

Table 1: Annual Respondent Burden and Cost – NSPS for Petroleum Refineries for which C 14, 2007 (40 CFR Part 60, Subpart Ja) (Renewal)

Burden Item	(A) Person-hours per occurrence	(B) Number of occurrences per year per respondent ^a	(C) Person-hrs. per respondent per year (C=AxB)
1. Applications	N/A		
2. Survey and Studies			
A. Flare Management Plan	160	1	160
B. Flare Management Plan Revision ^b	8	1	8
C. Root Cause Analysis (flow)	45	4	180
D. Root Cause Analysis (sulfur)	24	3	72
3. Reporting Requirements			
A. Familiarize with rule requirements	1	1	1
B. Required Activities			
Initial performance tests on new facilities ^d	40	1	40
Repeat of initial performance tests on new facilities ^e	40	0.05	2
Initial CEMS Audits (RAA or CGA) new facilities ^f	36	1	36
CEMS Audits (RAA or CGA) existing facilities ^g	36	8.9	320
Initial Relative Accuracy Test new facilities ^f	24	6	144
Relative Accuracy Test existing facilities ^g	24	43.3	1040
Initial CPMS Audits (RAA or CGA) new facilities ^f	36	4	144
CPMS Audits (RAA or CGA) existing facilities ^g	36	25.6	920
C. Create Information	See 3B		
D. Gather Existing Information	See 3E		
E. Write Report ^h			
Notification of construction, reconstruction, or modification	2	1	2
Notification of anticipated startup	2	1	2
Notification of actual startup	2	1	2
Notification of initial performance test	2	1	2
Report of performance test	See 3B		
Semiannual Emissions Reports ⁱ	16	2	32
Subtotal for Reporting Requirements			
4. Recordkeeping Requirements			
A. Familiarize with rule requirements	See 3A		
B. Plan Activities	See 3B		
C. Implement Activities	See 3B		
D. Develop Record System	N/A		
E. Time to Enter Information			
Records of operating parameters ^j	0.25	350	87.5
F. Train Personnel	N/A		
G. Audits	N/A		

Subtotal for Recordkeeping Requirements			
Total Labor Burden and Costs (rounded) ^k			
Total Capital and O&M Cost (rounded) ^k			
GRAND TOTAL (rounded) ^k			

Assumptions

^a Occurrences per respondent per year is calculated as the number of affected facilities (flares, FCCU, FCU, FGCD, sulfur audits, CEMS/CPMS Audits or RATA testing, this value refers to the number of monitors on an affected facility that requires

^b Assume that there are approximately 129 petroleum refineries (respondents) that are subject to the rule over a 3-year period. We assume that two facilities are constructed, reconstructed, or modified over the three-year period of this ICR (86 affected facilities per year) due to being constructed, reconstructed, or modified. These reconstructed or modified facilities will be existing flares already subject to Subpart Ja and that they will re-submit

^c This ICR uses the following labor rates: Managerial \$153.55 (\$73.12+ 110%); Technical \$122.20 (\$58.19 + 110%); and Labor, Bureau of Labor Statistics, March 2021, “Table 2. Civilian Workers, by occupational and industry group.” 110 percent to account for the benefit packages available to those employed by private industry.

^d We have assumed that it will take 40 hours for each respondent to perform initial performance tests.

^e We have assumed that 5 percent of sources would have to repeat performance test due to failure.

^f We assume that two facilities at each of the 129 petroleum refineries will become subject to the provisions of Subpart Ja. We assume that one monitor and two CPMS monitors are needed for each other newly affected facility (i.e. FCCU, FCU, FGCD, Sulfur plant) again in the first year (2x/yr), and that Relative Accuracy Audits or Cylinder Gas Audits take 36 hours. We assume that the relative accuracy test or RATA are conducted twice a year (3 x 2/yr), and take 24 hours per new affected facility).

