

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

Burden Item	(A) Person-hours per occurrence	(B) Number of occurrences per year per respondent <sup>a</sup>	(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 <sup>b</sup>	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 <sup>d</sup>	40	1	40
Repeat of initial performance tests on new facilities <sup>e</sup>	40	0.05	2
Initial CEMS Audits (RAA or CGA) new facilities <sup>f</sup>	36	1	36
CEMS Audits (RAA or CGA) existing facilities <sup>g</sup>	36	5.9	211
Initial Relative Accuracy Test new facilities <sup>f</sup>	24	6	144
Relative Accuracy Test existing facilities <sup>g</sup>	24	27.5	659
Initial CPMS Audits (RAA or CGA) new facilities <sup>f</sup>	36	4	144
CPMS Audits (RAA or CGA) existing facilities <sup>g</sup>	36	15.7	566
C. Create Information	See 3B		
D. Gather Existing Information	See 3E		
E. Write Report <sup>h</sup>			
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 <sup>i</sup>	16	2	32
<b>Subtotal for Reporting Requirements</b>			
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 <sup>j</sup>	0.25	350	87.5
F. Train Personnel	N/A		

G. Audits	N/A		
<b>Subtotal for Recordkeeping Requirements</b>			
<b>Total Labor Burden and Cost (rounded) <sup>k</sup></b>			
<b>Total Capital and O&amp;M Cost (rounded) <sup>k</sup></b>			
<b>Grand TOTAL (rounded) <sup>k</sup></b>			

### Assumptions

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

<sup>b</sup> Assume that there are approximately 150 petroleum refineries (respondents) that are subject to the rule over a 3-year period. We assume that two facilities will become subject to the rule over the three-year period of this ICR, but we assume that two facilities will be constructed, reconstructed, or modified over the three-year period of this ICR (100 affected facilities per year) due to being constructed, reconstructed, or modified. 32 of these newly affected facilities will be flares.

<sup>c</sup> This ICR uses the following labor rates: \$147.40 per hour for Executive, Administrative, and Managerial labor; \$147.40 per hour for other labor. These rates are from the United States Department of Labor, Bureau of Labor Statistics, June 2018, "Table 2. Civilian Workers Compensation." The rates have been increased by 110% to account for the benefit packages available to those employees.

<sup>d</sup> We have assumed that it will take 40 hours for each respondent to perform initial performance tests.

<sup>e</sup> We have assumed that 5 percent of sources would have to repeat performance test due to failure.

<sup>f</sup> We assume that two facilities at each of the 150 petroleum refineries will become subject to the provisions of Subpart Ja over the three-year period of this ICR (100 affected facilities per year) due to being constructed, reconstructed, or modified and that these facilities will have initial performance testing costs. We assume that each new CEMS and CPMS monitor is audited at startup and once again in the first year (2x/yr), and one initial relative accuracy test is required for each new CEMS and CPMS monitor (3 per new affected facility), taking 24 hours per monitor.

<sup>g</sup> Subpart Ja requires regular relative accuracy evaluations of all monitors on existing affected facilities. We assume that CEMS (280 CEMS)/150 refineries), that these CEMS are audited once per year, and that the Relative Accuracy Audits or Cylindrical Accuracy Audits (280 CEMS and CPMS monitor (3 per existing affected facility), that there are 13.7 CEMS and CPMS per refinery (280 CPMS)/150 refineries, that the relative accuracy test or RATA are conducted twice a year, and take 24 hours per monitor (3 per existing affected facility), that these CPMS are audited twice per year, and that these Relative Accuracy Audits are conducted twice per year, and take 24 hours per monitor.

<sup>h</sup> We have assumed that each respondent will take 2 hours to write report.

<sup>i</sup> We have assumed that each respondent will take 8 hours twice per year to complete semiannual reports.

<sup>j</sup> Assume operation 350 days per year as specified in the NSPS review document.

<sup>k</sup> Totals have been rounded to 3 significant figures. Figures may not add exactly due to rounding.

**Construction, Reconstruction, or Modification Commenced after May**

(D) Respondents per year <sup>b</sup>	(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 (\$) <sup>c</sup>
0	0	0	0	\$0
32	256	13	26	\$33,534
150	27,000	1,350	2,700	\$3,536,784.00
150	10,800	540	1,080	\$1,414,713.60
150	150	7.5	15	\$19,648.8
100	4,000	200	400	\$523,968.00
100	200	10	20	\$26,198.40
100	3,600	180	360	\$471,571.20
150	31,680	1,584	3,168	\$4,149,826.56
100	14,400	720	1,440	\$1,886,284.80
150	98,880	4,944	9,888	\$12,952,488.96
100	14,400	720	1,440	\$1,886,284.80
150	84,960	4,248	8,496	\$11,129,080.32
100	200	10	20	\$26,198.40
100	200	10	20	\$26,198.40
100	200	10	20	\$26,198.40
100	200	10	20	\$26,198.40
150	4,800	240	480	\$628,761.60
		<b>340,315</b>		<b>\$38,763,939</b>
150	13,125	656	1,313	\$1,719,270.00

