

**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)
<b>New</b>							
General Industry	-	4	-	0.5	-	\$27.46	\$ -
Construction	-	4	-	0.5	-	\$34.94	\$ -
<b>Existing</b>							
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
<b>Total</b>	<b>300,074</b>		<b>75,018</b>		<b>37,510</b>		<b>\$ 1,050,714</b>

[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

<b>Table 2: Contract Costs for Industrial Hygienist and Laboratory to Conduct Analysis - Initial Exposure Assessment</b>										
	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
<b>Total</b>	<b>277,949</b>	<b>22,125</b>	<b>300,074</b>		<b>75,018</b>		<b>\$49,496,199</b>		<b>\$10,522,775</b>	<b>\$60,018,974</b>

**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)
<b>General Industry</b>												
(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
<b>Subtotal</b>	<b>141,594</b>		<b>35,399</b>		<b>86,402.00</b>		<b>21,601</b>	<b>108,003</b>		<b>54,002</b>		<b>\$1,482,895</b>
<b>Construction</b>												
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
<b>Subtotal</b>	<b>12,482</b>		<b>3,121</b>		<b>12,291</b>		<b>3,072.26</b>	<b>15,363</b>		<b>7,682</b>		<b>\$268,409</b>
<b>Total</b>	<b>154,076</b>	<b>4</b>			<b>98,693</b>	<b>-</b>	<b>24,673.26</b>	<b>123,366</b>	<b>-</b>	<b>61,684</b>	<b>-</b>	<b>\$1,751,304</b>
[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 \* AEA \* IHPBZ \* LABSHIP)

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

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

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

Cost = (HFW>PEL / WPA \* AEA \* AEA \* AEA \* 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

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

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

LABSHIP = 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	AEA	Total EA Samples (rounded)	IHPBZ	IHPBZ Costs (rounded)	LABSHIP	LABSHIP Costs (Total EA Samples x LABSHIP) (rounded)		
<b>General Industry</b>													
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	\$ -	\$ -
<b>Sub-total</b>	<b>127,776</b>	<b>19,998</b>	<b>107,777</b>		<b>26,944</b>		<b>53,888</b>	<b>1.25</b>	<b>67,361</b>		<b>\$ 21,848,855</b>		<b>\$ -</b>
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	\$ -	\$ -
<b>Sub-total</b>		19,998			<b>4,999</b>		<b>19,996</b>	1.25	<b>24,995</b>		<b>\$ 7,942,448</b>		<b>\$ -</b>
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	\$ -
<b>Sub-total</b>	<b>13,819</b>	<b>11,207</b>	<b>2,611</b>		<b>653</b>		<b>1,306</b>	1.25	<b>1,633</b>		<b>\$ 784,588</b>		<b>\$ 229,061</b>
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	\$ -
<b>Sub-total</b>		11,207			<b>2,802</b>		<b>11,208</b>	1.25	<b>14,010</b>		<b>\$ 6,733,376</b>		<b>\$ 1,965,182</b>
<b>General Industry - Total</b>											<b>\$ 37,309,267</b>		<b>\$ 2,194,243</b>
<b>Construction Industry</b>													
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
<b>Sub-total</b>			<b>383</b>		<b>96</b>		<b>192</b>	1.25	<b>241</b>		<b>\$129,167</b>		<b>\$ 33,805</b>
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
<b>Sub-total</b>			<b>12,099</b>		<b>3,025</b>		<b>12,100</b>		<b>15,125</b>		<b>\$12,182,837</b>		<b>\$ 2,121,584</b>
<b>Construction - Total</b>											<b>\$12,312,004</b>		<b>\$ 2,155,389</b>
<b>Total</b>	<b>141,594</b>	<b>62,411</b>	<b>122,871</b>		<b>38,519</b>		<b>98,690</b>		<b>123,365</b>		<b>\$49,621,271</b>		<b>\$ 4,349,632</b>

**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
<b>Total</b>	<b>75,018</b>	<b>123,366</b>	<b>198,384</b>		<b>49,597</b>		<b>\$4,403,718</b>

**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
<b>Total</b>				<b>1,249,249</b>	<b>124,925</b>		<b>9,994</b>		<b>\$ 488,718</b>

**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)
<b>General Industry</b>					
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
<b>Total</b>	<b>16,535.00</b>		<b>342,200</b>		<b>\$ 30,383,938</b>



