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DATE:	DECEMBER 21, 2018
TO:	ALL PARTICIPANTS
ATTENTION:	MANAGING PARTNER/OFFICER; OPERATIONS PARTNER/OFFICER; MANAGER P&S DEPARTMENT; MANAGER DATA PROCESSING;CASHIER
FROM:	PRODUCT MANAGEMENT, EQUITIES CLEARANCE
SUBJECT:	PCF ENHANCEMENTS TO SUPPORT MULTIPLE BASKETS, ORDER CUSTOMIZATION, AND CLEARANCE OF ETFS WITH CORPORATE AND MUNICIPAL BOND COMPONENTS

As discussed with ETF Agents and Authorized Participants at the October 23, 2018 Industry Working Group (IWG), subject to regulatory approval, NSCC would enhance the ETF Portfolio Composition File (PCF) service to (a) clearly differentiate baskets within the file based upon their intended use (e.g., pricing vs. trading), (b) ensure that baskets published on a non-unit basis are distinguished from those calculated on an unit basis, and (c) support clearing-eligibility for multiple basket types made available to any subscriber of the PCF associated with a single ETF listing.

The enhancements are in response to the SEC proposed rule 6c-11 (“Proposed ETF Rule”) that would change the regulatory framework for most ETFs. Under the Proposed ETF Rule, all ETFs that meet certain requirements would be able to use custom baskets – baskets of securities that deviate from a pro rata slice of the ETF’s shares – to create and redeem shares.

Project Overview

The project, which is currently in development, would take a phased approach to increase flexibility for use of order customization and submission of multiple basket types (e.g., trading, pricing, restricted, rebalanced, create and redeem only, and negotiated basket types). All basket types, other than pricing basket type, would be eligible for create/redeem processing upon request when the parent ETF trading CUSIP is eligible. Pricing baskets would not be eligible for create/redeem processing but would be available to all subscribers of the standard PCF.

Subject to regulatory approval, Phase 1 would enhance the PCF to support new data elements for use in these multiple baskets, as well as new data fields, in preparation for receipt of customized rebalanced and negotiated orders. Phase 2 would allow for an expansion of clearing for eligible fixed income ETFs consisting of corporate and municipal underlying components.

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Proposed Timelines

Subject to regulatory approval, NSCC is currently targeting the following deployments:

Phase 1 - ETF Agent and AP testing for PCF Enhancements (Phase 1) will be available in the Participant Service Environment (PSE) (otherwise known as the PSE/U region) at the end of Q1 2019 - (approximately March 29, 2019, with a production release on June 28, 2019).

Phase 2 - Clearance of fixed income corporate and municipal ETFs will be available in the Participant Service Environment (PSE) (otherwise known as the PSE/U region) around middle of Q3 2019, with release to production at the end of Q3.

Next Steps

A draft version of the PCF formats Datatrak File 11301, as well as the Enhanced Consolidate PCF Output files are attached at the bottom of this Important Notice as Appendix A, B and C for your convenience. NSCC will publish via Important Notice a Client Business Requirement Document (CBRD) in early January 2019 with full details of all new data elements, as well as system functionality, for all changes to PCF Datatrak File 11301 and PCF Autoroute Output files 02261256 Enhanced Consolidated Portfolio Composition File and 02262335 Near Real Time Supplemental PCF. The CBRD will also include a revised Product Information Form (PIF) inclusive of changes required for issuance of NSCC Portfolio IDs for the aforementioned multiple basket types.

NSCC will also conduct monthly Industry Working Group conference calls with ETF Agents and APs, the first to be scheduled for mid- January 2019 to review this notice and required specification changes. NSCC will also publish via Important Notice a detailed Testing Guidelines for ETF Agent and APs in mid-February 2019.

The attached ETF file layouts (still in DRAFT status) will be posted to the Equities Clearing / ETF section of the DTCC Learning Center (<https://www.dtclearning.com>) upon finalization, along with other documentation related to these enhancements.

For questions, please contact your DTCC Relationship Manager or the undersigned at Peterjsmith@dtcc.com

Pete Smith, Equity Clearing Product Management

A. In Scope Reports for PCF Enhancements to support multiple basket types.

Description	Test File	Production File
Enhanced Consolidated Portfolio Composition Data Input File	41301	11301
Enhanced Consolidated Portfolio Composition Data File	02981256	02261256
Near Real Time Supplemental PCF Output	02982335	02262335

B. Out of Scope Create/Redeem Files & Reports for PCF Enhancements to support multiple basket types.

Description	Test File	Production File
Enhanced ETF Create and Redeem Instruction	41300	11300
Enhanced ETF Create and Redeem Instruction Output (Blotter) MRO	02981254	02261254
Enhanced Create/Redeem Instruction Print Image Report	02980291	02260291
Enhanced ETF End of Day Create/Redeem Receipt/Reject Report	02980098	02120098
Enhanced ETF Intraday Create/Redeem Receipt/Reject Report	02981954	02261954
End of Day Portfolio Composition Receipt/Reject Print Image Report	02980421	02260421
Enhanced Intraday Consolidated Portfolio Composition Receipt/Reject Print Image	02981955	02261955
Enhanced Intraday Consolidated Portfolio Composition Receipt/Reject Data File	02981255	02261255
Domestic Portfolio Composition File Without CUSIP (Legacy)	02980629	02260629

B. Out of Scope			
	Enhanced Portfolio Composition File Without CUSIP (New)	02982451	02262451

C. Record Layout: Enhanced Consolidated Portfolio Composition Input Data File: DATATRAK 11301/PSE 41301

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Type 1 – Header Record
Required record type for all portfolios.
Record length=450

Seq	Description	Length	Start	Type	Comments	Required/Optional Field
1	Record Type	2	1	A/N	01 = Record Type 1	Required
2	File Description	25	3	A/N	Portfolio Composition	Optional
3	ETF Agent	8	28	N	NSCC Member Number. Right Justified with leading zeros.	Required
4	File Identifier	8	36	A/N	Input File Number.	Optional
5	Processing Date	8	44	N	CCYYMMDD	Required
6	Processing Time	6	52	N	HHMMSS	Optional
7	Future Use	393	58			

