

Lot No.: **24M**

Lot-specific Information

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## **Olerup SSP® HLA-A-B-DR-DQ SSP Combi Tray**

|                                  |                                       |
|----------------------------------|---------------------------------------|
| Product number:                  | 101.708-24u – without <i>Taq</i> pol. |
| Lot number:                      | 24M                                   |
| Expiry date:                     | 2013-December-01                      |
| Number of tests:                 | 24 tests                              |
| Number of wells per test:        | 95 +1                                 |
| Storage - pre-aliquoted primers: | dark at -20°C                         |
| - PCR Master Mix:                | -20°C                                 |
| - Adhesive PCR seals             | RT                                    |
| - Product Insert                 | RT                                    |

**This Product Description is only valid for Lot No. 24M.**

### **CHANGES COMPARED TO THE PREVIOUS *OLERUP SSP*® HLA-A-B-DR-DQ SSP COMBI TRAY LOT**

The **HLA-A low resolution** specificity and interpretation tables have been updated for the HLA-A alleles described since the previous *Olerup SSP*® HLA-A-B-DR-DQ SSP Combi Tray lot was made (**Lot No. 65K**).

The primers of the wells detailed below have been exchanged, modified or added compared to the previous lot.

| Well | 5'-primer | 3'-primer | rationale                                                    |
|------|-----------|-----------|--------------------------------------------------------------|
| 12   | Added     | -         | Primer added for improved yield of HLA-specific PCR product. |

The **HLA-B low resolution** specificity and interpretation tables have been updated for the HLA-B alleles described since the previous *Olerup SSP*® HLA-A-B-DR-DQ SSP Combi Tray lot was made (**Lot No. 65K**).

The primers of the wells detailed below have been exchanged, modified or added compared to the previous lot.

| Well | 5'-primer | 3'-primer | rationale                                |
|------|-----------|-----------|------------------------------------------|
| 26   | Added     | -         | Increased yield of specific PCR product. |

The **HLA-DR low resolution** specificity and interpretation tables have been updated for the HLA-DRB alleles described since the previous *Olerup SSP*® HLA-A-B-DR-DQ SSP Combi Tray lot was made (**Lot No. 65K**).

The primers of the wells detailed below have been exchanged, added or modified compared to the previous lot.

Lot No.: **24M**

Lot-specific Information

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| Well | 5'-primer | 3'-primer | rationale                                |
|------|-----------|-----------|------------------------------------------|
| 67   | -         | Added     | Primer added for the DRB1*15:50N allele. |
| 75   | -         | Modified  | Improved specificity of amplification.   |

The **DQ low resolution** specificity and interpretation tables have been updated for the HLA-DQB1 alleles described since the previous *Olerup* SSP® HLA-A-B-DR-DQ SSP Combi Tray lot was made (**Lot No. 65K**).

The primers of the wells detailed below have been exchanged, added or modified compared to the previous lot.

| Well | 5'-primer | 3'-primer | rationale                                     |
|------|-----------|-----------|-----------------------------------------------|
| 92   | Modified  | -         | Improved specificity of specific primer pair. |

Change in revision R01 compared to R00:

1. Primer mix 2 may give a lower yield of HLA-specific PCR product than the other HLA-A low primer mixes.

Change in revision R02 compared to R01:

1. Primer mix 39 does not amplify the B\*15:101 allele. This has been corrected in the Specificity and Interpretation tables.

Change in revision R03 compared to R02:

1. Primer mix 16 does not amplify the HLA-A\*36:02 allele. This has been corrected in the Specificity and Interpretation Tables.

Lot No.: **24M**

Lot-specific Information

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Well 96 contains Negative Control primer pairs, that will amplify more than 95% of the *Olerup* SSP® HLA Class I, DRB, DQB1 and DPB1 amplicons as well as the amplicons generated by control primer pairs.

PCR product sizes range from 75 to 430 base pairs.  
The PCR product generated by the control primer pair is 430 base pairs.

| Length of PCR product        | 105                  | 200                     | 105                  | 80                   | 75                   | 80                   |
|------------------------------|----------------------|-------------------------|----------------------|----------------------|----------------------|----------------------|
| <b>5'-primer<sup>1</sup></b> | <b>164</b>           | <b>340</b>              | <b>440</b>           | <b>45</b>            | <b>45</b>            | <b>43</b>            |
|                              | 5'-CAC <sup>3'</sup> | 5'-Agg <sup>3'</sup>    | 5'-TTA <sup>3'</sup> | 5'-Tgg <sup>3'</sup> | 5'-Tgg <sup>3'</sup> | 5'-Tgg <sup>3'</sup> |
| <b>3'-primer<sup>2</sup></b> | <b>231</b>           | <b>2<sup>nd</sup> I</b> | <b>507</b>           | <b>59</b>            | <b>58</b>            | <b>57</b>            |
|                              | 5'-TgC <sup>3'</sup> | 5'-AAA <sup>3'</sup>    | 5'-TTg <sup>3'</sup> | 5'-CTC <sup>3'</sup> | 5'-ggC <sup>3'</sup> | 5'-CTC <sup>3'</sup> |
| <b>A*</b>                    | +                    | +                       | +                    |                      |                      |                      |
| <b>B*</b>                    | +                    | +                       | +                    |                      |                      |                      |
| <b>C*</b>                    | +                    | +                       | +                    |                      |                      |                      |
| <b>DRB1</b>                  |                      |                         |                      | +                    | +                    |                      |
| <b>DRB3</b>                  |                      |                         |                      | +                    | +                    |                      |
| <b>DRB5</b>                  |                      |                         |                      | +                    |                      |                      |
| <b>DQB1</b>                  |                      |                         |                      |                      | +                    |                      |
| <b>DPB1</b>                  |                      |                         |                      |                      |                      | +                    |

<sup>1</sup>The nucleotide position for HLA class I genes and the codon for HLA class II genes, in the 2<sup>nd</sup> or 3<sup>rd</sup> exon, matching the specificity-determining 3'-end of the primer is given. Nucleotide and codon numbering as on the [www.ebi.ac.uk/imgt/hla](http://www.ebi.ac.uk/imgt/hla) web site. The sequence of the 3 terminal nucleotides of the primer is given.

<sup>2</sup>The nucleotide position for HLA class I genes and the codon for HLA class II genes, in the 2<sup>nd</sup> or 3<sup>rd</sup> exon or the 2<sup>nd</sup> intron, matching the specificity-determining 3'-end of the primer is given in the anti-sense direction. Nucleotide and codon numbering as on the [www.ebi.ac.uk/imgt/hla](http://www.ebi.ac.uk/imgt/hla) web site. The sequence of the 3 terminal nucleotides of the primer is given.

Lot No.: **24M**

Lot-specific Information

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## PRODUCT DESCRIPTION

### HLA-A-B-DR-DQ SSP Combi Tray

#### CONTENT

The primer set contains 5'- and 3'-primers for grouping the HLA-A\*01:01 to A\*80:02 alleles into the corresponding serological groups A1 to A80.

The primer set contains 5'- and 3'-primers for grouping the B\*07:02 to B\*83:01 alleles into the corresponding serological groups B7 to B81 as well as primer pairs for recognizing the Bw4 and Bw6 sequence motifs.

The primer set contains 5'- and 3'-primers for grouping the DRB1\*01:01 to DRB1\*10:03 alleles into the corresponding serological groups DR1 to DR18 as well as primer pairs for recognizing the DRB3, DRB4 and DRB5 groups of alleles.

The primer set contains 5'- and 3'-primers for grouping the DQB1 alleles into the serological groups DQ2 to DQ9.

*Please note that DQB1 amplifications usually are somewhat less pronounced than e.g. DRB and DQA1 amplifications even when using the same DNA preparation and exactly the same experimental procedures.*

#### PLATE LAYOUT

Each test consists of 96 PCR reactions in a 96 well PCR plate.

|    |    |    |    |    |    |    |      |
|----|----|----|----|----|----|----|------|
| 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8    |
| 9  | 10 | 11 | 12 | 13 | 14 | 15 | 16   |
| 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24   |
| 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32   |
| 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40   |
| 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48   |
| 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56   |
| 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64   |
| 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72   |
| 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80   |
| 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88   |
| 89 | 90 | 91 | 92 | 93 | 94 | 95 | ctrl |

Wells 1 to 21 – HLA-A low resolution primers.

Wells 22 to 64 – HLA-B low resolution primers.

Wells 65 to 87 – HLA-DR low resolution primers.

Wells 88 to 95 – HLA-DQ low resolution primers.

Well 96 – Negative Control.

The 96 well PCR plate is marked with 'A-B-DR-DQ' in silver/gray ink.

Well No. 1 is marked with the Lot No. '24M'.

A faint row of numbers is seen between wells 1 and 2 or wells 7 and 8 of the PCR trays. These stem from the manufacture of the trays, and should be disregarded.

The PCR plates are covered with a PCR-compatible foil.

## INTERPRETATION

Only HLA-A alleles will be amplified by the 21 wells of the HLA-A low resolution primer set, **wells 1 to 21**, except that primer mix 5 will amplify the B\*18:27 allele. Thus, the interpretation of HLA-A low resolution is only influenced by this HLA-B allele and not by other HLA Class I genes.

Only HLA-B alleles will be amplified by the 43 wells of the HLA-B low resolution, primer set, **wells 22 to 64**, except that the HLA-C\*03:05, 03:25 and 03:27 alleles will be amplified by primer mix 24, the C\*01:30 allele will be amplified by primer mix 25, the A\*23:31, A\*24:106 and C\*16:10 alleles will be amplified by primer mix 27, the C\*07:46 allele will be amplified by primer mix 29, the C\*03:102 allele will be amplified by primer mixes 37 and 58, the C\*15:25 allele will be amplified by primer mix 48, the C\*15:39 allele will be amplified by primer mix 49, the C\*15:02:04 allele will be amplified by primer mix 58, the C\*03:12 and C\*03:19 alleles will be amplified by primer mix 59 and the A\*68:56, C\*06:20 and C\*12:50 alleles will be amplified by primer mix 62. Thus, the interpretation of HLA-B low resolution typings is only influenced by these three HLA-A alleles and fourteen HLA-C alleles and not by other HLA class I genes.

Only HLA-DRB alleles will be amplified by the 23 wells the DR low resolution primer set, **wells 65 to 87**. Thus, the interpretation of DR low resolution typings is not influenced by other HLA class II genes.

Only the DQB1 alleles will be amplified by the 8 wells the DQ low resolution primer set, **wells 88 to 95**. Thus, the interpretation of DQ low resolution typings is not influenced the DQB2 and DQB3 genes.

## UNIQUELY IDENTIFIED ALLELES

All the HLA-A alleles, i.e. **A\*01:01 to A\*80:02**, recognized by the HLA Nomenclature Committee in October 2010<sup>1</sup> will be amplified by the primers in the HLA-A low resolution primer set, **wells 1 to 21**. The HLA-A alleles will be grouped into their corresponding serological specificities<sup>2</sup>.

All the HLA-B alleles, i.e. **B\*07:02 to B\*83:01**, recognized by the HLA Nomenclature Committee in October 2010<sup>1</sup> will be amplified by the primers in the HLA-B low resolution primer set, **wells 22 to 64**. The HLA-B alleles will be grouped into their corresponding serological specificities<sup>3</sup>.

All the HLA-DRB1, -DRB3, -DRB4<sup>4</sup> and -DRB5 alleles, i.e. **DRB1\*01:01:01 to 10:03, DRB3\*01:01:01 to DRB3\*03:03, DRB4\*01:01:01:01 to DRB4\*01:08, DRB5\*01:01:01 to DRB5\*02:05**, recognized by the HLA Nomenclature Committee in October 2010<sup>1</sup> will be amplified by the primers in the DR low resolution primer set, **wells 65 to 87**. The HLA-DRB alleles will be grouped into their corresponding serological specificities<sup>5</sup>.

All the DQB1 alleles, i.e. **DQB1\*05:01:01 to 05:08, DQB1\*06:01:01 to 06:40, DQB1\*02:01:01 to 02:05, DQB1\*03:01:01 to 03:31 and DQB1\*04:01 to 04:06**, recognized by the HLA Nomenclature Committee in October 2010<sup>1</sup> will be

Lot No.: **24M**

Lot-specific Information

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amplified by the primers in the DQ low resolution primer set. The DQB1 alleles will be grouped into their corresponding serological specificities, i.e.:

|        |   |                                                           |
|--------|---|-----------------------------------------------------------|
| DQ5(1) | = | DQB1*05:01:01-05:08 <sup>6</sup>                          |
| DQ6(1) | = | DQB1*06:01:01-06:40 <sup>6</sup>                          |
| DQ2    | = | DQB1*02:01:01-02:05                                       |
| DQ3    | = | DQB1*03:01:01-03:31 <sup>6</sup>                          |
| DQ7(3) | = | DQB1*03:01:01-03:01:03, 03:04, 03:09, 03:13, 03:16, 03:19 |
| DQ8(3) | = | DQB1*03:02:01, 03:05:01, 03:07, 03:08, 03:11, 03:18       |
| DQ9(3) | = | DQB1*03:03:02, 03:12, 03:15, 03:17, 03:20                 |
| DQ4    | = | DQB1*04:01-04:06 <sup>6</sup>                             |

<sup>1</sup>HLA-A, HLA-B, HLA-DRB and HLA-DQB1 alleles listed on the IMGT/HLA web page 2010-October-15, release 3.2.0, [www.ebi.ac.uk/imgt/hla](http://www.ebi.ac.uk/imgt/hla).

<sup>2</sup>The A\*36 alleles will give rise to identical amplification patterns as some A\*01 alleles. These alleles can be separated by the A\*01 and A\*36 high resolution SSP primer sets.

The A\*03:01:23, 03:08, 03:32, 03:36N, 03:57, 03:59, 03:72, 03:89, 03:107-03:108, 03:111 and the A\*24:92 alleles will give rise to identical amplification patterns. These alleles can be separated by the respective high resolution SSP primer sets.

The A\*23:14 and the A\*24:05, 24:13:02 and 24:24 alleles will give rise to identical amplification patterns. These four alleles can be separated by the respective high resolution SSP primer sets.

<sup>3</sup>The B\*08:26, 08:50, 08:62 and the B\*42:07 alleles give rise to identical amplification patterns with the HLA-B low resolution primer set. These alleles can be separated by the respective high resolution primer sets.

The B\*14:08 and the B\*39:25N, 39:30, 39:32-39:34, 39:43, 39:47 and 39:50 alleles give rise to identical amplification patterns with the HLA-B low resolution primer set. These alleles can be separated by the respective high resolution primer sets.

The B\*18:29 and the B\*35:09:01-35:09:02, 35:18, 35:31-35:32, 35:37, 35:53N, 35:64, 35:68:01-35:68:02, 35:75, 35:88, 35:99, 35:118-35:119, 35:127 and 35:151 alleles give rise to identical amplification patterns with the HLA-B low resolution primer set. These alleles can be separated by the respective high resolution primer sets.

The B\*41:09 and the B\*45:02-45:03 alleles give rise to identical amplification patterns with the HLA-B low resolution primer set. These alleles can be separated by the respective high resolution primer sets.

The B\*55:02:01-55:02:06, 55:07, 55:10, 55:12, 55:16, 55:19, 55:26, 55:30, 55:37, 55:39, 55:41-55:43, 55:47-55:48 and the B\*56:10 alleles give rise to identical amplification patterns with the HLA-B low resolution primer set. These alleles can be separated by the respective high resolution primer sets.

The B\*55:04, 55:08, 55:13, 55:23, 55:27, 55:32, 55:46 and the B\*56:15, 56:18-56:19N and 56:22 alleles give rise to identical amplification patterns with the HLA-B low resolution primer set. These alleles can be separated by the respective high resolution primer sets.

<sup>4</sup>The DRB4\*02:01N and DRB4\*03:01N null alleles will not be amplified by the DR low resolution primer set.

<sup>5</sup>The DRB1\*08:09 and the DRB1\*14:15 alleles yield identical amplification patterns with the DR low resolution primer set. These alleles can be separated by the respective high resolution primer sets.

The DRB1\*08:20 and the DRB1\*13:18, 13:47 and 13:55 alleles yield identical amplification patterns with the DR low resolution primer set. These alleles can be separated by the respective high resolution primer sets.

The DRB1\*08:31, 08:41 and DRB1\*11:67 alleles yield identical amplification patterns with the DR low resolution primer set. These alleles can be separated by the respective high resolution primer sets. The DRB1\*13:13 and DRB1\*14:84 alleles yield identical amplification patterns with the DR low resolution primer set. These alleles can be separated by the respective high resolution primer sets.

<sup>6</sup>The serological split of the DQB1\*05:05, DQB1\*06:06 to 06:08 alleles, the DQB1\*06:10 to 06:40, the DQB1\*03:02:02-03:02:04, DQB1\*03:03:03, DQB1\*03:05:02 to 03:26 and the DQB1\*04:03 and 04:04 alleles is not known. The grouping of not serologically defined alleles is taken from Tissue Antigens 73, 95-170, 2009.

Lot No.: **24M**

Lot-specific Information

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## SPECIFICITY TABLE

### HLA-A low resolution primer set

Specificities and sizes of the PCR products of the 21 primer mixes used for HLA-A low resolution SSP typing

| Primer Mix                | Size of spec. PCR product <sup>1</sup> | Size of control band <sup>2</sup> | HLA-A serology <sup>3</sup>                    | Amplified HLA-A alleles <sup>4,10,11</sup>                                                                                                                                                                                                           |
|---------------------------|----------------------------------------|-----------------------------------|------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1<sup>5,6</sup></b>    | 120, 140, 225 bp                       | <b>800 bp</b>                     | A1, A36                                        | *01:01:01:01-01:04N, 01:06-01:33, 01:01:38L, 01:35-01:81, 03:18, 36:01-36:05                                                                                                                                                                         |
| <b>2<sup>6,7</sup></b>    | 210, 255, 365, 415 bp                  | <b>800 bp</b>                     | A2                                             | *02:01:01:01-02:01:15, 02:01:17-02:01:19, 02:01:21-02:22:02, 02:24:01-02:35:01, 02:35:03-02:47, 02:49-02:77, 02:78 <sup>w</sup> , 02:79:01-02:97:02, 02:99, 02:101:01-02:128, 02:130-02:282                                                          |
| <b>3<sup>8</sup></b>      | 205, 235 bp                            | 1070 bp                           | A1, A3, A11, A32, A34, A36                     | *01:12, 01:19, 01:21, 03:01:01:01-03:17, 03:19-03:74, 03:76-03:94, 03:96-03:112, 11:25, 11:60, 24:92, 32:04, 34:02:01-34:04, 34:07-34:09, 36:02                                                                                                      |
| <b>4</b>                  | 190 bp                                 | <b>800 bp</b>                     | A1, A2, A3, A11, A26, A30, A36                 | *01:01:01:01-01:01:22, 01:01:24-01:04N, 01:06-01:07, 01:09-01:11N, 01:13, 01:16N-01:18N, 01:20-01:29, 01:31N-01:33, 01:01:38L, 01:35-01:78, 01:80-01:81, 02:78, 02:169, 03:12, 03:18, 03:88, 11:01:01-11:27, 11:29-11:80, 26:19, 30:08, 36:04, 68:66 |
| <b>5<sup>9</sup></b>      | 135, 175, 210 bp                       | <b>800 bp</b>                     | A2, A23, A24, A29, A80                         | *23:01:01-23:31, 24:05, 24:13:02, 24:24, 29:07, 31:29, 80:01-80:02, <b>B*18:27</b>                                                                                                                                                                   |
| <b>6</b>                  | 175, 200 bp                            | 1070 bp                           | A2, A23, A24, A26, A33                         | *02:17:01 <sup>w</sup> -02:17:02 <sup>w</sup> , 23:14, 24:02:01:01-24:11N, 24:13:01-24:13:02, 24:17-24:50, 24:54-24:56, 24:58-24:63, 24:66-24:91, 24:93, 24:95-24:113, 24:115-24:137, 24:139-24:155N, 26:16, 33:19, 68:45                            |
| <b>7</b>                  | 165, 200 bp                            | <b>800 bp</b>                     | A2, A3, A11, A25, A26, A32, A34, A66, A68, A69 | *01:51, 02:55, 03:24, 03:50, 11:10, 25:01:01-25:13, 26:01:01-26:06, 26:08-26:15, 26:17-26:18, 26:20-26:43:02, 26:45-26:56, 32:15, 34:01:01-34:09, 66:01-66:15, 68:01:01:01-68:66, 69:01                                                              |
| <b>8<sup>5</sup></b>      | 75 bp                                  | <b>800 bp</b>                     | A25, A32                                       | *25:01:01-25:13, 32:01:01-32:02, 32:04, 32:06-32:30                                                                                                                                                                                                  |
| <b>9<sup>5,7</sup></b>    | 85 bp                                  | 1070 bp                           | A2, A26, A33                                   | *01:51, 02:146, 26:01:01-26:02, 26:04, 26:07:01-26:18, 26:20, 26:22-26:29, 26:31-26:43:02, 26:45-26:56, 33:13                                                                                                                                        |
| <b>10<sup>5,6,7</sup></b> | 80, 175, 500 bp                        | 1070 bp                           | A1, A11, A24, A26, A31, A34, A66               | *01:13, 01:28, 03:63, 03:88, 11:01:01-11:27, 11:29-11:80, 24:19, 24:44, 26:03:01-26:03:02, 26:06, 26:21, 31:03, 34:01:01-34:08, 66:01, 66:04-66:11, 66:13-66:15, 80:02                                                                               |

Lot No.: **24M**

Lot-specific Information

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|                           |                      |               |                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------------------|----------------------|---------------|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>11</b>                 | 185 bp               | <b>800 bp</b> | A11, A25, A26, A31, A34, A43, A66   | *03:01:19, 11:11, 25:06, 26:09, 31:03-31:04, 34:01:01-34:09, 43:01, 66:02-66:03                                                                                                                                                                                                                                                                                                                                                     |
| <b>12<sup>7</sup></b>     | 175, 225 bp          | 1070 bp       | A1, A2, A3, A25, A26, A34, A43, A66 | *01:13, 02:34-02:35:03, 02:56:01-02:56:02, 02:62, 02:103, 02:135, 03:01:01-01-03:01:22, 03:02-03:07, 03:09-03:11N, 03:13-03:31, 03:33-03:35, 03:37-03:40, 03:42-03:56, 03:58, 03:60-03:71, 03:73-03:87, 03:90-03:106, 03:109-03:110, 03:112, 25:01:01-25:05, 25:07-25:13, 26:01:01-26:01:18, 26:02 <sup>w</sup> , 26:03:01-26:03:02, 26:05-26:08, 26:10-26:33, 26:35-26:43:02, 26:45-26:56, 34:08, 43:01, 66:01, 66:04-66:15, 74:13 |
| <b>13<sup>5</sup></b>     | 100, 200, 240 bp     | 1070 bp       | A29, A33                            | *02:237, 03:95, 26:19, 26:22, 29:01:01-01-29:27, 31:03-31:04, 33:13, 34:04, 66:09                                                                                                                                                                                                                                                                                                                                                   |
| <b>14<sup>5,6,7</sup></b> | 90, 135, 205 bp      | 1070 bp       | A1, A30                             | *01:13, 01:28, 03:43, 03:82, 30:01:01-30:04:02, 30:06-30:20, 30:22-30:46, 31:35                                                                                                                                                                                                                                                                                                                                                     |
| <b>15</b>                 | 240, 370, 395 bp     | 1070 bp       | A31, A32                            | *02:237, 03:95, 29:14, 31:01:02-31:46, 32:05                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>16</b>                 | 140, 180 bp          | 1070 bp       | A29, A32                            | *03:43, 03:82, 29:13, 31:35, 32:01:01-32:03, 32:05-32:30, 74:07                                                                                                                                                                                                                                                                                                                                                                     |
| <b>17</b>                 | 200 bp               | 1070 bp       | A33, A68                            | *02:243, 33:01:01-33:01:05, 33:03:01-33:34, 68:29                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>18<sup>7</sup></b>     | 160, 200 bp          | <b>800 bp</b> | A74                                 | *29:19, 74:01-74:14N                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>19<sup>9</sup></b>     | 220, 245 bp          | <b>800 bp</b> | A2, A210, A25, A30, A68             | *02:34-02:35:03, 02:46, 02:48, 02:56:01-02:56:02, 02:62, 02:70, 02:78, 02:103, 02:129, 25:05, 26:54, 68:01:01-01-68:66                                                                                                                                                                                                                                                                                                              |
| <b>20</b>                 | 240, 375 bp          | <b>800 bp</b> | A2, A24, A26, A68, A69              | *02:55, 02:243, 24:82, 26:22, 33:22, 66:09, 68:29, 69:01                                                                                                                                                                                                                                                                                                                                                                            |
| <b>21<sup>5,7,9</sup></b> | 70, 160, 240, 495 bp | <b>800 bp</b> | A2, A26, A68, A80                   | *02:55, 03:41, 03:63, 03:75, 03:88, 24:18, 26:03:01-26:03:02, 26:05-26:06, 26:21, 26:30, 33:24, 36:02, 68:05, 68:15, 68:20, 80:01                                                                                                                                                                                                                                                                                                   |

<sup>1</sup>Alleles are assigned by the presence of specific PCR product(s). However, the sizes of the specific PCR products may be helpful in the interpretation of HLA-A low resolution SSP typings. When the primers in a primer mix can give rise to specific PCR products of more than one length this is indicated if the size difference is 20 base pairs or more. Size differences shorter than 20 base pairs are not given. For high resolution SSP kits the respective lengths of the specific PCR product(s) of the alleles amplified by these primer mixes are given.

Nonspecific amplifications, i.e. a ladder or a smear of bands, may sometimes be seen. GC-rich primers have a higher tendency of giving rise to nonspecific amplifications than other primers.

PCR fragments longer than the control bands may sometimes be observed. Such bands should be disregarded and do not influence the interpretation of the SSP typings.

PCR fragments migrating faster than the control bands, but slower than a 400 bp fragment may be seen in some gel read-outs. Such bands can be disregarded and do not influence the interpretation of the SSP typings.

Some primers may give rise to primer oligomer artifacts. Sometimes this phenomenon is an inherent feature of the primer pair(s) of a primer mix. More often it is due to other factors such as too low amount of DNA in the PCR reactions, taking too long time in setting up the PCR reactions, working at elevated room temperature or using thermal cyclers that are not pre-heated.

Lot No.: **24M**

Lot-specific Information

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<sup>2</sup>The internal positive control primer pairs amplify segments of the human growth hormone gene. The two different control primer pairs give rise to either an internal positive control band of 1070 base pairs, for most wells, or a band of 800 base pairs, for some wells.

Well number 1 contains the primer pair giving rise to the shorter, 800 bp, internal positive control band in order to help in the correct orientation of the HLA-A low resolution typing.

In addition, wells number 2, 4, 5, 7, 8, 11 and 18 to 21 contain the primer pair giving rise to the shorter, 800 bp, internal positive control band in order to allow kit identification.

In the presence of a specific amplification the intensity of the control band often decreases.

<sup>3</sup>The serological reactivity of all HLA-A alleles is not known. The grouping of not serologically defined alleles is taken from Tissue Antigens 73, 95-170, 2009.

<sup>4</sup>For several HLA-A alleles only partial 1<sup>st</sup> exon nucleotide sequences are available. We assume that unknown sequences are conserved within allelic groups.

Nucleotide sequence information is available for only exons 2 and 3 of many HLA Class I alleles and for only exon 2 of many HLA Class II alleles and not for other exons or for the introns of these alleles. We assume that unknown sequences in these exons and in the introns are conserved within loci and within allelic groups.

<sup>5</sup>Specific PCR fragments shorter than 125 base pairs have a lower intensity and are less sharp than longer PCR bands.

<sup>6</sup>The primer pairs in vials 1, 2, 10 and 14 will in many samples give rise to two or three HLA-specific PCR fragments.

<sup>7</sup>Primer mixes 2, 9, 10, 12, 14, 18 and 21 may yield less specific PCR product than the other primer mixes.

<sup>8</sup>Primer mix 3 may faintly amplify the A\*30:04, 30:06, 30:17 and 30:29 alleles.

<sup>9</sup>Primer mix 5, 19 and 21 may give rise to primer oligomer formation.

<sup>10</sup>The A\*36 alleles will give rise to identical amplification patterns as a number of A\*01 alleles. These alleles can be separated by the A\*01 and A\*36 high resolution SSP primer sets.

The A\*03:01:23, 03:08, 03:32, 03:36N, 03:57, 03:59, 03:72, 03:89, 03:107-03:108, 03:111 and the A\*24:92 alleles will give rise to identical amplification patterns. These alleles can be separated by the respective high resolution SSP primer sets.

The A\*23:14 and the A\*24:05, 24:13:02 and 24:24 alleles will give rise to identical amplification patterns. These four alleles can be separated by the respective high resolution SSP primer sets.

<sup>11</sup>Primer mix 5 will amplify the B\*18:27 allele.

‘w’, might be weakly amplified.

Lot No.: **24M**

Lot-specific Information

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## SPECIFICITY TABLE

### HLA-B low resolution primer set

Specificities and sizes of the PCR products of the 43 primer mixes used for HLA-B low resolution SSP typing

| Primer Mix              | Size of spec. PCR product <sup>1</sup> | Size of control band <sup>2</sup> | HLA-B serol. <sup>3</sup>                      | Amplified HLA-B alleles <sup>4,5</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-------------------------|----------------------------------------|-----------------------------------|------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>22<sup>10</sup></b>  | 285 bp                                 | <b>800 bp</b>                     | 7, 15, 37, 40, 41, 42, 48                      | *07:02:01-07:06, 07:08-07:18:02, 07:20-07:32, 07:34-07:39, 07:41-07:52, 07:54-07:59, 07:61-07:76, 07:79-07:83, 07:85-07:99, 07:101-07:117, 08:01:01-08:05, 08:07-08:08N, 08:10-08:11, 08:13-08:15, 08:17-08:66, 35:66, 35:87, 37:07, 40:15-40:16, 40:30-40:32, 40:34, 40:45, 40:59, 40:80, 40:98, 40:137, 41:02:01-41:02:03, 41:04, 41:10-41:11, 41:13, 42:01:01-42:02, 42:05:01-42:07, 42:09-42:13, 48:01:01-48:01:03, 48:05-48:12, 48:14-48:20, 48:22, 53:15, 81:01-81:05                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>23</b>               | 215 bp                                 | 1070 bp                           | 8, 15, 44                                      | *08:01:01-08:05, 08:07-08:25, 08:27-08:49, 08:51-08:61, 08:63-08:64, 08:66, 15:142, 15:180, 44:49, 51:68                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>24</b>               | 140, 235 bp                            | 1070 bp                           | 7, 8, 13, 15, 35, 40, 4005, 44, 46, 53, 57, 58 | *07:20, 07:24, 07:60, 07:100, 08:21, 08:25, 13:01:01-13:04, 13:06-13:08Q, 13:10-13:23, 13:25-13:38, 13:40, 15:07:01-15:07:02, 15:36 <sup>w</sup> , 15:45, 15:55, 15:68, 15:89 <sup>w</sup> , 15:126, 15:205, 15:207, 35:05:01-35:05:02, 35:16-35:17, 35:22, 35:30, 35:51, 35:58, 35:72, 35:89, 35:97, 35:113-35:114, 35:125, 40:05, 40:71, 44:08 <sup>w</sup> , 44:54, 44:57 <sup>w</sup> , 44:60, 44:106, 44:110, 46:12, 46:20, 51:64, 53:14, 58:18, <b>C*03:05, C*03:25, C*03:27</b>                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>25<sup>7,8</sup></b> | 130, 265 bp                            | <b>800 bp</b>                     | 13, 14, 15, 35, 40, 41, 44, 45, 47, 49, 50     | *13:01:01-13:04, 13:06-13:13, 13:15-13:23, 13:25-13:40, 14:01:01-14:04, 14:07N, 14:09, 14:11-14:12, 14:14-14:19, 15:46, 15:53, 15:106, 18:44, 35:46-35:47, 35:63, 40:01:01-40:01:17, 40:07, 40:10:01-40:10:02, 40:14:01-40:16, 40:22N-40:23, 40:25, 40:30-40:34, 40:36, 40:38, 40:42-40:43, 40:45, 40:47-40:49, 40:51-40:55, 40:58-40:63, 40:65-40:67, 40:69, 40:72:01-40:73, 40:76-40:77, 40:79-40:81, 40:84, 40:87-40:88, 40:92, 40:100-40:102, 40:106, 40:108, 40:110, 40:112-40:114, 40:116-40:118N, 40:121, 40:123-40:126, 40:128-40:130, 40:132, 40:134-40:136, 40:139-40:141, 40:146-40:147, 40:150-40:156, 40:158, 41:01-41:16, 44:02:01:01-44:03:06, 44:03:08-44:05:02, 44:09-44:39, 44:41-44:43:02, 44:45-44:56N, 44:58N-44:80, 44:82, 44:84-44:102, 44:104-44:110, 44:112-44:115, 45:01-45:13, 47:01:01:01-47:07, 49:01:01-49:02, 49:04-49:15, 50:01:01-50:02, 50:04-50:06, 50:08-50:12, <b>C*01:30</b> |

Lot No.: **24M**

Lot-specific Information

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|                            |                  |               |                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|----------------------------|------------------|---------------|-----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>26<sup>8</sup></b>      | 185, 235 bp      | <b>800 bp</b> | 14, 16, 27, 37, 38, 39, 47, 64, 67                        | *14:01:01-14:01:02, 14:07N-14:08, 14:10, 14:12, 14:14, 14:19, 27:01-27:06, 27:08-27:10, 27:12-27:13, 27:16-27:18, 27:20, 27:23, 27:26-27:27, 27:29, 27:31, 27:35-27:37, 27:39-27:42, 27:44-27:46, 27:48-27:61, 27:64N-27:69, 27:72-27:73, 37:02, 38:01:01-38:02:02, 38:03, 38:07-38:24, 38:26, 39:01:01:01-39:01:01:02L, 39:01:03-39:01:08, 39:01:10-39:02:01, 39:03, 39:05:01-39:09, 39:11, 39:14-39:15, 39:18, 39:19:02, 39:22, 39:24-39:44, 39:46-39:48, 39:50-39:62, 47:04-47:05, 48:21, 67:01:01, 67:03                                                                                                                                                                                                                                                                                                   |
| <b>27</b>                  | 190 bp           | <b>800 bp</b> | 14, 35, 38, 39, 65                                        | *07:28, 14:02:01-14:02:02, 14:02:04-14:02:05, 14:03-14:06:02, 14:09, 14:11, 14:13, 14:15-14:18, 15:77, 15:189, 35:26, 38:05, 39:04, 44:16, 44:37, 44:64:01-44:64:02, 44:91, 57:04, <b>A*23:31, A*24:106, C*16:10</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>28</b>                  | 290 bp           | 1070 bp       | 15, 62, 63, 75, 76, 77, 46                                | *15:01:01:01-15:01:03, 15:01:06-15:02:05, 15:03:03-15:08, 15:10:02-15:11:03, 15:11:05-15:15, 15:17:01:01-15:17:02, 15:19-15:21, 15:24-15:28, 15:30-15:36, 15:38:01-15:40, 15:42-15:46, 15:48, 15:50, 15:55-15:58, 15:60, 15:63, 15:65-15:66, 15:70-15:71, 15:73, 15:75-15:79N, 15:81-15:89, 15:92, 15:94N, 15:96-15:97, 15:101-15:102, 15:104-15:107, 15:109-15:113, 15:116-15:118, 15:120-15:122, 15:125-15:126, 15:128-15:129, 15:135-15:150, 15:152, 15:154-15:155, 15:157, 15:159-15:160, 15:162-15:172, 15:174-15:175, 15:177-15:179, 15:181N-15:185, 15:187-15:196, 15:199, 15:201-15:209N, 46:01:01-46:26                                                                                                                                                                                               |
| <b>29</b>                  | 165, 220, 330 bp | 1070 bp       | 8, 15, 35, 37, 40, 41, 42, 44, 45, 51, 56, 57, 70, 71, 72 | *08:01:01-08:05, 08:08N-08:12:03, 08:15-08:19N, 08:21-08:24, 08:26-08:27, 08:29-08:36, 08:38-08:39, 08:41-08:48, 08:50-08:54, 08:56-08:66, 15:03:01-15:03:03, 15:09-15:10:02, 15:18:01-15:18:04, 15:23, 15:29, 15:37, 15:46-15:47, 15:49, 15:51-15:54, 15:61-15:62, 15:64, 15:69, 15:72, 15:74, 15:80, 15:83, 15:90-15:91, 15:93, 15:98-15:99, 15:103, 15:106, 15:108, 15:114-15:115, 15:119, 15:123-15:124, 15:127, 15:131-15:134, 15:143, 15:151, 15:153, 15:156, 15:158, 15:161, 15:173, 15:176, 15:180, 15:186, 15:197-15:198, 15:200, 35:87, 37:12, 40:12, 40:136, 41:01-41:03:02, 41:05-41:09, 41:11-41:16, 42:01:01-42:02, 42:04-42:08, 42:10-42:14, 44:14-44:15, 44:18, 44:20, 44:62, 44:100, 45:01-45:13, 51:08, 51:20, 51:36, 51:44N, 51:97, 52:19, 55:20, 56:13, 57:09, 82:01-82:03, <b>C*07:46</b> |
| <b>30<sup>8,9,11</sup></b> | 165, 190, 390 bp | 1070 bp       | 15, 35, 40, 44, 51, 52, 56, 58, 62, 63, 70, 78            | *15:01:02, 15:09, 15:16-15:17:02, 15:67, 15:95, 15:162, 15:168, 15:177, 15:196, 15:208, 35:01:10, 35:04:02, 40:26, 40:28, 44:62, 51:01:01-51:01:03, 51:01:05-51:02:03, 51:03-51:09:02, 51:11N-51:12, 51:13:02-51:14, 51:16-51:23, 51:24:03-51:24:04,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

Lot No.: **24M**

Lot-specific Information

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|-----------------------|------------------|---------------|----------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                       |                  |               |                                                                            | 51:26-51:33, 51:37-51:41N, 51:43-51:44N, 51:46, 51:48-51:61, 51:63-51:80, 51:82-51:91, 51:94-51:98N, 51:100-51:106, 52:01:01-52:01:04, 52:01:06-52:13, 52:15-52:22, 56:05:01-56:06, 56:21, 58:08, 78:01-78:07                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>31<sup>9</sup></b> | 180 bp           | <b>800 bp</b> | 13, 15, 40, 55, 62, 70, 71, 72, 75                                         | *07:78, 13:01:01-13:02:09, 13:07N-13:09, 13:11, 13:14-13:20, 13:22:01-13:23, 13:25, 13:27-13:34, 13:36-13:40, 40:48, 45:10, 49:07, 55:09, 55:22, 55:24                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>32<sup>6</sup></b> | 105, 195 bp      | 1070 bp       | 7, 8, 15, 27, 38, 39, 40, 44, 45, 48, 55, 72                               | *07:27, 07:50, 08:04, 08:17, 08:54, 15:03:01-15:03:03, 15:47, 15:49, 15:54, 15:61-15:62, 15:64, 15:68-15:69, 15:91, 15:98, 15:103, 15:123, 15:127, 15:131-15:132, 15:151, 15:156, 15:158, 15:173, 18:37, 27:18, 27:29, 38:03, 39:02:01-39:02:02, 39:08, 39:13:01-39:13:02, 39:23, 39:39, 39:49, 40:12, 40:46, 40:93, 42:11, 44:10, 44:15, 44:18, 44:40, 44:44, 45:01, 45:05-45:07, 45:11-45:13, 48:01:01-48:05, 48:07-48:24, 50:02, 52:16, 55:18, 82:01-82:03                                                                                                                                                                                                                                                                                                                                                                  |
| <b>33</b>             | 195 bp           | 1070 bp       | 15, 35, 37, 38, 44, 45, 58, 76                                             | *15:12, 15:14, 15:19, 15:91, 15:131, 15:161, 35:45, 35:71, 37:01:01-37:09, 37:12-37:13, 37:15-37:21, 37:23-37:25, 38:17, 44:17, 44:43:01-44:43:02, 45:09, 46:17, 53:22, 58:07                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>34<sup>6</sup></b> | 105, 395, 435 bp | 1070 bp       | 7, 15, 41, 42, 59, 62, 63, 77                                              | *07:04, 07:25, 15:09-15:10:02, 15:13, 15:16-15:18:04, 15:21, 15:23-15:24, 15:37, 15:44, 15:51-15:52, 15:66-15:67, 15:72, 15:80, 15:87, 15:90, 15:93, 15:95, 15:99, 15:108, 15:114-15:115, 15:119, 15:124, 15:133-15:134, 15:153, 15:157, 15:161-15:162, 15:168, 15:176-15:177, 15:186, 15:189, 15:196-15:198, 15:200, 15:208, 40:136, 41:08, 42:05:01-42:05:02                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>35<sup>6</sup></b> | 115, 150 bp      | 1070 bp       | 18                                                                         | *18:01:01-18:15, 18:17N-18:28, 18:30-18:52                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>36<sup>6</sup></b> | 80 bp            | 1070 bp       | 27, 40, 44                                                                 | *07:73, 27:01-27:21, 27:23-27:51, 27:53-27:66N, 27:68-27:73, 38:22, 40:46, 40:93, 44:40, 44:44                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>37</b>             | 150 bp           | <b>800 bp</b> | 13, 15, 18, 27, 35, 37, 39, 40, 44, 48, 51, 53, 55, 56, 57, 58, 62, 75, 77 | *08:49, 13:01:01-13:01:05, 13:06-13:07N, 13:12-13:13, 13:17, 13:20, 13:22:01-13:23, 13:25-13:26, 13:28-13:29, 13:36, 13:39, 14:10, 15:02:01-15:02:05, 15:13, 15:20-15:21, 15:25:01-15:25:03, 15:36, 15:44, 15:62, 15:77, 15:80, 15:85, 15:88-15:89, 15:106, 15:112, 15:121, 15:139, 15:144, 15:154, 15:165, 15:170, 15:194, 15:204, 18:22, 27:19, 27:30, 35:01:01:01-35:04:03, 35:06-35:08:04, 35:10-35:17, 35:19-35:21, 35:23-35:30, 35:33-35:36, 35:38-35:42:02, 35:45-35:50, 35:52, 35:54-35:57, 35:59, 35:61-35:63, 35:65Q, 35:69-35:71, 35:74, 35:76-35:78, 35:80-35:85, 35:90-35:96, 35:98, 35:100-35:101:02, 35:103-35:113, 35:115-35:116, 35:120-35:126, 35:128-35:134N, 35:136-35:150, 37:01:01-37:01:07, 37:03N-37:06, 37:08, 37:10-37:11, 37:13-37:25, 38:20, 39:42, 40:28, 44:02:01:01-44:14, 44:16-44:17, 44:19N, |

Lot No.: **24M**

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|----------------------------|-----------------|---------------|----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                            |                 |               |                                                          | 44:21-44:30, 44:32-44:40, 44:42-44:46, 44:48-44:52N, 44:55-44:64:02, 44:66-44:98, 44:101-44:105, 44:107-44:115, 48:02:01-48:02:02, 51:04, 51:42, 51:46, 51:56, 53:01:01-53:13, 53:15-53:24, 55:14, 56:09, 56:11-56:12, 57:01:01-57:01:04, 57:01:06-57:10, 57:12, 57:14-57:20, 57:22-57:30, 57:32-57:37, 58:01:01-58:01:02, 58:01:04-58:01:08, 58:04-58:05, 58:09-58:15, 58:17N, 58:19, 58:21-58:24, 58:28-58:31N, 83:01, <b>C*03:102</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>38<sup>8</sup></b>      | 135 bp          | 1070 bp       | 7, 8, 18, 35, 37, 39, 56, 78                             | *07:65, 08:32, 15:202, 18:01:01-18:08, 18:10-18:15, 18:17N-18:36, 18:38-18:47, 18:50-18:52, 35:01:01:01-35:03:02, 35:03:04-35:18, 35:20:01-35:24:02, 35:28-35:45, 35:48, 35:50-35:55, 35:57-35:62, 35:64-35:72, 35:74-35:151, 37:11, 39:19:01-39:19:02, 56:06, 78:01-78:05, 78:07                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>39<sup>6,10</sup></b>   | 60, 245, 400 bp | 1070 bp       | 15, 62, 63, 70, 71, 72, 75, 76, 77, 40, 44               | *15:01:01:01-15:01:04, 15:01:06-15:21, 15:23-15:40, 15:42-15:58, 15:60-15:67, 15:69-15:99, 15:102-15:129, 15:131-15:209N, 40:12, 44:10, 82:01-82:03                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>40<sup>9,10</sup></b>   | 210 bp          | <b>800 bp</b> | 7, 8, 15, 18, 37, 38                                     | *07:27, 08:49, 37:01:01-37:25, 38:17                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>41<sup>8</sup></b>      | 170 bp          | <b>800 bp</b> | 15, 35, 38, 39, 67                                       | *08:55, 15:69, 15:186, 35:35, 38:01:01-38:09, 38:11-38:21, 38:23-38:26, 39:01:01:01-39:01:01:02L, 39:01:03-39:20, 39:22-39:24, 39:26-39:29, 39:31, 39:35, 39:37-39:42, 39:44-39:46, 39:48-39:49, 39:51-39:62, 51:101, 58:20, 67:01:01-67:03                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>42<sup>6,8,10</sup></b> | 110 bp          | 1070 bp       | 38                                                       | *38:01:01-38:02:02, 38:03, 38:05, 38:08-38:24, 38:26                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>43</b>                  | 395 bp          | 1070 bp       | 14, 38, 39, 64, 65                                       | *07:69, 07:85, 08:65, 14:01:01-14:19, 38:01:01-38:02:03, 38:04-38:05, 38:08-38:25, 39:01:01:01-39:01:01:02L, 39:01:03-39:01:12, 39:03-39:07, 39:09, 39:11-39:12, 39:14-39:15, 39:18-39:19:02, 39:22, 39:24-39:38Q, 39:40N-39:48, 39:50-39:57, 39:59-39:62                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>44</b>                  | 160, 425 bp     | 1070 bp       | 7, 8, 14, 39, 40, 41, 42, 45, 48, 50, 60, 64, 65, 67, 73 | *07:02:01-07:26, 07:28-07:35, 07:37, 07:39-07:64, 07:66-07:80, 07:82-07:117, 08:01:01-08:01:13, 08:04-08:05, 08:07-08:35, 08:37-08:51, 08:53-08:66, 14:01:01-14:02:04, 14:02:06-14:19, 27:14, 39:01:01:01-39:01:01:02L, 39:01:03-39:20, 39:22-39:62, 40:01:01-40:01:17, 40:06:01:01-40:07, 40:09 <sup>?</sup> -40:11:02 <sup>?</sup> , 40:14:01 <sup>?</sup> -40:15 <sup>?</sup> , 40:16, 40:18 <sup>?</sup> , 40:21 <sup>?</sup> -40:22N <sup>?</sup> , 40:23, 40:24 <sup>?</sup> -40:38 <sup>?</sup> , 40:42 <sup>?</sup> -40:43 <sup>?</sup> , 40:44, 40:45 <sup>?</sup> -40:46 <sup>?</sup> , 40:48 <sup>?</sup> -40:50 <sup>?</sup> , 40:51, 40:52 <sup>?</sup> , 40:53, 40:54 <sup>?</sup> -40:58 <sup>?</sup> , 40:59-40:60, 40:61 <sup>?</sup> -40:65 <sup>?</sup> , 40:66, 40:67 <sup>?</sup> -40:69 <sup>?</sup> , 40:70, 40:71 <sup>?</sup> , 40:72:01-40:73, 40:74 <sup>?</sup> , 40:75, 40:77, 40:78 <sup>?</sup> , 40:79, 40:80 <sup>?</sup> -40:82 <sup>?</sup> , 40:83, 40:84 <sup>?</sup> - |

