Regional Six-monthly Report of Descriptive Bovine TB Epidemiology for the Low Risk (Four Yearly Testing) Areas of England

Regional Office:

Yorkshire, comprising North Yorkshire (48 and 50) / West Yorkshire (49) / South Yorkshire (47) and Humberside (51)

Mid-year (first six months) for 2016:

Report from 1 January until 30 June 2016.

1. Cattle Industry in the Region

The Yorkshire cattle industry is large and diverse, with 50% of registered herds being beef rearing and finishing herds, 33% being beef breeding herds and the remainder being dairy herds. Bovine tuberculosis (bTB) is found predominantly in beef fattening / finishing units which abound, taking advantage of abundant co-products from the low ground arable sector. To maintain throughput, some of these herds source animals fairly indiscriminately from multiple sources, many from the endemic bTB areas in the West and South West of England / Wales. Very large units (1000+) are becoming more common. By contrast, in some areas of North and West Yorkshire, a high density of smaller herds can still be found.

Most breeding replacement movements take place via local routes, with some imports from other countries. Buyers are generally well aware of the bTB risk. Beef cattle buying follows the general English pattern of West / South West England and Wales to East / North East England. Market movements are frequent and this is further facilitated by dealers who buy from holdings and markets in the West / South West and facilitate supply to finishers in the North and East. The larger beef finishing units, often permanently housed and committed to supply contracts with beef processors, will prioritise semi-continual availability of cattle in their preferred specification over perceived bTB disease risk.

Currently there are thirteen Licensed Finishing Units (LFU) in the region for fattening of cattle from OTF premises under biosecure conditions. We have had enquiries from other farmers in the region to set up other similar units, which we are currently assessing.

Yorkshire has a relatively small number of bTB incidents. Eradication of infection from these has so far been relatively easily achieved, by application of standard testing regimes. The majority result from direct movement of infected beef fattening animals from endemic bTB areas. There is a small but significant subset of cases that have resulted from movement of infected animals between infected herds within the region prior to their detection. There is currently no convincing evidence of wildlife infection.

Number of cattle premises by size band in the division at 1 January of the reporting year.

<table>
<thead>
<tr>
<th>Cattle per premises</th>
<th>0</th>
<th>1 - 50</th>
<th>51 - 100</th>
<th>101 - 200</th>
<th>201 - 350</th>
<th>351 - 500</th>
<th>501+</th>
<th>All</th>
<th>Mean</th>
<th>Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Yorkshire 47</td>
<td>2</td>
<td>218</td>
<td>83</td>
<td>64</td>
<td>34</td>
<td>8</td>
<td>8</td>
<td>417</td>
<td>87</td>
<td>46</td>
</tr>
<tr>
<td>North Yorkshire 48</td>
<td>27</td>
<td>1419</td>
<td>569</td>
<td>574</td>
<td>329</td>
<td>111</td>
<td>104</td>
<td>3133</td>
<td>115</td>
<td>59</td>
</tr>
<tr>
<td>West Yorkshire 49</td>
<td>7</td>
<td>703</td>
<td>158</td>
<td>103</td>
<td>60</td>
<td>19</td>
<td>11</td>
<td>1061</td>
<td>64</td>
<td>23</td>
</tr>
<tr>
<td>East Yorkshire 50</td>
<td>1</td>
<td>113</td>
<td>40</td>
<td>21</td>
<td>14</td>
<td>10</td>
<td>5</td>
<td>204</td>
<td>90</td>
<td>43</td>
</tr>
<tr>
<td>Humberside 51</td>
<td>13</td>
<td>365</td>
<td>141</td>
<td>123</td>
<td>48</td>
<td>13</td>
<td>11</td>
<td>714</td>
<td>83</td>
<td>45</td>
</tr>
</tbody>
</table>
### Cattle breed purpose - numbers and percentages at 1 January of the reporting year.

