program was rolled out in incremental waves, with cleaning following sampling, it remained impossible to determine the definitive project scope, until the last premise was sampled.

Consequentially, project funding was made available incrementally as the project unfolded and a reliable budget picture could be established.

Government initially made $15 million available for the commencement of sampling and cleaning, and in doing so, made it clear that as the project scope became clearer, more funds would be made available to finish the job.

4.1. In Scope

The ECRP cleaned residues of lead carbonate (and in some cases nickel where a guideline for nickel was established) if the readings exceeded the following guidelines:

Area being sampled	Nickel	Lead	Units
Roof Spaces	N/A	Relative	-
Roof surfaces	N/A	1.0	µg/cm^2
Gutters	600	300	mg/kg
Rainwater tanks	0.02	0.01	mg/L
Internal and external surfaces readily accessed by adults	N/A	0.4	µg/cm^2
Internal and external surfaces readily accessed by young children	N/A	0.04	µg/cm^2
Carpets	N/A	0.04	µg/cm^2
Soils	600	300	mg/kg

NB. The "Relative" guideline for roof spaces means that the ceiling dust readings are considered in the context of (1) concentration of the lead in mg/kg; and loading of the lead in µg/cm2; (2) source of the lead and (3) any pathways from the ceiling void or roof space into living areas accessible by the occupiers.

As the project unfolded, there was a clear need to remain dynamic and flexible with respect to decision making and methodologies for tackling specific issues as they arose. Although the overall scope of the project was quite clear, there were many issues and situations throughout the course of the project, particularly in the early days, which needed policy decisions and appropriate management plans.

For example, asbestos became a significant issue as the project unfolded. Specific protocols were therefore developed to address the handling and removal of asbestos, in the context of the lead contamination clean-up. Some asbestos roofs were replaced with zincalume sheeting at the cost of the project, simply because cleaning was a greater environmental and health risk than replacement.

Carpets were also very problematic and it was often difficult to remove lead contamination, down to the accepted guidelines. In some cases, carpets were simply replaced.

Nickel contamination was also removed from across the townsite, where it was found to be above established nickel guidelines. In many instances, below-guidelines nickel contamination was removed as a consequence of cleaning for lead contamination.

4.2. Out of Scope

The ECRP was tasked with cleaning contamination from Magellan lead dust. Where other sources of lead were found (such as from lead paint, flashings, hobbies, etc), the premise owner was notified and provided with information about the source of the lead and relevant management protocols.

In a very sensitive and difficult decision making process, Magellan lead was in scope and non-Magellan lead was deemed out of scope. The project identified that many other sources of lead exist in the environment, but this lead was often bound in the matrix of another material and therefore not as readily bio-available as Magellan lead dust.

Isotopic, or “fingerprint” testing of the lead samples became a very powerful tool to determine the source of the lead and therefore if the contamination was in or out of scope for cleaning purposes. Lead sourced from different ore bodies around the world exhibit their own unique fingerprints. For example, the fingerprint of lead sourced from Western Australia will be different to lead sourced from interstate or overseas. While these ores may end up in lead flashing, paint, tile glazing, etc, their origin can be traced back to a particular ore body by identifying the unique fingerprint of the lead in the material.

ChemCentre in Perth performed isotopic testing for the ECRP by using a mass spectrometer to measure the relative abundance, or ratio, of isotopes in a given sample. (Isotopes are different forms of the same element. The atoms in the element have the same number of protons but differing numbers of neutrons). They then compared the measurement with the ratios from Esperance WA, Leonora WA and Broken Hill NSW to check for similarities. If the isotopic test revealed a similarity with lead from Leonora WA, then Magellan lead was the likely source. Alternatively, the test sometimes revealed that the lead present in the sample was likely to have a contribution from Broken Hill, NSW (commonly used in lead flashing) or Esperance background (most soils have naturally occurring lead). If the ratios did not match either of these, then the lead most likely originated from some other unknown source.

Furthermore, handheld XRF analysers were used to measure the lead concentration in metals, plastics, tiles, paint and wood stains within seconds. This helped the ECRP sampling and validation teams to identify other local sources of lead, even if the lead was inherent in the material such as lead-based paint. When a sample was measured using XRF technology, metallic elements present in the sample emitted their own unique fluorescent x-ray energy spectrum. By simultaneously measuring the fluorescent x-rays emitted by the different elements in the sample, handheld XRF analysers rapidly determined those metals present in the sample and their relative concentrations – in other words, the elemental chemistry of the sample. Where the source of lead was found by XRF Analysis to be inherent in the surface material being sampled (e.g. lead-based paint), the ECRP reported the likely source to client and excluded that surface from any further cleaning since further cleaning would not be effective in reducing the levels of lead in the material.

4.3. Audit of Deliverables

The Department of Transport commissioned Mr Andrew Kohlrusch, a Western Australia Department of Environment and Conservation (DEC) accredited contaminated site auditor, to undertake a compliance and performance audit of the Esperance Clean-up and Recovery Project (ECRP) for the Esperance town site.

The audit was commissioned to assess whether the project:

1. met the objectives of the ECRP;
2. met the requirements of the Deed of Settlement (between the State and Magellan Metals); and
3. met the desired outcome of the Premier that the clean-up was “thorough and comprehensive”.

The audit was completed in June 2012 and conclusions from the audit were as follows:

“Over the course of the audit of ECRP activities the dedication of the ECRP team to the project, led by Mr Wayne Winchester (Project Director) and Mr Matthew Devenish (Project Manager), was evident. This included the establishment of a thorough protocol, continual community briefings and dedication to delivery of the project whereby each site was individually assessed on its merits. Furthermore the care taken in checking all the site data to preparing individual reports for the 2000+ properties sampled and cleaned, was noted.”