END OF RECORD

Type 2 – Portfolio Header Record Required record type for all portfolios.
Record Length = 450

Seq	Description	Length	Start	Type	Comments	Required / Optional Field
1	Record Type	2	1	A/N	02 = Record Type 2	Required
2	NSCC Portfolio ID	9	3	A/N	NSCC assigned Portfolio ID of the basket	Required
3	ETF Agent	8	12	N	NSCC member number. Right-justified with leading zeros.	Required

**Type 2 – Portfolio Header Record Required record type for all portfolios.
 Record Length = 450**

Seq	Description	Length	Start	Type	Comments	Required / Optional Field
4	Component Count	8	20	N	99,999,999	Required
5	Estimated T-1 Cash Amount Per Creation Unit	14	28	N	999,999,999,999.99	Optional* *must be numeric
6	Sign field for Estimated T-1 Cash Amount Per Creation Unit	1	42	A/N	<ul style="list-style-type: none"> "-" = Negative value Space = Positive value All other values treated as space (positive) 	Optional
7	Net Asset Value Per Creation Unit	18	43	N	999,999,999,999.999999	Optional* *must be numeric
8	Sign field for Net Asset Value Per Creation Unit	1	61	A/N	<ul style="list-style-type: none"> "-" = Negative value Space = Positive value All other values treated as space (positive) 	Optional
9	Estimated T-1 Cash Amount Per ETF	14	62	N	999,999,999,999.99	Optional* *must be numeric
10	Sign field for Estimated T-1 Cash Amount Per ETF	1	76	A/N	<ul style="list-style-type: none"> "-" = Negative value Space = Positive value All other values treated as space (positive) 	Optional
11	Net Asset Value Per ETF	18	77	N	999,999,999,999.999999	Optional* *must be numeric
12	Sign field for Net Asset Value Per ETF	1	95	A/N	<ul style="list-style-type: none"> "-" = Negative value Space = Positive value All other values treated as space (positive) 	Optional
13	Total Cash Amount Per Creation Unit	14	96	N	999,999,999,999.99	Optional* *must be numeric
14	Sign field for Total Cash Amount Per Creation Unit	1	110	A/N	<ul style="list-style-type: none"> "-" = Negative value Space = Positive value All other values treated as space (positive) 	Optional

**Type 2 – Portfolio Header Record Required record type for all portfolios.
 Record Length = 450**

Seq	Description	Length	Start	Type	Comments	Required / Optional Field
15	Total Shares Outstanding Per ETF on T-1	12	111	N	999,999,999,999	Optional* *must be numeric
16	Dividend Amount Per ETF on T-1	14	123	N	999,999,999,999.99	Optional* *must be numeric
17	Sign field for Dividend Amount Per ETF on T-1	1	137	A/N	<ul style="list-style-type: none"> "-" = Negative value Space = Positive value All other values treated as space (positive) 	Optional
18	Estimated value of Cash-in-lieu Components per Creation Unit	14	138	N	999,999,999,999.99	Optional* *must be numeric
19	Cash Only Indicator	1	152	A/N	<ul style="list-style-type: none"> Y = Cash Only (Create/Redeem with Cash Only) Space = No restrictions (any combination of cash or securities) 	Optional
20	ETF Expense Ratio on T-1	3	153	N	Expressed in basis points.	Optional* *must be numeric
21	Total Net Asset Value of ETF Fund on T-1	18	156	N	999,999,999,999.999999	Optional* *must be numeric
22	ETF Basket Unit Size	9	174	N	Defines the size of this basket that is different from the ETF Create/Redeem unit size. Specified only on Rebalance baskets. All zeroes if not provided. 999,999,999	Optional* *must be numeric
23	Variable Fees	8	183	N	999,999.99	Optional* *must be numeric
24	Baby Bond Cash Value	10	191	N	99,999,999.99	Optional* *must be numeric

**Type 2 – Portfolio Header Record Required record type for all portfolios.
 Record Length = 450**

Seq	Description	Length	Start	Type	Comments	Required / Optional Field
25	Fixed Income Face Value Adjustment	10	201	N	99,999,999.99	Optional* *must be numeric
26	Fund LEI	20	211	A/N	Legal entity identifier of the fund.	Optional
27	Fund Size	23	231	N	Fund AUM, at the share class or product level. 99,999,999,999.999999999999	Optional* *must be numeric
28	Share Class Apportionment Ratio	1	254	N	Identifies if the fund has share classes and the proportional ownership of the fund if it has share classes. For U.S., ETFs will always = 1. Space if not provided.	Optional
29	Projected Transaction Fee	7	255	N	EMEA-specific: estimated transaction fee. 99,999.99	Optional* *must be numeric
30	Date for Projected Transaction Fee	8	262	N	Effective trade date of the basket, in CCYYMMDD format.	Optional* *must be numeric or spaces
31	Confirmed Transaction Fee	7	270	N	Actual cost of the transaction - also known as the Create/Redeem fee. 99,999.99	Optional* *must be numeric
32	Date for Confirmed Transaction Fee	8	277	N	Effective trade date of the basket, in CCYYMMDD format. Spaces if not provided.	Optional* *must be numeric or spaces
33	Future Use	166	285		Spaces	
End of Record						