^g Subpart Ja requires regular relative accuracy evaluations of all monitors on existing affected facilities. We assume that these CEMS are audited once per year, and that the Relative Accuracy Audits or Cylinder Gas Audits take 36 hours per monitor (3 per existing affected facility), that there are 21.6 CEMS and CPMS per refinery (341 flare CEMS + 341 CPMS)/129 refineries, that the relative accuracy test or RATA are conducted twice a year, and take 24 hours per monitor. We assume that these CPMS are audited twice per year, and that these Relative Accuracy Audits or Cylinder Gas Audits take 36 hours per monitor.

^h We have assumed that each respondent will take 2 hours to write report.

ⁱ We have assumed that each respondent will take 8 hours twice per year to complete semiannual reports

^j Assume operation 350 days per year as specified in the NSPS review document.

^k Totals have been rounded to 3 significant figures. Figures may not add exactly due to rounding.

Instruction, Reconstruction, or Modification Commenced after May

(D) Respondents per year ^b	(E) Technical person-hrs. per year (E=CxD)	(F) Management person-hrs. per year (F=Ex0.05)	(G) Clerical person- hrs. per year (G=Ex0.1)	(H) Annual costs (\$) ^c
0	0	0	0	\$0
28	224	11	22	\$30,470
129	23,220	1,161	2,322	\$3,158,581.77
129	9,288	464	929	\$1,263,432.71
129	129	6.5	13	\$17,547.7
86	3,440	172	344	\$467,938.04
86	172	8.6	17	\$23,396.90
86	3,096	155	310	\$421,144.24
129	41,220	2,061	4,122	\$5,607,094.77
86	12,384	619	1,238	\$1,684,576.94
129	134,112	6,706	13,411	\$18,243,054.19
86	12,384	619	1,238	\$1,684,576.94
129	118,728	5,936	11,873	\$16,150,391.75
86	172	9	17	\$23,396.90
86	172	9	17	\$23,396.90
86	172	9	17	\$23,396.90
86	172	9	17	\$23,396.90
129	4,128	206	413	\$561,525.65
	417,695			\$49,407,320
129	11,288	564	1,129	\$1,535,421.69

Labor Rate
Management
Technical
Clerical

	12,981			\$1,535,422
	431,000			\$50,900,000
				\$120,000,000
				\$171,000,000

lfur plant) times the occurrences per affected facility per respondent (refineries). For audit or testing.

period with at least one affected source. There will be no additional new petroleum t each of the 129 petroleum refineries will become subject to the provisions of Subpart Ja ied and that these facilities will have initial performance testing costs. We assume 28 of it a flare management plan.

and Clerical \$61.51 (\$29.29 + 110%). These rates are from the United States Department ie rates are from column 1, "Total compensation." The rates have been increased by 110

t Ja over the three-year period of this ICR (86 affected facilities per year) due to being one CEMS monitor and one CPMS monitor is needed for each flare and one CEMS (nt). We assume that each new CEMS and CPMS monitor is audited at startup and once t one initial relative accuracy test is required for each new CEMS and CPMS monitor (3 urs per monitor.

ere are 8.9 CEMS at each refinery (341 flare CEMS + 804 other equipment CEMS)/129 ake 36 hours. We assume that relative accuracy tests are required for each CEMS and 341 flare CPMS + 804 other equipment CEMS + 1,308 other equipment CPMS)/129 me there are 12.8 CPMS at each refinery (341 flare CPMS + 1,308 other equipment er Gas Audits take 36 hours.

tes:
\$153.55
\$122.20
\$61.51

responses

hr/response

Table 2: Average Annual EPA Burden and Cost – NSPS for Petroleum Refineries for which Construction Modification Commenced After May 14, 2007 (40 CFR Part 60, Subpart Ja) (Renewal)

