

Table 1: Worker Time and Cost - Initial Exposure Assessment

Cost = Burden Hours* Wage Rate

Hours = (Affected Workers/WPA) * WT

Variables

Affected Workers = Number of workers undergoing exposure assessment

WPA = workers per area

IEA = # of initial exposure assessment samples

WT = hours of worker time

Wage Rate = \$ per hour

Table 1 : Worker Time and Cost - Initial Exposure Assessment

	Affected Workers [a]	WPA	IEA [a]	WT	Burden Hours (rounded)	Wage Rate	Item 12 Costs (rounded)
New							
General Industry	-	4	-	0.5	-	\$27.46	\$ -
Construction	-	4	-	0.5	-	\$34.94	\$ -
Existing							
General Industry	277,949	4	69,487	0.5	34,744	\$27.46	\$ 954,070
Construction	22,125	4	5,531	0.5	2,766	\$34.94	\$ 96,644
Total	300,074		75,018		37,510		\$ 1,050,714

[a] The number of workers undergoing exposure assessment is calculated differently for general industry and construction. For general industry, the number of affected workers is the number or workers at or above the action level. For the construction industry, the FEA assumes that 10 percent of at-risk construction workers will undergo initial exposure assessment.

Table 2: Contract Costs for Industrial Hygienist and Laboratory to Conduct Analysis - Initial Exposure Assessment

IHPBZ Cost = (GWIML + CWIM)/WPA * IHPBZ

Direct Cost = (GWIM + CWIM)/WPA * LABSHP

Total Cost = IHPBZ Cost + Direct Cost

Variables

GWIM = # of workers affected workers in general industry/maritime undergoing initial monitoring

CWIM = # of workers affected workers in general industry/maritime undergoing initial monitoring

WPA = workers per area

IHPBZ = direct cost per sample including outside contractor industrial hygienist (IH) fees and PBZ

LABSHP = direct cost per sample for lab fees and shipping

Table 2: Contract Costs for Industrial Hygienist and Laboratory to Conduct Analysis - Initial Exposure Assessment										
	GIWIM	CWIM	Total	Workers per Area	Total EA Samples (rounded)	IHPBZ	IHPBZ Costs (Total EA Samples x IHPBZ) (rounded)	LABSHP	Direct Costs per Sample	Total Costs (IHPBZ + LABSHP)
Small	82,499	7,659	90,158	4	22,539	\$1,250.00	\$28,173,750	\$140.27	\$3,161,546	\$31,335,296
Medium	176,401	12,627	189,029	4	47,257	\$416.67	\$19,690,574	\$140.27	\$6,628,739	\$26,319,313
Large	19,049	1,839	20,887	4	5,222	\$312.50	\$1,631,875	\$140.27	\$732,490	\$2,364,365
Total	277,949	22,125	300,074		75,018		\$49,496,199		\$10,522,775	\$60,018,974

Table 3: Worker Time and Cost - Periodic and Additional Exposure Assessment

Hours = ((GIW>=AL - GIW>PEL) / WPA * AAEA) * AEF * WT)

Hours = ((GIW>PEL / WPA) * AAEA * AEF * WT)

Hours = (CW>AL<PEL / WPA) * AAEA * AEF * WT)

Variables

Affected Workers = Number of workers undergoing periodic and additional exposure assessment

GIW>=AL =# of workers at or above action level in general industry/maritime

GIW>PEL = # of respirator users above PEL in general industry/maritime

Semi-Annual Sampling = # of workers in construction that undergo semi-annual sampling

Quarterly Sampling = # of workers in construction that undergo quarterly sampling

WPA = workers per area

AAEA = # of annual exposure assessments per year

PEA = # of periodic exposure assessments

AEA = # of additional exposure assessments

AEAF = 1.15 additional exposure assessment factor (1 +.25)

PAEA = # of periodic and additional assessments; (PEA + AEA)

WT = hours of worker's time

Wage Rate = \$ per hour

Table 3: Worker Time and Cost - Periodic and Additional Exposure Assessment												
	Affected Workers	Workers per Area	No. of Exposure Assessments (EA) [a]	AAEA	PEA	AEAF	AEA (PAEA - AEAF)	PAEA (PEA * AEAF)	Hours of Worker's Time	Burden Hours	Wage Rate	Item 12 Costs (rounded)
General Industry												
(GIW>=AL - GIW>PEL)	110,388	4	27,597	2	55,194	1.25	13,799	68,993	0.5	34,497	\$27.46	\$947,288
GIW > PEL	31,206	4	7,802	4	31,208	1.25	7,802	39,010	0.5	19,505	\$27.46	\$535,607
Subtotal	141,594		35,399		86,402.00		21,601	108,003		54,002		\$1,482,895
Construction												
Semi-Annual Sampling	383	4	96	2	191	1.25	47.61	239	0.5	120	\$34.94	\$4,193
Quarterly Sampling	12,099	4	3,025	4	12,099	1.25	3,024.65	15,124	0.5	7,562	\$34.94	\$264,216
Subtotal	12,482		3,121		12,291		3,072.26	15,363		7,682		\$268,409
Total	154,076	4			98,693	-	24,673.26	123,366	-	61,684	-	\$1,751,304
[a] The FEA assumes that construction workers in compliance with initial monitoring (Table 1) will not undergo periodic monitoring. Periodic monitoring only applies to abrasive blasters and tunnel worker in the construction industry.												

Table 4: Contract Costs for Industrial Hygienist and Laboratory To Perform Assessment - Periodic and Additional Exposure Assessment

Cost = (GIW>AL - GIW>PEL / WPA * AEA * AEA * AEF * IHPBZ * LABSHIP)

Cost = (GIW>PEL / WPA * AEA * AEA * AEF * IHPBZ * LABSHIP)

Cost = (CW>AL<PEL / WPA * AEA * AEA * AEF * IHPBZ * LABSHIP)

Cost = (HFW>AL - HFW>PEL / WPA * AEA * AEA * AEF * IHPBZ * LABSHIP)

Cost = (HFW>PEL / WPA * AEA * AEA * AEF * IHPBZ * LABSHIP)

Variables

GIW>AL = # of workers at or above the action level in general industry/maritime

GIW>PEL = # of respirator users (above PEL) in general industry/maritime

CW>AL = # of workers at or above the action level in construction

CW>PEL = # of respirator users (above PEL) in construction

HFW>AL = # of workers at or above the action level in hydraulic fracturing

HFW>PEL = # of respirator users (above PEL) in hydraulic fracturing

WPA = workers per area

AAEA = # of annual exposure assessments

AEAF = 1.25 additional exposure assessment factor (1 +.25)

IHPBZ = direct cost per sample including outside contractor industrial hygienist (IH) fees and PBZ

LABSHP = direct cost per sample for lab fees and shipping

Table 4: Contract Costs for Industrial Hygienist and Laboratory To Perform Assessment - Periodic and Additional Exposure Assessment