Type 3 – Detail Component Record Required record type, except for the optional Cash Only portfolio. Record length=450						
Seq	Description	Length	Start	Type	Comments	Required/Optional Field
1	Record Type	2	1	A/N	03 = Record Type 3 One per component.	Required
2	NSCC Portfolio ID	9	3	A/N	NSCC assigned Portfolio ID of the basket.	Required
3	Component ID Code	2	12	A/N	<ul style="list-style-type: none"> • 01=CUSIP • 02=SEDOL • 03=ISIN • 04=ISIN/SEDOL • 05=Bloomberg • 06=Reuters • 07=ICE/NYSELife • 99=Other 	Required
4	Component ID	25	14	A/N	Defined by the value in the Component ID Code field.	Required
	CUSIP	9	14	A/N	Identifies the domestic component.	
	SEDOL	7	14	A/N	Official SEDOL number.	
	ISIN	12	14	A/N	Official ISIN number. Identifies the foreign or domestic component.	
	ISIN/SEDOL	19	14	A/N	Combination ISIN/SEDOL Recommended for non-US domiciled securities.	
	o ISIN	12	14	A/N	International Securities Identification Number.	
	o SEDOL	7	26	A/N	Stock Exchange Daily Official List.	
	Bloomberg			A/N	Alternative market identifier code.	
	Reuters			A/N	Reuters instrument code (RIC). Alternative market identifier code.	
	ICE/NYSELife			A/N	Alternative market identifier code.	
	All othertypes	25	14	A/N	Free form field identifying other types of identifier codes.	
5	Component Quantity	21	39	N	Quantity of component per creation unit (par value for fixed income securities). 9,999,999,999,999.99999999	Required

6	Sign Field for Component Quantity	1	60	A/N	<ul style="list-style-type: none"> "-" indicates negative value (short position) Space = positive All other values treated as space (positive) <p>Note: A component with negative quantity (short component) can only be created/redeemed for cash.</p>	Optional
7	External Settlement Date	8	61	N	ETF agent provided settlement date for non-DTC settling components, in CCYYMMDD format.	Optional
8	New Security Indicator	1	69	A/N	<ul style="list-style-type: none"> N = New component in Portfolio space = not new 	Optional
9	Cash In Lieu Indicator	1	70	A/N	<ul style="list-style-type: none"> Y = ETF agent provided indicator for component to be substituted for cash in a create/redeem. Space = No substitution. <p>Note: CIL is set to X by NSCC if one of the following conditions is met for create / redeem eligible portfolios:</p> <ul style="list-style-type: none"> Component is not in NSCC Security Master database Portfolio is a cash only portfolio 	Optional
10	Component Description	60	71	A/N	ETF agent defined description.	Optional
11	When Issued Indicator	1	131	A/N	<p>When Issued indicator:</p> <ul style="list-style-type: none"> Y = When Issued N = Not When Issued 	Optional
12	Accrued Interest T1	11	132	N	999,999,999.99	Optional*
13	Accrued Interest T2	11	143	N	999,999,999.99	Optional*
14	Asset Class	27	154	A	Free form field to identify the asset class of the security.	Optional
15	Excluded From Pricing	21	181	N	<p>Pricing Basket Only</p> <p>Quantity of securities owned by the fund per basket/unit, but difficult to price.</p> <p>Securities that should be priced intraday, but cannot be priced on the NAV date.</p> <p>Pre-corporate action prices and shares would be included as part of this basket.</p> <p>Examples: Complex corporate actions and fair-valued names.</p> <p>9,999,999,999,999.99999999</p>	Optional* *must be numeric or spaces

16	Price (in Fund Base Currency)	24	202	N	Pricing Basket Only Price of the security on the NAV date. 999,999,999,999,999.999999	Optional* *must be numeric or spaces
17	Local Currency	3	226	A	Identifies the currency of the security. For example, USD.	Optional
18	Factor	24	229	N	Decimal value reflecting a proportion of the outstanding principal value of the factor bonds that changes over time. Also applies to equity factors, such as stock split on ex date. 999,999,999,999,999.999999	Optional* *must be numeric or spaces
19	Synthetics Local Currency	3	253	A	Identifies the currency of the security. For example, USD.	Optional
20	Synthetics Price Multiplier	24	256	N	Designated price multiplier. 999,999,999,999,999.999999	Optional* *must be numeric or spaces
21	Synthetics Contract Size	24	280	N	Agreed notional size of the futures contract. 999,999,999,999,999.999999	Optional* *must be numeric or spaces
22	Synthetics Average Contract Open Price	24	304	N	Average of the future trade price. 999,999,999,999,999.999999	Optional* *must be numeric or spaces
23	FX Rates Base Currency	3	328	A	Identifies the base currency of the fund. For example, USD	Optional
24	FX Rates Currencies	3	331	A	Spot FX rates of respective currencies against the base currency of the fund. For example, EUR, GBR, and USD.	Optional
25	FX Forwards Currency Pair	6	334	A	Identifies the currency pair associated with the FX forward. For example, EURUSD	Optional
26	FX Forwards Value Date	8	340	N	Settlement date of the FX forward, in CCYYMMDD format.	Optional*
27	FX Forwards Quantity	9	348	N	Fund hedged quantity. 9,999,999.99	Optional* *must be numeric or spaces
28	FX Forwards Rate	7	357	N	Interpolated rate: rate used for NAV calculation, including forward point interpolation. 9.999999	Optional* *must be numeric or spaces

29	FX Forwards Value	9	364	N	Currency market value of the FX forward. 9,999,999.99	Optional* *must be numeric or spaces
30	FX Forwards Currency	3	373	A	Identifies the base currency of the FX forward contract. For example, EUR	Optional
31	SWAPs Notional Value	7	376	N	Total amount of a security's underlying asset. 9,999,999	Optional* *must be numeric or
32	SWAPs Spread	5	383	N	Cost of the underlying fee from the SWAP counterparty. 9.9999	Optional* *must be numeric or spaces
33	SWAPs Market Value	9	388	N	Agreed upon price of the SWAP. 9,999,999.99	Optional* *must be numeric or spaces
34	Future Use	54	397		Spaces	
END OF RECORD						

Type 4 – Custom Distribution Record Required record type for Restricted (Custom) and Rebalance portfolios. Record length=450						
Seq	Description	Length	Start	Type	Comments	Required/Optional
1	Record Type	2	1	A/N	04= Record Type 4	Required
2	NSCC	9	3	A/N	NSCC assigned Portfolio ID of the basket	Required
3	Specified recipient	8	12	A/N	Clearing number of the authorized participant to receive this file. - or - LIST = Distribution of authorized participants associated with the ETF agent. - or - ALL = Distribute to all subscribers that are subscribed to the standard basket.	Required
4	Future Use	431	20		Spaces	
END OF RECORD						

