

ENVIRONMENT OVERVIEW AND SCRUTINY COMMITTEE

Date of Meeting	Monday, 20 th November 2017
Report Subject	The Management of Standard and Brookhill Landfill Sites
Cabinet Member	Cabinet Member for Streetscene and Countryside
Report Author	Chief Officer (Streetscene And Transportation)
Type of Report	Operational

EXECUTIVE SUMMARY

The Council has two active landfill sites at Standard Industrial Estate and Brookhill in Buckley. Both of these sites were formerly operated by AD waste on behalf of the Council and operational responsibility passed to the Council in 2010 when the Council took in house all of the waste disposal activities formerly provided by the company.

The sites are currently managed by a small team who are based in Alltami within the Streetscene and Transportation portfolio. The team are supported by specialist contractors and consultants who deliver a range of activities at the sites. There is an active gas extraction system installed over both of the sites which feed electricity generation plants with the value of energy produced at the sites provided back to the service to help fund the ongoing management and maintenance liabilities of the 2 sites.

Due to concerns regarding the resilience within the service, and in an effort to protect income levels into the future, the Council's Cabinet approved a report in May 2015 to outsource the operational management of the sites to a single provider on a performance and shared risk based contract.

This type of contract is complex in nature has taken some time to prepare, with the added complication of the introduction of PV panels schemes (to increase electricity production) at the two landfill sites, the tender was advertised in May of this year. Despite initial market testing and interest from 8 companies, the landfill tender received only 2 tender returns, neither of which was acceptable to the Council.

This report explains why no viable tender was presented and also the next steps in the long term management of the 2 landfill sites.

RECOMMENDATIONS

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| 1. | The Scrutiny recommends Cabinet approves the proposal to continue to manage the landfill sites within the Streetscene and Transportation portfolio. |
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REPORT DETAILS

1.00	EXPLAINING THE BACKGROUND
1.01	The Council has two active landfill sites at Standard Industrial Estate and Brookhill in Buckley. Both landfill sites are operationally closed, fully capped and the sites are now restored, primarily to grassland. A formal 'Closure Plan' is currently being prepared for submission to Natural Resources Wales (NRW) for both sites before the end of 2017.
1.02	As owner of the 2 landfill sites the Council has liability for them and with all closed landfill sites this is for a minimum term of 60 years. Whilst both gas and leachate levels will reduce over time our responsibility is to ensure these are controlled at all times and that there is no risk to the local environment from the content of the landfill sites.
1.03	The sites are operated and managed in accordance with the permit issued and monitored by NRW. Each permit has a set of conditions to ensure that the sites are managed appropriately. Two key elements of managing any landfill site is the controlled management of the both gas and leachate that is generated from the decomposing waste within the site.
1.04	An active gas extraction system is installed over both of the sites, each comprising of approximately 45 gas wells and leachate chambers connected via manifolds or directly onto the main gas collection ring main.
1.05	The Brookhill landfill is also the site of a leachate treatment plant with a licensed discharge point to main sewer for the leachate material, once it has been through a treatment process. The plant treats leachate from both of the landfill sites.
1.06	The Council currently employs 2 full time employees (FTE's) to manage the sites and associated infrastructure. It also engages a number of specialist third party contractors/consultants in managing and supporting the operation.
1.07	<u>Gas Management and Electricity Generation</u> Both sites have established electricity generating systems, with direct feeds from the gas well collection ring mains and both sites have a direct electrical mains grid connection. The value of energy produced at the sites is falling as gas levels inevitably fall as the waste decomposes.
1.08	Brookhill power plant was commissioned in August 2008 and produced power for just under 8 years. The set had been maintained under service