<table>
<thead>
<tr>
<th>County</th>
<th>Beef</th>
<th>Dairy</th>
<th>Dual purpose</th>
<th>Unknown</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Yorkshire 47</td>
<td>22339 (61.8%)</td>
<td>12389 (34.3%)</td>
<td>1398 (3.9%)</td>
<td>2 (0.0%)</td>
<td>36128</td>
</tr>
<tr>
<td>North Yorkshire 48</td>
<td>202095 (56.1%)</td>
<td>150759 (41.8%)</td>
<td>7357 (2.0%)</td>
<td>71 (0.0%)</td>
<td>360282</td>
</tr>
<tr>
<td>West Yorkshire 49</td>
<td>42021 (61.8%)</td>
<td>22717 (33.4%)</td>
<td>3258 (4.8%)</td>
<td>22 (0.0%)</td>
<td>68018</td>
</tr>
<tr>
<td>East Yorkshire 50</td>
<td>11898 (65.1%)</td>
<td>5925 (32.4%)</td>
<td>464 (2.5%)</td>
<td>2 (0.0%)</td>
<td>18289</td>
</tr>
<tr>
<td>Humberside 51</td>
<td>43412 (73.4%)</td>
<td>14452 (24.4%)</td>
<td>1288 (2.2%)</td>
<td>8 (0.0%)</td>
<td>59160</td>
</tr>
</tbody>
</table>

### Density of cattle and cattle premises at 1 January of the reporting year.

![Density map of cattle and premises](image1)

![Density map of cattle and premises](image2)
2. Geographical Distribution of Bovine TB Breakdowns in the Region

3. Summary of the Regional Headline Cattle TB Statistics

There have been 19 new incidents in the first half of 2016. Four of these are OTFW and 3 of these are still under TB2 restrictions. Of the other 15 considered OTFS 10 have had their TB10 up until the end of June.

Two of the OTFW cases are as the result of trace testing and one two are slaughterhouse cases that went culture positive.

In two of the cases the RAD testing exemptions were accepted. To date nothing has been revealed in the two radial surveillance zones that were instigated.

More details of cases can be found in the case reviews in section 8.

<table>
<thead>
<tr>
<th>Herd-level statistics</th>
<th>South Yorkshire 47</th>
<th>North Yorkshire 48 and 50</th>
<th>West Yorkshire 49</th>
<th>Humberside/ East Yorkshire 51</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Total number of cattle herds live on Sam at the end of the reporting period</td>
<td>528</td>
<td>4021</td>
<td>1304</td>
<td>916</td>
</tr>
<tr>
<td>(b) Total number of cattle herds subject to annual TB testing at the end of the reporting period (any reason)</td>
<td>44</td>
<td>387</td>
<td>92</td>
<td>20</td>
</tr>
<tr>
<td>(c) Total number of herd tests carried out in the period</td>
<td>120</td>
<td>891</td>
<td>159</td>
<td>184</td>
</tr>
<tr>
<td>(d) Total number of OTF cattle herds TB tested during the period for any reason</td>
<td>72</td>
<td>473</td>
<td>124</td>
<td>118</td>
</tr>
</tbody>
</table>
### (e) Total number of OTF cattle herds at the end of the report period (i.e. herds not under any type of TB2 restrictions)

<table>
<thead>
<tr>
<th>Region</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>519</td>
<td>3991</td>
<td>1292</td>
<td>899</td>
</tr>
</tbody>
</table>

### (f) Total number of cattle herds that were not under restrictions due to an ongoing TB breakdown at the end of the report period.

<table>
<thead>
<tr>
<th>Region</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>524</td>
<td>4013</td>
<td>1304</td>
<td>911</td>
</tr>
</tbody>
</table>

### (g) Total number of new TB breakdowns detected in cattle herds during the report period

- OTF status suspended (OTFS): 3
- OTF status withdrawn (OTFW): 1

### (h) Of the new OTFW herd breakdowns, how many:

- occurred in a holding affected by another OTFW breakdown in the previous three years? 0
- could be considered secondary to a primary breakdown based on current evidence? 0
- were triggered by skin test reactors or 2xIRs at routine herd tests? 0N/A
- were triggered by skin test reactors or 2xIRs at other TB test types (forward and back-tracings, contiguous, check tests, etc.)? 0N/A
- were first detected through routine slaughterhouse TB surveillance? 1N/A