Type 5 – Negotiated Record Required record type only for Negotiated portfolios. Record length=450						
Seq	Description	Length	Start	Type	Comments	Required/Optional Field
1	Record Type	2	1	A/N	05 = Record Type 5	Required
2	NSCC Portfolio ID	9	3	A/N	NSCC assigned portfolio ID of the basket.	Required
3	Transaction ID	12	12	N	Transaction ID 999999999999 Note: This transaction ID must match the transaction ID on the for DATATRAK 11300 order for negotiated baskets.	Required
4	Trade Date	8	24	N	CCYYMMDD	Required
5	Future Use	419	32		Spaces	
END OF RECORD						

Type 99 – Trailer Record (New Record) Required record type for all portfolios. Record Length = 450						
Seq	Description	Length	Start	Type	Comments	Required/Optional Field
1	Record Type	2	1	A/N	99 = Trailer Record One per file.	Required, but if not submitted, the ETF agent receives a warning on end of day output AutoRoute 02260421/Test 02980421.
2	Final Transmission	1	3	A/N	No longer supported. Spaces.	Optional
3	Record Count	13	4	N	Number of records in transmission (including trailer).	Required
4	Future Use	434	17		Spaces	
END OF RECORD						

D. Record Layout: Enhanced Consolidated Portfolio Composition Output Data File: AutoRoute Production 02261256/PSE 02981256

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Type 1-Header Record
Record Length = 500

Seq	Description	Length	Start	Type	Comments
1	Record Type	2	1	A/N	01 = Header Record One per file.
2	File Description	25	3	A/N	Portfolio Composition
3	ETF Agent	8	28	N	NSCC Member Number. Right Justified with leading zeros.
4	File Identifier	8	36	A/N	Input File Number.
5	Processing	8	44	N	CCYYMMDD
6	Processing	6	52	N	HHMMSS
7	Future Use	443	58		

END OF RECORD

Type 2 – Portfolio Header Record
Record Length = 500

Seq	Description	Length	Start	Type	Comments
1	Record Type	2	1	A/N	02 = Header Type 2 One per portfolio.
2	ETF Trading CUSIP	9	3	A/N	S&P Assigned
3	ETF Trading ISIN	12	12	A/N	International Securities Identification Number.
4	NSCC Portfolio ID	9	24	A/N	NSCC assigned Portfolio ID of the basket.
5	ETF Description	60	33	A/N	From the NSCC Security Master database if found; otherwise, the ETF agent supplied description is used.
6	Portfolio Trade Date	8	93	N	CCYYMMDD
7	ETF Agent	8	101	N	NSCC member number. Right-justified with leading zeros.
8	Component Count	8	109	N	99,999,999
9	Estimated T-1 Cash	14	117	N	999,999,999,999.99
10	Sign field for Estimated T-1 Cash Amount Per Creation Unit	1	131	A/N	<ul style="list-style-type: none"> ┆ "-" = Negative value ┆ Space = Positive value ┆ All other values treated as space (positive)
11	Net Asset Value Per	18	132	N	999,999,999,999.999999

Type 2 – Portfolio Header Record Record Length = 500					
Seq	Description	Length	Start	Type	Comments
12	Sign field for Net Asset Value Per Creation Unit	1	150	A/N	<ul style="list-style-type: none"> "-" = Negative value Space = Positive value All other values treated as space (positive)
13	Estimated T-1 Cash Amount Per ETF	14	151	N	999,999,999,999.99
14	Sign field for Estimated T-1 Cash Amount Per ETF	1	165	A/N	<ul style="list-style-type: none"> "-" = Negative value Space = Positive value All other values treated as space (positive)
15	Net Asset Value Per ETF	18	166	N	999,999,999,999.999999
16	Sign field for Net Asset Value Per ETF	1	184	A/N	<ul style="list-style-type: none"> "-" = Negative value Space = Positive value All other values treated as space (positive)
17	Total Cash Amount Per Creation Unit	14	185	N	999,999,999,999.99
18	Sign field for Total Cash Amount Per Creation Unit	1	199	A/N	<ul style="list-style-type: none"> "-" = Negative value Space = Positive value All other values treated as space (positive)
19	Total Shares Outstanding Per ETF on T-1	12	200	N	999,999,999,999
20	Dividend Amount Per ETF on T-1	14	212	N	999,999,999,999.99
21	Sign field for Dividend Amount Per ETF on T-1	1	226	A/N	<ul style="list-style-type: none"> "-" = Negative value Space = Positive value All other values treated as space (positive)
22	Estimated value of Cash-in-lieu Components per Creation Unit	14	227	N	999,999,999,999.99
23	Cash Only Indicator	1	241	A/N	<ul style="list-style-type: none"> Y = Cash Only (create/redeem with Cash only) Space = No restrictions (any combination of cash or securities)

Type 2 – Portfolio Header Record					
Record Length = 500					
Seq	Description	Length	Start	Type	Comments
24	ETF Expense Ratio on T-1	3	242	N	Expressed in basis points.
25	Total Net Asset Value of ETF Fund on T-1	18	245	N	999,999,999,999.999999
26	ETF Shares Per Create/Redeem Unit	9	263	N	From the NSCC Security Master database. 999,999,999
27	ETF Symbol	15	272	A/N	From the NSCC Security Master database.
28	CNS Eligibility Indicator	1	287	A/N	From the NSCC Security Master database.
29	ETF Create Redeem Identifier	1	288	A/N	<ul style="list-style-type: none"> Y = Basket can be created or redeemed. N = Basket cannot be created or redeemed.
30	Prior Day's Portfolio being used	1	289	A/N	<ul style="list-style-type: none"> Y = Prior day's portfolio space = Today's portfolio
31	Basket Type	2	290	A/N	<ul style="list-style-type: none"> 01 = Standard 02 = Restricted 03 = Pricing 04 = Rebalance 05 = Creation 06 = Redeem 07 = Negotiated
32	Foreign or Domestic	1	292	A/N	<ul style="list-style-type: none"> D = Domestic F = Foreign
33	NSCC New Portfolio	1	293	A/N	<ul style="list-style-type: none"> Y = New portfolio Space = existing portfolio
34	ETF Classification Code	6	294	A/N	For future use to classify ETFs.
35	ETF Basket Unit Size	9	300	N	Defines the size of this basket that is different from the ETF Create/Redeem unit size. Specified only on Rebalance baskets. Optional. All zeroes if not provided. 999,999,999
36	Variable Fees	8	309	N	999,999.99
37	Baby Bond Cash Value	10	317	N	99,999,999.99

