

## Risk Parameter File ("RPF") Descriptions

Note: This document is provided to Participants for testing purpose only.

### 1. Type "0" Records

#### Exchange Complex Header

| Length | From | To | Data type | Format | Description and Comments   |
|--------|------|----|-----------|--------|--|
| 2      | 1    | 2  | AN        | 2      | Record ID - "0 "   |
| 6      | 3    | 8  | AN        | X(2)   | <b>Exchange Complex (Clearing Organization)</b> Acronym  |
| 8      | 9    | 16 | N         | 9(8)   | Business Date as <b>CCYYMMDD</b>   |
| 1      | 17   | 17 | AN        | X      | Settlement ( <b>S</b> ) or Intraday ( <b>I</b> ) Flag  |
| 2      | 18   | 19 | AN        | X(2)   | File Identifier - ( <b>E</b> for "Early" Settlement, <b>F</b> for "Final" Settlement, <b>C</b> for "Complete" Settlement, or other value)    |
| 4      | 20   | 23 | N         | 9(4)   | Business Time as <b>HHMM</b>   |
| 8      | 24   | 31 | N         | 9(8)   | File Creation Date as <b>CCYYMMDD</b>  |
| 4      | 32   | 35 | N         | 9(4)   | File Creation Time as <b>HHMM</b>  |
| 2      | 36   | 37 | AN        | X(2)   | File Format - <b>U2</b> for Expanded Unpacked  |
| 1      | 38   | 38 | AN        | X      | Gross/Net-Margining (Performance Bond) Indicator Filler. Not Used  |
| 1      | 39   | 39 | AN        | X      | Overall <b>Limit Option Value (Cap Available Net Option Value)</b> Flag Filler. Not Used   |
| 5      | 40   | 44 | AN        | X(5)   | Business Function ( <b>CLR</b> or <b>blank</b> for Normal Clearing and <b>XMRGN</b> for Cross Margining (Performance Bond)) Filler. Not Used |
| 6      | 45   | 50 | -         | -      | Filler   |
| 1      | 51   | 51 | AN        | X      | Clearing House or Client Code - <b>A</b> for Clearing House, <b>C</b> for Client   |
| 1      | 52   | 52 | -         | -      | Filler   |
| 5      | 53   | 57 | AN        | X(5)   | Clearing House or Client Acronym - <b>CUST</b> for Client, <b>CLR</b> for Clearing House   |

### 2. Type "1" Records

#### Exchange Header

| Length | From | To | Data type | Format | Description and Comments |
|--------|------|----|-----------|--------|--------------------------|
| 2      | 1    | 2  | AN        | X(2)   | Record ID - "1 "         |
| 3      | 3    | 5  | AN        | X(3)   | Exchange Acronym         |
| 2      | 6    | 7  | -         | -      | Filler                   |
| 2      | 8    | 9  | AN        | X(2)   | Exchange Code            |

### 3. Type "2" Record

#### First Combined Commodity Record

| Length | From | To | Data type | Format | Description and Comments                                     |
|--------|------|----|-----------|--------|--|
| 2      | 1    | 2  | AN        | X      | Record ID - "2 "   |
| 3      | 3    | 5  | AN        | X(3)   | Exchange Acronym   |
| 1      | 6    | 6  | -         | -      | Filler   |
| 6      | 7    | 12 | AN        | X(6)   | Combined Commodity Code                                      |
| 1      | 13   | 13 | N         | 9      | Risk Exponent  |
| 3      | 14   | 16 | AN        | X(3)   | Margin (Performance Bond) Currency ISO Code                  |
| 1      | 17   | 17 | AN        | X      | Margin (Performance Bond) Currency Code                      |
| 1      | 18   | 18 | AN        | X      | Option Margin (Performance Bond) Style (Valuation Method) -- |