Activity	(A) Person-hours per occurrence	(B) No. of occurrences per respondent per year	(C) Person-hours per respondent per year (C=AxB)	(D) Respondents per year ^a	(E) Technical Person-hours per year (E=CxD)
New Affected Facilities:					
Report Review					
Notification of construction, reconstruction, or modification ^c	2	1	2	86	172
Notification of anticipated startup ^d	0.5	1	0.5	86	43
Notification of actual startup ^d	0.5	1	0.5	86	43
Notification of performance test ^d	0.5	1	0.5	86	43
Flare management plans ^e	1	1	1	28	28
Review performance test results	8	1	8	86	688
Emission Reports	4.2	1	4.2	86	361
Existing Plants:					
Semiannual Emissions Reports ^f	4.2	2	8.4	129	1,084
TOTAL (rounded) ^g					

Assumptions:

^a Assume that there are approximately 129 petroleum refineries (respondents) that are subject to the rule over a 3-year period. We assume that two facilities are petroleum refineries that will become subject to the rule over the three-year period of this ICR, but we assume that two facilities will become subject to the provisions of Subpart Ja over the three-year period of this ICR (86 affected facilities reconstructed, or modified and that these facilities will perform initial performance testing).

^b This cost is based on the average hourly labor rate as follows: Managerial \$69.04 (GS-13, Step 5, \$43.15 + 60%); Technical \$47.79 (GS-7, Step 5, \$29.87 + 60%); and Clerical \$27.73 (GS-6, Step 3, \$17.33 + 60%). This ICR assumes that Managerial hours are 5 percent of Technical hours and Clerical hours are 10 percent of Technical hours. These rates are from the Office of Personnel Management (OPM), 2021 General Schedule, and the rates have been increased by 60 percent to account for the benefit packages available to government employees.

^c We assume that the review of the 'Notification of construction, reconstruction, or modification' submitted by all sources being constructed, reconstructed, or modified) will take 2 hours to complete.

^d We assume that the review of the 'Notification of anticipated startup', 'Notification of actual startup', and 'Notification of performance test' for sources with newly affected facilities (due to being constructed, reconstructed, or modified) will each take 0.5 hours to complete.

^e Some flare management plans will need more review than others, depending on complexity of flare connections and based on the average amount of time spent per plan.

^f We have assumed that all existing plants will be required to complete semiannual emissions reports.

^g Totals have been rounded to 3 significant figures. Figures may not add exactly due to rounding.

Construction, Reconstruction, or

(F) Management person-hours per year (Ex0.05)	(G) Clerical person- hours per year (Ex0.1)	(H) Cost, \$ ^b
8.6	17.2	\$9,882
2.15	4.3	\$2,471
2.15	4.3	\$2,471
2.15	4.3	\$2,471
1.4	2.8	\$1,609
34	69	\$39,529
18	36	\$20,753
54.18	108	\$62,258.24
2,830		\$141,000

Labor Rates:	
Management	\$69.04
Technical	\$51.23
Clerical	\$27.73

riod. There will be no additional new facilities at each of the 129 petroleum (per year) due to being constructed,

nical \$51.23 (GS-12, Step 1, \$32.02 + ical hours, and Clerical hours are 10 hich excludes locality, rates of pay. The

with newly affected facilities (due to

f performance test' submitted by all mplete.

seline calculations. We assume 1 hour is

Number of Respondents				
	Respondents That Submit Reports		Respondents That Do Not Submit Any Reports	
	(A)	(B)	(C)	(D)
Year	Number of New Respondents ^a	Number of Existing Respondents	Number of Existing Respondents that keep records but do not submit reports	Number of Existing Respondents That Are Also New Respondents
1	86	129	0	86
2	86	129	0	86
3	86	129	0	86
Average	86	129	0	86

^a New respondents include sources with constructed, reconstructed and modified affected facilities. We assume 2 facilities modify and become subject to Subpart Ja during the three-year period of this ICR. (2 x 129 refineries = 258 facilities/3 ye facilities per year). Based on U.S. EIA data for the number of operating refineries in 2021 (https://www.eia.gov/dnav/pet/pet_pnp_cap1_dcu_nus_a.htm) and correspondence with API, we assume there are 129 refi Subpart Ja.

