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 d	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 f	36	1	36
CEMS Audits (RAA or CGA) existing facilities g	36	5.9	211
Initial Relative Accuracy Test new facilities f	24	6	144
Relative Accuracy Test existing facilities g	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
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 <sup>j</sup>	0.25	350	87.5

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

#### 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 requi
- <sup>b</sup> Assume that there are approximately 150 petroleum refineries (respondents) that are subject to the rule over a 3-ye refineries that will become subject to the rule over the three-year period of this ICR, but we assume that two facilities Ja over the three-year period of this ICR (100 affected facilities per year) due to being constructed, reconstructed, or 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; \$1 from the United States Department of Labor, Bureau of Labor Statistics, June 2018, "Table 2. Civilian Workers, by The rates have been increased by 110% to account for the benefit packages available to those employed by private i
- <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 Sub constructed, reconstructed, or modified and that these facilities will have initial performance testing costs. We assure that each new CEMS and CPMS monitor is audited at startup and once again in the first year (2x/yr), ar one initial relative accuracy test is required for each new CEMS and CPMS monitor (3 per new affected facility), th hours per monitor.
- <sup>g</sup> Subpart Ja requires regular relative accuracy evaluations of all monitors on existing affected facilities. We assume refineries), that these CEMS are audited once per year, and that the Relative Accuracy Audits or Cylinder Gas Audi CPMS monitor (3 per existing affected facility), that there are 13.7 CEMS and CPMS per refinery (280 flare CEMS refineries, that the relative accuracy test or RATA are conducted twice a year, and take 24 hours per monitor. We a CPMS)/150 refineries), that these CPMS are audited twice per year, and that these Relative Accuracy Audits or Cyl
- <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>1</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	\$1,000,204.00
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
1=0			100	****
150	4,800	240	480	\$628,761.60
		340,315	1	\$38,763,939
150	13,125	656	1,313	\$1,719,270.00

	Labor Ra
Managem	ient
Technical	
Clerical	

	15,094	\$1,719,270
	355,000	\$40,500,000
		\$102,000,000
		\$143,000,000

sulfur plant) times the occurences per affected facility per respondent (refineries). For res 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 r modified and that these facilities will have initial performance testing costs. We assume

17.92 per hour for Technical labor, and \$57.02 per hour for Clerical labor. These rates are Occupational and Industry group." The rates are from column 1, "Total Compensation." industry.

part Ja over the three-year period of this ICR (100 affected facilities per year) due to being ne one CEMS monitor and two CPMS monitors needed for each newly affected facility. 11 that Relative Accuracy Audits or Cylinder Gas Audits take 36 hours. We assume that 11 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 CEMS)/150 its take 36 hours. We assume that relative accuracy tests are required for each CEMS and 5 + 280 flare CPMS + 600 other equipment CEMS + 900 other equipment CPMS)/150 ssume there are 7.9 CPMS at each refinery (280 flare CPMS + 900 other equipment linder Gas Audits take 36 hours.

toc.	٠
E.5	
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147.40 These rates were updated 2/4/19 to match the United States Department of Labor, Bureau of Labor Statistics, June

117.92

57.02

# responses
hr/response



Table 2: Average Annual EPA Burden and Cost – NSPS for Petroleum Refineries for which Co 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
TOTAL (rounded) <sup>g</sup>					

#### **Assumptions:**

<sup>&</sup>lt;sup>a</sup> Assume that there are approximately 150 petroleum refineries (respondents) that are subject to the rule over a 3-year pe petroleum refineries that will become subject to the rule over the three-year period of this ICR, but we assume that two fa refineries will become subject to the provisions of Subpart Ja over the three-year period of this ICR (100 affected facilitie reconstructed, or modified and that these facilities will perform initial performance testing.

<sup>&</sup>lt;sup>b</sup> This cost is based on the following labor rates which incorporates a 1.6 benefits multiplication factor to account for gov 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 These rates are from the Office of Personnel Management (OPM) "2018 General Schedule" which excludes locality rates

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

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

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

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

### nstruction, 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
3,290		\$156,000

65.71	These rates were updated 2/4/19 to ma
48.75	
26.38	
	48.75 26.38

Labor Rates:

riod. There will be no additional new cilities at each of the 150 petroleum s per year) due to being constructed,

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

*r*ill take 2 hours to complete report.

*r*ill take 0.5 hours to complete report.

assume 1 hour is the average amount of



## **CEPCI Cost Index for Equipment**

Year 2006	606.5
Year 2018	751.5
Cost Increase	124%