

NORTHAMPTON LEAD TAILINGS PROJECT

FINAL MINUTES OF STEERING COMMITTEE MEETING

13 SEPTEMBER 2013

Present:

Mr Michael Jackson	Department of Lands (DoL) (Chair)
Mr Glen Bangay	Shire of Northampton
Mr Peter Beck	GHD
Mr Neil Broadhurst	Shire of Northampton
Ms Deb Carsons	Shire of Northampton (Observer)
Mr Jon Cramer	Department of Lands (DoL)
Cr Brad Cripps	Northampton Community Representative
Mr Noel Davies	Aurora Environmental
Mr Brad Dermody	Aurora Environmental
Mr Chuck Ellis	Department of Lands (DoL)
Mr Lindsay Gillam	Department of Health (DoH)
Dr Marisa Gilles	Department of Health (DoH)
Ms Pamela Hazelby	Northampton Hospital (for item 8)
Mr Garry Keeffe	Shire of Northampton
Mr Andrew Miller	Department of Environment Regulation (DER)
Mr Paul Morris	Department of Mines and Petroleum (DMP)
Ms Kylie Wells	GHD

Apologies:

Cr Gordon Wilson	Northampton Community Representative
Mr Antoine Macmath	Department of Lands
Mr Grant Middleton	Shire of Northampton

1. Opening of Meeting and Review of Agenda

The Chair welcomed all participants to the second meeting of the Steering Committee.

Apologies were noted from Grant Middleton, Antoine Macmath and Gordon Wilson who were not available for this meeting.

This meeting was convened in the Council Chambers of the Shire of Northampton.

2. Report of the previous meeting

Members endorsed the Minutes of the previous meeting which had been convened on 21 August 2013. This report had been finalised out of session.

Members agreed that these minutes should be uploaded onto the Department of Lands (DoL) website.

3. Action arising from the previous meeting

3.1. Terms of Reference of the Steering Committee

Members noted:

- Following discussions at the previous meeting, the draft Terms of Reference had been amended to include the following:
 - (i) A definition of 'lead tailings',
 - (ii) Reference to the geographical scope of the investigation i.e. the Northampton townsite and its immediate area, and
 - (iii) The public health basis for the investigation.

Members endorsed the revised Terms of Reference for the Steering Committee.

The revised and final Terms of Reference is set out in Attachment 2.

3.2. Confidentiality statement

Members noted:

- At the August 2013 meeting it was agreed that the confidentiality statement should be referred to Members out of session for signature and subsequent referral to DoL.
- The consultants Aurora Environmental and GHD were not required to sign the confidentiality statement because provisions of their respective contracts covered this matter.
- Signed statements would be held on DoL files.

Action: DOL to hold the signed copies of the confidentiality statements on file.

3.3. Communication strategies

Members noted:

- At the August 2013 meeting it was agreed that:
 - (i) Grant Middleton would provide contact details for the Northampton Community News.
 - (ii) Chuck Ellis would provide details of the project to the Northampton Community News.
 - (iii) Chuck Ellis would ensure that the Northampton Shire receives all media releases regarding the Northampton project.
 - (iv) 'Front line' Northampton Shire officers would be informed about the project. Shire would be a receipt point for consent forms from the community and forward these to Aurora Environmental. The Shire will also be provided with the inspection schedule information i.e. maps and supporting explanatory handouts, to provide a central point for residents to pick up information if they have missed previous communication.
- That the above decisions had been actioned.
- That the size and profile of the article concerning the Northampton Lead Tailings Project in the August edition of the Northampton Community News, had been very small. Members considered that the Northampton Lead Tailings Project (NLTP) was very important to the Northampton community and a full page article was warranted.

- That DoL (Chuck Ellis) should provide appropriate information on the project to Neil Broadhurst who would then ensure that a full page article on the Northampton Lead Tailings Project would be included in the next edition of the Northampton Community news. The next edition was scheduled to be published on 23 September 2013.

