



# Health & Safety Performance Indicators

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Contractor Group Benchmarking, U.S.  
Manufacturing Industry

2012 Data

ISN Report No. 1310  
ISN.com

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# About ISN

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Established in 2001, ISN® is a global leader in contractor and supplier management. We support over 320 Owner Clients in capital-intensive and public sector industries to help manage over 50,000 contractors and suppliers with operations in more than 75 countries. We are headquartered in Dallas, Texas, with additional offices in Calgary, Sydney, London, Los Angeles and New York.

ISN takes pride in leading efforts to improve the efficiency and effectiveness of contractor management systems and in serving as a forum for sharing industry best practices among our members.

Our innovative online contractor management database, ISNworld, is constantly evolving to meet ever-changing corporate and legislative requirements while reducing unnecessary duplication associated with traditional contractor procurement processes.

Our Review and Verification Services (RAVS®) group is comprised of specialized professionals with expertise in health, safety, environmental, procurement, quality and other compliance requirements. RAVS® adds a level of due diligence to the information gathered from contractors and suppliers.

ISNworld's dynamic and configurable functionality allows Owner Clients to measure the key performance metrics relevant to them, promoting transparency, clear communication and sustainable operations. ISN provides an opportunity for Owner Clients to improve their risk management processes and to connect with safe and reliable contractors. By identifying contractors and suppliers who meet both client-specific and legislative standards, Owner Clients are able to drive tangible and sustained performance improvements while strengthening their relationships with their contractors and suppliers.

For more information, visit [ISN.com](http://ISN.com), contact ISN at +1 214 303 4900 or email [ISNTeam@isn.com](mailto:ISNTeam@isn.com).

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# Preface

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ISN gathers and manages a comprehensive range of health, safety and environmental (HSE) performance data from contractors and suppliers in capital-intensive industries. In addition to HSE, procurement, quality and compliance information, annual and quarterly HSE performance statistics are collected through ISN's web-based system, ISNetworld, then reviewed and verified by ISN's Review and Verification Services (RAVS) for accuracy and completion.

The main purpose of this publication is to provide ISNetworld member contractors, suppliers and Owner Clients pertinent HSE performance information useful for benchmarking their organization's performance against industry peers.

Collectively, approximately 50,000 contractors and suppliers actively report information through ISNetworld, representing nearly 11 billion work hours of activity in 2012 alone. A rich source of data such as this provides an opportunity for developing industry-specific benchmarking statistics that are unique for their quality, insight and comprehensiveness.

Industry specific performance indicator publications are available for a number of industries, including Oil & Gas, Chemical, Utilities & Power Generation, Manufacturing\*, Mining, Pharmaceuticals and Facilities Management. This publication specifically covers information pertinent to the Manufacturing industry for the year 2012.

The health and safety Key Performance Indicators (KPIs) collected and presented in this report include:

- Total Recordable Incident Rate (TRIR)
- Total Nonfatal Recordable Incident Rate (Nonfatal TRIR)
- Days Away, Restricted or Job Transfer Rate (DART)
- Fatality Rate Per 100,000 Employees
- Total Number of Fatalities
- Incident Severity (In Days)

These KPIs are organized into two tables: **Table 1** provides detailed health and safety performance indicators aggregated by NAICS code. For added granularity, **Table 2** provides performance indicators grouped by ISN Work Type designation. All values in this publication are aggregated to preserve the anonymity of contractor and supplier companies. Appendices 1 through 3 provide definitions, calculations and analysis procedures.

It is ISN's hope that users will find the publication useful for benchmarking their HSE performance against that of their peers and for driving continuous health and safety performance improvement efforts in the workplace.

\*Manufacturing includes Steel, Fertilizer Products, Wood and Paper, Food and Agriculture industries.



# Table 1

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## 2012 Injury and Illness Rates, by NAICS Code

# Table 1: 2012 Injury and Illness Rates by NAICS Code

NAICS Code <sup>[a]</sup>	NAICS Title <sup>[a]</sup>	Total Number of Employees	Total Number of Exposure Hours (in 1,000s)	Injuries and Illnesses <sup>[b]</sup>			Fatalities <sup>[c]</sup>		Severity <sup>[d]</sup>
				Total Recordable Incident Rate (TRIR)	Nonfatal Total Recordable Incident Rate (Nonfatal TRIR)	Days Away/ Restricted or Transfer Rate (DART)	Total Number of Fatalities	Fatality Rate per 100,000 Workers	Incident Severity (In Days)
11	Agriculture, Forestry, Fishing and Hunting	4,270	7,597*	1.29	1.29	1.18	0	0.00	84.39
21	Mining, Quarrying, and Oil and Gas Extraction	57,513	160,983	1.42	1.41	0.82	9	11.18	12.41
213	Support Activities for Mining	56,133	157,772	1.43	1.42	0.83	9	11.41	12.47
2131	Support Activities for Mining	56,114	157,737	1.43	1.42	0.83	9	11.41	12.47
21311	Support Activities for Mining	56,114	157,737	1.43	1.42	0.83	9	11.41	12.47
213112	Support Activities for Oil and Gas Operations	49,729	142,174	1.44	1.43	0.86	8	11.25	12.83
22	Utilities	4,771	10,572	2.02	2.02	0.87	0	0.00	9.49 (8.19*)
221	Utilities	4,336	9,666	1.74	1.74	0.74	0	0.00	10.39 (8.75*)
2213	Water, Sewage and Other Systems	929	2,041	3.72	3.72	1.67	0	0.00	9.97 (6.27*)
23	Construction	600,572	1,267,777	1.42	1.41	0.68	25	3.94	9.90
236	Construction of Buildings	71,956	152,288	1.46	1.45	0.72	2	2.63	8.73
2361	Residential Building Construction	239	457	1.31	0.88	0.44	1	**	1.00
23611	Residential Building Construction	239	457	1.31	0.88	0.44	1	**	1.00
2362	Nonresidential Building Construction	71,600	151,584	1.46	1.45	0.72	1	1.32	8.69
23621	Industrial Building Construction	38,803	84,668	0.89	0.89	0.41	1	2.36	10.04
23622	Commercial and Institutional Building Construction	30,064	61,384	2.23	2.23	1.14	0	0.00	8.21
237	Heavy and Civil Engineering Construction	134,441	290,633	1.18	1.17	0.55	9	6.19	9.92
2371	Utility System Construction	78,158	169,234	1.11	1.10	0.50	5	5.91	11.58
23711	Water and Sewer Line and Related Structures Construction	8,657	15,389	2.69	2.69	1.25	0	0.00	9.69
23712	Oil and Gas Pipeline and Related Structures Construction	57,770	128,113	0.69	0.69	0.31	4	6.24	11.52
23713	Power and Communication Line and Related Structures Construction	10,818	23,745	2.32	2.31	1.00	1	8.42	13.19
2373	Highway, Street, and Bridge Construction	8,488	16,956	3.29	3.24	1.92	4	47.18	9.57
23731	Highway, Street, and Bridge Construction	8,423	16,847	3.31	3.26	1.94	4	47.49	9.57

[a] North American Industry Classification System—United States, 2007. Totals for each NAICS code are based on all records classified at a more disaggregated level and may include data for industries not shown separately. For example, calculations presented for two-digit NAICS codes will include all records with any of the three, four, five and six-digit NAICS codes that are subsumed in the two-digit NAICS classification.

[b] The injury and illness rates represent the number of injuries and illnesses per 100 full-time workers. See Appendix 2 on Incident Rate Calculations.

[c] The fatality rate represents the number of fatalities per 100,000 full-time workers. See Appendix 2 on Fatality Rate Calculations.

[d] The incident severity (in days) represents the number of days away from work per recordable incident. See Appendix 2 on Incident Severity (In Days) Calculations.

- Indicates that the data are suppressed because there are fewer than 10 contractors reporting for the cell.

\* Indicates that the difference between the rate computed using all valid records and that computed using only those records excluding the highest 0.5<sup>th</sup> percentile extreme values is greater than or equal to 10%. See sections 3 and 5 of Appendix 3 for more information.

\*\* Indicates that the reported fatality rate is greater than or equal to 100.

† Indicates that the largest contractor in the corresponding NAICS Code contributes more than 70% of the Total Exposure Hours of all contractors in that NAICS Code.

# Table 1: 2012 Injury and Illness Rates by NAICS Code

NAICS Code <sup>[a]</sup>	NAICS Title <sup>[a]</sup>	Total Number of Employees	Total Number of Exposure Hours (in 1,000s)	Injuries and Illnesses <sup>[b]</sup>			Fatalities <sup>[d]</sup>		Severity <sup>[d]</sup>
				Total Recordable Incident Rate (TRIR)	Nonfatal Total Recordable Incident Rate (Nonfatal TRIR)	Days Away/Restricted or Transfer Rate (DART)	Total Number of Fatalities	Fatality Rate per 100,000 Workers	Incident Severity (In Days)
2379	Other Heavy and Civil Engineering Construction	41,634	91,172	0.87	0.87	0.39	0	0.00	7.63
23799	Other Heavy and Civil Engineering Construction	41,388	90,684	0.86	0.86	0.39	0	0.00	7.76
238	Specialty Trade Contractors	366,833	765,673	1.54	1.54	0.75	14	3.66	10.12
2381	Foundation, Structure, and Building Exterior Contractors	32,782	64,985	2.06	2.06	1.06	1	3.08	11.78 (10.34*)
23811	Poured Concrete Foundation and Structure Contractors	4,901	10,430	1.84	1.82	0.86	1	19.18	6.17
23812	Structural Steel and Precast Concrete Contractors	7,922	17,027	1.39	1.39	0.54	0	0.00	8.29 (6.82*)
23814	Masonry Contractors	5,075	9,439	1.31	1.31	0.66	0	0.00	18.47 (8.31*)
23816	Roofing Contractors	12,789	23,818	2.94	2.94	1.64	0	0.00	14.08
23819	Other Foundation, Structure, and Building Exterior Contractors	1,505	3,160	1.71	1.71	0.95	0	0.00	7.11
2382	Building Equipment Contractors	194,582	403,399	1.95	1.95	0.95	9	4.46	9.49
23821	Electrical Contractors and Other Wiring Installation Contractors	81,064	169,146	1.57	1.57	0.74	3	3.55	9.69
23822	Plumbing, Heating, and Air-Conditioning Contractors	83,866	172,403	2.18	2.17	1.01	3	3.48	8.66
23829	Other Building Equipment Contractors	28,338	59,209	2.38	2.37	1.41	3	10.13	11.29
2383	Building Finishing Contractors	18,829	38,131	1.26	1.26	0.60	0	0.00	15.10 (12.84*)
23831	Drywall and Insulation Contractors	9,653	20,213	1.08	1.08	0.46	0	0.00	11.69 (10.13*)
23832	Painting and Wall Covering Contractors	6,049	11,649	1.13	1.13	0.57	0	0.00	19.11
23833	Flooring Contractors	1,556	3,208	1.12	1.12	1.00 (0.82*)	0	0.00	30.72 (17.50*)
23839	Other Building Finishing Contractors	1,201	2,409	2.32	2.32	1.08	0	0.00	9.23
2389	Other Specialty Trade Contractors	114,239	245,439	0.78	0.78	0.37	4	3.26	10.50
23891	Site Preparation Contractors	10,948	23,526	1.61	1.60	0.96	1	8.50	13.22
23899	All Other Specialty Trade Contractors	102,803	220,750	0.68	0.68	0.31	3	2.72	9.94
31-33	Manufacturing	283,001	579,869	1.65	1.65	0.95	5	1.72	9.35
324	Petroleum and Coal Products Manufacturing	1,602	3,430	1.69	1.63	0.82	1	58.32	4.69
3241	Petroleum and Coal Products Manufacturing	1,602	3,430	1.69	1.63	0.82	1	58.32	4.69
325	Chemical Manufacturing	28,040	59,290	1.29	1.28	0.88	3	10.12	13.06
3251	Basic Chemical Manufacturing	15,376	34,065	1.38	1.37	1.10	2	11.74	18.36
3255	Paint, Coating, and Adhesive Manufacturing	1,221	2,372	2.11	2.11	1.69	0	0.00	11.72
32551	Paint and Coating Manufacturing	1,154	2,242	1.96	1.96	1.61	0	0.00	13.00
3256	Soap, Cleaning Compound, and Toilet Preparation Manufacturing	1,001	1,997	1.80	1.80	0.80	0	0.00	8.56
32561	Soap and Cleaning Compound Manufacturing	980	1,947	1.85	1.85	0.82	0	0.00	8.56
3259	Other Chemical Product and Preparation Manufacturing	10,089	20,151	0.96	0.95	0.43	1	9.93	2.21