Lot No.: **24M**

Lot-specific Information

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|                        |                          |         |                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|------------------------|--------------------------|---------|---------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                        |                          |         |                                                               | 40:85 <sup>?</sup> , 40:86, 40:87 <sup>?</sup> -40:88 <sup>?</sup> , 40:90 <sup>?</sup> -40:92 <sup>?</sup> ,<br>40:93, 40:95 <sup>?</sup> , 40:96, 40:98 <sup>?</sup> -40:102 <sup>?</sup> , 40:103,<br>40:104 <sup>?</sup> -40:108 <sup>?</sup> , 40:109-40:110, 40:111 <sup>?</sup> -40:116 <sup>?</sup> ,<br>40:118N <sup>?</sup> -40:121 <sup>?</sup> , 40:123 <sup>?</sup> , 40:124:01,<br>40:124:02 <sup>?</sup> -40:126 <sup>?</sup> , 40:127, 40:128 <sup>?</sup> -40:130 <sup>?</sup> ,<br>40:131, 40:132 <sup>?</sup> -40:134 <sup>?</sup> , 40:136 <sup>?</sup> -40:137 <sup>?</sup> , 40:138-<br>40:140, 40:141 <sup>?</sup> , 40:145 <sup>?</sup> , 40:146-40:148, 40:149 <sup>?</sup> ,<br>40:150, 40:151 <sup>?</sup> , 40:152-40:153, 40:154 <sup>?</sup> ,<br>40:155N, 40:156 <sup>?</sup> , 40:158 <sup>?</sup> , 41:01-41:16, 42:01:01-<br>42:02, 42:04-42:14, 45:01-45:13, 48:01:01-48:17,<br>48:19-48:24, 50:01:01-50:02, 50:04-50:12,<br>51:01:09, 51:10, 51:24:02-51:24:04, 54:11,<br>67:01:01-67:03, 73:01-73:02, 81:02 |
| <b>45<sup>13</sup></b> | 180 bp                   | 1070 bp | 15, 40, 44,<br>46, 48, 60                                     | *15:116, 15:124, 40:01:01-40:01:06, 40:01:08-<br>40:01:17, 40:07, 40:10:01-40:10:02, 40:12, 40:21-<br>40:23, 40:25, 40:30, 40:33-40:34, 40:36, 40:38,<br>40:42-40:43, 40:46-40:49, 40:51-40:52, 40:54-<br>40:55, 40:59-40:63, 40:65-40:67, 40:69, 40:73-<br>40:74, 40:76, 40:79, 40:81, 40:84, 40:87-40:88,<br>40:92, 40:100-40:102, 40:106, 40:108, 40:112-<br>40:114, 40:116-40:118N, 40:123-40:126, 40:128,<br>40:130, 40:132, 40:134-40:135, 40:137-40:141,<br>40:146-40:147, 40:149-40:156, 44:31, 46:06,<br>48:03:01-48:03:02, 48:17, 48:23                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>46<sup>6</sup></b>  | 105 bp                   | 1070 bp | 7, 8, 35,<br>41, 42, 55                                       | *07:04, 07:25, 08:01:01-08:05, 08:07-08:12:03,<br>08:14-08:19N, 08:21-08:24, 08:26-08:39, 08:41-<br>08:54, 08:56-08:66, 35:87, 40:136, 41:01-41:08,<br>41:10-41:16, 42:01:01-42:02, 42:04-42:07, 42:09-<br>42:14, 55:20                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>47</b>              | 325 bp                   | 1070 bp | 7, 15, 27,<br>35, 42, 45,<br>46, 54, 55,<br>56, 67, 73,<br>81 | *07:02:01-07:02:20, 07:04-07:07, 07:09-07:15,<br>07:17-07:26, 07:28-07:31, 07:33-07:36, 07:39-<br>07:46, 07:47 <sup>w</sup> , 07:48-07:49N, 07:51-07:68:02,<br>07:70-07:84, 07:86-07:117, 15:76, 15:101, 27:01-<br>27:11, 27:13-27:15, 27:17, 27:19-27:21, 27:24-<br>27:28, 27:30-27:38, 27:40-27:58, 27:60-27:73,<br>35:76, 38:26, 42:01:01-42:02, 42:04-42:06, 42:08-<br>42:10, 42:12-42:14, 44:90, 44:97, 45:06, 46:01:01-<br>46:01:05, 46:02 <sup>w</sup> , 46:03-46:26, 54:01-54:23,<br>55:01:01-55:05, 55:07-55:17, 55:19-55:48,<br>56:01:01-56:16, 56:18-56:22, 56:24-56:30,<br>67:01:01-67:03, 73:01-73:02, 81:01-81:05, 82:01-<br>82:03, 83:01                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>48<sup>6</sup></b>  | 115, 195,<br>225, 260 bp | 1070 bp | 35, 37, 44,<br>47, 51, 57                                     | *08:49, 08:60, 35:38, 35:45, 35:71, 35:115,<br>37:01:01-37:01:07, 37:03N-37:06, 37:08, 37:10-<br>37:25, 40:132, 42:13, 44:02:01:01-44:14, 44:16-<br>44:17, 44:19N-44:36, 44:38-44:63, 44:65-44:115,<br>51:42, 53:22, 57:07, 57:09, 57:24, 83:01, <b>C*15:25</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>49</b>              | 130, 270 bp              | 1070 bp | 18, 35, 37,<br>40, 46, 51,<br>53, 57, 58                      | *14:10, 15:57 <sup>w</sup> , 18:22, 35:21, 35:24:01-35:24:02,<br>35:81, 35:96, 35:109, 37:04:01-37:04:02, 40:28,<br>46:01:01-46:26, 51:04, 51:46, 51:56, 53:02, 53:06,<br>57:14, 58:09, <b>C*15:39</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

Lot No.: **24M**

Lot-specific Information

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|                          |             |               |                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|--------------------------|-------------|---------------|----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>50<sup>6,14</sup></b> | 90, 410 bp  | 1070 bp       | 7, 27, 35, 47, 54, 55, 56, 81                      | *07:65, 27:01 <sup>w</sup> , 27:02-27:11, 27:13-27:15, 27:17, 27:19-27:21, 27:24-27:28, 27:30-27:38, 27:40-27:58, 27:60-27:73, 35:76, 44:90, 44:97, 47:01:01-47:03, 47:06-47:07, 54:01-54:23, 55:01:01-55:05, 55:07-55:17, 55:19-55:48, 56:01:01-56:16, 56:18-56:22, 56:24-56:30, 81:01, 82:01-82:03, 83:01                                                                                                                                                                                                                                                                                                                       |
| <b>51<sup>6</sup></b>    | 90, 175 bp  | 1070 bp       | 15, 27, 35, 40, 48, 62, 75, 77, 81                 | *13:36, 15:02:01-15:02:05, 15:08, 15:11:01-15:11:05, 15:13, 15:15, 15:21, 15:31, 15:44, 15:55, 15:76 <sup>w</sup> , 15:88-15:89, 15:112, 15:121, 15:139, 15:144, 15:148, 15:170, 15:189, 15:191, 15:194, 15:209N, 27:24, 35:46, 40:31, 40:45, 40:80, 48:01:01-48:01:03, 48:04, 48:06-48:07, 48:09, 48:11, 48:15-48:16, 48:18-48:20, 48:22, 48:24, 51:104, 55:35 <sup>w</sup> , 81:01-81:05                                                                                                                                                                                                                                        |
| <b>52</b>                | 145, 430 bp | 1070 bp       | 40, 44, 49                                         | *40:13, 40:19, 40:109, 40:117, 44:18, 44:25, 44:50, 44:95, 49:01:01-49:01:02, 49:04-49:15, 54:12, 56:21, 59:01-59:05                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>53<sup>6</sup></b>    | 120, 210 bp | <b>800 bp</b> | 13, 15, 45, 49, 50, 51, 52, 55, 56, 58, 62, 63, 78 | *07:78, 07:84, 13:16, 13:31 <sup>w</sup> , 15:04 <sup>w</sup> , 15:16, 15:42, 15:67, 15:95, 15:137 <sup>w</sup> , 40:95, 40:148, 49:01:01, 49:02-49:10, 49:12-49:15, 50:01:01-50:02, 50:04-50:11, 51:01:01-51:03, 51:05, 51:07:01-51:09:02, 51:11N-51:14, 51:16-51:24:04, 51:26-51:41N, 51:43-51:44N, 51:48-51:55, 51:57-51:58, 51:60, 51:61 <sup>w</sup> , 51:63, 51:65-51:80, 51:82-51:106, 52:01:01-52:22, 54:20, 55:01:01-55:01:06, 55:03, 55:05, 55:09, 55:11, 55:15, 55:17, 55:21 <sup>w</sup> , 55:24-55:25, 55:28-55:29, 55:31, 55:33, 55:36, 55:38, 55:40, 55:44-55:45, 56:05:01-56:06, 56:21, 56:25, 58:08, 78:01-78:07 |
| <b>54</b>                | 430 bp      | 1070 bp       | 27, 40, 44, 45, 51, 52, 53, 57, 58, 59             | *27:02, 27:30, 27:53, 27:57, 27:62, 27:65N, 40:13, 40:19, 40:109, 40:117, 44:06, 44:25, 44:50, 44:95, 51:01:01-51:24:04, 51:26-51:46, 51:48-51:53, 51:55-51:77, 51:79-51:106, 52:01:01-52:19, 52:21-52:22, 53:01:01-53:02, 53:04-53:08:02, 53:10, 53:14-53:24, 57:01:01-57:11, 57:13-57:37, 58:01:01-58:02, 58:04-58:16, 58:18-58:31N                                                                                                                                                                                                                                                                                             |
| <b>55</b>                | 145 bp      | 1070 bp       | 15, 35, 40, 41, 44, 45, 47, 50, 72                 | *15:46, 15:53, 15:106, 15:143, 18:48, 35:19, 35:47, 35:63, 40:01:01-40:11:02, 40:14:01-40:16, 40:18, 40:20, 40:22N-40:40, 40:42-40:45, 40:48-40:75, 40:77-40:92, 40:94-40:95, 40:97-40:108, 40:111-40:116, 40:118N-40:136, 40:138-40:156, 40:158, 41:01-41:04, 41:05 <sup>?</sup> , 41:06-41:16, 44:09, 44:46, 44:75, 44:90, 45:01-45:13, 47:02, 47:03 <sup>w</sup> , 50:01:01-50:02, 50:04-50:05, 50:07-50:12                                                                                                                                                                                                                    |
| <b>56</b>                | 300 bp      | 1070 bp       | 7, 8, 13, 15, 18, 27, 35, 37, 38, 39, 40, 41,      | *07:54, 08:17, 08:38, 08:54, 13:01:01-13:04, 13:06, 13:08Q-13:23, 13:25-13:35, 13:37-13:40, 15:01:01:01-15:01:04, 15:01:06-15:01:18, 15:01:20, 15:03:01-15:07:02, 15:12, 15:14, 15:19-                                                                                                                                                                                                                                                                                                                                                                                                                                            |

Lot No.: **24M**

Lot-specific Information

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|----------------------------|-------------|---------------|------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                            |             |               | 44, 45, 46,<br>47, 48, 49,<br>50, 52, 55,<br>57, 58, 62,<br>72, 76, 78 | 15:20, 15:24-15:27:03, 15:30, 15:32-15:36,<br>15:38:01-15:40, 15:42-15:43, 15:45-15:50, 15:53-<br>15:54, 15:56-15:58, 15:60-15:63, 15:65-15:66,<br>15:68-15:71,<br>15:73-15:75, 15:77-15:79N, 15:81-15:87, 15:91-<br>15:92, 15:94N, 15:96-15:98, 15:101-15:107,<br>15:109-15:111N, 15:113, 15:116-15:118, 15:122-<br>15:123, 15:125-15:129, 15:131-15:132, 15:135-<br>15:138, 15:140-15:142, 15:145-15:147, 15:150-<br>15:152, 15:154-15:160, 15:163-15:167, 15:169,<br>15:171-15:175, 15:178-15:179, 15:181N-15:185,<br>15:187-15:188, 15:190N, 15:192-15:193, 15:195,<br>15:199, 15:201-15:207, 18:12, 27:01-27:21, 27:24-<br>27:73, 35:10, 35:13, 35:16, 35:28, 35:63, 35:69,<br>35:80, 37:01:01-37:07, 37:09-37:25, 38:03-38:04,<br>38:25, 39:02:01-39:02:02, 39:08, 39:13:01-<br>39:13:02, 39:22-39:23, 39:49, 40:01:01-40:07,<br>40:09-40:16, 40:18-40:24, 40:26-40:40, 40:42-<br>40:67, 40:70-40:105, 40:107-40:158, 41:01-41:16,<br>42:11, 44:02:01:01-44:05:02, 44:07-44:11, 44:13-<br>44:115, 45:01-45:13, 47:01:01:01-47:07, 48:01:01-<br>48:05, 48:07-48:15, 48:17-48:24, 49:01:01-49:15,<br>50:01:01-50:02, 50:04-50:12, 52:01:01-52:22,<br>53:17, 55:18, 55:34, 55:40, 78:05-78:06 |
| <b>57<sup>8,9,12</sup></b> | 160, 330 bp | 1070 bp       | 15, 37, 44,<br>54                                                      | *44:02:01:01-44:02:14, 44:06, 44:08-44:09, 44:11-<br>44:12, 44:16, 44:19N-44:24, 44:27, 44:33-44:34,<br>44:41, 44:44, 44:48-44:49, 44:52N-44:53, 44:55,<br>44:59, 44:63, 44:66-44:68, 44:71-44:74, 44:80,<br>44:83-44:84, 44:86-44:87, 44:89-44:91, 44:93,<br>44:95, 44:97, 44:99-44:102, 44:104, 44:106,<br>44:112-44:113, 54:01-54:23, 83:01                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>58</b>                  | 180, 210 bp | 1070 bp       | 7, 13, 15,<br>18, 35, 39,<br>40, 45, 54,<br>55, 56, 59,<br>78          | *07:65, 13:06, 15:42, 15:86, 18:04, 35:42:02,<br>35:43:02, 35:60, 39:17, 40:01:11, 40:58, 45:08,<br>46:18, 54:01-54:02, 54:05N, 54:07-54:08N, 54:10,<br>54:12-54:13, 54:16-54:23, 55:01:01-55:03, 55:05,<br>55:07, 55:10-55:12, 55:15-55:16, 55:18-55:19,<br>55:21, 55:25-55:26, 55:29-55:31, 55:33-55:45,<br>55:47-55:48, 56:05:01, 56:06, 56:10, 56:23, 59:01,<br>59:05, 78:01, 78:02:02-78:03, 78:07, <b>C*15:02:04</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>59</b>                  | 180 bp      | 1070 bp       | 13, 15,<br>40, 44, 45,<br>46, 49, 50,<br>51, 54, 56                    | *13:03, 15:73, 40:71, 44:10, 44:15, 44:18, 45:01,<br>45:04-45:07, 45:11-45:13, 46:11, 49:01:01-49:03,<br>49:06, 49:08-49:15, 50:01:01-50:02, 50:04-50:08,<br>50:10-50:12, 51:15, 51:62, 51:106, 54:03,<br>56:01:01-56:02, 56:04, 56:07-56:08, 56:13-56:14,<br>56:16-56:17, 56:20, 56:24-56:30, 59:04, 82:01-<br>82:03, <b>C*03:12, C*03:19, C*03:102</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>60<sup>6,10</sup></b>   | 90, 240 bp  | <b>800 bp</b> | 55, 57                                                                 | *55:14, 57:01:01-57:37                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>61<sup>6,8</sup></b>    | 95 bp       | 1070 bp       | 7, 8, 18,<br>35, 37, 38,<br>39, 44, 51,<br>52, 53, 78                  | *07:65 <sup>w</sup> , 08:32, 18:01:01-18:11, 18:13-18:15,<br>18:17N-18:36, 18:38-18:47, 18:49-18:52,<br>35:01:01:01-35:09:02, 35:11:01-35:12:02,<br>35:14:01-35:15, 35:17-35:18, 35:20:01-35:24:02,<br>35:27, 35:29-35:45, 35:48, 35:50-35:62, 35:64-                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

Lot No.: **24M**

Lot-specific Information

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|------------------------|-------------|---------|----------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                        |             |         |                                                                | 35:68:02, 35:70-35:72, 35:74-35:75, 35:76 <sup>w</sup> ,<br>35:77-35:79, 35:81-35:151, 37:08, 38:06-38:07,<br>39:19:01-39:19:02, 44:06, 51:01:01-51:24:04,<br>51:26-51:46, 51:48-51:103, 51:105-51:106,<br>53:01:01-53:16, 53:18-53:24, 56:06 <sup>w</sup> , 78:01-78:04,<br>78:07                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>62<sup>6</sup></b>  | 115, 150 bp | 1070 bp | 15, 18, 27,<br>35, 39, 46,<br>54, 55, 56,<br>62, 73, 75,<br>76 | *07:100, 13:31, 15:01:01:01-15:01:04, 15:01:06-<br>15:01:16, 15:01:18-15:01:20, 15:04, 15:07:01-<br>15:08, 15:11:01-15:12, 15:14-15:15, 15:19, 15:24,<br>15:26N-15:28, 15:30, 15:32, 15:34-15:35,<br>15:38:01-15:38:02, 15:43, 15:45-15:46, 15:50,<br>15:53-15:54, 15:56-15:58, 15:60, 15:63, 15:66,<br>15:68, 15:70-15:71, 15:73, 15:75-15:77, 15:79N,<br>15:81-15:82, 15:85, 15:87, 15:92, 15:94N, 15:96-<br>15:97, 15:101-15:102, 15:104-15:105, 15:109-<br>15:111N, 15:113, 15:117-15:118, 15:120, 15:122,<br>15:125-15:126, 15:128-15:129, 15:135, 15:137,<br>15:140, 15:142-15:149N, 15:152, 15:154, 15:157,<br>15:159-15:160, 15:163-15:167, 15:169, 15:171-<br>15:172, 15:174-15:175, 15:178, 15:180-15:184,<br>15:187, 15:189-15:193, 15:201-15:203, 15:205-<br>15:207, 15:209N, 18:19, 27:25, 35:14:01-<br>35:14:02, 35:43:01-35:44, 35:62, 35:67, 35:79,<br>35:86, 35:102, 35:117, 35:135, 39:18, 39:36,<br>46:01:01-46:02, 46:04-46:05, 46:07N, 46:09-<br>46:10, 46:12, 46:14-46:17, 46:20, 46:22-46:24,<br>51:61, 52:21, 54:06, 55:21, 56:03, 73:01-73:02,<br><b>A*68:56, C*06:20, C*12:50</b> |
| <b>63<sup>15</sup></b> | 360 bp      | 1070 bp | Bw4                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>64</b>              | 350 bp      | 1070 bp | Bw6                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

<sup>1</sup>Alleles are assigned by the presence of specific PCR product(s). However, the sizes of the specific PCR products may be helpful in the interpretation of HLA-B low resolution SSP typings.

When the primers in a primer mix can give rise to specific PCR products of more than one length this is indicated if the size difference is 20 base pairs or more. Size differences shorter than 20 base pairs are not given. For high resolution SSP kits the respective lengths of the specific PCR product(s) of the alleles amplified by these primer mixes are given.

Nonspecific amplifications, i.e. a ladder or a smear of bands, may sometimes be seen. GC-rich primers have a higher tendency of giving rise to nonspecific amplifications than other primers.

PCR fragments longer than the control bands may sometimes be observed. Such bands should be disregarded and do not influence the interpretation of the SSP typings.

PCR fragments migrating faster than the control bands, but slower than a 400 bp fragment may be seen in some gel read-outs. Such bands can be disregarded and do not influence the interpretation of the SSP typings.

Some primers may give rise to primer oligomer artifacts. Sometimes this phenomenon is an inherent feature of the primer pair(s) of a primer mix. More often it is due to other factors such as too low amount of DNA in the PCR reactions, taking too long time in setting up the PCR reactions, working at elevated room temperature or using thermal cyclers that are not pre-heated.

<sup>2</sup>The internal positive control primer pairs amplify segments of the human growth hormone gene. The two different control primer pairs give rise to either an internal positive control band of 1070 base pairs, for most wells, or a band of 800 base pairs, for some wells.

Well number 22 contains the primer pair giving rise to the shorter, 800 bp, internal positive control band in order to help in the correct orientation of the HLA-B low resolution typing.

In addition, wells number 25, 26, 27, 31, 37, 40, 41, 53 and 60 contain the primer pair giving rise to the

Lot No.: **24M**

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shorter, 800 bp, internal positive control band in order to allow kit identification.

In the presence of a specific amplification the intensity of the control band often decreases.

<sup>3</sup>The serological reactivity of all HLA-B alleles is not known. The grouping of not serologically defined alleles is taken from Tissue Antigens 73, 95-170, 2009.

<sup>4</sup>Nucleotide sequence information is available for only exons 2 and 3 of many HLA Class I alleles and for only exon 2 of many HLA Class II alleles and not for other exons or for the introns of these alleles. We assume that unknown sequences in these exons and in the introns are conserved within loci and within allelic groups.

The B\*08:26, 08:50, 08:62 and the B\*42:07 alleles give rise to identical amplification patterns with the HLA-B low resolution primer set. These alleles can be separated by the respective high resolution primer sets.

The B\*14:08 and the B\*39:25N, 39:30, 39:32-39:34, 39:43, 39:47 and 39:50 alleles give rise to identical amplification patterns with the HLA-B low resolution primer set. These alleles can be separated by the respective high resolution primer sets.

The B\*18:29 and the B\*35:09:01-35:09:02, 35:18, 35:31-35:32, 35:37, 35:53N, 35:64, 35:68:01-35:68:02, 35:75, 35:88, 35:99, 35:118-35:119, 35:127 and 35:151 alleles give rise to identical amplification patterns with the HLA-B low resolution primer set. These alleles can be separated by the respective high resolution primer sets.

The B\*41:09 and the B\*45:02-45:03 alleles give rise to identical amplification patterns with the HLA-B low resolution primer set. These alleles can be separated by the respective high resolution primer sets.

The B\*55:02:01-55:02:06, 55:07, 55:10, 55:12, 55:16, 55:19, 55:26, 55:30, 55:37, 55:39, 55:41-55:43, 55:47-55:48 and the B\*56:10 alleles give rise to identical amplification patterns with the HLA-B low resolution primer set. These alleles can be separated by the respective high resolution primer sets.

The B\*55:04, 55:08, 55:13, 55:23, 55:27, 55:32, 55:46 and the B\*56:15, 56:18-56:19N and 56:22 alleles give rise to identical amplification patterns with the HLA-B low resolution primer set. These alleles can be separated by the respective high resolution primer sets.

<sup>5</sup>The HLA-C\*03:05, 03:25 and 03:27 alleles will be amplified by primer mix 24, the C\*01:30 allele will be amplified by primer mix 25, the A\*23:31, A\*24:106 and C\*16:10 alleles will be amplified by primer mix 27, the C\*07:46 allele will be amplified by primer mix 29, the C\*03:102 allele will be amplified by primer mixes 37 and 58, the C\*15:25 allele will be amplified by primer mix 48, the C\*15:39 allele will be amplified by primer mix 49, the C\*15:02:04 allele will be amplified by primer mix 58, the C\*03:12 and C\*03:19 alleles will be amplified by primer mix 59 and the A\*68:56, C\*06:20 and C\*12:50 alleles will be amplified by primer mix 62.

<sup>6</sup>Specific PCR fragments shorter than 125 base pairs have a lower intensity and are less sharp than longer PCR bands.

<sup>7</sup>Primer mix 25 may yield less specific PCR product than the other HLA-B low resolution primer mixes in B\*40, B\*41, B\*45, B\*49 and B\*50 alleles.

<sup>8</sup>Primer mixes 25, 26, 30, 38, 41, 42, 57 and 61 may yield less specific PCR product than the other HLA-B low resolution primer mixes.

<sup>9</sup>Primer mixes 30, 31, 40 and 57 may give rise to nonspecific amplifications, most pronounced in primer mix 30.

<sup>10</sup>Primer mixes 22, 39, 40, 42 and 60 may give rise to a primer oligomer artifact.

<sup>11</sup>The B\*57 and B\*58 alleles might be faintly amplified by primer mix 30.

<sup>12</sup>Primer mix 57 may yield less specific PCR product than the other HLA-B low resolution primer mixes in B\*54 alleles.

<sup>13</sup>The C\*17:01 to C\*17:04 alleles might be faintly amplified by primer mix 45.

<sup>14</sup>Primer mix 50 might generate a false band of about 500 base pairs. This band should be disregarded when interpreting HLA-B low resolution typings.

<sup>15</sup>The Bw4-associated HLA-A specificities A23, A24, A2403, A25 and A32 are not amplified by the primer pair in primer mix 63.

‘w’, might be weakly amplified.

‘?’, nucleotide sequence information not available for the primer matching sequence.

Lot No.: **24M**

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## SPECIFICITY TABLE

Specificities and sizes of the PCR products of the 23 primer mixes used for DR low resolution SSP typing

| Primer Mix                | Size of spec. PCR product <sup>1</sup> | Size of control band <sup>2</sup> | DR serology <sup>3</sup> | Amplified HLA-DRB alleles <sup>4</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|---------------------------|----------------------------------------|-----------------------------------|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>65<sup>6,7</sup></b>   | 200, 255 bp                            | <b>515 bp</b>                     | 1                        | *01:01:01-01:02:05, 01:04-01:34                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>66</b>                 | 200 bp                                 | 430 bp                            | 103                      | *01:03                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>67</b>                 | 215 bp                                 | 430 bp                            | 15                       | *15:01:01:01-15:49, 15:50N <sup>w</sup> , 15:51                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>68</b>                 | 210 bp                                 | 430 bp                            | 16                       | *16:01:01-16:05:02, 16:07-16:17                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>69<sup>5,6,9</sup></b> | 120, 220 bp                            | 430 bp                            | 3, 17, 18, 11            | *03:01:01:01-03:58, 11:07, 11:53, 15:25                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>70<sup>5,6,9</sup></b> | 80, 210 bp                             | 430 bp                            | 3, 17, 11, 13, 14        | *03:01:01:01-03:01:09, 03:04-03:06, 03:08-03:16, 03:18-03:20, 03:22-03:23, 03:25-03:26, 03:28, 03:30-03:31, 03:33-03:34, 03:36-03:37, 03:43-03:48, 03:50-03:52, 03:54-03:58, 08:40, 11:02:01-11:03, 11:11:01-11:11:02, 11:14:01-11:14:02, 11:16, 11:20-11:21, 11:36, 11:40-11:41, 11:48, 11:59, 11:63, 11:65:01-11:65:02, 11:68, 11:70, 11:73, 11:76, 11:79-11:80, 11:83, 11:85-11:87, 11:93, 13:01:01-13:04, 13:08, 13:10, 13:15-13:17, 13:19-13:20, 13:22-13:24, 13:27-13:29, 13:31-13:41, 13:43, 13:45, 13:48, 13:51-13:54, 13:57, 13:59, 13:61, 13:63-13:66:02, 13:68-13:76, 13:78-13:81, 13:83-13:85, 13:87-13:99, 13:101-13:102, 14:16, 14:19, 14:21, 14:82, 14:95 |
| <b>71<sup>5,6</sup></b>   | 85, 210 bp                             | 430 bp                            | 3, 18, 11, 13, 14        | *03:02:01-03:03, 03:27, 03:29, 03:38, 03:53, 11:13:01 <sup>w</sup> -11:13:02 <sup>w</sup> , 11:26, 11:34, 13:15, 13:19, 13:26, 13:44, 13:53, 13:57, 13:85-13:86, 14:02-14:03:02, 14:06:01-14:06:02, 14:09, 14:12:01-14:13, 14:17-14:21, 14:24, 14:27, 14:29-14:30, 14:32:01 <sup>w</sup> -14:32:02 <sup>w</sup> , 14:33, 14:40-14:41, 14:47-14:49, 14:51, 14:63, 14:65 <sup>w</sup> , 14:67, 14:77-14:78, 14:80-14:81, 14:83, 14:85, 14:89, 14:94, 14:98                                                                                                                                                                                                                 |
| <b>72<sup>5,6</sup></b>   | 100, 175 bp                            | 430 bp                            | 4                        | *04:01:01-04:92                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>73</b>                 | 210, 230 bp                            | 430 bp                            | 7, 13, 14                | *07:01:01:01-07:01:03, 07:03-07:19, 12:22, 13:17, 14:50                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>74</b>                 | 170, 215, 250 bp                       | <b>515 bp</b>                     | 8, 12, 14                | *08:01:01-08:19, 08:21-08:41, 11:67, 12:04, 12:16, 12:22, 14:11, 14:15, 14:68, 14:93                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>75<sup>5</sup></b>     | 85, 135, 180 bp                        | 430 bp                            | 3, 9, 11                 | *03:08, 09:01:02-09:09, 11:07, 11:53                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>76<sup>7</sup></b>     | 205 bp                                 | 430 bp                            | 10                       | *10:01:01-10:03                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

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|                         |                  |        |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-------------------------|------------------|--------|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>77<sup>5</sup></b>   | 100, 170 bp      | 430 bp | 11, 3, 8          | *03:08, 08:31, 08:41, 11:01:01-11:70, 11:72-11:98                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>78<sup>5</sup></b>   | 85, 105 bp       | 430 bp | 12, 8             | *08:32, 12:01:01-12:26                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>79</b>               | 215 bp           | 430 bp | 13, 8, 11, 14     | *08:20-08:21, 11:01:01-11:04:06, 11:06:01-11:06:02, 11:08:01-11:12:02, 11:14:01-11:16, 11:18-11:21, 11:23-11:25, 11:27:01-11:33, 11:35-11:51, 11:54:01-11:54:02, 11:56-11:66, 11:68, 11:70, 11:72-11:81, 11:83-11:88, 11:90-11:97, 13:01:01-13:08, 13:10-13:16, 13:18-13:43, 13:45-13:85, 13:87-13:103, 14:03:01-14:03:02, 14:12:01-14:12:02, 14:16, 14:19, 14:21-14:22, 14:25, 14:27, 14:40, 14:53, 14:63, 14:67, 14:69, 14:74, 14:77-14:78, 14:84-14:85, 14:98                                                                                                                                                                                                                                                                                                                         |
| <b>80<sup>6</sup></b>   | 195, 215 bp      | 430 bp | 13, 8, 11, 12, 14 | *08:01:01-08:02:03, 08:04:01-08:09, 08:11, 08:16-08:17, 08:20-08:22, 08:24, 08:26, 08:28, 08:31, 08:39, 08:41, 11:01:01-11:06:02, 11:09-11:12:02, 11:14:01-11:16, 11:20-11:21, 11:23-11:25, 11:27:01-11:30, 11:32-11:33, 11:35-11:41, 11:43-11:44, 11:46-11:51, 11:54:01-11:56, 11:58:01-11:63, 11:65:01-11:70, 11:72, 11:74-11:78, 11:80-11:88, 11:90-11:97, 12:02:01-12:02:05, 12:13, 12:15-12:16, 12:18-12:21, 12:23, 12:26, 13:01:01-13:02:01, 13:02:03-13:02:04, 13:04-13:05:02, 13:07:01-13:09, 13:11:01-13:11:02, 13:14:01-13:24, 13:26-13:29, 13:31-13:32, 13:34-13:36, 13:38-13:43, 13:45-13:55, 13:57, 13:59, 13:61-13:65, 13:67-13:76, 13:78-13:80, 13:83-13:84, 13:87, 13:91-13:93, 13:96-13:100, 13:102-13:103, 14:15-14:16, 14:22, 14:24-14:25, 14:27, 14:37, 14:53, 14:73 |
| <b>81<sup>9</sup></b>   | 175 bp           | 430 bp | 3, 13, 14, 8      | *03:01:01:01-03:07, 03:09, 03:11:01-03:41, 03:43-03:45, 03:47-03:58, 08:20, 13:01:01-13:16, 13:18-13:42, 13:44, 13:46-13:66:02, 13:68-13:102, 14:02-14:03:02, 14:05:01-14:06:02, 14:09, 14:12:01-14:14, 14:17-14:21, 14:23:01, 14:23:03-14:24, 14:27, 14:29-14:30, 14:33, 14:36-14:37, 14:40-14:45, 14:47-14:48, 14:51, 14:56, 14:59, 14:63-14:65, 14:67, 14:77-14:78, 14:80-14:81, 14:83-14:85, 14:89, 14:91, 14:94-14:96, 14:98, 14:100                                                                                                                                                                                                                                                                                                                                                |
| <b>82<sup>5,6</sup></b> | 100, 140, 155 bp | 430 bp | 14, 4, 8, 13      | *04:62, 04:69, 04:73, 08:08, 11:69, 11:82, 13:45, 14:01:01-14:01:02, 14:04, 14:07:01-14:07:02, 14:10, 14:16, 14:22, 14:25-14:26, 14:28, 14:31-14:32:02, 14:35, 14:37-14:39, 14:49-14:50, 14:53-14:55, 14:57-14:58, 14:60-14:62, 14:68-14:71, 14:73-14:76,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

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|                           |                  |        |                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|---------------------------|------------------|--------|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                           |                  |        |                          | 14:79, 14:82, 14:86-14:88, 14:90, 14:93, 14:99, <b>DRB4*01:03:01:02N</b>                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>83<sup>5,6,8</sup></b> | 110, 135, 170 bp | 430 bp | 14, 3, 9, 11, 12, 13, 15 | *03:10, 09:01:02-09:01:05, 09:01:07-09:02:02, 09:04-09:09, 11:13:01-11:13:02, 11:17, 11:52, 13:43, 14:01:01-14:02, 14:04-14:11, 14:13-14:14, 14:16-14:18, 14:19 <sup>w</sup> , 14:20, 14:21 <sup>w</sup> , 14:22-14:23:03, 14:26, 14:28-14:36, 14:38-14:39, 14:41, 14:43-14:52, 14:54-14:57, 14:59-14:62, 14:64-14:65, 14:68, 14:70-14:76, 14:79-14:83, 14:86-14:88, 14:90-14:97, 14:99-14:100, 15:27, 15:34                                                                                   |
| <b>84<sup>5,7</sup></b>   | 110, 175, 225 bp | 430 bp | 14, 3, 8, 11, 13, 15, 16 | *03:10, 08:09, 08:20-08:21, 08:32, 08:35, 11:13:01-11:13:02, 11:17, 11:23, 11:25, 11:31, 11:45, 11:52, 11:55, 11:64, 11:89, 11:96, 13:13, 13:18, 13:43, 13:45, 13:47, 13:55, 14:01:01-14:01:03, 14:03:01-14:05:03, 14:07:01-14:08, 14:10-14:12:02, 14:14-14:16, 14:18, 14:22-14:23:03, 14:25-14:28, 14:31-14:32:02, 14:34-14:36, 14:38-14:40, 14:42-14:45, 14:49-14:50, 14:53-14:65, 14:67-14:79, 14:81-14:82, 14:84-14:93, 14:95-14:97, 14:99-14:100, 15:21 <sup>w</sup> , 16:04 <sup>w</sup> |
| <b>85<sup>9</sup></b>     | 160, 240 bp      | 430 bp | 52                       | <b>DRB3*01:01:02:01-01:14, DRB3*02:01-02:25, DRB3*03:01:01-03:03</b>                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>86<sup>10</sup></b>    | 215 bp           | 430 bp | 53                       | <b>DRB4*01:01:01:01-01:08</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>87</b>                 | 175 bp           | 430 bp | 51                       | <b>DRB5*01:01:01:01-14, DRB5*02:02-02:05</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

<sup>1</sup>Alleles are assigned by the presence of specific PCR product(s). However, the sizes of the specific PCR products may be helpful in the interpretation of DR low resolution SSP typings.

When the primers in a primer mix can give rise to specific PCR products of more than one length this is indicated if the size difference is 20 base pairs or more. Size differences shorter than 20 base pairs are not given. For high resolution SSP kits the respective lengths of the specific PCR product(s) of the alleles amplified by these primer mixes are given.

Nonspecific amplifications, i.e. a ladder or a smear of bands, may sometimes be seen. GC-rich primers have a higher tendency of giving rise to nonspecific amplifications than other primers, e.g. the primers in wells 67, 72, 82, 83 and 84.

PCR fragments longer than the control bands may sometimes be observed. Such bands should be disregarded and do not influence the interpretation of the SSP typings.

PCR fragments migrating faster than the control bands, but slower than a 400 bp fragment may be seen in some gel read-outs. Such bands can be disregarded and do not influence the interpretation of the SSP typings.

Some primers may give rise to primer oligomer artifacts. Sometimes this phenomenon is an inherent feature of the primer pair(s) of a primer mix. More often it is due to other factors such as too low amount of DNA in the PCR reactions, taking too long time in setting up the PCR reactions, working at elevated room temperature or using thermal cyclers that are not pre-heated.

<sup>2</sup>The internal positive control primer pairs amplify segments of the human growth hormone gene. The two different control primer pairs give rise to either an internal positive control band of 430 base pairs, for most wells, or a band of 515 base pairs, for some wells.

Well number 65 contains the primer pair giving rise to the longer, 515 bp, internal positive control band in order to help in the correct orientation of the DR low resolution typing.

In addition, well number 74 contains the primer pair giving rise to the longer, 515 bp, internal

Lot No.: **24M**

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positive control band in order to allow kit identification.

In the presence of a specific amplification the intensity of the control band often decreases.

<sup>3</sup>The serological reactivity of all DRB alleles is not known. The grouping of not serologically defined alleles is taken from Tissue Antigens 73, 95-170, 2009.

<sup>4</sup>For several DRB alleles only partial second exon nucleotide sequences are available. In these instances it is not known whether some of the primers of the SSP set are completely matched with the target sequences or not. We assume that unknown sequences in the first hyperpolymorphic region of the second exon of DRB alleles are conserved within allelic groups and that unknown sequences of codons 87 to 92 are identical with the DRB1\*0101 consensus sequence.

Nucleotide sequence information is available for only exons 2 and 3 of many HLA Class I alleles and for only exon 2 of many HLA Class II alleles and not for other exons or for the introns of these alleles. We assume that unknown sequences in these exons and in the introns are conserved within loci and within allelic groups.

The DRB1\*08:09 and the DRB1\*14:15 alleles yield identical amplification patterns with the DR low resolution primer set. These alleles can be separated by the respective high resolution primer sets. The DRB1\*08:20 and the DRB1\*13:18, 13:47 and 13:55 alleles yield identical amplification patterns with the DR low resolution primer set. These alleles can be separated by the respective high resolution primer sets.

The DRB1\*08:31, 08:41 and DRB1\*11:67 alleles yield identical amplification patterns with the DR low resolution primer set. These alleles can be separated by the respective high resolution primer sets.

The DRB1\*13:13 and DRB1\*14:84 alleles yield identical amplification patterns with the DR low resolution primer set. These alleles can be separated by the respective high resolution primer sets.

<sup>5</sup>Specific PCR fragments shorter than 125 base pairs have a lower intensity and are less sharp than longer PCR bands.

<sup>6</sup>Individual alleles can give rise to two differently sized specific PCR fragments in primer mixes 65 and 69 to 72.

<sup>7</sup>Primer mixes 65, 76 and 84 may give rise to primer oligomer formation.

<sup>8</sup>Primer mix 83 has a tendency of primer oligomer formation and also has an intense primer cloud due to the high number of primers present in the primer mix.

<sup>9</sup>Due to sharing of sequence motifs in codon 38, DRB3\*01:14 will also be amplified in primer mixes 69, 70 and 81 in addition to primer mix 85.

<sup>10</sup>The DRB4\*01:03:01:02N allele is amplified by the primer pair in well No. 86, whereas the DRB4\*02:01N and DRB4\*03:01N null alleles are not amplified by this primer pair.

‘w’, might be weakly amplified.

## SPECIFICITY TABLE

### DQ low resolution SSP typing

Specificities and sizes of the PCR products of the 8 primer mixes used for DQ low resolution SSP typing

| Primer Mix              | Size of spec. PCR product <sup>1</sup> | Size of control band <sup>2</sup> | DQ serology <sup>3</sup> | Amplified DQB1 alleles <sup>4</sup>                                                                |
|-------------------------|----------------------------------------|-----------------------------------|--------------------------|----------------------------------------------------------------------------------------------------|
| <b>88</b>               | 225 bp                                 | <b>515 bp</b>                     | 5                        | *05:01:01-05:08                                                                                    |
| <b>89</b>               | 220, 270 bp                            | 430 bp                            | 1, 5, 6                  | *06:01:01-06:40                                                                                    |
| <b>90</b>               | 210 bp                                 | 430 bp                            | 2                        | *02:01:01-02:05                                                                                    |
| <b>91</b>               | 220 bp                                 | <b>515 bp</b>                     | 3, 7                     | *03:01:01-03:01:05, 03:04, 03:09-03:10, 03:13-03:14, 03:16, 03:19, 03:21-03:22, 03:24, 03:27-03:29 |
| <b>92<sup>6</sup></b>   | 130 bp                                 | <b>515 bp</b>                     | 6, 8                     | *03:02:01-03:02:05, 03:05:01-03:05:04, 03:07-03:08, 03:11, 03:18, 06:29                            |
| <b>93<sup>5,6</sup></b> | 135 bp                                 | <b>515 bp</b>                     | 2, 3, 9                  | *02:03, 03:03:02-03:03:03, 03:06, 03:12, 03:15, 03:20, 03:25-03:26, 03:30-03:31, 04:03:01-04:03:02 |
| <b>94<sup>6,7</sup></b> | 145, 185 bp                            | <b>515 bp</b>                     | 3, 7, 8, 9               | *03:01:01-03:31                                                                                    |
| <b>95<sup>6</sup></b>   | 210, 245 bp                            | 430 bp                            | 4                        | *04:01:01-04:06                                                                                    |
| <b>96<sup>8</sup></b>   |                                        |                                   |                          | <b>Negative control</b>                                                                            |

<sup>1</sup>Alleles are assigned by the presence of specific PCR product(s). However, the sizes of the specific PCR products may be helpful in the interpretation of DQ low resolution SSP typings. When the primers in a primer mix can give rise to specific PCR products of more than one length this is indicated if the size difference is 20 base pairs or more. Size differences shorter than 20 base pairs are not given. For high resolution SSP kits the respective lengths of the specific PCR product(s) of the alleles amplified by these primer mixes are given.

Nonspecific amplifications, i.e. a ladder or a smear of bands, may sometimes be seen. GC-rich primers have a higher tendency of giving rise to nonspecific amplifications than other primers.

PCR fragments longer than the control bands may sometimes be observed. Such bands should be disregarded and do not influence the interpretation of the SSP typings.

PCR fragments migrating faster than the control bands, but slower than a 400 bp fragment may be seen in some gel read-outs. Such bands can be disregarded and do not influence the interpretation of the SSP typings.

Some primers may give rise to primer oligomer artifacts. Sometimes this phenomenon is an inherent feature of the primer pair(s) of a primer mix. More often it is due to other factors such as too low amount of DNA in the PCR reactions, taking too long time in setting up the PCR reactions, working at elevated room temperature or using thermal cyclers that are not pre-heated.

<sup>2</sup>The internal positive control primer pairs amplify segments of the human growth hormone gene. The two different control primer pairs give rise to either an internal positive control band of 430 base pairs, for most wells, or a band of 515 base pairs, for some wells.

Well number 88 contains the primer pair giving rise to the longer, 515 bp, internal positive control band in order to help in the correct orientation of the DQ low resolution typing.

In addition, wells number 91, 92, 93 and 94 contain the primer pair giving rise to the longer, 515 bp, internal positive control band in order to allow kit identification.

In the presence of a specific amplification the intensity of the control band often decreases.

Lot No.: **24M**

Lot-specific Information

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<sup>3</sup>The serological split of the DQB1\*05:05 to 05:08, DQB1\*06:06 to 06:08 alleles, the DQB1\*06:10 to 06:40, the DQB1\*03:02:02-03:02:04, DQB1\*03:03:03, DQB1\*03:05:02 to 03:31 and the DQB1\*04:03 to 04:06 alleles is not known. The grouping of not serologically defined alleles is taken from Tissue Antigens 73, 95-170, 2009.

