

28 November 2016

1. Why is the site being investigated?

Former gasworks sites may be contaminated by residual waste materials buried at sites during operation or decommissioning. There are a range of potential residual contaminants associated with gasworks sites. An investigation is being undertaken to help determine the presence of residual gasworks contamination at the site and, if found, the likely extent and nature of its presence in soil and groundwater.

2. What area is being investigated?

The investigation area comprises 20 residential properties located within the footprint of the former gasworks and two off-site properties occupied by the Family Support Centre and Callaghan College - Waratah Technology Campus.

The following map outlines the investigation area (larger version available at end of document):



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FORMER WARATAH GASWORKS SITE INVESTIGATION LAYOUT AND BOUNDARY
Stage 2A Detailed Site Investigation
Former Waratah Gasworks, New South Wales

FIGURE C.1

3. What is Council doing about it?

In August 2016 Council engaged an independent environmental consultant experienced in the investigation of former gasworks sites. In September 2016, shallow soil samples were collected from the site investigation area. This initial investigation of shallow soil found the presence of some former gasworks substances. Further sampling and analysis will be undertaken to enable a better understanding of the nature and extent of contamination that is present, and what mitigation measures, if any, may be required to address potential risks.

These investigations are likely to include additional soil sampling, groundwater and vapour sampling. Individual property owners will be contacted directly if further samples need to be collected from their property.

Council is liaising with the NSW Environment Protection Authority (EPA) and Hunter New England Local Health District and will continue to seek their advice through the investigation to ensure any health and environmental concerns are addressed.

4. What investigations have happened so far?

The initial investigations:

- reviewed information about the history of the site
- reviewed the condition of the site through a visual site inspection within accessible areas
- undertook initial sampling of the site – more than 200 soil samples were collected and analysed
- identified potential contaminant locations and types
- identified a need for further detailed site investigation and analysis.

The initial soil samples were assessed by an independent laboratory and the results have been reviewed by Council, NSW EPA, Hunter New England Local Health District, the site auditor and other relevant government agencies. The results have been provided to Council in an Environmental Investigation Report and have been provided to property owners/occupiers.

All detailed environmental investigations are undertaken in accordance with the Australian National Environment Protection Measure Framework. General information about contaminated site investigations is available here: www.epa.nsw.gov.au/resources/epa/150308-nepms.pdf

5. What has the initial investigation found?

The initial investigation has found the presence of some former gasworks substances in soil samples which were taken from properties in the investigation area in September 2016. More information about the investigation is available on Council's website: <http://www.newcastle.nsw.gov.au/Council/News/Environmental-investigation-at-historical-Waratah>

6. What are the next steps?

Further detailed investigations will be undertaken across the former gasworks site and surrounding area to confirm the nature and likely extent of former gasworks substances and what mitigation measures, if any, may be required to address potential risks.

Further investigations will include additional soil, groundwater and vapour sampling. Sampling will be conducted on both public and private land, targeting those areas identified as needing further analysis. Sampling will be conducted on both public and private land and is likely to commence December 2016.

7. Is there any health risk associated with the site?

Council is liaising with Hunter New England Local Health District and the NSW EPA to seek their advice throughout the investigation to ensure any health and environmental concerns are addressed.

As an interim measure, Council has provided the following updated precautionary advice to occupiers of residential premises within or adjacent to the investigation area and both the Family Support Centre and Callaghan College - Waratah Technology Campus:

- You are advised not to eat any vegetables grown at the property or eggs laid by hens on the property until this matter has been investigated and further advice is provided.
- Avoid having areas of bare soil by maintaining grass cover or otherwise covering bare areas.
- Minimise exposure to soil during gardening activities by minimising dust generation, wearing gloves and washing hands after handling soil.
- If children are playing in sand pits or soil, it is advised that this occur in a raised bed or structure above the natural ground level. The raised bed or structure should contain sand or soil that has not been sourced from onsite so as to avoid any potential contamination.

8. I live near the former gasworks site, will my property be tested?

The likelihood for residual gasworks contamination migrating to adjacent land, with the potential to pose a possible health risk, forms part of the further investigation. If potential gasworks contamination risks are identified then sampling of selected properties outside of the current investigation site may need to be undertaken. Council will liaise with affected property owners if this situation arises.

9. Why didn't the Council know about this sooner?

The former gasworks was constructed in 1889 by Waratah Municipal Council and was decommissioned around 1928, before the formation of the Newcastle City Council (Council). Waratah Municipal Council merged with the Council of Greater Newcastle in 1938. Consistent with the normal practices of local councils in NSW, council documents such as meeting minutes and reports cease being records in use after a period of time (currently 25 years) and are usually destroyed after a period of time in accordance with established protocols. As a result Council's records of the gasworks are expected to be extremely limited (if any).