Type 2 – Portfolio Header Record					
Record Length = 500					
Seq	Description	Length	Start	Type	Comments
38	Fixed Income Face Value	10	327	N	99,999,999.99
39	Asset Classification Code for Underlying Components	2	337	A/N	Asset classification codes: <ul style="list-style-type: none"> • 01 – EQUITY • 02 – FIXED INCOME • 03 – COMMODITY • 04 – MIXED ASSET • 05 – ALTERNATIVE • 06 - CURRENCY
40	Leverage Indicator Code	2	339	A/N	<ul style="list-style-type: none"> • 01 – Unleveraged • 02 – Leveraged • 03 – Inverse Leveraged
41	Leverage Factor	4	341	A/N	99.99
42	Transfer Agent ID	8	345	N	Transfer agent ID.
43	Transfer Agent Name	48	353	A/N	Name of the transfer agent.
44	Fund LEI	20	401	A/N	Legal entity identifier of the fund.
45	Fund Size	23	421	N	Fund AUM, at the share class or product level. 99,999,999,999.999999999999
46	Share Class Apportionment Ratio	1	444	N	Identifies if the fund has share classes and the proportional ownership of the fund if it has share classes. For U.S., ETFs will always = 1. Space if not provided.
47	Projected Transaction Fee	7	445	N	EMEA-specific: estimated transaction fee. 99,999.99
48	Date for Projected Transaction Fee	8	452	N	Effective trade date of the basket, in CCYYMMDD format.
49	Confirmed Transaction Fee	7	460	N	Actual cost of the transaction - also known as the Create/Redeem fee. 99,999.99

Type 2 – Portfolio Header Record					
Record Length = 500					
Seq	Description	Length	Start	Type	Comments
50	Date for Confirmed Transaction Fee	8	467	N	Effective trade date of the basket, in CCYYMMDD format.
51	Future Use	26	475		Spaces
END OF RECORD					

Type 3–Detail Component Record					
Record length=500					
Seq	Description	Length	Start	Type	Comments
1	Record Type	2	1	A/N	03 = Record Type 3 One per component.
2	ETF Trading CUSIP	9	3	A/N	S&P Assigned
3	ETF Trading ISIN	12	12	A/N	International Securities Identification Number.
4	NSCC Portfolio ID	9	24		NSCC assigned Portfolio ID of the basket.
5	Portfolio Trade Date	8	33	N	CCYYMMDD
6	Component ID Code	2	41	A/N	<ul style="list-style-type: none"> • 01=CUSIP • 02=SEDOL • 03=ISIN • 04=ISIN/SEDOL • 05=Bloomberg • 06=Reuters • 07=ICE/NYSE Life • 99=Other
7	Component ID	25	43	A/N	Defined by the value in the Component ID Code field.
	o CUSIP	9	43	A/N	Identifies the domestic component.
	o SEDOL	7	43	A/N	Official SEDOL number.
	o ISIN	12	43	A/N	Official ISIN number. Identifies the foreign or domestic component.
	o ISIN/SEDOL	19	43	A/N	Combination ISIN/ SEDOL number Recommended for non-US domiciled securities.
	o ISIN	12	43	A/N	International Securities Identification Number.
	o SEDOL	7	55	A/N	Stock Exchange Daily Official List.

Type 3—Detail Component Record Record length=500					
Seq	Description	Length	Start	Type	Comments
	Bloomberg			A/N	Alternative market identifier code.
	Reuters			A/N	Reuters instrument code (RIC). Alternative market identifier code.
	ICE/NYSELife			A/N	Alternative market identifier code.
	All othertypes	25	43	A/N	Free form field identifying other types of identifier codes.
8	Component Quantity	21	68	N	Quantity of component per creation unit (par value for fixed income securities). 9,999,999,999,999.99999999
9	Sign Field for Component Quantity	1	89	A/N	<ul style="list-style-type: none"> "-" indicates negative value (short position) Space = positive All other values treated as space (positive) Note: A component with negative quantity (short component) can only be created/redeemed for cash.
10	New Security Indicator	1	90	A/N	<ul style="list-style-type: none"> N=New component in portfolio as per the ETF agent. Space = not new
11	Cash In Lieu Indicator	1	91	A/N	<ul style="list-style-type: none"> Y= ETF agent provided indicator for component to be substituted for cash in a create/redeem. X= NSCC applied indicator for component to be substituted for cash in a create and redeem (per below mentioned rules) Space=No substitution. Note: CIL is set to X if one of the following conditions is met for create / redeem eligible portfolios: <ul style="list-style-type: none"> Component is not in NSCC Security Master database. Portfolio is a cash only portfolio.
12	Component Symbol	15	92	A/N	Trading symbol of the component.
13	Component WI Indicator	1	107	A/N	When Issued indicator of the domestic component.
14	Component Undergoing Corporate Action	1	108	A/N	<ul style="list-style-type: none"> Space=No corporate action M=Mandatory Corporate Action V=Voluntary Corporate Action
15	Component NSCC Eligibility Indicator	1	109	A/N	<ul style="list-style-type: none"> Y=NSCC eligible N=Not NSCC eligible