**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
<b>Total</b>	<b>6,247</b>		<b>3,124</b>		<b>12,916</b>		<b>\$</b>	<b>1,146,812</b>
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
<b>Total</b>	<b>6,247</b>			<b>625</b>		<b>1,292</b>		<b>\$ 114,716</b>

**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	
<b>Total</b>	<b>3,017</b>		<b>646</b>		<b>2,586</b>		<b>\$ 229,611</b>	
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
<b>Total</b>	<b>3,017</b>			<b>129</b>		<b>258</b>		<b>\$ 22,908</b>

**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	
<b>Total</b>	<b>86,987</b>		<b>38,274</b>		<b>160,124</b>		<b>\$ 14,217,410</b>	
<b>Combined Totals (w/GI and HF)</b>	<b>96,251</b>		<b>42,044</b>		<b>175,626</b>		<b>\$ 15,593,833</b>	
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
<b>Total</b>	<b>86,987</b>			<b>7,654</b>		<b>16,010</b>		<b>\$ 1,421,528</b>
<b>Combined Totals (w/GI and HF)</b>				<b>8,408</b>		<b>17,560</b>		<b>\$ 1,559,152</b>

**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)
<b>General Industry</b>							
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
<b>Sub-Total</b>	<b>62,412</b>		<b>62,412</b>		<b>39,008</b>		<b>\$ 1,208,709</b>
<b>Construction</b>							
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
<b>Sub-Total</b>	<b>529,523</b>		<b>529,522</b>		<b>330,951</b>		<b>\$ 12,522,521</b>
<b>Total</b>	<b>591,935</b>		<b>591,934</b>		<b>369,959</b>		<b>\$ 13,731,230</b>
<b>Number of Fit-Tests</b>	<b>295,967</b>						

**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

<b>Table 13: Medical Surveillance, Worker Time and Cost to Complete Initial Medical Examination, Existing Workers</b>									
	<b>Affected Workers [a]</b>	<b>PERHSCR</b>	<b>INIT-EXST (rounded)</b>	<b>EXAM</b>	<b>TRVL</b>	<b>Burden Hours (rounded)</b>	<b>Wage Rate</b>	<b>Item 12 Cost (rounded)</b>	
<b>General Industry</b>									
<b>(On-site)</b>									
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
	<b>141,594</b>		<b>88,048</b>			<b>154,084</b>		<b>\$</b>	<b>4,231,147</b>
<b>(Off-site)</b>									
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	\$	-
	<b>141,594</b>		<b>53,546</b>			<b>147,252</b>		\$	<b>4,043,540</b>
<b>Subtotal</b>			<b>141,594</b>			<b>301,336</b>		\$	<b>8,274,687</b>
<b>Construction</b>									
<b>(On-site)</b>									
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
	<b>270,581</b>		<b>157,288</b>			<b>275,254</b>		\$	<b>9,617,374</b>
<b>(Off-site)</b>									
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	\$	-
	<b>270,581</b>		<b>113,293</b>			<b>368,203</b>		\$	<b>12,865,013</b>
<b>Subtotal</b>			<b>270,581</b>			<b>643,457</b>		\$	<b>22,482,387</b>
<b>Total --&gt;</b>			<b>412,175</b>			<b>944,793</b>		\$	<b>30,757,074</b>
[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).