### (i) Number of new breakdowns revealed by enhanced TB surveillance (radial testing) conducted around those OTFW herds

- OTFS: N/A
- OTFW: N/A

### (j) Number of OTFW herds still open at the end of the period (including any ongoing OTFW breakdowns that began in a previous reporting period)

<table>
<thead>
<tr>
<th>Region</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>1</td>
<td>4</td>
<td>0</td>
<td>2</td>
</tr>
</tbody>
</table>

### (k) New confirmed (positive *Mycobacterium. bovis* culture) incidents in non-bovine species detected during the report period (indicate host species involved)

<table>
<thead>
<tr>
<th>Region</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

### Animal-level statistics (cattle)

#### (a) Total number of cattle tested in the period (animal tests)

<table>
<thead>
<tr>
<th>Region</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>3735</td>
<td>55070</td>
<td>4748</td>
<td>5768</td>
</tr>
</tbody>
</table>

#### (b) Reactors detected:

- tuberculin skin test: 5
- additional IFN-gamma blood test reactors (skin-test negative or IR animals): 0

#### (c) Reactors per breakdown

<table>
<thead>
<tr>
<th>Region</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>1</td>
<td>4</td>
<td>3</td>
<td>5</td>
</tr>
</tbody>
</table>

#### (d) Reactors per 1000 animal tests

<table>
<thead>
<tr>
<th>Region</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>0.34</td>
<td>0.53</td>
<td>0.62</td>
<td>1.73</td>
</tr>
</tbody>
</table>

#### (e) Additional animals identified for slaughter for TB control reasons (DCs, including any first-time IRs)

<table>
<thead>
<tr>
<th>Region</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

#### (f) SLH cases (tuberculous carcasses) reported by FSA

<table>
<thead>
<tr>
<th>Region</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

TR397 (Rev. 07/15)
**Density of TB reactors and slaughterhouse cases in TB breakdowns per km²**

Density of skin test reactors, IFN-gamma test reactors and slaughterhouse cases in Officially TB Free Status Withdrawn (OTF-W) and suspended (OTFS) breakdowns per km² taken in the reporting period

Density of skin test reactors, IFN-gamma test reactors and slaughterhouse cases in OTF-W breakdowns per km² taken in the reporting period
4. Suspected Sources of \textit{M. bovis} Infection for all the New OTFW Breakdowns Identified in the Report Period

From Disease Report Forms and any other available information such as genotype home-range analyses, CTS and tracings, etc. Give the numbers of OTFW breakdowns in each category, differentiating between those with a provisional or final origin.

<table>
<thead>
<tr>
<th>Most likely origin</th>
<th>Provisional</th>
<th>Final</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction (e.g. purchase) of infected animal(s)</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Local - lateral spread from neighbouring holdings:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• exposure to infected wildlife e.g. badgers</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>• other farmed species</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>• recrudescence of residual infection from a previous TB breakdown</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>• infected human source</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Undetermined/obscure</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Other (explain)</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Please attempt to categorise all new OTFW TB breakdowns identified in your region using the following risk matrix, according to (a) the probability of them being the result of introduced infection (inward cattle movements) and (b) the strength of evidence that we are dealing with an isolated incident without further propagation from the index farm to neighbouring herds (or vice versa). Enter the corresponding numbers of breakdowns in the relevant boxes. Any OTFW breakdowns falling in the greyed-in boxes may be removed from the county bTB incidence calculations for the purposes of EU reporting:

<table>
<thead>
<tr>
<th>Probability of isolated, sporadic (‘one-off’) breakdown, without secondary local spread from the index case</th>
<th>Likely (no secondary breakdowns detected)</th>
<th>Possible (no secondary breakdowns detected, but dataset incomplete)</th>
<th>Not likely (secondary spread from the index case, or exposure to a common wildlife source has occurred)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Probability of introduced \textit{M. bovis} infection introduced via cattle movements</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Definite</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Likely</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Possible</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Not likely (indigenous infection in the locality)</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

List the CPHs of those herds with OTFW breakdowns categorised as definite or likely introduced cases with no evidence of local spread (greyed-in boxes):
5. Overview of the bTB Control Programme in the Region

Background four-yearly routine surveillance testing across the region.