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				Total Recordable Incident Rate (TRIR)	Nonfatal Total Recordable Incident Rate (Nonfatal TRIR)	Days Away/Restricted or Transfer Rate (DART)	Total Number of Fatalities	Fatality Rate per 100,000 Workers	Incident Severity (In Days)
32599	All Other Chemical Product and Preparation Manufacturing	9,970	19,906	0.96	0.95	0.42	1	10.05	2.23
325998	All Other Miscellaneous Chemical Product and Preparation Manufacturing	9,898	19,756	0.96	0.95	0.42	1	10.12	2.25
326	Plastics and Rubber Products Manufacturing	3,865	8,506	2.05 (1.82*)	2.05 (1.82*)	1.25 (1.09*)	0	0.00	18.17 (15.52*)
3261	Plastics Product Manufacturing	2,474	5,600	1.00	1.00	0.61	0	0.00	24.79 (16.59*)
32619	Other Plastics Product Manufacturing	1,112	2,386	1.93	1.93	1.26	0	0.00	30.00 (20.18*)
326199	All Other Plastics Product Manufacturing	996	2,151	1.77	1.77	1.12	0	0.00	34.16 (-*)
3262	Rubber Product Manufacturing	1,363	2,839	3.45	3.45	2.04	0	0.00	15.96
32622	Rubber and Plastics Hoses and Belting Manufacturing	903	1,867	4.50	4.50	2.79	0	0.00	17.29
327	Nonmetallic Mineral Product Manufacturing	3,522	6,548	3.27	3.27	1.77	0	0.00	5.15
3271	Clay Product and Refractory Manufacturing	1,809	3,157	4.31	4.31	2.28	0	0.00	4.56
32712	Clay Building Material and Refractories Manufacturing	1,809	3,157	4.31	4.31	2.28	0	0.00	4.56
331	Primary Metal Manufacturing	2,860	7,235	2.82	2.82	1.77	0	0.00	18.29
332	Fabricated Metal Product Manufacturing	44,511	83,052	2.04	2.04	0.93	0	0.00	7.76
3323	Architectural and Structural Metals Manufacturing	16,188	22,740	2.49	2.49	1.33	0	0.00	10.58
33231	Plate Work and Fabricated Structural Product Manufacturing	12,510	15,523	2.20	2.20	1.20	0	0.00	12.11
332312	Fabricated Structural Metal Manufacturing	2,589	5,923	2.23	2.23	1.22	0	0.00	15.94
332313	Plate Work Manufacturing	9,779	9,336	2.08	2.08	1.14	0	0.00	9.64 (8.19*)
33232	Ornamental and Architectural Metal Products Manufacturing	3,616	7,113	3.12	3.12	1.60	0	0.00	8.17
332322	Sheet Metal Work Manufacturing	2,737	5,514	2.87	2.87	1.27	0	0.00	10.20
3324	Boiler, Tank, and Shipping Container Manufacturing	4,790	10,990	2.22	2.22	1.09	0	0.00	6.26
33241	Power Boiler and Heat Exchanger Manufacturing	2,889	6,437	2.83	2.83	1.37	0	0.00	6.11
33242	Metal Tank (Heavy Gauge) Manufacturing	1,711	4,077	1.28	1.28	0.69	0	0.00	3.38
3327	Machine Shops; Turned Product; and Screw, Nut, and Bolt Manufacturing	3,417	6,921	2.80	2.80	1.21	0	0.00	6.76
33271	Machine Shops	2,780	5,734	3.28	3.28	1.40	0	0.00	6.89
3328	Coating, Engraving, Heat Treating, and Allied Activities	1,665	4,146	1.01	1.01	0.19	0	0.00	0.14
33281	Coating, Engraving, Heat Treating, and Allied Activities	1,665	4,146	1.01	1.01	0.19	0	0.00	0.14
332812	Metal Coating, Engraving (except Jewelry and Silverware), and Allied Services to Manufacturers	568	1,395	2.15	2.15	0.57	0	0.00	0.20
3329	Other Fabricated Metal Product Manufacturing	16,875	35,056	1.54	1.54	0.62	0	0.00	6.07
33291	Metal Valve Manufacturing	15,105	31,359	1.29	1.29	0.56	0	0.00	6.62
332911	Industrial Valve Manufacturing	14,885	30,860	1.28	1.28	0.56	0	0.00	6.79
33299	All Other Fabricated Metal Product Manufacturing	1,708	3,585	3.52 (3.05*)	3.52 (3.05*)	1.06	0	0.00	4.76



# Table 1: 2012 Injury and Illness Rates by NAICS Code

NAICS Code <sup>[a]</sup>	NAICS Title <sup>[a]</sup>	Total Number of Employees	Total Number of Exposure Hours (in 1,000s)	Injuries and Illnesses <sup>[b]</sup>			Fatalities <sup>[d]</sup>		Severity <sup>[d]</sup>
				Total Recordable Incident Rate (TRIR)	Nonfatal Total Recordable Incident Rate (Nonfatal TRIR)	Days Away/Restricted or Transfer Rate (DART)	Total Number of Fatalities	Fatality Rate per 100,000 Workers	Incident Severity (In Days)
332999	All Other Miscellaneous Fabricated Metal Product Manufacturing	1,078	2,207	3.90	3.90	1.27	0	0.00	6.37
333	Machinery Manufacturing	136,191	282,670	1.39	1.39	0.80	0	0.00	10.75
3331	Agriculture, Construction, and Mining Machinery Manufacturing	9,952	21,333	2.25 (1.98*)	2.25 (1.98*)	1.03	0	0.00	4.57
33313	Mining and Oil and Gas Field Machinery Manufacturing	8,234	18,212	1.91 (1.60*)	1.91 (1.60*)	0.78	0	0.00	3.10
3332	Industrial Machinery Manufacturing	5,288	10,597	3.94	3.94	1.85	0	0.00	6.82
33321	Sawmill and Woodworking Machinery Manufacturing	463	1,011	4.55	4.55	1.19 (1.00*)	0	0.00	4.17
33329	Other Industrial Machinery Manufacturing	4,584	9,064	3.97	3.97	1.99	0	0.00	7.04
333291	Paper Industry Machinery Manufacturing	2,622	4,810	3.74	3.74	1.87	0	0.00	7.08
3333	Commercial and Service Industry Machinery Manufacturing	85,450	177,761*	0.76	0.76	0.52	0	0.00	16.96
33331	Commercial and Service Industry Machinery Manufacturing	85,450	177,761*	0.76	0.76	0.52	0	0.00	16.96
3334	Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing	5,023	10,224	2.39	2.39	1.27	0	0.00	10.47
33341	Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing	5,023	10,224	2.39	2.39	1.27	0	0.00	10.47
333411	Air Purification Equipment Manufacturing	1,496	2,990	3.34	3.34	1.94	0	0.00	9.74
333415	Air-Conditioning and Warm Air Heating Equipment and Commercial and Industrial Refrigeration Equipment Manufacturing	1,826	3,667	1.42	1.42	0.98	0	0.00	6.58
3335	Metalworking Machinery Manufacturing	690	1,439	2.78	2.78	1.53	0	0.00	5.30
33351	Metalworking Machinery Manufacturing	690	1,439	2.78	2.78	1.53	0	0.00	5.30
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing	2,809	6,730	1.40	1.40	0.27	0	0.00	6.32
33361	Engine, Turbine, and Power Transmission Equipment Manufacturing	2,809	6,730	1.40	1.40	0.27	0	0.00	6.32
3339	Other General Purpose Machinery Manufacturing	26,960	54,549	2.41	2.41	1.40	0	0.00	8.40
33391	Pump and Compressor Manufacturing	6,349	13,304	2.21	2.21	0.93	0	0.00	6.13
333911	Pump and Pumping Equipment Manufacturing	2,898	5,930	2.66	2.66	1.38	0	0.00	7.44
333912	Air and Gas Compressor Manufacturing	3,443	7,359*	1.85	1.85	0.57	0	0.00	4.60
33392	Material Handling Equipment Manufacturing	14,862	29,065	2.46	2.46	1.56	0	0.00	9.34
333922	Conveyor and Conveying Equipment Manufacturing	2,041	4,305	3.67	3.67	1.77	0	0.00	7.01 (4.79*)
333923	Overhead Traveling Crane, Hoist, and Monorail System Manufacturing	4,225	9,134	3.00	3.00	2.21	0	0.00	10.91
33399	All Other General Purpose Machinery Manufacturing	5,749	12,179	2.51	2.51	1.53	0	0.00	8.41
333993	Packaging Machinery Manufacturing	1,860	3,701	4.38	4.38	2.97	0	0.00	3.69
333997	Scale and Balance Manufacturing	1,513	3,232	1.42	1.42	0.87	0	0.00	25.74
333999	All Other Miscellaneous General Purpose Machinery Manufacturing	1,450	3,433	1.40	1.40	0.76	0	0.00	6.58