The auditor also provided the following conclusions on the works undertaken by the ECRP in the Esperance town site in relation to the objectives of the ECRP:

"Objective 1 (a) - To assess/audit levels of lead and nickel in homes, premises and public places in Esperance and determine the need for cleaning by reference to agreed standards and guidelines;
The sampling and validation procedures were in general adequately defined in the sampling methodologies. Where changes were required as suggested by the auditor, the changes were not considered to materially affect the sampling methodologies, but provide clarification pertaining to specific steps in the procedures. The procedures were considered adequate to document the works to be undertaken. Field audits of validation works and validation of sample results by the auditor provided sufficient confidence that sampling and validation was undertaken in accordance with the methodologies prepared. It is the auditor's opinion that the sampling and validation works were sufficient to determine the levels of lead and nickel present in homes within the Esperance town site for the purposes of determining where clean-up was required.

Objective 1 (b) - To remove lead and nickel residues in homes, premises and in public places to acceptable standards such that these contaminants do not pose a risk to the health of the Esperance community;
The cleaning procedures prepared by the ECRP were generally sufficient to communicate the requirements of cleaning to be undertaken. While some limitations in the documentation were noted, appropriate explanation was provided by the ECRP team to demonstrate that these issues were not material. The site inspections conducted by the auditor, confirmed the completeness of the procedures. The consistent field teams and validation of documentation also provides further assurance to the auditor that cleaning works were thorough and comprehensive.

Objective 1 (c) - To validate the cleaning process;
It is considered by the auditor that the validation procedures following clean-up were adequate to provide assurance that the cleaning process was carried out to acceptable standards, providing confidence that the contaminants did not pose any further risk to the health of the Esperance community. While an assessment of the QAQC results was not undertaken by the ECRP team, the auditor has undertaken a validation exercise to evaluate that QAQC procedures were sufficient to demonstrate the data representativeness, completeness, precision, accuracy and comparability. This provided an added level of assurance that the data is of an acceptable quality upon which to draw meaningful conclusions regarding sampling, clean-up and validation of the sites.

Objective 1 (d) - To work with the Esperance community in this project and provide ongoing progress reporting; and
The variety of community consultation measures provided and the feedback received by the auditor as part of the stakeholder consultation review suggests that the ECRP developed an open and honest relationship with the community which has resulted in the community developing respect for the ECRP team and its activities. The auditor considers the community consultation undertaken by ECRP more than adequate to meet the project objectives of providing ongoing progress reporting throughout the project.

Objective 1 (e) - To undertake sentinel monitoring to ensure no re-contamination of the Esperance town site.
Sentinel monitoring is ongoing and therefore a conclusion on the completeness of the sentinel monitoring cannot be undertaken at this stage.

Objective 2 - To meet the requirements of the Deed of Settlement.
The ECRP program was based on adopting either on standard procedures or developing methods through consultation with health professionals and/or environmental consultants.

The auditor considers that based on the review of the procedures established for the ECRP, the explanations provided by the ECRP team on matters identified in the review, the observations made during the various site inspections conducted in January 2012 and the feedback obtained during the stakeholder review, the requirements of the Deed of Settlement with regards to the Esperance town site have been fulfilled.

Objective 3 - To achieve the desired outcomes of the Premier that the clean-up would be 'thorough and comprehensive'.
The auditor considers that the procedures developed for the ECRP, the manner in which the ECRP team delivered the project and the community input have combined to allow a robust, technically justifiable and comprehensive clean-up and validation of the Esperance Town site. All stakeholders should be proud of their contribution to this project and it remains an example of (while hopefully not required) how such a project should be planned and implemented."

In addition, an addendum to the Townsite Audit Report was prepared in June 2015, following completion of the 2 year Sentinel Monitoring Program.

The auditor provided the following conclusions on the works undertaken by the ECRP in relation to the Sentinel Monitoring Program:

"1. Supporting documentation, including field sheets, chain of custody documentation, sample receipt advice and laboratory reports, were provided to the auditor as separate documentation rather than as an appendix to the report. The auditor has reviewed this information and is satisfied that this supports the reliability and integrity of the data presented and discussed in the report.

2. *Review of field and laboratory methodologies used for the sentinel monitoring program indicate that procedures were consistent with Australian Standards, the National Environment Protection Measure (NEPM) and general industry standards.*

3. *The assessment criteria provided for the dust deposition results obtained for external areas is not directly comparable to the recorded results as they are presented as a dust deposition rate (mg/m3/month), while the nominated assessment criteria is represented as a contaminant concentration (µg/m3). Nonetheless, extensive isotopic testing of dust deposition results indicates that dust collected in these devices is not attributable to Magellan lead carbonate. On this basis, the auditor is satisfied that the sentinel sampling undertaken by the ECRP was sufficient to confirm the objectives of the sentinel monitoring program, namely to confirm, or otherwise, that nickel and lead recontamination associated handling of lead carbonate material, has not occurred.*

4. *The scope of the sampling program, namely the number and location of sampling points, is considered to be sufficient to determine whether recontamination of lead and/or nickel has occurred within the Esperance town site.*

5. *The auditor concurs with the conclusions drawn by the ECRP, that:*

    a. *Nickel and/or lead recontamination (associated with historical handling of lead carbonate material from Magellan Metals at the Port of Esperance) has not occurred;*

    b. *The ECRP has been effective in its clean-up of affected premises; and*

    c. *There is no ongoing unacceptable risk to residents of and visitors to Esperance associated with recontamination of lead and nickel dust from Magellan Metals."*