Workers		Worker per Area	No. of Exposure Assessments (EA) (rounded)	AAEA	Total Periodic EA	AEAF	Total EA Samples (rounded)	IHPBZ	IHPBZ Costs (rounded)	LABSHP	LABSHP Costs (Total EA Samples x LABSHP) (rounded)		
General Industry													
General Industry (excluding hydraulic fracturing) Above AL and Below PEL = (GIW> AL - GIW>PEL)													
	GI > AL	GI > PEL	GIW> AL - GIW>PEL										
Small	36,526	5,409	31,117	4	7,779	2	15,558	1.25	19,448	\$ 625.00	\$ 12,155,000	\$ -	\$ -
Medium	81,149	13,338	67,812	4	16,953	2	33,906	1.25	42,383	\$208.33	\$ 8,829,792	\$ -	\$ -
Large	10,100	1,252	8,848	4	2,212	2	4,424	1.25	5,530	\$156.25	\$ 864,063	\$ -	\$ -
Sub-total	127,776	19,998	107,777		26,944		53,888	1.25	67,361		\$ 21,848,855		\$ -
General Industry (excluding hydraulic fracturing) Above PEL (GIW>PEL)													
Small	N/A	5,409		4	1,352	4	5,408	1.25	6,760	\$625.00	\$ 4,225,000	\$ -	\$ -
Medium	N/A	13,338		4	3,334	4	13,336	1.25	16,670	\$208.33	\$ 3,472,917	\$ -	\$ -

Large	N/A	1,252		4	313	4	1,252	1.25	1,565	\$156.25	\$ 244,531	\$ -	\$ -
Sub-total		19,998			4,999		19,996	1.25	24,995		\$ 7,942,448		\$ -
Hydraulic Fracturing Above AL and Below PEL = (HFW> AL - HFW>PEL)													
	HFW > AL	HFW > PEL	HFW > AL - HFW > PEL										
Small	1,060	860	200	4	50	2	100	1.25	125	\$1,250.00	\$ 156,250	\$ 140	\$ 17,534
Medium	12,758	10,347	2,411	4	603	2	1,206	1.25	1,508	\$416.67	\$ 628,338	\$ 140	\$ 211,527
Large	-	-	-	4	-	2	-	1.25	-	\$312.50	\$ -	\$ 140	\$ -
Sub-total	13,819	11,207	2,611		653		1,306	1.25	1,633		\$ 784,588		\$ 229,061
Hydraulic Fracturing Above PEL (HFW>PEL)													
Small	N/A	860		4	215	4	860	1.25	1,075	\$1,250.00	\$ 1,343,750	\$ 140	\$ 150,790
Medium	N/A	10,347		4	2,587	4	10,348	1.25	12,935	\$416.67	\$ 5,389,626	\$ 140	\$ 1,814,392
Large	N/A	0		4	-	4	-	1.25	-	\$312.50	\$ -	\$ 140	\$ -
Sub-total		11,207			2,802		11,208	1.25	14,010		\$ 6,733,376		\$ 1,965,182
General Industry - Total											\$ 37,309,267		\$ 2,194,243
Construction Industry													
Construction Industry Undergoing Semi-Annual Sampling													
			Affected Workers										
Small			59	4	15	2	30	1.25	38	\$1,250.00	\$47,500	\$140.27	\$ 5,330
Medium			279	4	70	2	140	1.25	175	\$416.67	\$72,917	\$140.27	\$ 24,547
Large			45	4	11	2	22	1.25	28	\$312.50	\$8,750	\$140.27	\$ 3,928
Sub-total			383		96		192	1.25	241		\$129,167		\$ 33,805
Construction Industry Undergoing Quarterly Sampling													
			Affected Workers										
Small			5,712	4	1,428	4	5,712	1.25	7,140	\$1,250.00	\$8,925,000	\$140.27	\$ 1,001,528
Medium			5,856	4	1,464	4	5,856	1.25	7,320	\$416.67	\$3,050,024	\$140.27	\$ 1,026,776
Large			531	4	133	4	532	1.25	665	\$312.50	\$207,813	\$140.27	\$ 93,280
Sub-total			12,099		3,025		12,100		15,125		\$12,182,837		\$ 2,121,584
Construction - Total											\$12,312,004		\$ 2,155,389
Total	141,594	62,411	122,871		38,519		98,690		123,365		\$49,621,271		\$ 4,349,632

Table 5: Human Resources Manager Time to Notify Workers of Exposure Assessment Results

Cost = Burden Hours* Wage Rate

Hours = (IEA + PAEA) * HRT

Variables

IEA = # of initial exposure assessments

PAEA = # of periodic and additional exposure assessments

EA = total number of exposure assessments

HRT = hours of human resources manager time to prepare notification of monitoring results

Wage Rate = \$ per hour

Table 5: Human Resources Manager Time to Notify Workers of Exposure Assessment Results

	IEA	PAEA	EA (IEA + PAEA)	HRT	Burden Hours (rounded)	Wage Rate	Item 12 Cost (rounded)
General Industry	69,487	108,003	177,490	0.25	44,373	\$88.79	\$3,939,879
Construction	5,531	15,363	20,894	0.25	5,224	\$88.79	\$463,839
Total	75,018	123,366	198,384		49,597		\$4,403,718

Table 8a - Supervisor Burden Hours and Costs to Make Written Exposure Control Plan Available to Employees and Designated Representatives

Cost = Burden Hours* Wage Rate

Hours = ((Number of Affected Workers Exposed to Silica >= AL *10%) * ST)

Table 8a Supervisor Time and Cost, Make Written Exposure Control Plan Available									
	Action Level (> 25 ug/m3)	Between Action Level and PEL (> 25 and < 50 ug/m3)	Above PEL (> 50 ug/m3)	Number of Affected Workers Exposed to Silica >=AL	10% estimate	ST	Burden Hours	Wage Rate	Item Cost (rounded)
General Industry	37,586	31,318	6,269	152,263	15,226	0.08	1,218	\$45.09	\$ 54,920
Construction	426,585	99,372	327,213	1,096,986	109,699	0.08	8,776	\$49.43	\$ 433,798
Total				1,249,249	124,925		9,994		\$ 488,718

Table 9: Administrative Burden Arising from Creating and Submitting the Air Quality Permit Notification in Case of Engineering Control Modifications

Burden Hours = Affected ESTB * HRT

Cost = Burden Hours* Wage Rate

Variables

Affected ESTB = Establishments with engineering controls covered by air permits

HRT = hours human resources manager time

Wage Rate = \$ per hour

Table 9: Administrative burden arising from creating and submitting the air quality permit notification in case of engineering control modifications

	Affected ESTB (rounded)	HRT	Burden Hours	Wage Rate	Item 12 Cost (rounded)
General Industry					
Small/Medium (20 to 499)	15,960	20	319,200	\$88.79	\$ 28,341,768
Large (>500)	575	40	23,000	\$88.79	\$ 2,042,170
Total	16,535.00		342,200		\$ 30,383,938

Table 10: Human Resources Manager Time and Cost to Establish and Revise Respiratory Protection Plan - General Industry

Cost = Burden Hours* Wage Rate

Establish Program Hours = ESTB * PERCOMP * HRT

Revise Program Hours = ESTB * PERCOMP * UPDAT * HRT

Variables

ESTB = # of establishments with respirator users

PERCOMP = percentage of establishments without programs in compliance (50 %)

HRT = hours human resources manager time

UPDAT = percentage of establishments updating program after first year (20%)

Wage Rate = \$ per hour

Table 10: Human Resources Manager Time and Cost to Establish and Revise Respiratory Protection Plan - General Industry								
New Programs								
	ESTB	PERCOMP	Programs	HRT	Burden Hours	Wage Rate	Item 12 Cost (rounded)	
> 500 workers	209	50%	105	8	840	\$88.79	\$	74,584
< 500 workers	6,038	50%	3,019	4	12,076	\$88.79	\$	1,072,228
Total	6,247		3,124		12,916		\$	1,146,812
Revise Program (After first year)								
	ESTB	PERCOMP	UPDAT	Programs (rounded)	HRT	Burden Hours	Wage Rate	Item 12 Cost (rounded)
> 500 workers	209	50%	20%	21	4	84	\$88.79	\$ 7,458
< 500 workers	6,038	50%	20%	604	2	1,208	\$88.79	\$ 107,258
Total	6,247			625		1,292		\$ 114,716