Similarly, any internal corporate knowledge in relation to the gasworks would have been lost to the organisation in the 90 odd years since the gasworks closed. Indeed, when Council's contaminated land database was being updated with historical information on land uses, no records or corporate knowledge was uncovered to identify this site within the local government area. Council has as part of the current investigations identified some limited archival material held by the Newcastle Regional Library.

In addition, the site was not included in the list of the locations of known gasworks sites maintained by EPA. Until this matter was brought to the EPA's attention by a member of the public, the site was not known to either the EPA or Council. The gasworks was brought to Council's attention in June 2016 via a public enquiry to the NSW EPA in relation to an historic map showing a small gasworks in the area bounded by High, Turton and Georgetown Roads, Waratah.

10. Who can I call for more information?

- Report or seek further information: Council's Regulatory Services 4974 2522
- Request specific health advice: Your doctor
- Request general health information: Hunter New England Local Health District 1300 066 055
- Request other contamination information: NSW EPA Environment Line 131555

Note: Council business hours of operation are from 8.30am to 5pm.

11. How has Council informed the public?

Council is committed to keeping community members, residents, property owners, businesses and government authorities informed as the investigation progresses. Council will use a range of communication channels to keep the community informed of the investigation, including direct engagement, emails, information updates, flyers and further information sessions.

Council has informed all residents within the immediate and surrounding area by door knocks and letterbox drops, and has provided email information to property owners of tenanted properties. Council has also provided information about the investigation to three local schools and the Family Support Centre in the surrounding area. Community members attended information sessions held by Council at the Ethnic Communities Council Hall in Waratah on Monday 15 August 2016 and Thursday 18 August 2016.

Information about the investigation, including a fact sheet and frequently asked questions, are available on Council's website.

12. How do I get ongoing information\updates?

Council is committed to keeping the community fully informed as the investigation progresses and will work with the community to respond to the findings of the initial investigation and the further detailed investigations.

If you have any questions, please contact Council's Regulatory Services on 4974 2522, or visit www.newcastle.nsw.gov.au.

13. What types of wastes and by-products are associated with old gasworks sites and what might impacted areas look like or be characterised by?

Products associated with former gasworks sites have typically included:

- Tars
- Oils
- Hydrocarbon sludges
- Spent oxides (including complex cyanides)
- Ash
- Ammoniacal recovery wastes

Some of the wastes, such as tars, commonly exist in soils and in groundwater in the form of non-aqueous phase liquids (NAPLs), which are a range of substances that can either float on a water body or sink to the base of an aquifer. Many of the wastes and by-products at gasworks were recycled or reused. However, it was common for some to be buried on or near the gasworks site, for instance in underground tar wells, liquor wells, pipes and purifier beds and were not necessarily removed when gasworks were decommissioned.

Many of the principal wastes can be identified visually or by the odour they emit. For example:

- Tar oils are easily identifiable as a black to dark brown, strong phenolic odorous ooze.
- Iron cyanide complexes (formed during the removal of hydrogen cyanide) are recognisable by their distinctive Prussian blue colour (when weathered) or by grey/black/green colours (when not weathered).
- Iron staining can also be a common characteristic identifying the presence of spent oxides, but can also occur naturally (especially in low lying waterlogged areas).

Additional information on the types of wastes and by-products associated with former gasworks sites can be found on the NSW EPA website at www.epa.nsw.gov.au/clm/gasworks.htm

More information about specific contaminants is available on the ATSDR website: <https://www.atsdr.cdc.gov/>

14. What types of substances are associated with old gasworks sites?

There are a range of substances associated with former gasworks sites, which may include:

- Polycyclic aromatic hydrocarbons (PAHs)
- Petroleum hydrocarbons including Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX)
- Complex and free cyanides
- Metals
- Phenols
- Ammonia
- Nitrates
- Sulfates
- Sulfides

It is important to note that these substances can also be found in the environment from other natural or man-made sources and are not therefore exclusive to former gasworks.

Additional information on the types of chemicals associated with gasworks sites can be found on the NSW EPA website at www.epa.nsw.gov.au/clm/gasworks.htm

More information about specific contaminants is available on the ATSDR website: <https://www.atsdr.cdc.gov/>

15. Is clean-up/remediation of the site necessary and is it possible?

Further investigation will help to determine whether any remediation is required and, if so, the extent of any remediation activity required. There are a number of examples from across Australia where former gasworks sites have been successfully remediated for a range of uses, including recreational and residential uses.

16. What will remediation involve and how long will it take?

The extent of any remediation activity (if any) required will not be known until further detailed investigations are complete. A remediation program would then be developed based on the findings.