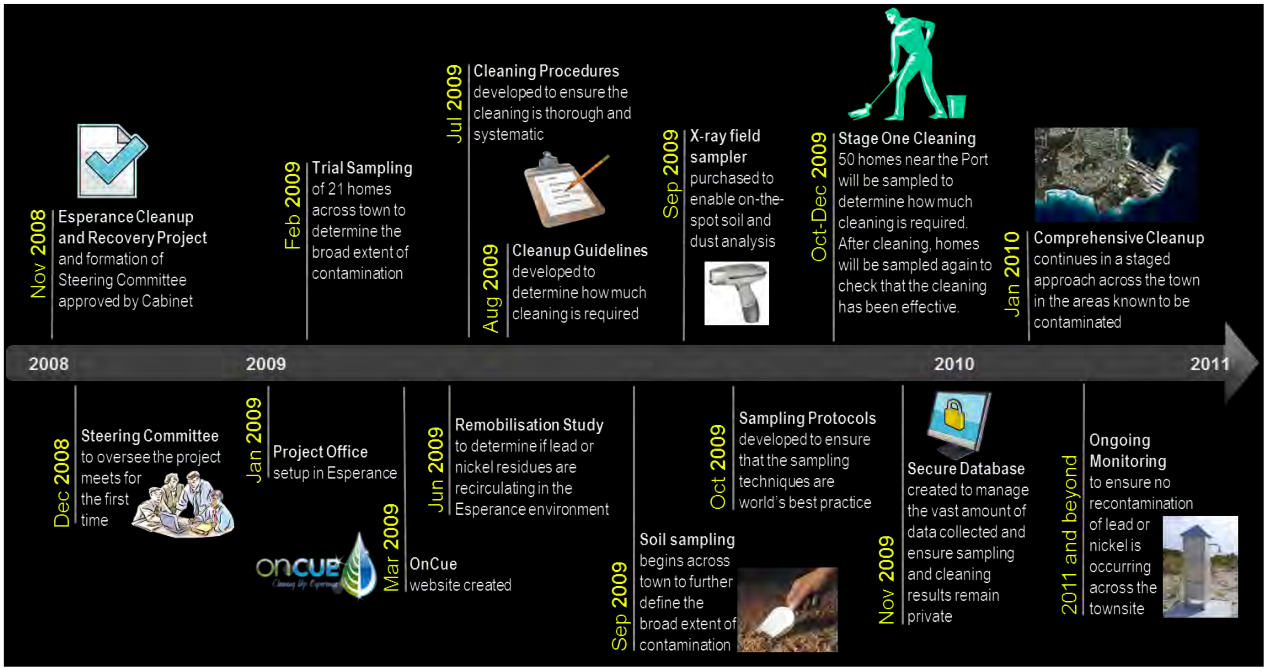
5. IMPLEMENTATION

Broadly put, the ECRP had 5 key phases:

1. **Define** the extent of the issue; develop clean-up guidelines, standards and protocols.
2. **Sample** individual locations to determine cleaning requirements.
3. **Clean** all those premises defined as requiring cleaning.
4. **Validate** that cleaning has met the required standards.
5. **Monitor** to ensure there is no recontamination.

A key success of the project was to ensure the rolling overlap of each of these phases. To ensure that works were undertaken in a staged, methodical and efficient manner, it was necessary to sample, clean, validate and monitor in parallel actions across the townsite.

The following schematic provides an indication of the project timeline and key milestone events.



In order to undertake a thorough, comprehensive and systematic clean-up of the townsite, the likely area of contamination was divided into 11 stages and the sampling and cleaning works were undertaken on a rolling wave program across these established stages.

Detailed sampling of individual premises (to determine cleaning requirements) was always kept in advance of the cleaning program to ensure a steady stream of advance work was provided to the cleaning contracts.

Given the problematic nature of customer engagement to schedule sampling or cleaning (primarily due to the high percentage of absentee home-owners), sequential stages were not always fully completed before moving to the next stage. In the latter part of the project, there was a significant amount of follow-up required with homeowners to ensure that all premises within the likely area of contamination had been sampled and cleaned where necessary.

Map showing the likely area of contamination divided into Stages across the townsite

5.1. Methodology

5.1.1. Sampling

To ensure that the cleaning was directed at only those areas that required cleaning, up to 40 samples were taken from each premises. The samples were taken from internal areas (carpet bulk dust, roof bulk dust and surface wipe samples) and external areas (rainwater, gutter sludge bulk, roof surface wipes, external wall / surface wipes, and soil samples).

These samples were then sent to the ChemCentre laboratory in Perth for testing and analysis against the guidelines. The waiting time for results was typically 8-10 weeks.

Based on the results of the sampling, an individual cleaning work order was created for each of the affected premises. This was developed in conjunction with any special requirements from the client.

The cleaning contractors then contacted the occupier directly to make a time for the cleaning. Sometimes, there were up to three different cleaning bookings, depending on whether roof space cleaning, gutter cleaning or internal/external cleaning was required.

One of the key decisions to make was whether or not to conduct roof space cleaning. This decision was made in relation to a number of factors including the source of lead in the roof space, quantity of lead (considering both concentration and loading), age of the premises (i.e. the potential for dust to accumulate over time), construction of the roof (also to identify the potential for dust to accumulate in the roof space) and pathways for any roof space dust to enter living spaces.

5.1.2. Cleaning

Roof spaces – Access to the roof space was usually through the roof but was sometimes made through the ceiling access hatch.

If insulation was present, it was first rolled up in small sections and bagged in asbestos-grade plastic. As the bag exited the roof space, it was immediately bagged a second time and taken to a temporary waste disposal site at Wylie Bay Waste Facility on Wylie Bay Road, Esperance.

The dust on the ceiling was then sucked up and captured with an industrial, truck-mounted HEPA vacuum cleaner. The captured dust was bagged once within the vacuum system and bagged a second time in asbestos-grade plastic before then being transported to the same temporary site at Wylie Bay.

All bags of insulation and dust were then taken by shipping container to Red Hill Waste Management Facility in Bassendean, Perth, which is a licensed Class 3 waste disposal facility.

The roof space or ceiling void was then visually inspected by the ECRP sampling team, who determined if the cleaning was successful.

If insulation was present before the cleaning, it was replaced immediately after the cleaning with insulation batts of the same or better quality. The ECRP did do not use blow-in or foil backed insulation.