Table 10a: Human Resources Manager Time and Cost to Establish and Revise Respiratory Protection Plan - Hydraulic Fracturing

Cost = Burden Hours* Wage Rate

Establish Program Hours = ESTB * PERCOMP * HRT

Revise Program Hours = ESTB * PERCOMP * UPDAT * HRT

Variables

ESTB = # of establishments with respirator users

Program Costs, HF_Respirators, Respirator Unit Costs)

PERCOMP = percentage of establishments without programs in compliance

HRT = hours human resources manager time

UPDAT = percentage of establishments updating program after first year (20%)

Wage Rate = \$ per hour

Table 10a: Human Resources Manager Time and Cost to Establish and Revise Respiratory Protection Plan - Hydraulic Fracturing								
New Programs								
	ESTB	PERCOMP	Programs	HRT	Burden Hours	Wage Rate	Item 12 Cost (rounded)	
Large (500+)	-	5%	-	8	-	\$88.79	\$ -	
Medium (20-499)	2,587	20.0%	517	4	2,070	\$88.79	\$ 183,795	
Small (<20)	430	30%	129	4	516	\$88.79	\$ 45,816	
Total	3,017		646		2,586		\$ 229,611	
Revise Program (After first year)								
	ESTB	PERCOMP	UPDAT	Programs (rounded)	HRT	Burden Hours	Wage Rate	Item 12 Cost (rounded)
Large (500+)	-	5%	20%	-	4	-	\$88.79	\$ -
Medium (20-499)	2,587	20%	20%	103	2	206	\$88.79	\$ 18,291
Small (<20)	430	30%	20%	26	2	52	\$88.79	\$ 4,617
Total	3,017			129		258		\$ 22,908

Table 11: Human Resources Manger Time and Cost to Establish and Revise Respiratory Protection Plan - Construction

Cost = Burden Hours* Wage Rate

Establish Program Hours = ESTB * PERCOMP * HRT

Revise Program Hours = ESTB * PERCOMP * UPDAT * HRT

Variables

ESTB = # of establishments with respirator users

HRT = hours human resources manager time

PERCOMP = percentage of establishments without programs in compliance (44 %)

UPDAT = percentage of establishments updating program after first year (20%)

Wage Rate = \$ per hour

Table 11: Human Resources Manger Time and Cost to Establish and Revise Respiratory Protection Plan - Construction								
	ESTB	PERCOMP	Programs (rounded)	HRT	Burden Hours	Wage Rate	Item 12 Cost (rounded)	
>500 workers	3,994	44%	1,757	8	14,056	\$88.79	\$ 1,248,032	
<500 workers	82,993	44%	36,517	4	146,068	\$88.79	\$ 12,969,378	
Total	86,987		38,274		160,124		\$ 14,217,410	
Combined Totals (w/GI and HF)	96,251		42,044		175,626		\$ 15,593,833	
Revise Program (After first year)								
	ESTB	PERCOMP	UPDAT	Programs (rounded)	HRT	Burden hours	Wage Rate	Item 12 Cost
>500 workers	3,994	44%	20%	351	4	1,404	\$88.79	\$ 124,661
<500 workers	82,993	44%	20%	7,303	2	14,606	\$88.79	\$ 1,296,867
Total	86,987			7,654		16,010		\$ 1,421,528
Combined Totals (w/GI and HF)				8,408		17,560		\$ 1,559,152

Table 12: Supervisor and Worker Time and Cost to Complete Qualitative Fit-Testing

Cost = Burden Hours* Wage Rate

Hours = (RU * PERCOMP * WT)

Hours = (RU * PERCOMP * ST)

Variables

RU = # of respirator users

PERCOMP = percentage establishments without programs in compliance

WT = hours of worker time

ST = hours of supervisor time

Wage Rate = \$ per hour

Table 12: Supervisor and Worker Time and Cost to Complete Qualitative Fit-Testing							
	RU	PERCOMP	Responses (rounded)	WT/ST	Burden Hours (rounded)	Wage Rate	Item 12 Costs (rounded)
General Industry							
Worker	31,206	100%	31,206	1	31,206	\$27.46	\$ 856,917
Supervisor	31,206	100%	31,206	0.25	7,802	\$45.09	\$ 351,792
Sub-Total	62,412		62,412		39,008		\$ 1,208,709
Construction							
Worker	264,761	100%	264,761	1	264,761	\$34.94	\$ 9,250,749
Supervisor	264,761	100%	264,761	0.25	66,190	\$49.43	\$ 3,271,772
Sub-Total	529,523		529,522		330,951		\$ 12,522,521
Total	591,935		591,934		369,959		\$ 13,731,230
Number of Fit-Tests	295,967						

Table 13: Medical Surveillance, Worker Time and Cost to Complete Initial Medical Examination, Existing Workers

Cost = Burden Hours* Wage Rate

Hours = Affected Workers * PERHSCR * (EXAM + TRVL)

Table 13

Affected Workers = Number of Workers undergoing medical surveillance

PERHSCR = percentage of medical examinations (on-site or off-site)

INIT-EXST = # of existing workers completing initial medical examination

EXAM = hours of worker time to complete initial medical examination (2 hours), including:

- complete occupational health history survey, including medical questionnaire for respirator use*
- physical examination by knowledgeable HCP, including follow-up evaluation for respirator use, if needed*
- chest x-ray*
- pulmonary function test*
- dermal TB test*
- other necessary tests*

TRVL = hours of worker travel time to off-site location

Wage Rate = \$ per hour

Table 13: Medical Surveillance, Worker Time and Cost to Complete Initial Medical Examination, Existing Workers									
	Affected Workers [a]	PERHSCR	INIT-EXST (rounded)	EXAM	TRVL	Burden Hours (rounded)	Wage Rate	Item 12 Cost (rounded)	
General Industry									
(On-site)									
Small	37,586	20%	7,517	1.75	-	13,155	\$27.46	\$	361,236
Medium	93,908	75%	70,431	1.75	-	123,254	\$27.46	\$	3,384,555
Large	10,100	100%	10,100	1.75	-	17,675	\$27.46	\$	485,356
	141,594		88,048			154,084		\$	4,231,147
(Off-site)									
Small	37,586	80%	30,069	1.75	1	82,690	\$27.46	\$	2,270,667
Medium	93,908	25%	23,477	1.75	1	64,562	\$27.46	\$	1,772,873

Large	10,100	0%	-	1.75	1	-	\$27.46	\$	-
	141,594		53,546			147,252		\$	4,043,540
Subtotal			141,594			301,336		\$	8,274,687
Construction									
(On-site)									
Small	93,999	20%	18,800	1.75	-	32,900	\$34.94	\$	1,149,526
Medium	152,377	75%	114,283	1.75	-	199,995	\$34.94	\$	6,987,825
Large	24,205	100%	24,205	1.75	-	42,359	\$34.94	\$	1,480,023
	270,581		157,288			275,254		\$	9,617,374
(Off-site)									
Small	93,999	80%	75,199	1.75	1.5	244,397	\$34.94	\$	8,539,231
Medium	152,377	25%	38,094	1.75	1.5	123,806	\$34.94	\$	4,325,782
Large	24,205	0%	-	1.75	1.5	-	\$34.94	\$	-
	270,581		113,293			368,203		\$	12,865,013
Subtotal			270,581			643,457		\$	22,482,387
Total -->			412,175			944,793		\$	30,757,074
[a] Number of Workers undergoing medical surveillance is based on different values for general industry and construction. General industry workers is based on workers with an action level greater than 25, and the number of workers in the construction industry is based on the number of respirator users.									

