

CODE

Crude Oil Data Exchange

Implementation Guidelines

Petroleum Industry Data Exchange Committee

A Standards Committee
of the American Petroleum
Institute

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American Petroleum Institute
1220 L Street, Northwest
Washington, D.C., 20005

Crude Oil Data Exchange

Statement of Purpose and Industry Use

Purpose

- Exchange document data from crude oil or product run tickets, crude oil lease and point of sale run statements, and tank strapping increment tables in a standardized fixed record format.

Benefits

- Early booking of crude oil volumes and values.
- Effective monitoring of inventories, receipts/delivery balances, shipments and other critical items.
- Reduction in clerical effort.

History

- CODE was installed as an industry standard in 1978 transmitting oil run ticket information. Oil statement records were added to the system in January 1986. Tank increment records were added to the system in January 1989.

Implementation and User Guide

Exhibit A

Record Formats

Exhibit B

Implementation and User Guide Crude Oil Data Exchange (CODE)

Exhibit A

Receiving From Other Companies

The following is an outline of steps that a company might follow to obtain maximum benefits as a receiver of CODE data.

- 1.** Initiate a study to determine how your company would like to use CODE data after it is received in-house.
- 2.** Initiate a project that would allow for processing the CODE data through the appropriate accounting area in your company.
- 3.** You will need to identify the companies that you would like to receive data from.
 - a. Prioritize a list of potential sending companies.
 - b. Compile a list of property codes.
- 4.** Prepare a letter to the accounting contact of the company you want to receive from. It should contain the following:
 - a. Your company ID.
 - b. A list of the property codes for which you would like to receive CODE information.
 - c. The names and phone numbers of your company's accounting and system contacts.
 - d. A firm date when you will be ready to receive CODE transmissions or a date when you will contact the transmitter to give them further start-up information.

Transmitting to Other Companies

- In order to become a transmitter of CODE data, in-house run tickets, oil run statements or tank increment data will have to be converted to the standard CODE record formats. Be very careful to follow the exact data formats.
- Advise the contact of the company you plan to send data to of the following:
 - a. Your company ID.
 - b. Request a list of property codes they need transmitted.
 - c. The names and phone numbers of your company's accounting and systems contacts.
 - d. A firm date when you will be ready to send CODE transmissions.

Exhibit A

continued

CODE Operating Conventions

The following is a list of operating convention within CODE.

- 1.** At no time shall a sender of CODE data retransmit run ticket or run statement data to any receiver without the receiver's prior knowledge and permission. To do so will cause the receiver to incur additional charges for the same transmission.
- 2.** All senders and receivers of CODE data are strongly encouraged to comply with all standards and guidelines regarding data formats. Failure to do so will result in system degradation.
- 3.** Price adjustments should not generate a new run ticket record. They should not be included in transmissions. The run ticket transmission should reflect the hard copy.
- 4.** When adjustments are made, the incorrect entry should be reversed and the corrected entry should be sent. The adjustment indicator field should be set to '1' for both records.