Action:

- (i) Chuck Ellis to provide details of the NLTP to Neil Broadhurst, who will contact the editor of the Northampton Community News to arrange a full page article covering the NLTP in the next edition.**
- (ii) Aurora to provide relevant documents to Shire and brief staff.**

4. Geology of the Northampton area

Members noted:

- A presentation by Paul Morris, Chief Geochemist of the Department of Mines and Petroleum, covering the geology of the Northampton area.
- That the rock formations of the Northampton area are geologically very old. They were probably formed about 2,000 million years ago.
- The geological maps of the area show a series of structures in a north easterly direction across the region.
- The area has significant copper and lead mineralisation. However, the copper and lead lodes usually do not occur together.
- The Northampton region had been a significant source of lead in Western Australia.
- Lead and copper were discovered in the Northampton area in 1848 and the Geraldine lead mine was established in 1849.
- There were about 80 lead and copper mines in the Northampton area.
- The main lead bearing ore in the region is galena, or lead sulphide. The lead sulphide can be oxidised to form lead sulphate under lower pH conditions (releasing sulphuric acid) and increasing mobility for metals.
- This form of lead is different to the lead carbonate which contaminated the town of Esperance. Lead carbonate is more bioavailable than lead sulphide.

[A short summary, prepared by Paul Morris, on the geology of the Northampton area is set out in Attachment 3]

5. Review of historical information and implications for project scope and sampling plans

Members noted:

- A presentation by Noel Davies of Aurora Environmental on their review of the historical information and the implications of this review to the project scope and sampling plans.
- The State Battery at Northampton was established in 1954 and ceased operating in 1984 with permanent closure in 1987.
- There is evidence of tailings from the State Battery and some mine sites in the area being used as structural fill over a period extending nominally from 1960 to 1980.

- The record of previous investigations on lead tailings in the Northampton area are as follows:
 - (i) Environmental Assessment conducted by GoldCorp in 1998;
 - (ii) An investigation by the former Department of Environmental Protection (DEP) in 1999;
 - (iii) Report on Findings - Further Investigation Northampton Lead Sampling conducted by Halpern Glick and Maunsell (HGM) for Homeswest in 2000;
 - (iv) Preliminary Investigation of Heavy Metal Contamination of Nokanena Brook, Northampton conducted by the Waters and Rivers Commission (WRC) in 2002;
 - (v) Environmental Site Assessment (draft report) conducted by URS Australia Pty Ltd (URS) for GoldCorp in 2004;
 - (vi) Northampton State Battery Site Contaminated Site Investigation conducted by GHD Pty Ltd for the Department of Housing and Works and presented in letter dated 4 May 2007;
 - (vii) Northampton Lead Battery – Tailing Remediation Options prepared by URS for GoldCorp and presented in letter dated 18 April 2007;
 - (viii) Northampton State Battery Remediation Completion Report prepared by URS for GoldCorp in March 2011;
 - (ix) Northampton Preliminary Site Investigation Draft Version prepared by URS for GoldCorp in April 2011;
 - (x) Northampton Townsite Update and Site Summary prepared by URS for GoldCorp in letter 15 March 2011;
 - (xi) Northampton Further Soil Sampling Investigation (December 2010) conducted by URS presented in letter 5 April 2011;
 - (xii) Northampton Townsite, WA, Interim Auditor Advice on the Preliminary Site Investigation prepared by GHD in letter 15 May 2011;
 - (xiii) Northampton Preliminary Site Investigation Final Version conducted by URS for GoldCorp in January 2013; and
 - (xiv) Northampton Townsite, WA, Final Auditor Advice on the Preliminary Site Investigation prepared by GHD in letter 13 March 2013.
- In addition to the above data sources, Aurora Environmental will utilise the following further sources of information:
 - (i) A more thorough review of historical aerial photography.
 - (ii) Mapping provided by the Shire of Northampton based on interviews with contractors.
 - (iii) Mapping provided by DMP of ore bodies and mine locations
- Based on the information assessed to date, Aurora Environmental have determined that 22 properties appear to have lead tailings present. There are approximately 755 land parcels in the town of Northampton. The previous data assessed is largely based on previous voluntary requests by landowners for screening of their properties.