Total Annual Responses				
(A)	(B)	(C)	(D)	(E)
Information Collection Activity	Number of Respondents	Number of Responses	Number of Existing Respondents That Keep Records But Do Not Submit Reports	Total Annual Responses E=(BxC)+D
Initial notification of construction/reconstruction	86	1	0	86
Notification of anticipated startup	86	1	0	86
Notification of actual startup	86	1	0	86
Notification of performance test	86	1	0	86
Flare management plan ^a	28	1	0	28
Performance test results	86	1	0	86
Semiannual reports of excess emission	129	2	0	258
			Total	716

^a We assume 2 facilities per refinery will modify or reconstruct and become subject to Subpart Ja during the three-year period of this ICR (2 x 129 refineries = 258 facilities/3 years = 86 facilities per year). Based on data collected in the prior ICR (ICR No. 2263.06), we assume that 32% of the modified/reconstructed facilities are flares (86 facilities per year x 32% = 28 flares per year). These flare facilities will need to re-submit a flare management plan.

Capital/Startup vs. Operation and Maintenance (O&M) Costs				
(A)	(B)	(C)	(D)	(E)
Continuous Monitoring Device	Capital/ Startup Cost for One Respondent	Number of New Respondents ^a	Total Capital/ Startup Cost, (BxC)	Annual O&M Costs for One Respondent
<i>New Affected Facilities</i> ^b				
H ₂ S CEMS – Flares ^{c, d, e}	\$358,000	0	\$0	\$59,700
Flare Vent Flow CPMS ^{c, d, e}				
CEMS – FCCU, FCU, FGCD, Sulfur plant ^{f, g, h}	\$155,000	29	\$4,495,000	\$25,000
CPMS – FCCU, FCU, FGCD, Sulfur plant ^{f, i, j}	\$86,000	29	\$2,494,000	\$100,000
<i>Existing Affected Facilities</i>				
H ₂ S CEMS – Flares ^{d, e, k}	\$358,000	0	\$0	\$59,700
Flare Vent Flow CPMS ^{d, e, k}				
CEMS – FCCU, FCU, FGCD, Sulfur plant ^{g, h, l}	\$155,000	0	\$0	\$25,000
CPMS – FCCU, FCU, FGCD, Sulfur plant ^{i, l, m}	\$86,000	0	\$0	\$50,000
Total ⁿ			\$6,989,000	

Footnotes:

^a In this table, the Number of New Respondents corresponds to the number of affected facilities (Flares, FCCU, FCU, FG constructed, re-constructed, or modified each year during this ICR period. In this table the Number of Respondents with O facilities and existing affected facilities (Flares, FCCU, FCU, FGCD, Sulfur plant) complying with Subpart Ja.

^b Per comments received from API/AFPM for the ICR renewal 2263.06, we assume that two facilities at each of the 129 p reconstructed, or modified over the three-year period of this ICR (258 facilities over three years or 86 new affected facilities of the affected facilities newly subject to Subpart Ja will have capital and startup costs.

^c Based on analysis of data in the previous ICR, EPA's Petroleum Refinery Database, and U.S. EIA's 2021 "Refinery Cap: flares at refineries are already subject to Subpart Ja and no existing or new flares will become subject to Subpart Ja during Existing flares already subject to Subpart Ja that modify will not have capital/startup costs. O&M costs for these flares is s Existing Affected Facilities.

^d Assume that capital/startup costs for a new flare sulfur CEMS and flow monitor CPMS is \$358,000 (Docket Document 1 page 11). Capital costs have been increased from 2006 to 2020 \$ using the CEPCI Equipment Cost Index. Each flare has o

^e Assume that the annual O&M costs of the flare sulfur CEMS and vent gas flow monitor is \$59,700 (Docket Document E page 11). Costs have been increased from 2006 to 2020 \$ using the CEPCI Equipment Cost Index.

^f We assume that 68% of the newly affected facilities are FCCU, FCU, FGCD, Sulfur Plant, or other process units (86 fac (rounded)). We assume that 50% of the affected facilities newly subject to Subpart Ja will have capital and startup costs (5 Per comments received from API/AFPM for the ICR renewal 2263.06, we assume that each new affected FCCU, FCU, FC CEMS and two CPMS.