Roof Surfaces – The roof surface was cleaned by applying a bio-degradable detergent solution, scrubbing and then rinsing with fresh water. The run-off water was captured and contained in a licensed waste truck and transported to a licensed waste disposal facility in Albany.

The cleaning was then validated by the ECRP sampling team who conducted swab tests to ensure the readings were within the guidelines.

Rainwater Tanks – Rainwater tanks were cleaned if the water sample exceeded the guidelines. However, they were also cleaned as a precautionary measure if the water sample was within the guidelines but the gutters exceeded the guidelines and there was significant sludge present in the bottom of the tank.

The cleaning process started by draining the tank into a licensed liquid waste truck then removing any loose bulk material with an industrial vacuum. It was then

scrubbed with a bio-degradable detergent solution and finally rinsed with fresh tap water. The rinse water was also captured and contained in the licensed waste truck and transported to a licensed waste disposal facility in Albany.

In some cases, the rainwater tank was either too small or too deteriorated to clean thoroughly and the ECRP replaced those tanks in those instances.

Gutters – These were cleaned by firstly removing loose bulk material with an industrial vacuum, then scrubbing with a bio-degradable detergent solution and finally rinsing with fresh water. The run-off water was captured, contained in a licensed waste truck and transported to a licensed waste disposal facility in Albany.

The cleaning was then visually inspected by the ECRP sampling team, who determined if there were no residues of sludge remaining in the gutters and the cleaning was successful. The roof surface was sometimes sampled after the gutters were cleaned to ensure there was no contamination caused by splashback from the cleaning itself.

Internal and external surfaces – These were cleaned by either vacuuming (to remove loose bulk material), scrubbing with a detergent solution, wet wiping or a combination of all three methods wherever appropriate.

The cleaning was then validated by the ECRP sampling team who conducted further swab tests of the affected area.

Carpets - The carpets were cleaned using a domestic-type vacuum cleaner with a motorised head and a HEPA filter. The operator used a methodical approach which included going over the carpet at least four times in a cross-hatch pattern. The higher the reading, the more times the operator repeated the process.

The cleaning was then validated by the ECRP sampling team conducting dust extraction tests. If necessary, the process was repeated until the samples showed that the levels of lead in the carpet no longer exceeded the guidelines. In some cases, carpets were replaced if guidelines could not be achieved.

Soil removal – This was carried out by firstly investigating the boundary extent of the affected soil, digging it out to a depth of approximately 200mm (or further if the testing shows levels of lead that still exceed the guidelines) and removing it from the premises for disposal at Red Hill.

The soil removal was then validated by the ECRP sampling team who conducted further validation tests around the affected area.

5.1.3. Validation Sampling

Immediately after the cleaning, the ECRP Sampling Team took the samples described above or, depending on the type of cleaning, visually inspected the area to ensure it met the standards and guidelines.

External surfaces, including roof surfaces, internal surfaces and carpets were sampled using the same techniques that were used to take the initial samples. After cleaning roof spaces, gutters and rainwater tanks, however, there was not enough bulk material remaining (i.e. bulk dust, sludge or water) to provide a sample. Swabs were not taken as a substitute because there are different guidelines for bulk samples and swab samples and the two cannot be readily compared. Therefore, the cleaning in those cases was visually inspected by the ECRP sampling team, who

determined whether there were no remaining residues in the roof space, gutters or tanks and the cleaning was successful.

Clients who had rainwater tanks cleaned or replaced were contacted again by the ECRP, generally after a period of rainfall, to offer a follow-up rainwater tank sample.

The results of all the validation sampling and inspections were reported to the client in a final close-out report.

6. RISKS

The ECRP developed and adopted a project-specific Risk and Assurance System which underpinned the approach to risk and its management.

A risk management workshop was facilitated by RiskCover on 25th November 2009, and included the following activities:

- Determining the Critical Success factors associated with the project
- Identifying existing controls to manage risks and providing a high level assessment of the controls for each risk
- Rating the risk in terms of consequence and likelihood, giving a Level of Risk.

In addition, the ECRP undertook initial and on-going risk workshops in relation to both the sampling and cleaning components of the project. A Risk Assessment spreadsheet was prepared outlining risks and action plans for both of these project components.

6.1. Health performance

Lead is a known cumulative toxin that can affect the central nervous system. It is also known that children exposed to levels of lead can experience neuro-developmental issues. Infants and those with impaired kidney or liver function may be particularly at risk.

The World Health Organisation, WHO (WHO, 1995) advocate an action level of 10 µg/dl as requiring intervention in children.

In June 2007, the Department of Health commenced the largest public health blood lead level testing ever undertaken in Western Australia. This program resulted in 2,695 individuals (adults and children) being tested across the Esperance townsite, with 31 recorded blood lead levels above 10 µg/dl (7 of these were children under 5 years of age).

There is growing recognition that lower levels of blood lead may have more subtle effects on neuro behaviours and cognition in children (Jones, 2007) and that authorities are seeking to amend this level downwards (Rhoads, et al, 2012). There is good reason to minimise lead exposure where practicable.

Blood lead level monitoring of ECRP personnel on a monthly basis revealed no health concerns during the course of the project. In addition, free blood lead level testing was offered to ECRP clients, after completion of cleaning. Approximately 100 people took up the offer, with no results above guidelines.

ECRP personnel undertook a daily “toolbox” meeting prior to commencing the day’s work. These meetings provided the opportunity to reinforce clear safety messages and to undertake a controlled class of morning stretches and exercises. These stretches and exercises proved extremely beneficial in reducing stress and strain injuries.

6.2. Environmental performance

Contamination and subsequent remediation of the type and scale as that experienced in Esperance is without precedent in Australia (and perhaps the world).