Type 3—Detail Component Record Record length=500					
Seq	Description	Length	Start	Type	Comments
16	Component CNS Indicator	1	110	A/N	<ul style="list-style-type: none"> ▪ Y=CNS eligible ▪ N=Not CNS eligible
17	External Settlement Date	8	111	N	ETF agent provided settlement date for non-DTC settling components, in CCYYMMDD format.
18	Component Description	60	119	A/N	ETF agent defined description.
19	When Issued Indicator	1	179	A/N	Agent provide When Issued (WI) indicator for fixed income components: <ul style="list-style-type: none"> ▪ Y = When Issued ▪ N = Not When Issued
20	Accrued Interest T1	11	180	N	999,999,999.99
21	Accrued Interest T2	11	191	N	999,999,999.99
22	Asset Class	27	202	A	Free form field to identify the asset class of the security.
23	Excluded From Pricing	21	229	N	Pricing Basket Only Quantity of securities owned by the fund per basket/unit, but difficult to price. Securities that should be priced intraday, but names that are unable to price on the NAV date. Pre-corporate action prices and shares would be included as part of this basket. Examples: Complex corporate actions and fair-valued names. 9,999,999,999,999.99999999
24	Price (in Fund Base Currency)	24	250	N	Pricing Basket Only Price of the security on the NAV date. 999,999,999,999,999.999999
25	Local Currency	3	274	A	Identifies the currency of the security. For example, USD.
26	Factor	24	277	N	Decimal value reflecting a proportion of the outstanding principal value of the factor bonds that changes over time. Also applies to equity factors, such as stock split on ex date. 999,999,999,999,999.999999

Type 3—Detail Component Record Record length=500					
Seq	Description	Length	Start	Type	Comments
27	Synthetics Local Currency	3	301	A	Identifies the currency of the security. For example, USD.
28	Synthetics Price Multiplier	24	304	N	Designated price multiplier. 999,999,999,999,999,999.999999
29	Synthetics Contract Size	24	328	N	Agreed notional size of the futures contract. 999,999,999,999,999,999.999999
30	Synthetics Average Contract Open Price	24	352	N	Average of the future trade price. 999,999,999,999,999,999.999999
31	FX Rates Base Currency	3	376	A	Identifies the base currency of the fund. For example, USD
32	FX Rates Currencies	3	379	A	Spot FX rates of respective currencies against the base currency of the fund. For example, EUR, GBR, USD.
33	FX Forwards Currency Pair	6	382	A	Identifies the currency pair associated with the FX forward. For example, EURUSD
34	FX Forwards Value Date	8	388	N	Settlement date of the FX forward, CCYYMMDD format.
35	FX Forwards Quantity	9	396	N	Fund hedged quantity. 9,999,999.99
36	FX Forwards Rate	7	405	N	Interpolated rate: rate used for NAV calculation, including forward point interpolation. 9.999999
37	FX Forwards Value	9	412	N	Currency market value of the FX forward. 9,999,999.99
38	FX Forwards Currency	3	421	A	Identifies the base currency of the FX forward contract. For example, EUR
39	SWAPs Notional Value	7	424	N	Total amount of a security's underlying asset. 9,999,999
40	SWAPs Spread	5	431	N	Cost of the underlying fee from the SWAP counterparty. 9.9999

Type 3–Detail Component Record Record length=500					
Seq	Description	Length	Start	Type	Comments
41	SWAPs Market Value	9	436	N	Agreed upon price of the SWAP. 9,999,999.99
42	Future Use	56	445		Spaces
END OF RECORD					

Type 99–Trailer Record (New Record) Record length = 500					
Seq	Description	Length	Star	Type	Comments
1	Record Type	2	1	A/N	99 = Trailer Record One per file.
2	Processing Date	8	3	N	CCYYMMDD
3	Primary Transmission or Supplement	1	11	A/N	<ul style="list-style-type: none"> ┆ P=Primary Transmission ┆ S = Supplemental Transmission
4	Record Count	13	12	N	Number of records in transmission (including trailer).
5	Future Use	476	25		Spaces
END OF RECORD					

E. Record Layout: Near Real-Time Supplemental PCF AutoRoute Production 02262335/Test 02982335

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Type 1–Header Record Record Length = 500					
Seq	Description	Length	Start	Type	Comments
1	Record Type	2	1	A/N	01 = Header Record One per file.
2	File Description	25	3	A/N	Portfolio Composition
3	ETF Agent	8	28	N	NSCC Member Number. Right Justified with leading zeros.
4	File Identifier	8	36	A/N	Input File Number.
5	Processing Date	8	44	N	CCYYMMDD
6	Processing Time	6	52	N	HHMMSS
7	Future Use	443	58		
END OF RECORD					

Type 2 – Portfolio Header Record Record Length = 500					
Seq	Description	Length	Start	Type	Comments
1	Record Type	2	1	A/N	02 = Header Type 2 One per portfolio.
2	ETF Trading CUSIP	9	3	A/N	S&P Assigned
3	ETF Trading ISIN	12	12	A/N	International Securities Identification Number.
4	NSCC Portfolio ID	9	24	A/N	NSCC assigned Portfolio ID of the basket.
5	ETF Description	60	33	A/N	From the NSCC Security Master database if found; otherwise, the ETF agent supplied description is used.
6	Portfolio Trade Date	8	93	N	CCYYMMDD
7	ETF Agent	8	101	N	NSCC member number. Right-justified with leading zeros.
8	Component Count	8	109	N	99,999,999
9	Estimated T-1 Cash	14	117	N	999,999,999,999.99
10	Sign field for Estimated T-1 Cash Amount Per Creation Unit	1	131	A/N	<ul style="list-style-type: none"> "-" = Negative value Space = Positive value All other values treated as space (positive)
11	Net Asset Value Per	18	132	N	999,999,999,999.999999
12	Sign field for Net Asset Value Per Creation Unit	1	150	A/N	<ul style="list-style-type: none"> "-" = Negative value Space = Positive value All other values treated as space (positive)
13	Estimated T-1 Cash Amount Per ETF	14	151	N	999,999,999,999.99
14	Sign field for Estimated T-1 Cash Amount Per ETF	1	165	A/N	<ul style="list-style-type: none"> "-" = Negative value Space = Positive value All other values treated as space (positive)
15	Net Asset Value Per ETF	18	166	N	999,999,999,999.999999
16	Sign field for Net Asset Value Per ETF	1	184	A/N	<ul style="list-style-type: none"> "-" = Negative value Space = Positive value All other values treated as space (positive)
17	Total Cash Amount Per Creation Unit	14	185	N	999,999,999,999.99