17. Could the gasworks contamination go away without remediation?

Over time, given suitable conditions, there is potential for natural degradation processes to reduce concentrations of some of the substances, for example; phenolic compounds, volatile monocyclic aromatic hydrocarbons and some polycyclic aromatic hydrocarbons.

Degradation rates for some 'heavier' organic compounds can be slow in many soil and groundwater environments and, as a consequence, these substances may persist for many years. Heavy metals and complex cyanides do not break down and will remain in the soil, although there is the potential for these to reduce in concentration due to leaching over time.

18. Who will pay for any required remediation of the site? Will residents be compensated for the impact of the contamination and any subsequent remediation?

As a matter of priority, Council is progressing the environmental investigation to determine the significance of residual contamination levels associated with the former gasworks. Until the investigation that Council has commissioned is progressed, and the results of further investigations are known, Council is not in a position to comment regarding potential liability or compensation. .

19. What will happen if there are gasworks structures underneath my property?

The presence of former buried gasworks structures will be considered further in the next phase of the investigations.

20. Will this affect property prices in the area? Will property owners be compensated for any loss of property value?

Contamination of land is a matter that is relevant to the assessment of land value. Until the environmental investigation is finalised, Council is not in a position to comment on any potential impact on land value. Should you proceed with the sale of your property during the investigation, there will be notification on the section 149 Certificate for your property.

As an historically industrial city, there are thousands of properties across Newcastle which have been investigated for a range of potentially contaminating land uses. Following investigation and/or remediation (to confirm their suitability for use), these properties continue to be sold without ongoing concerns being raised with Council regarding loss of value.

21. What is a section 149 certificate and how does it affect me and my property?

A section 149 certificate is a planning certificate issued by Council. It sets out a range of information, some mandatory information and some non-mandatory information held by Council in relation to the land. Information is placed on a certificate which relates to its contaminated land status.

22. What information should be contained in the s149 certificates?

The section 149 certificate includes the information that is contained in schedule 4 of the *Environmental Planning and Assessment Regulation 2000* which is relevant to the land the subject of the certificate. This includes, among others, relevant planning instruments and development controls, approvals and policies.

Frequently Asked Questions



2) For the purposes of section 149 of the Environmental Planning and Assessment Act 1979, the following matters are prescribed in addition to any other matters, prescribed by the regulations under that section, to be specified in a certificate under that section:

(a) that the land to which the certificate relates is significantly contaminated land—if the land (or part of the land) is significantly contaminated land at the date when the certificate is issued,

(b) that the land to which the certificate relates is subject to a management order—if it is subject to such an order at the date when the certificate is issued,

(c) that the land to which the certificate relates is the subject of an approved voluntary management proposal—if it is the subject of such an approved proposal at the date when the certificate is issued,

(d) that the land to which the certificate relates is subject to an ongoing maintenance order—if it is subject to such an order at the date when the certificate is issued,

(e) that the land to which the certificate relates is the subject of a site audit statement—if a copy of such a statement has been provided at any time to the local authority issuing the certificate

The section 149 Certificate will be updated as more information becomes available, for example, when an investigation report has been completed in respect of any potential contaminants on the land, Council will refer to this report in the certificate.

23. What will happen if we lodged a DA for the affected land (on the former gasworks site) to either renovate/extend or redevelop?

Council will need to consider the issue of potential contamination associated with the former gasworks in relation to any DA lodged with Council. Council's approach to contaminated land is set out in the Newcastle DCP Section 5.02 - and can be accessed on Council's website at

www.newcastle.nsw.gov.au/getmedia/061a0aa6-66b9-4077-bdcc-26843c30a7e9/Section_5-02_Land_Contamination.aspx

Depending on the nature of the application, Council may require further information in relation to potential contamination on the land prior to a determination of the application being made.

24. What about developments in High Street, adjacent to the former gasworks site?

At this stage, Council has not confirmed whether properties outside of the investigation area in High Street or other surrounding land outside of the former gasworks site are impacted. In the event that the investigations identify gasworks waste impacts outside of the investigation area, Council would need to follow the process set out in the Newcastle DCP Section 5.02, at

www.newcastle.nsw.gov.au/getmedia/061a0aa6-66b9-4077-bdcc-26843c30a7e9/Section_5-02_Land_Contamination.aspx

25. Should we get a valuation of our home before the investigation finds anything?

Property owners should obtain their own independent advice.

26. Should I talk to my bank about this?

Property owners should obtain their own independent advice.

27. Can Council provide legal advice?

Property owners and residents should seek their own independent legal advice.

You may wish to contact the Law Society which can provide a list of local lawyers with relevant experience.