A trial program of assessment and clean-up of 35 selected trial homes in Esperance was initially undertaken. This provided a valuable mechanism of tackling those premises where the lead contamination may have been predicted to be highest (for example those in close proximity to the port). It also provided a means of developing techniques and standards upon which the remaining homes in Esperance could be assessed and remediated.

During the early stages of the project, it was deemed necessary to determine if the lead and nickel contamination across the Esperance townsite was mobile. If lead and nickel contamination in the Esperance townsite was to be effectively cleaned up it was important to ensure that cleaned areas do not become re-contaminated by remobilisation of contaminants from adjacent areas.

A report by Jim Malcolm, Environmental Consultant in June 2009, was commissioned to "determine if lead and/or nickel residues in the Esperance townsite are being remobilised and if so by what mechanism".

A key finding of the consultancy was that "the proposed clean-up, focused on houses identified by further sampling in the community, can proceed with no likelihood of significant recontamination by air-borne lead."

In order to proceed with cleaning operations, a series of peer reviewed assessment and clean up techniques were developed by the ECRP and subsequently scrutinised by a panel of experts nationally and in some cases internationally. Community consultation also provided a valuable means of cross referencing against public expectations.

Techniques for the valid collection of samples including blood, soil, dusts, water, sediments, soils and biota were employed. Analytical techniques were employed to determine the extent and levels of the contamination. These techniques were subjected to ISO 9001 and NATA (National Association of Testing Authorities, Australia) accreditation.

No major environmental spills occurred during the course of the project and the Sentinel Monitoring Program has indicated no re-contamination from Magellan lead.

6.3. Safety performance

The ECRP placed safety as the number one project priority. This applied not only to ECRP personnel, but the community and the environment. To support this principle, an ECRP Safety Management Plan was developed.

An Occupational Safety and Health Management Manual was developed in conjunction with IFAP (industrial Foundation for Accident Prevention) and a Safety Management System was implemented throughout the course of the project.

All personnel received specialist training to ensure a safe and effective sampling and cleaning outcome. Through proactive and effective health and safety management over the course of the project, there were only 2 minor Lost Time Injuries (cut hand and a bee sting).

External workplace safety inspections and documentation checks by IFAP indicated excellent outcomes and legislative compliance across all safety aspects of the entire project.

6.4. Summary of Key Project Statistics

6.4.1. Sampling and Cleaning

- 2,502 premises identified within the likely area of contamination.
- 2,320 premises consented to the sampling program.
- 120,000 individual samples sent to ChemCentre for analysis.
- 1,847 premises required some form of cleaning.
- 1,775 premises consented to the cleaning program.
- Breakdown of work under the 3 cleaning contracts:
    - 433 roof spaces and replacement of insulation;
    - 1,144 roof surfaces, gutters, downpipes and rainwater tanks; and
    - 1,648 premises for external and internal surfaces and carpets.
- 80 personnel employed during peak of operations.
- 300 individual personnel employed over duration of project.
- 220,000 hours worked over duration of project.
- Over 15,000 individual letters and reports sent to clients.
- Overall client satisfaction rating of 94%.

6.4.2. Waste Disposal

The ECRP divided its waste products into 2 categories, wet waste (eg. water run-off from roof and gutter cleaning) and dry waste (eg. roof insulation, bulk dust, soil, carpet, PPE and cleaning consumables).

- 60 truckloads of wet contaminated waste were transported to a licensed waste disposal site in Albany, incorporating 720,000 litres of controlled liquid waste at a transport and disposal cost of approx. $350,000.
- 23 x 40’ sealed container loads of dry waste material was transported to the Red Hill Waste Facility site, on the outskirts of Perth, incorporating 135 tons of contaminated material at a transport and burial cost of approx. $145,000.
- Rainwater tanks that required replacement were cleaned, crushed and recycled at the Wylie Bay Waste Facility site in Esperance.
- Samples taken from individual locations were sent to ChemCentre for analysis. Once tested, the samples (or remains of them) were returned to the ECRP and held for a period after completion of the project. They have all since been appropriately disposed of at the Red Hill Waste Facility.

6.4.3. Health

- Blood lead level monitoring of project personnel on a monthly basis revealed no health concerns;
- Free blood lead level testing was offered to ECRP clients, after completion of cleaning. Approx 100 people took up the offer, with no results above guidelines; and
- Daily toolbox meetings with project personnel involved morning stretches and exercises.

6.4.4. Safety

- All project personnel received specialist training to ensure a safe and effective sampling and cleaning outcome;
- Through proactive and effective health and safety management there were only 2 minor Lost Time Injuries (cut hand and a bee sting); and
- External workplace safety inspections and documentation checks by IFAP indicated excellent outcomes and legislative compliance.

6.4.5. Environment

- No major environmental spills occurred during the course of the project; and
- Sentinel monitoring has indicated no re-contamination from Magellan lead.

7. COMMUNICATIONS

The ECRP developed and implemented a Communications Plan in conjunction with the Department of Transport's Communications team. The purpose of the Communications Plan was to ensure that all stakeholders understood roles and responsibilities in relation to information dissemination and the various mediums to be used.

The Plan included detailed information in respect to:

- Project background;
- Matrix of information flow;
- The various forms of media and communication methods;
- Communication priorities and timelines;
- Stakeholder list; and
- Budget.

8. FUNDING, BUDGET AND RESOURCES

8.1. Funding

The Western Australian Government provided the funding for this project through a specific allocation to the Department of Transport.

In support of the project, other stakeholder agencies (DoH and DEC) provided staff and resources at their own internal cost.

The State Government also negotiated a Deed of Settlement with Magellan Metals. This Deed committed Magellan to a $9 million contribution towards the clean-up costs. Magellan made a further $3 million available over a 3 year period ($1 million per year), for community project funding. All of this funding was duly distributed to community projects over the 3 year period.