Crude Oil Data Exchange

Exhibit B

**Record Formats
and Layouts**

**Run Tickets
and
Run Statements**

Run Ticket Detail

Type 2

Field Name	Lgth	Type	From	To	Description
Record ID	1	N	1	1	A numeric code used to identify the various code formats
Company ID	2	A/N	2	3	Code used to identify the sending/receiving company
Ticket Type	1	N	4	4	Numeric field used to differentiate types of tickets as follows: 1 = Meter 4 = Estimated Barrels 2 = Gauged 6 = Total Lease Volume 3 = Net Barrels
Transmitter's Rec/Del Ind.	1	N	5	5	1 = Delivery; 2 = Receipt
Run Type	1	N	6	6	0 = Unknown; 1 = Lease Run; 2 = Trunk Line (Central Gath. Point); 3 = Line Transfer; 4 = Joint Unit
Ticket Number	7	A/N	7	13	Identifies the transaction run ticket number; required for meter, gauged, and estimated barrel type tickets
Run Ticket Date	6	N	14	19	Run ticket date in the form 'MMDDYY'
Property Code	14	A/N	20	33	Identifies the sending company's property number
Gathering Charge	1	N	34	34	0 = No gathering charge; 1 = Gathering charge
Tank/Meter No.	7	A/N	35	41	Tank/Meter number
Adjustment Ind.	1	N	42	42	0 = No correction; 1 - Correction to previous transmission
Opening Reading	10	N	43	52	The opening/top reading for a meter or gauged ticket; format for meter would be XXXXXXXX.XX (implied decimal); gauged format would be FFFFIINDD (feet, inches, numerator, denominator)
Opening Date	4	N	53	56	Run ticket date or opening meter ticket date in the form MMDD
Closing Reading	10	N	57	66	Same as opening reading
Closing Date	4	N	67	70	Same as opening date
Meter Factor	8	N	71	78	For meter tickets, expressed in the form XX.XXXXXX (implied decimal)
Shrinkage; Incrustation Factor	7	N	79	85	For gauged tickets, transmit incrustation factor; for meter tickets use shrinkage factor; form for both is XX.XXXXXX (implied decimal)

Type 2

Field Name	Lgth	Type	From	To	Description
Opening Temperature	4	N	86	89	Required field for meter, gauged, and estimated barrel tickets; for meter, if not temperature compensated, enter average line temperature; otherwise, default to 60 degrees for meters; numeric format should be XXX.X (implied decimal)
Closing Temperature	4	N	90	93	See opening temperature
BS&W %	4	N	94	97	Numeric format should be XX.XX (implied decimal); set to zero for estimated barrels or total lease volume
Observed Gravity	3	N	98	100	Numeric format XX.X (implied decimal)
Observed Temp	4	N	101	104	Numeric format XXX.X (implied decimal)
Pos/Neg Code	1	N	105	105	Numeric code for barrel designation; 0 = Positive; 1 = Negative
TOTAL NET VOLUME	9	N	106	114	Numeric Format XXXXXXXX.XX (implied decimal)
Shipper's Net Volume	9	N	115	123	Numeric format XXXXXXXX.XX (implied decimal); used to show shipper's barrels transported through a pipeline; default to total net volume if not applicable
Corrected Gravity	3	N	124	126	Numeric format XX.X (implied decimal)
Product Code	3	A/N	127	129	If ticket is for a product other than crude oil, use standard (PETROEX) product code for identification; otherwise, leave blank
Transmission Date	3	N	130	132	Left blank by the transmitting company; will be filled with julian date when data is distributed through codsplit

Run Ticket Sub-Total By Company

Type 4

Field Name	Lgth	Type	From	To	Description
Record ID	1	N	1	1	A numeric code used to identify the various code formats
Company ID	2	A/N	2	3	Code used to identify the sending/receiving company
Record Count	10	N	4	13	Indicates the number of type 2 (run ticket detail) records preceding and including this record for this company
Pos/Neg Code	1	N	14	14	Numeric code for barrel designation; 0 = Positive; 1 = Negative
Sub -Total Net Volume	13	N	15	27	Numeric format XXXXXXXXXXXX.XX (implied decimal); total of all net volumes for preceding type 2 records
Sub-Total Shipper's Net Volume	13	N	28	40	Numeric format XXXXXXXXXXXX.XX (implied decimal); total of all shipper's net volumes for preceding type 2 records
	89		41	129	Blank
Transmission Date	3	N	130	132	Left blank by the transmitting company; will be filled with julian date when data is distributed through codsplit

Total Run Ticket Transmission

Type 5 & 6

Field Name	Lgth	Type	From	To	Description
Record ID	1	N	1	1	A numeric code used to identify the various code formats
	2		2	3	Blank
Record Count	10	N	4	13	Indicates the number of type 2 records preceding and including this record for this company
Pos/Neg Code	1	N	14	14	Numeric code for barrel designation; 0 = Positive; 1 = Negative
GRAND TOTAL NET VOLUME	13	N	15	27	Numeric format XXXXXXXXXXXX.XX (implied decimal); total of all net volumes for preceding type 4 records
GRAND TOTAL SHIPPER'S NET VOLUME	13	N	28	40	Numeric format XXXXXXXXXXXX.XX (implied decimal); total of all shipper's net volumes for preceding type 4 records
	92		41	132	Blank