Frequently Asked Questions

Solicitor Referral Service
Law Society of NSW

170 Phillip Street
Sydney NSW 2000
DX 362 Sydney
T: (02) 9926 0300, or
1800 422 713 (outside Sydney)

E: crs@lawsociety.com.au

28. If Newcastle City Council and the EPA were not aware of the former gasworks in Waratah, what is the likelihood for other unknown contaminated sites or gasworks to exist in other areas?

Following the discovery of the Waratah gasworks site, Council undertook an additional search of information available on the internet to identify other potential unknown gasworks sites. No additional information has been found to-date to suggest there are additional former gasworks sites in the Newcastle LGA, of which Council and the EPA are not aware of.

New information regarding potentially contaminating former land uses and other contaminated land information is being added to Council's register on an ongoing basis. Due to the industrial history of Newcastle, there is always the potential for other unknown contaminated sites to exist.

29. How long will the next stage of the investigation take and when will the next report be available?

Council's independent environmental consultants aim to begin testing of the next stage of investigation (Stage 2B) in December 2016. The investigation report from this further testing will be delivered by the environmental consultant to Council within four months of testing commencing. It will be made available to all owners and residents.

30. What kinds of sampling will take place?

Soil and groundwater samples will be taken as part of the next stage of initial investigation. Hand augured core and borehole samples will be removed for testing and the hole will be backfilled with sand and grass cover or tarmac reinstated. The majority of locations will be within the surrounding streetscape; however repeat shallow soil sampling and some deeper borehole sampling will be undertaken at selected properties. Groundwater sampling will also be undertaken following installation of monitoring wells which may be undertaken at selected properties.

31. What if the investigation finds contamination that is not associated with the gasworks?

Testing and site observations have targeted the types of contaminants expected on a former gasworks site. Some of those contaminants are also common to residential premises (i.e. lead from paint). In the event that contamination is found that is not considered to be associated with the former gasworks following further investigation, any action required in response to this contamination will need to be considered in relation to the risk that the contamination poses to the current and future uses of the site.

32. What are the potential health effects for residents living in the area, including children, pregnant or breastfeeding mothers?

Council is not an authority on health and recommends that residents direct all health-related questions to Hunter New England Public Health or their local GP. Health effects require a specific exposure pathway (through breathing contaminated air, skin contact or ingestion), duration of exposure (time) and concentration (level) of exposure.

Contaminants from former gasworks sites are likely to be located below ground level as materials were often buried both during operation and decommissioning. Exposure to potential gasworks products at the site (if present) is therefore reduced by the presence of building cover, pavements, driveways and grass covering. Health effects from exposure to contaminants found on an old gasworks site can range from minor skin irritations

due to high or low pH of the chemical through to more serious health conditions. To mitigate potential exposure risk, Council has recommended that residents and occupiers of other properties within the investigation area take special precautions especially avoiding direct contact with areas of exposed bare soil.

Further investigation will assist in identifying potential human health exposure pathways and the likelihood of potential adverse health effects.

33. Is there a risk for residents who garden, or have children playing in the backyard?

The initial investigation has found the presence of some former gasworks substances in shallow soil samples taken from properties in the investigation area.

As an interim measure, Council has provided the following updated precautionary advice to occupiers of residential premises within or adjacent to the investigation area and both the Family Support Centre and Callaghan College - Waratah Technology Campus:

- You are advised not to eat any vegetables grown at the property or eggs laid by hens on the property until this matter has been investigated and further advice is provided.
- Avoid having areas of bare soil by maintaining grass cover or otherwise covering bare areas.
- Minimise exposure to soil during gardening activities by minimising dust generation, wearing gloves and washing hands after handling soil.
- If children are playing in sand pits or soil, it is advised that this occur in a raised bed or structure above the natural ground level. The raised bed or structure should contain sand or soil that has not been sourced from onsite so as to avoid any potential contamination.

34. Would ground sanitising remove any contaminants?

Sanitiser is used to kill microorganisms such as bacteria. Sanitiser will not be effective in reducing or removing chemical contaminants that may be in the soil.

35. Can/will the fruit on our trees and vegetables growing in our gardens be tested?

Council's environmental consultants will consider testing of certain fruit and vegetables as part of the overall investigation. Council has requested residents keep any fruit or vegetables currently growing at the properties for testing as part of the investigation of the former gasworks site, if required. As a precaution, Council has advised the occupiers of residential premises within or adjacent to the site not to eat any fruit or vegetables grown at the property or eggs laid by hens on the property until this matter has been investigated and further advice is provided.

36. Will people be tested as part of the initial investigation?

At this stage, there are no plans to conduct any blood testing or other type of human sample analysis. Further investigation will provide direction for any further sampling programs that may be required for residents that live in the investigation area.



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FIGURE C.1