Community and Government expectations of the ECRP ensured the project was driven by quality and a successful outcome, and not necessarily by a finite budget. The ECRP project team was also acutely aware of the need to spend public money allocated to this project in a responsible, efficient and cost-effective manner to reach a satisfactory outcome for all stakeholders.

Initial project funding was made available from an approved allocation of $15 million on 22 June 2009 to commence sampling and survey activity to identify the number of homes requiring cleaning and to commence cleaning those homes.

There was always clearly an opportunity for additional funds to be directed to the project, beyond the original $15 million Government allocation, as the project progressed and costs could be more accurately predicted.

Funding and costs were accounted for in a separate ECRP Cost Centre within the Department of Transport's financial system.

By early 2011, the ECRP had gathered enough actual cleaning and sampling data to undertake a comprehensive review of forward cost estimates to complete the project. Sampling data was available from approximately 80% of premises within the likely area of contamination and approximately 500 premises had been cleaned to that point in time.

Actual sampling data and cleaning costs were now able to provide the best indication to date of the scope and cost of the work required under the ECRP. The forward cost estimates indicated that the total cost to complete the ECRP would be in the region of $25.7 million.

In May 2011, the ECRP made a submission seeking approval for the allocation of an additional $10.7 million (beyond the $15 million originally allocated) to complete the clean-up of lead contamination across the Esperance townsite.

8.2. Budget

The total cost of the ECRP was $25.752m. This final amount aligned with the forward cost estimates made in early 2011 to finish the Project, and represented excellent budget forecasting and management by the ECRP team.

The table below indicates expenditure against each of the 3 key expenditure areas.

Project Phase	**Actual spend**
Planning, administration and overheads	$3.350m
Sampling and Data Analysis	$7.982m
Cleaning and Supervision	$14.420m
	$25.752m

The table below indicates expenditure per financial year of the Project.

Year of Expenditure	**Actual spend**
2008/09	$0.360m
2009/10	$3.012m
2010/11	$15.730m
2011/12	$6.600m
2012/13	$0.050m
	$25.752m

8.2.1. Budget Management

The ECRP was a complex and highly sensitive project. There was a clear expectation from government and the Esperance community that the project would be completed in a comprehensive, timely and cost effective manner and that all lead contamination that escaped from the Port will be removed from the town site.

The strategic and operational management of the ECRP budget was controlled by the Esperance based project team, with support and approvals from the relevant officers within the Department of Transport.

The ECRP Steering Committee (which comprises government and community representation) provided guidance and direction to the project, and therefore had direct implications for the expenditure of project funds.

Expenditure

Project expenditure was controlled and managed by the Project Director, Project Managers and Project Administration Officer in strict accordance with Department of Transport's and Government's procurement policies and guidelines.

Revenue

The ECRP was almost entirely funded by appropriation. Due to the expertise developed within the ECRP, some work was undertaken for other Government agencies, where capacity was available, on a cost recovery basis. For example, a sampling program along the rail corridor was undertaken for Main Roads WA.

8.2.2. Budget Forecasting

The lead contamination events at Esperance were without precedent worldwide. Without knowing the extent of the contamination and therefore the scope of the project, likely costs of such a clean-up exercise were always going to be, at the very best, an educated estimate.

The original submission which sought project funding was based on an extremely limited knowledge of the extent of the contamination and the likely costs required for detailed sampling and cleaning across the townsite.

Early project scope forecasting was based on results of sampling data from 21 homes selected at 500m intervals along a series of 4 transects radiating from the Port. This was an extremely limited dataset and it's extrapolation to determine cleaning requirements across the townsite was unreliable. Anticipated cleaning costs were also based on very limited data from cleaning work undertaken by the Port soon after the contamination event.

Various attempts at budget forecasting were made during the course of the project, but it was not until early 2011 that enough reliable data was available to make an accurate determination of the likely total project costs to completion.

The scope forecasting undertaken by the ECRP in early 2011 was based on actual sample data from 1750 premises across the affected area of the townsite, comprising 75,000 individual samples. Combined with actual cleaning cost data from approximately 500 premises cleaned to that point in time, it was possible to extrapolate a reasonably accurate forecast of expenditure required to complete the project.

8.2.3. Budget Reporting

There were a number of levels of reporting that were generated in respect to ECRP finances.

1. The Department of Transport's financial system provided an end of month close-out report, listing expenditure and variances by Cost Code line item.
2. The ECRP generated a monthly executive summary which grouped and categorised the key areas of expenditure in a meaningful way, relative to the project.
3. The ECRP generated a monthly "variance against forecast" report across the 3 key project areas of sampling, cleaning and administration.
4. The ECRP generated a bi-monthly dashboard summary of expenditure and current forecasts across the 3 major cleaning contracts.

In addition, the key areas of project expenditure were partitioned into 3 categories:

1. **Planning, Administration and Overheads**
   This category included expenditure related to direct and indirect staff costs, equipment and property leasing, training, consultancies, consumables and administrative overheads.

2. **Sampling and Data Analysis**
   This category included expenditure related to labour hire (customer contact, field samplers, Chain of Custody and data analysis personnel) and laboratory testing of field samples (ChemCentre).

3. **Cleaning and Supervision**
   This category included expenditure related to labour hire (cleaning supervisors), waste disposal and payments made under the 3 major cleaning contracts:

   - DOT401709 – Internal and External Surfaces
   - DOT402009 – Roof Spaces and Replacement of Insulation
   - DOT402109 – Roof Surfaces including Rainwater Tanks and Gutters

8.2.4. Budget Controls

The ECRP management team constantly sought ways to make the most efficient use of available funds to deliver required project outcomes in the shortest possible timeframe.