# Table 1: 2012 Injury and Illness Rates by NAICS Code

NAICS Code <sup>[a]</sup>	NAICS Title <sup>[a]</sup>	Total Number of Employees	Total Number of Exposure Hours (in 1,000s)	Injuries and Illnesses <sup>[b]</sup>			Fatalities <sup>[c]</sup>		Severity <sup>[d]</sup>
				Total Recordable Incident Rate (TRIR)	Nonfatal Total Recordable Incident Rate (Nonfatal TRIR)	Days Away/Restricted or Transfer Rate (DART)	Total Number of Fatalities	Fatality Rate per 100,000 Workers	Incident Severity (In Days)
334	Computer and Electronic Product Manufacturing	25,437	50,412	1.04	1.04	0.52	0	0.00	7.73
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	24,396	48,244	1.02	1.02	0.51	0	0.00	8.13
33451	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	24,396	48,244	1.02	1.02	0.51	0	0.00	8.13
334513	Instruments and Related Products Manufacturing for Measuring, Displaying, and Controlling Industrial Process Variables	7,001	14,477	0.65	0.65	0.32	0	0.00	4.49
334516	Analytical Laboratory Instrument Manufacturing	15,153	29,253	1.03	1.03	0.52	0	0.00	9.23
334519	Other Measuring and Controlling Device Manufacturing	1,268	2,646	1.74	1.74	0.98	0	0.00	11.13
335	Electrical Equipment, Appliance, and Component Manufacturing	12,486	26,681	1.84	1.83	0.90	1	7.50	6.00 (5.36*)
3353	Electrical Equipment Manufacturing	10,737	23,119	1.84	1.83	0.89	1	8.65	6.62 (5.90*)
33531	Electrical Equipment Manufacturing	10,737	23,119	1.84	1.83	0.89	1	8.65	6.62 (5.90*)
335312	Motor and Generator Manufacturing	3,345	7,273	2.75	2.75	1.48	0	0.00	5.18 (3.61*)
335313	Switchgear and Switchboard Apparatus Manufacturing	667	1,507	2.39	2.39	1.59	0	0.00	12.39
3359	Other Electrical Equipment and Component Manufacturing	1,658	3,371	1.72	1.72	0.83	0	0.00	1.62
336	Transportation Equipment Manufacturing	6,065	15,694*	2.14	2.14	1.34	0	0.00	11.21
3365	Railroad Rolling Stock Manufacturing	5,629	14,770*	2.09	2.09	1.33	0	0.00	11.65
33651	Railroad Rolling Stock Manufacturing	5,629	14,770*	2.09	2.09	1.33	0	0.00	11.65
339	Miscellaneous Manufacturing	3,528	7,636	1.20	1.20	0.52	0	0.00	6.76
3399	Other Miscellaneous Manufacturing	3,431	7,442	1.18	1.18	0.48	0	0.00	7.02
33999	All Other Miscellaneous Manufacturing	2,915	6,356	1.04	1.04	0.47	0	0.00	3.67
42	Wholesale Trade	174,441	359,255	2.17	2.17	1.39	2	1.11	8.28
423	Merchant Wholesalers, Durable Goods	84,490	172,181	2.34	2.34	1.28	2	2.32	8.20
4234	Professional and Commercial Equipment and Supplies Merchant Wholesalers	518	1,018	0.98	0.98	0.59	0	0.00	17.20
4236	Electrical and Electronic Goods Merchant Wholesalers	26,090	52,401	1.19	1.19	0.80	0	0.00	6.60
42361	Electrical Apparatus and Equipment, Wiring Supplies, and Related Equipment Merchant Wholesalers	25,541	51,214	1.20	1.20	0.81	0	0.00	6.65
4237	Hardware, and Plumbing and Heating Equipment and Supplies Merchant Wholesalers	1,058	2,323	2.67	2.67	0.60	0	0.00	1.87
4238	Machinery, Equipment, and Supplies Merchant Wholesalers	48,716	99,995	2.93	2.92	1.54	2	4.00	8.19
42381	Construction and Mining (except Oil Well) Machinery and Equipment Merchant Wholesalers	12,835	26,219	4.23	4.23	2.09	0	0.00	9.14
42383	Industrial Machinery and Equipment Merchant Wholesalers	29,792	61,397	2.57	2.56	1.43	2	6.51	7.48

# Table 1: 2012 Injury and Illness Rates by NAICS Code

NAICS Code <sup>[a]</sup>	NAICS Title <sup>[a]</sup>	Total Number of Employees	Total Number of Exposure Hours (in 1,000s)	Injuries and Illnesses <sup>[b]</sup>			Fatalities <sup>[c]</sup>		Severity <sup>[d]</sup>
				Total Recordable Incident Rate (TRIR)	Nonfatal Total Recordable Incident Rate (Nonfatal TRIR)	Days Away/Restricted or Transfer Rate (DART)	Total Number of Fatalities	Fatality Rate per 100,000 Workers	Incident Severity (In Days)
42384	Industrial Supplies Merchant Wholesalers	5,431	11,003	2.02	2.02	1.00	0	0.00	7.12
42385	Service Establishment Equipment and Supplies Merchant Wholesalers	388	793	1.51	1.51	1.26	0	0.00	38.00
4239	Miscellaneous Durable Goods Merchant Wholesalers	4,634	9,243	3.40	3.40	2.01	0	0.00	12.20
42393	Recyclable Material Merchant Wholesalers	2,514	5,277	3.41	3.41	2.24	0	0.00	12.83
42399	Other Miscellaneous Durable Goods Merchant Wholesalers	2,097	3,918	3.42	3.42	1.74	0	0.00	11.34
424	Merchant Wholesalers, Nondurable Goods	89,620	186,465	2.01	2.01	1.49	0	0.00	8.28
4246	Chemical and Allied Products Merchant Wholesalers	83,516	174,275	2.00	2.00	1.50	0	0.00	7.04
42469	Other Chemical and Allied Products Merchant Wholesalers	83,516	174,275	2.00	2.00	1.50	0	0.00	7.04
4247	Petroleum and Petroleum Products Merchant Wholesalers	5,987	11,938*	2.19	2.19	1.42	0	0.00	24.66
42472	Petroleum and Petroleum Products Merchant Wholesalers (except Bulk Stations and Terminals)	1,253	2,457	4.40	4.40	3.83	0	0.00	31.30
44-45	Retail Trade	35,288	68,066	4.37	4.35	2.46	4	11.75	8.61
441	Motor Vehicle and Parts Dealers	17,499	37,046*	4.87	4.86	2.34	1	5.40	5.81
4413	Automotive Parts, Accessories, and Tire Stores	17,079	36,173*	4.94	4.93	2.39	1	5.53	5.83
44132	Tire Dealers	17,014	36,056*	4.94	4.94	2.40	1	5.55	5.84
48-49	Transportation and Warehousing	20,553	50,101	2.80	2.79	1.76	3	11.98	20.12
484	Truck Transportation	12,807	33,080	3.59	3.57	2.31	3	18.14	20.57
4841	General Freight Trucking	5,947	16,129	3.01	2.99	2.19	2	24.80	24.43
48411	General Freight Trucking, Local	3,854	10,189	2.20	2.18	1.75	1	19.63	21.79
4842	Specialized Freight Trucking	6,803	16,850	4.12	4.11	2.39	1	11.87	17.75
48422	Specialized Freight (except Used Goods) Trucking, Local	4,553	12,029	3.94	3.92	2.19	1	16.63	21.55
48423	Specialized Freight (except Used Goods) Trucking, Long-Distance	1,707	3,914	2.55	2.55	1.74	0	0.00	17.70
488	Support Activities for Transportation	6,114	13,365	1.32	1.32	0.72	0	0.00	17.11
4882	Support Activities for Rail Transportation	3,786	8,040	1.69	1.69	0.85	0	0.00	17.59
48821	Support Activities for Rail Transportation	2,704	5,605	1.00	1.00	0.29	0	0.00	10.43
4883	Support Activities for Water Transportation	2,146	4,933*	0.61	0.61	0.49	0	0.00	19.80
53	Real Estate and Rental and Leasing	32,449	76,280	1.70	1.70	1.14	2	5.24	14.06
532	Rental and Leasing Services	32,345	76,151	1.70	1.70	1.15	2	5.25	14.06
5324	Commercial and Industrial Machinery and Equipment Rental and Leasing	31,477	74,409	1.70	1.69	1.14	2	5.38	14.14
53241	Construction, Transportation, Mining, and Forestry Machinery and Equipment Rental and Leasing	15,737	36,786	1.45	1.45	0.98	0	0.00	14.76
532412	Construction, Mining, and Forestry Machinery and Equipment Rental and Leasing	15,307	35,771	1.41	1.41	0.98	0	0.00	15.61

# Table 1: 2012 Injury and Illness Rates by NAICS Code

NAICS Code <sup>[a]</sup>	NAICS Title <sup>[a]</sup>	Total Number of Employees	Total Number of Exposure Hours (in 1,000s)	Injuries and Illnesses <sup>[b]</sup>			Fatalities <sup>[c]</sup>		Severity <sup>[d]</sup>
				Total Recordable Incident Rate (TRIR)	Nonfatal Total Recordable Incident Rate (Nonfatal TRIR)	Days Away/Restricted or Transfer Rate (DART)	Total Number of Fatalities	Fatality Rate per 100,000 Workers	Incident Severity (In Days)
53249	Other Commercial and Industrial Machinery and Equipment Rental and Leasing	15,667	37,454	1.94	1.93	1.29	2	10.68	13.69
54	Professional, Scientific, and Technical Services	210,179	425,517	0.56	0.56	0.25	1	0.47	9.51
541	Professional, Scientific, and Technical Services	209,235	423,560	0.56	0.55	0.25	1	0.47	9.53
5413	Architectural, Engineering, and Related Services	154,973	313,600	0.55	0.55	0.24	1	0.64	8.87
54133	Engineering Services	114,923	231,751	0.52	0.52	0.22	1	0.86	8.77
54137	Surveying and Mapping (except Geophysical) Services	1,394	3,091	0.58	0.58	0.26	0	0.00	12.22
54138	Testing Laboratories	23,339	49,102	0.80	0.80	0.43	0	0.00	9.92
5415	Computer Systems Design and Related Services	13,435	25,783*	0.43	0.43	0.36	0	0.00	25.98
54151	Computer Systems Design and Related Services	13,435	25,783*	0.43	0.43	0.36	0	0.00	25.98
541512	Computer Systems Design Services	11,369	21,590*	0.43	0.43	0.40	0	0.00	30.89
5416	Management, Scientific, and Technical Consulting Services	27,639	55,491	0.63	0.63	0.23	0	0.00	6.27 (5.27*)
54161	Management Consulting Services	718	1,358	1.18 (0.15*)	1.18 (0.15*)	0.59	0	0.00	2.63
54162	Environmental Consulting Services	23,790	47,163	0.67	0.67	0.23	0	0.00	6.78 (5.67*)
54169	Other Scientific and Technical Consulting Services	2,587	5,991	0.27	0.27	0.13	0	0.00	2.13
5419	Other Professional, Scientific, and Technical Services	9,895	22,244	0.55	0.55	0.31	0	0.00	9.67
54199	All Other Professional, Scientific, and Technical Services	9,601	21,484	0.53	0.53	0.30	0	0.00	10.12
56	Administrative and Support and Waste Management and Remediation Services	317,742	635,894	2.64	2.64	1.68	7	2.20	14.89
561	Administrative and Support Services	264,459	517,151	2.73	2.72	1.75	6	2.32	14.12
5612	Facilities Support Services	27,106	46,282	3.36	3.36	2.18	1	4.32	8.81
56121	Facilities Support Services	27,105	46,280	3.36	3.36	2.18	1	4.32	8.81
5613	Employment Services	20,837	38,678	0.65	0.65	0.31	0	0.00	20.25
56132	Temporary Help Services	20,837	38,678	0.65	0.65	0.31	0	0.00	20.25
5616	Investigation and Security Services	100,153	198,695	1.30	1.30	0.64	2	2.01	15.37
56161	Investigation, Guard, and Armored Car Services	87,469	173,922	1.25	1.25	0.59	1	1.15	16.59
561612	Security Guards and Patrol Services	87,469	173,922	1.25	1.25	0.59	1	1.15	16.59
56162	Security Systems Services	12,684	24,772*	1.65	1.64	0.95	1	8.07	8.87
561621	Security Systems Services (except Locksmiths)	12,555	24,518*	1.66	1.65	0.95	1	8.16	8.75
5617	Services to Buildings and Dwellings	113,709	226,599	4.25	4.25	2.93	3	2.65	14.50
56171	Exterminating and Pest Control Services	24,567	49,993	7.41	7.40	4.05	2	8.00	14.26
56172	Janitorial Services	73,785	145,049	3.24	3.24	2.62	0	0.00	15.46