- Where lead tailings have been previously identified on properties and these lead tailings have been covered by bitumen, such properties would require ongoing management plans to ensure that the bitumen covering is well maintained. Confirmation that the tailings exist and that they present an unacceptable human health risk (if they weren't sealed) will still be required to determine the detail of the management plans for future use of the site.
- Aurora Environmental proposed to assess properties for lead, copper and zinc in the first instance. However, laboratory analyses would provide data on additional metals (e.g. chromium, cadmium and arsenic).
- Aurora Environmental identified the main project decisions as follows:
 1. Undertake a comprehensive screening exercise in Phase 1 to identify which properties (as a result of the placement of tailings):
 - have or are likely to have unacceptable health risks from heavy metals;
 - may have unacceptable health risks from heavy metals; and
 - are unlikely to have unacceptable human health risks.
 2. Properties which are likely to or may have unacceptable human health risks will be subject to further investigation, risk assessment, risk mitigation and/or remediation in Phase 2 or Phase 3.
 3. No further action is proposed on those properties where lead tailings are not identified in Phase 1.
- Phase 1 will include the review of historical information, interviews, property inspections and collection of Xray fluorescence (XRF) screening data and soil analytical data.
- XRF and analytical data will be compared to the national established Health-based Soil Investigational Levels (HILs) for the relevant land uses. Members endorsed this approach. The relevant exposure setting applying to most properties in Northampton would be the HIL for residential properties which included children's day care centres kindergartens pre-schools and primary schools. The relevant HILs for residential settings for lead, copper and zinc are as follows:
 1. lead - 300mg/kg
 2. copper - 6,000mg/kg
 3. zinc - 7,400mg/kg.

A table showing the complete listing of HILs is set out in Attachment 4. These HILs should act as 'triggers' for further investigation.

- Based on the assessment of the XRF and analytical data, Aurora Environmental proposed that properties would then be prioritised into three categories 'low', 'medium' and 'high' possibility of containing lead tailings. Further that those properties categorised as 'low' or 'medium' priority would be subject to a combination of systematic and targeted sampling whereas those categorised as 'high' would be subject to sampling at a relatively less intense frequency.

- Members agreed with this system of prioritisation based on the likelihood that tailings might be present, but considered that the titles should be 'unknown', 'possible' and 'likely' rather than 'low', 'medium and 'high'.
- Aurora Environmental proposed that the number of XRF sampling points for these categories would be as follows:
 - 'Unknown' to contain tailings ['low'] with **no development** - 4 to 6 sample points,
 - 'Unknown' to contain tailings ['low'] with **development** - 8 to 12 sample points,
 - 'Possible' to contain tailings ['medium'] - 8 to 12 sample points, and
 - 'Likely' to contain tailings ['high'] - 3 to 6 sample points.

Members agreed with this approach.

- With regard to the selection of samples for laboratory analysis, Aurora Environmental proposed the following:
 - All samples found with the XRF to contain lead in the range 200 - 400 mg/kg will be directed for laboratory analysis.
 - 1-5% of samples with mean XRF lead concentrations less than 200 mg/kg (anticipated to equal approximately 75-375 samples) will be laboratory analysed.
 - 5% of samples with mean concentrations greater than 400 mg/kg will be analysed.

Members agreed with this approach.

- Aurora Environmental proposed that for each property onsite details will be recorded including an aerial photograph showing the sites where samples have been taken. This data page would include both XRF and laboratory sample results.
- Aurora Environmental is preparing a relational data base to collect and record as much useful information as possible for each property. This will include information on the following:
 - Any historical and anecdotal information
 - Information from onsite interview with the owner/occupier.
 - All XRF sample locations with results and analytical data
 - Site specific risk factors (e.g. whether children were present on site and their age) and land use information (e.g. whether vegetables were being grown and whether poultry were present)
 - Other site observations
- Aurora Environmental would provide DoL with this data base. It was also proposed that DER would hold data obtained from the screening of Northampton properties on the Contaminated Sites Data Base.
- A request from the CEO of the Shire of Northampton that this data base should be provided to the Shire for ongoing reference and use on a confidential basis. Members agreed to this request and would be seen through at the end of the project.