Run Statement Detail

Type 7

Field Name	Lgth	Type	From	To	Description
Record ID	1	N	1	1	A numeric code used to identify the various code formats
Company/ID	2	A/N	2	3	Code used to identify the sending/receiving company
Ticket Date	6	N	4	9	Run ticket date in the form "MMDDYY"
Accounting Date	4	N	10	13	Accounting period in the form 'YMMM'
Ticket Number	7	A/N	14	20	Identifies the transaction run ticket number
Tank/Meter No.	8	A/N	21	28	Tank/meter number
Property Number	18	A/N	29	46	Identifies the sending company's property code
Corr. Gravity	4	N	47	50	Numeric format XXX.X (implied decimal)
Product Price	6	N	51	56	Numeric format XX.XXXX (implied decimal)
Net Volume	10	N	57	66	Signed numeric field in the format +/-XXXXXXXX.XX (implied decimal)
Gross Value	12	N	67	68	Signed numeric field in the format +/-XXXXXXXXXX.XX (implied decimal)
Adjustment Value	10	N	79	88	Signed numeric field in the format +/-XXXXXXXX.XX (implied decimal)
Trucking Charges	10	N	89	98	Signed numeric field in the format +/-XXXXXXXX.XX (implied decimal)
State Taxes	11	N	99	109	Signed numeric field in the format +/-XXXXXXXXXX.XX (implied decimal)
Windfall Ind.	1	N	110	110	Code which indicated windfall tax tier: 0 = Not applicable; 1 = Tier I; 2 = Tier II; 3 = Tier III (22.5%); 4 = Tier III (30%)
Net Value	12	N	111	122	Signed numeric field in the format +/-XXXXXXXXXX.XX (implied decimal)
Adjustment Ind.	1	N	123	123	0= No correction; 1 = Correction to previous transmission
	6		124	129	Blank
Transmission Date	3	N	130	132	Left blank by the transmitting company; will be filled with julian date when data is distributed through codsplit

Run Statement Summary By Lease

Type 8

Field Name	Lgth	Type	From	To	Description
Record ID	1	N	1	1	A numeric code used to identify the various code formats
Company ID	2	AVN	2	3	Code used to identify the sending/receiving company
Record Count	10	N	4	13	The number of preceding type 7 detail records (including this one)
Property Code	18	AVN	14	31	Identifies the sending company's property code
Net Volume	10	N	32	41	Signed numeric field in the format +/-XXXXXXXX.XX (implied decimal)
Gross Value	12	N	42	53	Signed numeric field in the format +/-XXXXXXXXXX.XX (implied decimal)
Adjustment Value	10	N	54	63	Signed numeric field in the format +/-XXXXXXXX.XX (implied decimal)
Trucking Charges	10	N	64	73	Signed numeric field in the format +/-XXXXXXXX.XX (implied decimal)
State Taxes	11	N	74	84	Signed numeric field in the format +/-XXXXXXXXXX.XX (implied decimal)
Net Value	12	N	85	96	Signed numeric field in the format +/-XXXXXXXXXX.XX (implied decimal)
	33		97	129	Blank
Transmission Date	3	N	130	132	Left blank by the transmitting company; will be filled with julian date when data is distributed through codsplit

Total Run Statement Transmission

Type 9

Field Name	Lgth	Type	From	To	Description
Record ID	1	N	1	1	A numeric code used to identify the various code formats
	2		2	3	Blank
Record Count	10	N	4	13	The number of preceding type 7 & 8 detail records (including this one)
Net Volume	10	N	14	23	Signed numeric field in the format +/-XXXXXXXX.XX (implied decimal)
Net Value	12	N	24	35	Signed numeric field in the format +/-XXXXXXXXXX.XX (implied decimal)
	97		36	132	Blank

REC ID	CO. ID	TICKET DATE	ACCOUNTING DATE	TICKET NUMBER	TANK NUMBER	PROPERTY CODE	CORR. GRAV	PRICE	NET BARRELS	GROSS VALUE	ADJUSTMENT VALUE	TRUCKING CHARGES
		MMDDYY	MMYY	AN	AN	AN	XXX.X	XXX.X	N10.2	N122	N10.2	N10.2