Type 2 – Portfolio Header Record Record Length = 500					
Seq	Description	Length	Start	Type	Comments
18	Sign field for Total Cash Amount Per Creation Unit	1	199	A/N	<ul style="list-style-type: none"> "-" = Negative value Space = Positive value All other values treated as space (positive)
19	Total Shares Outstanding Per ETF on T-1	12	200	N	999,999,999,999
20	Dividend Amount Per ETF on T-1	14	212	N	999,999,999,999.99
21	Sign field for Dividend Amount Per ETF on T-1	1	226	A/N	<ul style="list-style-type: none"> "-" = Negative value Space = Positive value All other values treated as space (positive)
22	Estimated value of Cash-in-lieu Components per Creation Unit	14	227	N	999,999,999,999.99
23	Cash Only Indicator	1	241	A/N	<ul style="list-style-type: none"> Y = Cash Only (create/redeem with Cash only) Space = No restrictions (any combination of cash or securities)
24	ETF Expense Ratio on T-1	3	242	N	Expressed in basis points.
25	Total Net Asset Value of ETF Fund on T-1	18	245	N	999,999,999,999.999999
26	ETF Shares Per Create/Redeem Unit	9	263	N	From the NSCC Security Master database. 999,999,999
27	ETF Symbol	15	272	A/N	From the NSCC Security Master database.
28	CNS Eligibility Indicator	1	287	A/N	From the NSCC Security Master database.
29	ETF Create Redeem Identifier	1	288	A/N	<ul style="list-style-type: none"> Y = Basket can be created or redeemed. N = Basket cannot be created or redeemed.
30	Prior Day's Portfolio being used	1	289	A/N	<ul style="list-style-type: none"> Y = Prior day's portfolio space = Today's portfolio

Type 2 – Portfolio Header Record					
Record Length = 500					
Seq	Description	Length	Start	Type	Comments
31	Basket Type	2	290	A/N	<ul style="list-style-type: none"> 01 = Standard 02 = Restricted 03 = Pricing 04 = Rebalance 05 = Creation 06 = Redeem 07 = Negotiated
32	Foreign or Domestic	1	292	A/N	<ul style="list-style-type: none"> D = Domestic F = Foreign
33	NSCC New Portfolio	1	293	A/N	<ul style="list-style-type: none"> Y = New portfolio Space = existing portfolio
34	ETF Classification Code	6	294	A/N	For future use to classify ETFs.
35	ETF Basket Unit Size	9	300	N	Defines the size of this basket that is different from the ETF Create/Redeem unit size. Specified only on Rebalance baskets. Optional. All zeroes if not provided. 999,999,999
36	Variable Fees	8	309	N	999,999.99
37	Baby Bond Cash Value	10	317	N	99,999,999.99
38	Fixed Income Face Value	10	327	N	99,999,999.99
39	Asset Classification Code for Underlying Components	2	337	A/N	Asset classification codes: <ul style="list-style-type: none"> • 01 – EQUITY • 02 – FIXED INCOME • 03 – COMMODITY • 04 – MIXED ASSET • 05 – ALTERNATIVE • 06 - CURRENCY
40	Leverage Indicator Code	2	339	A/N	<ul style="list-style-type: none"> 01 – Unleveraged 02 – Leveraged 03 – Inverse Leveraged
41	Leverage Factor	4	341	A/N	99.99

Type 2 – Portfolio Header Record					
Record Length = 500					
Seq	Description	Length	Start	Type	Comments
42	Transfer Agent ID	8	345	N	Transfer agent ID.
43	Transfer Agent Name	48	353	A/N	Name of the transfer agent.
44	Fund LEI	20	401	A/N	Legal entity identifier of the fund.
45	Fund Size	23	421	N	Fund AUM, at the share class or product level. 99,999,999,999.999999999999
46	Share Class Apportionment Ratio	1	444	N	Identifies if the fund has share classes and the proportional ownership of the fund if it has share classes. For U.S., ETFs will always = 1. Space if not provided.
47	Projected Transaction Fee	7	445	N	EMEA-specific: estimated transaction fee. 99,999.99
48	Date for Projected Transaction Fee	8	452	N	Effective trade date of the basket, in CCYYMMDD format.
49	Confirmed Transaction Fee	7	460	N	Actual cost of the transaction - also known as the Create/Redeem fee. 99,999.99
50	Date for Confirmed Transaction Fee	8	467	N	Effective trade date of the basket, in CCYYMMDD format.
51	Future Use	26	475		Spaces
END OF RECORD					

Type 3–Detail Component Record					
Record length=500					
Seq	Description	Length	Start	Type	Comments
1	Record Type	2	1	A/N	03 = Record Type 3 One per component.
2	ETF Trading CUSIP	9	3	A/N	S&P Assigned
3	ETF Trading ISIN	12	12	A/N	International Securities Identification Number.

Type 3—Detail Component Record					
Record length=500					
Seq	Description	Length	Start	Type	Comments
4	NSCC Portfolio ID	9	24		NSCC assigned Portfolio ID of the basket.
5	Portfolio Trade Date	8	33	N	CCYYMMDD
6	Component ID Code	2	41	A/N	<ul style="list-style-type: none"> • 01=CUSIP • 02=SEDOL • 03=ISIN • 04=ISIN/SEDOL • 05=Bloomberg • 06=Reuters • 07=ICE/NYSE Life • 99=Other
7	Component ID	25	43	A/N	Defined by the value in the Component ID Code field.
	CUSIP	9	43	A/N	Identifies the domestic component.
	SEDOL	7	43	A/N	Official SEDOL number.
	ISIN	12	43	A/N	Official ISIN number. Identifies the foreign or domestic component.
	ISIN/SEDOL	19	43	A/N	Combination ISIN/ SEDOL number Recommended for non-US domiciled securities.
	o ISIN	12	43	A/N	International Securities Identification Number.
	o SEDOL	7	55	A/N	Stock Exchange Daily Official List.
	Bloomberg			A/N	Alternative market identifier code.
	Reuters			A/N	Reuters instrument code (RIC). Alternative market identifier code.
	ICE/NYSE Life			A/N	Alternative market identifier code.
	All othertypes	25	43	A/N	Free form field identifying other types of identifier codes.
8	Component Quantity	21	68	N	Quantity of component per creation unit (par value for fixed income securities). 9,999,999,999,999.99999999
9	Sign Field for Component Quantity	1	89	A/N	<ul style="list-style-type: none"> "-" indicates negative value (short position) Space = positive All other values treated as space (positive) <p>Note: A component with negative quantity (short component) can only be created/redeemed for cash.</p>
10	New Security Indicator	1	90	A/N	<ul style="list-style-type: none"> N=New component in portfolio as per the ETF agent. Space = not new