Actions:

- (i) Aurora Environmental to provide a copy of the completed data base to the Northampton Shire.**
- (ii) Aurora Environmental to action the points of agreement as set out above.**

6. Proposed approach to sampling methods, logistics of property screening and timing.

Members noted:

- Aurora Environmental proposed the following schedule for inspections screening of Northampton properties:
 - September – plan and schedule inspections by area in the town
 - October 2013 to January 2014 interview and sampling of properties
 - May-June 2014 Aurora will provide the results of sampling to DoL with a list of properties where tailings have been identified and recommendations for remedial action. DoL will then advise property owners /occupiers of the findings and the proposed next actions.
- Aurora Environmental had refined this sampling time schedule by dividing the Northampton town site into 4 quadrants with the following sampling/interview dates:
 - Quadrant 1- 1 October to 1 November 2013.
 - Quadrant 2 - 2 November to 22 November 2013.
 - Quadrant 3 - 23 November to 13 December 2013.
 - Quadrant 4 - 14 December to 20 December 2013 and 7 January 2013 to 18 January 2014.
- That at the time of the meeting, 79 consent forms had been received from members of the Northampton community. Further consent forms were anticipated to be collected at the Public Open Day.
- A demonstration by Brad Dermody of the operation of the XRF instrument (Niton) using several samples of lead tailings provided by Neil Broadurst and a reference soil sample. The concentrations of lead in the tailings were in the order of several thousand mg/kg. This was consistent with a sample of lead tailings identified on a Northampton property analysed by Aurora Environmental earlier that day which showed a lead concentration of about 20,000mg/kg.
- That Aurora Environmental would provide an ongoing update of the sample screening and laboratory results of the NLTI to DoL on a fortnightly basis. This information would be provided to Steering Committee members as requested.

Members considered:

- That in those instances where lead tailings are found to be present on properties and blood lead testing of the owner occupiers of the premises shows that blood lead levels are above the NH&MRC recommended thresholds, especially in the case of young children, it will not be acceptable to wait until Phase 2 or Phase 3 (which could be 2 or 3 years from the date of this meeting) to intervene with management actions on those properties.

- There is a need for a more rapid response by Government where there is evidence of a direct risk to the health of Northampton residents. The Steering Committee agreed that a series of 'triggers' need to be developed for immediate action when properties are identified with lead levels exceeding the HILs. Actions would include the recommendation for blood lead testing, rigorous cleaning of homes/premises and measures to minimise the health risk and further exposure. The DVD on cleaning lead residues from homes as prepared by DOH would be appropriate in these circumstances.
- That it was appropriate for officers of DoL to brief the Minister for Lands advising of the potential situation where immediate action would be required to address potential health risks to Northampton community members if the predetermined trigger levels/scenarios are present.
- That it would be valuable if Aurora Environmental prepared a decision tree for the various scenarios anticipated in the NLTP.

Actions:

- (i) DOL to brief the Minister for Lands on the potential for immediate action to protect the health of Northampton residents if predetermined trigger levels/site specific scenarios are found during the course of the investigation.**
- (ii) Aurora Environmental to prepare a decision tree for the various scenarios anticipated in the NLTP.**

7. Communication with the Northampton Community

Members noted:

- Advice from Chuck Ellis that reporters from ABC TV and the Geraldton Guardian newspaper would be attending the Northampton Show to interview members of Aurora Environmental, DoH and Gary Keeffe about the NLTP.
- That Aurora Environmental would be sending out a further letter to occupiers/householders in the Northampton community advising of the next steps in the NLTP including the program and dates of testing /screening of properties. This letter would be despatched in the next week following the Steering Committee meeting.

8. Proposed strategy for blood lead testing

Pamela Hazelby from the Northampton Hospital was present for discussion of this item.

Members noted:

- A background paper prepared by Dr Marisa Gilles and Lindsay Gillam of the DoH.
- In 1979 an extensive blood lead survey involving 181 children was undertaken by the DoH. This survey found elevated blood lead levels (BLLs) in children attending a catholic school that had used lead tailings in their playground. Remedial action was taken regarding the playground.