<sup>4</sup>For several DQB1 alleles only partial second exon nucleotide sequences are available. In these instances it is not known whether some of the primers of the SSP sets are completely matched with the target sequences or not. We assume that unknown sequences in the 5'- and 3'-ends of the second exon of the DQB1 gene are conserved within allelic groups.

<sup>5</sup>Primer mixes 93 may give rise to primer dimer formation

<sup>6</sup>Primer mixes 92, 93, 94 and 95 may yield somewhat less intense specific PCR fragments than the other DQ low resolution primer mixes.

<sup>7</sup>Primer mix 94 may have tendencies of unspecific amplifications.

<sup>8</sup>Primer mix 96 contains a negative control, which will amplify more than 95% of HLA amplicons as well as the amplicons generated by control primer pairs. PCR product sizes range from 75 to 200 base pairs. The PCR product generated by the control primer pair is 430 base pairs.

Lot No.: 24M

Lot-specific Information

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| INTERPRETATION TABLE                                     |                           |                   |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
|----------------------------------------------------------|---------------------------|-------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| HLA-A low resolution SSP typing                          |                           |                   |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
| Amplification patterns of the A*01:01 to A*80:02 alleles |                           |                   |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
|                                                          |                           | Well <sup>6</sup> |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
|                                                          |                           | 1                 | 2      | 3      | 4      | 5      | 6      | 7      | 8      | 9      | 10     | 11     | 12     | 13     | 14     | 15     | 16     | 17     | 18     | 19     | 20     | 21     |        |
| Length of spec.<br>PCR product(s)                        |                           | 120               | 210    | 205    | 190    | 135    | 175    | 165    | 75     | 85     | 80     | 185    | 175    | 100    | 90     | 240    | 140    | 200    | 160    | 220    | 240    | 70     |        |
|                                                          |                           | 140               | 255    | 235    |        | 175    | 200    | 200    |        |        | 175    |        | 225    | 200    | 135    | 370    | 180    |        | 200    | 245    | 375    | 160    |        |
|                                                          |                           | 225               | 365    |        |        | 210    |        |        |        |        |        | 500    |        |        | 240    | 205    | 395    |        |        |        |        | 240    |        |
|                                                          |                           |                   | 415    |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        | 495    |        |
| Length of int.                                           |                           | 800               | 800    | 1070   | 800    | 800    | 1070   | 800    | 800    | 1070   | 1070   | 800    | 1070   | 1070   | 1070   | 1070   | 1070   | 1070   | 800    | 800    | 800    | 800    |        |
| pos. control <sup>1</sup>                                |                           |                   |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
| 5'-primer(s) <sup>2</sup>                                |                           | 98                | 48     | 363    | 98     | 176    | 98     | 98     | 266    | 257    | 301    | 103    | 98     | 98     | 203    | 41     | 180    | 98     | 180    | 78     | 28     | 176    |        |
|                                                          |                           | 5'-CTT            | 5'-gCT | 5'-ATA | 5'-CTA | 5'-gCA | 5'-CTC | 5'-CTA | 5'-ACg | 5'-Cgg | 5'-Cgg | 5'-CCT | 5'-CTT | 5'-CAC | 5'-gAA | 5'-CTT | 5'-TTT | 5'-CAC | 5'-TTT | 5'-TCT | 5'-TCg | 5'-gCA |        |
|                                                          |                           | 103               | 78     |        | 413    | 368    | 368    | 102    | 266    | 259    | 302    | 423    | 423    | 238    | 362    | 355    | 203    |        |        | 106    | 261    | 261    |        |
|                                                          |                           | 5'-CCT            | 5'-TCT |        | 5'-CCg | 5'-gTT | 5'-gTT | 5'-ACA | 5'-ACg | 5'-CgA | 5'-ggA | 5'-gCT | 5'-gCT | 5'-AgA | 5'-ggT | 5'-CCg | 5'-gAA |        |        | 5'-CCA | 5'-AAC | 5'-AAC |        |
|                                                          |                           | 123               | 106    |        |        |        |        | 413    |        | 261    | 385    |        |        | 355    | 363    |        | 418    |        |        | 245    | 1      | 341    |        |
|                                                          |                           | 5'-AgT            | 5'-CCA |        |        |        |        | 5'-CCg |        | 5'-AAC | 5'-ggC |        |        | 5'-CCg | 5'-ATA |        | 5'-AgC |        |        | 5'-CCT |        | 5'-ggA |        |
|                                                          |                           | 363               |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        | 355    |        |
|                                                          |                           | 5'-ATA            |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        | 5'-CCC |        |
|                                                          | 3'-primer(s) <sup>3</sup> |                   | 203    | 240    | 527    | 256    | 270    | 259    | 259    | 302    | 299    | 341    | 257    | 282    | 257    | 299    | 238    | 290    | 256    | 299    | 265    | 97     | 292    |
|                                                          |                           |                   | 5'-TCT | 5'-ggA | 5'-CCA | 5'-CTg | 5'-ACA | 5'-gTT | 5'-gTT | 5'-ggC | 5'-TCg | 5'-CgT | 5'-gCA | 5'-gAC | 5'-gCA | 5'-CCA | 5'-CCT | 5'-CAA | 5'-CCC | 5'-CCA | 5'-CCC | 5'-ggT | 5'-gTg |
|                                                          |                           |                   | 545    | 292    | 527    | 559    | 502    | 502    | 538    |        |        | 521    | 559    | 282    | 299    | 411    | 243    | 317    | 256    | 299    | 282    | 355    | 292    |
|                                                          |                           |                   | 5'-AgA | 5'-gTg | 5'-CCT | 5'-CCg | 5'-CTg | 5'-CTT | 5'-CCA |        |        | 5'-ggg | 5'-CTC | 5'-gAC | 5'-TCg | 5'-TCA | 5'-TCA | 5'-ggA | 5'-CTC | 5'-CCA | 5'-gAC | 5'-gAC | 5'-gTT |
|                                                          |                           |                   |        |        | 555    |        | 538    | 539    |        |        |        |        | 559    | 559    | 418    | 526    | 265    | 555    | 259    | 341    | 282    |        | 299    |
|                                                          |                           |                   |        |        | 5'-gCA |        | 5'-CAG | 5'-TCT |        |        |        |        | 5'-CgT | 5'-CCg | 5'-gTC | 5'-CCA | 5'-CCC | 5'-CCA | 5'-gTT | 5'-CgT | 5'-gAC |        | 5'-TCT |
|                                                          |                           |                   |        |        | 555    |        |        |        |        |        |        |        |        |        | 555    |        | 555    |        |        |        | 502    |        | 555    |
|                                                          |                           |                   |        |        | 5'-CCA |        |        |        |        |        |        |        |        |        | 5'-CCA |        | 5'-CCA |        |        |        | 5'-CTT |        | 5'-CCA |
|                                                          |                           |                   |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        | 506    |        |        |
|                                                          |                           |                   |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        | 5'-TgT |        |        |
|                                                          |                           |                   |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
|                                                          |                           |                   |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
|                                                          |                           |                   |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
|                                                          |                           |                   |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
|                                                          |                           |                   |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
| Well No.                                                 |                           |                   | 1      | 2      | 3      | 4      | 5      | 6      | 7      | 8      | 9      | 10     | 11     | 12     | 13     | 14     | 15     | 16     | 17     | 18     | 19     | 20     | 21     |

Lot No.: **24M**

Lot-specific Information

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| Well No.                                                                                                                                                                                                                                                                                                                                                 |                                                           | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|
| HLA-A allele <sup>4</sup>                                                                                                                                                                                                                                                                                                                                | ser <sup>5</sup>                                          |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |
| *01:01:01:01:01:01:22,<br>01:01:24-01:04N, 01:06-<br>01:07, 01:09-01:11N,<br>01:16N-01:18N, 01:20,<br>01:22N-01:27N, 01:29,<br>01:31N-01:50, 01:52N-<br>01:78, 01:80-01:81, 36:04 <sup>7</sup>                                                                                                                                                           | A1,<br>A36,<br>Null,<br>–                                 | 1 |   |   | 4 |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |
| *01:01:23, 01:08, 01:14-<br>01:15N, 01:30, 01:79, 36:01,<br>36:03, 36:05 <sup>7</sup>                                                                                                                                                                                                                                                                    | A1,<br>A36,<br>Null,<br>–                                 | 1 |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |
| *01:12, 01:19                                                                                                                                                                                                                                                                                                                                            | A1, –                                                     | 1 |   | 3 |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |
| *01:13                                                                                                                                                                                                                                                                                                                                                   | A1                                                        | 1 |   |   | 4 |   |   |   |   |   | 10 |    | 12 |    | 14 |    |    |    |    |    |    |    |
| *01:21                                                                                                                                                                                                                                                                                                                                                   | A1                                                        | 1 |   | 3 | 4 |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |
| *01:28                                                                                                                                                                                                                                                                                                                                                   | –                                                         | 1 |   |   | 4 |   |   |   |   |   | 10 |    |    |    | 14 |    |    |    |    |    |    |    |
| *01:51                                                                                                                                                                                                                                                                                                                                                   | –                                                         | 1 |   |   | 4 |   |   | 7 |   | 9 |    |    |    |    |    |    |    |    |    |    |    |    |
| *02:01:01:01:02:01:15,<br>02:01:17-02:01:19, 02:01:21-<br>02:16, 02:18-02:22:02, 02:24-<br>02:33, 02:36-02:45, 02:47,<br>02:49-02:54, 02:57-02:61,<br>02:63-02:69, 02:71-02:77,<br>02:79:01-02:97:02, 02:99,<br>02:101-02:102, 02:104-<br>02:128, 02:130-02:134,<br>02:136-02:145, 02:147-<br>02:168, 02:170-02:236,<br>02:238-02:242, 02:244-<br>02:282 | A2,<br>A19,<br>Low<br>A2,<br>A203,<br>A210,<br>Null,<br>– |   | 2 |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |
| *02:17:01-02:17:02                                                                                                                                                                                                                                                                                                                                       | A2                                                        |   | 2 |   |   |   | w |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |
| *02:34-02:35:01, 02:35:03,<br>02:56:01-02:56:02, 02:62,<br>02:103                                                                                                                                                                                                                                                                                        | A2                                                        |   | 2 |   |   |   |   |   |   |   |    |    | 12 |    |    |    |    |    |    | 19 |    |    |
| *02:35:02                                                                                                                                                                                                                                                                                                                                                | A2                                                        |   |   |   |   |   |   |   |   |   |    |    | 12 |    |    |    |    |    |    | 19 |    |    |
| *02:46, 02:70                                                                                                                                                                                                                                                                                                                                            | A2                                                        |   | 2 |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    | 19 |    |    |
| *02:48, 02:129                                                                                                                                                                                                                                                                                                                                           | A2, –                                                     |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    | 19 |    |    |
| *02:55                                                                                                                                                                                                                                                                                                                                                   | A2,<br>A28                                                |   | 2 |   |   |   |   | 7 |   |   |    |    |    |    |    |    |    |    |    |    | 20 | 21 |
| *02:78                                                                                                                                                                                                                                                                                                                                                   | –                                                         |   | w |   | 4 |   |   |   |   |   |    |    |    |    |    |    |    |    |    | 19 |    |    |
| *02:135                                                                                                                                                                                                                                                                                                                                                  | –                                                         |   | 2 |   |   |   |   |   |   |   |    |    | 12 |    |    |    |    |    |    |    |    |    |
| *02:146                                                                                                                                                                                                                                                                                                                                                  | –                                                         |   | 2 |   |   |   |   |   |   | 9 |    |    |    |    |    |    |    |    |    |    |    |    |
| *02:169                                                                                                                                                                                                                                                                                                                                                  | –                                                         |   | 2 |   | 4 |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |
| *02:237                                                                                                                                                                                                                                                                                                                                                  | –                                                         |   | 2 |   |   |   |   |   |   |   |    |    |    | 13 |    | 15 |    |    |    |    |    |    |
| *02:243                                                                                                                                                                                                                                                                                                                                                  | –                                                         |   | 2 |   |   |   |   |   |   |   |    |    |    |    |    |    |    | 17 |    |    | 20 |    |
| Well No.                                                                                                                                                                                                                                                                                                                                                 |                                                           | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 |

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| Well No.                                                                                                                                                                                                                                                                                                                                 |                                                        | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|
| *03:01:01:01-03:01:18,<br>03:01:20-03:01:22, 03:02-<br>03:07, 03:09-03:11N, 03:13-<br>03:17, 03:19-03:23, 03:25-<br>03:31, 03:33-03:35, 03:37-<br>03:40, 03:42, 03:44-03:49,<br>03:51-03:56, 03:58, 03:60-<br>03:62, 03:64-03:71, 03:73-<br>03:74, 03:76-03:81, 03:83-<br>03:87, 03:90-03:94, 03:96-<br>03:106, 03:109-03:110,<br>03:112 | A3,<br>Null,<br>–                                      |   |   | 3 |   |   |   |   |   |   |    | 12 |    |    |    |    |    |    |    |    |    |    |
| *03:01:19                                                                                                                                                                                                                                                                                                                                | –                                                      |   |   | 3 |   |   |   |   |   |   |    | 11 | 12 |    |    |    |    |    |    |    |    |    |
| *03:01:23, 03:08, 03:32,<br>03:36N, 03:57, 03:59, 03:72,<br>03:89, 03:107-03:108,<br>03:111, 24:92 <sup>8</sup>                                                                                                                                                                                                                          | A3,<br>Null, –                                         |   |   | 3 |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |
| *03:12                                                                                                                                                                                                                                                                                                                                   | A3                                                     |   |   | 3 | 4 |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |
| *03:18                                                                                                                                                                                                                                                                                                                                   | –                                                      | 1 |   |   | 4 |   |   |   |   |   |    |    | 12 |    |    |    |    |    |    |    |    |    |
| *03:24, 03:50                                                                                                                                                                                                                                                                                                                            | A3, –                                                  |   |   | 3 |   |   |   | 7 |   |   |    |    | 12 |    |    |    |    |    |    |    |    |    |
| *03:41                                                                                                                                                                                                                                                                                                                                   | –                                                      |   |   | 3 |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    | 21 |
| *03:43, 03:82                                                                                                                                                                                                                                                                                                                            | –                                                      |   |   | 3 |   |   |   |   |   |   |    |    | 12 |    | 14 |    | 16 |    |    |    |    |    |
| *03:63                                                                                                                                                                                                                                                                                                                                   | –                                                      |   |   | 3 |   |   |   |   |   |   |    | 10 | 12 |    |    |    |    |    |    |    |    | 21 |
| *03:75                                                                                                                                                                                                                                                                                                                                   | –                                                      |   |   |   |   |   |   |   |   |   |    |    | 12 |    |    |    |    |    |    |    |    | 21 |
| *03:88                                                                                                                                                                                                                                                                                                                                   | –                                                      |   |   | 3 | 4 |   |   |   |   |   |    | 10 |    |    |    |    |    |    |    |    |    | 21 |
| *03:95                                                                                                                                                                                                                                                                                                                                   | –                                                      |   |   |   |   |   |   |   |   |   |    |    | 12 | 13 |    | 15 |    |    |    |    |    |    |
| *11:01:01-11:09, 11:12-<br>11:24:02, 11:26-11:27, 11:29-<br>11:59, 11:61-11:80                                                                                                                                                                                                                                                           | A11,<br>Null,<br>–                                     |   |   |   | 4 |   |   |   |   |   |    | 10 |    |    |    |    |    |    |    |    |    |    |
| *11:10                                                                                                                                                                                                                                                                                                                                   | A11                                                    |   |   |   | 4 |   |   | 7 |   |   |    | 10 |    |    |    |    |    |    |    |    |    |    |
| *11:11                                                                                                                                                                                                                                                                                                                                   | –                                                      |   |   |   | 4 |   |   |   |   |   |    | 10 | 11 |    |    |    |    |    |    |    |    |    |
| *11:25, 11:60                                                                                                                                                                                                                                                                                                                            | A11,<br>–                                              |   |   | 3 | 4 |   |   |   |   |   |    | 10 |    |    |    |    |    |    |    |    |    |    |
| *23:01:01-23:13, 23:15-<br>23:31, B*18:27                                                                                                                                                                                                                                                                                                | A23,<br>Null,<br>–                                     |   |   |   |   | 5 |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |
| *23:14, 24:05, 24:13:02,<br>24:24 <sup>9</sup>                                                                                                                                                                                                                                                                                           | A23,<br>A9,<br>A24                                     |   |   |   |   | 5 | 6 |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |
| *24:02:01:01-24:04, 24:06-<br>24:11N, 24:13:01, 24:17,<br>24:20-24:23, 24:25-24:43,<br>24:45N-24:50, 24:54-24:56,<br>24:58-24:63, 24:66-24:81,<br>24:83N-24:91, 24:93, 24:95-<br>24:113, 24:115-24:137,<br>24:139-24:155N                                                                                                                | A24,<br>A9,<br>Low<br>A24,<br>A<br>2403,<br>Null,<br>– |   |   |   |   | 6 |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |
| Well No.                                                                                                                                                                                                                                                                                                                                 |                                                        | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 |

Lot No.: **24M**

Lot-specific Information

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| Well No.                                                                                                                                     |                            | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9  | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 |
|----------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|
| *24:18                                                                                                                                       | A24,<br>A3                 |   |   |   |   | 6 |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    | 21 |
| *24:19, 24:44                                                                                                                                | A9                         |   |   |   |   | 6 |   |   |   | 10 |    |    |    |    |    |    |    |    |    |    |    |    |
| *24:82                                                                                                                                       | –                          |   |   |   |   | 6 |   |   |   |    |    |    |    |    |    |    |    |    |    |    | 20 |    |
| *25:01:01-25:04, 25:07-<br>25:13                                                                                                             | A25,<br>Null,<br>–         |   |   |   |   |   |   | 7 | 8 |    |    |    | 12 |    |    |    |    |    |    |    |    |    |
| *25:05                                                                                                                                       | A25                        |   |   |   |   |   |   | 7 | 8 |    |    |    | 12 |    |    |    |    |    |    | 19 |    |    |
| *25:06                                                                                                                                       | A25                        |   |   |   |   |   |   | 7 | 8 |    |    | 11 |    |    |    |    |    |    |    |    |    |    |
| *26:01:01-26:01:18, 26:08,<br>26:10-26:15, 26:17-26:18,<br>26:20, 26:23-26:29, 26:31-<br>26:33, 26:35-26:43:02, 26:45-<br>26:53, 26:55-26:56 | A26,<br>A10,<br>Null,<br>– |   |   |   |   |   |   | 7 |   | 9  |    |    | 12 |    |    |    |    |    |    |    |    |    |
| *26:02                                                                                                                                       | A26                        |   |   |   |   |   |   | 7 |   | 9  |    |    | w  |    |    |    |    |    |    |    |    |    |
| *26:03:01-26:03:02, 26:06,<br>26:21                                                                                                          | A26,<br>–                  |   |   |   |   |   |   | 7 |   |    | 10 |    | 12 |    |    |    |    |    |    |    |    | 21 |
| *26:04, 26:34                                                                                                                                | A26                        |   |   |   |   |   |   | 7 |   | 9  |    |    |    |    |    |    |    |    |    |    |    |    |
| *26:05, 26:30                                                                                                                                | A26                        |   |   |   |   |   |   | 7 |   |    |    |    | 12 |    |    |    |    |    |    |    |    | 21 |
| *26:07:01-26:07:02                                                                                                                           | A26                        |   |   |   |   |   |   |   |   | 9  |    |    | 12 |    |    |    |    |    |    |    |    |    |
| *26:09                                                                                                                                       | A26                        |   |   |   |   |   |   | 7 |   | 9  |    | 11 |    |    |    |    |    |    |    |    |    |    |
| *26:16                                                                                                                                       | A26                        |   |   |   |   | 6 |   |   |   | 9  |    |    | 12 |    |    |    |    |    |    |    |    |    |
| *26:19                                                                                                                                       | -                          |   |   |   | 4 |   |   |   |   |    |    |    | 12 | 13 |    |    |    |    |    |    |    |    |
| *26:22                                                                                                                                       | A26                        |   |   |   |   |   |   | 7 |   | 9  |    |    | 12 | 13 |    |    |    |    |    |    | 20 |    |
| *26:54                                                                                                                                       | –                          |   |   |   |   |   |   | 7 |   | 9  |    |    | 12 |    |    |    |    |    |    | 19 |    |    |
| *29:01:01:01-29:06, 29:08N-<br>29:12, 29:15-29:18, 29:20-<br>29:27                                                                           | A29,<br>Null,<br>–         |   |   |   |   |   |   |   |   |    |    |    |    | 13 |    |    |    |    |    |    |    |    |
| *29:07                                                                                                                                       | A29                        |   |   |   |   | 5 |   |   |   |    |    |    |    | 13 |    |    |    |    |    |    |    |    |
| *29:13                                                                                                                                       | -                          |   |   |   |   |   |   |   |   |    |    |    |    | 13 |    |    | 16 |    |    |    |    |    |
| *29:14                                                                                                                                       | -                          |   |   |   |   |   |   |   |   |    |    |    |    | 13 |    | 15 |    |    |    |    |    |    |
| *29:19                                                                                                                                       | –                          |   |   |   |   |   |   |   |   |    |    |    |    | 13 |    |    |    |    | 18 |    |    |    |
| *30:01:01-30:04:02, 30:06-<br>30:07, 30:09-30:20, 30:22-<br>30:46                                                                            | A30,<br>Null,<br>–         |   |   |   |   |   |   |   |   |    |    |    |    |    | 14 |    |    |    |    |    |    |    |
| *30:08                                                                                                                                       | A30                        |   |   |   | 4 |   |   |   |   |    |    |    |    |    | 14 |    |    |    |    |    |    |    |
| *31:01:02-31:02, 31:05-<br>31:28, 31:30-31:34, 31:36-<br>31:46                                                                               | A31,<br>A24,<br>Null,<br>– |   |   |   |   |   |   |   |   |    |    |    |    |    |    | 15 |    |    |    |    |    |    |
| *31:03                                                                                                                                       | A31                        |   |   |   |   |   |   |   |   |    | 10 | 11 |    | 13 |    | 15 |    |    |    |    |    |    |
| *31:04                                                                                                                                       | A31                        |   |   |   |   |   |   |   |   |    |    | 11 |    | 13 |    | 15 |    |    |    |    |    |    |
| *31:29                                                                                                                                       | –                          |   |   |   |   | 5 |   |   |   |    |    |    |    |    |    | 15 |    |    |    |    |    |    |
| *31:35                                                                                                                                       | –                          |   |   |   |   |   |   |   |   |    |    |    |    |    | 14 | 15 | 16 |    |    |    |    |    |
| *32:01:01-32:02, 32:06-<br>32:14, 32:16-32:30                                                                                                | A32,<br>Null,<br>–         |   |   |   |   |   |   |   | 8 |    |    |    |    |    |    |    | 16 |    |    |    |    |    |
| *32:03                                                                                                                                       | A32                        |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    | 16 |    |    |    |    |    |
| Well No.                                                                                                                                     |                            | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9  | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 |

Lot No.: **24M**

Lot-specific Information

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| Well No.                                                                                     |                            | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 |
|----------------------------------------------------------------------------------------------|----------------------------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|
| *32:04                                                                                       | A32,<br>A3                 |   |   | 3 |   |   |   |   | 8 |   |    |    |    |    |    |    |    |    |    |    |    |    |
| *32:05                                                                                       | A32                        |   |   |   |   |   |   |   |   |   |    |    |    |    |    | 15 | 16 |    |    |    |    |    |
| *32:15                                                                                       | A32                        |   |   |   |   |   |   | 7 | 8 |   |    |    |    |    |    |    | 16 |    |    |    |    |    |
| *33:01:01-33:01:05,<br>33:03:01-33:12, 33:14-<br>33:18, 33:20-33:21, 33:23,<br>33:25-33:34   | A33,<br>–                  |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    | 17 |    |    |    |    |
| *33:13                                                                                       | –                          |   |   |   |   |   |   |   |   | 9 |    |    |    | 13 |    |    |    | 17 |    |    |    |    |
| *33:19                                                                                       | –                          |   |   |   |   | 6 |   |   |   |   |    |    |    |    |    |    |    | 17 |    |    |    |    |
| *33:22                                                                                       | –                          |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    | 17 |    |    | 20 |    |
| *33:24                                                                                       | –                          |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    | 17 |    |    |    | 21 |
| *34:01:01-34:01:02, 34:05-<br>34:06                                                          | A34,<br>A10                |   |   |   |   |   |   | 7 |   |   | 10 | 11 |    |    |    |    |    |    |    |    |    |    |
| *34:02-34:03, 34:07                                                                          | A34                        |   |   | 3 |   |   |   | 7 |   |   | 10 | 11 |    |    |    |    |    |    |    |    |    |    |
| *34:04                                                                                       | A34                        |   |   | 3 |   |   |   | 7 |   |   | 10 | 11 |    | 13 |    |    |    |    |    |    |    |    |
| *34:08                                                                                       | A34                        |   |   | 3 |   |   |   | 7 |   |   | 10 | 11 | 12 |    |    |    |    |    |    |    |    |    |
| *34:09                                                                                       | –                          |   |   | 3 |   |   |   | 7 |   |   |    | 11 |    |    |    |    |    |    |    |    |    |    |
| *36:01, 36:03, 36:05 <sup>7</sup>                                                            | A36,<br>–                  | 1 |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |
| *36:02                                                                                       | A36                        | 1 |   | 3 |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    | 21 |
| *36:04                                                                                       | A36                        | 1 |   |   | 4 |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |
| *43:01                                                                                       | A43                        |   |   |   |   |   |   |   |   |   |    | 11 | 12 |    |    |    |    |    |    |    |    |    |
| *66:01, 66:04-66:08, 66:10-<br>66:11, 66:13-66:15                                            | A66,<br>A26,<br>–          |   |   |   |   |   |   | 7 |   |   | 10 |    | 12 |    |    |    |    |    |    |    |    |    |
| *66:02-66:03                                                                                 | A66,<br>A10                |   |   |   |   |   |   | 7 |   |   |    | 11 |    |    |    |    |    |    |    |    |    |    |
| *66:09                                                                                       | –                          |   |   |   |   |   |   | 7 |   |   | 10 |    | 12 | 13 |    |    |    |    |    |    | 20 |    |
| *66:12                                                                                       | –                          |   |   |   |   |   |   | 7 |   |   |    |    | 12 |    |    |    |    |    |    |    |    |    |
| *68:01:01-68:04, 68:06-<br>68:14, 68:16-68:19, 68:21-<br>68:28, 68:30-68:44, 68:46-<br>68:65 | A68,<br>A28,<br>Null,<br>– |   |   |   |   |   |   | 7 |   |   |    |    |    |    |    |    |    |    |    | 19 |    |    |
| *68:05, 68:15, 68:20                                                                         | A68                        |   |   |   |   |   |   | 7 |   |   |    |    |    |    |    |    |    |    |    | 19 |    | 21 |
| *68:29                                                                                       | A68                        |   |   |   |   |   |   | 7 |   |   |    |    |    |    |    |    |    | 17 |    | 19 | 20 |    |
| *68:45                                                                                       | –                          |   |   |   |   |   | 6 | 7 |   |   |    |    |    |    |    |    |    |    |    | 19 |    |    |
| *68:66                                                                                       | –                          |   |   |   | 4 |   |   | 7 |   |   |    |    |    |    |    |    |    |    |    | 19 |    |    |
| *69:01                                                                                       | A69                        |   |   |   |   |   |   | 7 |   |   |    |    |    |    |    |    |    |    |    |    | 20 |    |
| *74:01-74:06, 74:08-74:12N,<br>74:14N                                                        | A74,<br>Null,<br>–         |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    | 18 |    |    |    |
| *74:07                                                                                       | A74                        |   |   |   |   |   |   |   |   |   |    |    |    |    |    | 16 |    |    | 18 |    |    |    |
| *74:13                                                                                       | –                          |   |   |   |   |   |   |   |   |   |    |    | 12 |    |    |    |    |    | 18 |    |    |    |
| *80:01                                                                                       | A80                        |   |   |   |   | 5 |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    | 21 |
| *80:02                                                                                       | –                          |   |   |   |   | 5 |   |   |   |   | 10 |    |    |    |    |    |    |    |    |    |    |    |
| HLA-A allele <sup>4</sup>                                                                    | ser <sup>5</sup>           |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |
| Well No.                                                                                     |                            | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 |

Lot No.: **24M**

Lot-specific Information

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<sup>1</sup>The internal positive control primer pairs amplify segments of the human growth hormone gene. The two different control primer pairs give rise to either an internal positive control band of 1070 base pairs, for most wells, or a band of 800 base pairs, for some wells.

Well number 1 contains the primer pair giving rise to the shorter, 800 bp, internal positive control band in order to help in the correct orientation of the HLA-A low resolution SSP typing.

In addition, wells number 2, 4, 5, 7, 8, 11 and 18 to 21 contain the primer pair giving rise to the shorter, 800 bp, internal positive control band in order to allow kit identification.

<sup>2</sup>The nucleotide position, in the 1<sup>st</sup>, 2<sup>nd</sup> or 3<sup>rd</sup> exon or the 2<sup>nd</sup> intron, matching the specificity-determining 3'-end of the primer is given. Nucleotide numbering as on the [www.ebi.ac.uk/imgt/hla](http://www.ebi.ac.uk/imgt/hla) web site. The sequence of the 3 terminal nucleotides of the primer is given.

<sup>3</sup>The nucleotide position, in the 2<sup>nd</sup> or 3<sup>rd</sup> exon, matching the specificity-determining 3'-end of the primer is given in the anti-sense direction. Nucleotide numbering as on the [www.ebi.ac.uk/imgt/hla](http://www.ebi.ac.uk/imgt/hla) web site. The sequence of the 3 terminal nucleotides of the primer is given.

<sup>4</sup>The sequence of the A\*0105N has been shown to be identical to A\*01:04N.

The A\*020116 allele has been renamed to A\*02:134.

The A\*020120 has been renamed to A\*02:01:18.

The sequence of the A\*0223 allele has been shown to be identical to A\*02:22:01.

The sequence of the A\*0298 allele has been shown to be identical to A\*02:96.

The A\*1128 allele has been renamed to A\*11:15:02.

The sequence of the A\*2401 allele has been shown to be in error.

The sequence of the A\*2412 allele has been shown to be identical to A\*24:08.

The A\*2416 allele has been renamed to A\*31:08.

The A\*2465 allele has been renamed to A\*24:13:02.

The A\*2644 allele has been renamed to A\*26:43:02.

The sequence of the A\*3005 allele has been shown to be identical to A\*30:04.

The A\*3021 allele has been renamed to A\*30:11:02.

The sequence of the A\*31011 allele has been shown to be identical to A\*31:01:02.

The sequence of the A\*3302 allele has been shown to be identical to A\*33:03:01.

<sup>5</sup>The serological reactivity of all HLA-A alleles is not known. The grouping of not serologically defined alleles is taken from Tissue Antigens 73, 95-170, 2009.

<sup>6</sup>The primer pairs in vial 2 will in many samples give rise to two specific PCR fragments.

<sup>7</sup>The A\*36 alleles will give rise to identical amplification patterns as a number of A\*01 alleles. These alleles can be separated by the A\*01 and A\*36 high resolution SSP primer sets.

<sup>8</sup>The A\*03:01:23, 03:08, 03:32, 03:36N, 03:57, 03:59, 03:72, 03:89, 03:107-03:108, 03:111 and the A\*24:92 alleles will give rise to identical amplification patterns. These alleles can be separated by the respective high resolution SSP primer sets.

<sup>9</sup>The A\*23:14 and the A\*24:05, 24:13:02 and 24:24 alleles will give rise to identical amplification patterns. These four alleles can be separated by the respective high resolution SSP primer sets. 'w', may be weakly amplified.

Lot No.: 24M

Lot-specific Information

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| INTERPRETATION TABLE                                     |  | HLA-B low resolution SSP |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |
|----------------------------------------------------------|--|--------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Amplification patterns of the B*07:02 to B*83:01 alleles |  | Well                     |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |
|                                                          |  | 22                       | 23        | 24        | 25        | 26        | 27        | 28        | 29        | 30        | 31        | 32        | 33        | 34        | 35        | 36        | 37        | 38        | 39        | 40        | 41        |
| Length of spec. PCR product(s)                           |  | 285                      | 215       | 140       | 130       | 185       | 190       | 290       | 165       | 165       | 180       | 105       | 195       | 105       | 115       | 80        | 150       | 135       | 60        | 210       | 170       |
|                                                          |  |                          |           | 235       | 265       | 235       |           |           | 220       | 190       |           | 195       |           | 395       | 150       |           |           |           | 245       |           |           |
|                                                          |  |                          |           |           |           |           |           |           | 330       | 390       |           |           |           | 435       |           |           |           |           | 400       |           |           |
| Length of int. pos. control <sup>1</sup>                 |  | 800                      | 1070      | 1070      | 800       | 800       | 800       | 1070      | 1070      | 1070      | 800       | 1070      | 1070      | 1070      | 1070      | 1070      | 800       | 1070      | 1070      | 800       | 800       |
| 5'-primer(s) <sup>2</sup>                                |  | 355                      | 97        | 209       | 103       | 103       | 103       | 45        | 45        | 45        | 420       | 206       | 142       | 45        | 161       | 167       | 355       | 206       | 45        | 142       | 409       |
|                                                          |  | 5'-TCA 3'                | 5'-TCg 3' | 5'-ggC 3' | 5'-CCg 3' | 5'-CCT 3' | 5'-CCg 3' | 5'-ggA 3' | 5'-ggA 3' | 5'-ggA 3' | 5'-TTA 3' | 5'-AgA 3' | 5'-TCT 3' | 5'-ggA 3' | 5'-Cgg 3' | 5'-gCT 3' | 5'-TCA 3' | 5'-gAC 3' | 5'-ggA 3' | 5'-TCT 3' | 5'-ggC 3' |
|                                                          |  | 363                      |           | 363       | 103       | 363       | 418       |           | 357       | 435       |           | 420       | 419       | 540       |           |           |           |           | 368       | 368       | 420       |
|                                                          |  | 5'-AgC 3'                |           | 5'-AgC 3' | 5'-CCg 3' | 5'-AAT 3' | 5'-Agg 3' |           | 5'-Tgg 3' | 5'-AAA 3' |           | 5'-TTA 3' | 5'-gTC 3' | 5'-gAC 3' |           |           |           |           | 5'-gTT 3' | 5'-gTC 3' | 5'-TTA 3' |
|                                                          |  |                          |           | 363       | 361       |           |           |           | 412       |           |           |           |           |           |           |           |           |           | 557       |           |           |
|                                                          |  |                          |           | 5'-AgC 3' | 5'-AgT 3' |           |           |           | 5'-ATA 3' |           |           |           |           |           |           |           |           |           | 5'-ggA 3' |           |           |
| 3'-primer(s) <sup>3</sup>                                |  | 603                      | 272       | 309       | 193       | 246       | 246       | 165       | 206       | 266       | 559       | 272       | 301       | 272       | 234       | 204       | 463       | 302       | 259       | 311       | 544       |
|                                                          |  | 5'-gTg 3'                | 5'-Tgg 3' | 5'-gTg 3' | 5'-CgT 3' | 5'-TAT 3' | 5'-TAT 3' | 5'-Tgg 3' | 5'-CCT 3' | 5'-TCC 3' | 5'-CTC 3' | 5'-Tgg 3' | 5'-gTC 3' | 5'-TgC 3' | 5'-TCT 3' | 5'-TCT 3' | 5'-gCT 3' | 5'-ggC 3' | 5'-gTT 3' | 5'-ggg 3' | 5'-ggT 3' |
|                                                          |  | 605                      | 272       | 559       | 193       | 246       | 572       |           | 538       | 559       |           | 572       | 301       | 309       | 272       |           |           |           | 259       | 311       |           |
|                                                          |  | 5'-gCT 3'                | 5'-TgA 3' | 5'-CAG 3' | 5'-CgT 3' | 5'-TAT 3' | 5'-GCC 3' |           | 5'-gTC 3' | 5'-CAG 3' |           | 5'-gCg 3' | 5'-gTC 3' | 5'-ATC 3' | 5'-TgA 3' |           |           |           | 5'-gTT 3' | 5'-ggg 3' |           |
|                                                          |  |                          |           |           | 583       | 559       |           |           |           | 583       |           |           | 570       | 605       | 272       |           |           |           | 266       | 538       |           |
|                                                          |  |                          |           |           | 5'-gTg 3' | 5'-CTC 3' |           |           |           | 5'-gTg 3' |           |           | 5'-CCg 3' | 5'-gCT 3' | 5'-Tgg 3' |           |           |           | 5'-TCC 3' | 5'-gTC 3' |           |
|                                                          |  |                          |           |           |           |           |           |           |           |           |           |           | 572       |           |           |           |           |           | 272       |           |           |
|                                                          |  |                          |           |           |           |           |           |           |           |           |           |           | 5'-gCg 3' |           |           |           |           |           | 5'-Tgg 3' |           |           |
|                                                          |  |                          |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           | 292       |           |           |
|                                                          |  |                          |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           | 5'-gTA 3' |           |           |
|                                                          |  |                          |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           | 572       |           |           |
|                                                          |  |                          |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           | 5'-gCg 3' |           |           |
| Well No.                                                 |  | 22                       | 23        | 24        | 25        | 26        | 27        | 28        | 29        | 30        | 31        | 32        | 33        | 34        | 35        | 36        | 37        | 38        | 39        | 40        | 41        |

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**CE**  
**0088**

Lot No.: **24M**

Lot-specific Information

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| Well No.                                                                                                                                                                                                                                                                                                                                |                           | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| HLA-B allele <sup>4</sup>                                                                                                                                                                                                                                                                                                               | ser. <sup>11</sup>        |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *07:02:01-07:02:20,<br>07:05:01-07:06,<br>07:09-07:15, 07:17-<br>07:18:02, 07:21-<br>07:23, 07:26, 07:29-<br>07:31, 07:34-07:35,<br>07:39, 07:41-07:46,<br>07:48-07:49N, 07:51-<br>07:52, 07:55-07:59,<br>07:61-07:64, 07:66-<br>07:68:02, 07:70-<br>07:72, 07:74-07:76,<br>07:79-07:80, 07:82-<br>07:83, 07:86-07:99,<br>07:101-07:117 | B7,<br>B42,<br>Null,<br>– | 22 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *07:03, 07:08, 07:16,<br>07:32, 07:37                                                                                                                                                                                                                                                                                                   | B703,<br>B7, –            | 22 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *07:04, 07:25                                                                                                                                                                                                                                                                                                                           | B7                        | 22 |    |    |    |    |    |    |    |    |    |    |    | 34 |    |    |    |    |    |    |    |
| *07:07, 07:19, 07:33,<br>07:40, 07:53, 07:77                                                                                                                                                                                                                                                                                            | B7,<br>42, –              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *07:20, 07:24                                                                                                                                                                                                                                                                                                                           | B7,<br>blank              | 22 |    | 24 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *07:27                                                                                                                                                                                                                                                                                                                                  | –                         | 22 |    |    |    |    |    |    |    |    |    | 32 |    |    |    |    |    |    | 40 |    |    |
| *07:28                                                                                                                                                                                                                                                                                                                                  | B7                        | 22 |    |    |    | 27 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *07:36, 07:81                                                                                                                                                                                                                                                                                                                           | B7, –                     | 22 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *07:38                                                                                                                                                                                                                                                                                                                                  | –                         | 22 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *07:47                                                                                                                                                                                                                                                                                                                                  | B7                        | 22 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *07:50                                                                                                                                                                                                                                                                                                                                  | –                         | 22 |    |    |    |    |    |    |    |    |    | 32 |    |    |    |    |    |    |    |    |    |
| *07:54                                                                                                                                                                                                                                                                                                                                  | B7                        | 22 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *07:60                                                                                                                                                                                                                                                                                                                                  | –                         |    |    | 24 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *07:65                                                                                                                                                                                                                                                                                                                                  | –                         | 22 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 38 |    |    |    |
| *07:69, 07:85                                                                                                                                                                                                                                                                                                                           | –                         | 22 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *07:73                                                                                                                                                                                                                                                                                                                                  | –                         | 22 |    |    |    |    |    |    |    |    |    |    |    |    |    | 36 |    |    |    |    |    |
| *07:78                                                                                                                                                                                                                                                                                                                                  | –                         |    |    |    |    |    |    |    |    |    | 31 |    |    |    |    |    |    |    |    |    |    |
| *07:84                                                                                                                                                                                                                                                                                                                                  | –                         |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *07:100                                                                                                                                                                                                                                                                                                                                 | –                         |    |    | 24 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *08:01:01-08:01:13,<br>08:05, 08:08N, 08:10-<br>08:11, 08:15, 08:18-<br>08:19N, 08:22-08:24,<br>08:27, 08:29-08:31,<br>08:33-08:35, 08:39,<br>08:41-08:48, 08:51,<br>08:53, 08:56-08:59,<br>08:61, 08:63-08:64,<br>08:66                                                                                                                | B8,<br>Null,<br>–         | 22 | 23 |    |    |    |    | 29 |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Well No.                                                                                                                                                                                                                                                                                                                                |                           | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |

Lot No.: **24M**

Lot-specific Information

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| 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | Well No.                  |                                                                                                                                                                                                                                                                                                                                         |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | ser. <sup>11</sup>        | HLA-B allele <sup>4</sup>                                                                                                                                                                                                                                                                                                               |
|    |    | 44 |    |    | 47 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 64 | B7,<br>B42,<br>Null,<br>– | *07:02:01-07:02:20,<br>07:05:01-07:06:<br>07:09-07:15, 07:17-<br>07:18:02, 07:21-<br>07:23, 07:26, 07:29-<br>07:31, 07:34-07:35,<br>07:39, 07:41-07:46,<br>07:48-07:49N, 07:51-<br>07:52, 07:55-07:59,<br>07:61-07:64, 07:66-<br>07:68:02, 07:70-<br>07:72, 07:74-07:76,<br>07:79-07:80, 07:82-<br>07:83, 07:86-07:99,<br>07:101-07:117 |
|    |    | 44 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 64 | B703,<br>B7, –            | *07:03, 07:08, 07:16,<br>07:32, 07:37                                                                                                                                                                                                                                                                                                   |
|    |    | 44 |    | 46 | 47 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 64 | B7                        | *07:04, 07:25                                                                                                                                                                                                                                                                                                                           |
|    |    | 44 |    |    | 47 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 64 | B7,<br>42, –              | *07:07, 07:19, 07:33,<br>07:40, 07:53, 07:77                                                                                                                                                                                                                                                                                            |
|    |    | 44 |    |    | 47 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 64 | B7,<br>blank              | *07:20, 07:24                                                                                                                                                                                                                                                                                                                           |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 63 |    | –  | *07:27                    |                                                                                                                                                                                                                                                                                                                                         |
|    |    | 44 |    |    | 47 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 64 | B7                        | *07:28                                                                                                                                                                                                                                                                                                                                  |
|    |    |    |    |    | 47 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 63 |    | B7, –                     | *07:36, 07:81                                                                                                                                                                                                                                                                                                                           |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 63 |    | –                         | *07:38                                                                                                                                                                                                                                                                                                                                  |
|    |    | 44 |    |    | w  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 64 | B7                        | *07:47                                                                                                                                                                                                                                                                                                                                  |
|    |    | 44 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 64 | –                         | *07:50                                                                                                                                                                                                                                                                                                                                  |
|    |    | 44 |    |    | 47 |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    |    | 64 | B7                        | *07:54                                                                                                                                                                                                                                                                                                                                  |
|    |    | 44 |    |    | 47 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 64 | –                         | *07:60                                                                                                                                                                                                                                                                                                                                  |
|    |    |    |    |    | 47 |    |    | 50 |    |    |    |    |    |    |    | 58 |    |    | w  |    |    | 64 | –                         | *07:65                                                                                                                                                                                                                                                                                                                                  |
|    | 43 | 44 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 64 | –                         | *07:69, 07:85                                                                                                                                                                                                                                                                                                                           |
|    |    | 44 |    |    | 47 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 64 | –                         | *07:73                                                                                                                                                                                                                                                                                                                                  |
|    |    | 44 |    |    | 47 |    |    |    |    |    | 53 |    |    |    |    |    |    |    |    |    |    | 64 | –                         | *07:78                                                                                                                                                                                                                                                                                                                                  |
|    |    | 44 |    |    | 47 |    |    |    |    |    | 53 |    |    |    |    |    |    |    |    |    |    | 64 | –                         | *07:84                                                                                                                                                                                                                                                                                                                                  |
|    |    | 44 |    |    | 47 |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 62 |    | 64 | –                         | *07:100                                                                                                                                                                                                                                                                                                                                 |
|    |    | 44 |    | 46 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 64 | B8,<br>Null,<br>–         | *08:01:01-08:01:13,<br>08:05, 08:08N, 08:10<br>08:11, 08:15, 08:18-<br>08:19N, 08:22-08:24,<br>08:27, 08:29-08:31,<br>08:33-08:35, 08:39,<br>08:41-08:48, 08:51,<br>08:53, 08:56-08:59,<br>08:61, 08:63-08:64,<br>08:66                                                                                                                 |
| 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | Well No.                  |                                                                                                                                                                                                                                                                                                                                         |

| Lot No.: 24M                                                                                         |                  | Lot-specific Information |    |    |    |    |    |    |    |    |    |    |    | www.olerup-ssp.com |    |    |    |    |    |    |    |
|------------------------------------------------------------------------------------------------------|------------------|--------------------------|----|----|----|----|----|----|----|----|----|----|----|--------------------|----|----|----|----|----|----|----|
| Well No.                                                                                             |                  | 22                       | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34                 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |
| *08:02-08:03, 08:52                                                                                  | B8, –            | 22                       | 23 |    |    |    |    |    | 29 |    |    |    |    |                    |    |    |    |    |    |    |    |
| *08:04                                                                                               | B8, –            | 22                       | 23 |    |    |    |    |    | 29 |    |    | 32 |    |                    |    |    |    |    |    |    |    |
| *08:07, 08:14, 08:28, 08:37                                                                          | B8, –            | 22                       | 23 |    |    |    |    |    |    |    |    |    |    |                    |    |    |    |    |    |    |    |
| *08:09, 08:12:01-08:12:03, 08:16                                                                     | B8               |                          | 23 |    |    |    |    |    | 29 |    |    |    |    |                    |    |    |    |    |    |    |    |
| *08:13, 08:20, 08:40                                                                                 | B8, –            | 22                       | 23 |    |    |    |    |    |    |    |    |    |    |                    |    |    |    |    |    |    |    |
| *08:17, 08:54                                                                                        | –                | 22                       | 23 |    |    |    |    |    | 29 |    |    | 32 |    |                    |    |    |    |    |    |    |    |
| *08:21                                                                                               | B8               | 22                       | 23 | 24 |    |    |    |    | 29 |    |    |    |    |                    |    |    |    |    |    |    |    |
| *08:25                                                                                               | B8               | 22                       | 23 | 24 |    |    |    |    |    |    |    |    |    |                    |    |    |    |    |    |    |    |
| *08:26, 08:50, 08:62, 42:07 <sup>5</sup>                                                             | B8, –            | 22                       |    |    |    |    |    |    | 29 |    |    |    |    |                    |    |    |    |    |    |    |    |
| *08:32                                                                                               | B8               | 22                       | 23 |    |    |    |    |    | 29 |    |    |    |    |                    |    |    |    | 38 |    |    |    |
| *08:36                                                                                               | –                | 22                       | 23 |    |    |    |    |    | 29 |    |    |    |    |                    |    |    |    |    |    |    |    |
| *08:38                                                                                               | –                | 22                       | 23 |    |    |    |    |    | 29 |    |    |    |    |                    |    |    |    |    |    |    |    |
| *08:49                                                                                               | –                | 22                       | 23 |    |    |    |    |    |    |    |    |    |    |                    |    |    | 37 |    | 40 |    |    |
| *08:55                                                                                               | –                | 22                       | 23 |    |    |    |    |    |    |    |    |    |    |                    |    |    |    |    |    | 41 |    |
| *08:60                                                                                               | –                | 22                       | 23 |    |    |    |    |    | 29 |    |    |    |    |                    |    |    |    |    |    |    |    |
| *08:65                                                                                               | –                | 22                       |    |    |    |    |    |    | 29 |    |    |    |    |                    |    |    |    |    |    |    |    |
| *13:01:01-13:01:05, 13:17, 13:20, 13:22:01-13:23, 13:25, 13:28-13:29                                 | B13, –           |                          |    | 24 | 25 |    |    |    |    |    | 31 |    |    |                    |    |    | 37 |    |    |    |    |
| *13:02:01-13:02:09, 13:08Q, 13:11, 13:15, 13:18-13:19, 13:27, 13:30, 13:32-13:34, 13:37-13:38, 13:40 | B13, –           |                          |    | 24 | 25 |    |    |    |    |    | 31 |    |    |                    |    |    |    |    |    |    |    |
| *13:03                                                                                               | B49, B15         |                          |    | 24 | 25 |    |    |    |    |    |    |    |    |                    |    |    |    |    |    |    |    |
| *13:04, 13:10, 13:21, 13:35                                                                          | B49, B15, B13, – |                          |    | 24 | 25 |    |    |    |    |    |    |    |    |                    |    |    |    |    |    |    |    |
| *13:06                                                                                               | B13              |                          |    | 24 | 25 |    |    |    |    |    |    |    |    |                    |    |    | 37 |    |    |    |    |
| *13:07N                                                                                              | Null             |                          |    | 24 | 25 |    |    |    |    |    | 31 |    |    |                    |    |    | 37 |    |    |    |    |
| *13:09                                                                                               | –                |                          |    |    | 25 |    |    |    |    |    | 31 |    |    |                    |    |    |    |    |    |    |    |
| *13:12-13:13, 13:26                                                                                  | B13, –           |                          |    | 24 | 25 |    |    |    |    |    |    |    |    |                    |    |    | 37 |    |    |    |    |
| *13:14                                                                                               | B13              |                          |    | 24 |    |    |    |    |    |    | 31 |    |    |                    |    |    |    |    |    |    |    |
| *13:16                                                                                               | B13              |                          |    | 24 | 25 |    |    |    |    |    | 31 |    |    |                    |    |    |    |    |    |    |    |
| *13:31                                                                                               | –                |                          |    | 24 | 25 |    |    |    |    |    | 31 |    |    |                    |    |    |    |    |    |    |    |
| *13:36                                                                                               | –                |                          |    | 24 | 25 |    |    |    |    |    | 31 |    |    |                    |    |    | 37 |    |    |    |    |
| *13:39                                                                                               | –                |                          |    |    | 25 |    |    |    |    |    | 31 |    |    |                    |    |    | 37 |    |    |    |    |
| *14:01:01-14:01:02, 14:07N, 14:12, 14:14, 14:19                                                      | B64, –, Null     |                          |    |    | 25 | 26 |    |    |    |    |    |    |    |                    |    |    |    |    |    |    |    |
| *14:02:01-14:02:02, 14:02:04, 14:03-14:04, 14:09, 14:11, 14:15-14:18                                 | B65, B14, –      |                          |    |    | 25 |    | 27 |    |    |    |    |    |    |                    |    |    |    |    |    |    |    |
| Well No.                                                                                             |                  | 22                       | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34                 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |

| Lot No.: 24M |    |    |    | Lot-specific Information |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | www.olerup-ssp.com |    |    |       |                                  |                                                                                                      |                     |
|--------------|----|----|----|--------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|--------------------|----|----|-------|----------------------------------|------------------------------------------------------------------------------------------------------|---------------------|
| 42           | 43 | 44 | 45 | 46                       | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62                 | 63 | 64 |       | Well No.                         |                                                                                                      |                     |
|              |    |    |    | 46                       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                    | 63 |    | B8, – | *08:02-08:03, 08:52              |                                                                                                      |                     |
|              |    | 44 |    | 46                       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                    |    | 64 | B8, – | *08:04                           |                                                                                                      |                     |
|              |    | 44 |    | 46                       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                    |    | 64 | B8, – | *08:07, 08:14, 08:28, 08:37      |                                                                                                      |                     |
|              |    | 44 |    | 46                       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                    |    | 64 | B8    | *08:09, 08:12:01-08:12:03, 08:16 |                                                                                                      |                     |
|              |    | 44 |    |                          |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                    |    | 64 | B8, – | *08:13, 08:20, 08:40             |                                                                                                      |                     |
|              |    | 44 |    | 46                       |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    |                    |    |    | 64    | –                                | *08:17, 08:54                                                                                        |                     |
|              |    | 44 |    | 46                       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                    |    |    | 64    | B8                               | *08:21                                                                                               |                     |
|              |    | 44 |    |                          |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                    |    |    | 64    | B8                               | *08:25                                                                                               |                     |
|              |    | 44 |    | 46                       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                    |    |    | 64    | B8, –                            | *08:26, 08:50, 08:62, 42:07 <sup>5</sup>                                                             |                     |
|              |    | 44 |    | 46                       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 61                 |    |    | 64    | B8                               | *08:32                                                                                               |                     |
|              |    |    |    | 46                       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                    |    |    | 64    | –                                | *08:36                                                                                               |                     |
|              |    | 44 |    | 46                       |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    |                    |    |    | 64    | –                                | *08:38                                                                                               |                     |
|              |    | 44 |    | 46                       |    | 48 |    |    |    |    |    |    |    |    |    |    |    |    |    |                    |    |    | 64    | –                                | *08:49                                                                                               |                     |
|              |    | 44 |    |                          |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                    |    |    | 64    | –                                | *08:55                                                                                               |                     |
|              |    | 44 |    | 46                       |    | 48 |    |    |    |    |    |    |    |    |    |    |    |    |    |                    |    |    | 64    | –                                | *08:60                                                                                               |                     |
|              | 43 | 44 |    | 46                       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                    |    |    | 64    | –                                | *08:65                                                                                               |                     |
|              |    |    |    |                          |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    |                    |    | 63 |       | B13, –                           | *13:01:01-13:01:05, 13:17, 13:20, 13:22:01-13:23, 13:25, 13:28-13:29                                 |                     |
|              |    |    |    |                          |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    |                    |    | 63 |       | B13, –                           | *13:02:01-13:02:09, 13:08Q, 13:11, 13:15, 13:18-13:19, 13:27, 13:30, 13:32-13:34, 13:37-13:38, 13:40 |                     |
|              |    |    |    |                          |    |    |    |    |    |    |    |    |    | 56 |    |    | 59 |    |    |                    |    | 63 |       | B49, B15                         | *13:03                                                                                               |                     |
|              |    |    |    |                          |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    |                    |    | 63 |       | B49, B15, B13, –                 | *13:04, 13:10, 13:21, 13:35                                                                          |                     |
|              |    |    |    |                          |    |    |    |    |    |    |    |    |    | 56 |    | 58 |    |    |    |                    |    | 63 |       | B13                              | *13:06                                                                                               |                     |
|              |    |    |    |                          |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                    |    | 63 |       | Null                             | *13:07N                                                                                              |                     |
|              |    |    |    |                          |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    |                    |    |    | 64    | –                                | *13:09                                                                                               |                     |
|              |    |    |    |                          |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    |                    |    |    | 63    |                                  | B13, –                                                                                               | *13:12-13:13, 13:26 |
|              |    |    |    |                          |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    |                    |    |    | 63    |                                  | B13                                                                                                  | *13:14              |
|              |    |    |    |                          |    |    |    |    |    |    | 53 |    |    | 56 |    |    |    |    |    |                    |    |    | 63    |                                  | B13                                                                                                  | *13:16              |
|              |    |    |    |                          |    |    |    |    |    |    | w  |    |    | 56 |    |    |    |    |    |                    | 62 | 63 |       | –                                | *13:31                                                                                               |                     |
|              |    |    |    |                          |    |    |    |    | 51 |    |    |    |    |    |    |    |    |    |    |                    |    | 63 |       | –                                | *13:36                                                                                               |                     |
|              |    |    |    |                          |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    |                    |    |    | 64    | –                                | *13:39                                                                                               |                     |
|              | 43 | 44 |    |                          |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                    |    |    | 64    | B64, –                           | *14:01:01-14:01:02, 14:07N, 14:12, 14:14, 14:19                                                      |                     |
|              | 43 | 44 |    |                          |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                    |    |    | 64    | B65, B14, –                      | *14:02:01-14:02:02, 14:02:04, 14:03-14:04, 14:09, 14:11, 14:15-14:18                                 |                     |
| 42           | 43 | 44 | 45 | 46                       | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62                 | 63 | 64 |       | Well No.                         |                                                                                                      |                     |

Lot No.: **24M**

Lot-specific Information

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| Well No.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                   | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| *14:02:03, 14:02:06                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | B65, –            |    |    |    | 25 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *14:02:05                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | B65               |    |    |    | 25 |    | 27 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *14:05-14:06:02, 14:13                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | B14, –            |    |    |    |    |    | 27 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *14:08, 39:25N, 39:30, 39:32-39:34, 39:43, 39:47, 39:50 <sup>6</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | B39, B16, Null, – |    |    |    |    | 26 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *14:10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | –                 |    |    |    |    | 26 |    |    |    |    |    |    |    |    |    |    | 37 |    |    |    |    |
| *15:01:01:01-15:01:01:02N, 15:01:03, 15:01:06-15:01:16, 15:01:18, 15:01:20, 15:26N-15:27:03, 15:30, 15:32, 15:34-15:35, 15:38:01-15:38:02, 15:50, 15:56, 15:58, 15:60, 15:63, 15:70-15:71, 15:75, 15:79N, 15:81-15:82, 15:92, 15:94N, 15:96-15:97, 15:102, 15:104-15:105, 15:109-15:111N, 15:113, 15:117-15:118, 15:122, 15:125, 15:128-15:129, 15:135, 15:140, 15:145-15:147, 15:152, 15:159-15:160, 15:163-15:164, 15:166-15:167, 15:169, 15:171-15:172, 15:174-15:175, 15:178, 15:181N-15:184, 15:187, 15:190N, 15:192-15:193, 15:201, 15:203, 15:206 | B62, Null, –      |    |    |    |    |    |    | 28 |    |    |    |    |    |    |    |    |    |    | 39 |    |    |
| *15:01:02                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | B62               |    |    |    |    |    |    | 28 |    | 30 |    |    |    |    |    |    |    |    | 39 |    |    |
| *15:01:04                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | B62               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 39 |    |    |
| *15:01:17, 15:05:01-15:06, 15:33, 15:39:01-15:40, 15:48, 15:65, 15:78:01-15:78:02, 15:84, 15:107, 15:136, 15:138, 15:141, 15:150, 15:155, 15:179, 15:185, 15:188, 15:195, 15:199                                                                                                                                                                                                                                                                                                                                                                         | B62, –            |    |    |    |    |    |    | 28 |    |    |    |    |    |    |    |    |    |    | 39 |    |    |
| *15:01:19, 15:28, 15:120, 15:149N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | B62, Null, –      |    |    |    |    |    |    | 28 |    |    |    |    |    |    |    |    |    |    | 39 |    |    |
| Well No.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                   | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |

Lot No.: **24M**

Lot-specific Information

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| 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64           |                                   | Well No.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|--------------|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | 43 | 44 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 64           | B65, –                            | *14:02:03, 14:02:06                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|    | 43 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 64           | B65                               | *14:02:05                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|    | 43 | 44 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 64           | B14, –                            | *14:05-14:06:02, 14:13                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|    | 43 | 44 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 64           | B39, B16, Null, –                 | *14:08, 39:25N, 39:30, 39:32-39:34, 39:43, 39:47, 39:50 <sup>6</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|    | 43 | 44 |    |    |    |    | 49 |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 64           | –                                 | *14:10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    | 62 | 64           | B62, Null, –                      | *15:01:01:01-15:01:01:02N, 15:01:03, 15:01:06-15:01:16, 15:01:18, 15:01:20, 15:26N-15:27:03, 15:30, 15:32, 15:34-15:35, 15:38:01-15:38:02, 15:50, 15:56, 15:58, 15:60, 15:63, 15:70-15:71, 15:75, 15:79N, 15:81-15:82, 15:92, 15:94N, 15:96-15:97, 15:102, 15:104-15:105, 15:109-15:111N, 15:113, 15:117-15:118, 15:122, 15:125, 15:128-15:129, 15:135, 15:140, 15:145-15:147, 15:152, 15:159-15:160, 15:163-15:164, 15:166-15:167, 15:169, 15:171-15:172, 15:174-15:175, 15:178, 15:181N-15:184, 15:187, 15:190N, 15:192-15:193, 15:201, 15:203, 15:206 |
|    |    |    |    |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    | 62 | 64 | B62          | *15:01:02                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|    |    |    |    |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    | 62 | 64 | B62          | *15:01:04                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    |    | 64           | B62, –                            | *15:01:17, 15:05:01-15:06, 15:33, 15:39:01-15:40, 15:48, 15:65, 15:78:01-15:78:02, 15:84, 15:107, 15:136, 15:138, 15:141, 15:150, 15:155, 15:179, 15:185, 15:188, 15:195, 15:199                                                                                                                                                                                                                                                                                                                                                                         |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 62 | 64 | B62, Null, – | *15:01:19, 15:28, 15:120, 15:149N |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64           |                                   | Well No.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

Lot No.: **24M**

Lot-specific Information

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| Well No.                                                                                                                                                                              |                             | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| *15:02:01-15:02:05,<br>15:88, 15:112,<br>15:121, 15:139,<br>15:170, 15:194                                                                                                            | B75, –                      |    |    |    |    |    |    | 28 |    |    |    |    |    |    |    |    | 37 |    | 39 |    |    |
| *15:03:01-15:03:02,<br>15:47, 15:49, 15:61,<br>15:98, 15:103,<br>15:123, 15:127,<br>15:132, 15:151,<br>15:156, 15:158,<br>15:173                                                      | B72,<br>B70,<br>blank,<br>– |    |    |    |    |    |    |    | 29 |    |    | 32 |    |    |    |    |    |    | 39 |    |    |
| *15:03:03                                                                                                                                                                             | B72                         |    |    |    |    |    |    | 28 | 29 |    |    | 32 |    |    |    |    |    |    | 39 |    |    |
| *15:04, 15:137                                                                                                                                                                        | B62, –                      |    |    |    |    |    |    | 28 |    |    |    |    |    |    |    |    |    |    | 39 |    |    |
| *15:07:01-15:07:02,<br>15:45, 15:126,<br>15:205, 15:207                                                                                                                               | B62, –                      |    |    | 24 |    |    |    | 28 |    |    |    |    |    |    |    |    |    |    | 39 |    |    |
| *15:08, 15:11:01-<br>15:11:03, 15:11:05,<br>15:15, 15:148,<br>15:191, 15:209N                                                                                                         | B75,<br>B62,<br>Null,<br>–  |    |    |    |    |    |    | 28 |    |    |    |    |    |    |    |    |    |    | 39 |    |    |
| *15:09                                                                                                                                                                                | B70                         |    |    |    |    |    |    |    | 29 | 30 |    |    |    | 34 |    |    |    |    | 39 |    |    |
| *15:10:01, 15:18:01-<br>15:18:04, 15:37,<br>15:51-15:52, 15:72,<br>15:90, 15:93, 15:99,<br>15:108, 15:114,<br>15:119, 15:133-<br>15:134, 15:153,<br>15:176, 15:197-<br>15:198, 15:200 | B71,<br>B70, –              |    |    |    |    |    |    |    | 29 |    |    |    |    | 34 |    |    |    |    | 39 |    |    |
| *15:10:02                                                                                                                                                                             | B71                         |    |    |    |    |    |    | 28 | 29 |    |    |    |    | 34 |    |    |    |    | 39 |    |    |
| *15:11:04                                                                                                                                                                             | B75                         |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 39 |    |    |
| *15:12, 15:14, 15:19                                                                                                                                                                  | B76                         |    |    |    |    |    |    | 28 |    |    |    |    | 33 |    |    |    |    |    | 39 |    |    |
| *15:13                                                                                                                                                                                | B77                         |    |    |    |    |    |    | 28 |    |    |    |    |    | 34 |    |    | 37 |    | 39 |    |    |
| *15:16, 15:67, 15:95                                                                                                                                                                  | B63                         |    |    |    |    |    |    |    |    | 30 |    |    |    | 34 |    |    |    |    | 39 |    |    |
| *15:17:01:01-<br>15:17:02, 15:162,<br>15:168, 15:177,<br>15:196, 15:208                                                                                                               | B63, –                      |    |    |    |    |    |    | 28 |    | 30 |    |    |    | 34 |    |    |    |    | 39 |    |    |
| *15:20, 15:25:01-<br>15:25:03, 15:204                                                                                                                                                 | B62, –                      |    |    |    |    |    |    | 28 |    |    |    |    |    |    |    |    | 37 |    | 39 |    |    |
| *15:21, 15:44                                                                                                                                                                         | B75                         |    |    |    |    |    |    | 28 |    |    |    |    |    | 34 |    |    | 37 |    | 39 |    |    |
| *15:23, 15:115                                                                                                                                                                        | B70,<br>B5, –               |    |    |    |    |    |    |    | 29 |    |    |    |    | 34 |    |    |    |    | 39 |    |    |
| *15:24, 15:87,<br>15:157                                                                                                                                                              | B62,<br>B15, –              |    |    |    |    |    |    | 28 |    |    |    |    |    | 34 |    |    |    |    | 39 |    |    |
| *15:29                                                                                                                                                                                | B70                         |    |    |    |    |    |    |    | 29 |    |    |    |    |    |    |    |    |    | 39 |    |    |
| *15:31                                                                                                                                                                                | B75                         |    |    |    |    |    |    | 28 |    |    |    |    |    |    |    |    |    |    | 39 |    |    |
| *15:36                                                                                                                                                                                | –                           |    |    | w  |    |    |    | 28 |    |    |    |    |    |    |    |    | 37 |    | 39 |    |    |
| *15:42                                                                                                                                                                                | B15                         |    |    |    |    |    |    | 28 |    |    |    |    |    |    |    |    |    |    | 39 |    |    |
| Well No.                                                                                                                                                                              |                             | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |

Lot No.: **24M**

Lot-specific Information

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| 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | Well No.                    |                                                                                                                                                                                       |                                                                               |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|
|    |    |    |    |    |    |    |    |    | 51 |    |    |    |    |    |    |    |    |    |    |    |    | 64 | B75, –                      | *15:02:01-15:02:05,<br>15:88, 15:112,<br>15:121, 15:139,<br>15:170, 15:194                                                                                                            |                                                                               |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    |    | 64 | B72,<br>B70,<br>blank,<br>– | *15:03:01-15:03:02,<br>15:47, 15:49, 15:61,<br>15:98, 15:103,<br>15:123, 15:127,<br>15:132, 15:151,<br>15:156, 15:158,<br>15:173                                                      |                                                                               |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    |    | 64 | B72                         | *15:03:03                                                                                                                                                                             |                                                                               |
|    |    |    |    |    |    |    |    |    |    |    | w  |    |    | 56 |    |    |    |    |    | 62 |    | 64 | B62, –                      | *15:04, 15:137                                                                                                                                                                        |                                                                               |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    | 62 |    | 64                          | B62, –                                                                                                                                                                                | *15:07:01-15:07:02,<br>15:45, 15:126,<br>15:205, 15:207                       |
|    |    |    |    |    |    |    |    |    | 51 |    |    |    |    |    |    |    |    |    |    |    | 62 |    | 64                          | B75,<br>B62,<br>Null,<br>–                                                                                                                                                            | *15:08, 15:11:01-<br>15:11:03, 15:11:05,<br>15:15, 15:148,<br>15:191, 15:209N |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 64 | B70                         | *15:09                                                                                                                                                                                |                                                                               |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 64 | B71,<br>B70, –              | *15:10:01, 15:18:01-<br>15:18:04, 15:37,<br>15:51-15:52, 15:72,<br>15:90, 15:93, 15:99,<br>15:108, 15:114,<br>15:119, 15:133-<br>15:134, 15:153,<br>15:176, 15:197-<br>15:198, 15:200 |                                                                               |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 64 | B71                         | *15:10:02                                                                                                                                                                             |                                                                               |
|    |    |    |    |    |    |    |    |    | 51 |    |    |    |    |    |    |    |    |    |    |    | 62 |    | 64                          | B75                                                                                                                                                                                   | *15:11:04                                                                     |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    | 62 |    | 64                          | B76                                                                                                                                                                                   | *15:12, 15:14, 15:19                                                          |
|    |    |    |    |    |    |    |    |    | 51 |    |    |    |    |    |    |    |    |    |    |    |    | 63 |                             | B77                                                                                                                                                                                   | *15:13                                                                        |
|    |    |    |    |    |    |    |    |    |    |    | 53 |    |    |    |    |    |    |    |    |    |    | 63 | B63                         | *15:16, 15:67, 15:95                                                                                                                                                                  |                                                                               |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 63 | B63, –                      | *15:17:01:01-<br>15:17:02, 15:162,<br>15:168, 15:177,<br>15:196, 15:208                                                                                                               |                                                                               |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    |    |    | 64                          | B62, –                                                                                                                                                                                | *15:20, 15:25:01-<br>15:25:03, 15:204                                         |
|    |    |    |    |    |    |    |    |    | 51 |    |    |    |    |    |    |    |    |    |    |    |    |    | 64                          | B75                                                                                                                                                                                   | *15:21, 15:44                                                                 |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 63 | B70,<br>B5, –               | *15:23, 15:115                                                                                                                                                                        |                                                                               |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    | 62 | 63 | B62,<br>B15, –              | *15:24, 15:87,<br>15:157                                                                                                                                                              |                                                                               |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 64                          | B70                                                                                                                                                                                   | *15:29                                                                        |
|    |    |    |    |    |    |    |    |    | 51 |    |    |    |    |    |    |    |    |    |    |    |    |    | 64                          | B75                                                                                                                                                                                   | *15:31                                                                        |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    |    | 63 |                             | –                                                                                                                                                                                     | *15:36                                                                        |
|    |    |    |    |    |    |    |    |    |    |    | 53 |    |    | 56 |    | 58 |    |    |    |    |    |    | 64                          | B15                                                                                                                                                                                   | *15:42                                                                        |
| 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 |                             | Well No.                                                                                                                                                                              |                                                                               |

Lot No.: **24M**

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| Well No.                                                                                                                                                                    |                    | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| *15:43                                                                                                                                                                      | B15                |    |    |    |    |    |    | 28 |    |    |    |    |    |    |    |    |    |    | 39 |    |    |
| *15:46                                                                                                                                                                      | –                  |    |    |    | 25 |    |    | 28 | 29 |    |    |    |    |    |    |    |    |    | 39 |    |    |
| *15:53                                                                                                                                                                      | –                  |    |    |    | 25 |    |    |    | 29 |    |    |    |    |    |    |    |    |    | 39 |    |    |
| *15:54                                                                                                                                                                      | B72                |    |    |    |    |    |    |    | 29 |    |    | 32 |    |    |    |    |    |    | 39 |    |    |
| *15:55                                                                                                                                                                      | B15                |    |    | 24 |    |    |    | 28 |    |    |    |    |    |    |    |    |    |    | 39 |    |    |
| *15:57                                                                                                                                                                      | B62                |    |    |    |    |    |    | 28 |    |    |    |    |    |    |    |    |    |    | 39 |    |    |
| *15:62                                                                                                                                                                      | –                  |    |    |    |    |    |    |    | 29 |    |    | 32 |    |    |    |    | 37 |    | 39 |    |    |
| *15:64                                                                                                                                                                      | B71                |    |    |    |    |    |    |    | 29 |    |    | 32 |    |    |    |    |    |    | 39 |    |    |
| *15:66                                                                                                                                                                      | B62                |    |    |    |    |    |    | 28 |    |    |    |    |    | 34 |    |    |    |    | 39 |    |    |
| *15:68                                                                                                                                                                      | –                  |    |    | 24 |    |    |    |    |    |    |    | 32 |    |    |    |    |    |    |    |    |    |
| *15:69                                                                                                                                                                      | B72                |    |    |    |    |    |    |    | 29 |    |    | 32 |    |    |    |    |    |    | 39 |    | 41 |
| *15:73                                                                                                                                                                      | B62                |    |    |    |    |    |    | 28 |    |    |    |    |    |    |    |    |    |    | 39 |    |    |
| *15:74                                                                                                                                                                      | B72                |    |    |    |    |    |    |    | 29 |    |    |    |    |    |    |    |    |    | 39 |    |    |
| *15:76                                                                                                                                                                      | –                  |    |    |    |    |    |    | 28 |    |    |    |    |    |    |    |    |    |    | 39 |    |    |
| *15:77                                                                                                                                                                      | B62                |    |    |    |    |    | 27 | 28 |    |    |    |    |    |    |    |    | 37 |    | 39 |    |    |
| *15:80                                                                                                                                                                      | B70                |    |    |    |    |    |    |    | 29 |    |    |    |    | 34 |    |    | 37 |    | 39 |    |    |
| *15:83                                                                                                                                                                      | B62                |    |    |    |    |    |    | 28 | 29 |    |    |    |    |    |    |    |    |    | 39 |    |    |
| *15:85, 15:154,<br>15:165                                                                                                                                                   | B62, –             |    |    |    |    |    |    | 28 |    |    |    |    |    |    |    |    | 37 |    | 39 |    |    |
| *15:86                                                                                                                                                                      | –                  |    |    |    |    |    |    | 28 |    |    |    |    |    |    |    |    |    |    | 39 |    |    |
| *15:89                                                                                                                                                                      | B77                |    |    | w  |    |    |    | 28 |    |    |    |    |    |    |    |    | 37 |    | 39 |    |    |
| *15:91, 15:131                                                                                                                                                              | –                  |    |    |    |    |    |    |    | 29 |    |    | 32 | 33 |    |    |    |    |    | 39 |    |    |
| *15:101                                                                                                                                                                     | –                  |    |    |    |    |    |    | 28 |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *15:106                                                                                                                                                                     | –                  |    |    |    | 25 |    |    | 28 | 29 |    |    |    |    |    |    |    | 37 |    | 39 |    |    |
| *15:116                                                                                                                                                                     | B62                |    |    |    |    |    |    | 28 |    |    |    |    |    |    |    |    |    |    | 39 |    |    |
| *15:124                                                                                                                                                                     | B71                |    |    |    |    |    |    |    | 29 |    |    |    |    | 34 |    |    |    |    | 39 |    |    |
| *15:142                                                                                                                                                                     | –                  |    | 23 |    |    |    |    | 28 |    |    |    |    |    |    |    |    |    |    | 39 |    |    |
| *15:143                                                                                                                                                                     | –                  |    |    |    |    |    |    | 28 | 29 |    |    |    |    |    |    |    |    |    | 39 |    |    |
| *15:144                                                                                                                                                                     | –                  |    |    |    |    |    |    | 28 |    |    |    |    |    |    |    |    | 37 |    | 39 |    |    |
| *15:161                                                                                                                                                                     | –                  |    |    |    |    |    |    |    | 29 |    |    |    | 33 | 34 |    |    |    |    | 39 |    |    |
| *15:180                                                                                                                                                                     | –                  |    | 23 |    |    |    |    |    | 29 |    |    |    |    |    |    |    |    |    | 39 |    |    |
| *15:186                                                                                                                                                                     | –                  |    |    |    |    |    |    |    | 29 |    |    |    |    | 34 |    |    |    |    | 39 |    | 41 |
| *15:189                                                                                                                                                                     | –                  |    |    |    |    |    | 27 | 28 |    |    |    |    |    | 34 |    |    |    |    | 39 |    |    |
| *15:202                                                                                                                                                                     | –                  |    |    |    |    |    |    | 28 |    |    |    |    |    |    |    |    |    | 38 | 39 |    |    |
| *18:01:01-18:03,<br>18:05-18:08, 18:10-<br>18:11, 18:13-18:15,<br>18:17N-18:18, 18:20-<br>18:21, 18:23N-18:28,<br>18:30-18:36, 18:38-<br>18:43, 18:45-18:47,<br>18:50-18:52 | B18,<br>Null,<br>– |    |    |    |    |    |    |    |    |    |    |    |    |    | 35 |    |    |    | 38 |    |    |
| *18:04                                                                                                                                                                      | B18                |    |    |    |    |    |    |    |    |    |    |    |    |    | 35 |    |    |    | 38 |    |    |
| *18:09                                                                                                                                                                      | B18                |    |    |    |    |    |    |    |    |    |    |    |    |    | 35 |    |    |    |    |    |    |
| *18:12                                                                                                                                                                      | B18                |    |    |    |    |    |    |    |    |    |    |    |    |    | 35 |    |    |    | 38 |    |    |
| *18:19                                                                                                                                                                      | B18                |    |    |    |    |    |    |    |    |    |    |    |    |    | 35 |    |    |    | 38 |    |    |
| *18:22                                                                                                                                                                      | B18                |    |    |    |    |    |    |    |    |    |    |    |    |    | 35 |    | 37 |    | 38 |    |    |
| Well No.                                                                                                                                                                    |                    | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |

Lot No.: **24M**

Lot-specific Information

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| 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 |              | Well No.                                                                                                                                            |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
|    |    |    |    |    |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    | 62 | 63 |    | B15          | *15:43                                                                                                                                              |
|    |    |    |    |    |    |    |    |    |    |    |    |    | 55 | 56 |    |    |    |    |    | 62 |    | 64 | –            | *15:46                                                                                                                                              |
|    |    |    |    |    |    |    |    |    |    |    |    |    | 55 | 56 |    |    |    |    |    | 62 |    | 64 | –            | *15:53                                                                                                                                              |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    | 62 |    | 64 | B72          | *15:54                                                                                                                                              |
|    |    |    |    |    |    |    |    |    | 51 |    |    |    |    |    |    |    |    |    |    |    |    | 64 | B15          | *15:55                                                                                                                                              |
|    |    |    |    |    |    |    | w  |    |    |    |    |    |    | 56 |    |    |    |    |    | 62 |    | 64 | B62          | *15:57                                                                                                                                              |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    |    | 64 | –            | *15:62                                                                                                                                              |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 64 | B71          | *15:64                                                                                                                                              |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    | 62 |    | 64 | B62          | *15:66                                                                                                                                              |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    | 62 |    | 64 | –            | *15:68                                                                                                                                              |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    |    | 64 | B72          | *15:69                                                                                                                                              |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    | 56 |    | 59 |    |    |    | 62 |    | 64 | B62          | *15:73                                                                                                                                              |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    |    | 64 | B72          | *15:74                                                                                                                                              |
|    |    |    |    |    | 47 |    |    |    | w  |    |    |    |    |    |    |    |    |    |    | 62 |    | 64 | –            | *15:76                                                                                                                                              |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    | 62 |    | 64 | B62          | *15:77                                                                                                                                              |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 64 | B70          | *15:80                                                                                                                                              |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    |    | 64 | B62          | *15:83                                                                                                                                              |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    | 62 |    | 64 | B62, –       | *15:85, 15:154, 15:165                                                                                                                              |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    | 56 |    | 58 |    |    |    |    |    | 64 | –            | *15:86                                                                                                                                              |
|    |    |    |    |    |    |    |    |    | 51 |    |    |    |    |    |    |    |    |    |    |    | 63 |    | B77          | *15:89                                                                                                                                              |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    |    | 64 | –            | *15:91, 15:131                                                                                                                                      |
|    |    |    |    |    | 47 |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    | 62 |    | 64 | –            | *15:101                                                                                                                                             |
|    |    |    |    |    |    |    |    |    |    |    |    |    | 55 | 56 |    |    |    |    |    |    |    | 64 | –            | *15:106                                                                                                                                             |
|    |    |    | 45 |    |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    |    | 64 | B62          | *15:116                                                                                                                                             |
|    |    |    | 45 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 64 | B71          | *15:124                                                                                                                                             |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    | 62 |    | 64 | –            | *15:142                                                                                                                                             |
|    |    |    |    |    |    |    |    |    |    |    |    |    | 55 |    |    |    |    |    |    | 62 |    | 64 | –            | *15:143                                                                                                                                             |
|    |    |    |    |    |    |    |    |    | 51 |    |    |    |    |    |    |    |    |    |    | 62 |    | 64 | –            | *15:144                                                                                                                                             |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 64 | –            | *15:161                                                                                                                                             |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 62 |    | 64 | –            | *15:180                                                                                                                                             |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 64 | –            | *15:186                                                                                                                                             |
|    |    |    |    |    |    |    |    |    | 51 |    |    |    |    |    |    |    |    |    |    | 62 |    | 64 | –            | *15:189                                                                                                                                             |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    | 62 |    | 64 | –            | *15:202                                                                                                                                             |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 61 |    |    |    | B18, Null, – | *18:01:01-18:03, 18:05-18:08, 18:10-18:11, 18:13-18:15, 18:17N-18:18, 18:20-18:21, 18:23N-18:28, 18:30-18:36, 18:38-18:43, 18:45-18:47, 18:50-18:52 |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 58 |    |    | 61 |    |    | 64 | B18          | *18:04                                                                                                                                              |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 61 |    | 63 |    | B18          | *18:09                                                                                                                                              |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    |    | 64 | B18          | *18:12                                                                                                                                              |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 61 | 62 |    | 64 | B18          | *18:19                                                                                                                                              |
|    |    |    |    |    |    |    | 49 |    |    |    |    |    |    |    |    |    |    |    | 61 |    |    | 64 | B18          | *18:22                                                                                                                                              |
| 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 |              | Well No.                                                                                                                                            |

Lot No.: **24M**

Lot-specific Information

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| Well No.                                                                                                                                                                              |                    | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| *18:29, 35:09:01-35:09:02, 35:18, 35:31-35:32, 35:37, 35:53N, 35:64, 35:68:01-35:68:02, 35:75, 35:88, 35:99, 35:118-35:119, 35:127, 35:151 <sup>7</sup>                               | B35, Null, –       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 38 |    |    |    |
| *18:37                                                                                                                                                                                | –                  |    |    |    |    |    |    |    |    |    |    | 32 |    |    | 35 |    |    |    |    |    |    |
| *18:44                                                                                                                                                                                | –                  |    |    |    | 25 |    |    |    |    |    |    |    |    |    | 35 |    |    | 38 |    |    |    |
| *18:48                                                                                                                                                                                | –                  |    |    |    |    |    |    |    |    |    |    |    |    |    | 35 |    |    |    |    |    |    |
| *18:49                                                                                                                                                                                | –                  |    |    |    |    |    |    |    |    |    |    |    |    |    | 35 |    |    |    |    |    |    |
| *27:01                                                                                                                                                                                | B27                |    |    |    |    | 26 |    |    |    |    |    |    |    |    |    | 36 |    |    |    |    |    |
| *27:02, 27:53, 27:57, 27:65N                                                                                                                                                          | B27, Null, –       |    |    |    |    | 26 |    |    |    |    |    |    |    |    |    | 36 |    |    |    |    |    |
| *27:03-27:06, 27:09-27:10, 27:13, 27:17, 27:20, 27:27, 27:31, 27:35-27:37, 27:41, 27:45-27:46, 27:48-27:51, 27:54-27:56, 27:58, 27:60-27:61, 27:64N, 27:66N, 27:68-27:69, 27:72-27:73 | B27, Null, –       |    |    |    |    | 26 |    |    |    |    |    |    |    |    |    | 36 |    |    |    |    |    |
| *27:07, 27:11, 27:15, 27:21, 27:28, 27:32, 27:34, 27:38, 27:43, 27:47, 27:63, 27:70-27:71                                                                                             | B27, –             |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 36 |    |    |    |    |    |
| *27:08, 27:26, 27:40, 27:42, 27:44                                                                                                                                                    | B 2708, B27, B7, – |    |    |    |    | 26 |    |    |    |    |    |    |    |    |    | 36 |    |    |    |    |    |
| *27:12                                                                                                                                                                                | –                  |    |    |    |    | 26 |    |    |    |    |    |    |    |    |    | 36 |    |    |    |    |    |
| *27:14                                                                                                                                                                                | B27                |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 36 |    |    |    |    |    |
| *27:16, 27:39, 27:59N                                                                                                                                                                 | B27, Null, –       |    |    |    |    | 26 |    |    |    |    |    |    |    |    |    | 36 |    |    |    |    |    |
| *27:18                                                                                                                                                                                | –                  |    |    |    |    | 26 |    |    |    |    |    | 32 |    |    |    | 36 |    |    |    |    |    |
| *27:19                                                                                                                                                                                | B27                |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 36 | 37 |    |    |    |    |
| *27:23                                                                                                                                                                                | –                  |    |    |    |    | 26 |    |    |    |    |    |    |    |    |    | 36 |    |    |    |    |    |
| *27:24                                                                                                                                                                                | B27                |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 36 |    |    |    |    |    |
| *27:25                                                                                                                                                                                | B27                |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 36 |    |    |    |    |    |
| *27:29                                                                                                                                                                                | B27                |    |    |    |    | 26 |    |    |    |    |    | 32 |    |    |    | 36 |    |    |    |    |    |
| *27:30                                                                                                                                                                                | B27                |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 36 | 37 |    |    |    |    |
| *27:33                                                                                                                                                                                | –                  |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 36 |    |    |    |    |    |
| *27:52, 27:67                                                                                                                                                                         | –                  |    |    |    |    | 26 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *27:62                                                                                                                                                                                | –                  |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 36 |    |    |    |    |    |
| Well No.                                                                                                                                                                              |                    | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |

Lot No.: **24M**

Lot-specific Information

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| 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | Well No.                                                                                                                                                                                              |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 61 |    | 64 |    | B35, Null, –<br>*18:29, 35:09:01-35:09:02, 35:18, 35:31-35:32, 35:37, 35:53N, 35:64, 35:68:01-35:68:02, 35:75, 35:88, 35:99, 35:118-35:119, 35:127, 35:151 <sup>7</sup>                               |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 64 | –  | *18:37                                                                                                                                                                                                |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 61 |    | 64 | –  | *18:44                                                                                                                                                                                                |
|    |    |    |    |    |    |    |    |    |    |    |    |    | 55 |    |    |    |    |    |    |    | 64 | –  | *18:48                                                                                                                                                                                                |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 61 |    | 64 | –  | *18:49                                                                                                                                                                                                |
|    |    |    |    |    | 47 |    |    | w  |    |    |    |    |    | 56 |    |    |    |    |    |    | 63 |    | B27<br>*27:01                                                                                                                                                                                         |
|    |    |    |    |    | 47 |    |    | 50 |    |    |    | 54 |    | 56 |    |    |    |    |    |    | 63 |    | B27, Null, –<br>*27:02, 27:53, 27:57, 27:65N                                                                                                                                                          |
|    |    |    |    |    | 47 |    |    | 50 |    |    |    |    |    | 56 |    |    |    |    |    |    | 63 |    | B27, Null, –<br>*27:03-27:06, 27:09-27:10, 27:13, 27:17, 27:20, 27:27, 27:31, 27:35-27:37, 27:41, 27:45-27:46, 27:48-27:51, 27:54-27:56, 27:58, 27:60-27:61, 27:64N, 27:66N, 27:68-27:69, 27:72-27:73 |
|    |    |    |    |    | 47 |    |    | 50 |    |    |    |    |    | 56 |    |    |    |    |    |    | 63 |    | B27, –<br>*27:07, 27:11, 27:15, 27:21, 27:28, 27:32, 27:34, 27:38, 27:43, 27:47, 27:63, 27:70-27:71                                                                                                   |
|    |    |    |    |    | 47 |    |    | 50 |    |    |    |    |    | 56 |    |    |    |    |    |    | 64 |    | B2708, B27, B7, –<br>*27:08, 27:26, 27:40, 27:42, 27:44                                                                                                                                               |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    | 64 | –  | *27:12                                                                                                                                                                                                |
|    |    | 44 |    |    | 47 |    |    | 50 |    |    |    |    |    | 56 |    |    |    |    |    |    | 63 |    | B27<br>*27:14                                                                                                                                                                                         |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    | 63 |    | B27, Null, –<br>*27:16, 27:39, 27:59N                                                                                                                                                                 |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    | 64 | –  | *27:18                                                                                                                                                                                                |
|    |    |    |    |    | 47 |    |    | 50 |    |    |    |    |    | 56 |    |    |    |    |    |    | 63 |    | B27<br>*27:19                                                                                                                                                                                         |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 63 | –  | *27:23                                                                                                                                                                                                |
|    |    |    |    |    | 47 |    |    | 50 | 51 |    |    |    |    | 56 |    |    |    |    |    |    | 63 |    | B27<br>*27:24                                                                                                                                                                                         |
|    |    |    |    |    | 47 |    |    | 50 |    |    |    |    |    | 56 |    |    |    |    |    | 62 | 63 |    | B27<br>*27:25                                                                                                                                                                                         |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    | 63 |    | B27<br>*27:29                                                                                                                                                                                         |
|    |    |    |    |    | 47 |    |    | 50 |    |    |    | 54 |    | 56 |    |    |    |    |    |    | 63 |    | B27<br>*27:30                                                                                                                                                                                         |
|    |    |    |    |    | 47 |    |    | 50 |    |    |    |    |    | 56 |    |    |    |    |    |    | 64 | –  | *27:33                                                                                                                                                                                                |
|    |    |    |    |    | 47 |    |    | 50 |    |    |    |    |    | 56 |    |    |    |    |    |    | 63 | –  | *27:52, 27:67                                                                                                                                                                                         |
|    |    |    |    |    | 47 |    |    | 50 |    |    |    | 54 |    | 56 |    |    |    |    |    |    | 63 | –  | *27:62                                                                                                                                                                                                |
| 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | Well No.                                                                                                                                                                                              |

Lot No.: **24M**

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| Well No.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                    | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| *35:01:01:01-<br>35:01:09, 35:01:11-<br>35:03:02, 35:03:04-<br>35:04:01, 35:04:03,<br>35:06-35:08:04,<br>35:11:01-35:12:02,<br>35:15, 35:20:01-<br>35:20:02, 35:23,<br>35:29, 35:33-35:34,<br>35:36, 35:39-<br>35:42:01, 35:48,<br>35:50, 35:52, 35:54-<br>35:55, 35:57, 35:59,<br>35:61, 35:65Q,<br>35:70, 35:74, 35:77-<br>35:78, 35:82-35:85,<br>35:90-35:95, 35:98,<br>35:100-35:101:02,<br>35:103-35:108:02,<br>35:110-35:112,<br>35:116, 35:120-<br>35:124, 35:126,<br>35:128-35:134N,<br>35:136-35:150 | B35,<br>Null,<br>– |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *35:01:10, 35:04:02                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | B35                |    |    |    |    |    |    |    |    | 30 |    |    |    |    |    |    | 37 | 38 |    |    |    |
| *35:03:03, 35:27,<br>35:56                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | B35                |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 37 |    |    |    |    |
| *35:05:01-35:05:02,<br>35:22, 35:51, 35:58,<br>35:72, 35:89, 35:97,<br>35:114                                                                                                                                                                                                                                                                                                                                                                                                                                 | B35, –             |    |    | 24 |    |    |    |    |    |    |    |    |    |    |    |    |    | 38 |    |    |    |
| *35:10, 35:13, 35:28,<br>35:69, 35:80                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | B35, –             |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 37 | 38 |    |    |    |
| *35:14:01-35:14:02,<br>35:62                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | B35                |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 37 | 38 |    |    |    |
| *35:16                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | B35                |    |    | 24 |    |    |    |    |    |    |    |    |    |    |    |    | 37 | 38 |    |    |    |
| *35:17, 35:30,<br>35:113, 35:125                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | B35, –             |    |    | 24 |    |    |    |    |    |    |    |    |    |    |    |    | 37 | 38 |    |    |    |
| *35:19                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | B35, –             |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 37 |    |    |    |    |
| *35:21, 35:24:01-<br>35:24:02, 35:81,<br>35:96, 35:109                                                                                                                                                                                                                                                                                                                                                                                                                                                        | B35,<br>B78, –     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 37 | 38 |    |    |    |
| *35:25, 35:49                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | B35                |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 37 |    |    |    |    |
| *35:26                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | B35                |    |    |    |    | 27 |    |    |    |    |    |    |    |    |    |    | 37 |    |    |    |    |
| *35:35                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | B35                |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 37 | 38 |    |    | 41 |
| *35:38, 35:115                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | B35, –             |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 37 | 38 |    |    |    |
| *35:42:02                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | –                  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 37 | 38 |    |    |    |
| Well No.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                    | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |

Lot No.: **24M**

Lot-specific Information

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|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 61 |    |    | 64 | B35, Null, – | *35:01:01:01-35:01:09, 35:01:11-35:03:02, 35:03:04-35:04:01, 35:04:03, 35:06-35:08:04, 35:11:01-35:12:02, 35:15, 35:20:01-35:20:02, 35:23, 35:29, 35:33-35:34, 35:36, 35:39-35:42:01, 35:48, 35:50, 35:52, 35:54-35:55, 35:57, 35:59, 35:61, 35:65Q, 35:70, 35:74, 35:77-35:78, 35:82-35:85, 35:90-35:95, 35:98, 35:100-35:101:02, 35:103-35:108:02, 35:110-35:112, 35:116, 35:120-35:124, 35:126, 35:128-35:134N, 35:136-35:150 |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 61 |    |    | 64 | B35          | *35:01:10, 35:04:02                                                                                                                                                                                                                                                                                                                                                                                                              |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 61 |    |    | 64 | B35          | *35:03:03, 35:27, 35:56                                                                                                                                                                                                                                                                                                                                                                                                          |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 61 |    |    | 64 | B35, –       | *35:05:01-35:05:02, 35:22, 35:51, 35:58, 35:72, 35:89, 35:97, 35:114                                                                                                                                                                                                                                                                                                                                                             |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    |    | 64 | B35, –       | *35:10, 35:13, 35:28, 35:69, 35:80                                                                                                                                                                                                                                                                                                                                                                                               |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 61 | 62 |    | 64 | B35          | *35:14:01-35:14:02, 35:62                                                                                                                                                                                                                                                                                                                                                                                                        |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    |    | 64 | B35          | *35:16                                                                                                                                                                                                                                                                                                                                                                                                                           |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 61 |    |    | 64 | B35, –       | *35:17, 35:30, 35:113, 35:125                                                                                                                                                                                                                                                                                                                                                                                                    |
|    |    |    |    |    |    |    |    |    |    |    |    |    | 55 |    |    |    |    |    |    |    |    | 64 | B35, –       | *35:19                                                                                                                                                                                                                                                                                                                                                                                                                           |
|    |    |    |    |    |    |    | 49 |    |    |    |    |    |    |    |    |    |    |    | 61 |    |    | 64 | B35, B78, –  | *35:21, 35:24:01-35:24:02, 35:81, 35:96, 35:109                                                                                                                                                                                                                                                                                                                                                                                  |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 64 | B35          | *35:25, 35:49                                                                                                                                                                                                                                                                                                                                                                                                                    |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 64 | B35          | *35:26                                                                                                                                                                                                                                                                                                                                                                                                                           |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 61 |    |    | 64 | B35          | *35:35                                                                                                                                                                                                                                                                                                                                                                                                                           |
|    |    |    |    |    |    | 48 |    |    |    |    |    |    |    |    |    |    |    |    | 61 |    |    | 64 | B35, –       | *35:38, 35:115                                                                                                                                                                                                                                                                                                                                                                                                                   |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 58 |    |    | 61 |    |    | 64 | –            | *35:42:02                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 |              | Well No.                                                                                                                                                                                                                                                                                                                                                                                                                         |

Lot No.: **24M**

Lot-specific Information

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| Well No.                                                                      |              | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |
|-------------------------------------------------------------------------------|--------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| *35:43:01, 35:44, 35:67, 35:79, 35:86, 35:102, 35:117, 35:135                 | B35, –       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 38 |    |    |    |
| *35:43:02                                                                     | –            |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 38 |    |    |    |
| *35:45, 35:71                                                                 | B35          |    |    |    |    |    |    |    |    |    |    | 33 |    |    |    |    | 37 | 38 |    |    |    |
| *35:46                                                                        | B35          |    |    |    | 25 |    |    |    |    |    |    |    |    |    |    |    | 37 |    |    |    |    |
| *35:47                                                                        | B35          |    |    |    | 25 |    |    |    |    |    |    |    |    |    |    |    | 37 |    |    |    |    |
| *35:60                                                                        | B35          |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 38 |    |    |    |
| *35:63                                                                        | –            |    |    |    | 25 |    |    |    |    |    |    |    |    |    |    |    | 37 |    |    |    |    |
| *35:66                                                                        | B35          | 22 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 38 |    |    |    |
| *35:76                                                                        | B35, 22      |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 37 | 38 |    |    |    |
| *35:87                                                                        | –            | 22 |    |    |    |    |    |    | 29 |    |    |    |    |    |    |    |    | 38 |    |    |    |
| *37:01:01-37:01:07, 37:03N, 37:06, 37:13, 37:15-37:21, 37:23-37:25            | B37, Null, – |    |    |    |    |    |    |    |    |    |    |    | 33 |    |    |    | 37 |    |    | 40 |    |
| *37:02                                                                        | B37, B27     |    |    |    |    | 26 |    |    |    |    |    |    | 33 |    |    |    |    |    |    | 40 |    |
| *37:04:01-37:04:02                                                            | B37, –       |    |    |    |    |    |    |    |    |    |    |    | 33 |    |    |    | 37 |    |    | 40 |    |
| *37:05                                                                        | Blank        |    |    |    |    |    |    |    |    |    |    |    | 33 |    |    |    | 37 |    |    | 40 |    |
| *37:07                                                                        | –            | 22 |    |    |    |    |    |    |    |    |    |    | 33 |    |    |    |    |    |    | 40 |    |
| *37:08                                                                        | B37          |    |    |    |    |    |    |    |    |    |    |    | 33 |    |    |    | 37 |    |    | 40 |    |
| *37:09                                                                        | B37          |    |    |    |    |    |    |    |    |    |    |    | 33 |    |    |    |    |    |    | 40 |    |
| *37:10, 37:22                                                                 | B37, –       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 37 |    |    | 40 |    |
| *37:11                                                                        | –            |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 37 | 38 |    | 40 |    |
| *37:12                                                                        | B37          |    |    |    |    |    |    |    | 29 |    |    |    | 33 |    |    |    |    |    |    | 40 |    |
| *37:14                                                                        | –            |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 37 |    |    | 40 |    |
| *38:01:01-38:02:02, 38:08-38:09, 38:11-38:16, 38:18-38:19, 38:21, 38:23-38:24 | B38, –       |    |    |    |    | 26 |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 41 |
| *38:02:03                                                                     | –            |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 41 |
| *38:03                                                                        | B38          |    |    |    |    | 26 |    |    |    |    |    | 32 |    |    |    |    |    |    |    |    | 41 |
| *38:04, 38:25                                                                 | B38, –       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 41 |
| *38:05                                                                        | B38          |    |    |    |    |    | 27 |    |    |    |    |    |    |    |    |    |    |    |    |    | 41 |
| *38:06                                                                        | B38          |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 41 |
| *38:07                                                                        | B38          |    |    |    |    | 26 |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 41 |
| *38:10                                                                        | B38          |    |    |    |    | 26 |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 41 |
| *38:17                                                                        | –            |    |    |    |    | 26 |    |    |    |    |    |    | 33 |    |    |    |    |    |    | 40 | 41 |
| *38:20                                                                        | –            |    |    |    |    | 26 |    |    |    |    |    |    |    |    |    |    | 37 |    |    |    | 41 |
| *38:22                                                                        | –            |    |    |    |    | 26 |    |    |    |    |    |    |    |    |    | 36 |    |    |    |    | 41 |
| *38:26                                                                        | –            |    |    |    |    | 26 |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 41 |
| Well No.                                                                      |              | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |

Lot No.: **24M**

Lot-specific Information

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|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|--------------------------------------------------------------------------------------|
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 61 | 62 |    | 64 | B35, – *35:43:01, 35:44, 35:67, 35:79, 35:86, 35:102, 35:117, 35:135                 |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 58 |    |    | 61 | 62 |    | 64 | – *35:43:02                                                                          |
|    |    |    |    |    |    | 48 |    |    |    |    |    |    |    |    |    |    |    |    | 61 |    |    | 64 | B35 *35:45, 35:71                                                                    |
|    |    |    |    |    |    |    |    |    | 51 |    |    |    |    |    |    |    |    |    |    |    |    | 64 | B35 *35:46                                                                           |
|    |    |    |    |    |    |    |    |    |    |    |    |    | 55 |    |    |    |    |    |    |    |    | 64 | B35 *35:47                                                                           |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 58 |    |    | 61 |    |    | 64 | B35 *35:60                                                                           |
|    |    |    |    |    |    |    |    |    |    |    |    |    | 55 | 56 |    |    |    |    |    |    |    | 64 | – *35:63                                                                             |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 61 |    |    | 64 | B35 *35:66                                                                           |
|    |    |    |    |    |    | 47 |    |    | 50 |    |    |    |    |    |    |    |    |    |    | w  |    | 64 | B35, 22 *35:76                                                                       |
|    |    |    |    | 46 |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 61 |    |    | 64 | – *35:87                                                                             |
|    |    |    |    |    |    | 48 |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    |    | 63 | B37, Null, – *37:01:01-37:01:07, 37:03N, 37:06, 37:13, 37:15-37:21, 37:23-37:25      |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    |    | 63 | B37, B27 *37:02                                                                      |
|    |    |    |    |    |    |    | 48 | 49 |    |    |    |    |    | 56 |    |    |    |    |    |    |    | 63 | B37, – *37:04:01-37:04:02                                                            |
|    |    |    |    |    |    | 48 |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    |    | 64 | Blank *37:05                                                                         |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    |    | 63 | – *37:07                                                                             |
|    |    |    |    |    |    | 48 |    |    |    |    |    |    |    |    |    |    |    |    | 61 |    |    | 63 | B37 *37:08                                                                           |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    |    | 63 | B37 *37:09                                                                           |
|    |    |    |    |    |    | 48 |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    |    | 63 | B37, – *37:10, 37:22                                                                 |
|    |    |    |    |    |    | 48 |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    |    | 64 | – *37:11                                                                             |
|    |    |    |    |    |    | 48 |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    |    | 63 | B37 *37:12                                                                           |
|    |    |    |    |    |    | 48 |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    |    | 63 | w – *37:14                                                                           |
| 42 | 43 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 63 | B38, – *38:01:01-38:02:02, 38:08-38:09, 38:11-38:16, 38:18-38:19, 38:21, 38:23-38:24 |
|    | 43 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 63 | – *38:02:03                                                                          |
| 42 |    |    |    |    |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    |    | 63 | B38 *38:03                                                                           |
|    | 43 |    |    |    |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    |    | 63 | B38, – *38:04, 38:25                                                                 |
| 42 | 43 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 63 | B38 *38:05                                                                           |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 61 |    |    | 63 | B38 *38:06                                                                           |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 61 |    |    | 63 | B38 *38:07                                                                           |
| 42 | 43 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 63 | B38 *38:10                                                                           |
| 42 | 43 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 63 | – *38:17                                                                             |
| 42 | 43 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 63 | – *38:20                                                                             |
| 42 | 43 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 63 | – *38:22                                                                             |
| 42 |    |    |    |    |    | 47 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 63 | – *38:26                                                                             |
| 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | Well No.                                                                             |

Lot No.: **24M**

Lot-specific Information

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| Well No.                                                                                                                                                                                                                                                           |                                                         | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| *39:01:01:01-<br>39:01:01:02L,<br>39:01:03-39:01:08,<br>39:01:10-39:01:12,<br>39:03, 39:05:01-<br>39:07, 39:09, 39:11,<br>39:14-39:15, 39:24,<br>39:26-39:29, 39:31,<br>39:35, 39:37-39:38Q,<br>39:40N-39:41, 39:44,<br>39:46, 39:48, 39:51-<br>39:57, 39:59-39:62 | B<br>3901,<br>B39,<br>Low<br>B39,<br>B16,<br>Null,<br>– |    |    |    |    | 26 |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 41 |
| *39:01:09, 39:12,<br>39:45                                                                                                                                                                                                                                         | B<br>3901,<br>B39, –                                    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 41 |
| *39:02:01, 39:08                                                                                                                                                                                                                                                   | B<br>3902,<br>B39                                       |    |    |    |    | 26 |    |    |    |    |    | 32 |    |    |    |    |    |    |    |    | 41 |
| *39:02:02, 39:13:01-<br>39:13:02, 39:23,<br>39:49                                                                                                                                                                                                                  | B<br>3902,<br>B39, –                                    |    |    |    |    |    |    |    |    |    |    | 32 |    |    |    |    |    |    |    |    | 41 |
| *39:04                                                                                                                                                                                                                                                             | B39                                                     |    |    |    |    | 27 |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 41 |
| *39:10, 39:16, 39:20                                                                                                                                                                                                                                               | B39                                                     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 41 |
| *39:17                                                                                                                                                                                                                                                             | B39                                                     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 41 |
| *39:18                                                                                                                                                                                                                                                             | B39                                                     |    |    |    |    | 26 |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 41 |
| *39:19:01                                                                                                                                                                                                                                                          | B39                                                     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 38 |    |    | 41 |
| *39:19:02                                                                                                                                                                                                                                                          | B39                                                     |    |    |    |    | 26 |    |    |    |    |    |    |    |    |    |    |    | 38 |    |    | 41 |
| *39:22                                                                                                                                                                                                                                                             | B39                                                     |    |    |    |    | 26 |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 41 |
| *39:36                                                                                                                                                                                                                                                             | –                                                       |    |    |    |    | 26 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *39:39                                                                                                                                                                                                                                                             | B39                                                     |    |    |    |    | 26 |    |    |    |    |    | 32 |    |    |    |    |    |    |    |    | 41 |
| *39:42                                                                                                                                                                                                                                                             | B39                                                     |    |    |    |    | 26 |    |    |    |    |    |    |    |    |    |    | 37 |    |    |    | 41 |
| *39:58                                                                                                                                                                                                                                                             | –                                                       |    |    |    |    | 26 |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 41 |
| *40:01:01-40:01:06,<br>40:01:08-40:01:10,<br>40:01:12-40:01:17,<br>40:07, 40:23, 40:51,<br>40:60, 40:66, 40:73,<br>40:79, 40:124:01,<br>40:139-40:140,<br>40:146-40:147,<br>40:150, 40:152-<br>40:153, 40:155N                                                     | B60,<br>B40,<br>Null,<br>–                              |    |    |    | 25 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *40:01:07, 40:53,<br>40:72:01-40:72:02,<br>40:77                                                                                                                                                                                                                   | B60,<br>B61                                             |    |    |    | 25 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *40:01:11                                                                                                                                                                                                                                                          | –                                                       |    |    |    | 25 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Well No.                                                                                                                                                                                                                                                           |                                                         | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |

Lot No.: **24M**

Lot-specific Information

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| 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | Well No.                                                                                                                                                                                                                                                                                                                      |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | 43 | 44 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 64 | B<br>3901,<br>B39,<br>Low<br>B39,<br>B16,<br>Null,<br>–<br>*39:01:01:01-<br>39:01:01:02L,<br>39:01:03-39:01:08,<br>39:01:10-39:01:12,<br>39:03, 39:05:01-<br>39:07, 39:09, 39:11,<br>39:14-39:15, 39:24,<br>39:26-39:29, 39:31,<br>39:35, 39:37-39:38Q,<br>39:40N-39:41, 39:44,<br>39:46, 39:48, 39:51-<br>39:57, 39:59-39:62 |
|    | 43 | 44 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 64 | B<br>3901,<br>B39, –<br>*39:01:09, 39:12,<br>39:45                                                                                                                                                                                                                                                                            |
|    |    | 44 |    |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    |    |    | 64 | B<br>3902,<br>B39<br>*39:02:01, 39:08                                                                                                                                                                                                                                                                                         |
|    |    | 44 |    |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    |    |    | 64 | B<br>3902,<br>B39, –<br>*39:02:02, 39:13:01-<br>39:13:02, 39:23,<br>39:49                                                                                                                                                                                                                                                     |
|    | 43 | 44 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 64 | B39<br>*39:04                                                                                                                                                                                                                                                                                                                 |
|    |    | 44 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 64 | B39<br>*39:10, 39:16, 39:20                                                                                                                                                                                                                                                                                                   |
|    |    | 44 |    |    |    |    |    |    |    |    |    |    |    |    |    | 58 |    |    |    |    |    | 64 | B39<br>*39:17                                                                                                                                                                                                                                                                                                                 |
|    | 43 | 44 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 62 |    | 64 | B39<br>*39:18                                                                                                                                                                                                                                                                                                                 |
|    | 43 | 44 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 61 |    |    | 64 | B39<br>*39:19:01                                                                                                                                                                                                                                                                                                              |
|    | 43 | 44 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 61 |    |    | 64 | B39<br>*39:19:02                                                                                                                                                                                                                                                                                                              |
|    | 43 | 44 |    |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    |    |    | 64 | B39<br>*39:22                                                                                                                                                                                                                                                                                                                 |
|    | 43 | 44 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 62 |    | 64 | –<br>*39:36                                                                                                                                                                                                                                                                                                                   |
|    |    | 44 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 64 | B39<br>*39:39                                                                                                                                                                                                                                                                                                                 |
|    | 43 | 44 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 64 | B39<br>*39:42                                                                                                                                                                                                                                                                                                                 |
|    |    | 44 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 64 | –<br>*39:58                                                                                                                                                                                                                                                                                                                   |
|    |    | 44 | 45 |    |    |    |    |    |    |    |    |    | 55 | 56 |    |    |    |    |    |    |    | 64 | B60,<br>B40,<br>Null,<br>–<br>*40:01:01-40:01:06,<br>40:01:08-40:01:10,<br>40:01:12-40:01:17,<br>40:07, 40:23, 40:51,<br>40:60, 40:66, 40:73,<br>40:79, 40:124:01,<br>40:139-40:140,<br>40:146-40:147,<br>40:150, 40:152-<br>40:153, 40:155N                                                                                  |
|    |    | 44 |    |    |    |    |    |    |    |    |    |    | 55 | 56 |    |    |    |    |    |    |    | 64 | B60,<br>B61<br>*40:01:07, 40:53,<br>40:72:01-40:72:02,<br>40:77                                                                                                                                                                                                                                                               |
|    |    | 44 | 45 |    |    |    |    |    |    |    |    |    | 55 | 56 |    | 58 |    |    |    |    |    | 64 | –<br>*40:01:11                                                                                                                                                                                                                                                                                                                |
| 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | Well No.                                                                                                                                                                                                                                                                                                                      |

Lot No.: **24M**

Lot-specific Information

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| Well No.                                                                                                                                                                                                                                                                                                                                        |                            | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| *40:02:01-40:04,<br>40:20, 40:39-40:40,<br>40:89, 40:94, 40:97,<br>40:122, 40:142N-<br>40:144N                                                                                                                                                                                                                                                  | B61,<br>B41,<br>Null,<br>– |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *40:05                                                                                                                                                                                                                                                                                                                                          | B<br>4005,<br>B50          |    |    | 24 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *40:06:01:01-<br>40:06:03, 40:44,<br>40:70, 40:75, 40:83,<br>40:86, 40:103,<br>40:127, 40:131                                                                                                                                                                                                                                                   | B61, –                     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *40:08                                                                                                                                                                                                                                                                                                                                          | B61, –                     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *40:09, 40:11:01-<br>40:11:02, 40:18,<br>40:24, 40:27, 40:29,<br>40:35, 40:37, 40:50,<br>40:56-40:57, 40:64,<br>40:78, 40:82, 40:85,<br>40:90-40:91, 40:99,<br>40:104-40:105,<br>40:107, 40:111,<br>40:115, 40:119-<br>40:120, 40:133Q,<br>40:145                                                                                               | B61, –                     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *40:10:01-40:10:02,<br>40:22N, 40:33,<br>40:36, 40:38, 40:42-<br>40:43, 40:49, 40:52,<br>40:54-40:55, 40:61-<br>40:63, 40:65, 40:67,<br>40:81, 40:84, 40:87-<br>40:88, 40:92, 40:100-<br>40:102, 40:108,<br>40:112-40:114,<br>40:116, 40:118N,<br>40:123, 40:124:02-<br>40:126, 40:128,<br>40:130, 40:134,<br>40:141, 40:151,<br>40:154, 40:156 | B60,<br>Null,<br>–         |    |    |    | 25 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *40:12                                                                                                                                                                                                                                                                                                                                          | B60,<br>B48                |    |    |    |    |    |    |    | 29 |    |    | 32 |    |    |    |    |    |    | 39 |    |    |
| *40:13, 40:19                                                                                                                                                                                                                                                                                                                                   | B61, –                     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *40:14:01-40:14:03,<br>40:121, 40:129,<br>40:158                                                                                                                                                                                                                                                                                                | B60, –                     |    |    |    | 25 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *40:15, 40:32                                                                                                                                                                                                                                                                                                                                   | B40, –                     | 22 |    |    | 25 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *40:16                                                                                                                                                                                                                                                                                                                                          | B61                        | 22 |    |    | 25 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Well No.                                                                                                                                                                                                                                                                                                                                        |                            | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |

Lot No.: **24M**

Lot-specific Information

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| 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | Well No.                                                                                                                                                                                                                                                                                                      |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    |    |    |    |    |    |    |    |    |    |    |    |    | 55 | 56 |    |    |    |    |    |    |    | 64 | B61, B41, Null, –<br>*40:02:01-40:04, 40:20, 40:39-40:40, 40:89, 40:94, 40:97, 40:122, 40:142N-40:144N                                                                                                                                                                                                        |
|    |    |    |    |    |    |    |    |    |    |    |    |    | 55 | 56 |    |    |    |    |    |    |    | 64 | B4005, B50<br>*40:05                                                                                                                                                                                                                                                                                          |
|    |    | 44 |    |    |    |    |    |    |    |    |    |    | 55 | 56 |    |    |    |    |    |    |    | 64 | B61, –<br>*40:06:01-01-40:06:03, 40:44, 40:70, 40:75, 40:83, 40:86, 40:103, 40:127, 40:131                                                                                                                                                                                                                    |
|    |    |    |    |    |    |    |    |    |    |    |    |    | 55 |    |    |    |    |    |    |    |    | 64 | B61, –<br>*40:08                                                                                                                                                                                                                                                                                              |
|    |    | ?  |    |    |    |    |    |    |    |    |    |    | 55 | 56 |    |    |    |    |    |    |    | 64 | B61, –<br>*40:09, 40:11:01-40:11:02, 40:18, 40:24, 40:27, 40:29, 40:35, 40:37, 40:50, 40:56-40:57, 40:64, 40:78, 40:82, 40:85, 40:90-40:91, 40:99, 40:104-40:105, 40:107, 40:111, 40:115, 40:119-40:120, 40:133Q, 40:145                                                                                      |
|    |    | ?  | 45 |    |    |    |    |    |    |    |    |    | 55 | 56 |    |    |    |    |    |    |    | 64 | B60, Null, –<br>*40:10:01-40:10:02, 40:22N, 40:33, 40:36, 40:38, 40:42-40:43, 40:49, 40:52, 40:54-40:55, 40:61-40:63, 40:65, 40:67, 40:81, 40:84, 40:87-40:88, 40:92, 40:100-40:102, 40:108, 40:112-40:114, 40:116, 40:118N, 40:123, 40:124:02-40:126, 40:128, 40:130, 40:134, 40:141, 40:151, 40:154, 40:156 |
|    |    |    | 45 |    |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    |    | 64 | B60, B48<br>*40:12                                                                                                                                                                                                                                                                                            |
|    |    |    |    |    |    |    |    |    |    | 52 |    | 54 |    | 56 |    |    |    |    |    |    |    | 63 | B61, –<br>*40:13, 40:19                                                                                                                                                                                                                                                                                       |
|    |    | ?  |    |    |    |    |    |    |    |    |    |    | 55 | 56 |    |    |    |    |    |    |    | 64 | B60, –<br>*40:14:01-40:14:03, 40:121, 40:129, 40:158                                                                                                                                                                                                                                                          |
|    |    | ?  |    |    |    |    |    |    |    |    |    |    | 55 | 56 |    |    |    |    |    |    |    | 64 | B40, –<br>*40:15, 40:32                                                                                                                                                                                                                                                                                       |
|    |    | 44 |    |    |    |    |    |    |    |    |    |    | 55 | 56 |    |    |    |    |    |    |    | 64 | B61<br>*40:16                                                                                                                                                                                                                                                                                                 |
| 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | Well No.                                                                                                                                                                                                                                                                                                      |

Lot No.: **24M**

Lot-specific Information

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| Well No.                                                   |             | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |
|------------------------------------------------------------|-------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| *40:21                                                     | B40, B15    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *40:25, 40:69, 40:106                                      | B40, B60, – |    |    |    | 25 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *40:26                                                     | B21         |    |    |    |    |    |    |    |    | 30 |    |    |    |    |    |    |    |    |    |    |    |
| *40:28                                                     | –           |    |    |    |    |    |    |    |    | 30 |    |    |    |    |    |    | 37 |    |    |    |    |
| *40:30, 40:34                                              | B60         | 22 |    |    | 25 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *40:31, 40:45, 40:80                                       | B60, –      | 22 |    |    | 25 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *40:46                                                     | B60         |    |    |    |    |    |    |    |    |    |    | 32 |    |    |    | 36 |    |    |    |    |    |
| *40:47                                                     | B40         |    |    |    | 25 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *40:48                                                     | B60         |    |    |    | 25 |    |    |    |    |    | 31 |    |    |    |    |    |    |    |    |    |    |
| *40:58                                                     | B40         |    |    |    | 25 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *40:59                                                     | B40         | 22 |    |    | 25 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *40:68                                                     | –           |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *40:71                                                     | B61         |    |    | 24 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *40:74, 40:149                                             | B60, –      |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *40:76                                                     | B60         |    |    |    | 25 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *40:93                                                     | –           |    |    |    |    |    |    |    |    |    |    | 32 |    |    |    | 36 |    |    |    |    |    |
| *40:95                                                     | –           |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *40:96                                                     | –           |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *40:98                                                     | –           | 22 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *40:109                                                    | –           |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *40:110                                                    | –           |    |    |    | 25 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *40:117                                                    | –           |    |    |    | 25 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *40:132                                                    | –           |    |    |    | 25 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *40:135                                                    | –           |    |    |    | 25 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *40:136                                                    | –           |    |    |    | 25 |    |    |    | 29 |    |    |    |    | 34 |    |    |    |    |    |    |    |
| *40:137                                                    | –           | 22 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *40:138                                                    | –           |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *40:148                                                    | –           |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *40:157                                                    | –           |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *41:01, 41:03:01-41:03:02, 41:06-41:07, 41:12, 41:14-41:16 | B41, –      |    |    |    | 25 |    |    |    | 29 |    |    |    |    |    |    |    |    |    |    |    |    |
| *41:02:01-41:02:03, 41:11, 41:13                           | B41, –      | 22 |    |    | 25 |    |    |    | 29 |    |    |    |    |    |    |    |    |    |    |    |    |
| *41:04, 41:10                                              | B41, –      | 22 |    |    | 25 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *41:05                                                     | B41         |    |    |    | 25 |    |    |    | 29 |    |    |    |    |    |    |    |    |    |    |    |    |
| *41:08                                                     | B41         |    |    |    | 25 |    |    |    | 29 |    |    |    |    | 34 |    |    |    |    |    |    |    |
| *41:09, 45:02-45:03 <sup>8</sup>                           | B45, –      |    |    |    | 25 |    |    |    | 29 |    |    |    |    |    |    |    |    |    |    |    |    |
| *42:01:01-42:02, 42:06, 42:10, 42:12                       | B42, –      | 22 |    |    |    |    |    |    | 29 |    |    |    |    |    |    |    |    |    |    |    |    |
| *42:04, 42:14                                              | B42, –      |    |    |    |    |    |    |    | 29 |    |    |    |    |    |    |    |    |    |    |    |    |
| *42:05:01-42:05:02                                         | B42         | 22 |    |    |    |    |    |    | 29 |    |    |    |    | 34 |    |    |    |    |    |    |    |
| *42:08                                                     | B42         |    |    |    |    |    |    |    | 29 |    |    |    |    |    |    |    |    |    |    |    |    |
| *42:09                                                     | B42         | 22 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *42:11                                                     | –           | 22 |    |    |    |    |    |    | 29 |    |    | 32 |    |    |    |    |    |    |    |    |    |
| *42:13                                                     | –           | 22 |    |    |    |    |    |    | 29 |    |    |    |    |    |    |    |    |    |    |    |    |
| Well No.                                                   |             | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |

Lot No.: **24M**

Lot-specific Information

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| 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 |             | Well No.                                                   |         |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-------------|------------------------------------------------------------|---------|
|    |    | ?  | 45 |    |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    |    | 64 | B40, B15    | *40:21                                                     |         |
|    |    | ?  | 45 |    |    |    |    |    |    |    |    |    |    | 55 |    |    |    |    |    |    |    | 64 | B40, B60, – | *40:25, 40:69, 40:106                                      |         |
|    |    | ?  |    |    |    |    |    |    |    |    |    |    |    | 55 | 56 |    |    |    |    |    |    | 64 | B21         | *40:26                                                     |         |
|    |    | ?  |    |    |    |    | 49 |    |    |    |    |    |    | 55 | 56 |    |    |    |    |    |    | 64 | –           | *40:28                                                     |         |
|    |    | ?  | 45 |    |    |    |    |    |    |    |    |    |    | 55 | 56 |    |    |    |    |    |    | 64 | B60         | *40:30, 40:34                                              |         |
|    |    | ?  |    |    |    |    |    |    | 51 |    |    |    |    | 55 | 56 |    |    |    |    |    |    | 64 | B60, –      | *40:31, 40:45, 40:80                                       |         |
|    |    | ?  | 45 |    |    |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    | 64 | B60         | *40:46                                                     |         |
|    |    |    | 45 |    |    |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    | 63 |    | B40         | *40:47                                                     |         |
|    |    | ?  | 45 |    |    |    |    |    |    |    |    |    |    | 55 | 56 |    |    |    |    |    |    | 64 | B60         | *40:48                                                     |         |
|    |    | ?  |    |    |    |    |    |    |    |    |    |    |    | 55 | 56 |    | 58 |    |    |    |    | 64 | B40         | *40:58                                                     |         |
|    |    | 44 | 45 |    |    |    |    |    |    |    |    |    |    | 55 | 56 |    |    |    |    |    |    | 64 | B40         | *40:59                                                     |         |
|    |    | ?  |    |    |    |    |    |    |    |    |    |    |    | 55 |    |    |    |    |    |    |    | 64 | –           | *40:68                                                     |         |
|    |    | ?  |    |    |    |    |    |    |    |    |    |    |    | 55 | 56 |    | 59 |    |    |    |    | 64 | B61         | *40:71                                                     |         |
|    |    | ?  | 45 |    |    |    |    |    |    |    |    |    |    | 55 | 56 |    |    |    |    |    |    | 64 | B60, –      | *40:74, 40:149                                             |         |
|    |    |    | 45 |    |    |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    |    | B60         | *40:76                                                     |         |
|    |    | 44 |    |    |    |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    | 64 | –           | *40:93                                                     |         |
|    |    | ?  |    |    |    |    |    |    |    |    | 53 |    |    | 55 | 56 |    |    |    |    |    |    | 64 | –           | *40:95                                                     |         |
|    |    | 44 |    |    |    |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    | 63 |    | –           | *40:96                                                     |         |
|    |    | ?  |    |    |    |    |    |    |    |    |    |    |    | 55 | 56 |    |    |    |    |    |    | 64 | –           | *40:98                                                     |         |
|    |    | 44 |    |    |    |    |    |    |    | 52 |    | 54 |    |    | 56 |    |    |    |    |    |    | 63 |             | –                                                          | *40:109 |
|    |    | 44 |    |    |    |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    | 63 |             | –                                                          | *40:110 |
|    |    |    | 45 |    |    |    |    |    |    | 52 |    | 54 |    |    | 56 |    |    |    |    |    |    | 63 |             | –                                                          | *40:117 |
|    |    | ?  | 45 |    |    | 48 |    |    |    |    |    |    |    | 55 | 56 |    |    |    |    |    |    | 64 | –           | *40:132                                                    |         |
|    |    |    | 45 |    |    |    |    |    |    |    |    |    |    | 55 | 56 |    |    |    |    |    |    | 64 | –           | *40:135                                                    |         |
|    |    | ?  |    | 46 |    |    |    |    |    |    |    |    |    | 55 | 56 |    |    |    |    |    |    | 64 | –           | *40:136                                                    |         |
|    |    | ?  | 45 |    |    |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    | 64 | –           | *40:137                                                    |         |
|    |    | 44 | 45 |    |    |    |    |    |    |    |    |    |    | 55 | 56 |    |    |    |    |    |    | 64 | –           | *40:138                                                    |         |
|    |    | 44 |    |    |    |    |    |    |    |    | 53 |    |    | 55 | 56 |    |    |    |    |    |    | 64 | –           | *40:148                                                    |         |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    | 63 |    | –           | *40:157                                                    |         |
|    |    | 44 |    | 46 |    |    |    |    |    |    |    |    |    | 55 | 56 |    |    |    |    |    |    | 64 | B41, –      | *41:01, 41:03:01-41:03:02, 41:06-41:07, 41:12, 41:14-41:16 |         |
|    |    | 44 |    | 46 |    |    |    |    |    |    |    |    |    | 55 | 56 |    |    |    |    |    |    | 64 | B41, –      | *41:02:01-41:02:03, 41:11, 41:13                           |         |
|    |    | 44 |    | 46 |    |    |    |    |    |    |    |    |    | 55 | 56 |    |    |    |    |    |    | 64 | B41, –      | *41:04, 41:10                                              |         |
|    |    | 44 |    | 46 |    |    |    |    |    |    |    |    |    | ?  | 56 |    |    |    |    |    |    | 64 | B41         | *41:05                                                     |         |
|    |    | 44 |    | 46 |    |    |    |    |    |    |    |    |    | 55 | 56 |    |    |    |    |    |    | 64 | B41         | *41:08                                                     |         |
|    |    | 44 |    |    |    |    |    |    |    |    |    |    |    | 55 | 56 |    |    |    |    |    |    | 64 | B45, –      | *41:09, 45:02-45:03 <sup>8</sup>                           |         |
|    |    | 44 |    | 46 | 47 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 64 | B42, –      | *42:01:01-42:02, 42:06, 42:10, 42:12                       |         |
|    |    | 44 |    | 46 | 47 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 64 | B42, –      | *42:04, 42:14                                              |         |
|    |    | 44 |    | 46 | 47 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 64 | B42         | *42:05:01-42:05:02                                         |         |
|    |    | 44 |    |    | 47 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 64 | B42         | *42:08                                                     |         |
|    |    | 44 |    | 46 | 47 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 64 | B42         | *42:09                                                     |         |
|    |    | 44 |    | 46 |    |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    | 64 | –           | *42:11                                                     |         |
|    |    | 44 |    | 46 | 47 | 48 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 64 | –           | *42:13                                                     |         |
| 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 |             | Well No.                                                   |         |

Lot No.: **24M**

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| Well No.                                                                                                                                                                                                                                                                                                       |                    | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| *44:02:01:01-<br>44:02:14, 44:11,<br>44:19N, 44:21-44:24,<br>44:27, 44:33-44:34,<br>44:48, 44:52N,<br>44:55, 44:59, 44:63,<br>44:66-44:68, 44:71-<br>44:74, 44:80, 44:84,<br>44:86-44:87, 44:89,<br>44:93, 44:101-<br>44:102, 44:104,<br>44:112-44:113                                                         | B44,<br>Null,<br>– |    |    |    | 25 |    |    |    |    |    |    |    |    |    |    |    | 37 |    |    |    |    |
| *44:03:01-44:03:06,<br>44:03:08-44:05:02,<br>44:13, 44:26,<br>44:28:01-44:30,<br>44:32, 44:35-44:36,<br>44:38-44:39, 44:42,<br>44:45, 44:51,<br>44:56N, 44:58N,<br>44:61N, 44:69-44:70,<br>44:76-44:79, 44:82,<br>44:85, 44:88, 44:92,<br>44:94, 44:96, 44:98,<br>44:105, 44:107-<br>44:109, 44:114-<br>44:115 | B44,<br>Null,<br>– |    |    |    | 25 |    |    |    |    |    |    |    |    |    |    |    | 37 |    |    |    |    |
| *44:03:07, 44:07,<br>44:81, 44:103,<br>44:111                                                                                                                                                                                                                                                                  | B44, –             |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 37 |    |    |    |    |
| *44:06                                                                                                                                                                                                                                                                                                         | B44                |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 37 |    |    |    |    |
| *44:08                                                                                                                                                                                                                                                                                                         | B44                |    |    | w  |    |    |    |    |    |    |    |    |    |    |    |    | 37 |    |    |    |    |
| *44:09                                                                                                                                                                                                                                                                                                         | B45                |    |    |    | 25 |    |    |    |    |    |    |    |    |    |    |    | 37 |    |    |    |    |
| *44:10                                                                                                                                                                                                                                                                                                         | B44                |    |    |    | 25 |    |    |    |    |    |    | 32 |    |    |    |    | 37 | 39 |    |    |    |
| *44:12                                                                                                                                                                                                                                                                                                         | B44                |    |    |    | 25 |    |    |    |    |    |    |    |    |    |    |    | 37 |    |    |    |    |
| *44:14                                                                                                                                                                                                                                                                                                         | B44                |    |    |    | 25 |    |    |    | 29 |    |    |    |    |    |    |    | 37 |    |    |    |    |
| *44:15                                                                                                                                                                                                                                                                                                         | B12                |    |    |    | 25 |    |    |    | 29 |    |    | 32 |    |    |    |    |    |    |    |    |    |
| *44:16, 44:91                                                                                                                                                                                                                                                                                                  | B47,<br>B44, –     |    |    |    | 25 |    | 27 |    |    |    |    |    |    |    |    |    | 37 |    |    |    |    |
| *44:17, 44:43:01-<br>44:43:02                                                                                                                                                                                                                                                                                  | B44, –             |    |    |    | 25 |    |    |    |    |    |    |    | 33 |    |    |    | 37 |    |    |    |    |
| *44:18                                                                                                                                                                                                                                                                                                         | B44                |    |    |    | 25 |    |    |    | 29 |    |    | 32 |    |    |    |    |    |    |    |    |    |
| *44:20, 44:100                                                                                                                                                                                                                                                                                                 | B44, –             |    |    |    | 25 |    |    |    | 29 |    |    |    |    |    |    |    |    |    |    |    |    |
| *44:25, 44:50                                                                                                                                                                                                                                                                                                  | B44                |    |    |    | 25 |    |    |    |    |    |    |    |    |    |    |    | 37 |    |    |    |    |
| *44:31                                                                                                                                                                                                                                                                                                         | B44                |    |    |    | 25 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *44:37, 44:64:01-<br>44:64:02                                                                                                                                                                                                                                                                                  | B44, –             |    |    |    | 25 |    | 27 |    |    |    |    |    |    |    |    |    | 37 |    |    |    |    |
| *44:40                                                                                                                                                                                                                                                                                                         | B44                |    |    |    |    |    |    |    |    |    |    | 32 |    |    |    | 36 | 37 |    |    |    |    |
| *44:41, 44:53, 44:99                                                                                                                                                                                                                                                                                           | B44, –             |    |    |    | 25 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Well No.                                                                                                                                                                                                                                                                                                       |                    | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |

Lot No.: **24M**

Lot-specific Information

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| 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | Well No.                                                                                                                                                                                                                                                                           |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    |    |    |    |    |    | 48 |    |    |    |    |    |    |    | 56 | 57 |    |    |    |    |    | 63 |    | B44, Null, –<br>*44:02:01:01-44:02:14, 44:11, 44:19N, 44:21-44:24, 44:27, 44:33-44:34, 44:48, 44:52N, 44:55, 44:59, 44:63, 44:66-44:68, 44:71-44:74, 44:80, 44:84, 44:86-44:87, 44:89, 44:93, 44:101-44:102, 44:104, 44:112-44:113                                                 |
|    |    |    |    |    |    | 48 |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    | 63 |    | B44, Null, –<br>*44:03:01-44:03:06, 44:03:08-44:05:02, 44:13, 44:26, 44:28:01-44:30, 44:32, 44:35-44:36, 44:38-44:39, 44:42, 44:45, 44:51, 44:56N, 44:58N, 44:61N, 44:69-44:70, 44:76-44:79, 44:82, 44:85, 44:88, 44:92, 44:94, 44:96, 44:98, 44:105, 44:107-44:109, 44:114-44:115 |
|    |    |    |    |    |    | 48 |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    | 63 |    | B44, –<br>*44:03:07, 44:07, 44:81, 44:103, 44:111                                                                                                                                                                                                                                  |
|    |    |    |    |    |    | 48 |    |    |    |    |    | 54 |    |    | 57 |    |    |    | 61 |    | 63 |    | B44<br>*44:06                                                                                                                                                                                                                                                                      |
|    |    |    |    |    |    | 48 |    |    |    |    |    |    |    | 56 | 57 |    |    |    |    |    | 63 |    | B44<br>*44:08                                                                                                                                                                                                                                                                      |
|    |    |    |    |    |    | 48 |    |    |    |    |    |    | 55 | 56 | 57 |    |    |    |    |    | 64 |    | B45<br>*44:09                                                                                                                                                                                                                                                                      |
|    |    |    |    |    |    | 48 |    |    |    |    |    |    |    | 56 |    |    | 59 |    |    |    | 63 |    | B44<br>*44:10                                                                                                                                                                                                                                                                      |
|    |    |    |    |    |    | 48 |    |    |    |    |    |    |    |    | 57 |    |    |    |    |    | 63 |    | B44<br>*44:12                                                                                                                                                                                                                                                                      |
|    |    |    |    |    |    | 48 |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    | 63 |    | B44<br>*44:14                                                                                                                                                                                                                                                                      |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    | 56 |    |    | 59 |    |    |    | 63 |    | B12<br>*44:15                                                                                                                                                                                                                                                                      |
|    |    |    |    |    |    | 48 |    |    |    |    |    |    |    | 56 | 57 |    |    |    |    |    | 63 |    | B47, B44, –<br>*44:16, 44:91                                                                                                                                                                                                                                                       |
|    |    |    |    |    |    | 48 |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    | 63 |    | B44, –<br>*44:17, 44:43:01-44:43:02                                                                                                                                                                                                                                                |
|    |    |    |    |    |    |    |    |    |    | 52 |    |    |    | 56 |    |    | 59 |    |    |    | 63 |    | B44<br>*44:18                                                                                                                                                                                                                                                                      |
|    |    |    |    |    |    | 48 |    |    |    |    |    |    |    | 56 | 57 |    |    |    |    |    | 63 |    | B44, –<br>*44:20, 44:100                                                                                                                                                                                                                                                           |
|    |    |    |    |    |    | 48 |    |    |    | 52 |    | 54 |    | 56 |    |    |    |    |    |    | 63 |    | B44<br>*44:25, 44:50                                                                                                                                                                                                                                                               |
|    |    | 45 |    |    |    | 48 |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    | 63 |    | B44<br>*44:31                                                                                                                                                                                                                                                                      |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    | 63 |    | B44, –<br>*44:37, 44:64:01-44:64:02                                                                                                                                                                                                                                                |
|    |    |    |    |    |    | 48 |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    | 63 |    | B44<br>*44:40                                                                                                                                                                                                                                                                      |
|    |    |    |    |    |    | 48 |    |    |    |    |    |    |    | 56 | 57 |    |    |    |    |    | 63 |    | B44, –<br>*44:41, 44:53, 44:99                                                                                                                                                                                                                                                     |
| 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | Well No.                                                                                                                                                                                                                                                                           |