Type 3—Detail Component Record					
Record length=500					
Seq	Description	Length	Start	Type	Comments
11	Cash In Lieu Indicator	1	91	A/N	<ul style="list-style-type: none"> Y= ETF agent provided indicator for component to be substituted for cash in a create/redeem. X= NSCC applied indicator for component to be substituted for cash in a create and redeem (per below mentioned rules) Space=No substitution. <p>Note: CIL is set to X if one of the following conditions is met for create / redeem eligible portfolios:</p> <ul style="list-style-type: none"> Component is not in NSCC Security Master database. Portfolio is a cash only portfolio.
12	Component Symbol	15	92	A/N	Trading symbol of the component.
13	Component WI Indicator	1	107	A/N	When Issued indicator of the domestic component.
14	Component Undergoing Corporate Action	1	108	A/N	<ul style="list-style-type: none"> Space=No corporate action M=Mandatory Corporate Action V=Voluntary Corporate Action
15	Component NSCC Eligibility Indicator	1	109	A/N	<ul style="list-style-type: none"> Y=NSCC eligible N=Not NSCC eligible
16	Component CNS Indicator	1	110	A/N	<ul style="list-style-type: none"> Y=CNS eligible N=Not CNS eligible
17	External Settlement Date	8	111	N	ETF agent provided settlement date for non-DTC settling components, in CCYYMMDD format.
18	Component Description	60	119	A/N	ETF agent defined description.
19	When Issued Indicator	1	179	A/N	Agent provide When Issued (WI) indicator for fixed income components: <ul style="list-style-type: none"> Y = When Issued N = Not When Issued
20	Accrued Interest T1	11	180	N	999,999,999.99
21	Accrued Interest T2	11	191	N	999,999,999.99
22	Asset Class	27	202	A	Free form field to identify the asset class of the security.

Type 3—Detail Component Record Record length=500					
Seq	Description	Length	Start	Type	Comments
23	Excluded From Pricing	21	229	N	<p>Pricing Basket Only</p> <p>Quantity of securities owned by the fund per basket/unit, but difficult to price.</p> <p>Securities that should be priced intraday, but names that are unable to price on the NAV date. Pre-corporate action prices and shares would be included as part of this basket.</p> <p>Examples: Complex corporate actions and fair-valued names.</p> <p>9,999,999,999,999.99999999</p>
24	Price (in Fund Base Currency)	24	250	N	<p>Pricing Basket Only</p> <p>Price of the security on the NAV date.</p> <p>999,999,999,999,999,999.999999</p>
25	Local Currency	3	274	A	Identifies the currency of the security. For example, USD.
26	Factor	24	277	N	<p>Decimal value reflecting a proportion of the outstanding principal value of the factor bonds that changes over time. Also applies to equity factors, such as stock split on ex date.</p> <p>999,999,999,999,999,999.999999</p>
27	Synthetics Local Currency	3	301	A	Identifies the currency of the security. For example, USD.
28	Synthetics Price Multiplier	24	304	N	<p>Designated price multiplier.</p> <p>999,999,999,999,999,999.999999</p>
29	Synthetics Contract Size	24	328	N	<p>Agreed notional size of the futures contract.</p> <p>999,999,999,999,999,999.999999</p>
30	Synthetics Average Contract Open Price	24	352	N	<p>Average of the future trade price.</p> <p>999,999,999,999,999,999.999999</p>
31	FX Rates Base Currency	3	376	A	Identifies the base currency of the fund. For example, USD
32	FX Rates Currencies	3	379	A	Spot FX rates of respective currencies against the base currency of the fund. For example, EUR, GBR, USD.

Type 3—Detail Component Record Record length=500					
Seq	Description	Length	Start	Type	Comments
33	FX Forwards Currency Pair	6	382	A	Identifies the currency pair associated with the FX forward. For example, EURUSD
34	FX Forwards Value Date	8	388	N	Settlement date of the FX forward, CCYYMMDD format.
35	FX Forwards Quantity	9	396	N	Fund hedged quantity. 9,999,999.99
36	FX Forwards Rate	7	405	N	Interpolated rate: rate used for NAV calculation, including forward point interpolation. 9.999999
37	FX Forwards Value	9	412	N	Currency market value of the FX forward. 9,999,999.99
38	FX Forwards Currency	3	421	A	Identifies the base currency of the FX forward contract. For example, EUR
39	SWAPs Notional Value	7	424	N	Total amount of a security's underlying asset. 9,999,999
40	SWAPs Spread	5	431	N	Cost of the underlying fee from the SWAP counterparty. 9.9999
41	SWAPs Market Value	9	436	N	Agreed upon price of the SWAP. 9,999,999.99
42	Future Use	56	445		Spaces
END OF RECORD					

Type 99—Trailer Record (New Record) Record length = 500					
Seq	Description	Length	Star	Type	Comments
1	Record Type	2	1	A/N	99 = Trailer Record One per file.
2	Processing Date	8	3	N	CCYYMMDD



Important Notice
National Securities Clearing Corporation

3	Primary Transmission or Supplement	1	11	A/N	· P=Primary Transmission · S= Supplemental Transmission
4	Record Count	13	12	N	Number of records in transmission (including trailer).
5	Future Use	476	25		Spaces
END OF RECORD					