# Table 1: 2012 Injury and Illness Rates by NAICS Code

NAICS Code <sup>[a]</sup>	NAICS Title <sup>[a]</sup>	Total Number of Employees	Total Number of Exposure Hours (in 1,000s)	Injuries and Illnesses <sup>[b]</sup>			Fatalities <sup>[c]</sup>		Severity <sup>[d]</sup>
				Total Recordable Incident Rate (TRIR)	Nonfatal Total Recordable Incident Rate (Nonfatal TRIR)	Days Away/Restricted or Transfer Rate (DART)	Total Number of Fatalities	Fatality Rate per 100,000 Workers	Incident Severity (In Days)
56173	Landscaping Services	13,883	28,620	4.07	4.06	2.70	1	6.99	9.73
56179	Other Services to Buildings and Dwellings	1,472	2,934	1.91	1.91	1.16	0	0.00	48.07 (39.78*)
5619	Other Support Services	1,858	3,784	1.69	1.69	0.74	0	0.00	10.25
56199	All Other Support Services	1,852	3,781	1.69	1.69	0.74	0	0.00	10.25
562	Waste Management and Remediation Services	53,283	118,743	2.26	2.26	1.39	1	1.68	18.93
5621	Waste Collection	23,445	55,758	2.66	2.66	1.67	1	3.59	22.43
56211	Waste Collection	22,995	55,098	2.62	2.61	1.68	1	3.63	22.71
562111	Solid Waste Collection	15,128	37,249*	2.26	2.26	1.36	1	5.37	31.33
562112	Hazardous Waste Collection	6,934	15,441	3.25	3.25	2.24	0	0.00	9.22 (7.60*)
5622	Waste Treatment and Disposal	5,437	11,886*	1.78	1.78	1.04	0	0.00	24.29
56221	Waste Treatment and Disposal	5,437	11,886*	1.78	1.78	1.04	0	0.00	24.29
5629	Remediation and Other Waste Management Services	23,666	49,319	1.94	1.94	1.17	0	0.00	12.44
56291	Remediation Services	15,967	31,825	1.77	1.77	1.03	0	0.00	13.04
56299	All Other Waste Management Services	7,600	17,272	2.22	2.22	1.39	0	0.00	11.74 (10.07*)
562991	Septic Tank and Related Services	1,483	3,597*	5.23	5.23	3.56	0	0.00	12.86
562998	All Other Miscellaneous Waste Management Services	5,782	12,929	1.47	1.47	0.82	0	0.00	11.01 (7.57*)
81	Other Services (except Public Administration)	163,361	326,083	2.21	2.21	1.31	3	1.84	11.45
811	Repair and Maintenance	126,436	261,750	1.87	1.87	1.04	2	1.53	11.30
8111	Automotive Repair and Maintenance	1,855	4,128	2.76	2.76	1.55	0	0.00	2.60
8112	Electronic and Precision Equipment Repair and Maintenance	3,988	7,988	1.43	1.43	0.80	0	0.00	17.35 (11.98*)
81121	Electronic and Precision Equipment Repair and Maintenance	3,961	7,929	1.41	1.41	0.81	0	0.00	17.66 (12.20*)
811219	Other Electronic and Precision Equipment Repair and Maintenance	1,673	3,178	1.89	1.89	1.20	0	0.00	18.63 (8.18*)
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance	120,003	248,293	1.86	1.86	1.04	2	1.61	11.34
81131	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance	115,378	238,630	1.83	1.83	1.01	2	1.68	11.29

[a] North American Industry Classification System—United States, 2007. Totals for each NAICS code are based on all records classified at a more disaggregated level and may include data for industries not shown separately. For example, calculations presented for two-digit NAICS codes will include all records with any of the three, four, five and six-digit NAICS codes that are subsumed in the two-digit NAICS classification.

[b] The injury and illness rates represent the number of injuries and illnesses per 100 full-time workers. See Appendix 2 on Incident Rate Calculations.

[c] The fatality rate represents the number of fatalities per 100,000 full-time workers. See Appendix 2 on Fatality Rate Calculations.

[d] The incident severity (in days) represents the number of days away from work per recordable incident. See Appendix 2 on Incident Severity (In Days) Calculations.

- Indicates that the data are suppressed because there are fewer than 10 contractors reporting for the cell.

\* Indicates that the difference between the rate computed using all valid records and that computed using only those records excluding the highest 0.5<sup>th</sup> percentile extreme values is greater than or equal to 10%. See sections 3 and 5 of Appendix 3 for more information.

\*\* Indicates that the reported fatality rate is greater than or equal to 100.

† Indicates that the largest contractor in the corresponding NAICS Code contributes more than 70% of the Total Exposure Hours of all contractors in that NAICS Code.



## Table 2

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### 2012 Injury and Illness Rates, by ISN Work Type

## Table 2: 2012 Injury and Illness Rates by ISN Work Type

ISN Work Type <sup>[a]</sup>	Total Number of Employees	Total Number of Exposure Hours (in 1,000s)	Injuries and Illnesses <sup>[b]</sup>			Fatalities <sup>[d]</sup>		Severity <sup>[d]</sup>
			Total Recordable Incident Rate (TRIR)	Nonfatal Total Recordable Incident Rate (Nonfatal TRIR)	Days Away/Restricted or Transfer Rate (DART)	Total Number of Fatalities	Fatality Rate per 100,000 Workers	Incident Severity (In Days)
1.0 - General Contractor	181,270	381,635	1.12	1.12	0.49	8	4.19	7.97
1.0.1 - Turnaround	191,218	410,800	0.74	0.74	0.28	3	1.46	7.70
1.0.2 - Routine Maintenance	249,378	536,261	1.02	1.01	0.47	13	4.85	9.35
1.0.3 - Compression - Maintenance	62,970	140,333	0.94	0.94	0.42	2	2.85	8.47
1.0.4 - Hydraulic Workover	19,676	37,814	1.36	1.35	0.48	1	5.29	6.80
1.0.5 - Steel Erection and Assembly	109,864	243,655	1.24	1.24	0.54	8	6.57	9.03
1.0.6 - Dredging	12,976	28,870	1.45	1.43	0.70	2	13.86	8.43
1.0.7 - Sheet Metal	59,744	125,698	1.78	1.78	0.76	1	1.59	8.52
1.0.8 - Conveyor System Installation	60,416	126,244	1.65	1.65	0.69	2	3.17	8.53
1.0.9 - Onshore Marine Construction	9,330	19,309	1.14	1.14	0.36	0	0.00	2.72
1.0.10 - Conveyor Belts - Sales	9,626	20,310	1.91	1.91	0.97	0	0.00	12.34
1.0.11 - Conveyor Belts - Installation	22,068	46,882	2.32	2.31	1.03	2	8.53	12.06 (10.47*)
1.0.12 - Conveyor Belts - Service and Repair	15,464	32,432	2.64	2.63	1.18	2	12.33	12.39 (10.74*)
1.1 - Boiler Repair	119,954	248,597	0.95	0.95	0.39	2	1.61	7.20
1.1.1 - Boiler Troubleshooting	40,293	83,372	1.51	1.51	0.63	2	4.80	7.76
1.1.2 - Boiler Cleaning	24,007	48,936	1.54	1.54	0.63	1	4.09	7.82
1.2 - Building Construction	148,959	320,442	1.28	1.28	0.62	8	4.99	8.60
1.2.1 - Floor Covering	17,180	35,313	1.23	1.22	0.56	1	5.66	9.76
1.2.2 - Carpentry - Finishing	36,609	76,262	1.97	1.97	1.01	2	5.25	8.34
1.2.3 - Interior Finishes/Design	22,565	47,093	1.62	1.61	0.65	1	4.25	8.35
1.2.4 - Joint Sealants/Caulking and Waterproofing	17,639	37,866	2.09	2.08	0.96	2	10.56	9.77
1.2.5 - Masonry	15,509	32,740	1.90	1.89	0.86	1	6.11	9.61
1.2.6 - Epoxy & Other Polymer Flooring	6,422	12,733	1.85	1.85	0.96	0	0.00	11.25

[a] ISN Work Type is a detailed list of commonly performed work classifications and activities available in the ISNWorld database for selection by contractors. ISN Work Types cover multiple industries, and contractors are required to select at least one work type that best describes their activities or specialization. A record (contractor) can be classified with more than one ISN Work Type and is counted in each Work Type breakout selected.

[b] The injury and illness rates represent the number of injuries and illnesses per 100 full-time workers. See Appendix 2 on Incident Rate Calculations.

[c] The fatality rate represents the number of fatalities per 100,000 full-time workers. See Appendix 2 on Fatality Rate Calculations.

[d] The incident severity (in days) represents the number of days away from work per recordable incident. See Appendix 2 on Incident Severity (In Days) Calculations.

- Indicates that the data are suppressed because there are fewer than 10 contractors reporting for the cell.

\* Indicates that the difference between the rate computed using all valid records and that computed using only those records excluding the highest 0.5<sup>th</sup> percentile extreme values is greater than or equal to 10%. See sections 3 and 5 of Appendix 3 for more information.

\*\* Indicates that the reported fatality rate is greater than or equal to 100.

† Indicates that the largest contractor in the corresponding ISN Work Type contributes more than 70% of the Total Exposure Hours of all contractors in that ISN Work Type.