Table 13(a): Worker Time and Cost for the Initial Medical Examination Forms - Existing Workers

Cost = Burden Hours* Wage Rate

Hours = Affected Workers * PERHSCR * (EXAM + TRVL)

Table 13

Affected Workers = Number of Workers undergoing medical surveillance

PERHSCR = percentage of medical examinations (on-site or off-site)

INIT-EXST = # of existing workers completing initial medical examination

Wage Rate = \$ per hour

Form Completion (FC) = Employee wait time for forms to be completed during medical surveillance exam activities (15 mins).

Table 13(a): Worker Time and Cost for the Initial Medical Examination Forms - Existing Workers							
	Affected Workers [a]	PERHSCR	INIT-EXST (rounded)	Form Completion (FC)	Burden Hours (rounded)	Wage Rate	Item 12 Cost (rounded)
General Industry							
(On-site)							
Small	37,586	20%	7,517	0.25	1,879	\$27.46	\$ 51,597
Medium	93,908	75%	70,431	0.25	17,608	\$27.46	\$ 483,516
Large	10,100	100%	10,100	0.25	2,525	\$27.46	\$ 69,337
	141,594		88,048		22,012		\$ 604,450
(Off-site)							
Small	37,586	80%	30,069	0.25	7,517	\$27.46	\$ 206,417
Medium	93,908	25%	23,477	0.25	5,869	\$27.46	\$ 161,163
Large	10,100	0%	-	0.25	-	\$27.46	\$ -
	141,594		53,546		13,386		\$ 367,580
Subtotal			141,594		35,398		\$ 972,030
Construction							
(On-site)							
Small	93,999	20%	18,800	0.25	4,700	\$34.94	\$ 164,218

Medium	152,377	75%	114,283	0.25	28,571	\$34.94	\$	998,271
Large	24,205	100%	24,205	0.25	6,051	\$34.94	\$	211,422
	270,581		157,288		39,322		\$	1,373,911
(Off-site)								
Small	93,999	80%	75,199	0.25	18,800	\$34.94	\$	656,872
Medium	152,377	25%	38,094	0.25	9,524	\$34.94	\$	332,769
Large	24,205	0%	-	0.25	-	\$34.94	\$	-
	270,581		113,293		28,324		\$	989,641
Subtotal			270,581		67,646		\$	2,363,552
Total -->			412,175		103,044		\$	3,335,582
[a] Number of Workers undergoing medical surveillance is based on different values for general industry and construction. General industry workers is based on workers with an action level greater than 25, and the number of workers in the construction industry is based on the								

Table 14 - Medical Surveillance, Worker Time and Cost for Complete Initial Medical Examination, New Workers

Cost = Burden Hours* Wage Rate

Hours = (Affected Workers * SEP * PERNEW) * (PERHSCR * (EXAM + TRVL))

Variables

Affected Workers = Number of Workers undergoing medical surveillance

SEP = separations rate (layoffs, quits and retirements)

PERNEW = percentage of new workers requiring initial medical examination

PERHSCR = percentage of medical examinations (onsite or offsite)

INIT-NEW = # of new workers completing initial medical examination

EXAM = hours of worker time to complete initial medical examination (2 hours), including:

complete occupational health history survey, including medical questionnaire for respirator use

physical examination by knowledgeable HCP, including follow-up evaluation for respirator use, if needed

chest x-ray

pulmonary function test

dermal TB test

other necessary tests

TRVL = hours of worker travel time to off-site location

Wage Rate = \$ per hour

Table 14 - Medical Surveillance, Worker Time and Cost for Complete Initial Medical Examination, New Workers											
	Affected Workers [a]	SEP	PERNEW	Workers*SEP*P ERNEW (rounded)	PERHSCR	INIT-NEW (rounded)	EXAM	TRVL	Burden Hours (rounded)	Wage Rate	Item 12 Cost (rounded)
General Industry											
(On-site)											
Small	37,586	25%	75%	7,047	10%	705	1.75	-	1,234	\$27.46	\$ 33,886
Medium	93,908	25%	75%	17,608	50%	8,804	1.75	-	15,407	\$27.46	\$ 423,076
Large	10,100	25%	75%	1,894	90%	1,704	1.75	-	2,982	\$27.46	\$ 81,886
	141,594					11,213			19,623		\$ 538,848
(Off-site)											
Small	37,586	25%	75%	7,047	90%	6,343	1.75	1	17,443	\$27.46	\$ 478,985
Medium	93,908	25%	75%	17,608	50%	8,804	1.75	1	24,211	\$27.46	\$ 664,834
Large	10,100	25%	75%	1,894	10%	189	1.75	1	520	\$27.46	\$ 14,279
	141,594					15,336			42,174		\$ 1,158,098
Subtotal General Industry -->						26,549			61,797		\$ 1,696,946
Construction											
(On-site)											
Small	93,999	70%	40%	26,433	10%	2,643	1.75	-	4,625	\$34.94	\$ 161,598
Medium	152,377	70%	40%	42,848	50%	21,424	1.75	-	37,492	\$34.94	\$ 1,309,970
Large	24,205	70%	40%	6,807	90%	6,126	1.75	-	10,721	\$34.94	\$ 374,592
	270,581					30,193			52,838		\$ 1,846,160
(Off-site)											
Small	93,999	70%	40%	26,433	90%	23,789	1.75	1.5	77,314	\$34.94	\$ 2,701,351
Medium	152,377	70%	40%	42,848	50%	21,424	1.75	1.5	69,628	\$34.94	\$ 2,432,802
Large	24,205	70%	40%	6,807	10%	681	1.75	1.5	2,213	\$34.94	\$ 77,322
	270,581					45,894			149,155		\$ 5,211,475
Subtotal Construction -->						76,087			201,993		\$ 7,057,635
Total						102,636			263,790		\$ 8,754,581
Current and New Combined						514,811			1,609,186		\$ 52,299,723

[a] Number of Workers undergoing medical surveillance is based on different values for general industry and construction. General industry workers is based on workers with an action level greater than 25, and the number of workers in the construction industry is based on the number of respirator users.

Table 14(a) - Worker Time and Cost for the Initial Medical Examination Forms - New Workers

Cost = Burden Hours* Wage Rate

Hours = (Affected Workers * SEP * PERNEW) * (PERHSCR * (EXAM + TRVL))

Variables

Affected Workers = Number of Workers undergoing medical surveillance

SEP = separations rate (layoffs, quits and retirements)

PERNEW = percentage of new workers requiring initial medical examination

PERHSCR = percentage of medical examinations (onsite or offsite)

INIT-NEW = # of new workers completing initial medical examination

Wage Rate = \$ per hour

Form Time = Employee wait time for forms to be completed during medical surveillance exam activities (15 mins).