- Enhanced bTB herd surveillance (radial testing) instigated for all OTFW breakdowns by default, with any exemptions subject to Veterinary Risk Assessment by case Veterinary Officer. Two exemptions granted from radial surveillance within the reporting period.
- No interferon-gamma testing exemptions applied for in any of the OTFW breakdown herds.
- TB in other species: see Section 7 below.
- No confirmed or suspected cases of zoonotic (human) M. bovis infection.
- No suspected cases of non-specific or fraudulent skin test reactors.
- No TB breakdowns involving producer-retailers and unpasteurised cheese-makers or open farms during the reporting period.
- Ongoing liaison with NFU and other local enforcement and public health bodies.

6. Wildlife

No confirmed M. bovis infection has been detected in wildlife in the area.

7. Other Susceptible Species

Red Deer

North Yorkshire

Following a successful programme of repeat tuberculin skin testing supplemented by voluntary ad hoc antibody tests, the movement restrictions imposed in August 2012 on this farmed red deer herd were finally lifted at the end of January 2016. Repeat skin testing of the co-located and neighbouring cattle herds over a period of two years did not reveal any evidence of infection spill over from the infected deer herd.

8. Individual summaries of new OTFW breakdowns detected in the region during the report period and ongoing breakdowns from previous years still open at the end of the report period, grouped by county

North Yorkshire

Breakdowns that had started in 2015 and concluded in 2016

Holding operates as beef suckler herd. During the investigation visit there were 72 breeding cows on farm, and 10 heifers. There are 4 stock bulls, all purchased. There are approximately 35 female stores and 20 male stores (castrated). They usually sell their cattle as stores, at 12-18 months old, to Skipton Market. They keep some heifers as replacements. The heifers are serviced at approximately 2 years old. They sometimes buy cattle in from local markets, and occasionally from local farms. They house all the cattle between November and May, and in summer they all graze at the farm fields. There was a previous breakdown in 2005, genotype 17:a. Holding is currently within a 3km Radial zone triggered by Wilson, 1951117 (OTFW incident: ). Three NVL, culture negative reactors were disclosed in a pre-movement test on 10/03/2015. Check testing was completed on 30/03/2015 with two culture negative skin test reactors, one with VL at the PME.

A first SIT at severe interpretation with 187 of animals tested out of a total herd size 192, synchronised with the Gamma blood test was carried out on 09/06/2015 and revealed 3 skin and Gamma Reactors and one Gamma Reactor, all no visible lesions at the PM.

A second Short Interval with 193 animals tested out of a total herd size 194 was undertaken on 25/08/2015 and read at severe interpretation.

At the next SIT 3 reactors were disclosed that were NVL and culture negative. The IR became an NVL reactor. A SIT was carried out in January and another in March 2016 with negative results on both occasions. The restrictions were lifted on 20/3/16.
A 3km radial testing regime has been established and revealed 61 premises. One of those premises is an unconfirmed TB breakdown incident, 18 of these premises are already in an existing radial (10 due to confirmed incident, 1 due to confirmed incident, 2 premises due to confirmed and three due to confirmed, for one holding according to the RAD spreadsheet no info available to which RAD has been fallen) and 14 were exempted. 14 holdings were tested clear on the initial radial test, 5 were recorded as NES and in one of the holdings an IR was disclosed (will be retested in 60 days). The origin is unclear at present.

RICHMOND, NORTH

Beef suckler herd of Limousins which is basically closed apart from purchase of bulls and replacement calves. The heifers are homebred. Farm ring fenced. Majority of cattle housed in winter and grazed in summer (from May till October/November). He is calving all year in batches. Cows do move between batches. Bulls moved around as required. 3 groups of cows in summer and 5 in winter. Heifers calve down at 3years and join relevant cow group. Summer after weaning heifers go to summer grazing at . Calves weaned at 6-8 months. Majority of bull calves sold privately to Rest of calves sold at 6-10 months as stores through Market

Herd back traced from breakdowns at and (OTFW due to confirmed TB infected animal with genotype:17:a). Bulls sourced from , two of which now dead, one was a poor doer and shot on farm, so no PME 3/1/15, another sent for slaughter 30/5/15, another moved to and still there. Check test requested on . was a contiguous premise, so it was included in the radial testing zone.