Lot No.: **24M**

Lot-specific Information

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| Well No.                                                                       |              | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |
|--------------------------------------------------------------------------------|--------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| *44:44                                                                         | B44          |    |    |    |    |    |    |    |    |    |    | 32 |    |    |    | 36 | 37 |    |    |    |    |
| *44:46, 44:75                                                                  | B12, –       |    |    |    | 25 |    |    |    |    |    |    |    |    |    |    |    | 37 |    |    |    |    |
| *44:47, 44:65                                                                  | B44, –       |    |    |    | 25 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *44:49                                                                         | B44          |    | 23 |    | 25 |    |    |    |    |    |    |    |    |    |    |    | 37 |    |    |    |    |
| *44:54                                                                         | B44          |    |    | 24 | 25 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *44:57                                                                         | –            |    |    | w  |    |    |    |    |    |    |    |    |    |    |    |    | 37 |    |    |    |    |
| *44:60, 44:110                                                                 | –            |    |    | 24 | 25 |    |    |    |    |    |    |    |    |    |    |    | 37 |    |    |    |    |
| *44:62                                                                         | –            |    |    |    | 25 |    |    |    | 29 | 30 |    |    |    |    |    |    | 37 |    |    |    |    |
| *44:83                                                                         | –            |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 37 |    |    |    |    |
| *44:90                                                                         | –            |    |    |    | 25 |    |    |    |    |    |    |    |    |    |    |    | 37 |    |    |    |    |
| *44:95                                                                         | –            |    |    |    | 25 |    |    |    |    |    |    |    |    |    |    |    | 37 |    |    |    |    |
| *44:97                                                                         | –            |    |    |    | 25 |    |    |    |    |    |    |    |    |    |    |    | 37 |    |    |    |    |
| *44:106                                                                        | –            |    |    | 24 | 25 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *45:01, 45:05, 45:07, 45:11-45:13                                              | B45, –       |    |    |    | 25 |    |    |    | 29 |    |    | 32 |    |    |    |    |    |    |    |    |    |
| *45:04                                                                         | B21          |    |    |    | 25 |    |    |    | 29 |    |    |    |    |    |    |    |    |    |    |    |    |
| *45:06                                                                         | B45          |    |    |    | 25 |    |    |    | 29 |    |    | 32 |    |    |    |    |    |    |    |    |    |
| *45:08                                                                         | –            |    |    |    | 25 |    |    |    | 29 |    |    |    |    |    |    |    |    |    |    |    |    |
| *45:09                                                                         | –            |    |    |    | 25 |    |    |    | 29 |    |    |    | 33 |    |    |    |    |    |    |    |    |
| *45:10                                                                         | –            |    |    |    | 25 |    |    |    | 29 |    | 31 |    |    |    |    |    |    |    |    |    |    |
| *46:01:01-46:01:05, 46:04-46:05, 46:07N, 46:09-46:10, 46:14-46:16, 46:22-46:24 | B46, Null, – |    |    |    |    |    |    | 28 |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *46:02                                                                         | B46          |    |    |    |    |    |    | 28 |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *46:03, 46:08, 46:13:01-46:13:03, 46:19, 46:21:01-46:21:02, 46:25-46:26        | B46, –       |    |    |    |    |    |    | 28 |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *46:06                                                                         | –            |    |    |    |    |    |    | 28 |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *46:11                                                                         | B22          |    |    |    |    |    |    | 28 |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *46:12, 46:20                                                                  | –            |    |    | 24 |    |    |    | 28 |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *46:17                                                                         | –            |    |    |    |    |    |    | 28 |    |    |    |    | 33 |    |    |    |    |    |    |    |    |
| *46:18                                                                         | –            |    |    |    |    |    |    | 28 |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *47:01:01:01-47:01:01:02, 47:06-47:07                                          | B47, –       |    |    |    | 25 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *47:02                                                                         | B47          |    |    |    | 25 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *47:03                                                                         | B47          |    |    |    | 25 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *47:04-47:05                                                                   | B17, –       |    |    |    | 25 | 26 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *48:01:01-48:01:03, 48:07, 48:09, 48:11, 48:15, 48:19-48:20, 48:22             | B48, –       | 22 |    |    |    |    |    |    |    |    |    | 32 |    |    |    |    |    |    |    |    |    |
| *48:02:01-48:02:02                                                             | B48, B70     |    |    |    |    |    |    |    |    |    |    | 32 |    |    |    |    | 37 |    |    |    |    |
| *48:03:01-48:03:02, 48:23                                                      | B48, –       |    |    |    |    |    |    |    |    |    |    | 32 |    |    |    |    |    |    |    |    |    |
| Well No.                                                                       |              | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |

Lot No.: **24M**

Lot-specific Information

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| 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 |               | Well No.                                                                       |        |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---------------|--------------------------------------------------------------------------------|--------|
|    |    |    |    |    |    | 48 |    |    |    |    |    |    |    | 56 | 57 |    |    |    |    |    | 63 |    | B44           | *44:44                                                                         |        |
|    |    |    |    |    |    | 48 |    |    |    |    |    |    | 55 | 56 |    |    |    |    |    |    |    | 64 | B12, –        | *44:46, 44:75                                                                  |        |
|    |    |    |    |    |    | 48 |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    |    | 63 | B44, –        | *44:47, 44:65                                                                  |        |
|    |    |    |    |    |    | 48 |    |    |    |    |    |    |    | 56 | 57 |    |    |    |    |    |    | 63 | B44           | *44:49                                                                         |        |
|    |    |    |    |    |    | 48 |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    |    | 63 | B44           | *44:54                                                                         |        |
|    |    |    |    |    |    | 48 |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    |    | 63 | –             | *44:57                                                                         |        |
|    |    |    |    |    |    | 48 |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    |    | 63 | –             | *44:60, 44:110                                                                 |        |
|    |    |    |    |    |    | 48 |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    |    | 63 | –             | *44:62                                                                         |        |
|    |    |    |    |    |    | 48 |    |    |    |    |    |    |    | 56 | 57 |    |    |    |    |    |    | 63 | –             | *44:83                                                                         |        |
|    |    |    |    |    | 47 | 48 |    | 50 |    |    |    |    | 55 | 56 | 57 |    |    |    |    |    |    | 64 | –             | *44:90                                                                         |        |
|    |    |    |    |    |    | 48 |    |    |    | 52 |    | 54 |    | 56 | 57 |    |    |    |    |    |    | 63 | –             | *44:95                                                                         |        |
|    |    |    |    |    | 47 | 48 |    | 50 |    |    |    |    |    | 56 | 57 |    |    |    |    |    |    | 63 | –             | *44:97                                                                         |        |
|    |    |    |    |    |    | 48 |    |    |    |    |    |    |    | 56 | 57 |    |    |    |    |    |    | 63 | –             | *44:106                                                                        |        |
|    |    | 44 |    |    |    |    |    |    |    |    |    |    | 55 | 56 |    |    | 59 |    |    |    |    | 64 | B45, –        | *45:01, 45:05, 45:07, 45:11-45:13                                              |        |
|    |    | 44 |    |    |    |    |    |    |    |    |    |    | 55 | 56 |    |    | 59 |    |    |    |    | 64 | B21           | *45:04                                                                         |        |
|    |    | 44 |    |    | 47 |    |    |    |    |    |    |    | 55 | 56 |    |    | 59 |    |    |    |    | 64 | B45           | *45:06                                                                         |        |
|    |    | 44 |    |    |    |    |    |    |    |    |    |    | 55 | 56 |    | 58 |    |    |    |    |    | 64 | –             | *45:08                                                                         |        |
|    |    | 44 |    |    |    |    |    |    |    |    |    |    | 55 | 56 |    |    |    |    |    |    |    | 64 | –             | *45:09                                                                         |        |
|    |    | 44 |    |    |    |    |    |    |    |    |    |    | 55 | 56 |    |    |    |    |    |    |    | 64 | –             | *45:10                                                                         |        |
|    |    |    |    |    |    | 47 | 49 |    |    |    |    |    |    |    |    |    |    |    |    |    | 62 | 64 | B46, Null, –  | *46:01:01-46:01:05, 46:04-46:05, 46:07N, 46:09-46:10, 46:14-46:16, 46:22-46:24 |        |
|    |    |    |    |    | w  |    | 49 |    |    |    |    |    |    |    |    |    |    |    |    |    | 62 | 64 | B46           | *46:02                                                                         |        |
|    |    |    |    |    |    | 47 | 49 |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 64 | B46, –        | *46:03, 46:08, 46:13:01-46:13:03, 46:19, 46:21:01-46:21:02, 46:25-46:26        |        |
|    |    | 45 |    |    | 47 | 49 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 64 | –             | *46:06                                                                         |        |
|    |    |    |    |    | 47 | 49 |    |    |    |    |    |    |    |    |    |    | 59 |    |    |    |    | 64 | B22           | *46:11                                                                         |        |
|    |    |    |    |    | 47 | 49 |    |    |    |    |    |    |    |    |    |    |    |    |    | 62 | 64 | –  | *46:12, 46:20 |                                                                                |        |
|    |    |    |    |    | 47 | 49 |    |    |    |    |    |    |    |    |    |    |    |    |    | 62 | 64 | –  | *46:17        |                                                                                |        |
|    |    |    |    |    | 47 | 49 |    |    |    |    |    |    |    |    |    | 58 |    |    |    |    |    | 64 | –             | *46:18                                                                         |        |
|    |    |    |    |    |    |    |    | 50 |    |    |    |    |    | 56 |    |    |    |    |    |    |    | 63 | B47, –        | *47:01:01:01-47:01:01:02, 47:06-47:07                                          |        |
|    |    |    |    |    |    |    |    | 50 |    |    |    |    | 55 | 56 |    |    |    |    |    |    |    | 64 | B47           | *47:02                                                                         |        |
|    |    |    |    |    |    |    |    | 50 |    |    |    |    | w  | 56 |    |    |    |    |    |    |    | 63 | w             | B47                                                                            | *47:03 |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    |    | 63 | B17, –        | *47:04-47:05                                                                   |        |
|    |    | 44 |    |    |    |    |    |    | 51 |    |    |    |    | 56 |    |    |    |    |    |    |    | 64 | B48, –        | *48:01:01-48:01:03, 48:07, 48:09, 48:11, 48:15, 48:19-48:20, 48:22             |        |
|    |    | 44 |    |    |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    |    | 64 | B48, B70      | *48:02:01-48:02:02                                                             |        |
|    |    | 44 | 45 |    |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    |    | 64 | B48, –        | *48:03:01-48:03:02, 48:23                                                      |        |
| 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 |               | Well No.                                                                       |        |

Lot No.: **24M**

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| Well No.                                                                                                                                                                                                                                                                                                                                                      |                              | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| *48:04, 48:24                                                                                                                                                                                                                                                                                                                                                 | B48, –                       |    |    |    |    |    |    |    |    |    |    | 32 |    |    |    |    |    |    |    |    |    |
| *48:05, 48:08, 48:10, 48:12, 48:14                                                                                                                                                                                                                                                                                                                            | B48, –                       | 22 |    |    |    |    |    |    |    |    |    | 32 |    |    |    |    |    |    |    |    |    |
| *48:06                                                                                                                                                                                                                                                                                                                                                        | –                            | 22 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *48:13                                                                                                                                                                                                                                                                                                                                                        | –                            |    |    |    |    |    |    |    |    |    |    | 32 |    |    |    |    |    |    |    |    |    |
| *48:16                                                                                                                                                                                                                                                                                                                                                        | B48                          | 22 |    |    |    |    |    |    |    |    |    | 32 |    |    |    |    |    |    |    |    |    |
| *48:17                                                                                                                                                                                                                                                                                                                                                        | –                            | 22 |    |    |    |    |    |    |    |    |    | 32 |    |    |    |    |    |    |    |    |    |
| *48:18                                                                                                                                                                                                                                                                                                                                                        | B48                          | 22 |    |    |    |    |    |    |    |    |    | 32 |    |    |    |    |    |    |    |    |    |
| *48:21                                                                                                                                                                                                                                                                                                                                                        | –                            |    |    |    |    | 26 |    |    |    |    |    | 32 |    |    |    |    |    |    |    |    |    |
| *49:01:01, 49:06, 49:08-49:10, 49:12-49:15                                                                                                                                                                                                                                                                                                                    | B49, –                       |    |    |    | 25 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *49:01:02, 49:11                                                                                                                                                                                                                                                                                                                                              | B49, –                       |    |    |    | 25 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *49:02                                                                                                                                                                                                                                                                                                                                                        | B49                          |    |    |    | 25 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *49:03                                                                                                                                                                                                                                                                                                                                                        | B49                          |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *49:04-49:05                                                                                                                                                                                                                                                                                                                                                  | B49                          |    |    |    | 25 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *49:07                                                                                                                                                                                                                                                                                                                                                        | –                            |    |    |    | 25 |    |    |    |    |    | 31 |    |    |    |    |    |    |    |    |    |    |
| *50:01:01-50:01:02, 50:04-50:05, 50:08, 50:10-50:11                                                                                                                                                                                                                                                                                                           | B50, –                       |    |    |    | 25 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *50:02                                                                                                                                                                                                                                                                                                                                                        | B45                          |    |    |    | 25 |    |    |    |    |    |    | 32 |    |    |    |    |    |    |    |    |    |
| *50:06                                                                                                                                                                                                                                                                                                                                                        | –                            |    |    |    | 25 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *50:07                                                                                                                                                                                                                                                                                                                                                        | –                            |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *50:09                                                                                                                                                                                                                                                                                                                                                        | –                            |    |    |    | 25 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *50:12                                                                                                                                                                                                                                                                                                                                                        | –                            |    |    |    | 25 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *51:01:01-51:01:03, 51:01:05-51:01:08, 51:01:10-51:02:03, 51:03, 51:05, 51:07:01-51:07:02, 51:09:01-51:09:02, 51:11N-51:12, 51:13:02-51:14, 51:16-51:19, 51:21-51:23, 51:26-51:33, 51:37-51:41N, 51:43, 51:48-51:53, 51:55, 51:57-51:58, 51:60, 51:63, 51:65-51:67, 51:69-51:77, 51:79-51:80, 51:82-51:91, 51:94-51:96, 51:98N, 51:100, 51:102-51:103, 51:105 | B51, B 5102, B 5103, Null, – |    |    |    |    |    |    |    |    | 30 |    |    |    |    |    |    |    |    |    |    |    |
| Well No.                                                                                                                                                                                                                                                                                                                                                      |                              | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |

Lot No.: **24M**

Lot-specific Information

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| 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 |                              | Well No.                                                                                                                                                                                                                                                                                                                                                      |                                            |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|
|    |    | 44 |    |    |    |    |    |    | 51 |    |    |    |    | 56 |    |    |    |    |    |    |    | 64 | B48, –                       | *48:04, 48:24                                                                                                                                                                                                                                                                                                                                                 |                                            |
|    |    | 44 |    |    |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    |    | 64 | B48, –                       | *48:05, 48:08, 48:10, 48:12, 48:14                                                                                                                                                                                                                                                                                                                            |                                            |
|    |    | 44 |    |    |    |    |    |    | 51 |    |    |    |    |    |    |    |    |    |    |    |    | 64 | –                            | *48:06                                                                                                                                                                                                                                                                                                                                                        |                                            |
|    |    | 44 |    |    |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    |    | 64 | –                            | *48:13                                                                                                                                                                                                                                                                                                                                                        |                                            |
|    |    | 44 |    |    |    |    |    |    | 51 |    |    |    |    |    |    |    |    |    |    |    |    | 64 | B48                          | *48:16                                                                                                                                                                                                                                                                                                                                                        |                                            |
|    |    | 44 | 45 |    |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    |    | 64 | –                            | *48:17                                                                                                                                                                                                                                                                                                                                                        |                                            |
|    |    |    |    |    |    |    |    |    | 51 |    |    |    |    | 56 |    |    |    |    |    |    | 63 |    | B48                          | *48:18                                                                                                                                                                                                                                                                                                                                                        |                                            |
|    |    | 44 |    |    |    |    |    |    |    |    |    |    |    | 56 |    |    |    |    |    |    |    | 64 | –                            | *48:21                                                                                                                                                                                                                                                                                                                                                        |                                            |
|    |    |    |    |    |    |    |    |    |    | 52 | 53 |    |    | 56 |    |    | 59 |    |    |    |    | 63 |                              | B49, –                                                                                                                                                                                                                                                                                                                                                        | *49:01:01, 49:06, 49:08-49:10, 49:12-49:15 |
|    |    |    |    |    |    |    |    |    |    | 52 |    |    |    | 56 |    |    | 59 |    |    |    |    | 63 |                              | B49, –                                                                                                                                                                                                                                                                                                                                                        | *49:01:02, 49:11                           |
|    |    |    |    |    |    |    |    |    |    |    | 53 |    |    | 56 |    |    | 59 |    |    |    |    | 63 |                              | B49                                                                                                                                                                                                                                                                                                                                                           | *49:02                                     |
|    |    |    |    |    |    |    |    |    |    |    | 53 |    |    | 56 |    |    | 59 |    |    |    |    | 63 |                              | B49                                                                                                                                                                                                                                                                                                                                                           | *49:03                                     |
|    |    |    |    |    |    |    |    |    |    | 52 | 53 |    |    | 56 |    |    |    |    |    |    |    | 63 |                              | B49                                                                                                                                                                                                                                                                                                                                                           | *49:04-49:05                               |
|    |    |    |    |    |    |    |    |    |    | 52 | 53 |    |    | 56 |    |    |    |    |    |    |    | 63 |                              | –                                                                                                                                                                                                                                                                                                                                                             | *49:07                                     |
|    |    | 44 |    |    |    |    |    |    |    |    | 53 |    | 55 | 56 |    |    | 59 |    |    |    |    | 64 | B50, –                       | *50:01:01-50:01:02, 50:04-50:05, 50:08, 50:10-50:11                                                                                                                                                                                                                                                                                                           |                                            |
|    |    | 44 |    |    |    |    |    |    |    |    | 53 |    | 55 | 56 |    |    | 59 |    |    |    |    | 64 | B45                          | *50:02                                                                                                                                                                                                                                                                                                                                                        |                                            |
|    |    | 44 |    |    |    |    |    |    |    |    | 53 |    |    | 56 |    |    | 59 |    |    |    |    | 64 | –                            | *50:06                                                                                                                                                                                                                                                                                                                                                        |                                            |
|    |    | 44 |    |    |    |    |    |    |    |    | 53 |    | 55 | 56 |    |    | 59 |    |    |    |    | 64 | –                            | *50:07                                                                                                                                                                                                                                                                                                                                                        |                                            |
|    |    | 44 |    |    |    |    |    |    |    |    | 53 |    | 55 | 56 |    |    |    |    |    |    |    | 64 | –                            | *50:09                                                                                                                                                                                                                                                                                                                                                        |                                            |
|    |    | 44 |    |    |    |    |    |    |    |    |    |    | 55 | 56 |    |    | 59 |    |    |    |    | 64 | –                            | *50:12                                                                                                                                                                                                                                                                                                                                                        |                                            |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | B51, B 5102, B 5103, Null, – | *51:01:01-51:01:03, 51:01:05-51:01:08, 51:01:10-51:02:03, 51:03, 51:05, 51:07:01-51:07:02, 51:09:01-51:09:02, 51:11N-51:12, 51:13:02-51:14, 51:16-51:19, 51:21-51:23, 51:26-51:33, 51:37-51:41N, 51:43, 51:48-51:53, 51:55, 51:57-51:58, 51:60, 51:63, 51:65-51:67, 51:69-51:77, 51:79-51:80, 51:82-51:91, 51:94-51:96, 51:98N, 51:100, 51:102-51:103, 51:105 |                                            |
| 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 |                              | Well No.                                                                                                                                                                                                                                                                                                                                                      |                                            |

Lot No.: **24M**

Lot-specific Information

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| Well No.                                                                                             |                         | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |
|------------------------------------------------------------------------------------------------------|-------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| *51:01:04, 51:02:04,<br>51:13:01, 51:24:01,<br>51:34-51:35, 51:92-<br>51:93, 51:99                   | B51,<br>B<br>5102,<br>– |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *51:01:09, 51:24:03-<br>51:24:04                                                                     | B51, –                  |    |    |    |    |    |    |    |    | 30 |    |    |    |    |    |    |    |    |    |    |    |
| *51:04, 51:46, 51:56                                                                                 | B51, –                  |    |    |    |    |    |    |    |    | 30 |    |    |    |    |    |    | 37 |    |    |    |    |
| *51:06, 51:59                                                                                        | B51, –                  |    |    |    |    |    |    |    |    | 30 |    |    |    |    |    |    |    |    |    |    |    |
| *51:08, 51:20,<br>51:44N, 51:97                                                                      | B51,<br>Null,           |    |    |    |    |    |    |    | 29 | 30 |    |    |    |    |    |    |    |    |    |    |    |
| *51:10                                                                                               | B51                     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *51:15, 51:62                                                                                        | –                       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *51:24:02                                                                                            | B51                     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *51:36                                                                                               | B51                     |    |    |    |    |    |    |    | 29 |    |    |    |    |    |    |    |    |    |    |    |    |
| *51:42                                                                                               | –                       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 37 |    |    |    |    |
| *51:45, 51:81                                                                                        | –                       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *51:54, 51:78                                                                                        | –                       |    |    |    |    |    |    |    |    | 30 |    |    |    |    |    |    |    |    |    |    |    |
| *51:61                                                                                               | –                       |    |    |    |    |    |    |    |    | 30 |    |    |    |    |    |    |    |    |    |    |    |
| *51:64                                                                                               | –                       |    |    | 24 |    |    |    |    |    | 30 |    |    |    |    |    |    |    |    |    |    |    |
| *51:68                                                                                               | –                       |    | 23 |    |    |    |    |    |    | 30 |    |    |    |    |    |    |    |    |    |    |    |
| *51:101                                                                                              | –                       |    |    |    |    |    |    |    |    | 30 |    |    |    |    |    |    |    |    |    |    | 41 |
| *51:104                                                                                              | –                       |    |    |    |    |    |    |    |    | 30 |    |    |    |    |    |    |    |    |    |    |    |
| *51:106                                                                                              | –                       |    |    |    |    |    |    |    |    | 30 |    |    |    |    |    |    |    |    |    |    |    |
| *52:01:01-52:01:04,<br>52:01:06-52:13,<br>52:15, 52:17-52:18,<br>52:22                               | B52, –                  |    |    |    |    |    |    |    |    | 30 |    |    |    |    |    |    |    |    |    |    |    |
| *52:01:05, 52:14                                                                                     | B52, –                  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *52:16                                                                                               | –                       |    |    |    |    |    |    |    |    | 30 |    | 32 |    |    |    |    |    |    |    |    |    |
| *52:19                                                                                               | –                       |    |    |    |    |    |    |    | 29 | 30 |    |    |    |    |    |    |    |    |    |    |    |
| *52:20                                                                                               | –                       |    |    |    |    |    |    |    |    | 30 |    |    |    |    |    |    |    |    |    |    |    |
| *52:21                                                                                               | –                       |    |    |    |    |    |    |    |    | 30 |    |    |    |    |    |    |    |    |    |    |    |
| *53:01:01-53:01:05,<br>53:04-53:05, 53:07-<br>53:08:02, 53:10,<br>53:16, 53:18-53:21,<br>53:23-53:24 | B53, –                  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 37 |    |    |    |    |
| *53:02, 53:06                                                                                        | B53,<br>B51             |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 37 |    |    |    |    |
| *53:03, 53:09, 53:11-<br>53:13                                                                       | B53,<br>B35             |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 37 |    |    |    |    |
| *53:14                                                                                               | –                       |    |    | 24 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *53:15                                                                                               | –                       | 22 |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 37 |    |    |    |    |
| *53:17                                                                                               | –                       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 37 |    |    |    |    |
| *53:22                                                                                               | –                       |    |    |    |    |    |    |    |    |    |    |    | 33 |    |    |    | 37 |    |    |    |    |
| *54:01-54:02,<br>54:05N, 54:07-<br>54:08N, 54:10,<br>54:13, 54:16-54:19,<br>54:21-54:23              | B54,<br>Null,<br>–      |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Well No.                                                                                             |                         | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |

Lot No.: **24M**

Lot-specific Information

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| 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | Well No.                                                                                       |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|------------------------------------------------------------------------------------------------|
|    |    |    |    |    |    |    |    |    |    |    | 53 | 54 |    |    |    |    |    |    | 61 |    | 63 |    | B51, B 5102, – *51:01:04, 51:02:04, 51:13:01, 51:24:01, 51:34-51:35, 51:92-51:93, 51:99        |
|    |    | 44 |    |    |    |    |    |    |    |    | 53 | 54 |    |    |    |    |    |    | 61 |    | 63 |    | B51, – *51:01:09, 51:24:03-51:24:04                                                            |
|    |    |    |    |    |    | 49 |    |    |    |    |    | 54 |    |    |    |    |    |    | 61 |    | 63 |    | B51, – *51:04, 51:46, 51:56                                                                    |
|    |    |    |    |    |    |    |    |    |    |    |    | 54 |    |    |    |    |    |    | 61 |    | 63 |    | B51, – *51:06, 51:59                                                                           |
|    |    |    |    |    |    |    |    |    |    |    | 53 | 54 |    |    |    |    |    |    | 61 |    | 63 |    | B51, Null, *51:08, 51:20, 51:44N, 51:97                                                        |
|    |    | 44 |    |    |    |    |    |    |    |    |    | 54 |    |    |    |    |    |    | 61 |    | 63 |    | B51 *51:10                                                                                     |
|    |    |    |    |    |    |    |    |    |    |    |    | 54 |    |    |    | 59 |    |    | 61 |    | 63 |    | – *51:15, 51:62                                                                                |
|    |    | 44 |    |    |    |    |    |    |    |    | 53 | 54 |    |    |    |    |    |    | 61 |    | 63 |    | B51 *51:24:02                                                                                  |
|    |    |    |    |    |    |    |    |    |    |    | 53 | 54 |    |    |    |    |    |    | 61 |    | 63 |    | B51 *51:36                                                                                     |
|    |    |    |    |    |    | 48 |    |    |    |    |    | 54 |    |    |    |    |    |    | 61 |    | 63 |    | – *51:42                                                                                       |
|    |    |    |    |    |    |    |    |    |    |    |    | 54 |    |    |    |    |    |    | 61 |    | 63 |    | – *51:45, 51:81                                                                                |
|    |    |    |    |    |    |    |    |    |    |    | 53 |    |    |    |    |    |    |    | 61 |    | 63 |    | – *51:54, 51:78                                                                                |
|    |    |    |    |    |    |    |    |    |    |    | w  | 54 |    |    |    |    |    |    | 61 | 62 | 63 |    | – *51:61                                                                                       |
|    |    |    |    |    |    |    |    |    |    |    |    | 54 |    |    |    |    |    |    | 61 |    | 63 |    | – *51:64                                                                                       |
|    |    |    |    |    |    |    |    |    |    |    | 53 | 54 |    |    |    |    |    |    | 61 |    | 63 |    | – *51:68                                                                                       |
|    |    |    |    |    |    |    |    |    |    |    | 53 | 54 |    |    |    |    |    |    | 61 |    | 63 |    | – *51:101                                                                                      |
|    |    |    |    |    |    |    |    |    | 51 |    | 53 | 54 |    |    |    |    |    |    |    |    | 63 |    | – *51:104                                                                                      |
|    |    |    |    |    |    |    |    |    |    |    | 53 | 54 |    |    |    | 59 |    |    | 61 |    | 63 |    | – *51:106                                                                                      |
|    |    |    |    |    |    |    |    |    |    |    | 53 | 54 |    | 56 |    |    |    |    |    |    | 63 |    | B52, – *52:01:01-52:01:04, 52:01:06-52:13, 52:15, 52:17-52:18, 52:22                           |
|    |    |    |    |    |    |    |    |    |    |    | 53 | 54 |    | 56 |    |    |    |    |    |    | 63 |    | B52, – *52:01:05, 52:14                                                                        |
|    |    |    |    |    |    |    |    |    |    |    | 53 | 54 |    | 56 |    |    |    |    |    |    | 63 |    | – *52:16                                                                                       |
|    |    |    |    |    |    |    |    |    |    |    | 53 | 54 |    | 56 |    |    |    |    |    |    | 63 |    | – *52:19                                                                                       |
|    |    |    |    |    |    |    |    |    |    |    | 53 |    |    | 56 |    |    |    |    |    |    | 63 |    | – *52:20                                                                                       |
|    |    |    |    |    |    |    |    |    |    |    | 53 | 54 |    | 56 |    |    |    |    |    | 62 | 63 |    | – *52:21                                                                                       |
|    |    |    |    |    |    |    |    |    |    |    |    | 54 |    |    |    |    |    |    | 61 |    | 63 |    | B53, – *53:01:01-53:01:05, 53:04-53:05, 53:07-53:08:02, 53:10, 53:16, 53:18-53:21, 53:23-53:24 |
|    |    |    |    |    |    | 49 |    |    |    |    |    | 54 |    |    |    |    |    |    | 61 |    | 63 |    | B53, B51 *53:02, 53:06                                                                         |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 61 |    | 63 |    | B53, B35 *53:03, 53:09, 53:11-53:13                                                            |
|    |    |    |    |    |    |    |    |    |    |    |    | 54 |    |    |    |    |    |    | 61 |    | 63 |    | – *53:14                                                                                       |
|    |    |    |    |    |    |    |    |    |    |    |    | 54 |    |    |    |    |    |    | 61 |    | 63 |    | – *53:15                                                                                       |
|    |    |    |    |    |    |    |    |    |    |    |    | 54 |    | 56 |    |    |    |    |    |    | 63 |    | – *53:17                                                                                       |
|    |    |    |    |    |    | 48 |    |    |    |    |    | 54 |    |    |    |    |    |    | 61 |    | 63 |    | – *53:22                                                                                       |
|    |    |    |    |    | 47 |    |    | 50 |    |    |    |    |    |    | 57 | 58 |    |    |    |    | 64 |    | B54, Null, – *54:01-54:02, 54:05N, 54:07-54:08N, 54:10, 54:13, 54:16-54:19, 54:21-54:23        |
| 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | Well No.                                                                                       |

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| Well No.                                                                                                                        |                   | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |
|---------------------------------------------------------------------------------------------------------------------------------|-------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| *54:03                                                                                                                          | B22               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *54:04, 54:09, 54:14-54:15                                                                                                      | B54, –            |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *54:06                                                                                                                          | –                 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *54:11                                                                                                                          | B54               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *54:12                                                                                                                          | –                 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *54:20                                                                                                                          | –                 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *55:01:01-55:01:06, 55:03, 55:05, 55:11, 55:15, 55:25, 55:29, 55:31, 55:33, 55:36, 55:38, 55:44-55:45                           | B55, –            |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *55:02:01-55:02:06, 55:07, 55:10, 55:12, 55:16, 55:19, 55:26, 55:30, 55:37, 55:39, 55:41-55:43, 55:47-55:48, 56:10 <sup>9</sup> | B55, B54, –       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *55:04, 55:08, 55:13, 55:23, 55:27, 55:32, 55:46, 56:15, 56:18-56:19N, 56:22 <sup>10</sup>                                      | B55, B56, Null, – |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *55:09, 55:24                                                                                                                   | B22, B55          |    |    |    |    |    |    |    |    |    | 31 |    |    |    |    |    |    |    |    |    |    |
| *55:14                                                                                                                          | –                 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 37 |    |    |    |    |
| *55:17, 55:28                                                                                                                   | B55, –            |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *55:18                                                                                                                          | –                 |    |    |    |    |    |    |    |    |    |    | 32 |    |    |    |    |    |    |    |    |    |
| *55:20                                                                                                                          | B22               |    |    |    |    |    |    |    | 29 |    |    |    |    |    |    |    |    |    |    |    |    |
| *55:21                                                                                                                          | B55               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *55:22                                                                                                                          | B22               |    |    |    |    |    |    |    |    |    | 31 |    |    |    |    |    |    |    |    |    |    |
| *55:34                                                                                                                          | –                 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *55:35                                                                                                                          | –                 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *55:40                                                                                                                          | –                 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *56:01:01-56:02, 56:04, 56:08, 56:14, 56:16, 56:20, 56:24, 56:26-56:30                                                          | B56, Null, –      |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *56:03                                                                                                                          | B22, 15           |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *56:05:01                                                                                                                       | B56               |    |    |    |    |    |    |    |    | 30 |    |    |    |    |    |    |    |    |    |    |    |
| *56:05:02                                                                                                                       | B56               |    |    |    |    |    |    |    |    | 30 |    |    |    |    |    |    |    |    |    |    |    |
| *56:06                                                                                                                          | B78               |    |    |    |    |    |    |    |    | 30 |    |    |    |    |    |    |    | 38 |    |    |    |
| *56:07                                                                                                                          | B56               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *56:09, 56:11-56:12                                                                                                             | B56, B22          |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 37 |    |    |    |    |
| *56:13                                                                                                                          | B56               |    |    |    |    |    |    |    | 29 |    |    |    |    |    |    |    |    |    |    |    |    |
| *56:17                                                                                                                          | B56               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *56:21                                                                                                                          | –                 |    |    |    |    |    |    |    |    | 30 |    |    |    |    |    |    |    |    |    |    |    |
| *56:23                                                                                                                          | –                 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *56:25                                                                                                                          | –                 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Well No.                                                                                                                        |                   | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |

Lot No.: **24M**

Lot-specific Information

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| 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 |                   | Well No.                                                                                                                        |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-------------------|---------------------------------------------------------------------------------------------------------------------------------|
|    |    |    |    |    | 47 |    |    | 50 |    |    |    |    |    |    | 57 |    | 59 |    |    |    |    | 64 | B22               | *54:03                                                                                                                          |
|    |    |    |    |    | 47 |    |    | 50 |    |    |    |    |    |    | 57 |    |    |    |    |    |    | 64 | B54,–             | *54:04, 54:09, 54:14-54:15                                                                                                      |
|    |    |    |    |    | 47 |    |    | 50 |    |    |    |    |    |    | 57 |    |    |    |    | 62 |    | 64 | –                 | *54:06                                                                                                                          |
|    |    | 44 |    |    | 47 |    |    | 50 |    |    |    |    |    |    | 57 |    |    |    |    |    |    | 64 | B54               | *54:11                                                                                                                          |
|    |    |    |    |    | 47 |    |    | 50 |    | 52 |    |    |    |    | 57 | 58 |    |    |    |    | 63 |    | –                 | *54:12                                                                                                                          |
|    |    |    |    |    | 47 |    |    | 50 |    |    | 53 |    |    |    | 57 | 58 |    |    |    |    |    | 64 | –                 | *54:20                                                                                                                          |
|    |    |    |    |    | 47 |    |    | 50 |    |    | 53 |    |    |    |    | 58 |    |    |    |    |    | 64 | B55, –            | *55:01:01-55:01:06, 55:03, 55:05, 55:11, 55:15, 55:25, 55:29, 55:31, 55:33, 55:36, 55:38, 55:44-55:45                           |
|    |    |    |    |    | 47 |    |    | 50 |    |    |    |    |    |    |    | 58 |    |    |    |    |    | 64 | B55, B54, –       | *55:02:01-55:02:06, 55:07, 55:10, 55:12, 55:16, 55:19, 55:26, 55:30, 55:37, 55:39, 55:41-55:43, 55:47-55:48, 56:10 <sup>9</sup> |
|    |    |    |    |    | 47 |    |    | 50 |    |    |    |    |    |    |    |    |    |    |    |    |    | 64 | B55, B56, Null, – | *55:04, 55:08, 55:13, 55:23, 55:27, 55:32, 55:46, 56:15, 56:18-56:19N, 56:22 <sup>10</sup>                                      |
|    |    |    |    |    | 47 |    |    | 50 |    |    | 53 |    |    |    |    |    |    |    |    |    |    | 64 | B22, B55          | *55:09, 55:24                                                                                                                   |
|    |    |    |    |    | 47 |    |    | 50 |    |    |    |    |    |    |    |    |    | 60 |    |    |    | 64 | –                 | *55:14                                                                                                                          |
|    |    |    |    |    | 47 |    |    | 50 |    |    | 53 |    |    |    |    |    |    |    |    |    |    | 64 | B55, –            | *55:17, 55:28                                                                                                                   |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    | 56 |    | 58 |    |    |    |    |    | 64 | –                 | *55:18                                                                                                                          |
|    |    |    |    | 46 | 47 |    |    | 50 |    |    |    |    |    |    |    |    |    |    |    |    |    | 64 | B22               | *55:20                                                                                                                          |
|    |    |    |    |    | 47 |    |    | 50 |    |    | w  |    |    |    |    | 58 |    |    |    | 62 |    | 64 | B55               | *55:21                                                                                                                          |
|    |    |    |    |    | 47 |    |    | 50 |    |    |    |    |    |    |    |    |    |    |    |    |    | 64 | B22               | *55:22                                                                                                                          |
|    |    |    |    |    | 47 |    |    | 50 |    |    |    |    |    | 56 |    | 58 |    |    |    |    |    | 64 | –                 | *55:34                                                                                                                          |
|    |    |    |    |    | 47 |    |    | 50 | w  |    |    |    |    |    |    | 58 |    |    |    |    |    | 64 | –                 | *55:35                                                                                                                          |
|    |    |    |    |    | 47 |    |    | 50 |    |    | 53 |    |    | 56 |    | 58 |    |    |    |    |    | 64 | –                 | *55:40                                                                                                                          |
|    |    |    |    |    | 47 |    |    | 50 |    |    |    |    |    |    |    |    | 59 |    |    |    |    | 64 | B56, Null, –      | *56:01:01-56:02, 56:04, 56:08, 56:14, 56:16, 56:20, 56:24, 56:26-56:30                                                          |
|    |    |    |    |    | 47 |    |    | 50 |    |    |    |    |    |    |    |    |    |    |    | 62 |    | 64 | B22, 15           | *56:03                                                                                                                          |
|    |    |    |    |    | 47 |    |    | 50 |    |    | 53 |    |    |    |    | 58 |    |    |    |    |    | 64 | B56               | *56:05:01                                                                                                                       |
|    |    |    |    |    | 47 |    |    | 50 |    |    | 53 |    |    |    |    |    |    |    |    |    |    | 64 | B56               | *56:05:02                                                                                                                       |
|    |    |    |    |    | 47 |    |    | 50 |    |    | 53 |    |    |    |    | 58 |    |    | w  |    |    | 64 | B78               | *56:06                                                                                                                          |
|    |    |    |    |    | 47 |    |    | 50 |    |    |    |    |    |    |    |    | 59 |    |    |    | 63 |    | B56               | *56:07                                                                                                                          |
|    |    |    |    |    | 47 |    |    | 50 |    |    |    |    |    |    |    |    |    |    |    |    |    | 64 | B56, B22          | *56:09, 56:11-56:12                                                                                                             |
|    |    |    |    |    | 47 |    |    | 50 |    |    |    |    |    |    |    | 59 |    |    |    |    |    | 64 | B56               | *56:13                                                                                                                          |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 59 |    |    |    |    |    | 64 | B56               | *56:17                                                                                                                          |
|    |    |    |    |    | 47 |    |    | 50 |    | 52 | 53 |    |    |    |    |    |    |    |    |    | 63 |    | –                 | *56:21                                                                                                                          |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 58 |    |    |    |    |    | 64 | –                 | *56:23                                                                                                                          |
|    |    |    |    |    | 47 |    |    | 50 |    |    | 53 |    |    |    |    |    | 59 |    |    |    |    | 64 | –                 | *56:25                                                                                                                          |
| 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 |                   | Well No.                                                                                                                        |

Lot No.: **24M**

Lot-specific Information

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| Well No.                                                                                                                             |                    | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |
|--------------------------------------------------------------------------------------------------------------------------------------|--------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| *57:01:01-57:01:04,<br>57:01:06-57:03:02,<br>57:05-57:06, 57:08,<br>57:10, 57:15-57:20,<br>57:22-57:23, 57:25-<br>57:30, 57:32-57:37 | B57,<br>Null,<br>– |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 37 |    |    |    |    |
| *57:01:05, 57:11,<br>57:13, 57:21, 57:31                                                                                             | B57, –             |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *57:04                                                                                                                               | B57                |    |    |    |    | 27 |    |    |    |    |    |    |    |    |    |    | 37 |    |    |    |    |
| *57:07, 57:24                                                                                                                        | B57, –             |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 37 |    |    |    |    |
| *57:09                                                                                                                               | B57                |    |    |    |    |    |    | 29 |    |    |    |    |    |    |    |    | 37 |    |    |    |    |
| *57:12                                                                                                                               | B57                |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 37 |    |    |    |    |
| *57:14                                                                                                                               | –                  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 37 |    |    |    |    |
| *58:01:01-58:01:02,<br>58:01:04-58:01:08,<br>58:04-58:05, 58:10N-<br>58:15, 58:19, 58:21-<br>58:24, 58:28-58:31N                     | B58,<br>Null,<br>– |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 37 |    |    |    |    |
| *58:01:03, 58:02,<br>58:06, 58:16, 58:25-<br>58:27                                                                                   | B58, –             |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *58:07                                                                                                                               | B58                |    |    |    |    |    |    |    |    |    |    | 33 |    |    |    |    |    |    |    |    |    |
| *58:08                                                                                                                               | B17,<br>B5         |    |    |    |    |    |    |    |    | 30 |    |    |    |    |    |    |    |    |    |    |    |
| *58:09                                                                                                                               | B17                |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 37 |    |    |    |    |
| *58:17N                                                                                                                              | Null               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 37 |    |    |    |    |
| *58:18                                                                                                                               | –                  |    |    | 24 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *58:20                                                                                                                               | –                  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 41 |
| *59:01, 59:05                                                                                                                        | B59, –             |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *59:02-59:03                                                                                                                         | B59, –             |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *59:04                                                                                                                               | –                  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *67:01:01, 67:03                                                                                                                     | B67, –             |    |    |    |    | 26 |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 41 |
| *67:01:02-67:02                                                                                                                      | B67, –             |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 41 |
| *73:01-73:02                                                                                                                         | B73, –             |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *78:01, 78:02:02-<br>78:03, 78:07                                                                                                    | B78, –             |    |    |    |    |    |    |    |    | 30 |    |    |    |    |    |    |    | 38 |    |    |    |
| *78:02:01, 78:04                                                                                                                     | B78,<br>B35        |    |    |    |    |    |    |    |    | 30 |    |    |    |    |    |    |    | 38 |    |    |    |
| *78:05                                                                                                                               | –                  |    |    |    |    |    |    |    |    | 30 |    |    |    |    |    |    |    | 38 |    |    |    |
| *78:06                                                                                                                               | –                  |    |    |    |    |    |    |    |    | 30 |    |    |    |    |    |    |    |    |    |    |    |
| *81:01                                                                                                                               | B81                | 22 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *81:02                                                                                                                               | B81                | 22 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *81:03-81:05                                                                                                                         | Null,              | 22 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *82:01-82:03                                                                                                                         | B82, –             |    |    |    |    |    |    | 29 |    |    | 32 |    |    |    |    |    |    | 39 |    |    |    |
| *83:01                                                                                                                               | –                  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 37 |    |    |    |    |
| Well No.                                                                                                                             |                    | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |
| HLA-B allele <sup>4</sup>                                                                                                            | ser. <sup>11</sup> |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |

Lot No.: **24M**

Lot-specific Information

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| 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | Well No.                                                                                                                          |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----------------------------------------------------------------------------------------------------------------------------------|
|    |    |    |    |    |    |    |    |    |    |    |    | 54 |    |    |    |    |    | 60 |    |    | 63 |    | B57, Null, – *57:01:01-57:01:04, 57:01:06-57:03:02, 57:05-57:06, 57:08, 57:10, 57:15-57:20, 57:22-57:23, 57:25-57:30, 57:32-57:37 |
|    |    |    |    |    |    |    |    |    |    |    |    | 54 |    |    |    |    |    | 60 |    |    | 63 |    | B57, – *57:01:05, 57:11, 57:13, 57:21, 57:31                                                                                      |
|    |    |    |    |    |    |    |    |    |    |    |    | 54 |    |    |    |    |    | 60 |    |    | 63 |    | B57 *57:04                                                                                                                        |
|    |    |    |    |    |    | 48 |    |    |    |    |    | 54 |    |    |    |    |    | 60 |    |    | 63 |    | B57, – *57:07, 57:24                                                                                                              |
|    |    |    |    |    |    | 48 |    |    |    |    |    | 54 |    |    |    |    |    | 60 |    |    | 63 |    | B57 *57:09                                                                                                                        |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 60 |    |    | 64 |    | B57 *57:12                                                                                                                        |
|    |    |    |    |    |    |    | 49 |    |    |    |    | 54 |    |    |    |    |    | 60 |    |    | 63 |    | – *57:14                                                                                                                          |
|    |    |    |    |    |    |    |    |    |    |    |    | 54 |    |    |    |    |    |    |    |    | 63 |    | B58, Null, – *58:01:01-58:01:02, 58:01:04-58:01:08, 58:04-58:05, 58:10N-58:15, 58:19, 58:21-58:24, 58:28-58:31N                   |
|    |    |    |    |    |    |    |    |    |    |    |    | 54 |    |    |    |    |    |    |    |    | 63 |    | B58, – *58:01:03, 58:02, 58:06, 58:16, 58:25-58:27                                                                                |
|    |    |    |    |    |    |    |    |    |    |    |    | 54 |    |    |    |    |    |    |    |    | 63 |    | B58 *58:07                                                                                                                        |
|    |    |    |    |    |    |    |    |    |    |    | 53 | 54 |    |    |    |    |    |    |    |    | 63 |    | B17, B5 *58:08                                                                                                                    |
|    |    |    |    |    |    |    | 49 |    |    |    |    | 54 |    |    |    |    |    |    |    |    | 63 |    | B17 *58:09                                                                                                                        |
|    |    |    |    |    |    |    |    |    |    |    |    | 54 |    |    |    |    |    |    |    |    | 63 |    | Null *58:17N                                                                                                                      |
|    |    |    |    |    |    |    |    |    |    |    |    | 54 |    |    |    |    |    |    |    |    | 63 |    | – *58:18                                                                                                                          |
|    |    |    |    |    |    |    |    |    |    |    |    | 54 |    |    |    |    |    |    |    |    | 63 |    | – *58:20                                                                                                                          |
|    |    |    |    |    |    |    |    |    |    | 52 |    |    |    |    |    | 58 |    |    |    |    | 63 |    | B59, – *59:01, 59:05                                                                                                              |
|    |    |    |    |    |    |    |    |    |    | 52 |    |    |    |    |    |    |    |    |    |    | 63 |    | B59, – *59:02-59:03                                                                                                               |
|    |    |    |    |    |    |    |    |    |    | 52 |    |    |    |    |    |    | 59 |    |    |    | 63 |    | – *59:04                                                                                                                          |
|    |    | 44 |    |    |    | 47 |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 64 |    | B67, – *67:01:01, 67:03                                                                                                           |
|    |    | 44 |    |    |    | 47 |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 64 |    | B67, – *67:01:02-67:02                                                                                                            |
|    |    | 44 |    |    |    | 47 |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 62 | 64 | B73, – *73:01-73:02                                                                                                               |
|    |    |    |    |    |    |    |    |    |    |    | 53 |    |    |    |    | 58 |    |    | 61 |    | 64 |    | B78, – *78:01, 78:02:02-78:03, 78:07                                                                                              |
|    |    |    |    |    |    |    |    |    |    |    | 53 |    |    |    |    |    |    |    | 61 |    | 64 |    | B78, B35 *78:02:01, 78:04                                                                                                         |
|    |    |    |    |    |    |    |    |    |    |    | 53 |    |    | 56 |    |    |    |    |    |    | 64 |    | – *78:05                                                                                                                          |
|    |    |    |    |    |    |    |    |    |    |    | 53 |    |    | 56 |    |    |    |    |    |    | 64 |    | – *78:06                                                                                                                          |
|    |    |    |    |    | 47 |    |    | 50 | 51 |    |    |    |    |    |    |    |    |    |    |    | 64 |    | B81 *81:01                                                                                                                        |
|    |    | 44 |    |    | 47 |    |    |    | 51 |    |    |    |    |    |    |    |    |    |    |    | 64 |    | B81 *81:02                                                                                                                        |
|    |    |    |    |    | 47 |    |    |    | 51 |    |    |    |    |    |    |    |    |    |    |    | 64 |    | Null, *81:03-81:05                                                                                                                |
|    |    |    |    |    | 47 |    |    | 50 |    |    |    |    |    |    |    |    | 59 |    |    |    | 64 |    | B82, – *82:01-82:03                                                                                                               |
|    |    |    |    |    | 47 | 48 |    | 50 |    |    |    |    |    |    | 57 |    |    |    |    |    | 64 |    | – *83:01                                                                                                                          |
| 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | Well No.                                                                                                                          |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | ser. <sup>11</sup> HLA-B allele <sup>4</sup>                                                                                      |

Lot No.: **24M**

Lot-specific Information

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| Well No.                      |  | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |
|-------------------------------|--|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| A*23:31, A*24:106,<br>C*16:10 |  |    |    |    |    |    | 27 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| A*68:56, C*06:20,<br>C*12:50  |  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| C*01:30                       |  |    |    |    | 25 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| C*03:05, 03:25,<br>03:27      |  |    |    | 24 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| C*03:12, 03:19                |  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| C*03:102                      |  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 37 |    |    |    |    |
| C*07:46                       |  |    |    |    |    |    |    |    | 29 |    |    |    |    |    |    |    |    |    |    |    |    |
| C*15:02:04                    |  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| C*15:25                       |  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| C*15:39                       |  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Well No.                      |  | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |

<sup>1</sup>The internal positive control primer pairs amplify segments of the human growth hormone gene. The two different control primer pairs give rise to either an internal positive control band of 1070 base pairs, for most wells, or a band of 800 base pairs, for some wells.