Table 14(a) - Worker Time and Cost for the Initial Medical Examination Forms - New Workers										
	Affected Workers [a]	SEP	PERNEW	Workers*SEP* PERNEW (rounded)	PERHSCR	INIT-NEW (rounded)	Form Completion (FC)	Burden Hours (rounded)	Wage Rate	Item 12 Cost (rounded)
General Industry										
(On-site)										
Small	37,586	25%	75%	7,047	10%	705	0.25	176	\$27.46	\$ 4,833
Medium	93,908	25%	75%	17,608	50%	8,804	0.25	2,201	\$27.46	\$ 60,439
Large	10,100	25%	75%	1,894	90%	1,704	0.25	426	\$27.46	\$ 11,698
	141,594					11,213		2,803		\$ 76,970
(Off-site)										
Small	37,586	25%	75%	7,047	90%	6,343	0.25	1,586	\$27.46	\$ 43,552
Medium	93,908	25%	75%	17,608	50%	8,804	0.25	2,201	\$27.46	\$ 60,439
Large	10,100	25%	75%	1,894	10%	189	0.25	47	\$27.46	\$ 1,291
	141,594					15,336		3,834		\$ 105,282
Subtotal General Industry -->						26,549		6,637		\$ 182,252
Construction										
(On-site)										
Small	93,999	70%	40%	26,433	10%	2,643	0.25	661	\$34.94	\$ 23,095
Medium	152,377	70%	40%	42,848	50%	21,424	0.25	5,356	\$34.94	\$ 187,139
Large	24,205	70%	40%	6,807	90%	6,126	0.25	1,532	\$34.94	\$ 53,528
	270,581					30,193		7,549		\$ 263,762
(Off-site)										
Small	93,999	70%	40%	26,433	90%	23,789	0.25	5,947	\$34.94	\$ 207,788
Medium	152,377	70%	40%	42,848	50%	21,424	0.25	5,356	\$34.94	\$ 187,139
Large	24,205	70%	40%	6,807	10%	681	0.25	170	\$34.94	\$ 5,940
	270,581					45,894		11,473		\$ 400,867
Subtotal Construction -->						76,087		19,022		\$ 664,629
Total						102,636		25,659		\$ 846,881
Current and New Combined						514,811		1,609,186		\$ 52,299,723

[a] Number of Workers undergoing medical surveillance is based on different values for general industry and construction. General industry workers is based on workers with an action level greater than 25, and the number of workers in the construction industry is based on the number of respirator users.

Table 15 - Medical Surveillance, Initial Medical Examination Costs

Cost = (INIT-EXST + INIT-NEW) * COST

Variables

INIT-NEW = new workers completing initial medical examination

INIT-EXST = existing workers completing initial medical examination

COST = total direct costs for initial medical examination (\$406.57), including:

- Complete occupational health history survey - \$36.94
- Physical examination by knowledgeable HCP -\$110.83: includes physician's time to be made aware of Appendix B/sample forms by employer, use sample forms, develop written medical report for employee and convey report findings to employee.
- Chest-xray classified by a NIOSH-certified B Reader - \$131.68
- Pulmonary function test - \$60.62
- Other necessary tests - \$66.5

Form Completion (FC) Time = Employee wait time for "completion of form" during medical surveillance exam activities (15 mins).

Table 15 - Medical Surveillance, Initial Medical Examination Costs			
	INIT-EXST + INIT-NEW	COST	Item 13 Costs (rounded)
Existing Workers	412,175	\$362.48	\$149,404,369
New Workers	102,636	\$367.24	\$37,692,059
Total			\$ 187,096,428

Table 15(a) - Medical Surveillance, Initial Medical Examination Costs (Adjusted for Medical Surveillance Form Completion Time)

Cost = (INIT-EXST + INIT-NEW) * COST

Variables

INIT-NEW = new workers completing initial medical examination

INIT-EXST = existing workers completing initial medical examination

COST = total direct costs for initial medical examination (\$406.57), including:

- Complete occupational health history survey - \$36.94
- Physical examination by knowledgeable HCP - \$110.83: includes physician's time to be made aware of Appendix B/sample forms by employer, use sample forms, develop written medical report for employee and convey report findings to employee.
- Chest-xray classified by a NIOSH-certified B Reader - \$131.68
- Pulmonary function test - \$60.62
- Other necessary tests - \$66.5

Table 15(a) - Medical Surveillance, Initial Medical Examination Costs (Adjusted for Medical Surveillance Form Completion Time)				
	INIT-EXST + INIT-NEW	Form Completion (FC) Cost	Ratio of "Form Completion" to Exam Cost	Item 13 Costs (rounded)
Existing Workers	412,175	\$44.09	11%	\$ 18,173,720
New Workers	102,636	\$39.33	10%	\$ 4,036,659
Total				\$ 22,210,379

Table 16 - Worker Time and Cost for Return Reading of TB Test During Initial Medical Examination, Existing Workers

Cost = Burden Hours* Wage Rate

Hours = (INIT-EXST * (READ+TRVL))

Variables

INIT-EXST = # of existing workers completing initial medical examination

READ = hours of worker time for return reading (5 minutes (0.0833333333333333 hours))

*Note: Worker time to complete initial dermal TB test is included in the cost for initial medical examinations.

TRVL = hours of worker travel time to off-site location for return reading (general industry - 1 hour; construction - 1.5 hours)

Wage Rate = \$ per hour

Table 16 - Worker Time and Cost for Return Reading of TB Test During Initial Medical Examination, Existing Workers						
	INIT-EXST	READ	TRVL	Burden hours (rounded)	Wage Rate	Item 12 Cost (rounded)
General Industry						
(On-site)						
Small	7,517	0.08	-	626	\$27.46	\$ 17,190
Medium	70,431	0.08	-	5,869	\$27.46	\$ 161,163
Large	10,100	0.08	-	842	\$27.46	\$ 23,121
	88,048			7,337		\$ 201,474
(Off-site)						
Small	30,069	0.08	1	32,575	\$27.46	\$ 894,510
Medium	23,477	0.08	1	25,433	\$27.46	\$ 698,390
Large	-	0.08	1	-	\$27.46	\$ -
	53,546			58,008		\$ 1,592,900
Subtotal	141,594			65,345		\$ 1,794,374
Construction						
(On-site)						
Small	18,800	0.08	-	1,567	\$34.94	\$ 54,751
Medium	114,283	0.08	-	9,524	\$34.94	\$ 332,769
Large	24,205	0.08	-	2,017	\$34.94	\$ 70,474
	157,288			13,108		\$ 457,994
(Off-site)						
Small	75,199	0.08	1.5	119,065	\$34.94	\$ 4,160,131
Medium	38,094	0.08	1.5	60,316	\$34.94	\$ 2,107,441
Large	-	0.08	1.5	-	\$34.94	\$ -
	113,293			179,381		\$ 6,267,572
Subtotal	270,581			192,489		\$ 6,725,566
Total	412,175			257,834		\$ 8,519,940

Table 17: Worker Time and Cost for Return Reading of TB Test During Initial Medical Examination, New Workers

Cost = Burden Hours* Wage Rate

Hours = (INIT-NEW * (READ+TRVL))

Variables (Sources: see initial medical exam tables)

INIT-NEW = new workers completing initial medical examination

READ = hours of worker time for return reading (5 minutes (.08 hours))

*Note: Worker time to complete initial dermal TB test is included in the cost for initial medical examinations.