## Table 2: 2012 Injury and Illness Rates by ISN Work Type

ISN Work Type <sup>[a]</sup>	Total Number of Employees	Total Number of Exposure Hours (in 1,000s)	Injuries and Illnesses <sup>[b]</sup>			Fatalities <sup>[d]</sup>		Severity <sup>[d]</sup>
			Total Recordable Incident Rate (TRIR)	Nonfatal Total Recordable Incident Rate (Nonfatal TRIR)	Days Away/Restricted or Transfer Rate (DART)	Total Number of Fatalities	Fatality Rate per 100,000 Workers	Incident Severity (In Days)
1.3 - Demolition	97,331	209,567	1.18	1.17	0.57	8	7.63	11.21
1.3.1 - Explosive	22,962	67,809*	1.31	1.31	0.72	1	2.95	6.50
1.4 - Dock	30,323	65,718	0.75	0.75	0.31	1	3.04	8.54
1.4.2 - Dock Services (Tying boats, etc)	967	2,179	0.73 (-*)	0.73 (-*)	0.37	0	0.00	46.50 (-*)
1.5 - Diving	13,986	28,388	1.06	1.06	0.46	0	0.00	9.49 (8.42*)
1.6 - Drilling	39,004	102,577	1.25	1.25	0.66	0	0.00	6.57
1.6.1 - Pier and Grade Beam Foundation	8,158	17,050	2.40	2.39	1.24	1	11.73	9.73
1.7 - Exchangers	104,561	215,564	0.76	0.76	0.29	1	0.93	8.58
1.7.1 - Tube repair	71,626	153,605	0.88	0.87	0.36	2	2.60	9.41
1.7.2 - Bundle Extraction	71,876	158,840	0.81	0.81	0.33	1	1.26	10.28
1.8 - Furnace	87,230	190,436	0.78	0.78	0.33	1	1.05	7.50
1.9 - Heat treating	27,966	60,546	0.90	0.90	0.33	0	0.00	7.26 (5.99*)
1.10 - Mechanical	211,930	443,416	0.97	0.97	0.41	5	2.26	8.50
1.10.1 - Machine Installations	100,618	216,500	1.50	1.49	0.69	6	5.54	8.70
1.10.2 - Machine Troubleshooting and Repair	85,061	181,980	1.46	1.45	0.67	4	4.40	7.58
1.10.3 - Steam Systems	48,103	101,559	1.37	1.37	0.50	1	1.97	6.50
1.10.4 - Engine Repair and Maintenance	10,416	22,359	1.30	1.30	0.53	0	0.00	7.94
1.11 - Metals	71,046	157,191	0.84	0.84	0.32	2	2.54	7.72
1.11.1 - Corrosion Control	103,295	233,908	0.82	0.81	0.35	2	1.71	7.26
1.11.2 - Industrial Steel Cutting	19,019	40,418	1.72	1.72	0.78	1	4.95	8.48
1.11.3 - Electrochemical Cleaning	6,953	15,504	0.74	0.72	0.31	1	12.90	6.44
1.11.4 - Linings & Coatings	37,039	80,723	0.77	0.77	0.31	2	4.96	7.30
1.11.5 - Flame Spray (HVOF, Plasma, Electric Wire Arc)	2,236	4,600	2.57 (2.09*)	2.57 (2.09*)	1.00	0	0.00	5.95
1.12 - Painting	119,822	255,832	0.79	0.78	0.33	5	3.91	8.81
1.12.1 - Linings & coatings	101,789	205,891	0.86	0.86	0.36	2	1.94	9.22
1.12.2 - Sandblasting	139,121	295,958	0.70	0.69	0.28	6	4.05	8.71
1.12.3 - Lead Abatement	81,484	171,913	0.70	0.70	0.28	0	0.00	11.28
1.12.4 - Pavement Marking	300	597	4.36	4.36	1.68 (1.36*)	0	0.00	13.31
1.13 - Rail	16,937	34,103	1.96	1.96	1.08	1	5.86	10.08
1.13.1 - Rail Repair	27,149	58,851	1.23	1.22	0.60	1	3.40	7.77
1.13.2 - Switch Engine	7,550	15,535	1.78	1.78	0.93	0	0.00	19.14



## Table 2: 2012 Injury and Illness Rates by ISN Work Type

ISN Work Type <sup>[a]</sup>	Total Number of Employees	Total Number of Exposure Hours (in 1,000s)	Injuries and Illnesses <sup>[b]</sup>			Fatalities <sup>[d]</sup>		Severity <sup>[e]</sup>
			Total Recordable Incident Rate (TRIR)	Nonfatal Total Recordable Incident Rate (Nonfatal TRIR)	Days Away/Restricted or Transfer Rate (DART)	Total Number of Fatalities	Fatality Rate per 100,000 Workers	Incident Severity (In Days)
1.13.3 - Re-railing	3,991	8,997	2.09	2.09	1.20	0	0.00	15.10
1.13.4 - Railroad Construction	10,059	21,690	2.49	2.47	1.44	2	18.44	10.83
1.13.5 - Industrial Rail Plant Switching	8,122	16,866	1.25	1.25	0.62	0	0.00	15.17
1.13.6 - Railcar Repair, Maintenance and Repair	6,603	17,067*	1.90	1.90	1.20	0	0.00	10.49
1.13.8 - Locomotive Maintenance, Service and Repair	790	1,694	3.42	3.42	1.54	0	0.00	18.07
1.14 - Scaffolding	161,812	347,408	0.63	0.63	0.27	5	2.88	9.22
1.14.1 - Scaffold Installation	74,012	157,877	0.91	0.91	0.40	0	0.00	10.13
1.15 - Tanks	125,191	291,551	0.88	0.88	0.39	2	1.37	8.11
1.15.1 - Cleaning	76,580	168,411	1.10	1.09	0.59	7	8.31	12.17
1.15.2 - Maintenance	124,901	266,765	0.73	0.72	0.30	4	3.00	9.45
1.15.3 - Linings & coatings	89,785	197,065	0.61	0.61	0.24	1	1.01	10.14
1.15.4 - Construction	101,187	208,657	0.91	0.91	0.37	2	1.92	8.60 (7.67*)
1.16 - Tower/Vessels	112,176	243,914	0.72	0.71	0.27	3	2.46	8.74 (7.63*)
1.17 - Welding	219,367	475,379	1.01	1.00	0.43	10	4.21	9.66
1.17.1 - Structural	59,564	127,057	1.36	1.35	0.59	2	3.15	10.18 (9.16*)
1.17.2 - Calibration/Testing Smoke, Heat & Gas Detector	1,677	3,689	1.95	1.95	0.98	0	0.00	7.94
1.18 - Hydroblast	62,838	131,813	0.84	0.84	0.38	1	1.52	9.35
1.19 - Civil	151,108	321,826	0.87	0.87	0.36	7	4.35	7.98
1.19.1 - Concrete	158,219	344,304	0.96	0.95	0.41	6	3.49	8.73
1.19.2 - Pumping/Delivery Service	40,337	105,313	1.42	1.42	0.72	2	3.80	4.86
1.19.3 - Construction	137,385	297,798	1.00	0.99	0.43	9	6.04	7.66
1.19.4 - Underground Sewer Work	85,256	184,787	1.01	1.00	0.47	5	5.41	7.29
1.19.5 - Excavation/Ditching/Dirt Work	173,609	376,206	1.06	1.06	0.51	6	3.19	9.71
1.19.6 - Hydro Vac Excavation/Trenching	46,521	100,913	1.03	1.03	0.48	2	3.96	9.68
1.19.7 - Boring	20,961	47,162	1.39	1.38	0.73	2	8.48	10.31
1.19.8 - Precast Concrete	25,761	53,861	1.54	1.54	0.72	1	3.71	7.90
1.19.9 - Air Vac Excavation/Trenching	14,704	31,816	1.19	1.18	0.59	1	6.29	2.35
1.19.10 - Concrete Cutting	8,947	18,506	1.01	1.01	0.31	0	0.00	6.81 (5.28*)
1.19.11 - Concrete Core Drilling/Boring	557	1,166	2.40	2.40	0.51	0	0.00	13.07
1.20 - Cooling Tower	79,418	165,561	1.23	1.23	0.52	4	4.83	8.49
1.21 - Flare Repairs	48,770	109,050	0.60	0.59	0.21	1	1.83	7.25

## Table 2: 2012 Injury and Illness Rates by ISN Work Type

ISN Work Type <sup>[a]</sup>	Total Number of Employees	Total Number of Exposure Hours (in 1,000s)	Injuries and Illnesses <sup>[b]</sup>			Fatalities <sup>[d]</sup>		Severity <sup>[e]</sup>
			Total Recordable Incident Rate (TRIR)	Nonfatal Total Recordable Incident Rate (Nonfatal TRIR)	Days Away/Restricted or Transfer Rate (DART)	Total Number of Fatalities	Fatality Rate per 100,000 Workers	Incident Severity (In Days)
1.22 - Precipitator	42,998	87,749	1.09	1.08	0.41	2	4.56	7.02
1.23 - Industrial Cleaning	43,712	91,597	1.73	1.73	1.15	2	4.37	8.19
1.23.1 - Steam/Hydroblast Cleaning	26,778	58,265	1.44	1.44	0.85	1	3.43	11.45
1.23.2 - Cleaning Using Explosives	3,763	8,138	0.69	0.69	0.34	0	0.00	14.75
1.23.3 - Overhead Cleaning	3,505	6,268	1.85	1.85	1.05	0	0.00	7.28
1.23.4 - Dust Collection System	6,925	15,618	1.95	1.95	0.78	0	0.00	9.14
1.23.5 - Industrial Oven Cleaning	2,445	5,324	1.47	1.47	0.64	0	0.00	2.23
1.23.6 - CO2/Dry Blast Cleaning	6,437	13,549	1.25	1.25	0.66	0	0.00	7.05
1.24 - Pipeline Construction/Maintenance	157,284	340,816	0.85	0.84	0.34	8	4.69	9.66
1.24.1 - Coatings Repair	95,963	203,722	0.70	0.70	0.27	1	0.98	8.62
1.24.2 - Pipeline/Internal HDPE Lining (including installation)	16,475	36,344	1.52	1.51	0.65	2	11.01	6.28
1.24.3 - Case Cutting	16,507	35,271	0.90	0.90	0.35	0	0.00	6.42
1.24.4 - General Contractor - DOT Covered Tasks	76,459	170,627	0.94	0.93	0.42	5	5.86	10.79
1.24.5 - Install Liners	10,340	21,291	1.31	1.30	0.60	1	9.39	10.15
1.25 - Steaming/Hot Oiler	3,297	7,183	1.39	1.39	0.50	0	0.00	8.18
1.26 - Line Locating	31,614	68,629	1.00	1.00	0.39	1	2.91	8.11
1.27 - Pumping Services	31,273	90,508	1.67	1.66	0.87	2	4.42	8.69
1.27.1 - Lease Operator/Pumper	19,544	62,109*	1.50	1.50	0.85	1	3.22	6.61
1.27.2 - Water Transfer	4,915	11,029	2.19	2.18	1.21	1	18.13	10.32
1.27.3 - Pump Supply and Repair	12,183	25,572	1.38	1.38	0.63	1	7.82	5.85
1.28 - Nitrogen	23,065	67,333*	1.39	1.39	0.75	0	0.00	10.71
1.28.1 - Nitrogen - Industrial	7,673	16,017	1.07	1.07	0.49	0	0.00	32.58
1.28.2 - Nitrogen - Pipeline	7,585	15,793	1.09	1.09	0.58	0	0.00	33.29
1.28.4 - Oxygen	1,555	3,360	1.01	1.01	0.18	0	0.00	13.00 (0.00*)
1.28.5 - Oxygen - Industrial	2,222	4,764	1.34	1.34	0.25	0	0.00	6.91 (0.00*)
1.28.6 - Oxygen - Pipeline	2,498	5,339	1.54	1.54	0.45	0	0.00	6.85 (1.50*)
1.29 - Piling	63,869	137,034	0.97	0.97	0.44	4	5.84	7.38
1.29.1 - Deep Foundation	15,428	30,064	1.95	1.94	1.02	1	6.65	6.56
1.30 - Right-of-Way	34,597	73,575	0.85	0.85	0.37	0	0.00	9.22
1.30.1 - Acquisition & Land Rights	24,227	51,082	0.41	0.41	0.17	0	0.00	2.47
1.31 - Degassing & Vapor Control	8,155	18,022	0.99	0.99	0.30	0	0.00	5.11