| Length | From | To  | Data type | Format | Description and Comments   |
|--------|------|-----|-----------|--------|--|
|        |      |     |           |        | <b>P</b> for premium-style, <b>F</b> for futures-style, or blank -- if blank, premium-style is assumed.  |
| 1      | 19   | 19  | AN        | X      | Limit Option Value (Cap Available Net Option Value) Flag - <b>Y</b> , <b>N</b> or blank -- if blank, no is assumed.                                    |
| 1      | 20   | 20  | AN        | X      | Combination Margin (Performance Bond)ing Method Flag - <b>S</b> for split-allocation, <b>D</b> for delta-split-allocation, or blank. Filler. Not Used. |
| 2      | 21   | 22  | -         | -      | Filler   |
| 10     | 23   | 32  | AN        | X(10)  | Commodity (Product) Code 1   |
| 3      | 33   | 35  | AN        | X      | Contract Type 1 - <b>FUT, PHY, CMB, OOF, OOP, OOC</b>  |
| 1      | 36   | 36  | N         | 9      | Risk Array Value Decimal Locator -- optional, if blank 0 is assumed  |
| 1      | 37   | 37  | AN        | X      | Risk Array Value Decimal Sign -- '+' or '-', -- optional, any other value means '+'  |
| 1      | 38   | 38  | -         | -      | Filler   |
| 10     | 39   | 48  | AN        | X(10)  | Commodity (Product) Code 2   |
| 3      | 49   | 51  | AN        | X      | Contract Type 2 - <b>FUT, PHY, CMB, OOF, OOP, OOC</b>  |
| 1      | 52   | 52  | N         | 9      | Risk Array Value Decimal Locator -- optional, if blank 0 is assumed  |
| 1      | 53   | 53  | AN        | X      | Risk Array Value Decimal Sign -- '+' or '-', -- optional, any other value means '+'  |
| 1      | 54   | 54  | -         | -      | Filler   |
| 10     | 55   | 64  | AN        | X(10)  | Commodity (Product) Code 3   |
| 3      | 65   | 67  | AN        | X      | Contract Type 3 - <b>FUT, PHY, CMB, OOF, OOP, OOC</b>  |
| 1      | 68   | 68  | N         | 9      | Risk Array Value Decimal Locator -- optional, if blank 0 is assumed  |
| 1      | 69   | 69  | AN        | X      | Risk Array Value Decimal Sign -- '+' or '-', -- optional, any other value means '+'  |
| 1      | 70   | 70  | -         | -      | Filler   |
| 10     | 71   | 80  | AN        | X(10)  | Commodity (Product) Code 4   |
| 3      | 81   | 83  | AN        | X      | Contract Type 4 - <b>FUT, PHY, CMB, OOF, OOP, OOC</b>  |
| 1      | 84   | 84  | N         | 9      | Risk Array Value Decimal Locator -- optional, if blank 0 is assumed  |
| 1      | 85   | 85  | AN        | X      | Risk Array Value Decimal Sign -- '+' or '-', -- optional, any other value means '+'  |
| 1      | 86   | 86  | -         | -      | Filler   |
| 10     | 87   | 96  | AN        | X(10)  | Commodity (Product) Code 5   |
| 3      | 97   | 99  | AN        | X      | Contract Type 5 - <b>FUT, PHY, CMB, OOF, OOP, OOC</b>  |
| 1      | 100  | 100 | N         | 9      | Risk Array Value Decimal Locator -- optional, if blank 0 is assumed  |
| 1      | 101  | 101 | AN        | X      | Risk Array Value Decimal Sign -- '+' or '-', -- optional, any other value means '+'  |
| 1      | 102  | 102 | -         | -      | Filler   |
| 10     | 103  | 112 | AN        | X(10)  | Commodity (Product) Code 6   |
| 3      | 113  | 115 | AN        | X      | Contract Type 6 - <b>FUT, PHY, CMB, OOF, OOP, OOC</b>  |
| 1      | 116  | 116 | N         | 9      | Risk Array Value Decimal Locator -- optional, if blank 0 is assumed  |
| 1      | 117  | 117 | AN        | X      | Risk Array Value Decimal Sign -- '+' or '-', -- optional, any other value means '+'  |
| 15     | 118  | 132 | -         | -      | Filler   |

**Notes:**

1. The commodity code-contract type fields specify which **product families** are linked into this combined commodity. A product family is made unique by the combination of the exchange acronym, the product (commodity) code, and the product type code. Product type codes currently supported are **PHY** for physical, **FUT** for future, **CMB** for combination, **OOP** for option on physical, **OOF** for option on future, and **OOC** for option on combination. **CMB** and **OOC** are not used.

2. Up to 6 commodity code and contract type field pairs can be specified on one type "2" record. If more are needed, additional type "2" record(s) for the same combined commodity follow immediately.
3. The risk exponent field is the power of ten to be applied to all risk array values and monetary charge rates for this combined commodity. Zero is the typical value, meaning risk array values and monetary charge rates in the file are correct as given. A value of one, for example, means that all risk array values and monetary charge rates should be multiplied by ten raised to the one power, or ten. Risk exponents apply to risk array values, intracommodity spread charge rates, delivery (spot) charge rates, short option minimum charge rates, and futures price scan ranges.
4. The margin (performance bond) currency is the currency in which the margin (performance bond) requirement for this combined commodity is denominated.