Well number 2 contains the primer pair giving rise to the shorter, 800 bp, internal positive control band in order to help in the correct orientation of the HLA-B low resolution typing.

In addition, wells number 25 to 27, 31, 37, 40, 41, 53 and 60 contain the primer pair giving rise to the shorter, 800 bp, internal positive control band in order to allow kit identification.

<sup>2</sup>The nucleotide position, in the 1<sup>st</sup>, 2<sup>nd</sup> or 3<sup>rd</sup> exon or in the 1<sup>st</sup> intron, matching the specificity-determining 3'-end of the primer is given. Nucleotide numbering as on the [www.ebi.ac.uk/imgt/hla](http://www.ebi.ac.uk/imgt/hla) web site. The sequence of the 3 terminal nucleotides of the primer is given.

<sup>3</sup>The nucleotide position, in the 2<sup>nd</sup> or 3<sup>rd</sup> exon, matching the specificity-determining 3'-end of the primer is given in the anti-sense direction. Nucleotide numbering as on the [www.ebi.ac.uk/imgt/hla](http://www.ebi.ac.uk/imgt/hla) web site. The sequence of the 3 terminal nucleotides of the primer is given.

<sup>4</sup>The sequence of the B\*0701 allele has been shown to be in error.

The B\*08:06 allele has been shown to be identical to B\*08:20.

The sequence of the B\*13:05 allele has been shown to be identical to B\*13:04.

The B\*13:24 allele has been renamed B\*13:22:02

The B\*15:01:05 allele has been corrected and renamed B\*15:120

The B\*15:22 allele has been renamed B\*35:43.

The sequence of the B\*15:41 allele has been shown to be identical to B\*15:39.

The B\*15:59 allele has been renamed B\*35:44.

The sequence of the B\*18:16 allele has been shown to be identical to B\*18:14.

The sequence of the B\*27:051 allele has been shown to be identical to B\*27:05:02.

The sequence of the B\*27:22 allele has been shown to be identical to the corrected B\*27:06 sequence.

The B\*35:73 allele has been renamed B\*35:08:03.

The sequence of the B\*39:012 allele has been shown to be identical to B\*39:01:01:01.

The sequence of the B\*39:21 allele has been shown to be identical to B\*39:24.

The sequence of the B\*40:17 allele has been shown to be identical to B\*40:16.

The sequence of the B\*40:41 allele has been shown to be identical to B\*40:40.

The sequence of the B\*42:03 allele has never been assigned.

The sequence of the B\*44:01 allele has been shown to be identical to B\*44:02:01:01.

The sequence of the B\*50:03 allele has been shown to be identical to B\*50:02.

The sequence of the B\*51:25 allele has been shown to be identical to B\*51:22.

The B\*51:47 allele has been renamed B\*51:09:02.

The sequence of the B\*55:06 allele has been shown to be identical to B\*55:04.

The sequence of the B\*58:03 allele has never been assigned.

The B\*79:01 allele has been renamed B\*15:18:01.

The B\*9530 allele has been renamed B\*15:27:02.

Lot No.: **24M**

Lot-specific Information

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| 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | Well No.                      |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-------------------------------|
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | A*23:31, A*24:106,<br>C*16:10 |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 62 |    |    | A*68:56, C*06:20,<br>C*12:50  |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | C*01:30                       |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | C*03:05, 03:25,<br>03:27      |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 59 |    |    |    |    |    |    | C*03:12, 03:19                |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 59 |    |    |    |    |    |    | C*03:102                      |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | C*07:46                       |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 58 |    |    |    |    |    |    | C*15:02:04                    |
|    |    |    |    |    |    | 48 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | C*15:25                       |
|    |    |    |    |    |    |    | 49 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | C*15:39                       |
| 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | Well No.                      |

<sup>5</sup>The B\*08:26, 08:50, 08:62 and the B\*42:07 alleles give rise to identical amplification patterns with the HLA-B low resolution primer set. These alleles can be separated by the respective high resolution primer sets.

<sup>6</sup>The B\*14:08 and the B\*39:25N, 39:30, 39:32-39:34, 39:43, 39:47 and 39:50 alleles give rise to identical amplification patterns with the HLA-B low resolution primer set. These alleles can be separated by the respective high resolution primer sets.

<sup>7</sup>The B\*18:29 and the B\*35:09:01-35:09:02, 35:18, 35:31-35:32, 35:37, 35:53N, 35:64, 35:68:01-35:68:02, 35:75, 35:88, 35:99, 35:118-35:119, 35:127 and 35:151 alleles give rise to identical amplification patterns with the HLA-B low resolution primer set. These alleles can be separated by the respective high resolution primer sets.

<sup>8</sup>The B\*41:09 and the B\*45:02-45:03 alleles give rise to identical amplification patterns with the HLA-B low resolution primer set. These alleles can be separated by the respective high resolution primer sets.

<sup>9</sup>The B\*55:02:01-55:02:06, 55:07, 55:10, 55:12, 55:16, 55:19, 55:26, 55:30, 55:37, 55:39, 55:41-55:43, 55:47-55:48 and the B\*56:10 alleles give rise to identical amplification patterns with the HLA-B low resolution primer set. These alleles can be separated by the respective high resolution primer sets.

<sup>10</sup>The B\*55:04, 55:08, 55:13, 55:23, 55:27, 55:32, 55:46 and the B\*56:15, 56:18-56:19N and 56:22 alleles give rise to identical amplification patterns with the HLA-B low resolution primer set. These alleles can be separated by the respective high resolution primer sets.

<sup>11</sup>The grouping of not serologically defined alleles is taken from Tissue Antigens 73, 95-170, 2009.

‘ser’, serological HLA specificity.

‘w’, might be weakly amplified.

‘?’, nucleotide sequence information not available for the primer matching sequence.

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Lot No.: **24M**

Lot-specific Information

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| Well No.                                                                                                                                                                                           | DR                | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| DRB1 allele <sup>4</sup>                                                                                                                                                                           | ser <sup>5</sup>  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *01:01:01-01:02:05, 01:04-01:34                                                                                                                                                                    | DR1, Null, –      | 65 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *01:03                                                                                                                                                                                             | DR103             | 66 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *03:01:01:01-03:01:09, 03:04-03:06, 03:09, 03:11:01-03:16, 03:18-03:20, 03:22-03:23, 03:25-03:26, 03:28, 03:30-03:31, 03:33-03:34, 03:36-03:37, 03:43-03:45, 03:47-03:48, 03:50-03:52, 03:54-03:58 | DR17, DR3, –      |    |    |    |    | 69 | 70 |    |    |    |    |    |    |    |    |    |    | 81 |    |    |    |    |    |    |
| *03:02:01-03:03, 03:27, 03:29, 03:38, 03:53                                                                                                                                                        | DR18, DR3, –      |    |    |    |    | 69 | 71 |    |    |    |    |    |    |    |    |    |    | 81 |    |    |    |    |    |    |
| *03:07, 03:17, 03:21, 03:24, 03:32, 03:35, 03:39-03:41, 03:49                                                                                                                                      | DR3, –            |    |    |    |    | 69 |    |    |    |    |    |    |    |    |    |    |    | 81 |    |    |    |    |    |    |
| *03:08                                                                                                                                                                                             | DR3               |    |    |    |    | 69 | 70 |    |    |    | 75 | 77 |    |    |    |    |    |    |    |    |    |    |    |    |
| *03:10                                                                                                                                                                                             | DR3               |    |    |    |    | 69 | 70 |    |    |    |    |    |    |    |    |    |    |    | 83 | 84 |    |    |    |    |
| *03:42                                                                                                                                                                                             | –                 |    |    |    |    | 69 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *03:46                                                                                                                                                                                             | –                 |    |    |    |    | 69 | 70 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *04:01:01-04:61, 04:63-04:68, 04:70-04:72:02, 04:74-04:92                                                                                                                                          | DR4, DR3, Null, – |    |    |    |    |    |    |    | 72 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *04:62, 04:69, 04:73                                                                                                                                                                               | DR4, –            |    |    |    |    |    |    |    | 72 |    |    |    |    |    |    |    |    | 82 |    |    |    |    |    |    |
| *07:01:01-07:01:03, 07:03-07:19                                                                                                                                                                    | DR7, Null, –      |    |    |    |    |    |    |    |    | 73 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *08:01:01-08:02:03, 08:04:01-08:07, 08:11, 08:16-08:17, 08:22, 08:24, 08:26, 08:28, 08:39                                                                                                          | DR8, –            |    |    |    |    |    |    |    |    |    | 74 |    |    |    |    |    | 80 |    |    |    |    |    |    |    |
| *08:03:02, 08:10, 08:12-08:15, 08:18-08:19, 08:23, 08:25, 08:27, 08:29-08:30:02, 08:33-08:34, 08:36-08:38                                                                                          | DR8, –            |    |    |    |    |    |    |    |    |    | 74 |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *08:08                                                                                                                                                                                             | DR8               |    |    |    |    |    |    |    |    |    | 74 |    |    |    |    |    | 80 | 82 |    |    |    |    |    |    |
| *08:09, 14:15                                                                                                                                                                                      | DR8               |    |    |    |    |    |    |    |    |    | 74 |    |    |    |    |    | 80 |    |    | 84 |    |    |    |    |
| *08:20, 13:18, 13:47, 13:55                                                                                                                                                                        | DR13, –           |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 79 | 80 | 81 |    | 84 |    |    |    |    |
| *08:21                                                                                                                                                                                             | DR8               |    |    |    |    |    |    |    |    |    | 74 |    |    |    |    | 79 | 80 |    |    | 84 |    |    |    |    |
| *08:31, 08:41, 11:67                                                                                                                                                                               | DR8, DR11, –      |    |    |    |    |    |    |    |    |    | 74 |    |    | 77 |    |    | 80 |    |    |    |    |    |    |    |
| *08:32                                                                                                                                                                                             | –                 |    |    |    |    |    |    |    |    |    | 74 |    |    |    | 78 |    |    |    |    | 84 |    |    |    |    |
| *08:35                                                                                                                                                                                             | –                 |    |    |    |    |    |    |    |    |    | 74 |    |    |    |    |    |    |    |    | 84 |    |    |    |    |
| *08:40                                                                                                                                                                                             | –                 |    |    |    |    |    |    | 70 |    |    | 74 |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Well No.                                                                                                                                                                                           | DR                | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 |

Lot No.: **24M**

Lot-specific Information

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| Well No.                                                                                                                                                                                                                                                                                                                                                                                              | DR               | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| *09:01:02-09:01:05,<br>09:01:07-09:02:02, 09:04-<br>09:09                                                                                                                                                                                                                                                                                                                                             | DR9, –           |    |    |    |    |    |    |    |    |    |    | 75 |    |    |    |    |    |    | 83 |    |    |    |    |    |
| *09:01:06, 09:03                                                                                                                                                                                                                                                                                                                                                                                      | DR9              |    |    |    |    |    |    |    |    |    |    | 75 |    |    |    |    |    |    |    |    |    |    |    |    |
| *10:01:01-10:03                                                                                                                                                                                                                                                                                                                                                                                       | DR10, –          |    |    |    |    |    |    |    |    |    |    | 76 |    |    |    |    |    |    |    |    |    |    |    |    |
| *11:01:01-11:01:12,<br>11:04:01-11:04:06, 11:06:01-<br>11:06:02, 11:09-11:10:02,<br>11:12:01-11:12:02, 11:15,<br>11:24, 11:27:01-11:30,<br>11:32-11:33, 11:35, 11:37-<br>11:39, 11:43-11:44, 11:46-<br>11:47, 11:49-11:51,<br>11:54:01-11:54:02, 11:56,<br>11:58:01-11:58:02, 11:60-<br>11:62, 11:66, 11:72, 11:74-<br>11:75, 11:77-11:78, 11:81,<br>11:84, 11:88, 11:90-11:92,<br>11:94-11:95, 11:97 | DR11, –          |    |    |    |    |    |    |    |    |    |    |    |    | 77 |    | 79 | 80 |    |    |    |    |    |    |    |
| *11:02:01-11:03, 11:11:01-<br>11:11:02, 11:14:01-<br>11:14:02, 11:16, 11:20-<br>11:21, 11:36, 11:40-11:41,<br>11:48, 11:59, 11:63,<br>11:65:01-11:65:02, 11:68,<br>11:70, 11:76, 11:80, 11:83,<br>11:85-11:87, 11:93                                                                                                                                                                                  | DR11,<br>DR13, – |    |    |    |    |    | 70 |    |    |    |    |    |    | 77 |    | 79 | 80 |    |    |    |    |    |    |    |
| *11:05                                                                                                                                                                                                                                                                                                                                                                                                | DR11             |    |    |    |    |    |    |    |    |    |    |    |    | 77 |    |    | 80 |    |    |    |    |    |    |    |
| *11:07, 11:53                                                                                                                                                                                                                                                                                                                                                                                         | DR11             |    |    |    |    | 69 |    |    |    |    |    | 75 |    | 77 |    |    |    |    |    |    |    |    |    |    |
| *11:08:01-11:08:02, 11:18-<br>11:19:02, 11:42, 11:57                                                                                                                                                                                                                                                                                                                                                  | DR11             |    |    |    |    |    |    |    |    |    |    |    |    | 77 |    | 79 |    |    |    |    |    |    |    |    |
| *11:13:01-11:13:02                                                                                                                                                                                                                                                                                                                                                                                    | DR11             |    |    |    |    |    |    | w  |    |    |    |    |    | 77 |    |    |    |    | 83 | 84 |    |    |    |    |
| *11:17, 11:52                                                                                                                                                                                                                                                                                                                                                                                         | DR14,<br>DR11    |    |    |    |    |    |    |    |    |    |    |    |    | 77 |    |    |    |    | 83 | 84 |    |    |    |    |
| *11:22, 11:98                                                                                                                                                                                                                                                                                                                                                                                         | –                |    |    |    |    |    |    |    |    |    |    |    |    | 77 |    |    |    |    |    |    |    |    |    |    |
| *11:23, 11:25, 11:96                                                                                                                                                                                                                                                                                                                                                                                  | DR11, –          |    |    |    |    |    |    |    |    |    |    |    |    | 77 |    | 79 | 80 |    |    | 84 |    |    |    |    |
| *11:26, 11:34                                                                                                                                                                                                                                                                                                                                                                                         | DR11             |    |    |    |    |    |    | 71 |    |    |    |    |    | 77 |    |    |    |    |    |    |    |    |    |    |
| *11:31, 11:45, 11:64                                                                                                                                                                                                                                                                                                                                                                                  | DR11, –          |    |    |    |    |    |    |    |    |    |    |    |    | 77 |    | 79 |    |    |    | 84 |    |    |    |    |
| *11:55                                                                                                                                                                                                                                                                                                                                                                                                | DR11             |    |    |    |    |    |    |    |    |    |    |    |    | 77 |    |    | 80 |    |    | 84 |    |    |    |    |
| *11:69, 11:82                                                                                                                                                                                                                                                                                                                                                                                         | –                |    |    |    |    |    |    |    |    |    |    |    |    | 77 |    |    | 80 |    | 82 |    |    |    |    |    |
| *11:73, 11:79                                                                                                                                                                                                                                                                                                                                                                                         | –                |    |    |    |    |    | 70 |    |    |    |    |    |    | 77 |    | 79 |    |    |    |    |    |    |    |    |
| *11:89                                                                                                                                                                                                                                                                                                                                                                                                | –                |    |    |    |    |    |    |    |    |    |    |    |    | 77 |    |    |    |    |    | 84 |    |    |    |    |
| Well No.                                                                                                                                                                                                                                                                                                                                                                                              | DR               | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 |

Lot No.: **24M**

Lot-specific Information

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| Well No.                                                                                                                                                                                                                                                                                                    | DR                        | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| *12:01:01-12:01:03,<br>12:03:02, 12:05-12:12,<br>12:14, 12:17, 12:24N-12:25                                                                                                                                                                                                                                 | DR12, –,<br>Null          |    |    |    |    |    |    |    |    |    |    |    |    |    | 78 |    |    |    |    |    |    |    |    |    |
| *12:02:01-12:02:05, 12:13,<br>12:15, 12:18-12:21, 12:23,<br>12:26                                                                                                                                                                                                                                           | DR12, –                   |    |    |    |    |    |    |    |    |    |    |    |    |    | 78 |    | 80 |    |    |    |    |    |    |    |
| *12:04                                                                                                                                                                                                                                                                                                      | DR12                      |    |    |    |    |    |    |    |    |    | 74 |    |    |    | 78 |    |    |    |    |    |    |    |    |    |
| *12:16                                                                                                                                                                                                                                                                                                      | –                         |    |    |    |    |    |    |    |    |    | 74 |    |    |    | 78 |    | 80 |    |    |    |    |    |    |    |
| *12:22                                                                                                                                                                                                                                                                                                      | –                         |    |    |    |    |    |    |    |    |    | 73 | 74 |    |    | 78 |    |    |    |    |    |    |    |    |    |
| *13:01:01-13:02:01,<br>13:02:03-13:02:04, 13:04,<br>13:08, 13:16, 13:20, 13:22-<br>13:24, 13:27-13:29, 13:31-<br>13:32, 13:34-13:36, 13:38-<br>13:41, 13:48, 13:51-13:52,<br>13:54, 13:59, 13:61, 13:63-<br>13:65, 13:68-13:76, 13:78-<br>13:80, 13:83-13:84, 13:87,<br>13:91-13:93, 13:96-13:99,<br>13:102 | DR11,<br>DR13,<br>DR14, – |    |    |    |    |    | 70 |    |    |    |    |    |    |    |    | 79 | 80 | 81 |    |    |    |    |    |    |
| *13:02:02, 13:03:01-<br>13:03:06, 13:10, 13:33:01-<br>13:33:03, 13:37, 13:66:01-<br>13:66:02, 13:81, 13:88-<br>13:90, 13:94-13:95, 13:101                                                                                                                                                                   | DR13, –                   |    |    |    |    |    | 70 |    |    |    |    |    |    |    |    | 79 |    | 81 |    |    |    |    |    |    |
| *13:05:01-13:05:02,<br>13:07:01-13:07:02, 13:11:01-<br>13:11:02, 13:14:01-<br>13:14:03, 13:21:01-<br>13:21:02, 13:42, 13:46,<br>13:49-13:50:02, 13:62,<br>13:100                                                                                                                                            | DR13,<br>DR11,<br>DR6, –  |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 79 | 80 | 81 |    |    |    |    |    |    |
| *13:06, 13:12, 13:25, 13:30,<br>13:56, 13:58, 13:60, 13:77,<br>13:82                                                                                                                                                                                                                                        | DR11,<br>DR13,<br>DR6, –  |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 79 |    | 81 |    |    |    |    |    |    |
| *13:09                                                                                                                                                                                                                                                                                                      | DR13                      |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 80 | 81 |    |    |    |    |    |    |
| *13:13, 14:84                                                                                                                                                                                                                                                                                               | DR13, –                   |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 79 |    | 81 |    | 84 |    |    |    |    |
| *13:15, 13:19, 13:53, 13:57                                                                                                                                                                                                                                                                                 | DR13                      |    |    |    |    |    | 70 | 71 |    |    |    |    |    |    |    | 79 | 80 | 81 |    |    |    |    |    |    |
| *13:17                                                                                                                                                                                                                                                                                                      | DR13                      |    |    |    |    |    | 70 |    |    |    | 73 |    |    |    |    |    | 80 |    |    |    |    |    |    |    |
| *13:26                                                                                                                                                                                                                                                                                                      | DR14                      |    |    |    |    |    |    | 71 |    |    |    |    |    |    |    | 79 | 80 | 81 |    |    |    |    |    |    |
| *13:43                                                                                                                                                                                                                                                                                                      | DR13                      |    |    |    |    |    | 70 |    |    |    |    |    |    |    |    | 79 | 80 |    |    | 83 | 84 |    |    |    |
| *13:44, 13:86                                                                                                                                                                                                                                                                                               | –                         |    |    |    |    |    |    | 71 |    |    |    |    |    |    |    |    |    | 81 |    |    |    |    |    |    |
| *13:45                                                                                                                                                                                                                                                                                                      | DR13                      |    |    |    |    |    | 70 |    |    |    |    |    |    |    |    | 79 | 80 |    | 82 |    | 84 |    |    |    |
| *13:67, 13:103                                                                                                                                                                                                                                                                                              | DR13, –                   |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 79 | 80 |    |    |    |    |    |    |    |
| *13:85                                                                                                                                                                                                                                                                                                      | –                         |    |    |    |    |    | 70 | 71 |    |    |    |    |    |    |    | 79 |    | 81 |    |    |    |    |    |    |
| Well No.                                                                                                                                                                                                                                                                                                    | DR                        | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 |

Lot No.: **24M**

Lot-specific Information

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| Well No.                                                                                                                                                                                  | DR                         | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| *14:01:01-14:01:02, 14:04, 14:07:01-14:07:02, 14:10, 14:26, 14:28, 14:31, 14:35, 14:38-14:39, 14:54-14:55, 14:57, 14:60-14:62, 14:70-14:71, 14:75-14:76, 14:79, 14:86-14:88, 14:90, 14:99 | DR14, DR 1404, DR4, DR6, – |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 82 | 83 | 84 |    |    |    |
| *14:01:03, 14:08, 14:23:02, 14:34, 14:72, 14:92N, 14:97                                                                                                                                   | DR14, Null, –              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 83 | 84 |    |    |    |
| *14:02, 14:06:01-14:06:02, 14:09, 14:13, 14:17, 14:20, 14:29-14:30, 14:33, 14:41, 14:47-14:48, 14:51, 14:80, 14:83, 14:94                                                                 | DR14, DR6, –               |    |    |    |    |    |    | 71 |    |    |    |    |    |    |    |    |    | 81 |    | 83 |    |    |    |    |
| *14:03:01-14:03:02, 14:12:01-14:12:02, 14:40, 14:63, 14:67, 14:77-14:78, 14:85                                                                                                            | DR 1403, DR14, DR6, –      |    |    |    |    |    |    | 71 |    |    |    |    |    |    | 79 |    |    | 81 |    |    | 84 |    |    |    |
| *14:05:01-14:05:03, 14:14, 14:23:01, 14:23:03, 14:36, 14:43-14:45, 14:56, 14:59, 14:64, 14:91, 14:96, 14:100                                                                              | DR14, –                    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 81 |    | 83 | 84 |    |    |    |
| *14:11                                                                                                                                                                                    | DR14                       |    |    |    |    |    |    |    |    |    | 74 |    |    |    |    |    |    |    |    | 83 | 84 |    |    |    |
| *14:16                                                                                                                                                                                    | DR6                        |    |    |    |    |    | 70 |    |    |    |    |    |    |    | 79 | 80 |    |    | 82 | 83 | 84 |    |    |    |
| *14:18, 14:81                                                                                                                                                                             | DR14, –                    |    |    |    |    |    |    | 71 |    |    |    |    |    |    |    |    |    | 81 |    | 83 | 84 |    |    |    |
| *14:19, 14:21                                                                                                                                                                             | DR14                       |    |    |    |    |    | 70 | 71 |    |    |    |    |    |    | 79 |    |    | 81 |    | w  |    |    |    |    |
| *14:22                                                                                                                                                                                    | DR14                       |    |    |    |    |    |    |    |    |    |    |    |    |    | 79 | 80 |    |    | 82 | 83 | 84 |    |    |    |
| *14:24                                                                                                                                                                                    | DR14                       |    |    |    |    |    |    | 71 |    |    |    |    |    |    |    | 80 |    | 81 |    |    |    |    |    |    |
| *14:25, 14:53                                                                                                                                                                             | DR6, DR14                  |    |    |    |    |    |    |    |    |    |    |    |    |    | 79 | 80 |    |    | 82 |    | 84 |    |    |    |
| *14:27                                                                                                                                                                                    | DR14                       |    |    |    |    |    |    | 71 |    |    |    |    |    |    | 79 | 80 |    | 81 |    |    | 84 |    |    |    |
| *14:32:01-14:32:02                                                                                                                                                                        | DR14                       |    |    |    |    |    |    | w  |    |    |    |    |    |    |    |    |    |    | 82 | 83 | 84 |    |    |    |
| *14:37                                                                                                                                                                                    | DR14                       |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 80 |    | 81 | 82 |    |    |    |    |    |
| *14:42                                                                                                                                                                                    | –                          |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 81 |    |    | 84 |    |    |    |
| *14:46, 14:52                                                                                                                                                                             | DR14                       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 83 |    |    |    |    |
| *14:49                                                                                                                                                                                    | DR14                       |    |    |    |    |    |    | 71 |    |    |    |    |    |    |    |    |    |    | 82 | 83 | 84 |    |    |    |
| *14:50                                                                                                                                                                                    | DR14                       |    |    |    |    |    |    |    |    |    | 73 |    |    |    |    |    |    |    | 82 | 83 | 84 |    |    |    |
| *14:58                                                                                                                                                                                    | DR14                       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 82 |    | 84 |    |    |    |
| *14:65                                                                                                                                                                                    | DR6                        |    |    |    |    |    |    | w  |    |    |    |    |    |    |    |    |    | 81 |    | 83 | 84 |    |    |    |
| *14:68, 14:93                                                                                                                                                                             | DR14, –                    |    |    |    |    |    |    |    |    |    | 74 |    |    |    |    |    |    |    | 82 | 83 | 84 |    |    |    |
| *14:69                                                                                                                                                                                    | –                          |    |    |    |    |    |    |    |    |    |    |    |    |    | 79 |    |    |    | 82 |    | 84 |    |    |    |
| *14:73                                                                                                                                                                                    | –                          |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 80 |    |    | 82 | 83 | 84 |    |    |    |
| *14:74                                                                                                                                                                                    | –                          |    |    |    |    |    |    |    |    |    |    |    |    |    | 79 |    |    |    | 82 | 83 | 84 |    |    |    |
| *14:82                                                                                                                                                                                    | –                          |    |    |    |    |    |    | 70 |    |    |    |    |    |    |    |    |    |    | 82 | 83 | 84 |    |    |    |
| *14:89                                                                                                                                                                                    | –                          |    |    |    |    |    |    |    | 71 |    |    |    |    |    |    |    |    | 81 |    |    | 84 |    |    |    |
| Well No.                                                                                                                                                                                  | DR                         | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 |

Lot No.: **24M**

Lot-specific Information

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| Well No.                                                                | DR                 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 |
|-------------------------------------------------------------------------|--------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| *14:95                                                                  | –                  |    |    |    |    |    | 70 |    |    |    |    |    |    |    |    |    |    | 81 |    | 83 | 84 |    |    |    |
| *14:98                                                                  | –                  |    |    |    |    |    |    | 71 |    |    |    |    |    |    |    | 79 |    | 81 |    |    |    |    |    |    |
| *15:01:01:01-15:20, 15:22-15:24, 15:26, 15:28-15:33, 15:35-15:49, 15:51 | DR15, DR2, Null, – |    |    | 67 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *15:21                                                                  | DR2                |    |    | 67 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | w  |    |    |    |
| *15:25                                                                  | –                  |    |    | 67 |    | 69 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *15:27, 15:34                                                           | –                  |    |    | 67 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 83 |    |    |    |    |
| *15:50N                                                                 | Null               |    |    | w  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *16:01:01-16:03, 16:05:01-16:05:02, 16:07-16:17                         | DR16, Null, –      |    |    |    | 68 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| *16:04                                                                  | DR16               |    |    |    | 68 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | w  |    |    |    |
| Well No.                                                                |                    | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 |
| DRB1 allele <sup>4</sup>                                                | ser <sup>5</sup>   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| DRB3*01:01:02:01-01:14, DRB3*02:01:02:25, DRB3*03:01:01-03:03           | DR52, –            |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 85 |    |    |
| DRB4*01:01:01:01-01:03:01:01, DRB4*01:03:02-01:08                       | DR53, –            |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 86 |    |
| DRB4*01:03:01:02N                                                       | Null               |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 82 |    |    |    | 86 |    |    |
| DRB5*01:01:01-01:14, DRB5*02:02-02:05                                   | DR51, Null, –      |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 87 |
| Well No.                                                                | ser <sup>5</sup>   | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 |

<sup>1</sup>The internal positive control primer pairs amplify segments of the human growth hormone gene. The two different control primer pairs give rise to either an internal positive control band of 430 base pairs, for most wells, or a band of 515 base pairs, for some wells. Well number 65 contains the primer pair giving rise to the longer, 515 bp, internal positive control band in order to help in the correct orientation of the DR low resolution typing.

In addition, well number 74 contains the primer pair giving rise to the longer, 515 bp, internal positive control band in order to allow kit identification.

<sup>2</sup>The codon, and in parenthesis the nucleotide, in the 2<sup>nd</sup> exon or the 1<sup>st</sup> intron, matching the specificity-determining 3'-end of the primer is given. Codon and nucleotide numbering as on the [www.ebi.ac.uk/imgt/hla](http://www.ebi.ac.uk/imgt/hla) web site. The sequence of the 3 terminal nucleotides of the primer is given. Empty spaces indicate codon boundaries.

<sup>3</sup>The codon, and in parenthesis the nucleotide, in the 2<sup>nd</sup> exon, matching the specificity-determining 3'-end of the primer is given in the anti-sense direction. Codon and nucleotide numbering as on the [www.ebi.ac.uk/imgt/hla](http://www.ebi.ac.uk/imgt/hla) web site. The sequence of the 3 terminal nucleotides of the primer is given. Empty spaces indicate codon boundaries.

<sup>4</sup>The DRB1\*0702 allele has been shown to be identical to DRB1\*07:01:01:01. The DRB1\*08031 allele has been shown to be identical to DRB1\*08:03:02. The DRB1\*09011 allele has been shown to be identical to DRB1\*09:01:02. The DRB1\*1171 allele has been shown to be identical to DRB1\*11:02:01. The DRB1\*12031 allele has been shown to be identical to DRB1\*12:01:01. The sequence of the DRB1\*1466 allele has been shown to be identical to DRB1\*14:23:02. The DRB1\*1606 allele has been shown to be identical to DRB1\*16:05:01. The DRB3\*010101 allele has been shown to be identical to DRB3\*01:01:02:01. The DRB4\*0101102N allele has been renamed DRB4\*01:03:01:02N. The DRB5\*0201 allele has been shown to be identical to DRB5\*02:02. The sequence of the DRB5\*0201 allele has been shown to be identical to DRB5\*02:02.

The DRB1\*08:09 and the DRB1\*14:15 alleles yield identical amplification patterns with the DR low resolution primer set. These alleles can be separated by the respective high resolution primer sets.

The DRB1\*08:20 and the DRB1\*13:18, 13:47 and 13:55 alleles yield identical amplification patterns with the DR low resolution primer set. These alleles can be separated by the respective high resolution primer sets.

The DRB1\*08:31, 08:41 and DRB1\*11:67 alleles yield identical amplification patterns with the DR low resolution primer set. These alleles can be separated by the respective high resolution primer sets.

The DRB1\*13:13 and DRB1\*14:84 alleles yield identical amplification patterns with the DR low resolution primer set. These alleles can be separated by the respective high resolution primer sets.

<sup>5</sup>The grouping of not serologically defined alleles is taken from Tissue Antigens 73, 95-170, 2009.

'ser', serological HLA specificity.

'w', may be weakly amplified. '?', nucleotide sequence information for the primer matching region(s) is not known.

Lot No.: **24M**

Lot-specific Information

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| INTERPRETATION TABLE                                                                               |                        |                   |            |            |            |            |            |            |            |                  |
|----------------------------------------------------------------------------------------------------|------------------------|-------------------|------------|------------|------------|------------|------------|------------|------------|------------------|
| DQ low resolution SSP typing                                                                       |                        |                   |            |            |            |            |            |            |            |                  |
| Amplification patterns of the DQB1*05:01 to DQB1*04:06 alleles                                     |                        |                   |            |            |            |            |            |            |            |                  |
|                                                                                                    |                        | Well <sup>6</sup> |            |            |            |            |            |            |            |                  |
|                                                                                                    |                        | 88                | 89         | 90         | 91         | 92         | 93         | 94         | 95         | 96               |
| Length of spec. PCR product(s)                                                                     |                        | 225               | 220        | 210        | 220        | 130        | 135        | 145        | 210        | Negative control |
| Length of int. pos. control <sup>1</sup>                                                           |                        |                   | 270        |            |            |            |            | 185        | 245        |                  |
| 5'-primer(s) <sup>2</sup>                                                                          |                        | <b>515</b>        | 430        | 430        | <b>515</b> | <b>515</b> | <b>515</b> | <b>515</b> | 430        |                  |
|                                                                                                    |                        |                   |            |            |            |            |            |            |            |                  |
|                                                                                                    |                        | 26(173)           | 9(122)     | 30(185)    | 26(173)    | 28(179)    | 26(173)    | 38(210)    | 9(122)     |                  |
|                                                                                                    |                        | 5' -ggg 3'        | 5' -gTT 3' | 5' -AAg 3' | 5' -TTA 3' | 5' -gAC 3' | 5' -TCT 3' | 5' -gCA 3' | 5' -gTT 3' |                  |
|                                                                                                    |                        |                   | 26(173)    |            |            | 28(179)    |            | 48(240)    | 21(159)    |                  |
|                                                                                                    |                        |                   | 5' -TTA 3' |            |            | 5' -gAC 3' |            | 5' -CgC 3' | 5' -ACC 3' |                  |
|                                                                                                    |                        |                   | 26(173)    |            |            |            |            | 55(260)    |            |                  |
|                                                                                                    |                        |                   | 5' -TCT 3' |            |            |            |            | 5' -gCC 3' |            |                  |
|                                                                                                    |                        |                   |            |            |            |            |            | 55(260)    |            |                  |
|                                                                                                    |                        |                   |            |            |            |            |            | 5' -gCA 3' |            |                  |
| 3'-primer(s) <sup>3</sup>                                                                          |                        | 87(356)           | 86(353)    | 86(353)    | 86(353)    | 57(266)    | 57(266)    | 86(353)    | 77(327)    | Negative control |
|                                                                                                    |                        | 5' -ggT 3'        | 5' -ACg 3' | 5' -gCT 3' | 5' -gCT 3' | 5' -Cgg 3' | 5' -CgT 3' | 5' -gCT 3' | 5' -ACg 3' |                  |
|                                                                                                    |                        |                   | 86(353)    |            |            |            |            |            |            |                  |
|                                                                                                    |                        |                   | 5' -ACC 3' |            |            |            |            |            |            |                  |
|                                                                                                    |                        |                   |            |            |            |            |            |            |            |                  |
| Well No.                                                                                           |                        | 88                | 89         | 90         | 91         | 92         | 93         | 94         | 95         |                  |
| DQB1 allele <sup>4</sup>                                                                           | ser. <sup>5</sup>      |                   |            |            |            |            |            |            |            |                  |
| *05:01:01-05:08                                                                                    | DQ5, –                 | 88                |            |            |            |            |            |            |            |                  |
| *06:01:01-06:28, 06:30-06:40                                                                       | DQ6, DQ5, DQ1, Null, – |                   | 89         |            |            |            |            |            |            |                  |
| *06:29                                                                                             | DQ6                    |                   | 89         |            |            | 92         |            |            |            |                  |
| *02:01:01-02:02, 02:04-02:05                                                                       | DQ2, –                 |                   |            | 90         |            |            |            |            |            |                  |
| *02:03                                                                                             | DQ2                    |                   |            | 90         |            |            | 93         |            |            |                  |
| *03:01:01-03:01:05, 03:04, 03:09-03:10, 03:13-03:14, 03:16, 03:19, 03:21-03:22, 03:24, 03:27-03:29 | DQ7, DQ3, –            |                   |            |            | 91         |            |            | 94         |            |                  |
| *03:02:01-03:02:05, 03:05:01-03:05:04, 03:07-03:08, 03:11, 03:18                                   | DQ8, –                 |                   |            |            |            | 92         |            | 94         |            |                  |
| *03:03:02-03:03:03, 03:06, 03:12, 03:15, 03:20, 03:25-03:26, 03:30-03:31                           | DQ9, DQ3, –            |                   |            |            |            |            | 93         | 94         |            |                  |
| *03:17, 03:23                                                                                      | DQ9, –                 |                   |            |            |            |            |            | 94         |            |                  |
| *04:01:01-04:02:02, 04:04-04:06                                                                    | DQ4, –                 |                   |            |            |            |            |            |            | 95         |                  |
| *04:03:01-04:03:02                                                                                 | –                      |                   |            |            |            |            | 93         |            | 95         |                  |
| DQB1 allele <sup>4</sup>                                                                           | ser. <sup>5</sup>      |                   |            |            |            |            |            |            |            |                  |
| Well No.                                                                                           |                        | 88                | 89         | 90         | 91         | 92         | 93         | 94         | 95         | 96               |

Lot No.: **24M**

Lot-specific Information

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<sup>1</sup>The internal positive control primer pairs amplify segments of the human growth hormone gene. The two different control primer pairs give rise to either an internal positive control band of 430 base pairs, for most wells, or a band of 515 base pairs, for some wells.

Well number 88 contains the primer pair giving rise to the longer, 515 bp, internal positive control band in order to help in the correct orientation of the DQ low resolution typing.

In addition, wells number 91, 92, 93 and 94 contain the primer pair giving rise to the longer, 515 bp, internal positive control band in order to allow kit identification.

<sup>2</sup>The codon, and in parenthesis the nucleotide, in the 2<sup>nd</sup> exon, matching the specificity-determining 3'-end of the primer is given. Codon and nucleotide numbering as on the [www.ebi.ac.uk/imgt/hla](http://www.ebi.ac.uk/imgt/hla) web site. The sequence of the 3 terminal nucleotides of the primer is given. Empty spaces indicate codon boundaries.

<sup>3</sup>The codon, and in parenthesis the nucleotide, in the 2<sup>nd</sup> exon, matching the specificity-determining 3'-end of the primer is given in the anti-sense direction. Codon and nucleotide numbering as on the [www.ebi.ac.uk/imgt/hla](http://www.ebi.ac.uk/imgt/hla) web site. The sequence of the 3 terminal nucleotides of the primer is given. Empty spaces indicate codon boundaries.

<sup>4</sup>The sequence of the DQB1\*030301 allele has been shown to be identical to DQB1\*03:03:02.

<sup>5</sup>The serological split of the DQB1\*05:05 to 05:08, DQB1\*06:06 to 06:08 alleles, the DQB1\*06:10 to 06:40, the DQB1\*03:02:02-03:02:04, DQB1\*03:03:03, DQB1\*03:05:02 to 03:31 and the DQB1\*04:03 to 04:06 alleles is not known. The grouping of not serologically defined alleles is taken from Tissue Antigens 73, 95-170, 2009.

<sup>6</sup>Primer mix 96 contains a negative control, which will amplify more than 95% of HLA amplicons as well as the amplicons generated by control primer pairs. PCR product sizes range from 75 to 200 base pairs. The PCR product generated by the control primer pair is 430 base pairs.

July 2013  
Rev. No.: 03u



Lot No.: **24M**

Lot-specific Information

| CELL LINE VALIDATION SHEET      |                 |        |        |          |           |           |           |           |           |           |
|---------------------------------|-----------------|--------|--------|----------|-----------|-----------|-----------|-----------|-----------|-----------|
| HLA-A low resolution primer set |                 |        |        |          |           |           |           |           |           |           |
|                                 |                 |        |        |          | Well      |           |           |           |           |           |
|                                 |                 |        |        |          | 16        | 17        | 18        | 19        | 20        | 21        |
|                                 |                 |        |        | Lot No.: | 201078717 | 201073318 | 201073319 | 201078720 | 201073321 | 201078723 |
|                                 | IHWC cell line  | A*     | A*     |          |           |           |           |           |           |           |
| 1                               | 9001 SA         | *24:02 |        |          | -         | -         | -         | -         | -         | -         |
| 2                               | 9280 LK707      | *02:01 |        |          | -         | -         | -         | -         | -         | -         |
| 3                               | 9011 E4181324   | *01:01 |        |          | -         | -         | -         | -         | -         | -         |
| 4                               | 9275 GU373      | *30:01 |        |          | -         | -         | -         | -         | -         | -         |
| 5                               | 9009 KAS011     | *01:01 |        |          | -         | -         | -         | -         | -         | -         |
| 6                               | 9353 SM         | *02:01 | *26:03 |          | -         | -         | -         | -         | -         | +         |
| 7                               | 9020 QBL        | *26:01 |        |          | -         | -         | -         | -         | -         | -         |
| 8                               | 9025 DEU        | *31:01 |        |          | -         | -         | -         | -         | -         | -         |
| 9                               | 9026 YAR        | *26:01 |        |          | -         | -         | -         | -         | -         | -         |
| 10                              | 9107 LKT3       | *24:02 |        |          | -         | -         | -         | -         | -         | -         |
| 11                              | 9051 PITOUT     | *29:02 |        |          | -         | -         | -         | -         | -         | -         |
| 12                              | 9052 DBB        | *02:01 |        |          | -         | -         | -         | -         | -         | -         |
| 13                              | 9004 JESTHOM    | *02:01 |        |          | -         | -         | -         | -         | -         | -         |
| 14                              | 9071 OLGA       | *31:01 |        |          | -         | -         | -         | -         | -         | -         |
| 15                              | 9075 DKB        | *24:02 |        |          | -         | -         | -         | -         | -         | -         |
| 16                              | 9037 SWEIG007   | *29:02 |        |          | -         | -         | -         | -         | -         | -         |
| 17                              | 9282 CTM3953540 | *03:01 | *80:01 |          | -         | -         | -         | -         | -         | +         |
| 18                              | 9257 32367      | *33:03 | *74:01 |          | -         | +         | +         | -         | -         | -         |
| 19                              | 9038 BM16       | *02:01 |        |          | -         | -         | -         | -         | -         | -         |
| 20                              | 9059 SLE005     | *02:01 |        |          | -         | -         | -         | -         | -         | -         |
| 21                              | 9064 AMALA      | *02:17 |        |          | -         | -         | -         | -         | -         | -         |
| 22                              | 9056 KOSE       | *02:01 |        |          | -         | -         | -         | -         | -         | -         |
| 23                              | 9124 IHL        | *02:01 | *34:01 |          | -         | -         | -         | -         | -         | -         |
| 24                              | 9035 JBUSH      | *32:01 |        |          | +         | -         | -         | -         | -         | -         |
| 25                              | 9049 IBW9       | *33:01 |        |          | -         | +         | -         | -         | -         | -         |
| 26                              | 9285 WT49       | *02:05 |        |          | -         | -         | -         | -         | -         | -         |
| 27                              | 9191 CH1007     | *24:10 | *29:01 |          | -         | -         | -         | -         | -         | -         |
| 28                              | 9320 BEL5GB     | *02:01 | *29:02 |          | -         | -         | -         | -         | -         | -         |
| 29                              | 9050 MOU        | *29:02 |        |          | -         | -         | -         | -         | -         | -         |
| 30                              | 9021 RSH        | *30:01 | *68:02 |          | -         | -         | -         | +         | -         | -         |
| 31                              | 9019 DUCAF      | *30:02 |        |          | -         | -         | -         | -         | -         | -         |
| 32                              | 9297 HAG        | *02:01 |        |          | -         | -         | -         | -         | -         | -         |
| 33                              | 9098 MT14B      | *31:01 |        |          | -         | -         | -         | -         | -         | -         |
| 34                              | 9104 DHIF       | *31:01 |        |          | -         | -         | -         | -         | -         | -         |
| 35                              | 9302 SSTO       | *32:01 |        |          | +         | -         | -         | -         | -         | -         |
| 36                              | 9024 KT17       | *02:06 | *11:01 |          | -         | -         | -         | -         | -         | -         |
| 37                              | 9065 HHKB       | *03:01 |        |          | -         | -         | -         | -         | -         | -         |
| 38                              | 9099 LZL        | *02:17 |        |          | -         | -         | -         | -         | -         | -         |
| 39                              | 9315 CML        | *01:01 | *03:01 |          | -         | -         | -         | -         | -         | -         |
| 40                              | 9134 WHONP199   | *02:07 | *30:01 |          | -         | -         | -         | -         | -         | -         |
| 41                              | 9055 H0301      | *03:01 |        |          | -         | -         | -         | -         | -         | -         |
| 42                              | 9066 TAB089     | *02:07 |        |          | -         | -         | -         | -         | -         | -         |
| 43                              | 9076 T7526      | *02:06 | *02:07 |          | -         | -         | -         | -         | -         | -         |
| 44                              | 9057 TEM        | *66:01 |        |          | -         | -         | -         | -         | -         | -         |
| 45                              | 9239 SHJO       | *23:01 | *24:02 |          | -         | -         | -         | -         | -         | -         |
| 46                              | 9013 SCHU       | *03:01 |        |          | -         | -         | -         | -         | -         | -         |
| 47                              | 9045 TUBO       | *02:16 | *03:01 |          | -         | -         | -         | -         | -         | -         |
| 48                              | 9303 TER-ND     | *02:01 | *11:01 |          | -         | -         | -         | -         | -         | -         |

July 2013  
Rev. No.: 03u

**CE**  
**0088**

For In Vitro Diagnostic Use.