- Subsequently in 1999, an elevated blood lead level of 40 micrograms per decilitre (µg/dL) was found in one 2 year old. The property was remediated at a cost of \$40,000 taking 8 months to complete. The child was case managed on an individual basis.
- The National Health and Medical Research Council (NH&MRC) recommends that :
 - “All Australians should have a blood lead level below 10µg/dL,
 - All children’s exposure to lead should be minimised, and
 - All women are advised to minimise their exposure to lead both before and during pregnancy and also whilst breastfeeding.”
- Following the lead contamination of Esperance which occurred during the period April 2005 to January 2007, DoH adopted a policy for those children under five years of age with a blood lead level of 5µg/dL or above as the threshold level which warranted ongoing case management.
- The chemical and physical form of lead in Northampton (lead sulphide) presents a lower immediate human health risk than the Esperance material (lead carbonate) which is more likely to be ‘blown’ around. As a result the lead sulphide in Northampton is much less bio-available than the lead carbonate which contaminated Esperance.
- That Dr Marisa Gilles and Lindsay Gillam would attend the Northampton Show on Saturday 14th September to provide medical and health advice to members of the Northampton community on the NLTP and specifically on the need for BLL testing. DoH considered that that BLL testing is not required or necessary at this stage of the investigation. However, where residents request BLL testing, they will be referred to Dr Graham Findlay as part of an arranged process between Dr Findlay and the DoH. Dr Findlay will provide the necessary documentation and has offered to bulk-bill so that residents are not ‘out of pocket’. Contact details of residents seeking BLL testing would be taken at the Northampton Show
- Advice from Ms Hazelby that a special clinic had also been arranged at the Northampton Hospital on 19th September for residents seeking BLL testing.
- In the event that demand for BLL testing exceeds what is expected, Pathwest confirm they may be able to have a phlebotomist travel to Northampton at a pre-arranged time/date to do BLL testing.
- The turn-around time for BLL testing results is expected to be 10-14 days.

Members considered that it would be useful if DoH prepared a ‘handout’ which could be provided to community members. The handout should set out the proposed procedure for BLL testing in the event that BLL testing is required or requested.

Action: DoH to prepare a ‘handout’ for members of the Northampton community setting out the procedure for BLL testing should this be required or requested.

9. Role of GHD as auditor of the project

Members noted:

- A presentation on the Northampton Town Site, as prepared by Peter Beck, GHD and the auditor for the NLTP. In addition, Members noted a further GHD paper setting out preliminary comments on the Sampling and Analysis Plan as prepared by Aurora Environmental.
- The requirement for a contaminated sites auditor is mandated under the *Contaminated Sites Act 2003* and is administered by DER.
- Auditors must be accredited at the discretionary power of the CEO of DER.
- Auditors must perform in their role in an independent manner.
- The role of the auditor is to carry out an independent and critical review of the investigation and/or remediation work of a site to determine:
 - The nature and extent of contamination at a site,
 - The nature and extent of the investigation or remediation of the site, whether any restrictions on the use of the land are required,
 - The suitability of the land for a specific use,
 - Whether any further investigation and/or remediation of the site is required to render a site suitable for a specific land use,
 - The suitability of a proposed management plan
 - Whether the works undertaken by a professional environmental consultant are complete, accurate, defensible and in accordance with WA guidelines.
- The risk based decisions to be considered include:
 - Is the site likely to contain tailings?
 - Does the site fall outside the assumptions of the National Environmental Protection Measures HILs?
 - Are there sensitive or vulnerable receptors on the site?
 - Is there clear evidence of tailings over specific areas of the property where exposure can occur?
 - Are the exposure concentrations on the property greater than the adopted criteria?
- That the paper included several tables setting out proposed measures, consequences and actions. For example, in the case where tailings are found and the HILs are exceeded, it would be significant if the site was used for the growing of vegetables and if the site includes the presence of poultry.
- The particle size of that fraction of the lead tailings which contains the highest concentrations of lead would be a significant factor in this investigation. Aurora Environmental should request that the ChemCentre undertake these analyses.

Aurora Environmental agreed to take the auditor's comments into consideration in the further development of their sampling and interview strategies. Members endorsed this action.

Action: Aurora Environmental to arrange for analysis of lead tailings samples by the ChemCentre to determine the particle size which contains the highest concentrations of lead.