#### 4. Type "3" Record

##### Second Combined Commodity Record

| Length | From | To | Data type | Format | Description and Comments                              |
|--------|------|----|-----------|--------|---|
| 2      | 1    | 2  | AN        | X      | Record ID - "3 "                                      |
| 6      | 3    | 8  | AN        | X(6)   | Combined Commodity Code                               |
| 2      | 9    | 10 | AN        | X(2)   | Intracommodity (Intermonth) Spread Charge Method Code |
| 2      | 11   | 12 | N         | 9(2)   | Tier 1 Tier Number                                    |
| 6      | 13   | 18 | N         | 9(6)   | Tier 1 Starting Contract Month as <b>CCYYMM</b>       |
| 6      | 19   | 24 | N         | 9(6)   | Tier 1 Ending Contract Month as <b>CCYYMM</b>         |
| 2      | 25   | 26 | N         | 9(2)   | Tier 2 Tier Number                                    |
| 6      | 27   | 32 | N         | 9(6)   | Tier 2 Starting Contract Month as <b>CCYYMM</b>       |
| 6      | 33   | 38 | N         | 9(6)   | Tier 2 Ending Contract Month as <b>CCYYMM</b>         |
| 2      | 39   | 40 | N         | 9(2)   | Tier 3 Tier Number                                    |
| 6      | 41   | 46 | N         | 9(6)   | Tier 3 Starting Contract Month as <b>CCYYMM</b>       |
| 6      | 47   | 52 | N         | 9(6)   | Tier 3 Ending Contract Month as <b>CCYYMM</b>         |
| 2      | 53   | 54 | N         | 9(2)   | Tier 4 Tier Number                                    |
| 6      | 55   | 60 | N         | 9(6)   | Tier 4 Starting Contract Month as <b>CCYYMM</b>       |
| 6      | 61   | 66 | N         | 9(6)   | Tier 4 Ending Contract Month as <b>CCYYMM</b>         |
| 2      | 67   | 68 | -         | -      | Filler  |
| 4      | 69   | 72 | N         | 9V9(3) | Initial to Maintenance Ratio -- Member Accounts       |
| 4      | 73   | 76 | N         | 9V9(3) | Initial to Maintenance Ratio -- Hedger Accounts       |
| 4      | 77   | 80 | N         | 9V9(3) | Initial to Maintenance Ratio -- Speculator Accounts   |
| 2      | 81   | 82 | AN        | X(2)   | Tier 1 Starting Contract Day Code                     |
| 2      | 83   | 84 | AN        | X(2)   | Tier 1 Ending Contract Day Code                       |
| 2      | 85   | 86 | AN        | X(2)   | Tier 2 Starting Contract Day Code                     |
| 2      | 87   | 88 | AN        | X(2)   | Tier 2 Ending Contract Day Code                       |
| 2      | 89   | 90 | AN        | X(2)   | Tier 3 Starting Contract Day Code                     |
| 2      | 91   | 92 | AN        | X(2)   | Tier 3 Ending Contract Day Code                       |
| 2      | 93   | 94 | AN        | X(2)   | Tier 4 Starting Contract Day Code                     |
| 2      | 95   | 96 | AN        | X(2)   | Tier 4 Ending Contract Day Code                       |

##### Notes:

1. If the intracommodity spread charge method code is "10" -- the **table-driven** method -- then each type "3" record specifies up to four **intracommodity spread tiers**. Each such tier is defined as a group of consecutive futures months; the tiers defined for a combined commodity do not overlap. There will be at least one tier for each such combined commodity. If more than four tiers are specified for a combined commodity, they will be on additional type "3" records which immediately follow the first.
2. If values are provided which are non-null, non-blank or non-zero in the "Starting Contract Day Code" or "Ending Contract Day Code" fields, then these should be appended to the starting contract month or ending contract month fields, respectively, in order to determine the true starting or ending contract period code for the tier.