## Table 2: 2012 Injury and Illness Rates by ISN Work Type

ISN Work Type <sup>[a]</sup>	Total Number of Employees	Total Number of Exposure Hours (in 1,000s)	Injuries and Illnesses <sup>[b]</sup>			Fatalities <sup>[d]</sup>		Severity <sup>[d]</sup>
			Total Recordable Incident Rate (TRIR)	Nonfatal Total Recordable Incident Rate (Nonfatal TRIR)	Days Away/Restricted or Transfer Rate (DART)	Total Number of Fatalities	Fatality Rate per 100,000 Workers	Incident Severity (In Days)
1.32 - Rigging	129,117	295,168	1.14	1.14	0.52	3	2.03	8.09
1.33 - Electrical	110,198	232,717	1.18	1.17	0.50	7	6.02	9.39
1.33.1 - Plant Wiring	78,957	170,590	1.17	1.17	0.49	3	3.52	10.15
1.33.2 - Machine Wiring	83,981	180,006	1.07	1.06	0.45	4	4.44	8.23
1.33.3 - Electrical Trouble Shooting	82,439	176,585	1.16	1.16	0.50	2	2.27	9.32
1.33.4 - Voice Data Wiring	25,120	53,229	1.71	1.71	0.74	0	0.00	10.12 (9.00*)
1.33.5 - Lighting Installation and Repair	70,015	152,228	1.01	1.01	0.43	2	2.63	10.49
1.33.6 - Industrial	87,379	185,457	1.00	1.00	0.40	5	5.39	9.47
1.33.7 - Energized Electrical Equipment Cleaning	14,833	32,497	1.90	1.90	0.81	1	6.15	12.22
1.33.8 - Overhead Utility Services	28,694	60,905	1.75	1.74	0.75	2	6.57	11.23
1.33.9 - Underground Utility Services	31,669	68,114	1.65	1.65	0.72	1	2.94	10.95
1.34 - Iron Work	30,305	63,990	1.81	1.80	0.79	2	6.25	9.69 (8.16*)
1.35 - Water Well Services	6,642	13,853*	0.64	0.64	0.14	0	0.00	4.77
1.35.1 - Water Well Drilling	2,178	4,392	1.68	1.68	1.05	0	0.00	12.81
1.35.2 - Water Well Pumps	2,111	5,532	2.28	2.28	1.52	0	0.00	14.81
1.36 - Engineering Procurement and Construction (EPC)	20,130	41,257	1.02	1.01	0.45	1	4.85	8.84
1.37 - General Contractor - Ammonia Refrigeration	1,250	2,546	1.96	1.96	1.34	0	0.00	18.88
1.37.1 - Ammonia Refrigeration - Installation	1,427	2,902	2.21	2.21	1.24	0	0.00	14.75
1.37.2 - Ammonia Refrigeration - Maintenance/Repair	1,481	3,033	1.91	1.91	1.12	0	0.00	16.28
1.39 - General Contractor - Fabrication	4,776	10,210	2.33	2.33	1.19	0	0.00	9.69
1.41 - General Contractor - Specialized Rigging and Lifting (Without Use of Cranes)	3,587	7,503	2.27	2.27	1.12	0	0.00	7.19
2.0 - Machining	48,393	103,956	1.28	1.28	0.52	1	1.92	8.68
2.1 - Bolting	84,691	179,335	0.81	0.81	0.30	1	1.12	7.16
2.2 - Field	63,914	137,934	0.95	0.95	0.39	1	1.45	8.37
2.3 - Hot tap	57,784	126,111	0.80	0.80	0.33	1	1.59	8.69
2.4 - Leak repair	31,290	67,694	1.28	1.28	0.55	0	0.00	9.70
2.4.1 - Metal Stitching, Casting Repair and Thread Repair	4,492	9,791	1.47	1.47	0.69	0	0.00	5.28
2.5 - Compressor/Turbine	45,745	102,124	1.17	1.17	0.47	0	0.00	9.02
2.6 - Valve repair	64,326	139,818	1.25	1.25	0.54	0	0.00	7.87
2.6.1 - Control	47,222	101,215	1.10	1.10	0.49	0	0.00	7.28
2.6.2 - Safety/relief	36,610	78,192	1.17	1.17	0.51	0	0.00	8.06

## Table 2: 2012 Injury and Illness Rates by ISN Work Type

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			Total Recordable Incident Rate (TRIR)	Nonfatal Total Recordable Incident Rate (Nonfatal TRIR)	Days Away/Restricted or Transfer Rate (DART)	Total Number of Fatalities	Fatality Rate per 100,000 Workers	Incident Severity (In Days)
2.6.3 - Inspection & Testing	14,784	31,581	1.58	1.58	0.65	0	0.00	5.63
2.7 - Cold Cutting	47,625	104,149	0.97	0.97	0.44	0	0.00	10.62
2.8 - Pumps & Blowers	41,767	89,588	1.52	1.51	0.68	1	2.23	8.00
2.9 - Inplace Boring of Machine Sideframes	4,777	9,771	2.58	2.58	1.25	0	0.00	9.97
2.10 - On-site Machine Shop Work	10,941	23,634	1.51	1.51	0.69	0	0.00	8.08
3.0 - Instrumentation & Electrical	152,331	325,880	0.98	0.97	0.40	3	1.84	8.44
3.1 - Analyzers	68,989	148,084	0.96	0.96	0.42	1	1.35	8.54
3.2 - Electric	136,952	296,025	1.05	1.05	0.43	5	3.38	9.47
3.2.1 - Batteries	109,225	235,323	0.95	0.95	0.41	5	4.25	8.36
3.2.2 - Generator	190,322	401,756	1.25	1.24	0.62	10	4.98	9.64
3.2.3 - Motors	123,997	268,045	1.24	1.23	0.58	5	3.73	9.21
3.2.4 - Motor Operated Valve	117,231	254,673	1.01	1.00	0.47	3	2.36	8.95
3.2.5 - Program Logic Control	117,153	256,202	1.02	1.01	0.45	4	3.12	8.18
3.2.6 - Polelines	60,895	128,077	1.01	1.01	0.44	2	3.12	8.21
3.2.7 - Precipitator	36,782	79,411	1.14	1.14	0.52	0	0.00	10.98
3.2.8 - Protective Relays	103,344	226,505	0.84	0.84	0.36	3	2.65	9.19
3.2.9 - Switchgear	154,548	331,192	1.09	1.09	0.50	5	3.02	9.13
3.2.10 - Transformers	146,079	314,625	1.04	1.04	0.47	5	3.18	9.46
3.2.11 - Uninterrupted Power Supply	88,467	189,974	1.40	1.39	0.67	6	6.32	9.87
3.2.12 - Variable Frequency/Speed Drive	88,918	192,133	1.35	1.35	0.62	3	3.12	9.57
3.2.13 - Fiber Optics	68,632	148,924	1.11	1.11	0.46	1	1.34	10.01
3.2.14 - Electrical Construction/ Repair	161,513	346,555	1.09	1.09	0.49	4	2.31	9.81
3.2.15 - Wireline	57,256	141,243	1.30	1.30	0.67	3	4.25	9.04
3.2.16 - Cathodic Protection - Installation	61,812	132,714	1.01	1.01	0.42	2	3.01	9.56
3.2.17 - Acknowledgement of PCB Awareness	20,829	44,717	1.40	1.40	0.66	0	0.00	14.30
3.2.18 - Lightning Arrestors	10,365	21,628	1.66	1.65	0.61	1	9.25	10.31
3.2.19 - Remote Racking	1,077	2,051	1.95	1.95	0.59	0	0.00	9.20
3.3 - Instrumentation	149,461	322,825	1.01	1.00	0.41	4	2.48	8.56
3.3.1 - Control Systems	184,802	393,197	1.12	1.12	0.54	3	1.53	10.26
3.3.2 - Control Valves	122,970	266,570	1.06	1.06	0.47	2	1.50	8.38
3.3.3 - Meter prover	50,222	107,846	0.95	0.95	0.43	0	0.00	9.16

## Table 2: 2012 Injury and Illness Rates by ISN Work Type

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			Total Recordable Incident Rate (TRIR)	Nonfatal Total Recordable Incident Rate (Nonfatal TRIR)	Days Away/Restricted or Transfer Rate (DART)	Total Number of Fatalities	Fatality Rate per 100,000 Workers	Incident Severity (In Days)
3.3.4 - Measurement/Calibration	97,684	213,460	0.98	0.98	0.46	2	1.87	10.25
3.3.5 - Transmitters	81,854	176,398	0.95	0.95	0.40	2	2.27	9.36
3.3.6 - Vibration monitors	83,584	185,360	1.06	1.06	0.50	2	2.16	8.72
3.3.7 - Cameras	73,477	155,950	1.21	1.21	0.54	2	2.56	8.76
3.3.8 - Test Equipment	73,887	159,107	1.17	1.17	0.56	1	1.26	9.86
3.3.9 - Safety Systems	32,973	71,445	1.51	1.51	0.75	1	2.80	8.08
3.3.10 - Meter Monitoring	39,217	87,111	1.04	1.04	0.53	2	4.59	10.12
3.3.11 - Radioactive	5,734	11,754	1.12	1.12	0.37	0	0.00	7.95
3.3.12 - Meter Reader	7,000	15,026	1.34	1.34	0.63	0	0.00	6.87
3.3.13 - Petroleum Measurement Equipment	2,375	5,192	1.46	1.46	0.69	0	0.00	15.29
3.4 - Pneumatic	32,550	69,361	1.49	1.48	0.74	2	5.77	6.71
4.0 - Heating, Ventilation, & Air Conditioning	70,213	144,790	1.70	1.70	0.74	1	1.38	7.63
4.1 - Filter Medium Changeout for Safe Havens	32,279	67,445	1.52	1.52	0.72	1	2.97	6.54
4.1.1 - HEPA Certification and Testing	8,479	17,162	1.53	1.53	0.56	0	0.00	7.79
4.2 - HVAC Preventative Maintenance, Installations, and Repairs	58,519	118,796	2.34	2.34	1.21	2	3.37	8.54
4.3 - Testing and Balancing of Air-HVAC	36,943	74,506	2.15	2.15	1.04	1	2.68	7.94
4.4 - Duct Cleaning	15,459	31,855	1.75	1.75	0.78	0	0.00	9.30
4.5 - Duct Inspection	16,429	33,727	2.19	2.19	1.02	0	0.00	7.66
4.6 - Duct Design	22,615	46,493	2.38	2.38	1.05	0	0.00	7.19
5.0 - Insulation	109,519	229,197	0.59	0.59	0.21	0	0.00	7.01
5.1 - Asbestos abatement	82,937	172,431	0.54	0.54	0.25	0	0.00	11.93
5.2 - Refractory	85,057	175,047	0.60	0.60	0.23	1	1.14	7.87 (6.66*)
5.3 - Insulation - Fire Proofing	109,354	227,622	0.44	0.44	0.15	0	0.00	7.17
5.4 - Routine Insulation	117,296	247,461	0.54	0.54	0.20	0	0.00	8.11
5.5 - Furnace/fire brick	41,287	83,436	0.62	0.61	0.25	1	2.40	10.86 (8.38*)
5.5.1 - Refractory Dryout (Bake Bricks)	4,441	7,856	1.88	1.88	0.51	0	0.00	12.93 (4.20*)
5.6 - Acid brick	31,621	62,660	0.40	0.40	0.17	0	0.00	12.10 (8.33*)
5.7 - Industrial	89,297	184,965	0.59	0.59	0.24	0	0.00	10.37
6.0 - Buildings, Grounds & Right-of-Way Maintenance	129,482	261,285	1.98	1.98	1.44	1	0.77	14.02
6.1 - Elevator	24,569	47,337	1.89	1.89	1.26	1	4.22	14.00
6.2 - Janitorial	151,717	295,085	2.14	2.14	1.62	0	0.00	15.08