10. Plans for the Public Open Day 14 September 2013

Members discussed the planning of the Public Open Day to be held on Saturday 14 September in conjunction with the 96th Annual Northampton Agricultural Show.

11. Other matters

11.1. Options for disposal of lead tailings

Members noted:

- Advice from Andrew Miller that he would bring to the next meeting of the Steering Committee, a discussion paper setting out the options for disposal of lead tailings identified in the NLTP. The paper would analyse the pros and cons of various options and include an assessment of the requirements of the *Contaminated Sites Act*.
- Mr Miller had already consulted with the Licencing Branch of DER on this matter.
- That a clear way forward for disposal of tailings was required especially in Phase 3 of the project.
- That there were substantial quantities of tailings (many thousands of cubic metres) in close proximity to the Northampton townsite such as those from which Neil Broadhurst had provided samples.
- The options paper would include an assessment of whether tailings could be used for in the production of concrete. (Members considered that this option would render the tailings no longer 'available' in terms of public health).
- That the existing containment cell in Northampton could not accommodate any further addition of lead tailings.

Action: DER to prepare, for the next meeting of the Committee, a discussion paper setting out options for the disposal of lead tailings identified in the NLTP.

11.2. Implications of lead tailings in terms of the Contaminated Sites Act 2003

Members noted:

- That it was important for members of the Steering Committee and members of the Northampton community to understand the significance and implications, in terms of the *Contaminated Sites Act 2003*, of finding lead tailings on Northampton properties.
- Andrew Miller agreed to prepare a paper for the next meeting of the Committee, a paper on this matter.

Action: DER to prepare, for the next meeting of the Committee, a paper setting out the significance and implications, in terms of the *Contaminated Sites Act*, of finding lead tailings on Northampton properties.

12. Next meeting and close of meeting

Members considered that the next meeting of the Steering Committee should be convened, at a date to be determined, in late November 2013. This would enable Aurora Environmental to have carried out XRF screening and sampling on a significant number of properties and the results of this sampling to be available for the Committee to consider.

Members considered that the next meeting should be convened at the Council Chambers in Northampton, and noted advice from Garry Keeffe that the Northampton Shire Council met on the third Friday of each month.

The meeting closed at 4.45pm.

NORTHAMPTON LEAD TAILINGS PROJECT

STEERING COMMITTEE MEETING

13 September 2013

SUMMARY OF ACTIONS

1. Confidentiality Statement

Action: DOL to hold the signed copies of the confidentiality statement on file.

2. Communication strategies

Action:

- (i) Chuck Ellis to provide details of the NLTP to Neil Broadhurst, who will contact the editor of the Northampton Community News to arrange a full page article covering the NLTP in the next edition.
- (ii) Aurora to provide relevant documents to Shire and brief staff.

3. Review of historical information and implications for project scope and sampling plans

Actions:

- (iii) Aurora Environmental to provide a copy of the completed data base to the Northampton Shire.
- (iv) Aurora Environmental to action the points of agreement as set out above.

4. Proposed approach to sampling methods, logistics of property screening and timing.

Actions:

- (i) DOL to brief the Minister for Lands on the potential for immediate action to protect the health of Northampton residents if predetermined trigger levels/site specific scenarios are found during the course of the investigation.
- (ii) Aurora Environmental to prepare a decision tree for the various scenarios anticipated in the NLTP.

5. Proposed strategy for blood lead testing

Action: DoH to prepare a 'handout' for members of the Northampton community setting out the procedure for BLL testing should this be required or requested.

6. Options for disposal of lead tailings

Action: DER to prepare, for the next meeting of the Committee, a discussion paper setting out options for the disposal of lead tailings identified in the NLTI.

7. Implications of lead tailings in terms of the Contaminated Sites Act

Action: DER to prepare, for the next meeting of the Committee, a paper setting out the significance and implications, in terms of the Contaminated Sites Act, of finding lead tailings on Northampton properties.

8. Role of GHD as auditor of the project

Action: Aurora Environmental to arrange for analysis of lead tailings samples by the ChemCentre to determine the particle size which contains the highest concentrations of lead.