## 5. Type "4" Record

### Third Combined Commodity Record

| Length | From | To  | Data type | Format | Description and Comments   |
|--------|------|-----|-----------|--------|--|
| 2      | 1    | 2   | AN        | X(2)   | Record ID - "4 "   |
| 6      | 3    | 8   | AN        | X(6)   | Combined Commodity Code  |
| 2      | 9    | 10  | AN        | X(2)   | Delivery (Spot) Charge Method Code   |
| 2      | 11   | 12  | N         | 9(2)   | Number of contract months in delivery  |
| 2      | 13   | 14  | N         | 9(2)   | Delivery Month 1 - Month Number  |
| 6      | 15   | 20  | N         | 9(6)   | Delivery Month 1 - Contract Month as <b>CCYYMM</b>   |
| 7      | 21   | 27  | N         | 9(7)   | Delivery Month 1 - Charge Rate Per Delta Consumed By Spreads   |
| 7      | 28   | 34  | N         | 9(7)   | Delivery Month 1 - Charge Rate Per Delta Remaining In Outrights  |
| 2      | 35   | 36  | N         | 9(2)   | Delivery Month 2 - Month Number  |
| 6      | 37   | 42  | N         | 9(6)   | Delivery Month 2 - Contract Month as <b>CCYYMM</b>   |
| 7      | 43   | 49  | N         | 9(7)   | Delivery Month 2 - Charge Rate Per Delta Consumed By Spreads   |
| 7      | 50   | 56  | N         | 9(7)   | Delivery Month 2 - Charge Rate Per Delta Remaining In Outrights  |
| 6      | 57   | 62  | -         | -      | Filler   |
| 7      | 63   | 69  | N         | 9(7)   | Short Option Minimum Charge Rate   |
| 3      | 70   | 72  | N         | 9V9(2) | Risk Maintenance Margin (Performance Bond) Adjustment Factor -- Members  |
| 3      | 73   | 75  | N         | 9V9(2) | Risk Maintenance Margin (Performance Bond) Adjustment Factor -- Hedgers  |
| 3      | 76   | 78  | N         | 9V9(2) | Risk Maintenance Margin (Performance Bond) Adjustment Factor -- Speculators  |
| 1      | 79   | 79  | AN        | X      | Short Option Minimum Calculation Method -- <b>blank</b> or <b>2</b> means the original method, based on the <b>sum of the number of short calls and short puts</b> . <b>1</b> means the new method, based on the <b>greater of the number or short calls or short puts</b> . |
| 53     | 80   | 132 | -         | -      | Filler   |

#### Notes:

1. Delivery (Spot) Charge Method "01" means that there is no spot charge.
2. For Delivery (Spot) Charge Method "10" (the **table-driven** calculation), any number of delivery months may be defined. Two such months may be specified per type "4" record. If there are more than two delivery months for a particular combined commodity using this method, then the additional delivery months are specified on additional type "4" records which immediately follow the first.
3. If any of the Risk Maintenance Margin (Performance Bond) Adjustment Factors contains only zeros, blanks or nulls (or if these bytes are not present due to truncation of blanks at the end of the record), it should be defaulted to **1.00**.
4. The Short Option Minimum Calculation Method in byte 79 reflects the different methods for determining the number of short options to be charged for. 2 is the default value and means, take the sum of the number of short calls and short puts. 1 means, take the greater of the number of short calls or the number of short puts.

## 6. Type "5" Record

### Combined Commodity Groups

| Length | From | To | Data type | Format | Description and Comments      |
|--------|------|----|-----------|--------|-------------------------------|
| 2      | 1    | 2  | AN        | X      | Record ID - "5 "              |
| 3      | 3    | 5  | AN        | X(3)   | Combined Commodity Group Code |
| 7      | 6    | 12 | -         | -      | Filler                        |
| 6      | 13   | 18 | AN        | X(6)   | Combined Commodity Code 1     |
| 6      | 19   | 24 | AN        | X(6)   | Combined Commodity Code 2     |
| 6      | 25   | 30 | AN        | X(6)   | Combined Commodity Code 3     |
| 6      | 31   | 36 | AN        | X(6)   | Combined Commodity Code 4     |
| 6      | 37   | 42 | AN        | X(6)   | Combined Commodity Code 5     |
| 6      | 43   | 48 | AN        | X(6)   | Combined Commodity Code 6     |
| 6      | 49   | 54 | AN        | X(6)   | Combined Commodity Code 7     |
| 6      | 55   | 60 | AN        | X(6)   | Combined Commodity Code 8     |
| 6      | 61   | 66 | AN        | X(6)   | Combined Commodity Code 9     |
| 6      | 67   | 72 | AN        | X(6)   | Combined Commodity Code 10    |

#### Notes:

1. Type "5" records define combined commodity groups, and specify which combined commodities are in which group. Each combined commodity must be in exactly one group, since the groups are used in rollups of margin (performance bond) requirements.
2. If there are more than ten combined commodities in a group, additional type "5" records follow the first immediately.