TRVL = hours of worker travel time to off-site location for return reading

Wage Rate = \$ per hour

Table 17: Worker Time and Cost for Return Reading of TB Test During Initial Medical Examination, New Workers						
	INIT-NEW	READ	TRVL	Burden Hours (rounded)	Wage Rate	Item 12 Cost (rounded)
General Industry						
(On-site)						
Small	705	0.0833	-	59	\$27.46	\$ 1,620
Medium	8,804	0.0833	-	734	\$27.46	\$ 20,156
Large	1,704	0.0833	-	142	\$27.46	\$ 3,899
	11,213			935		\$ 25,675
(Off-site)						
Current						
Small	6,343	0.0833	1	6,872	\$27.46	\$ 188,705
Medium	8,804	0.0833	1	9,538	\$27.46	\$ 261,913
Large	189	0.0833	1	205	\$27.46	\$ 5,629
	15,336			16,615		\$ 456,247
Subtotal	26,549			17,550		\$ 481,922
Construction						
(On-site)						
Small	2,643	0.0833	-	220	\$34.94	\$ 7,687
Medium	21,424	0.0833	-	1,785	\$34.94	\$ 62,368
Large	6,126	0.0833	-	511	\$34.94	\$ 17,854
	30,193			2,516		\$ 87,909
(Off-site)						
Current						
Small	23,789	0.0833	1.5	37,666	\$34.94	\$ 1,316,050
Medium	21,424	0.0833	1.5	33,921	\$34.94	\$ 1,185,200
Large	681	0.0833	1.5	1,078	\$34.94	\$ 37,665
	45,894			72,665		\$ 2,538,915
Subtotal	76,087			75,181		\$ 2,626,824
Total	102,636			92,731		\$ 3,108,746
Existing and New Combined	514,811			350,565		\$ 11,628,686

Table 18: Contract Cost for PLHCP to Conduct the Dermal TB Test

Cost = Workers Tested * COST

Variables

TBINIT = new and existing workers completing initial dermal TB test, all industries

TBTRI = workers completing periodic dermal TB test, all industries

TEST = direct cost for dermal TB test (\$16.63)

Table 18: Contract Cost for PLHCP to Conduct the Dermal TB Test		
Workers Tested	TEST	Item 13 Costs (rounded)
TBINIT (Year 1)		
514,811	\$16.63	\$8,561,307
TBTRI (Year 4)		
31,492	\$16.63	\$523,712

Table 19: Medical Surveillance, Worker Time and Cost to Complete Periodic Medical Examination (Year 3 after implementation)

Cost = Burden Hours* Wage Rate

Hours = Total Year 4 Tests *(EXAMYR4+ TRVL)

Variables

INIT-EXST = existing workers completing initial medical examination

INIT-NEW = new workers completing initial medical examination

INIT= # of total (existing and new) workers completing initial medical examination

TRI = # of workers completing periodic (triennial) medical examinations in Year 4 (the 3rd year after implementation)

Total Year 4 Tests = All test conducted in year 4 (3rd year after implementation). Combines triennial tests and initial tests conducted that year.

EXAMYR4 = hours of worker time to complete periodic exam (2 hours), including:

- complete occupational health history survey, including medical questionnaire for respirator use
- physical examination by knowledgeable PLHCP, including follow-up evaluation for respirator use, if needed
- chest x-ray
- pulmonary function test
- other necessary tests, including periodic dermal TB test, if recommended

TRVL = hours of worker travel time to off-site location

Wage Rate = \$ per hour

FC = Employee wait time for "completion of form" during medical surveillance exam activities (15 mins).

Table 19: Medical Surveillance, Worker Time and Cost to Complete Periodic Medical Examination (Year 3 after implementation)										
	INIT-EXST (Year 1)	INIT-NEW (Year 1)	INIT (subtotal) (Year 1)	TRI (Year 4)	Total Year 4 Tests (subtotals rounded)	EXAM YR4	TRVL	Burden Hours (rounded)	Wage Rate	Item 12 Cost (rounded)
General Industry										
(On-Site)										
Small	7,517	705	8,222	4,032	12,254	1.75		21,445	\$27.46	\$588,880
Medium	70,431	8,804	79,235	37,778	117,013	1.75		204,773	\$27.46	\$5,623,067
Large	10,100	1,704	11,804	5,417	17,221	1.75		30,137	\$27.46	\$827,562
Subtotal	88,048	11,213	99,261	47,227	146,488			256,355		\$7,039,509
(Off-Site)										
Small	30,069	6,343	36,412	16,128.32	52,540	1.75	1	144,485	\$27.46	\$3,967,558
Medium	23,477	8,804	32,281	12,592.52	44,874	1.75	1	123,404	\$27.46	\$3,388,674
Large	-	189	189	0.00	189	1.75	1	520	\$27.46	\$14,279
Subtotal	53,546	15,336	68,882	28,720.84	97,603			268,409		\$7,370,511
General Industry - Total	141,594	26,549	168,143	75,947.76	244,091			524,764		\$14,410,020
Construction										
(On-Site)										
Small	18,800	2,643	21,443	6,982.04	28,425	1.75		49,744	\$34.94	\$1,738,055
Medium	114,283	21,424	135,707	42,442.98	178,150	1.75		311,763	\$34.94	\$10,892,999
Large	24,205	6,126	30,331	8,989.37	39,320	1.75		68,810	\$34.94	\$2,404,221
Subtotal	157,288	30,193	187,481	58,414.38	245,895		-	430,317		\$15,035,275
(Off-Site)										
Small	75,199	23,789	98,988	27,928	126,916	1.75	1.5	412,477	\$34.94	\$14,411,946
Medium	38,094	21,424	59,518	14,148	73,666	1.75	1.5	239,415	\$34.94	\$8,365,160
Large	-	681	681	-	681	1.75	1.5	2,213	\$34.94	\$77,322
Subtotal	113,293	45,894	159,187	42,075	201,263			654,105		\$22,854,428
Construction - Total	270,581	76,087	346,668.00	100,490	447,158			1,084,422		\$37,889,703
Total			514,811	176,437.45	691,249			1,609,186		\$52,299,723

Table 19(a): Cost to Complete the Medical Surveillance Form for Periodic Medical Examination (Year 3 after implementation)

Cost = Burden Hours* Wage Rate
 Hours = Total Year 4 Tests *(EXAMYR4+ TRVL)

Variables

INIT-EXST = existing workers completing initial medical examination
 INIT-NEW = new workers completing initial medical examination
 INIT= # of total (existing and new) workers completing initial medical examination
 TRI = # of workers completing periodic (triennial) medical examinations in Year 4 (the 3rd year after implementation)
 Total Year 4 Tests = All test conducted in year 4 (3rd year after implementation). Combines triennial tests and initial tests conducted that year.
 Wage Rate = \$ per hour
 Form Completion (FC) = Employee wait time for "completion of form" during medical surveillance exam activities (15 mins).