NORTHAMPTON LEAD TAILINGS PROJECT STEERING COMMITTEE

Terms of Reference

1. BACKGROUND

The Northampton region has a long history of lead and copper mining. The Northampton State Battery, located approximately 1.5 kilometres west of the town site, was opened in 1954 in order to process heavy mineral ores including lead ore from the various mines in the area.

The Battery produced about 75,000 tonnes of tailings during its operation.

Local companies accessed the Battery site during the 1960s up until the 1980s and removed tailings for use as foundation and fill material throughout the town of Northampton. Property owners within the townsite also accessed lead tailings from the Battery site to use for a range of purposes including driveways, garden areas and bases for outbuildings. In November 1984 the Battery was placed under 'care and maintenance'.

Numerous investigations and cleanup activities, in relation to the lead tailings issue in Northampton, have been undertaken over the years all varying in scope and objective. A summary of these activities is outlined below:

- In 1979 lead tailings were removed from a playground at the catholic school (St Mary's) and an extensive blood lead survey involving 181 children was undertaken by the Department of Health (DoH);
- In 1999 the home of two children that were identified with elevated blood lead levels was remediated by the Department of Environmental Protection;
- In 1999 eight HomesWest residential properties were identified as containing lead tailings and were remediated in 2001;
- In 2007 Goldcorp was granted funding from the Contaminated Sites Management Account (CSMA) for remediation of the Battery site;
- In 2010 the Battery buildings were demolished and the lead tailings at the Battery site were encapsulated in a containment cell at the site.
- In 2010/2011 Goldcorp engaged URS to facilitate consultation with the residents of Northampton and undertake screening investigation on a limited number of properties.

As a result of the Goldcorp funded URS investigations in 2010-2011, eight additional properties were identified as containing lead tailings. Lead concentrations in these properties were recorded up to 21,700 mg/kg.

The current Department of Environmental Regulation assessment levels guidance (2010) states that, for lead in soils, the human Health Investigational Level (HIL) for standard residential landuse is 300 mg/kg, for industrial/commercial landuse is 1,500 mg/kg and that the Ecological Investigation Level (EIL) for lead in soils is 600 mg/kg.

The Battery site, which has been the main source of lead tailings used in the townsite, has now been remediated by encapsulation. As a result, the lead tailings are no longer accessible to members of the public. Goldcorp is responsible for maintaining the encapsulation cell.

There are approximately 650 residential and commercial properties in the town.

In November 2012, the State Government approved funding for Phase 1 of the investigation into the presence and distribution of lead tailings in the town of Northampton and to develop an appropriate management strategy for those impacted properties.

2. OBJECTIVE OF THE PROJECT

The overall objective of the project is:

- “To identify the presence of lead tailings within the Northampton townsite.
- To assess the potential public health risks associated with any identified lead tailings within the townsite and recommend appropriate management strategies for those impacted properties, and
- To remediate and/or manage these lead tailings to remove potential human health risks to existing residents and future users of the site.”

In the context of this project, the term ‘tailings’ means the residual material remaining after mineral processing or mining.

In order to achieve the project objective, with minimal disturbance to the Northampton residents, the project will be carried out in three discrete phases as follows:

1. **Phase 1:** A systematic investigation of properties within the Northampton townsite to determine the presence and distribution of lead tailings;
2. **Phase 2:** Investigation into the extent of lead tailings in the identified areas/properties and development of appropriate management strategies on a property by property basis.
3. **Phase 3:** Management/remediation of unacceptable human health and environmental risks associated with the identified lead tailings.

3. ROLE OF THE COMMITTEE

The role of the Committee is to provide advice and recommendations on:

- The planning and implementation of the investigation into the distribution and management of lead tailings in the Northampton townsite;
- The engagement of, and advice to, the Northampton community throughout the project;
- The remediation of those properties found to contain tailings in the Northampton townsite, and
- The appropriate final signoff for the project.