The check test completed and 149 out of 163 cattle were tested on 27/04/2015. Three VL, culture positive reactors (Genotype: 17:a) and 2 IRs were disclosed.

A gamma-interferon blood test performed on 27/05/2015 revealed 16 reactors, 9 with VL at the PME.

A first SIT with the whole herd was undertaken on 17/08/2015 and read at severe interpretation with negative results.

The second SIT done on 19/10/15 and read at severe found one VL reactor. A third SIT has just been completed on 5/1/16 and revealed one NVL reactor.

A third SIT was completed on 8/3/16 and identified one IR. This animal subsequently tested clear and TB10 was served on 13/5/16.

A 3km radial testing regime has been recently established following this breakdown and revealed 39 premises. Two holdings have been exempted and four recorded as having no eligible stock (NES). 18 holdings have been tested with negative result on the initial radial test and one IR was disclosed that was clear on the retest.

The suspected origin of infection in to herd is currently obscure.

PICKERING, NORTH

Approx. 200 suckler cows and own bulls (Sim/ Ch/Lim) (calving at grass in April/May) with calves taken to slaughter. Also used to buy in stirks, from various cattle dealers, to fatten indoors. Fat cattle are indoors at approx. 120 and few at , also at grass at, 12 at , 27 at and 80 at . This holding was within the 3km radial zone due to OTFW incident and had already one confirmed slaughterhouse case in the finishing unit on 2008. The homebred heifer was disclosed as Reactor on 8/06/2015 (was IR at RAD test 10/4/15 and reactor at retest 8/6/15) confirmed as VL at slaughter, Spoligotyping result:11.

First SIT was completed on 21/9/15, apart from 24 cattle that could not be caught. One reactor was identified, which was NVL at slaughter. However the reaction readings (which are positive at both standard and severe) mean two more SIT tests are needed.

In late December it was decided to split the herd and do the second SIT on the main herd in early January. The 24 cattle will be kept separately and tested when they are caught. Splitting the herd means that if all goes well the main group will have had the two SIT tests before going to summer grazing. The 24 will be kept
isolated from the others and be subjected to the same testing protocols. Only when all is clear will consideration be given to lifting restrictions.

A second SIT on the main group was completed on 18/1/16 and was clear. The third SIT was completed on 21/3/16 and again was clear on the main group.

The separated group (approximately 24 in total) had their first SIT on 7/6/16 together with the gamma test. The latter revealed one positive which was NVL. The second SIT on this group is due in August.

A 3km radial testing regime has been established and revealed 60 premises. Two of those premises, the [Redacted] and [Redacted] are a confirmed TB incident. 24 of these premises are already in an existing radial and 4 were exempted, leaving 32 herds requiring a radial testing regime. Four premises were tested clear on the initial radial test and two have been recorded as NES. To date, 26 premises remain to be tested.

At present the suspected origin of the infection is not clear.

This is a small dairy herd. An animal was sold by [Redacted] on 28/7/15 to a Lincolnshire farmer with holding number [Redacted]. It ended up as a slaughterhouse case when slaughtered in Northern Ireland. Restrictions were served on [Redacted] on 23/9/15 as it had only been on the Lincolnshire farm for a short period of time.

A CT was completed on 23/9/15 and identified one IR at standard.

Disease was confirmed in the slaughterhouse case on 12/10/15 with spoligotype 25.a being identified.

A SIT was completed, plus the interferon-gamma test, on 30/11/15. This identified three reactors and one IR on the skin test and 13 reactors on the gamma test. All animals were NVL at slaughter.

Two consecutive SIT tests were carried out in February and April both with negative results. The suspected origin of infection was purchased animal from the low risk area possibly from cattle bought in the market. However this is unclear.