RUN STATEMENT DETAIL												
STATE TAXES	NET VALUE	J D L I T E N										
N11.2	AN											

REC ID	CO. ID	RECORD COUNT	PROPERTY CODE	NET BARRELS	GROSS VALUE	ADJUSTMENT VALUE	TRUCKING CHARGES	STATE TAXES	NET VALUE
			AN	N10.2	N122	N10.2	N10.2	N11.2	N12.2

RUN STATEMENT SUMMARY BY LEASE									
J D L I T E N									

REC ID	CO. ID	RECORD COUNT	NET VOLUME	NET VALUE
			N10.2	N12.2

TOTAL RUN STATEMENT TRANSMISSION				
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6.3 Product Codes

Product Definition	Description	Code
Aviation Gasoline	80/87	A10
	100/130 low lead	A20
	100/130 high lead	A25
	115/145	A30
Regular Gasoline	80.0	B00
	80.5	B05
	81.0	B10
	81.5	B15
	82.0	B20
	82.5	B25
	83.0	B30
	83.5	B35
	84.0	B40
	84.5	B45
	85.0	B50
	85.5	B55
	86.0	B60
	86.5	B65
	87.0	B70
	87.5	B75
	88.0	B80
	88.5	B85
	89.0	B90
89.5	B95	
90.0	B99	
Premium Gasoline	90.0	C00
	90.5	C05
	91.0	C10
	91.5	C15
	92.0	C20
	92.5	C25
	93.0	C30
	93.5	C35
	94.0	C40
	94.5	C45
	95.0	C50
	95.5	C55
	96.0	C60
	96.5	C65
	97.0	C70
97.5	C75	
98.0	C80	
98.5	C85	
99.0	C90	
99.5	C95	

6.3 Product Codes

Continued

Product Definition	Description	Code
Unleaded Regular		D
Sub Octane Unleaded		D1
Mid Octane Unleaded		D2
Sub Octane Leaded Regular		DS
Sub Octane Unleaded Regular		DN5
Unleaded - 84 Octane		D84
- 89 Octane		D89
No. 1 Diesel	45 Centane Index	E5
	48 Centane Index	E8
	49 Centane Index	E9
No. 1 Fuel Oil		E10
No. 2 Diesel	40 Centane Index	F0
	45 Centane Index	F5
	48 Centane Index	F8
	49 Centane Index	F9
No. 2 Fuel Oil		F10
Railroad Diesel		F35
Low Sulfur Diesel		G
High Centane Diesel	50+ Centane	G0
Kerosene	Special Kero Blend	H
	K-1 Kerosene	H1
Jet Fuel, Military	JP4	H2
	JP5	J4
Jet Fuel, Commercial		J5
	Jet 50A-Deicer	K
	Normal Feed Stock	K1
	Q-Grade	K2
No. 1 Heating Oil		K6
Low Lead Regular		L
No. 2 Heating Oil		LLR
	No. 2 - Low Pour	M
	Industrial Gas Oil	M1
	High Sulphur Residual #6	M2
	1.0 Percent	M6
	0.3 Percent	M1P
	xx = lb.	M3P
	(ie. N17 = 17 lb.)	Nxx
Natural Gas		
Butane Propane Mix		NBP
Condensate		NC
Ethane		NE
Ethane Propane Mix		NEP
Field Butane		NFB
Isobutane		NIB
Normal Butane		NNB
Propane		NP

6.3 Product Codes

Continued

Product Definition	Description	Code
Regular Leaded - Oxydol Blend		O
Unleaded Premium		P
Unleaded Premium (40%) & Unleaded Regular (60%)		PD
Unleaded Premium	Octane - 91	P91
	Octane - 92	P92
Unleaded Blended Ethanol		Q
Unleaded Supreme with Ethanol		Q1
Regular Leaded Ethanol		R
Stock Oils		S
Alcohol		T
Leaded Regular with Unleaded Premium		U
Gasohol		W
Reserved for TABS		<u>ZZZ</u>