## 7. Type "6" Record

### Intercommodity Spreads

| Length | From | To | Data type | Format     | Description and Comments  |
|--------|------|----|-----------|------------|---|
| 2      | 1    | 2  | AN        | X          | Record ID – "6 "  |
| 3      | 3    | 5  | AN        | X(3)       | Commodity Group Code  |
| 4      | 6    | 9  | N         | 9(4)       | Spread Priority   |
| 7      | 10   | 16 | N         | 9(3)V9 (4) | Spread Credit Rate (in percent)   |
| 3      | 17   | 19 | AN        | X(3)       | Exchange Acronym Leg 1  |
| 1      | 20   | 20 | AN        | X(1)       | If value is not equal to "N", all legs must be present in order for the spread to be formed |
| 6      | 21   | 26 | AN        | X(6)       | Leg 1 - Combined Commodity Code   |
| 7      | 27   | 33 | N         | 9(3)V9 (4) | Leg 1 - Delta/Spread Ratio  |
| 1      | 34   | 34 | AN        | X          | Leg 1 - Spread Side (A or B)  |
| 3      | 35   | 37 | AN        | X(3)       | Exchange Acronym Leg 2  |
| 1      | 38   | 38 | AN        | X(1)       | If value is not equal to "N", all legs must be present in order for the spread to be formed |
| 6      | 39   | 44 | AN        | X(6)       | Leg 2 - Combined Commodity Code   |
| 7      | 45   | 51 | N         | 9(3)V9 (4) | Leg 2 - Delta/Spread Ratio  |
| 1      | 52   | 52 | AN        | X          | Leg 2 - Spread Side (A or B)  |
| 3      | 53   | 55 | AN        | X(3)       | Exchange Acronym Leg 3  |
| 1      | 56   | 56 | AN        | X(1)       | If value is not equal to "N", all legs must be present in order for the spread to be formed |
| 6      | 57   | 62 | AN        | X(6)       | Leg 3 - Combined Commodity Code   |
| 7      | 63   | 69 | N         | 9(3)V9 (4) | Leg 3 - Delta/Spread Ratio  |
| 1      | 70   | 70 | AN        | X          | Leg 3 - Spread Side (A or B)  |
| 3      | 71   | 73 | AN        | X(3)       | Exchange Acronym Leg 4  |
| 1      | 74   | 74 | AN        | X(1)       | If value is not equal to "N", all legs must be present in order for the spread to be formed |
| 6      | 75   | 80 | AN        | X(6)       | Leg 4 - Combined Commodity Code   |
| 7      | 81   | 87 | N         | 9(3)V9 (4) | Leg 4 - Delta/Spread Ratio  |
| 1      | 88   | 88 | AN        | X          | Leg 4 - Spread Side (A or B)  |
| 2      | 89   | 90 | N         | 9(2)       | Intercommodity Spread Method Code   |

**Notes:**

1. This record is used to list the allowable intercommodity spreads for each record type, and to provide parameters for each such spread.
2. For a given commodity spread group, the "6" records are sorted in order by spread priority.
3. The Spread Credit Rate is defined as a percentage out to four decimal places of a percent of precision.
4. Each "6" record can contain data for up to four legs of a spread. There is no upper bound on the number of legs for a spread. There can be as many "6" records as needed for a particular spread. If a particular spread has more than four legs, the additional "6" record(s) for that spread follow the first one immediately.
5. Each intercommodity spread must have at least two legs.
6. Delta per spread ratios go out to four decimal digits of precision.
7. For each leg the Spread Side indicates the relative side of the market for that leg. Possible values are "A" or "B". In order to form spreads, all "A" legs must be on one side of the market, and all "B" legs on the other side. For example, if an "A" leg has positive remaining delta, then all "A" legs must have positive remaining delta and all "B" legs must have negative remaining delta. If an "A" leg has negative remaining delta, then all "A" legs must have negative remaining delta and all "B" legs must have positive remaining delta. Spreads need not have at least one leg on each side of the market -- same-sided spreads are possible.
8. The original intercommodity spread method code is "01". If this field is blank, "01" is assumed to apply. Method "01" is the method in which spreads are formed on a delta-basis using delta from all months for the combined commodity for each leg.