Table 19(a): Cost to Complete the Medical Surveillance Form for Periodic Medical Examination (Year 3 after implementation)									
	INIT-EXST (Year 1)	INIT-NEW (Year 1)	INIT (subtotal (Year 1)	TRI (Year 4)	Total Year 4 Tests (subtotals rounded)	Form Completion (FC)	Burden Hours (rounded)	Wage Rate	Item 12 Cost (rounded)
General Industry									
(On-Site)									
Small	7,517	705	8,222	4,032	12,254	0.25	3,064	\$27.46	\$84,137
Medium	70,431	8,804	79,235	37,778	117,013	0.25	29,253	\$27.46	\$803,287
Large	10,100	1,704	11,804	5,417	17,221	0.25	4,305	\$27.46	\$118,215
Subtotal	88,048	11,213	99,261	47,227	146,488		36,622		\$1,005,639
(Off-Site)									
Small	30,069	6,343	36,412	16,128.32	52,540	0.25	13,135	\$27.46	\$360,687
Medium	23,477	8,804	32,281	12,592.52	44,874	0.25	11,219	\$27.46	\$308,074
Large	-	189	189	0.00	189	0.25	47	\$27.46	\$1,291
Subtotal	53,546	15,336	68,882	28,720.84	97,603		24,401		\$670,052
General Industry - Total	141,594	26,549	168,143	75,947.76	244,091		61,023		\$1,675,691
Construction									
(On-Site)									
Small	18,800	2,643	21,443	6,982.04	28,425	0.25	7,106	\$34.94	\$248,284
Medium	114,283	21,424	135,707	42,442.98	178,150	0.25	44,538	\$34.94	\$1,556,158
Large	24,205	6,126	30,331	8,989.37	39,320	0.25	9,830	\$34.94	\$343,460
Subtotal	157,288	30,193	187,481	58,414.38	245,895		61,474		\$2,147,902
(Off-Site)									
Small	75,199	23,789	98,988	27,928	126,916	0.25	31,729	\$34.94	\$1,108,611
Medium	38,094	21,424	59,518	14,148	73,666	0.25	18,417	\$34.94	\$643,490
Large	-	681	681	-	681	0.25	170	\$34.94	\$5,940
Subtotal	113,293	45,894	159,187	42,075	201,263		50,316		\$1,758,041
Construction - Total	270,581	76,087	346,668.00	100,490	447,158		111,790		\$3,905,943
Total			514,811	176,437.45	691,249		172,813		\$5,581,634

Table 20 - Medical Surveillance, Contract Cost for a PLHCP to Conduct Periodic Medical Examination (Year 3 after implementation)

Cost = (TRI * TRICOST)

Variables

TRI = # workers completing periodic (triennial) medical examinations

TRICOST = Total direct costs for triennial medical examinations (\$346.72), including:

- Periodic review and updating of health history - \$36.94
- Physical examination by knowledgeable HCP - \$110.83
- Chest X-ray - \$88.24
- Chest X-ray classified by a NIOSH-certified B Reader - \$43.44
- Pulmonary function test - \$60.62
- Other necessary tests - \$66.5 (Assumed required by 10 percent of workers)

Table 20 - Medical Surveillance, Contract Cost for a PLHCP to Conduct Periodic Medical Examination (Year 3 after implementation)			
	TRI	TRICOST	Item 13 - Direct Costs for Triennial Medical Screenings
<i>General Industry</i>	75,948	\$306.40	\$23,270,480
<i>Construction</i>	100,490	\$310.98	\$31,250,043
TOTAL	176,437		\$54,520,523

Table 20(a) - Medical Surveillance, Contract Cost for a PLHCP to Conduct Periodic Medical Examination - Year 3 after implementation (Adjusted for Medical Surveillance Form Completion Time)

Cost = (TRI * TRICOST)

Variables

TRI = # workers completing periodic (triennial) medical examinations

TRICOST = Total direct costs for triennial medical examinations (\$346.72), including:

- Periodic review and updating of health history - \$36.94
- Physical examination by knowledgeable HCP -\$110.83
- Chest X-ray - \$88.24
- Chest X-ray classified by a NIOSH-certified B Reader - \$43.44
- Pulmonary function test - \$60.62
- Other necessary tests - \$66.5 (Assumed required by 10 percent of workers)

Table 20(a) - Medical Surveillance, Contract Cost for a PLHCP to Conduct Periodic Medical Examination - Year 3 after implementation (Adjusted for Medical Surveillance Form Completion Time)

	TRI	Form Completion (FC) Cost	Ratio of "Form Completion Cost" to Other Exam Costs	Item 13 - Direct Costs for Triennial Medical Screenings
<i>General Industry</i>	75,948	\$40.32	12%	\$3,062,127
<i>Construction</i>	100,490	\$35.74	10%	\$3,591,742
TOTAL	176,437			\$6,653,869

Table 21: Medical Surveillance, Worker Time and Cost to Complete TB Testing During Periodic Medical Examination (Year 3 after implementation)

Cost = Burden Hours* Wage Rate

Return Read Hours = (TRI * PERTEST) * (READ + TRVL)

Variables

TRI = # of workers completing periodic (triennial) medical examinations

PERTEST = percentage of workers recommended for periodic testing

TBTRI = # of workers completing TB test in year 4

READ = hours of worker time for return reading (5 minutes (.08 hours))

*Note : Worker time for the dermal TB test is included in the cost for periodic health screening.

TRVL = hours of worker travel time to off-site location for return reading

Wage Rate = \$ per hour

Table 21: Medical Surveillance, Worker Time and Cost to Complete TB Testing During Periodic Medical Examination (Year 3 after implementation)								
	TRI	PERTEST	TBTRI (TRI* PERTEST) (Year 4) (rounded)	READ	TRVL	Burden Hours (rounded)	Wage Rate	Item 12 Cost (rounded)
General Industry								
(On-Site)								
Small	4,032	15%	605	0.083	0	50		
Medium	37,778	15%	5,667	0.083	0	472		
Large	5,417	15%	813	0.083	0	68		
Subtotal			7,085	0.083		590	\$27.46	\$16,201
(Off-site)								
Small	16,128	15%	2,419	0.083	1	2,621		
Medium	12,593	15%	1,889	0.083	1	2,046		
Large	0	15%	0	0.083	1	0		
Subtotal			4,308	0.083		4,667	\$27.46	\$128,156
General Industry - Total			11,393			5,257		\$144,357
Construction								
(On-Site)								
Small	6,982	20%	1,396	0.083	0	116		
Medium	42,443	20%	8,489	0.083	0	707		
Large	8,989	20%	1,798	0.083	0	150		
Subtotal			11,683	0.083		973	\$34.94	\$33,997
(Off-site)								
Small	27,928	20%	5,586	0.083	1.5	8,845		
Medium	14,148	20%	2,830	0.083	1.5	4,481		
Large	0	20%	0	0.083	1.5	0		
Subtotal			8,416	0.083	1.5	13,326	\$34.94	\$465,610
Construction - Total			20,099			14,299		\$499,607
Total			31,492			19,556		\$643,964

Table 22: Human Resources Manager Time and Cost to Provide Information to the PLHCP

Cost = Burden Hours * Wage Rate

Year 1 Hours = (INIT * HRT) + (PUL * HRT)

Year 4 Hours = (TRI * HRT) + (PUL * HRT)

Variables

INIT = # of total workers (new and existing) completing initial medical examination

PUL = # of estimated new silica cases per year/cases referred to specialist

TRI = # of workers completing periodic medical examination

HRT = hours of human resources manager time to provide information to the PLHCP, including use of sample forms.