<b>Table 13(a): Worker Time and Cost for the Initial Medical Examination Forms - Existing Workers</b>							
	<b>Affected Workers [a]</b>	<b>PERHSCR</b>	<b>INIT-EXST (rounded)</b>	<b>Form Completion (FC)</b>	<b>Burden Hours (rounded)</b>	<b>Wage Rate</b>	<b>Item 12 Cost (rounded)</b>
<b>General Industry</b>							
<b>(On-site)</b>							
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
	<b>141,594</b>		<b>88,048</b>		<b>22,012</b>		<b>\$ 604,450</b>
<b>(Off-site)</b>							
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	\$ -
	<b>141,594</b>		<b>53,546</b>		<b>13,386</b>		<b>\$ 367,580</b>
<b>Subtotal</b>			<b>141,594</b>		<b>35,398</b>		<b>\$ 972,030</b>
<b>Construction</b>							
<b>(On-site)</b>							
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
	<b>270,581</b>		<b>157,288</b>		<b>39,322</b>		\$	<b>1,373,911</b>
<b>(Off-site)</b>								
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	\$	-
	<b>270,581</b>		<b>113,293</b>		<b>28,324</b>		\$	<b>989,641</b>
<b>Subtotal</b>			<b>270,581</b>		<b>67,646</b>		\$	<b>2,363,552</b>
<b>Total --&gt;</b>			<b>412,175</b>		<b>103,044</b>		\$	<b>3,335,582</b>
[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)
<b>General Industry</b>											
<b>(On-site)</b>											
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
	<b>141,594</b>					<b>11,213</b>			<b>19,623</b>		<b>\$ 538,848</b>
<b>(Off-site)</b>											
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
	<b>141,594</b>					<b>15,336</b>			<b>42,174</b>		<b>\$ 1,158,098</b>
<b>Subtotal General Industry --&gt;</b>						<b>26,549</b>			<b>61,797</b>		<b>\$ 1,696,946</b>
<b>Construction</b>											
<b>(On-site)</b>											
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
	<b>270,581</b>					<b>30,193</b>			<b>52,838</b>		<b>\$ 1,846,160</b>
<b>(Off-site)</b>											
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
	<b>270,581</b>					<b>45,894</b>			<b>149,155</b>		<b>\$ 5,211,475</b>
<b>Subtotal Construction --&gt;</b>						<b>76,087</b>			<b>201,993</b>		<b>\$ 7,057,635</b>
<b>Total</b>						<b>102,636</b>			<b>263,790</b>		<b>\$ 8,754,581</b>
<b>Current and New Combined</b>						<b>514,811</b>			<b>1,609,186</b>		<b>\$ 52,299,723</b>

[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)
<b>General Industry</b>										
<b>(On-site)</b>										
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
	<b>141,594</b>					<b>11,213</b>		<b>2,803</b>		<b>\$ 76,970</b>
<b>(Off-site)</b>										
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
	<b>141,594</b>					<b>15,336</b>		<b>3,834</b>		<b>\$ 105,282</b>
<b>Subtotal General Industry --&gt;</b>						<b>26,549</b>		<b>6,637</b>		<b>\$ 182,252</b>
<b>Construction</b>										
<b>(On-site)</b>										
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
	<b>270,581</b>					<b>30,193</b>		<b>7,549</b>		<b>\$ 263,762</b>
<b>(Off-site)</b>										
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
	<b>270,581</b>					<b>45,894</b>		<b>11,473</b>		<b>\$ 400,867</b>
<b>Subtotal Construction --&gt;</b>						<b>76,087</b>		<b>19,022</b>		<b>\$ 664,629</b>
<b>Total</b>						<b>102,636</b>		<b>25,659</b>		<b>\$ 846,881</b>
<b>Current and New Combined</b>						<b>514,811</b>		<b>1,609,186</b>		<b>\$ 52,299,723</b>

[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).

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

**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

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

**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

<b>Table 16 - Worker Time and Cost for Return Reading of TB Test During Initial Medical Examination, Existing Workers</b>						
	<b>INIT-EXST</b>	<b>READ</b>	<b>TRVL</b>	<b>Burden hours (rounded)</b>	<b>Wage Rate</b>	<b>Item 12 Cost (rounded)</b>
<b>General Industry</b>						
<b>(On-site)</b>						
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
	<b>88,048</b>			<b>7,337</b>		<b>\$ 201,474</b>
<b>(Off-site)</b>						
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	\$ -
	<b>53,546</b>			<b>58,008</b>		<b>\$ 1,592,900</b>
<b>Subtotal</b>	<b>141,594</b>			<b>65,345</b>		<b>\$ 1,794,374</b>
<b>Construction</b>						
<b>(On-site)</b>						
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
	<b>157,288</b>			<b>13,108</b>		<b>\$ 457,994</b>
<b>(Off-site)</b>						
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	\$ -
	<b>113,293</b>			<b>179,381</b>		<b>\$ 6,267,572</b>
<b>Subtotal</b>	<b>270,581</b>			<b>192,489</b>		<b>\$ 6,725,566</b>
<b>Total</b>	<b>412,175</b>			<b>257,834</b>		<b>\$ 8,519,940</b>