**8. Type "8" Records**

**Risk Arrays - Type "81" record - First Physical record**

| Length | From | To  | Data type | Format | Description and Comments  |
|--------|------|-----|-----------|--------|---|
| 2      | 1    | 2   | AN        | X(2)   | Record ID - "81"  |
| 3      | 3    | 5   | AN        | X(3)   | Exchange Acronym  |
| 10     | 6    | 15  | AN        | X(10)  | Commodity (Product) Code  |
| 10     | 16   | 25  | AN        | X(10)  | Underlying Commodity (Product) Code   |
| 3      | 26   | 28  | AN        | X(3)   | Product Type Code   |
| 1      | 29   | 29  | AN        | X      | Option Right Code - for an option only: <b>P</b> for Put or <b>C</b> for Call |
| 6      | 30   | 35  | N         | 9(6)   | Futures Contract Month as <b>CCYYMM</b>                                       |
| 2      | 36   | 37  | AN        | X(2)   | Futures Contract Day Code   |
| 1      | 38   | 38  | -         | -      | Filler  |
| 6      | 39   | 44  | N         | 9(6)   | Option Contract Month as CCYYMM   |
| 2      | 45   | 46  | AN        | X(2)   | Option Contract Day Code  |
| 1      | 47   | 47  | -         | -      | Filler  |
| 7      | 48   | 54  | N         | 9(7)   | Option Strike Price   |
| 5      | 55   | 59  | N         | 9(5)   | Array Value 1: Futures <b>No Change / Volatility Up</b>                       |
| 1      | 60   | 60  | AN        | X      | Sign for Array Value 1 ("+" or "-")   |
| 5      | 61   | 65  | N         | 9(5)   | Array Value 2: Futures <b>No Change / Volatility Down</b>                     |
| 1      | 66   | 66  | AN        | X      | Sign for Array Value 2 ("+" or "-")   |
| 5      | 67   | 71  | N         | 9(5)   | Array Value 3: Futures <b>Up 1/3 / Volatility Up</b>                          |
| 1      | 72   | 72  | AN        | X      | Sign for Array Value 3 ("+" or "-")   |
| 5      | 73   | 77  | N         | 9(5)   | Array Value 4: Futures <b>Up 1/3 / Volatility Down</b>                        |
| 1      | 78   | 78  | AN        | X      | Sign for Array Value 4 ("+" or "-")   |
| 5      | 79   | 83  | N         | 9(5)   | Array Value 5: Futures <b>Down 1/3 / Volatility Up</b>                        |
| 1      | 84   | 84  | AN        | X      | Sign for Array Value 5 ("+" or "-")   |
| 5      | 85   | 89  | N         | 9(5)   | Array Value 6: Futures <b>Down 1/3 / Volatility Down</b>                      |
| 1      | 90   | 90  | AN        | X      | Sign for Array Value 6 ("+" or "-")   |
| 5      | 91   | 95  | N         | 9(5)   | Array Value 7: Futures <b>Up 2/3 / Volatility Up</b>                          |
| 1      | 96   | 96  | AN        | X      | Sign for Array Value 7 ("+" or "-")   |
| 5      | 97   | 101 | N         | 9(5)   | Array Value 8: Futures <b>Up 2/3 / Volatility Down</b>                        |
| 1      | 102  | 102 | AN        | X      | Sign for Array Value 8 ("+" or "-")   |
| 5      | 103  | 107 | N         | 9(5)   | Array Value 9: Futures <b>Down 2/3 / Volatility Up</b>                        |
| 1      | 108  | 108 | AN        | X      | Sign for Array Value 9 ("+" or "-")   |