4. MEMBERSHIP

- 4.1 The membership of the NLTP Steering Committee is made up of representatives appointed by each of the following organisations and agencies:
- Northampton Community – three representatives
 - Shire of Northampton – three representatives
 - Department of Health
 - Department of Mines and Petroleum
 - Department of Environmental Regulation
 - Department of Lands.
- 4.2 The Committee is to be chaired by a Department of Lands representative.
- 4.3 The Chair, on behalf of the Committee, may invite other persons to attend a meeting of the Committee as considered appropriate for the matters under discussion.
- 4.4 The Department of Lands will provide executive support and administrative services to the Committee.
- 4.5 Meetings of the Committee will be convened in the offices of the Shire of Northampton or via teleconference.

6. DECISION MAKING PROCESS

- 6.1 The Committee is to function as an advisory and reference group to the Northampton lead Tailings Project and to the Minister for Lands.
- 6.2. The Committee has no formal delegated authority in terms of either State or Local Government legislation. Government representatives operate within their agencies Delegation of Authority.
- 6.3 Decision making should, where possible, be unanimous.
- 6.4 The decisions of the Steering Committee will, as far as practicable, be implemented by the Project Team.

7. REPORTING

- 7.1 The Project Director will give detailed written reports on relevant and/or requested aspects of the Project to the Committee at each meeting.

8. FREQUENCY OF MEETINGS

- 8.1 Meetings shall be held approximately every two months during the course of the project or as agreed by the Committee.

9. AGENDA AND MINUTES

- 9.1 The agenda and supporting documentation will be distributed to members at least five working days prior to each meeting.
- 9.2 Minutes noting the topics discussed, and summarising the decisions reached and key actions required will be distributed to members as soon as possible after the meeting.
- 9.3 Minutes, as amended if required, shall be approved at the earliest possible Committee meeting. They are to be published at the earliest opportunity on the DoL website.

Dated: 13 September 2013

NORTHAMPTON GEOLOGY AND MINERALIZATION

Prepared by Paul Morris, Chief Geochemist, Department of Mines and Petroleum

Rocks found in the Northampton area are part of the Pinjarra Orogen. Rocks of this orogen are only found at the surface in three locations in Western Australia – at Northampton, Mullingarra (near Three Springs), and in the Cape Naturaliste – Cape Leeuwin areas in the Southwest.

The Pinjarra Orogen rocks at Northampton were once laid down in water as sediments. Following their compaction due to burial, they have undergone several periods of high temperature and pressure alteration which has produced metamorphic rocks known as gneisses. Dating of minerals in these gneisses shows that some of the original sediments from which the Northampton rocks were derived were as old as 1900 million years old. Dating of other minerals in these rocks shows that periods of higher pressure and temperature took place through to at least 900 million years ago, some of which was associated with the intrusion of molten rocks.

Northampton is well known for its lead mines. Lead mining in the area began soon after the 1848 discovery of lead in the bed of the Murchison River. Lead has been mined in the Northampton area on and off since 1850, with periods of activity largely tied to lead prices. Most of the known lead mines were found and exploited in the period 1865 – 1890. From 1850 until 1899, about 34 000 tonnes of lead ore was exported. For the period 1899 until about 1970, about 456 000 tonnes of lead ore was produced, yielding 78 000 tonnes of metallic lead, along with 42 tonnes of zinc and 213 000 grams of silver.

As well as lead, copper has also been mined in the Northampton area. Copper mining started at roughly the same time as lead mining. About 30 000 tonnes of copper ore was extracted, yielding about 3800 tonnes of contained copper.

Both the copper and lead lodes are usually found in northeast-oriented fractures in bedrock, but there are also a few lodes that follow northwest fractures. Copper and lead mineralization are usually not found together. Some investigations concluded that the ore bodies were related to intrusions of molten iron and magnesium rich rocks (dolerites), as both were found along the same fractures. However, later studies found that few ore bodies were actually associated with dolerite, and dating work showed that the dolerites and the copper and lead lodes were of a different age.

National Environmental Protection Measures (NEPM)

Health Investigation Levels (HILs)

Element	HIL-A Residential – Low Density (mg/kg)	HIL-B Residential – High Density (mg/kg)	HIL-C Recreational (mg/kg)	HIL- D Commercial Industrial
Lead	300	1200	600	1500
Copper	6,000	30,000	17,000	240,000
Zinc	7,400	60,000	30,000	400,000