Restrictions were lifted on 28/4/16.

A slaughterhouse case that went positive on culture on 30/9/15 and ear number [Redacted]. No genotype is available at present. This is a small herd of beef cows with a fattening unit. Another slaughterhouse case was revealed on 14/12/15 in [Redacted]. No samples were taken from this case.

A SIT was completed at severe on 21/12/15 with negative results.

All animals were slaughtered so no second SIT was done. The restrictions were lifted on 28/4/16.

The suspicion is purchased animals from low risk area as the source of infection. The herd of origin was given a check test and was clear. Therefore the source is unclear.

On 23/11/15 a traced animal was found to be positive on the skin test ear number [Redacted]. This is a small suckler herd. Culture received in February 2016 revealed spoligotype 12.a (spoligotype of source premises was 25:a). The SIT revealed one NVL skin reactor and one NVL gamma positive. The probable source is a purchased animal.

A second SIT was completed on 11/4/16 and was clear. The third SIT was completed on 20/6/16 and once again was clear.

Restrictions were lifted on 8/7/16

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A slaughterhouse case found on 4/12/15 ear number [redacted] which was a homebred animal. The spoligotype for this case is 25.a. The first SIT revealed one NVL skin reactor and 9 NVL gamma reactors. The source is unclear in this case at the moment.

The second SIT was completed in May and was clear.

We are waiting for the completion of the third SIT at present.

**New OTFW breakdowns that began in the first six months of 2016**

A trace test completed on 20/2/16 relating to animal [redacted] gave a positive result with VL. It was from the LRA and the spoligotype was identified as 17:6-4-5-4-3-3-1. The herd comprises a breeding herd and fattening unit. The source farm spoligotype was 12:a.

The first SIT was completed along with the gamma. The SIT was clear and there were 4 gamma positives that were all NVL.

A second SIT was completed on 5/7/16 with clear results.

Restrictions were lifted on 14/7/16.

The likely origin is a purchased animal.

**West Yorkshire**

A slaughterhouse case that went positive on culture ear number [redacted] with spoligotype confirmed as 10:a. OTF status suspended on 10/9/15 and subsequently withdrawn. The farmer has opted to depopulate. This is a breeding herd with a separate fattening unit. Restrictions were lifted on 11/3/16.

The suspicion is that the origin of infection was purchase of an animal from the High Risk Area but was sold to the LRA in about 2008.

**South Yorkshire**

**Cases disclosed in 2015**

**ROVERHAM, SOUTH YORKSHIRE**

Herd comprises approximately 58 cattle; 20 cows, 2 stock bulls, about 16 heifers and 20 calves. Farm operates as a beef suckler herd. Approximately 6 heifers are bought in every year. 20% of heifers are kept as replacement. Cattle are bought in mainly from low risk areas, Carlisle market. Approximately 5 cattle per month are sold either direct to the abattoir or through the red market to the slaughterhouse. Premises are currently within the 3km radial testing zone due to [redacted] (Spoligotype Result: 25:a). Cattle are grazing during summer in the adjoining land that surrounds the housing facilities and are housed during the winter. The slaughterhouse case [redacted] was disclosed on 21/05/2015 and was confirmed (M. bovis isolated) on 27/07/2015. This homebred animal was born on 02/01/2011.

Synchronised first Short Interval Test at severe interpretation for 52 out of 53 cattle and Gamma test completed on 27/08/2015. 5 skin and Gamma Reactors and one Gamma Reactor were disclosed. Four skin and interferon-gamma reactors were with visible lesions. All the reactors that have been disclosed till now are homebred. Spoligotyping result: 25:a.

Second SIT at severe completed on 22/10/15 and it was a clear test.
Third SIT at standard completed 11/1/16 and that was clear. Restrictions were lifted on 14/1/16.

The source of infection in this case is obscure. There was an OTFW breakdown on another farm within 3 Km in 2013 but the spoligotype for that case was 25.