**Risk Arrays - Type "82" record - Second Physical record**

| Length | From | To  | Data type | Format  | Description and Comments  |
|--------|------|-----|-----------|---------|---|
| 2      | 1    | 2   | AN        | X(2)    | Record ID - "82"  |
| 3      | 3    | 5   | AN        | X(3)    | Exchange Acronym  |
| 10     | 6    | 15  | AN        | X(10)   | Commodity (Product) Code  |
| 10     | 16   | 25  | AN        | X(10)   | Underlying Commodity (Product) Code   |
| 3      | 26   | 28  | AN        | X(3)    | Product Type Code <sup>2</sup>  |
| 1      | 29   | 29  | AN        | X       | Option Right Code - for an option only: <b>P</b> for Put or <b>C</b> for Call |
| 6      | 30   | 35  | N         | 9(6)    | Futures Contract Month as <b>CCYYMM</b>                                       |
| 2      | 36   | 37  | AN        | X(2)    | Futures Contract Day Code   |
| 1      | 38   | 38  | -         | -       | Filler  |
| 6      | 39   | 44  | N         | 9(6)    | Option Contract Month as CCYYMM   |
| 2      | 45   | 46  | AN        | X(2)    | Option Contract Day Code  |
| 1      | 47   | 47  | -         | -       | Filler  |
| 7      | 48   | 54  | N         | 9(7)    | Option Strike Price   |
| 5      | 55   | 59  | N         | 9(5)    | Array Value <b>10: Futures Down 2/3 / Volatility Down</b>                     |
| 1      | 60   | 60  | AN        | X       | Sign for Array Value 10 ("+" or "-")  |
| 5      | 61   | 65  | N         | 9(5)    | Array Value <b>11: Futures Up 3/3 / Volatility Up</b>                         |
| 1      | 66   | 66  | AN        | X       | Sign for Array Value 11 ("+" or "-")  |
| 5      | 67   | 71  | N         | 9(5)    | Array Value <b>12: Futures Up 3/3 / Volatility Down</b>                       |
| 1      | 72   | 72  | AN        | X       | Sign for Array Value 12 ("+" or "-")  |
| 5      | 73   | 77  | N         | 9(5)    | Array Value <b>13: Futures Down 3/3 / Volatility Up</b>                       |
| 1      | 78   | 78  | AN        | X       | Sign for Array Value 13 ("+" or "-")  |
| 5      | 79   | 83  | N         | 9(5)    | Array Value <b>14: Futures Down 3/3 / Volatility Down</b>                     |
|        |      |     |           |         |   |
| 1      | 84   | 84  | AN        | X       | Sign for Array Value 14 ("+" or "-")  |
| 5      | 85   | 89  | N         | 9(5)    | Array Value <b>15: Futures Up Extreme - Cover Fraction</b>                    |
| 1      | 90   | 90  | AN        | X       | Sign for Array Value 15 ("+" or "-")  |
| 5      | 91   | 95  | N         | 9(5)    | Array Value <b>16: Futures Down Extreme - Cover Fraction</b>                  |
| 1      | 96   | 96  | AN        | X       | Sign for Array Value 16 ("+" or "-")  |
| 5      | 97   | 101 | N         | 9V9(4)  | Composite Delta   |
| 1      | 102  | 102 | AN        | X       | Sign for Composite Delta ("+" or "-")   |
| 8      | 103  | 110 | N         | 99V9(6) | Implied Volatility as decimal fraction  |
| 7      | 111  | 117 | N         | 9(7)    | Settlement Price  |
| 1      | 118  | 118 | AN        | X       | Sign for Settlement Price (blank, "+" or "-")                                 |

**9. Type "B" Record**

**Array Calculation Parameters & Delta-Scaling Factors**

| Length | From | To  | Data type | Format    | Description and Comments                        |
|--------|------|-----|-----------|-----------|---|
| 2      | 1    | 2   | AN        | X(2)      | Record ID - "B "                                |
| 3      | 3    | 5   | AN        | X(3)      | Exchange Acronym                                |
| 10     | 6    | 15  | AN        | X(10)     | Commodity Code                                  |
| 3      | 16   | 18  | AN        | X(3)      | Product Type Code                               |
| 6      | 19   | 24  | N         | 9(6)      | Futures Contract Month as CCYYMM                |
| 2      | 25   | 26  | AN        | X(2)      | Futures Contract Day Code                       |
| 1      | 27   | 27  | -         | -         | Filler  |
| 6      | 28   | 33  | N         | 9(6)      | Option Contract Month as CCYYMM                 |
| 2      | 34   | 35  | AN        | X(2)      | Option Contract Day Code                        |
| 1      | 36   | 36  | -         | -         | Filler  |
| 8      | 37   | 44  | N         | 9(2)V9(6) | Base Volatility (as a decimal fraction)         |
| 8      | 45   | 52  | N         | 9(2)V9(6) | Volatility Scan Range (as a decimal fraction)   |
| 5      | 53   | 57  | N         | 9(5)      | Futures Price Scan Range                        |
| 5      | 58   | 62  | N         | 9(2)V9(3) | Extreme Move Multiplier                         |
| 5      | 63   | 67  | N         | 9V9(4)    | Extreme Move Covered Fraction                   |
| 5      | 68   | 72  | N         | 9V9(4)    | Interest Rate (as a decimal fraction)           |
| 7      | 73   | 79  | N         | 9V9(6)    | Time to Expiration (in years)                   |
| 6      | 80   | 85  | N         | V9(6)     | Lookahead Time (in years)                       |
| 6      | 86   | 91  | N         | 9(2)V9(4) | Delta Scaling Factor                            |
| 8      | 92   | 99  | N         | 9(8)      | Expiration (Settlement) Date as CCYYMMDD        |
| 10     | 100  | 109 | AN        | X(10)     | Blank   |
| 2      | 110  | 111 | AN        | X(2)      | Blank   |
| 8      | 112  | 119 | N         | 9(2)V9(6) | Coupon or Dividend Yield, as a decimal fraction |