^g Assume that capital/ startup costs for a new FCCU NOx analyzer are \$155,000 (Docket Document EPA-HQ-OAR-2007 have been increased from 2006 to 2020 \$ using the CEPCI Equipment Cost Index.

^h Per comments received from API/AFPM for the ICR renewal 2263.06, we assume that O&M cost for each CEMS includ preventative maintenance, and parts for a total cost of \$25,000 per year.

ⁱ Per comments received from API/AFPM for the ICR renewal 2263.06, we assume that capital/startup costs for a single C there are two CPMS per newly affected FCCU, FCU, FGCD, or Sulfur plant affected facility.

^j Per comments received from API/AFPM for the ICR renewal 2263.06, we assume that annual O&M costs for a single C CPMS per newly affected FCCU, FCU, FGCD, or Sulfur plant affected facility.

^k Assumes that 70% (341) of the 487 existing flares at currently operating petroleum refineries are already subject to the p flare has one H₂S CEMs and one flow CPMS. The other 30% of flares are expected to use the monitoring alternative for e flare gas recovery system. The number of flares at petroleum refineries (487) is derived by cross referencing the informati Petroleum Refinery Database (<https://www.epa.gov/stationary-sources-air-pollution/comprehensive-data-collected-petrole> the U.S. Energy Information Administration's 'Refinery Capacity Report' (<https://www.eia.gov/petroleum/refinerycapacity> operating as of January 1, 2021.

^l The number of existing affected facilities subject to Subpart Ja has been increased from the number shown in the previou years of new and modified facilities. For CEMS units, this is 3 x 68 and for CPMS units, this is 3 x 68 x 2, as there are 2 C facility.

^m Assume that annual O&M costs for a single CPMS are \$50,000.

ⁿ Totals have been rounded to 3 significant figures. Figures may not add exactly due to rounding. Some double counting o CEMS and CPMS separately.

(E)
Number of Respondents (E=A+B+C-D)
129
129
129
129

per refinery will
ars = 86

neries subject to

(F)	(G)
Number of Respondents with O&M ^a	Total O&M, (ExF)
0	\$0
58	\$1,450,000
58	\$5,800,000
341	\$20,357,700
804	\$20,100,000
1308	\$65,400,000
	\$113,107,700

\$120,096,700

CD, Sulfur plant) being
O&M corresponds to newly affected

petroleum refineries are constructed,
es per year). We assume that 50%

acity Report", we assume that all
the three-year period of this ICR.
shown under O&M Costs for

EPA-HQ-OAR-2007-0011-0289,
me H₂S CEMs and one flow CPMS.

EPA-HQ-OAR- 2007-0011-0289,

ilities per year x 68% = 58
8 facilities x 50% = 29 facilities).
FGCD, or Sulfur plant requires one

-0011-0222, page 8). Capital costs

les daily checks of 30 minutes,

Capital/Startup vs. Operation		
(A)	(B)	(C)
Continuous Monitoring Device	Capital/ Startup Cost for One Respondent ^a	Number of New Respondents ^a
<i>New Affected Facilities^{b,c}</i>		
H ₂ S CEMS – Flares	\$372,000 ^d	16
Flare Vent Flow CPMS		
CEMS – FCCU, FCU, FGCD, Sulfur plant ^f	\$161,000 ^g	34
CPMS – FCCU, FCU, FGCD, Sulfur plant ^f	\$86,000 ⁱ	34
<i>Existing Affected Facilities^k</i>		
H ₂ S CEMS – Flares	\$372,000 ^d	0
Flare Vent Flow CPMS		
CEMS – FCCU, FCU, FGCD, Sulfur plant	\$161,000 ^g	0
CPMS – FCCU, FCU, FGCD, Sulfur plant	\$86,000 ⁱ	0
Total ^m		50

Footnotes:

^a In this table, the number of respondents corresponds to: 1) the n

^b Per comments received from API/AFPM, we assume that two f

^c Based on the number of existing flare units, we assume that 329

^d Assume that capital/startup costs for a new flare sulfur CEMS a

^e Assume that the annual O&M costs of the flare sulfur CEMS an

^f Per comments received from API/AFPM, we assume that each r

^g Assume that capital/ startup costs for a new FCCU NOx analyz

CPMS monitor are \$43,000 and

PMS are \$50,000 and there are two

provisions of Subpart Ja and each
emergency flares and flares with
on in the "flares" table in the 2011
um-refining-sector) with data from
/), which shows the 129 refineries

is ICR renewal (2263.06) by three
CPMS units for each new affected

occurs due to counting costs for

^h Per comments received from API/AFPM, we assume that O&M

ⁱ Assume that capital/startup costs for a single CPMS monitor are

^j Assume that annual O&M costs for a single CPMS are \$50,000

^k Assumes that 70% (280) of the 400 flares at petroleum refineries

^l Assume that annual O&M costs for a single CPMS are \$50,000.

^m Totals have been rounded to 3 significant figures. Figures may vary

and Maintenance (O&M) Costs			
(D)	(E)	(F)	(G)
Total Capital/ Startup Cost,	Annual O&M Costs for One Respondent ^a	Number of Respondents with O&M ^a	Total O&M,
\$5,952,000	\$62,000 ^e	32	\$1,984,000
\$5,474,000	\$25,000 ^h	68	\$1,700,000
\$2,924,000	\$100,000 ^j	68	\$6,800,000
\$0	\$62,000 ^e	280	\$17,360,000
\$0	\$25,000 ^h	600	\$15,000,000
\$0	\$50,000 ^l	900	\$45,000,000
\$14,400,000			\$87,800,000

number of new affected facilities (Flares, FCCU, FCU, FGCD, Sulfur plant) being constructed, re-constructed, or mod-

facilities at each of the 150 petroleum refineries become subject to the provisions of Subpart Ja over the three-year peri-

% of the new affected facilities are flares and that 68% of the new facilities are FCCU, FCU, FGCD, Sulfur Plant, or o-

nd flow monitor CPMS is \$372,000 (Docket Document EPA-HQ-OAR-2007-0011-0289, page 11). Capital costs have

nd vent gas flow monitor is \$62,000 (Docket Document EPA-HQ-OAR- 2007-0011-0289, page 11). Costs have been i-

new affected source requires one CEMS and two CPMS.

er are \$161,000 (Docket Document EPA-HQ-OAR-2007-0011-0222, page 8). Capital costs have been increased from

l cost for each CEMS includes daily checks of 30 minutes, preventative maintenance, and parts for a total cost of \$25,
: \$43,000 and there are two CPMS per new affected facility.

and there are two CPMS per new affected facility.

s are already subject to the provisions of Subpart Ja and each has one H₂S CEMs and one flow CPMS. The other 30%

not add exactly due to rounding. Some double counting occurs due to counting costs for CEMS and CPMS separately.

ified each year during this ICR period, or 2) the number of existing affected facilities (Flares, FCCU, FCU, FGCD, Sulfu
od of this ICR (300 facilities over three years or 100 new affected facilities per year) due to being constructed, reconstruc
ther process units.

e been increased from 2006 to 2018 \$ using the CEPCI Equipment Cost Index.

ncreased from 2006 to 2018 \$ using the CEPCI Equipment Cost Index.

2006 to 2018 \$ using the CEPCI Equipment Cost Index.

000 per year.

6 of flares are expected to use the monitoring alternative for emergency flares and flares with flare gas recovery system.

.

ir plant) already complying with Subpart Ja.

cted, or modified and that half of these new affected facilities will have capital and startup costs (50 facilities per year).

For other existing affected facilities (FCCU, FCU, FGCD, Sulfur Plant, or other process unit), we assume there are 4 CE

MS and 6 CPMS at each petroleum refinery, for a total of 600 CEMS ($4 \times 150 = 600$) and 900 (6×150) CPMS.