Wage Rate = \$ per hour

Table 22: Human Resources Manager Time and Cost to Provide Information to the PLHCP					
Type of Examination	INIT/PUL	HRT	Burden Hours (rounded)	Wage Rate	Item 12 Cost (rounded)
<i>Year 1</i>					
Initial					
General Industry	26,549	0.25	6,637	\$88.79	\$589,299
Construction	76,087	0.25	19,022	\$88.79	\$1,688,963
Periodic					
General Industry	244,091	0.25	61,023	\$88.79	\$5,418,232
Construction	447,158	0.25	111,790	\$88.79	\$9,925,834
Additional/Pulmonary Function Examination					
General Industry	544	1	544	\$88.79	\$48,302
Construction	563	1	563	\$88.79	\$49,989
Total	794,992		199,579		\$17,720,619

Table 23: Human Resources Manager Time and Cost to Provide PLHCP's Written Opinion to Worker

Cost = Burden Hours* Wage Rate

Year 1 Hours = (INIT*HRT) + (PUL*HRT)

Variables

INIT = # of total workers (new and existing) completing initial medical examination

PUL - # of estimated new silica cases per year/cases referred to specialist

TRI = # of workers completing periodic medical examination

HRT = hours of human resources manager time to provide written medical opinion to worker, including use of sample forms.

Wage Rate = \$ per hour

Table 23: Human Resources Manager Time and Cost to Provide PLHCP's Written Opinion to Worker					
Type of Examination	INIT/PUL	HRT	Burden Hours (rounded)	Wage Rate	Item 12 Cost (rounded)
General Industry					
Initial	26,549	0.25	6,637	\$88.79	\$589,299
Periodic	244,091	0.25	61,023	\$88.79	\$5,418,232
Specialist/Additional	544	0.25	136	\$88.79	\$12,075
Subtotal	271,184		67,796		\$6,019,607
Construction					
Initial	76,087	0.25	19,022	\$88.79	\$1,688,963
Periodic	447,158	0.25	111,790	\$88.79	\$9,925,834
Specialist/Additional	563	0.25	141	\$88.79	\$12,519
Subtotal	523,808		130,953		\$11,627,316
Total	794,992		198,749		\$17,646,923

Construction	563									
(On-site)										
Small		35%	196	0%	-	0.75	-	-	\$34.94	\$ -
Medium		56%	317	0%	-	0.75	-	-	\$34.94	\$ -
Large		9%	50	0%	-	0.75	-	-	\$34.94	\$ -
(Off-site)										
Small			196	100%	196	0.75	1.5	441	\$34.94	\$ 15,409
Medium			317	100%	317	0.75	1.5	713	\$34.94	\$ 24,912
Large			50	100%	50	0.75	1.5	113	\$34.94	\$ 3,948
Subtotal										\$ 44,269
TOTAL	1,107				1,107			2,219		\$ 70,411

Construction	563								
(On-site)									
Small		35%	196	0%	-	0.25	-	\$34.94	\$ -
Medium		56%	317	0%	-	0.25	-	\$34.94	\$ -
Large		9%	50	0%	-	0.25	-	\$34.94	\$ -
(Off-site)									
Small			196	100%	196	0.25	49	\$34.94	\$ 1,712
Medium			317	100%	317	0.25	79	\$34.94	\$ 2,760
Large			50	100%	50	0.25	13	\$34.94	\$ 454
Subtotal									\$ 4,926
TOTAL	1,107				1,107		277		\$ 8,661

Table 25: Medical Surveillance, Contract Cost for a PLHCP to Complete Specialist Exam

$COST = PUL * EXAMCOST$

Variables

PUL = # of estimated new silica cases per year/cases referred to pulmonary specialist

EXAMCOST = direct cost for examination by a specialist (\$210.89)

Wage Rate = \$ per hour

Table 25: Medical Surveillance, Contract Cost for a PLHCP to Complete Specialist Exam		
PUL	EXAMCOST	Item 13 Cost (rounded)
1,107	\$184.95	\$204,739

Table 25(a): Cost to Complete Forms for Specialist Exam (Adjusted for Medical Surveillance Form Completion Time)

$COST = PUL * EXAMCOST$

Variables

PUL = # of estimated new silica cases per year/cases referred to pulmonary specialist

EXAMCOST = direct cost for examination by a specialist (\$210.89)

Wage Rate = \$ per hour

Table 25(a): Cost to Complete Forms for Specialist Exam (Adjusted for Medical Surveillance Form Completion Time)			
PUL	Form Completion (FC) Cost	Ratio of "Form Completion Cost" to Other Exam Costs	Item 13 Cost (rounded)
1,107	\$25.94	12%	\$28,716

Table 26: Rule Familiarization

Burden Hours = ESTABS(rounded) * SUPERHRS
 Costs = Burden Hours * Wage Rate

Variables

SUPERHRS = Supervisor Hours per Estab
 Wage Rate = \$ per hour

Table 26: Rule Familiarization						
	ESTABS (Affected)	ESTABS (Affected) (rounded)	SUPERHRS	Burden Hours (rounded)	Wage Rate	Item 12 Costs (rounded)
General Industry						
Small	51,949	51,949	4	207,796	\$45.09	\$9,369,522
Medium	24,271	24,271	8	194,168	\$45.09	\$8,755,035
Large	641	641	40	25,640	\$45.09	\$1,156,108
<i>Sub-Total</i>	<i>76,861</i>	<i>76,861</i>		<i>427,604</i>		<i>\$19,280,665</i>
Construction						
Small	545,417	545,417	4	2,181,668	\$49.43	\$107,839,849
Medium	59,743	59,743	8	477,944	\$49.43	\$23,624,772
Large	560	560	40	22,400	\$49.43	\$1,107,232
<i>Sub-Total</i>	<i>605,720</i>	<i>605,720</i>		<i>2,682,012</i>		<i>\$132,571,853</i>
Total	682,581	682,581		3,109,616		\$151,852,518

Table 27: Recordkeeping, HR Manager Time and Cost to Establish and Maintain Records for Exposure Monitoring Data

Cost = Burden Hours* Wage Rate

Hours = EA * HRT

Variables

EA = total number of exposure assessments

HRT = hours of human resources manager time to establish and maintain records, including use of sample forms.

Wage Rate = \$ per hour

Table 27: Recordkeeping, HR Manager Time and Cost to Establish and Maintain Records for Exposure Monitoring Data					
	EA	HRT	Burden Hours (rounded)	HRWage	Item 12 Costs (rounded)
General Industry					
Initial	69,487				
Periodic	86,402				
Additional	21,601				
Subtotal	177,490	0.25	44,373	\$88.79	\$3,939,879
Construction					
Initial	5,531				
Periodic	12,291				
Additional	3,072				
Subtotal	20,894	0.25	5,224	\$88.79	\$463,839
Total	198,384		49,597		\$4,403,718

Table 28: HR Manager Time and Cost to Establish and Maintain Record for Medical Surveillance

Cost = Burden Hours* Wage Rate

Hours = (INIT+PUL+TRI) * HRT

Variables

INIT = # of total workers (new and existing) completing initial medical examination

PUL = # of estimated new silica cases per year/cases referred to specialist

TRI = # of workers completing periodic medical examination

HRT = hours of human resources manager time to establish and maintain records for referrals, initial and periodic examinations, including use of sample forms.

Wage Rate = \$ per hour

Table 28: HR Manager Time and Cost to Establish and Maintain Record for Medical Surveillance					
Type of Examination	INIT/TRI/PUL	HRT	Burden Hours (subtotal rounded)	Wage Rate	Item 12 Cost (rounded)
General Industry					
Initial	26,549	0.25	6,637		
Periodic	244,091	0.25	61,023		
Referral/additional	544	1	544		
Subtotal	271,184		68,204	\$88.79	\$6,055,833
Construction					
Initial	76,087	0.25	19,022		
Periodic	447,158	0.25	111,790		
Referral/additional	563	1	563		
Subtotal	523,808		131,375	\$88.79	\$11,664,786
Total	794,992		199,579		\$17,720,619