	contracts but in November 2016 the engine suffered a major engine failure. One of the main reasons for this failure was that the engine was too large for the depleting levels of gas within the site. (1MW)
1.09	Due to the impending landfill tender it was decided to replace this engine with a hired unit until the tender exercise was completed. The smaller hired 400kW unit is provided and maintained by a third party and was installed in early March 2017. Unlike the previous engine this unit is able to operate at its optimum running capacity and is currently running at full capacity with 98% availability which is evidence that it is far more efficient than the old larger unit. The engine is expected to generate an income of about £170,000 during 2017-18.
1.10	Electricity has been generating at Standard landfill site since 1996 and is currently in its 21st year of energy production. The engine (which is an older version of the engine that was previously used on Brookhill) has been maintained by a third party contractor throughout its full operational life.
1.11	The engine is operated mainly for environmental compliance and for just 2/3 hours per day or until the gas quantity falls below the required threshold to sustain the engine. The engine is expected to generate an income of just £20,000 this year and it will be necessary to completely switch off the unit in the coming years and replace it with either a small micro engine or a flare, to control the diminishing gas levels into the future.
1.12	Measuring gas levels within the sites and predicting this into the future is a complicated process however gas predictions in the form of a "gas sim model" are industry practice and can be produced to show levels of gas using historical data. Appendix 1 shows the gas sim model for Brookhill landfill site. It can be seen from this that the gas levels were at their highest in 2006 and that gas levels have been dropping steadily ever since. The model has shown a 60% reduction in gas levels in the period between 2011 and 2017 and this compares directly to the lost income from electricity generation in the same period which is shown in Appendix 2.
1.13	Clearly diminishing gas levels directly affects the levels on income possible through electricity generation and sale. Appendix 2 shows the levels of income over the same period as the gas levels in Appendix 1 and it can be see that there is a direct correlation.
1.14	<u>Leachate Management</u> Managing the leachate which is naturally produced by the 2 sites consist of monitoring leachate levels, maintaining and operating underground pumps, leachate transfer and leachate plant operation before the material is finally discharged to foul sewer. This is all necessary to ensure leachate is both contained within the site and does not interfere with gas capture.
1.15	Once treated through the treatment plant in Brookhill, the volume of leachate is discharged to foul sewer. Welsh Water levy a charge for every cubic meter discharged and it is in our interests to reduce the levels of leachate as the site matures.

1.16	<p><u>Landfill Tender</u></p> <p>Due to concerns regarding the resilience within the service and in an effort to protect income levels into the future, the Council's Cabinet approved a report in May 2015 to outsource the operational management of the sites to one provider on a performance and shared risk based contract.</p>
1.17	<p>This type of contract is complex in nature and took time to prepare as it was a requirement for a single provider to manage all elements and to guarantee levels of income for a 7 year term, thus providing some financial certainty for the Council into the future.</p>
1.18	<p>The added complication of the major engine failure at Brookhill and the introduction of PV panels schemes at the two landfill sites resulted in the tender being advertised in May of this year. Despite initial market testing and interest from 8 companies, the landfill tender received only 2 tender returns, neither of which was acceptable to the Council. One of the tenders was non-compliant and the second was considerably more expensive than the current arrangements.</p>
1.19	<p>A major factor in the lack of interest in the landfill tender opportunity is the depleting gas levels within the 2 sites. Tenderers were not prepared to take on the risk of guaranteeing levels of income at the ageing sites and whilst the 2 tender returns were prepared to operate the sites, they required the risk to remain with the Council.</p>
1.20	<p>Due to the lack of external interest in managing our landfill sites it is now proposed that we continue to do this within the current team by building resilience within the existing structure (through training) and also engaging with external third party contractors and consultants on short to medium term contracts. The team can also take on the management of the PV panels and explore other opportunities for additional income that may exist.</p>
1.21	<p>The levels of income realised through gas capture and electricity generation will always be on a diminishing scale and in future this reduction will be built into the Council Medium Term Financial Plan. Appendix 3 provides estimated future levels of income and this will form the basis of future budgets income projections.</p>

2.00	RESOURCE IMPLICATIONS
2.01	<p>The existing team of 2 FTE's will be supported by generic technical support from within the Streetscene and Transportation team.</p>

3.00	CONSULTATIONS REQUIRED / CARRIED OUT
3.01	<p>Full engagement with businesses was undertaken prior to the tender.</p>

4.00	RISK MANAGEMENT
4.01	There is always a risk both operationally and financially when managing closed landfill sites. The risk is mitigated by employing experienced Officers and appointing specialist contractors and consultants to manage the sites. Obviously as income projections are lowered the level of risk from financial failure is also reduced.
4.02	The Environmental risk from the sites remains however this is mitigated by the agreed closure plan and ongoing site monitoring work, which is undertaken by staff from the Streetscene and Transportation portfolio.

5.00	APPENDICES
5.01	Appendix 1 - Gas sim model (Brookhill). Appendix 2 – Recent income from electricity generation. Appendix 3 - Future income projections.

6.00	LIST OF ACCESSIBLE BACKGROUND DOCUMENTS
6.01	Contact Officer: Stephen O Jones Telephone: 01352 704700 E-mail: stephen.o.jones@flintshire.gov.uk

7.00	GLOSSARY OF TERMS
7.01	None.