**Notes:**

1. "B" records provide delta-scaling factors as well as risk array calculation parameters for either a particular futures contract, or for a particular option series - ie, for all options which are identical except for their put/call code and their strike.
2. **Except for the delta-scaling factors, parameters contained on "B" records are not needed for the margin (performance bond) calculation itself.** If "B" records are not provided for a particular future or option series, the delta-scaling factor for that future or that series should be defaulted to 1.00.
3. If "B" records are provided, then the "B" records for all products in a combined commodity are typically located in the RPF after the "4" record for that combined commodity.
4. "B" records for a futures contract will contain either zeros or spaces in the Option Contract Month and Option Contract Day fields.
5. The Option Contract Day Code field is used to distinguish option series which expire at different times than the standard monthly options. For products without flexible expiry date contracts, this field will contain zeros or blanks. For products with flexible expiry date contracts, a two-digit day of the month code for the exact expiration day is specified. The Futures Contract Day Code is intended to be used analogously to distinguish futures which expire at different times than standard monthly futures.
6. The Price Scan Range parameter on the "B" record is in the margin (performance bond) currency for the combined commodity and must be multiplied by ten raised to the Risk Exponent power for that combined commodity. The Risk Exponent is taken from the "2" record.
7. The Expiration (Settlement) Date for a future is the date on which its final marking price is determined. The Expiration (Settlement) Date for an option series is the last date on which holders of options in that series can elect to exercise those options. Time to Expiration is determined by taking the number of calendar days between the Expiration Date and the business date of this RPF, and dividing by 365, with zero as a minimum value.

**10. Type "C" Record****Tier to Tier Intracommodity Spreads**

| Length | From | To | Data type | Format | Description and Comments                     |
|--------|------|----|-----------|--------|--|
| 2      | 1    | 2  | AN        | X(2)   | Record ID - "C "                             |
| 6      | 3    | 8  | AN        | X(6)   | Combined Commodity Code                      |
| 2      | 9    | 10 | AN        | X(2)   | Intracommodity Spread Method Code - "10"     |
| 2      | 11   | 12 | N         | 9(2)   | Spread Priority (Spread Number)              |
| 2      | 13   | 14 | N         | 9(2)   | Number of Legs                               |
| 7      | 15   | 21 | N         | 9(7)   | Charge Rate                                  |
| 2      | 22   | 23 | N         | 9(2)   | Leg 1 - Leg number                           |
| 2      | 24   | 25 | N         | 9(2)   | Leg 1 - Tier number                          |
| 2      | 26   | 27 | N         | 9(2)   | Leg 1 - Delta Per Spread Ratio               |
| 1      | 28   | 28 | A         | A      | Leg 1 - Market Side ( <b>A</b> or <b>B</b> ) |
| 2      | 29   | 30 | N         | 9(2)   | Leg 2 - Leg number                           |
| 2      | 31   | 32 | N         | 9(2)   | Leg 2 - Tier number                          |
| 2      | 33   | 34 | N         | 9(2)   | Leg 2 - Delta Per Spread Ratio               |
| 1      | 35   | 35 | A         | A      | Leg 2 - Market Side ( <b>A</b> or <b>B</b> ) |

**Notes:**

1. Type "C" records are subrecords of the type "3" - intracommodity spread parameters - record for a combined commodity, and typically follow that record immediately. Each one provides data about a particular tier to tier intracommodity spread for that combined commodity.



## 11. Type "T" Record

### Currency Conversion Rates

| Length | From | To | Data type | Format    | Description and Comments            |
|--------|------|----|-----------|-----------|-------------------------------------|
| 2      | 1    | 2  | AN        | X(2)      | Record ID - "T "                    |
| 3      | 3    | 5  | AN        | X(3)      | Convert-From Currency ISO Code      |
| 1      | 6    | 6  | AN        | X         | Convert-From Currency One-Byte Code |
| 3      | 7    | 9  | AN        | X(3)      | Convert-To Currency ISO Code        |
| 1      | 10   | 10 | AN        | X         | Convert-To Currency One-Byte Code   |
| 10     | 11   | 20 | N         | 9(4)V9(6) | Conversion Multiplier               |

#### Notes:

1. T records, if any, should be located in the file immediately after the first record in the file -- the exchange complex header record.
2. The following table gives currencies with both their one-byte and three-byte ISO codes.

| 3-byte ISO code | 1-byte code | Currency         |
|-----------------|-------------|------------------|
| CNY             | Y           | Chinese Yuan     |
| HKD             | H           | Hong Kong Dollar |
| USD             | \$          | US Dollar        |