## Table 2: 2012 Injury and Illness Rates by ISN Work Type

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			Total Recordable Incident Rate (TRIR)	Nonfatal Total Recordable Incident Rate (Nonfatal TRIR)	Days Away/Restricted or Transfer Rate (DART)	Total Number of Fatalities	Fatality Rate per 100,000 Workers	Incident Severity (In Days)
6.2.2 - Lab Cleaning and Sanitizing	10,971	18,135	1.87	1.87	1.26	0	0.00	36.70
6.3 - Chem spraying	48,272	100,869	1.44	1.44	0.88	2	3.97	12.30
6.4 - Pest Control	29,740	60,118	6.24	6.24	3.42	2	6.65	14.07
6.5 - Plumbing	45,293	90,693	2.08	2.07	1.05	3	6.62	9.86
6.5.1 - Drain Cleaning	8,525	16,987	3.59	3.58	1.93	1	11.77	9.44
6.5.2 - Backflow Preventer Install/Service/Testing	7,162	14,070	4.19	4.18	2.17	1	14.21	6.49
6.6 - Road	41,719	86,913	1.06	1.06	0.51	1	2.30	6.62
6.6.1 - Dust Control	3,738	7,934	1.79	1.79	0.88	0	0.00	4.87
6.7 - Roofing	64,204	132,610	1.14	1.14	0.58	2	3.02	11.70
6.8 - Scales	4,092	9,526	1.28	1.28	0.44	0	0.00	15.66 (13.15*)
6.8.1 - Weighing and Instrument Repairs and Calibration	2,297	4,859	2.43	2.43	1.36	0	0.00	12.14 (9.48*)
6.9 - Signs	8,590	18,823	0.86	0.86	0.36	0	0.00	12.22 (10.13*)
6.9.1 - Installation	22,448	47,941	0.58	0.58	0.20	0	0.00	9.66 (8.44*)
6.9.2 - Repair	23,259	49,098	0.51	0.51	0.20	0	0.00	9.13 (7.76*)
6.11 - Mowing and Groundcare	122,803	248,119	2.24	2.23	1.64	1	0.81	13.15
6.11.1 - Tree Trimming/Clearing and Wood Grinding	46,342	94,683	1.19	1.19	0.59	0	0.00	10.22
6.12 - Fence Installation and Repair	46,822	97,406	0.67	0.67	0.27	1	2.05	6.24
6.13 - Locks	24,418	50,479	1.30	1.30	0.73	2	7.92	6.55
6.14 - Door Repair	20,654	42,128	1.43	1.42	0.86	2	9.49	8.61 (7.48*)
6.14.1 - Overhead Door Installation/Repair	6,087	12,493	3.09	3.07	1.68	1	16.01	11.36 (9.47*)
6.15 - Surveying	72,525	150,018	0.69	0.69	0.28	0	0.00	10.60
6.15.1 - Leak Surveying	5,204	11,168*	0.75	0.75	0.41	0	0.00	13.71
6.15.2 - Topographic	26,226	53,757	0.56	0.56	0.24	0	0.00	6.57
6.15.3 - Boundary	14,410	29,873	0.54	0.54	0.26	0	0.00	5.88
6.16 - Dock Plate and Dock Lock Preventative Maintenance/Repair	9,181	16,739	3.20	3.19	1.91	1	11.95	16.45
6.17 - Snow Plowing/Removal	12,729	25,920	3.23	3.23	2.15	1	7.72	6.04
6.18 - Glass Repair	829	1,442	2.22	2.22	1.66	0	0.00	4.88
6.19 - Medical Gas Piping-Repair	4,755	10,116	2.37	2.37	1.09	0	0.00	8.85
6.20 - Structural Repair	10,190	24,976	1.78	1.77	0.79	1	8.01	11.18
6.21 - Irrigation Sprinkler Installation/Repair	15,403	32,734	1.21	1.21	0.56	0	0.00	8.42
6.23 - Refrigeration Equipment Repair & Maintenance	5,341	11,140	4.06	4.06	2.17	0	0.00	8.77

## Table 2: 2012 Injury and Illness Rates by ISN Work Type

ISN Work Type <sup>[a]</sup>	Total Number of Employees	Total Number of Exposure Hours (in 1,000s)	Injuries and Illnesses <sup>[b]</sup>			Fatalities <sup>[d]</sup>		Severity <sup>[d]</sup>
			Total Recordable Incident Rate (TRIR)	Nonfatal Total Recordable Incident Rate (Nonfatal TRIR)	Days Away/Restricted or Transfer Rate (DART)	Total Number of Fatalities	Fatality Rate per 100,000 Workers	Incident Severity (In Days)
7.0 - Drilling	26,458	74,771	1.44	1.44	0.75	0	0.00	5.68
7.1 - Directional	40,620	110,259	1.57	1.57	0.79	1	1.81	7.84
7.7 - Reverse Circulation and Rotary Drilling	10,408	25,707	1.43	1.42	0.63	1	7.78	8.28
8.0 - Original Equipment Manufacturer	45,584	98,637	2.21	2.21	1.00	0	0.00	5.32
8.1 - Design & Manufacturer Lubrication Systems	1,972	4,129	2.66	2.66	1.02	0	0.00	7.73
8.2 - Manufacturing Electronic Controls and/or Pilots	3,218	6,412	3.21	3.21	1.19	0	0.00	6.03
8.3 - Fiberglass Products	592	1,221	0.98	0.98	0.82	0	0.00	42.00
8.4 - Heat Exchangers	5,379	11,090	2.18	2.18	0.96	0	0.00	5.57
8.5 - Pressure vessels	4,505	9,919	2.52	2.52	0.91	0	0.00	5.77
8.8 - Overhead Crane Manufacturing	2,696	5,967	3.28	3.28	2.35	0	0.00	9.70
8.10 - Above Ground Storage Tanks	5,480	12,340	1.18	1.18	0.42	0	0.00	4.71
9.0 - Inspection	95,597	223,022	1.10	1.10	0.53	1	0.90	7.98
9.1 - Cathodic Protection	52,868	111,775	0.84	0.84	0.38	0	0.00	8.95
9.1.1 - Rectifier	3,060	6,274	0.89	0.89	0.29	0	0.00	4.46
9.2 - Aerial Patrol	-	-	-	-	-	-	-	-
9.2.5 - Remote Stack Emission Testing	41,564	82,839	0.67	0.67	0.30	0	0.00	12.52
9.3 - Tanks	63,927	135,788	0.63	0.62	0.25	1	1.47	8.87
9.3.1 - Gauging	28,219	59,601	0.77	0.76	0.37	1	3.36	11.11
9.3.2 - Sampling	26,693	56,717	0.75	0.74	0.38	1	3.53	11.58
9.3.3 - Strapping	15,426	32,654	0.53	0.53	0.28	1	6.12	12.24
9.4 - Non-Destructive Testing	117,274	266,978	0.93	0.93	0.47	1	0.75	8.08
9.4.1 - Thermographic Testing	6,772	13,932	1.64	1.64	0.92	0	0.00	11.25
9.4.3 - Inspection Service, Visual (Other than Const/Fabrication)	15,248	32,149	1.01	1.00	0.39	1	6.22	7.10
9.5 - Infrared	23,856	51,263	1.22	1.21	0.59	1	3.90	10.65 (9.01*)
9.6 - Eddy Current	24,214	52,596	0.69	0.69	0.33	0	0.00	11.77 (8.95*)
9.7 - Civil	79,750	171,680	0.52	0.52	0.20	2	2.33	7.50
9.8 - Electrical	107,833	232,876	0.79	0.79	0.32	3	2.58	9.10
9.9 - Hydrotesting	74,906	161,976	0.87	0.87	0.38	1	1.23	10.45
9.10 - Line Pigging	52,389	132,285	1.14	1.14	0.56	1	1.51	7.19
9.11 - X-ray	64,766	158,582	1.06	1.06	0.53	0	0.00	7.53
9.12 - Crane	44,803	97,715	0.89	0.89	0.47	1	2.05	7.39