Financial related strategies included:

- Review and monitor the various ECRP financial reports in a timely manner;
- Respond to variances from forecast budgets and available funds;
- Constantly seek process and efficiency improvements across the project;
- Investigate and implement opportunities for the latest available technology;
- Maintain a high level of administrative record keeping rigour;
- Undertake regular Quality Audits to ensure consistency of operations;
- Ensure critical path workflow management to prevent hold-ups and blockages;
- Maintain accurate records of actual cleaning costs to inform future forecasting;
- Constantly refine scope of sampling and cleaning work;

- Provide adequate cleaning contract supervision;
- Undertake a proactive approach to safety management;
- Ensure all staff are appropriately trained and have the necessary resources; and
- Closely monitor cleaning contracts for performance and contract variations.

8.3. Resources

One of the key successes of the ECRP was the ability to resource the project in a timely, efficient and effective manner. All relevant government guidelines, protocols and procedures were adhered to, and the ECRP project team received excellent support from internal DoT procurement officers.

There was often a need to go 'outside the box' to reach a satisfactory outcome or solution to a difficult situation. Given the unprecedented nature of the project, innovative solutions to problematic issues were often required. Without this flexibility, innovative problem-solving and timely support, the project may well have been caught up in needless bureaucracy and red tape.

Considerable resources and expertise were provided free of charge by stakeholder government agencies, specifically the Department of Health and the (then) Department of Conservation, Esperance Port and the Shire of Esperance.

In addition, ChemCentre were an extremely valuable partner to the project. Not only did they provided testing of the approximately 100,000 samples taken from Esperance (on a fee for service basis), but they provided a considerable amount of expertise and support to the project, free of charge.

The Esperance community members of the ECRP Steering Committee also provided a huge amount of support and expertise, in their own time and at their own expense.

The Chair of the ECRP Steering Committee (a government appointed consultant) provided an excellent link between the ECRP, the various government agencies and the Minister's and Premier's offices.

9. POST-IMPLEMENTATION PLANS

9.1. Monitoring and review – Sentinel Monitoring Program

To ensure that no re-contamination was occurring across the Esperance town site, the ECRP established a two-year Sentinel Monitoring Program, commencing in November 2010.

The Sentinel Monitoring Program was established with the clear objective to ensure that the ECRP had been effective in its clean-up operations and that lead or nickel recontamination was not occurring, either from the cleaning process itself, from the environment or from any other source.

A further outcome of the Program was to provide assurance to the community and government that the ECRP had been effective, beyond the initial clean-up operations.

To achieve the Program objectives, the ECRP and ChemCentre undertook to analyse atmospheric nickel and lead dust fall depositions in collection devices placed strategically throughout a number of premises across Esperance.

The owners of nine residential premises located in and around the Esperance town site agreed to participate in the Sentinel Monitoring Program and samples were collected from each of the premises at three month intervals, except in winter, when the external sites were collected monthly.

A summary of findings and conclusions from the Sentinel Monitoring program follows:

> *The average internal living area readings showed very little quantities of both lead and nickel dust fall over the 2 year period, with most being below the limit of detection. Though some premises did have positive readings during the individual rounds they were not continuous through the 2 year monitoring period.*
>
> *The average internal roof space readings showed no mobilisation of nickel dust, and only two premises showed a positive average for lead. These average concentrations were below ECRP's lead guideline, indicating a low level of dust potentially available for mobilisation.*
>
> *Although the external dust deposition bottles revealed positive average deposition rates across all sites for both nickel and lead, the nickel readings were considered very low and all isotopic analysis of the lead readings showed that the source was not Magellan. To put the nickel readings in some context, the nickel deposition rate recorded by the ECRP is lower than the Port of Esperance air monitoring limit of detection (0.3 mg/m2/month).*
>
> *The two-year Sentinel Monitoring Program detected very low quantities of both nickel and lead dust in the atmosphere and therefore showed that premises in Esperance are not being re-contaminated by either nickel or lead dust.*
>
> *The Program therefore concludes that the ECRP has been effective in its clean-up operations and there is no ongoing health risk to Esperance residents from Magellan lead contamination.*

9.2. Monitoring and review – Reports from Magellan

In accordance with section 9-3 of Ministerial Statement 905, issued by the Minister for Environment on 27 July 2012, Magellan (now Rosslyn Hill Mining) is required to report any exceedance above baseline trigger levels of lead from static dust sampling, irrespective of the source of lead.

These exports now go through Fremantle Port, rather than Esperance. The Fremantle Port Authority and the Department of Transport's Ports and Maritime directorate receive and monitor these reports.

9.3. Disposal of Assets and surplus equipment

The ECRP amassed a considerable amount and variety of equipment during the course of the project. Disposal of surplus equipment was undertaken under the Department of Finance guidelines, and a transparent documentation process resides in the Department of Transport records.

Specific information regarding the various disposed items follows:

Niton XRF Analysers
The ECRP purchased 6 Nitons for use by the sampling and analysis teams during the course of the project. The approximate cost of each Niton was in the region of $40,000.

At the completion of the project, two Nitons were permanently transferred to DEC and two Nitons were permanently transferred to ChemCentre, on 29 June 2012. The remaining two Nitons were initially retained by the Department of Transport and held in the Esperance Regional Services office, on the understanding that they could be utilised by the Department, ChemCentre or DEC in the future if the need arose.

Following a subsequent investigation into a lead contamination issue at Northampton, ChemCentre requested the use of the Department's remaining two Nitons, to undertake investigation sampling work. The two Nitons are currently in the custody of the Department of Lands. They remain the property of the Department of Transport.

Auction of surplus equipment
At the conclusion of the project, and under the guidelines of the Department's asset disposal policy, the ECRP put 187 items up for auction. The auction was held in Esperance by Ross's Auctioneers and realised a gross sale of $35,123. After commission payments of $7,700, the Department received a net figure of $27,423.

Shipping containers
The ECRP purchased 11 shipping containers (5 x 40ft' and 6 x 20ft) for the storage and transfer of waste material from Esperance. At the completion of the project, eight of the containers were disposed at auction, one was gifted to the Shire of Esperance (who subsequently passed it onto the local Volunteer Emergency Services) and the remaining 2 have been transferred to the Department's Regional Services directorate.