Lot No.: **24M**

Lot-specific Information

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| CELL LINE VALIDATION SHEET   |               |            |        |        |            |           |           |           |           |           |           |           |           |           |           |           |           |           |           |  |
|------------------------------|---------------|------------|--------|--------|------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|--|
| HLA-B low resolution SSP kit |               |            |        |        |            |           |           |           |           |           |           |           |           |           |           |           |           |           |           |  |
|                              |               |            |        |        | Well       |           |           |           |           |           |           |           |           |           |           |           |           |           |           |  |
|                              |               |            |        |        |            | 37        | 38        | 39        | 40        | 41        | 42        | 43        | 44        | 45        | 46        | 47        | 48        | 49        | 50        |  |
|                              |               |            |        |        | Prod. No.: | 201073417 | 201073418 | 201078819 | 201182320 | 201073421 | 201073422 | 201073423 | 201078824 | 201078825 | 201073427 | 201073428 | 201185829 | 201182331 | 201073432 |  |
|                              | IHC cell line |            | B*     |        |            |           |           |           |           |           |           |           |           |           |           |           |           |           |           |  |
| 1                            | 9001          | SA         | *07:02 |        |            | -         | -         | -         | +         | -         | -         | -         | +         | -         | -         | +         | -         | -         | -         |  |
| 2                            | 9280          | LK707      | *52:01 | *73:01 |            | -         | -         | -         | -         | -         | -         | -         | +         | -         | -         | +         | -         | -         | -         |  |
| 3                            | 9011          | E4181324   | *52:01 |        |            | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         |  |
| 4                            | 9275          | GU373      | *15:10 | *53:01 |            | +         | -         | +         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         |  |
| 5                            | 9009          | KAS011     | *37:01 |        |            | +         | -         | -         | +         | -         | -         | -         | -         | -         | -         | -         | +         | -         | -         |  |
| 6                            | 9353          | SM         | *39:01 | *51:01 |            | -         | -         | -         | -         | +         | -         | +         | +         | -         | -         | -         | -         | -         | -         |  |
| 7                            | 9020          | QBL        | *18:01 |        |            | -         | +         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         |  |
| 8                            | 9025          | DEU        | *35:01 |        |            | +         | +         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         |  |
| 9                            | 9026          | YAR        | *38:01 |        |            | -         | -         | -         | -         | -         | +         | +         | -         | -         | -         | -         | -         | -         | -         |  |
| 10                           | 9107          | LKT3       | *54:01 |        |            | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | +         | -         | -         | +         |  |
| 11                           | 9051          | PITOUT     | *44:03 |        |            | +         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | +         | -         | -         |  |
| 12                           | 9052          | DBB        | *57:01 |        |            | +         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         |  |
| 13                           | 9004          | JESTHOM    | *27:05 |        |            | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | +         | -         | -         | +         |  |
| 14                           | 9071          | OLGA       | *15:01 | *15:20 |            | +         | -         | +         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         |  |
| 15                           | 9075          | DKB        | *40:01 |        |            | -         | -         | -         | -         | -         | -         | -         | +         | +         | -         | -         | -         | -         | -         |  |
| 16                           | 9037          | SWEIG007   | *40:02 |        |            | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         |  |
| 17                           | 9282          | CTM3953540 | *08:01 | *55:01 |            | -         | -         | -         | -         | -         | -         | -         | +         | -         | +         | +         | -         | -         | +         |  |
| 18                           | 9257          | 32367      | *14:01 | *56:01 |            | -         | -         | -         | -         | -         | -         | +         | +         | -         | -         | +         | -         | -         | +         |  |
| 19                           | 9038          | BM16       | *18:01 |        |            | -         | +         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         |  |
| 20                           | 9059          | SLE005     | *40:01 |        |            | -         | -         | -         | -         | -         | -         | -         | +         | +         | -         | -         | -         | -         | -         |  |
| 21                           | 9064          | AMALA      | *15:01 |        |            | -         | -         | +         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         |  |
| 22                           | 9056          | KOSE       | *35:03 |        |            | +         | +         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         |  |
| 23                           | 9124          | IHL        | *40:02 | *56:02 |            | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | +         | -         | -         | +         |  |
| 24                           | 9035          | JBUSH      | *38:01 |        |            | -         | -         | -         | -         | +         | +         | +         | -         | -         | -         | -         | -         | -         | -         |  |
| 25                           | 9049          | IBW9       | *14:02 |        |            | -         | -         | -         | -         | -         | -         | +         | +         | -         | -         | -         | -         | -         | -         |  |
| 26                           | 9285          | WT49       | *58:01 |        |            | +         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         |  |
| 27                           | 9191          | CH1007     | *07:05 | *51:01 |            | -         | -         | -         | -         | -         | -         | -         | +         | -         | -         | +         | -         | -         | -         |  |
| 28                           | 9320          | BEL5GB     | *44:02 | *44:03 |            | +         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | +         | -         | -         |  |
| 29                           | 9050          | MOU        | *44:03 |        |            | +         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | +         | -         | -         |  |
| 30                           | 9021          | RSH        | *42:01 |        |            | -         | -         | -         | -         | -         | -         | -         | +         | -         | +         | +         | -         | -         | -         |  |
| 31                           | 9019          | DUCAF      | *18:01 |        |            | -         | +         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         |  |
| 32                           | 9297          | HAG        | *41:02 |        |            | -         | -         | -         | -         | -         | -         | -         | +         | -         | +         | -         | -         | -         | -         |  |
| 33                           | 9098          | MT14B      | *40:01 |        |            | -         | -         | -         | -         | -         | -         | -         | +         | +         | -         | -         | -         | -         | -         |  |
| 34                           | 9104          | DHIF       | *38:01 |        |            | -         | -         | -         | -         | +         | +         | +         | -         | -         | -         | -         | -         | -         | -         |  |
| 35                           | 9302          | SSTO       | *44:02 |        |            | +         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | +         | -         | -         |  |
| 36                           | 9024          | KT17       | *15:01 | *35:01 |            | +         | +         | +         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         |  |
| 37                           | 9065          | HHKB       | *07:02 |        |            | -         | -         | -         | -         | -         | -         | -         | +         | -         | -         | +         | -         | -         | -         |  |
| 38                           | 9099          | LZL        | *15:01 |        |            | -         | -         | +         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         |  |
| 39                           | 9315          | CML        | *08:01 | *27:05 |            | -         | -         | -         | -         | -         | -         | -         | +         | -         | +         | +         | -         | -         | +         |  |
| 40                           | 9134          | WHONP199   | *13:02 | *46:01 |            | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | +         | -         | +         | -         |  |
| 41                           | 9055          | H0301      | *14:02 |        |            | -         | -         | -         | -         | -         | -         | +         | +         | -         | -         | -         | -         | -         | -         |  |
| 42                           | 9066          | TAB089     | *46:01 |        |            | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | +         | -         | +         | -         |  |
| 43                           | 9076          | T7526      | *46:01 |        |            | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | +         | -         | +         | -         |  |
| 44                           | 9057          | TEM        | *38:01 |        |            | -         | -         | -         | -         | +         | +         | +         | -         | -         | -         | -         | -         | -         | -         |  |
| 45                           | 9239          | SHJO       | *42:01 | *50:01 |            | -         | -         | -         | -         | -         | -         | -         | +         | -         | +         | +         | -         | -         | -         |  |
| 46                           | 9013          | SCHU       | *07:02 |        |            | -         | -         | -         | -         | -         | -         | -         | +         | -         | -         | +         | -         | -         | -         |  |
| 47                           | 9045          | TUBO       | *51:01 |        |            | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         |  |
| 48                           | 9303          | TER-ND     | *35:01 | *44:03 |            | +         | +         | -         | -         | -         | -         | -         | -         | -         | -         | -         | +         | -         | -         |  |

Lot No.: **24M**

Lot-specific Information

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| CELL LINE VALIDATION SHEET   |                |            |        |            |           |           |           |           |           |           |           |           |           |           |           |           |           |           |
|------------------------------|----------------|------------|--------|------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| HLA-B low resolution SSP kit |                |            |        |            |           |           |           |           |           |           |           |           |           |           |           |           |           |           |
|                              |                |            |        |            | Well      |           |           |           |           |           |           |           |           |           |           |           |           |           |
|                              |                |            |        |            | 51        | 52        | 53        | 54        | 55        | 56        | 57        | 58        | 59        | 60        | 61        | 62        | 63        | 64        |
|                              |                |            |        | Prod. No.: | 201182333 | 201073434 | 201073435 | 201078836 | 201073437 | 201078838 | 201073439 | 201073440 | 201073441 | 201073442 | 201073444 | 201073445 | 201073446 | 201073447 |
|                              | IHWC cell line |            | B*     |            |           |           |           |           |           |           |           |           |           |           |           |           |           |           |
| 1                            | 9001           | SA         | *07:02 |            | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | +         |
| 2                            | 9280           | LK707      | *52:01 |            | *73:01    | -         | -         | +         | +         | -         | +         | -         | -         | -         | -         | -         | +         | -         |
| 3                            | 9011           | E4181324   | *52:01 |            |           | -         | -         | +         | +         | -         | +         | -         | -         | -         | -         | +         | +         | +         |
| 4                            | 9275           | GU373      | *15:10 |            | *53:01    | -         | -         | -         | +         | -         | -         | -         | -         | -         | +         | -         | +         | +         |
| 5                            | 9009           | KAS011     | *37:01 |            |           | -         | -         | -         | -         | -         | +         | -         | -         | -         | -         | -         | +         | -         |
| 6                            | 9353           | SM         | *39:01 |            | *51:01    | -         | -         | +         | +         | -         | -         | -         | -         | -         | +         | -         | +         | +         |
| 7                            | 9020           | QBL        | *18:01 |            |           | -         | -         | -         | -         | -         | -         | -         | -         | -         | +         | -         | -         | +         |
| 8                            | 9025           | DEU        | *35:01 |            |           | -         | -         | -         | -         | -         | -         | -         | -         | -         | +         | -         | -         | +         |
| 9                            | 9026           | YAR        | *38:01 |            |           | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | +         | -         |
| 10                           | 9107           | LKT3       | *54:01 |            |           | -         | -         | -         | -         | -         | -         | +         | +         | -         | -         | -         | -         | +         |
| 11                           | 9051           | PITOUT     | *44:03 |            |           | -         | -         | -         | -         | -         | +         | -         | -         | -         | -         | -         | +         | -         |
| 12                           | 9052           | DBB        | *57:01 |            |           | -         | -         | -         | +         | -         | -         | -         | -         | -         | +         | -         | +         | -         |
| 13                           | 9004           | JESTHOM    | *27:05 |            |           | -         | -         | -         | -         | -         | +         | -         | -         | -         | -         | -         | +         | -         |
| 14                           | 9071           | OLGA       | *15:01 |            | *15:20    | -         | -         | -         | -         | -         | +         | -         | -         | -         | -         | +         | -         | +         |
| 15                           | 9075           | DKB        | *40:01 |            |           | -         | -         | -         | -         | +         | +         | -         | -         | -         | -         | -         | -         | +         |
| 16                           | 9037           | SWEIG007   | *40:02 |            |           | -         | -         | -         | -         | +         | +         | -         | -         | -         | -         | -         | -         | +         |
| 17                           | 9282           | CTM3953540 | *08:01 |            | *55:01    | -         | -         | +         | -         | -         | -         | -         | +         | -         | -         | -         | -         | +         |
| 18                           | 9257           | 32367      | *14:01 |            | *56:01    | -         | -         | -         | -         | -         | -         | -         | +         | -         | -         | -         | -         | +         |
| 19                           | 9038           | BMI6       | *18:01 |            |           | -         | -         | -         | -         | -         | -         | -         | -         | -         | +         | -         | -         | +         |
| 20                           | 9059           | SLE005     | *40:01 |            |           | -         | -         | -         | -         | +         | +         | -         | -         | -         | -         | -         | -         | +         |
| 21                           | 9064           | AMALA      | *15:01 |            |           | -         | -         | -         | -         | -         | +         | -         | -         | -         | -         | +         | -         | +         |
| 22                           | 9056           | KOSE       | *35:03 |            |           | -         | -         | -         | -         | -         | -         | -         | -         | -         | +         | -         | -         | +         |
| 23                           | 9124           | IHL        | *40:02 |            | *56:02    | -         | -         | -         | -         | +         | +         | -         | +         | -         | -         | -         | -         | +         |
| 24                           | 9035           | JBUSH      | *38:01 |            |           | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | +         | -         |
| 25                           | 9049           | IBW9       | *14:02 |            |           | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | +         |
| 26                           | 9285           | WT49       | *58:01 |            |           | -         | -         | -         | +         | -         | -         | -         | -         | -         | -         | -         | +         | -         |
| 27                           | 9191           | CH1007     | *07:05 |            | *51:01    | -         | -         | +         | +         | -         | -         | -         | -         | -         | +         | -         | +         | +         |
| 28                           | 9320           | BEL5GB     | *44:02 |            | *44:03    | -         | -         | -         | -         | -         | +         | +         | -         | -         | -         | -         | +         | -         |
| 29                           | 9050           | MOU        | *44:03 |            |           | -         | -         | -         | -         | -         | +         | -         | -         | -         | -         | -         | +         | -         |
| 30                           | 9021           | RSH        | *42:01 |            |           | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | +         |
| 31                           | 9019           | DUCAF      | *18:01 |            |           | -         | -         | -         | -         | -         | -         | -         | -         | -         | +         | -         | -         | +         |
| 32                           | 9297           | HAG        | *41:02 |            |           | -         | -         | -         | -         | +         | +         | -         | -         | -         | -         | -         | -         | +         |
| 33                           | 9098           | MT14B      | *40:01 |            |           | -         | -         | -         | -         | +         | +         | -         | -         | -         | -         | -         | -         | +         |
| 34                           | 9104           | DHIF       | *38:01 |            |           | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | +         | -         |
| 35                           | 9302           | SSTO       | *44:02 |            |           | -         | -         | -         | -         | -         | +         | +         | -         | -         | -         | -         | +         | -         |
| 36                           | 9024           | KT17       | *15:01 |            | *35:01    | -         | -         | -         | -         | -         | +         | -         | -         | -         | +         | +         | -         | +         |
| 37                           | 9065           | HHKB       | *07:02 |            |           | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | +         |
| 38                           | 9099           | LZL        | *15:01 |            |           | -         | -         | -         | -         | -         | +         | -         | -         | -         | -         | +         | -         | +         |
| 39                           | 9315           | CML        | *08:01 |            | *27:05    | -         | -         | -         | -         | -         | +         | -         | -         | -         | -         | -         | +         | +         |
| 40                           | 9134           | WHONP199   | *13:02 |            | *46:01    | -         | -         | -         | -         | -         | +         | -         | -         | -         | -         | +         | +         | +         |
| 41                           | 9055           | H0301      | *14:02 |            |           | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | +         |
| 42                           | 9066           | TAB089     | *46:01 |            |           | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | +         | -         | +         |
| 43                           | 9076           | T7526      | *46:01 |            |           | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | +         | -         | +         |
| 44                           | 9057           | TEM        | *38:01 |            |           | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | +         | -         |
| 45                           | 9239           | SHJO       | *42:01 |            | *50:01    | -         | -         | +         | -         | +         | +         | -         | +         | -         | -         | -         | -         | +         |
| 46                           | 9013           | SCHU       | *07:02 |            |           | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | +         |
| 47                           | 9045           | TUBO       | *51:01 |            |           | -         | -         | +         | +         | -         | -         | -         | -         | -         | +         | -         | +         | -         |
| 48                           | 9303           | TER-ND     | *35:01 |            | *44:03    | -         | -         | -         | -         | -         | +         | -         | -         | -         | +         | -         | +         | +         |

Lot No.: **24M**

Lot-specific Information

[www.olerup-ssp.com](http://www.olerup-ssp.com)

| CELL LINE VALIDATION SHEET   |                |            |        |            |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |
|------------------------------|----------------|------------|--------|------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| DR low resolution primer set |                |            |        |            |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |
|                              |                |            |        |            | Well      |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |
|                              |                |            |        |            | 65        | 66        | 67        | 68        | 69        | 70        | 71        | 72        | 73        | 74        | 75        | 76        | 77        | 78        | 79        | 80        |
|                              |                |            |        | Prod. No.: | 201185101 | 201185102 | 201185103 | 201185104 | 201185105 | 201185106 | 201185107 | 201185108 | 201185109 | 201185110 | 201185111 | 201185112 | 201185113 | 201185114 | 201185115 | 201185116 |
|                              | IHCW cell line |            | DRB1   |            |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |
| 1                            | 9001           | SA         | *01:01 |            | +         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         |
| 2                            | 9280           | LK707      | *15:02 | *04:05     | -         | -         | +         | -         | -         | -         | -         | +         | -         | -         | -         | -         | -         | -         | -         | -         |
| 3                            | 9011           | E4181324   | *15:02 |            | -         | -         | +         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         |
| 4                            | 9275           | GU373      | *03:01 |            | -         | -         | -         | -         | +         | +         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         |
| 5                            | 9009           | KAS011     | *16:01 |            | -         | -         | -         | +         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         |
| 6                            | 9353           | SM         | *04:07 | *08:03     | -         | -         | -         | -         | -         | -         | -         | +         | -         | +         | -         | -         | -         | -         | -         | -         |
| 7                            | 9020           | QBL        | *03:01 |            | -         | -         | -         | -         | +         | +         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         |
| 8                            | 9025           | DEU        | *04:01 |            | -         | -         | -         | -         | -         | -         | -         | +         | -         | -         | -         | -         | -         | -         | -         | -         |
| 9                            | 9026           | YAR        | *04:02 |            | -         | -         | -         | -         | -         | -         | -         | +         | -         | -         | -         | -         | -         | -         | -         | -         |
| 10                           | 9107           | LKT3       | *04:05 |            | -         | -         | -         | -         | -         | -         | -         | +         | -         | -         | -         | -         | -         | -         | -         | -         |
| 11                           | 9051           | PITOUT     | *07:01 |            | -         | -         | -         | -         | -         | -         | -         | -         | +         | -         | -         | -         | -         | -         | -         | -         |
| 12                           | 9052           | DBB        | *07:01 |            | -         | -         | -         | -         | -         | -         | -         | -         | +         | -         | -         | -         | -         | -         | -         | -         |
| 13                           | 9004           | JESTHOM    | *01:01 |            | +         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         |
| 14                           | 9071           | OLGA       | *08:02 |            | -         | -         | -         | -         | -         | -         | -         | -         | -         | +         | -         | -         | -         | -         | -         | +         |
| 15                           | 9075           | DKB        | *09:01 |            | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | +         | -         | -         | -         | -         | -         |
| 16                           | 9037           | SWEIG007   | *11:01 |            | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | +         | -         | +         | +         |
| 17                           | 9282           | CTM3953540 | *03:01 | *13:01     | -         | -         | -         | -         | +         | +         | -         | -         | -         | -         | -         | -         | -         | -         | +         | +         |
| 18                           | 9257           | 32367      | *09:01 | *11:01     | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | +         | -         | +         | -         | +         | +         |
| 19                           | 9038           | BM16       | *12:01 |            | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | +         | -         | -         |
| 20                           | 9059           | SLE005     | *13:02 |            | -         | -         | -         | -         | -         | +         | -         | -         | -         | -         | -         | -         | -         | -         | +         | +         |
| 21                           | 9064           | AMALA      | *14:02 |            | -         | -         | -         | -         | -         | -         | +         | -         | -         | -         | -         | -         | -         | -         | -         | -         |
| 22                           | 9056           | KOSE       | *13:02 | *14:01     | -         | -         | -         | -         | -         | +         | -         | -         | -         | -         | -         | -         | -         | -         | +         | +         |
| 23                           | 9124           | IHL        | *08:03 | *14:14     | -         | -         | -         | -         | -         | -         | -         | -         | -         | +         | -         | -         | -         | -         | -         | -         |
| 24                           | 9035           | JBUSH      | *11:01 |            | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | +         | -         | +         | +         |
| 25                           | 9049           | IBW9       | *07:01 |            | -         | -         | -         | -         | -         | -         | -         | -         | +         | -         | -         | -         | -         | -         | -         | -         |
| 26                           | 9285           | WT49       | *03:01 |            | -         | -         | -         | -         | +         | +         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         |
| 27                           | 9191           | CH1007     | *04:05 | *10:01     | -         | -         | -         | -         | -         | -         | -         | +         | -         | -         | -         | +         | -         | -         | -         | -         |
| 28                           | 9320           | BEL5GB     | *04:16 | *07:01     | -         | -         | -         | -         | -         | -         | -         | +         | +         | -         | -         | -         | -         | -         | -         | -         |
| 29                           | 9050           | MOU        | *07:01 |            | -         | -         | -         | -         | -         | -         | -         | -         | +         | -         | -         | -         | -         | -         | -         | -         |
| 30                           | 9021           | RSH        | *03:02 |            | -         | -         | -         | -         | +         | -         | +         | -         | -         | -         | -         | -         | -         | -         | -         | -         |
| 31                           | 9019           | DUCAF      | *03:01 |            | -         | -         | -         | -         | +         | +         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         |
| 32                           | 9297           | HAG        | *13:03 |            | -         | -         | -         | -         | -         | +         | -         | -         | -         | -         | -         | -         | -         | -         | +         | -         |
| 33                           | 9098           | MT14B      | *04:04 |            | -         | -         | -         | -         | -         | -         | -         | +         | -         | -         | -         | -         | -         | -         | -         | -         |
| 34                           | 9104           | DHIF       | *11:01 |            | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | +         | -         | +         | +         |
| 35                           | 9302           | SSTO       | *04:03 |            | -         | -         | -         | -         | -         | -         | -         | +         | -         | -         | -         | -         | -         | -         | -         | -         |
| 36                           | 9024           | KT17       | *04:03 | *04:06     | -         | -         | -         | -         | -         | -         | -         | +         | -         | -         | -         | -         | -         | -         | -         | -         |
| 37                           | 9065           | HHKB       | *13:01 |            | -         | -         | -         | -         | -         | +         | -         | -         | -         | -         | -         | -         | -         | -         | +         | +         |
| 38                           | 9099           | LZL        | *14:02 |            | -         | -         | -         | -         | -         | -         | +         | -         | -         | -         | -         | -         | -         | -         | -         | -         |
| 39                           | 9315           | CML        | *03:01 | *04:01     | -         | -         | -         | -         | +         | +         | -         | +         | -         | -         | -         | -         | -         | -         | -         | -         |
| 40                           | 9134           | WHONP199   | *07:01 | *09:01     | -         | -         | -         | -         | -         | -         | -         | -         | +         | -         | +         | -         | -         | -         | -         | -         |
| 41                           | 9055           | H0301      | *13:02 |            | -         | -         | -         | -         | -         | +         | -         | -         | -         | -         | -         | -         | -         | -         | +         | +         |
| 42                           | 9066           | TAB089     | *08:03 |            | -         | -         | -         | -         | -         | -         | -         | -         | -         | +         | -         | -         | -         | -         | -         | -         |
| 43                           | 9076           | T7526      | *09:01 |            | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | +         | -         | -         | -         | -         | -         |
| 44                           | 9057           | TEM        | *14:01 |            | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         |
| 45                           | 9239           | SHJO       | *07:01 |            | -         | -         | -         | -         | -         | -         | -         | -         | +         | -         | -         | -         | -         | -         | -         | -         |
| 46                           | 9013           | SCHU       | *15:01 |            | -         | -         | +         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         |
| 47                           | 9045           | TUBO       | *11:04 | *12:01     | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | +         | +         | +         | +         |
| 48                           | 9303           | TER-ND     | *01:03 |            | -         | +         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         |

Lot No.: **24M**

Lot-specific Information

| CELL LINE VALIDATION SHEET   |                |            |        |        |            |                   |           |           |           |           |           |           |
|------------------------------|----------------|------------|--------|--------|------------|-------------------|-----------|-----------|-----------|-----------|-----------|-----------|
| DR low resolution primer set |                |            |        |        |            |                   |           |           |           |           |           |           |
|                              |                |            |        |        | Prod. No.: | Well <sup>1</sup> |           |           |           |           |           |           |
|                              |                |            |        |        |            | 81                | 82        | 83        | 84        | 85        | 86        | 87        |
|                              |                |            |        |        |            | 201185117         | 201185118 | 201185119 | 201185120 | 201185121 | 201185122 | 201185123 |
|                              | IHCW cell line |            | DRB1   |        |            |                   |           |           |           |           |           |           |
| 1                            | 9001           | SA         | *01:01 |        |            | -                 | -         | -         | -         | -         | -         | -         |
| 2                            | 9280           | LK707      | *15:02 | *04:05 |            | -                 | -         | -         | -         | -         | +         | +         |
| 3                            | 9011           | E4181324   | *15:02 |        |            | -                 | -         | -         | -         | -         | -         | +         |
| 4                            | 9275           | GU373      | *03:01 |        |            | +                 | -         | -         | -         | +         | -         | -         |
| 5                            | 9009           | KAS011     | *16:01 |        |            | -                 | -         | -         | -         | -         | -         | +         |
| 6                            | 9353           | SM         | *04:07 | *08:03 |            | -                 | -         | -         | -         | -         | +         | -         |
| 7                            | 9020           | QBL        | *03:01 |        |            | +                 | -         | -         | -         | +         | -         | -         |
| 8                            | 9025           | DEU        | *04:01 |        |            | -                 | -         | -         | -         | -         | +         | -         |
| 9                            | 9026           | YAR        | *04:02 |        |            | -                 | -         | -         | -         | -         | +         | -         |
| 10                           | 9107           | LKT3       | *04:05 |        |            | -                 | -         | -         | -         | -         | +         | -         |
| 11                           | 9051           | PITOUT     | *07:01 |        |            | -                 | -         | -         | -         | -         | +         | -         |
| 12                           | 9052           | DBB        | *07:01 |        |            | -                 | +         | -         | -         | -         | +         | -         |
| 13                           | 9004           | JESTHOM    | *01:01 |        |            | -                 | -         | -         | -         | -         | -         | -         |
| 14                           | 9071           | OLGA       | *08:02 |        |            | -                 | -         | -         | -         | -         | -         | -         |
| 15                           | 9075           | DKB        | *09:01 |        |            | -                 | -         | +         | -         | -         | +         | -         |
| 16                           | 9037           | SWEIG007   | *11:01 |        |            | -                 | -         | -         | -         | +         | -         | -         |
| 17                           | 9282           | CTM3953540 | *03:01 | *13:01 |            | +                 | -         | -         | -         | +         | -         | -         |
| 18                           | 9257           | 32367      | *09:01 | *11:01 |            | -                 | -         | +         | -         | +         | +         | -         |
| 19                           | 9038           | BM16       | *12:01 |        |            | -                 | -         | -         | -         | +         | -         | -         |
| 20                           | 9059           | SLE005     | *13:02 |        |            | +                 | -         | -         | -         | +         | -         | -         |
| 21                           | 9064           | AMALA      | *14:02 |        |            | +                 | -         | +         | -         | +         | -         | -         |
| 22                           | 9056           | KOSE       | *13:02 | *14:01 |            | +                 | +         | +         | +         | +         | -         | -         |
| 23                           | 9124           | IHL        | *08:03 | *14:14 |            | +                 | -         | +         | +         | +         | -         | -         |
| 24                           | 9035           | JBUSH      | *11:01 |        |            | -                 | -         | -         | -         | +         | -         | -         |
| 25                           | 9049           | IBW9       | *07:01 |        |            | -                 | -         | -         | -         | -         | +         | -         |
| 26                           | 9285           | WT49       | *03:01 |        |            | +                 | -         | -         | -         | +         | -         | -         |
| 27                           | 9191           | CH1007     | *04:05 | *10:01 |            | -                 | -         | -         | -         | -         | +         | -         |
| 28                           | 9320           | BEL5GB     | *04:16 | *07:01 |            | -                 | -         | -         | -         | -         | +         | -         |
| 29                           | 9050           | MOU        | *07:01 |        |            | -                 | -         | -         | -         | -         | +         | -         |
| 30                           | 9021           | RSH        | *03:02 |        |            | +                 | -         | -         | -         | +         | -         | -         |
| 31                           | 9019           | DUCAF      | *03:01 |        |            | +                 | -         | -         | -         | +         | -         | -         |
| 32                           | 9297           | HAG        | *13:03 |        |            | +                 | -         | -         | -         | +         | -         | -         |
| 33                           | 9098           | MT14B      | *04:04 |        |            | -                 | -         | -         | -         | -         | +         | -         |
| 34                           | 9104           | DHIF       | *11:01 |        |            | -                 | -         | -         | -         | +         | -         | -         |
| 35                           | 9302           | SSTO       | *04:03 |        |            | -                 | -         | -         | -         | -         | +         | -         |
| 36                           | 9024           | KT17       | *04:03 | *04:06 |            | -                 | -         | -         | -         | -         | +         | -         |
| 37                           | 9065           | HHKB       | *13:01 |        |            | +                 | -         | -         | -         | +         | -         | -         |
| 38                           | 9099           | LZL        | *14:02 |        |            | +                 | -         | +         | -         | +         | -         | -         |
| 39                           | 9315           | CML        | *03:01 | *04:01 |            | +                 | -         | -         | -         | +         | +         | -         |
| 40                           | 9134           | WHONP199   | *07:01 | *09:01 |            | -                 | -         | +         | -         | -         | +         | -         |
| 41                           | 9055           | H0301      | *13:02 |        |            | +                 | -         | -         | -         | +         | -         | -         |
| 42                           | 9066           | TAB089     | *08:03 |        |            | -                 | -         | -         | -         | -         | -         | -         |
| 43                           | 9076           | T7526      | *09:01 |        |            | -                 | -         | +         | -         | -         | +         | -         |
| 44                           | 9057           | TEM        | *14:01 |        |            | -                 | +         | +         | +         | +         | -         | -         |
| 45                           | 9239           | SHJO       | *07:01 |        |            | -                 | -         | -         | -         | +         | +         | -         |
| 46                           | 9013           | SCHU       | *15:01 |        |            | -                 | -         | -         | -         | -         | -         | +         |
| 47                           | 9045           | TUBO       | *11:04 | *12:01 |            | -                 | -         | -         | -         | +         | -         | -         |
| 48                           | 9303           | TER-ND     | *01:03 |        |            | -                 | -         | -         | -         | -         | -         | -         |

<sup>1</sup>The DRB4\*01:03:01:02N allele is amplified by primer mix 82 in the DBB/9052 cell line.

Lot No.: **24M**

Lot-specific Information

[www.olerup-ssp.com](http://www.olerup-ssp.com)

| CELL LINE VALIDATION SHEET   |                |             |        |                |      |           |           |           |           |           |           |           |           |
|------------------------------|----------------|-------------|--------|----------------|------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| DQ low resolution primer set |                |             |        |                |      |           |           |           |           |           |           |           |           |
|                              |                |             |        |                | Well |           |           |           |           |           |           |           |           |
|                              |                |             |        |                |      | 88        | 89        | 90        | 91        | 92        | 93        | 94        | 95        |
|                              |                |             |        | Production No. |      | 201185201 | 201185202 | 201185203 | 201185204 | 201185205 | 201185206 | 201185207 | 201185208 |
|                              | IHWC cell line |             | DQB1   |                |      |           |           |           |           |           |           |           |           |
| 1                            | 9001           | SA          | *05:01 |                | +    | -         | -         | -         | -         | -         | -         | -         | -         |
| 2                            | 9280           | LK707       | *06:01 | *02:02         | -    | +         | +         | -         | -         | -         | -         | -         | -         |
| 3                            | 9011           | E4181324    | *06:01 |                | -    | +         | -         | -         | -         | -         | -         | -         | -         |
| 4                            | 9275           | GU373       | *02:01 |                | -    | -         | +         | -         | -         | -         | -         | -         | -         |
| 5                            | 9009           | KAS011      | *05:02 |                | +    | -         | -         | -         | -         | -         | -         | -         | -         |
| 6                            | 9353           | SM          | *03:02 | *06:01         | -    | +         | -         | -         | +         | -         | -         | +         | -         |
| 7                            | 9020           | QBL         | *02:01 |                | -    | -         | +         | -         | -         | -         | -         | -         | -         |
| 8                            | 9025           | DEU         | *03:01 |                | -    | -         | -         | +         | -         | -         | -         | +         | -         |
| 9                            | 9026           | YAR         | *03:02 |                | -    | -         | -         | -         | +         | -         | -         | +         | -         |
| 10                           | 9107           | LKT3        | *04:01 |                | -    | -         | -         | -         | -         | -         | -         | -         | +         |
| 11                           | 9051           | PITOUT      | *02:02 |                | -    | -         | +         | -         | -         | -         | -         | -         | -         |
| 12                           | 9052           | DBB         | *03:03 |                | -    | -         | -         | -         | -         | -         | +         | +         | -         |
| 13                           | 9004           | JESTHOM     | *05:01 |                | +    | -         | -         | -         | -         | -         | -         | -         | -         |
| 14                           | 9071           | OLGA        | *04:02 |                | -    | -         | -         | -         | -         | -         | -         | -         | +         |
| 15                           | 9075           | DKB         | *03:03 |                | -    | -         | -         | -         | -         | -         | +         | +         | -         |
| 16                           | 9037           | SWEIG007    | *03:01 |                | -    | -         | -         | +         | -         | -         | -         | +         | -         |
| 17                           | 9282           | CTM 3953540 | *02:01 | *06:03         | -    | +         | +         | -         | -         | -         | -         | -         | -         |
| 18                           | 9257           | 32367       | *06:02 | *02:02         | -    | +         | +         | -         | -         | -         | -         | -         | -         |
| 19                           | 9038           | BM16        | *03:01 |                | -    | -         | -         | +         | -         | -         | -         | +         | -         |
| 20                           | 9059           | SLE005      | *06:04 |                | -    | +         | -         | -         | -         | -         | -         | -         | -         |
| 21                           | 9064           | AMALA       | *03:01 |                | -    | -         | -         | +         | -         | -         | -         | +         | -         |
| 22                           | 9056           | KOSE        | *05:03 | *06:04         | +    | +         | -         | -         | -         | -         | -         | -         | -         |
| 23                           | 9124           | IHL         | *05:03 | *06:01         | +    | +         | -         | -         | -         | -         | -         | -         | -         |
| 24                           | 9035           | JBUSH       | *03:01 |                | -    | -         | -         | +         | -         | -         | -         | +         | -         |
| 25                           | 9049           | IBW9        | *02:02 |                | -    | -         | +         | -         | -         | -         | -         | -         | -         |
| 26                           | 9285           | WT49        | *02:01 |                | -    | -         | +         | -         | -         | -         | -         | -         | -         |
| 27                           | 9191           | CH1007      | *04:01 | *05:01         | +    | -         | -         | -         | -         | -         | -         | -         | +         |
| 28                           | 9320           | BEL5GB      | *02:02 | *03:01         | -    | -         | +         | +         | -         | -         | -         | +         | -         |
| 29                           | 9050           | MOU         | *02:02 |                | -    | -         | +         | -         | -         | -         | -         | -         | -         |
| 30                           | 9021           | RSH         | *04:02 |                | -    | -         | -         | -         | -         | -         | -         | -         | +         |
| 31                           | 9019           | DUCAF       | *02:01 |                | -    | -         | +         | -         | -         | -         | -         | -         | -         |
| 32                           | 9297           | HAG         | *03:01 |                | -    | -         | -         | +         | -         | -         | -         | +         | -         |
| 33                           | 9098           | MT14B       | *03:02 |                | -    | -         | -         | -         | +         | -         | -         | +         | -         |
| 34                           | 9104           | DHIF        | *03:01 |                | -    | -         | -         | +         | -         | -         | -         | +         | -         |
| 35                           | 9302           | SSTO        | *03:05 |                | -    | -         | -         | -         | +         | -         | -         | +         | -         |
| 36                           | 9024           | KT17        | *03:02 |                | -    | -         | -         | -         | +         | -         | -         | +         | -         |
| 37                           | 9065           | HHKB        | *06:03 |                | -    | +         | -         | -         | -         | -         | -         | -         | -         |
| 38                           | 9099           | LZL         | *03:01 |                | -    | -         | -         | +         | -         | -         | -         | +         | -         |
| 39                           | 9315           | CML         | *02:01 | *03:01         | -    | -         | +         | +         | -         | -         | -         | +         | -         |
| 40                           | 9134           | WHONP199    | *02:02 | *03:03         | -    | -         | +         | -         | -         | +         | +         | +         | -         |
| 41                           | 9055           | H0301       | *06:09 |                | -    | +         | -         | -         | -         | -         | -         | -         | -         |
| 42                           | 9066           | TAB089      | *06:01 |                | -    | +         | -         | -         | -         | -         | -         | -         | -         |
| 43                           | 9076           | T7526       | *03:03 |                | -    | -         | -         | -         | -         | -         | +         | +         | -         |
| 44                           | 9057           | TEM         | *05:03 |                | +    | -         | -         | -         | -         | -         | -         | -         | -         |
| 45                           | 9239           | SHJO        | *02:02 |                | -    | -         | +         | -         | -         | -         | -         | -         | -         |
| 46                           | 9013           | SCHU        | *06:02 |                | -    | +         | -         | -         | -         | -         | -         | -         | -         |
| 47                           | 9045           | TUBO        | *03:01 |                | -    | -         | -         | +         | +         | -         | -         | +         | -         |
| 48                           | 9303           | TER-ND      | *05:01 |                | +    | -         | -         | -         | -         | -         | -         | -         | -         |

Lot No.: **24M**

Lot-specific Information

[www.olerup-ssp.com](http://www.olerup-ssp.com)

## CERTIFICATE OF ANALYSIS

### **Olerup SSP® HLA-A-B-DR-DQ SSP Combi Tray**

**Product number:** 101.708-24u – without *Taq* pol.  
**Lot number:** 24M  
**Expiry date:** 2013-December-01  
**Number of tests:** 24 tests  
**Number of wells per test:** 95 + 1

#### **Well specifications:**

| Well No. | Production No. | Well No. | Production No. | Well No. | Production No. |
|----------|----------------|----------|----------------|----------|----------------|
| 1        | 2010-787-01    | 9        | 2010-787-10    | 17       | 2010-733-18    |
| 2        | 2010-787-02    | 10       | 2010-787-11    | 18       | 2010-733-19    |
| 3        | 2010-733-03    | 11       | 2011-875-12    | 19       | 2010-787-20    |
| 4        | 2010-733-04    | 12       | 2010-733-13    | 20       | 2010-733-21    |
| 5        | 2010-787-06    | 13       | 2010-787-14    | 21       | 2010-787-23    |
| 6        | 2010-733-07    | 14       | 2010-733-15    |          |                |
| 7        | 2010-733-08    | 15       | 2010-787-16    |          |                |
| 8        | 2010-733-09    | 16       | 2010-787-17    |          |                |

The specificity of each primer solution of the kit has been tested against 48 well characterized IHWC cell line DNAs.

Additional 5'- and/or 3'-primers in primer solutions 1, 3 to 7, 9, 11 and 13 to 21 were tested by separately adding one or more 3'-primers, respectively 5'-primers. One primer in primer solutions 2, 3, 9, 10, 14, 17 and 18 was not possible to test.

| Well No. | Production No. | Well No. | Production No. | Well No. | Production No. |
|----------|----------------|----------|----------------|----------|----------------|
| 22       | 2009-633-48    | 38       | 2010-734-18    | 54       | 2010-788-36    |
| 23       | 2010-734-02    | 39       | 2010-788-19    | 55       | 2010-734-37    |
| 24       | 2010-788-03    | 40       | 2011-823-20    | 56       | 2010-788-38    |
| 25       | 2010-734-04    | 41       | 2010-734-21    | 57       | 2010-734-39    |
| 26       | 2011-858-05    | 42       | 2010-734-22    | 58       | 2010-734-40    |
| 27       | 2010-734-06    | 43       | 2010-734-23    | 59       | 2010-734-41    |
| 28       | 2010-734-07    | 44       | 2010-788-24    | 60       | 2010-734-42    |
| 29       | 2010-734-08    | 45       | 2010-788-25    | 61       | 2010-734-44    |
|          |                |          |                |          |                |
| 30       | 2010-734-09    | 46       | 2010-734-27    | 62       | 2010-734-45    |
| 31       | 2010-734-10    | 47       | 2010-734-28    | 63       | 2010-734-46    |
| 32       | 2010-734-11    | 48       | 2011-858-29    | 64       | 2010-734-47    |
| 33       | 2010-734-13    | 49       | 2011-823-31    |          |                |
| 34       | 2010-734-14    | 50       | 2010-734-32    |          |                |
| 35       | 2010-788-15    | 51       | 2011-823-33    |          |                |
| 36       | 2010-734-16    | 52       | 2010-734-34    |          |                |
| 37       | 2010-734-17    | 53       | 2010-734-35    |          |                |

The specificity of each primer solution of the kit has been tested against 48 well characterized IHWC cell line DNAs.

Additional 5'-primers and/or 3'-primers in primer solutions 22-24, 27, 33-35, 39, 41, 45, 48, 49, 53 and 58 were tested by separately adding additional 3'-primers, respectively additional 5'-primers. One or two primers in primer solutions 49, 56 and 60 were not possible to test.

Lot No.: **24M**

Lot-specific Information

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| Well No. | Production No. | Well No. | Production No. | Well No. | Production No. |
|----------|----------------|----------|----------------|----------|----------------|
| 65       | 2011-851-01    | 73       | 2011-851-09    | 81       | 2011-851-17    |
| 66       | 2011-851-02    | 74       | 2011-851-10    | 82       | 2011-851-18    |
| 67       | 2011-851-03    | 75       | 2011-851-11    | 83       | 2011-851-19    |
| 68       | 2011-851-04    | 76       | 2011-851-12    | 84       | 2011-851-20    |
| 69       | 2011-851-05    | 77       | 2011-851-13    | 85       | 2011-851-21    |
| 70       | 2011-851-06    | 78       | 2011-851-14    | 86       | 2011-851-22    |
| 71       | 2011-851-07    | 79       | 2011-851-15    | 87       | 2011-851-23    |
| 72       | 2011-851-08    | 80       | 2011-851-16    |          |                |

The specificity of each primer solution of the kit has been tested against 48 well characterized IHWC cell line DNAs.

Additional 5'-primers and/or 3'-primers in primer solutions 65, 67, 68, 70, 73 to 76, 79, 80, 82 and 84 were tested by separately adding additional 3'-primers, respectively additional 5'-primers.

One, two or three of the primers in primer solutions 65, 67, 68, 72 to 74, 77, 79, 80 and 86 were not possible to test.

| Well No. | Production No. |
|----------|----------------|
| 88       | 2011-852-01    |
| 89       | 2011-852-02    |
| 90       | 2011-852-03    |
| 91       | 2011-852-04    |
| 92       | 2011-852-05    |
| 93       | 2011-852-06    |
| 94       | 2011-852-07    |
| 95       | 2011-852-08    |

The specificity of each primer solution of the kit has been tested against 48 well characterized IHWC cell line DNAs.

One additional 5'-primer in primer solutions 89 and 95 were tested by separately adding one additional 3'-primer.

The negative control primer pairs, **Production No. 2010-760-01**, can detect contamination with PCR products diluted  $10^{-7}$ .

**Results:** No false positive or false negative amplifications were obtained.

**Date of approval:** 2011-October-06

**Approved by**

**Production Quality Control**

Lot No.: **24M**

Lot-specific Information

[www.olerup-ssp.com](http://www.olerup-ssp.com)

## Declaration of Conformity

**Product name:** *Olerup* SSP® HLA-A-B-DR-DQ SSP Combi Tray  
**Product number:** 101.708-24u  
**Lot number:** 24M

**Intended use:** HLA-A, HLA-B, HLA-DR and HLA-DQ low resolution histo-compatibility testing

**Manufacturer:** *Olerup* SSP AB  
Franzengatan 5  
SE-112 51 Stockholm, Sweden  
**Phone:** +46-8-717 88 27  
**Fax:** +46-8-717 88 18

We, *Olerup* SSP AB, hereby declare that this product, to which this Declaration of Conformity relates is in conformity with the following Standard(s) and other normative document(s) ISO 9001:2008 and ISO 13485:2003, following the provisions of the 98/79/EC Directive on *in vitro* diagnostic medical devices, Annex II List B, conformity assessed using Annex IV, as transposed into the national laws of the Member States of the European Union.

The Technical Documentation File is maintained at *Olerup* SSP AB, Franzengatan 5, SE-112 51 Stockholm, Sweden.

The Authorized Representative located within the Community is: *Olerup* SSP AB.

Notified Body: Lloyd's Register Quality Assurance Limited, Hiramford, Middlemarch Office Village, Siskin Drive, Coventry CV3 4FJ, United Kingdom.  
(Notified Body number: 0088.)

Stockholm, Sweden  
2011-October-06

Ann-Cathrin Jareman  
Head of QA and Regulatory Affairs

Lot No.: **24M**

Lot-specific Information

[www.olerup-ssp.com](http://www.olerup-ssp.com)

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