**New 2016 cases**

A slaughterhouse case was found on 31/5/16 and went positive with spoligotype 25:a. The CT carried out on 24/6/16 revealed one NVL reactor. The animal was bought from the HRA and this is the likely source. A radial surveillance zone is to be generated from this case. The case is ongoing.

**Humberside/East Yorkshire**

A purchased animal from the HRA was identified as a slaughterhouse case on 26/1/16. This is a fattening herd. It was identified as spoligotype 11:a on culture. The source farm also has spoligotype 11:a.

The farmer opted to do an immediate CT which was done on 9/2/16 with a clear outcome.

The farmer opted to do an immediate CT which was done on 9/2/16 with a clear outcome. However this test has had to be discounted as it was done too quickly after the CT.

Therefore the first SIT to count was completed on 14/6/16 with clear results. The interferon gamma test was completed as well with two positive animals that were both NVL.

This case is ongoing, but the likely source is a purchased animal.

A trace test on revealed a skin reactor that had VL on 9/2/16. Subsequently it was shown to be spoligotype 9:b. This is the same spoligotype as the source farm. The animal had been purchased on 1/12/15 from the HRA and had been housed until slaughtered. This is a breeding herd with fattening unit. The radial test exemption for neighbouring cattle herds was granted for this case as the cattle on the farm had all been housed in the period between purchase and slaughter of the reactor.

The first SIT competed on 25/4/16 was clear. The interferon-gamma test done at the same time revealed 7 positives that were all NVL at slaughter.

The second SIT done on 4/7/16 was also clear. Interferon-gamma retests done at the same time revealed one positive that was shown to be VL at post mortem. No samples were taken as it is OTFW. This animal had passed two SI tests at severe interpretation.

Testing is ongoing with a second interferon-gamma test also scheduled.

The likely source of infection is the introduction of infected cattle in to the herd from the High Risk Area.

**Glossary**

- Edge Area (EA) – the annual TB testing area of England situated between the High and Low Risk Areas
• Epidemiology – the science that studies the patterns, causes, and effects of health and disease conditions in defined populations

• Genotype – the genetic makeup of a cell, an organism, or an individual usually with reference to a specific characteristic under consideration

• High Risk Area (HRA) – the annual testing area of England comprising the South West, West Midlands and part of East Sussex, in which *M. bovis* infection is endemic in cattle herds and in badgers

• Potential ‘Hotspots’ – a temporary area of enhanced TB cattle and wildlife surveillance that may be declared around some OTFW TB breakdowns of uncertain origin detected in a Region of historically low TB incidence

• Low Risk Area (LRA) – the four-yearly TB testing area of the North and East of England in which *M. bovis* infection occurs only sporadically in cattle and is not considered endemic in wildlife. Although the default testing interval for routine TB surveillance is four years, some higher risk herds in the LRA are subjected to annual testing. There is also more intensive surveillance testing (radial testing) around any herds in the LRA (and parts of the Edge Area) that have their officially TB free status withdrawn due to a TB breakdown

• OTF – Officially Tuberculosis Free status. Herds that are not subjected to TB movement restrictions of any type are classified as OTF

• OTF-S – Officially Tuberculosis Free Suspended status. In England, an OTFS breakdown is a herd in which all the reactors removed had no visible lesions (NVL) on post-mortem examination and had negative culture results for *M. bovis*

• OTF-W – Officially Tuberculosis Free Withdrawn status. In England, an OTFW breakdown is a herd in which at least one test reactor with visible lesions (VL) and/or an animal with *M. bovis*-positive culture result have been disclosed

• Persistent herd breakdown – a herd that has been under TB movement restrictions for 18 months or longer due to infection with *M. bovis*

• bTB – (bovine) Tuberculosis (infection of cattle with *M. bovis*)

• IFN-γ – interferon-gamma test. A supplementary in vitro blood test for TB used by APHA in conjunction with the tuberculin skin test in some situations, usually to improve the overall diagnostic sensitivity in infected herds with OTF status withdrawn.

The Animal and Plant Health Agency is an Executive Agency of the Department for Environment, Food and Rural Affairs working to safeguard animal and plant health for the benefit of people, the environment and the economy.