Sundry minor equipment
The ECRP retained some residual sets of sampling and cleaning equipment for potential future use once the project had been completed, if required. After a two year period, and with no likely future use of the equipment, it was gifted to the Goldfields Institute of Technology, and specifically to the local Esperance office. The estimated value of the equipment was in the region of $5,000.

9.4. Administrative closure and handover

As at 30 June 2015, all contractual, operational and administrative matters associated with the ECRP have been completed and the project is officially deemed closed from that date. Any future matters pertaining to the project will become the responsibility of the Executive Director Major Transport Projects, Department of Transport.

10. LESSONS LEARNED

The ECRP faced considerable challenges during the course of the project. With quality project management practices, these challenges were met and overcome. A selection of some of the key challenges follows:

Technical

The ECRP required innovative solutions to problems and issues that were without precedent worldwide. This project was writing the manual for the international scientific community. Many sources of lead (other than Magellan) exist in the natural and built environment. Nitons are a valuable piece of equipment, but are a limited screening tool for these other sources, hence the use of isotopic testing.

Staff and Personnel

High turnover of staff required a high level of integrity around structured and rigorous ongoing training for project personnel.

Process

The need to constantly improve and update sampling and cleaning processes to adapt to new scenarios as they unfolded. Processes, methodologies and work practices had to be structured, but flexible and open to change.

Data

Managing the vast quantity of data collected and analysed required a custom built solution. Quality, accessible and meaningful data is paramount to quality decision making – data must be treated with respect and integrity.

Customer relationship

The enormity of the customer engagement task was at times, overwhelming, but it simply had to be managed well, given its critical importance to the project. The 'Five Pillars of a Healthy ECRP' were used to help maintain focus on relationships, particularly Pillar 5: We must share the vision, articulate clear direction and provide positive belief to staff and stakeholders.

Contractor and safety management

Aligning the contractors to reach agreed outcomes on time, within budget and whilst maintaining high safety and health standards was a constant challenge and required significant effort and resources.

The ECRP has been widely regarded as delivering outstanding outcomes for the State Government and the Esperance community. Some of the key elements that contributed to the success of the project are listed below:

Governance

- Single government agency responsible for delivery of project;
- Steering Committee with key Government agencies and community representation operating in a collaborative and positive manner;

- Operational decision making by local, on-ground management;
- FTE's in key management roles supported by employment agency personnel;
- Return expenditure to the local economy; employ and train local people;
- Appropriate resourcing of the project, both personnel and equipment; and
- Development of 'Five Pillars of a Healthy ECRP' to monitor the health of the project itself.

Relationships

- Develop clear communication channels and areas of responsibility between agencies;
- Gain community confidence through open and transparent information exchange;
- Provide a one-stop-shop and visible point of contact for the community;
- Ensure high quality customer service and engagement;
- Develop positive relationship with local media and manage media profile; and
- Share the project vision and foster teamwork to obtain the shared goal.

Systems

- Proactive and effective health and safety management;
- Allow flexibility in processes to cope with change;
- Base decision making on accurate and quality data; and
- Quality financial management and budget controls.

11. AWARDS

Although the ECRP was not driven by the desire to win awards, it did drive the manner in which the project conducted itself. World's best practice was always at the forefront of the project team's thinking and, if this resulted in awards, then we would gladly accept them.

Recognition in this manner is testament to the expertise, dedication and commitment from all those involved with the project.

The ECRP has been recognised with the following awards:

Australian Institute of Project Management

- Western Australian Project of the Year – 2013 Winner.
- Australian Project of the Year – 2013 Winner.
- Asia Pacific Project of the Year – 2013 High Commendation.
- Western Australian Project Manager of the Year – 2013 Winner (M Devenish).
- Australian Project Manager of the Year – 2013 Winner (M Devenish).

Premier's Award for Excellence in Public Sector Management

- Managing the Environment – 2013 Winner.

Institute of Public Administration Australia

- Best Practice in Collaboration across Government Agencies in the Same Jurisdiction – 2012 Finalist.

12. RECORDS ARCHIVE

12.1. Department of Transport records

All project documentation related to the ECRP is stored in the Department of Transport's Records Management System.

12.2. Other records

Website no longer active

The official ECRP website http://www.oncue.org.au/ contains publicly available information including consultant reports, media releases and statements, Steering Committee meeting minutes and the monthly project updates for the project duration. The website licence currently extends to 2016.

In addition, stakeholder government agencies also hold significant datasets relating to the project.

12.2.1. Department of Health

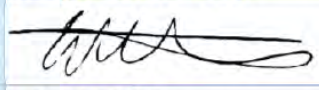
The Department of Health holds human health data relating to the lead contamination event (specifically blood lead levels). In addition the Department provided a mapping service to the project in respect to sampling and cleaning data, plume modelling and ad-hoc mapping requests. These datasets are held by the Department of Health's Mapping Branch and have also been archived by the Department of Transport's Spatial Information Branch.

12.2.2. Department of Parks and Wildlife (previously DEC)

The Department of Parks and Wildlife holds a number of datasets that were used to identify a likely area of contamination. In addition, they undertook vegetation (primarily leaf) testing in Esperance and prepared a regular report titled "Lead and Nickel Levels in Esperance Vegetation".

12.2.3. ChemCentre

ChemCentre undertook all of the analytic testing (for lead and nickel) of all samples obtained from Esperance, for the entire duration of the project. The associated data and information relating to these samples, including Chain of Custody, isotopic testing and individual results are archived by the ChemCentre.

PROJECT CLOSURE APPROVALS			
Status	**Approved** / ~~Not Approved~~	Reason	N/A
Project Director	Wayne Winchester	Project Executive	Catherine Wallace
Signature		Signature	
Date submitted	30.06.2015	Date approved	16.07.2015