**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)
<b>General Industry</b>						
<b>(On-site)</b>						
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
	<b>11,213</b>			<b>935</b>		<b>\$ 25,675</b>
<b>(Off-site)</b>						
<b>Current</b>						
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
	<b>15,336</b>			<b>16,615</b>		<b>\$ 456,247</b>
<b>Subtotal</b>	<b>26,549</b>			<b>17,550</b>		<b>\$ 481,922</b>
<b>Construction</b>						
<b>(On-site)</b>						
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
	<b>30,193</b>			<b>2,516</b>		<b>\$ 87,909</b>
<b>(Off-site)</b>						
<b>Current</b>						
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
	<b>45,894</b>			<b>72,665</b>		<b>\$ 2,538,915</b>
<b>Subtotal</b>	<b>76,087</b>			<b>75,181</b>		<b>\$ 2,626,824</b>
<b>Total</b>	<b>102,636</b>			<b>92,731</b>		<b>\$ 3,108,746</b>
<b>Existing and New Combined</b>	<b>514,811</b>			<b>350,565</b>		<b>\$ 11,628,686</b>

**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)

<b>Table 18: Contract Cost for PLHCP to Conduct the Dermal TB Test</b>		
<b>Workers Tested</b>	<b>TEST</b>	<b>Item 13 Costs (rounded)</b>
<b>TBINIT (Year 1)</b>		
514,811	\$16.63	\$8,561,307
<b>TBTRI (Year 4)</b>		
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)
<b>General Industry</b>										
<b>(On-Site)</b>										
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
<b>Subtotal</b>	<b>88,048</b>	<b>11,213</b>	<b>99,261</b>	<b>47,227</b>	<b>146,488</b>			<b>256,355</b>		<b>\$7,039,509</b>
<b>(Off-Site)</b>										
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
<b>Subtotal</b>	<b>53,546</b>	<b>15,336</b>	<b>68,882</b>	<b>28,720.84</b>	<b>97,603</b>			<b>268,409</b>		<b>\$7,370,511</b>
<b>General Industry - Total</b>	<b>141,594</b>	<b>26,549</b>	<b>168,143</b>	<b>75,947.76</b>	<b>244,091</b>			<b>524,764</b>		<b>\$14,410,020</b>
<b>Construction</b>										
<b>(On-Site)</b>										
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
<b>Subtotal</b>	<b>157,288</b>	<b>30,193</b>	<b>187,481</b>	<b>58,414.38</b>	<b>245,895</b>			<b>430,317</b>		<b>\$15,035,275</b>
<b>(Off-Site)</b>										
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
<b>Subtotal</b>	<b>113,293</b>	<b>45,894</b>	<b>159,187</b>	<b>42,075</b>	<b>201,263</b>			<b>654,105</b>		<b>\$22,854,428</b>
<b>Construction - Total</b>	<b>270,581</b>	<b>76,087</b>	<b>346,668.00</b>	<b>100,490</b>	<b>447,158</b>			<b>1,084,422</b>		<b>\$37,889,703</b>
<b>Total</b>			<b>514,811</b>	<b>176,437.45</b>	<b>691,249</b>			<b>1,609,186</b>		<b>\$52,299,723</b>



**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)
<b>General Industry</b>									
<b>(On-Site)</b>									
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
<b>Subtotal</b>	<b>88,048</b>	<b>11,213</b>	<b>99,261</b>	<b>47,227</b>	<b>146,488</b>		<b>36,622</b>		<b>\$1,005,639</b>
<b>(Off-Site)</b>									
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
<b>Subtotal</b>	<b>53,546</b>	<b>15,336</b>	<b>68,882</b>	<b>28,720.84</b>	<b>97,603</b>		<b>24,401</b>		<b>\$670,052</b>
<b>General Industry - Total</b>	<b>141,594</b>	<b>26,549</b>	<b>168,143</b>	<b>75,947.76</b>	<b>244,091</b>		<b>61,023</b>		<b>\$1,675,691</b>
<b>Construction</b>									
<b>(On-Site)</b>									
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
<b>Subtotal</b>	<b>157,288</b>	<b>30,193</b>	<b>187,481</b>	<b>58,414.38</b>	<b>245,895</b>		<b>61,474</b>		<b>\$2,147,902</b>
<b>(Off-Site)</b>									
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
<b>Subtotal</b>	<b>113,293</b>	<b>45,894</b>	<b>159,187</b>	<b>42,075</b>	<b>201,263</b>		<b>50,316</b>		<b>\$1,758,041</b>
<b>Construction - Total</b>	<b>270,581</b>	<b>76,087</b>	<b>346,668.00</b>	<b>100,490</b>	<b>447,158</b>		<b>111,790</b>		<b>\$3,905,943</b>
<b>Total</b>			<b>514,811</b>	<b>176,437.45</b>	<b>691,249</b>		<b>172,813</b>		<b>\$5,581,634</b>