Labor Rate
Management
Technical
Clerical

		<b>15,094</b>		<b>\$1,719,270</b>
		<b>355,000</b>		<b>\$40,500,000</b>
				<b>\$102,000,000</b>
				<b>\$143,000,000</b>

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

ear period with at least one affected source. There will be no additional new petroleum es at each of the 150 petroleum refineries will become subject to the provisions of Subpart or modified and that these facilities will have initial performance testing costs. We assume

117.92 per hour for Technical labor, and \$57.02 per hour for Clerical labor. These rates , by Occupational and Industry group.” The rates are from column 1, “Total employed by private industry.

part Ja over the three-year period of this ICR (100 affected facilities per year) due to being me one CEMS monitor and two CPMS monitors needed for each newly affected facility. nd that Relative Accuracy Audits or Cylinder Gas Audits take 36 hours. We assume that at the relative accuracy test or RATA are conducted twice a year (3 x 2/yr), and take 24

e there are 5.9 CEMS at each refinery (280 flare CEMS + 600 other equipment der Gas Audits take 36 hours. We assume that relative accuracy tests are required for each flare CEMS + 280 flare CPMS + 600 other equipment CEMS + 900 other equipment onitor. We assume there are 7.9 CPMS at each refinery (280 flare CPMS + 900 other audits or Cylinder Gas Audits take 36 hours.

tes:
147.40
117.92
57.02

These rates were updated 2/4/19 to match the United States Department of Labor, Bureau of Labor Statistics, June

# responses  
hr/response

2018, “Table 2. Civilian Workers, by occupational and industry group

**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 <sup>a</sup>	(E) Technical Person-hours per year (E=CxD)
New Affected Facilities:					
Report Review					
Notification of construction, reconstruction, or modification <sup>c</sup>	2	1	2	100	200
Notification of anticipated startup <sup>d</sup>	0.5	1	0.5	100	50
Notification of actual startup <sup>d</sup>	0.5	1	0.5	100	50
Notification of performance test <sup>d</sup>	0.5	1	0.5	100	50
Flare management plans <sup>e</sup>	1	1	1	32	32
Review performance test results	8	1	8	100	800
Emission Reports	4.2	1	4.2	100	420
Existing Plants:					
Semiannual Emissions Reports <sup>f</sup>	4.2	2	8.4	150	1260
<b>TOTAL (rounded) <sup>g</sup></b>					

**Assumptions:**

<sup>a</sup> Assume that there are approximately 150 petroleum refineries (respondents) that are subject to the rule over a 3-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 (100 affected facilities reconstructed, or modified and that these facilities will perform initial performance testing).

<sup>b</sup> This cost is based on the following labor rates which incorporates a 1.6 benefits multiplication factor to account for government rate of \$65.71 (GS-13, Step 5, \$41.07 + 60%), Technical rate of \$48.75 (GS-12, Step 1, \$30.47 + 60%), and Clerical rate of \$30.47. These rates are from the Office of Personnel Management (OPM) “2018 General Schedule” which excludes locality rates.

<sup>c</sup> We have assumed that all sources with newly affected facilities (due to being constructed, reconstructed, or modified) v

<sup>d</sup> We have assumed that all sources with newly affected facilities (due to being constructed, reconstructed, or modified) v

<sup>e</sup> Some plans will need more review than others, depending on complexity of flare connections and baseline calculations; time spent per plan.

<sup>f</sup> We have assumed that all existing plants will be required to complete semiannual emissions reports.

<sup>g</sup> 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, \$ <sup>b</sup>
10	20	\$10,935
2.5	5	\$2,734
2.5	5	\$2,734
2.5	5	\$2,734
1.6	3.2	\$1,750
40	80	\$43,739
21	42	\$22,963
63	126	\$68,888.61
<b>3,290</b>		<b>\$156,000</b>

Labor Rates:	
Management	65.71
Technical	48.75
Clerical	26.38

These rates were updated 2/4/19 to m:

period. There will be no additional new facilities at each of the 150 petroleum sites per year) due to being constructed,

Government overhead expenses: Managerial of \$26.38 (GS-6, Step 3, \$16.49 + 60%). of pay.

will take 2 hours to complete report.

will take 0.5 hours to complete report.

; assume 1 hour is the average amount of

atch the rates from the Office of Personnel Management (OPM), 2018 General Schedule.

**CEPCI Cost Index for Equipment**

Year 2006	606.5
Year 2018	751.5
<b>Cost Increase</b>	<b>124%</b>