**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
<b>TOTAL</b>	<b>176,437</b>		<b>\$54,520,523</b>

**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
<b>TOTAL</b>	<b>176,437</b>			<b>\$6,653,869</b>

**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)
<b>General Industry</b>								
<b>(On-Site)</b>								
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		
<b>Subtotal</b>			<b>7,085</b>	<b>0.083</b>		<b>590</b>	<b>\$27.46</b>	<b>\$16,201</b>
<b>(Off-site)</b>								
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		
<b>Subtotal</b>			<b>4,308</b>	<b>0.083</b>		<b>4,667</b>	<b>\$27.46</b>	<b>\$128,156</b>
<b>General Industry - Total</b>			<b>11,393</b>			<b>5,257</b>		<b>\$144,357</b>
<b>Construction</b>								
<b>(On-Site)</b>								
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		
<b>Subtotal</b>			<b>11,683</b>	<b>0.083</b>		<b>973</b>	<b>\$34.94</b>	<b>\$33,997</b>
<b>(Off-site)</b>								
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		
<b>Subtotal</b>			<b>8,416</b>	<b>0.083</b>	<b>1.5</b>	<b>13,326</b>	<b>\$34.94</b>	<b>\$465,610</b>
<b>Construction - Total</b>			<b>20,099</b>			<b>14,299</b>		<b>\$499,607</b>
<b>Total</b>			<b>31,492</b>			<b>19,556</b>		<b>\$643,964</b>

**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

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

**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)
<b>General Industry</b>					
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
<b>Subtotal</b>	<b>271,184</b>		<b>67,796</b>		<b>\$6,019,607</b>
<b>Construction</b>					
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
<b>Subtotal</b>	<b>523,808</b>		<b>130,953</b>		<b>\$11,627,316</b>
<b>Total</b>	<b>794,992</b>		<b>198,749</b>		<b>\$17,646,923</b>



<b>Construction</b>	563									
<b>(On-site)</b>										
Small		35%	196	0%	-	0.75	-	-	\$34.94	\$ -
Medium		56%	317	0%	-	0.75	-	-	\$34.94	\$ -
Large		9%	50	0%	-	0.75	-	-	\$34.94	\$ -
<b>(Off-site)</b>										
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
<b>Subtotal</b>										<b>\$ 44,269</b>
<b>TOTAL</b>	<b>1,107</b>				<b>1,107</b>			<b>2,219</b>		<b>\$ 70,411</b>





<b>Construction</b>	563								
<b>(On-site)</b>									
Small		35%	196	0%	-	0.25	-	\$34.94	\$ -
Medium		56%	317	0%	-	0.25	-	\$34.94	\$ -
Large		9%	50	0%	-	0.25	-	\$34.94	\$ -
<b>(Off-site)</b>									
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
<b>Subtotal</b>									<b>\$ 4,926</b>
<b>TOTAL</b>	<b>1,107</b>				<b>1,107</b>		<b>277</b>		<b>\$ 8,661</b>

**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

<b>Table 25: Medical Surveillance, Contract Cost for a PLHCP to Complete Specialist Exam</b>		
<b>PUL</b>	<b>EXAMCOST</b>	<b>Item 13 Cost (rounded)</b>
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

<b>Table 25(a): Cost to Complete Forms for Specialist Exam (Adjusted for Medical Surveillance Form Completion Time)</b>			
<b>PUL</b>	<b>Form Completion (FC) Cost</b>	<b>Ratio of "Form Completion Cost" to Other Exam Costs</b>	<b>Item 13 Cost (rounded)</b>
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)
<b>General Industry</b>						
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>
<b>Construction</b>						
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>
<b>Total</b>	<b>682,581</b>	<b>682,581</b>		<b>3,109,616</b>		<b>\$151,852,518</b>

**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

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

**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

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