## Table 2: 2012 Injury and Illness Rates by ISN Work Type

ISN Work Type <sup>[a]</sup>	Total Number of Employees	Total Number of Exposure Hours (in 1,000s)	Injuries and Illnesses <sup>[b]</sup>			Fatalities <sup>[d]</sup>		Severity <sup>[e]</sup>
			Total Recordable Incident Rate (TRIR)	Nonfatal Total Recordable Incident Rate (Nonfatal TRIR)	Days Away/Restricted or Transfer Rate (DART)	Total Number of Fatalities	Fatality Rate per 100,000 Workers	Incident Severity (In Days)
9.13 - Tower	11,581	24,291	1.02	1.02	0.47	0	0.00	5.79
9.14 - Safety Equipment	65,875	139,300	0.76	0.76	0.31	1	1.44	6.90
9.15 - Project Inspection	58,762	127,233	0.52	0.52	0.21	1	1.57	11.60
9.16 - Coating Inspection	84,801	180,223	0.69	0.69	0.27	1	1.11	7.55
9.17 - Welding Inspection	95,141	207,983	0.62	0.61	0.26	1	0.96	8.39
9.18 - Hydrostatic Testing	53,302	114,283	1.01	1.01	0.40	1	1.75	6.40
9.20 - Mine Hoist Rope Inspection & Service	1,153	2,110	1.99	1.99	1.04	0	0.00	4.24
9.21 - Sling and Lift	5,995	12,908	1.26	1.26	0.70	0	0.00	5.06
9.22 - Dismantling	12,059	25,221	0.98	0.98	0.45	0	0.00	7.20
9.23 - Pipeline	75,699	179,499	0.97	0.97	0.46	1	1.11	7.10
9.24 - Concrete Testing	2,870	5,822	0.82	0.82	0.27	0	0.00	9.92
9.26 - Ultrasonic Thickness Testing/Inspection	2,193	5,495	1.16	1.13	0.66	1	36.39	9.94
10.0 - Consultant	126,142	258,638	0.72	0.72	0.33	2	1.55	10.85
10.1 - Training	60,999	127,095	0.76	0.75	0.32	3	4.72	9.52
10.1.1 - Training - Confined Space Training (on site)	936	1,954	1.64	1.64	0.61	0	0.00	0.75
10.1.2 - Training - HAZMAT Training (on site)	947	1,955	1.74	1.74	0.61	0	0.00	0.71
10.2 - Engineering	151,658	311,171	0.75	0.75	0.31	4	2.57	8.18
10.2.1 - Drafting	95,609	197,584	0.75	0.75	0.30	4	4.05	8.92
10.2.2 - Survey	78,982	162,725	0.65	0.65	0.26	1	1.23	8.66
10.2.3 - Electrical	123,254	256,416	0.89	0.88	0.38	3	2.34	8.70
10.2.4 - Chemical	47,333	97,421	0.39	0.39	0.11	1	2.05	7.48
10.2.5 - Metallurgical	23,901	49,067	0.51	0.51	0.21	0	0.00	5.58
10.2.6 - Control	69,488	144,089	0.56	0.56	0.23	2	2.78	5.43
10.2.7 - Civil	101,181	207,089	0.70	0.69	0.26	4	3.86	8.33
10.2.8 - Mechanical	104,852	216,190	0.78	0.78	0.30	4	3.70	8.08
10.2.9 - Environment	135,649	274,033	0.69	0.69	0.30	1	0.73	9.26
10.2.10 - Rotating Equipment	52,860	111,919	0.66	0.66	0.26	0	0.00	7.12
10.2.11 - Cathodic Protection	25,645	51,977	1.08	1.08	0.40	0	0.00	7.74
10.2.12 - Drilling	47,909	118,642	1.02	1.02	0.51	0	0.00	7.20
10.2.13 - Acoustical	3,910	8,503	0.49	0.49	0.14	0	0.00	2.95
10.2.14 - Flow Calibration	11,020	23,105	0.45	0.45	0.21	0	0.00	7.13



## Table 2: 2012 Injury and Illness Rates by ISN Work Type

ISN Work Type <sup>[a]</sup>	Total Number of Employees	Total Number of Exposure Hours (in 1,000s)	Injuries and Illnesses <sup>[b]</sup>			Fatalities <sup>[d]</sup>		Severity <sup>[d]</sup>
			Total Recordable Incident Rate (TRIR)	Nonfatal Total Recordable Incident Rate (Nonfatal TRIR)	Days Away/Restricted or Transfer Rate (DART)	Total Number of Fatalities	Fatality Rate per 100,000 Workers	Incident Severity (In Days)
10.2.15 - Geosciences	42,630	86,631	0.82	0.82	0.37	0	0.00	10.37
10.2.16 - Architecture and Drafting	28,029	57,681	0.53	0.52	0.20	1	3.47	10.86
10.2.17 - Architectural Design	30,015	62,563	0.54	0.54	0.20	1	3.20	8.72
10.2.20 - Agricultural	5,372	10,179	0.73	0.73	0.31	0	0.00	25.19 (11.94*)
10.2.21 - Material Handling	12,992	27,508	1.19	1.19	0.57	0	0.00	6.40 (5.33*)
10.2.22 - Electrical Analysis	26,524	54,685	0.76	0.76	0.29	0	0.00	3.29
10.2.23 - Roof	7,751	16,773	1.04	1.04	0.47	0	0.00	13.15
10.2.24 - Arc Flash Analysis	1,574	3,250	1.05	1.05	0.49	0	0.00	7.12
10.3 - Project Management	172,859	358,369	0.71	0.71	0.28	3	1.67	7.48
10.3.1 - Construction Management	112,929	234,442	0.85	0.85	0.31	1	0.85	6.98
10.4 - Site Consultant	75,075	154,563	0.63	0.63	0.22	1	1.29	5.49
10.4.1 - Drilling	20,497	42,040	0.76	0.76	0.29	0	0.00	9.15
10.4.2 - Construction	64,965	131,778	0.78	0.78	0.30	0	0.00	7.85
10.4.3 - Diving	851	1,773	1.02	1.02	0.34	0	0.00	2.67
10.4.4 - Safety & Environmental	124,253	252,493	0.74	0.74	0.31	1	0.79	9.54
10.4.5 - Construction Safety	36,263	75,576	0.71	0.70	0.31	1	2.65	3.68
10.4.6 - Regulatory Consultant	47,970	96,808	0.56	0.56	0.21	1	2.07	6.22
10.4.7 - Logistics Management	3,651	7,607	0.84	0.84	0.37	0	0.00	7.73
10.5 - Ergonomic Assessments	3,346	6,688	0.84	0.84	0.12	0	0.00	3.43
10.5.1 - Ergonomic Industrial	6,547	12,658	0.90	0.90	0.27	0	0.00	10.96
10.5.2 - Ergonomic Office	6,078	11,993	0.93	0.93	0.28	0	0.00	11.16
10.6 - Industrial Hygiene	17,768	36,528	0.95	0.95	0.36	0	0.00	8.11
10.7 - IT	4,326	8,601	1.07	1.07	0.49	0	0.00	6.33
11.0 - Rentals	37,457	99,120	1.72	1.72	0.97	1	2.02	7.68
11.1 - Equipment	66,976	167,098	1.76	1.76	0.93	2	2.39	9.51
11.1.1 - A/C	26,908	59,548	1.32	1.32	0.72	1	3.36	12.22
11.1.2 - Generators	65,486	151,416	2.15	2.15	1.26	4	5.28	10.60
11.1.3 - Compressors	53,285	122,668	1.85	1.84	1.11	4	6.52	12.08
11.1.4 - Elevators	999	2,285	2.28	2.28	1.05	0	0.00	13.62
11.1.5 - Well Drilling Equipment	25,662	75,614	1.39	1.39	0.76	0	0.00	6.04
11.1.6 - Oilfield Equipment	24,989	74,879	1.58	1.58	0.89	1	2.67	7.67

## Table 2: 2012 Injury and Illness Rates by ISN Work Type

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			Total Recordable Incident Rate (TRIR)	Nonfatal Total Recordable Incident Rate (Nonfatal TRIR)	Days Away/Restricted or Transfer Rate (DART)	Total Number of Fatalities	Fatality Rate per 100,000 Workers	Incident Severity (In Days)
11.1.7 - Safety Equipment	9,893	22,258	0.80	0.80	0.24	0	0.00	4.10
11.2 - Office trailers	18,054	44,113	1.17	1.16	0.54	1	4.53	15.53
11.4 - Tools	52,537	139,829	1.33	1.33	0.80	0	0.00	9.89
11.5 - Welding Equip.	19,485	44,019	1.01	1.01	0.49	0	0.00	11.26
11.6 - Gas Cylinders	21,614	46,468	1.73	1.73	1.20	0	0.00	5.93
11.7 - Portable Toilets	6,999	19,716*	2.32	2.31	1.31	1	10.14	17.06
12.0 - Environmental	135,294	281,096	0.92	0.92	0.45	0	0.00	11.01
12.1 - Laboratory	49,137	104,400	0.80	0.80	0.40	0	0.00	12.77
12.2 - Vac Trucks	107,997	240,296	1.40	1.39	0.81	6	4.99	16.88
12.3 - Well Services	22,090	47,504	0.91	0.90	0.48	1	4.21	10.75
12.4 - Waste - Hazardous	101,434	215,402	0.95	0.95	0.54	1	0.93	11.72
12.4.1 - Transportation	73,663	161,323	1.25	1.25	0.72	2	2.48	11.00
12.4.2 - Disposal	55,621	122,161	1.38	1.37	0.81	2	3.27	11.14
12.5 - Spill Cleanup	78,369	169,064	1.14	1.14	0.67	3	3.55	11.18
12.5.1 - Microbial Treatment	12,424	25,786	1.54	1.53	0.95	1	7.76	16.27
12.6 - Soils	107,287	221,463	0.94	0.93	0.48	3	2.71	11.45
12.7 - Drilling	43,620	88,660	0.79	0.79	0.41	0	0.00	10.42
12.8 - Consulting	129,664	261,189	0.73	0.73	0.33	1	0.77	10.22
12.8.1 - Permitting	83,225	168,278	0.67	0.67	0.27	0	0.00	9.28
12.8.2 - Asbestos Survey	5,920	12,487	1.22	1.22	0.74	0	0.00	18.87
12.9 - Environmental Remediation	130,452	265,226	1.02	1.02	0.52	3	2.26	10.19
12.10 - Environmental Site Assessment	120,204	246,794	0.80	0.80	0.35	0	0.00	10.30
12.11 - Laboratory Analysis/Mobile	23,892	48,553	0.63	0.63	0.25	0	0.00	11.89
12.12 - Waste Services-Treatment (including water)	56,515	122,320	1.23	1.23	0.72	1	1.64	11.11
12.12.1 - Water Treatment	16,204	34,496	1.44	1.44	0.76	0	0.00	12.89
12.13 - Waste Services - Disposal Non-Hazardous	75,543	169,509	1.62	1.61	0.98	4	4.72	17.26
12.14 - Emergency Response	59,637	126,988	1.34	1.34	0.82	2	3.15	11.52
12.14.1 - Radiation	2,344	4,921	1.91	1.91	0.98	0	0.00	12.85
12.15 - Emissions Testing	67,945	138,715	0.53	0.53	0.21	0	0.00	10.64
12.16 - Pit Lining	18,671	40,866	0.99	0.98	0.53	3	14.68	10.45
12.17 - Source/Air Pollution Testing	68,720	138,401	0.61	0.61	0.24	0	0.00	10.13

## Table 2: 2012 Injury and Illness Rates by ISN Work Type

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			Total Recordable Incident Rate (TRIR)	Nonfatal Total Recordable Incident Rate (Nonfatal TRIR)	Days Away/Restricted or Transfer Rate (DART)	Total Number of Fatalities	Fatality Rate per 100,000 Workers	Incident Severity (In Days)
12.18 - Erosion Control	71,747	145,810	0.75	0.75	0.36	1	1.37	7.20
12.19 - Recontouring	17,506	35,598	0.72	0.72	0.35	1	5.62	7.33
12.20 - Site Reclamation	107,235	223,033	0.87	0.86	0.42	3	2.69	11.15
12.20.1 - Restorative Planting Services	7,828	15,415	0.54	0.54	0.22	0	0.00	3.83
12.21 - Supply & Installation of Secondary Containment	23,827	51,311	0.99	0.98	0.46	2	7.80	11.23
12.22 - Supply & Installation of Liner & Geotextile	13,048	27,266	0.99	0.98	0.43	2	14.67	10.49
12.23 - Acoustical	10,150	20,616	0.36	0.36	0.12	0	0.00	1.14
12.23.1 - Design	3,883	8,316	0.96	0.96	0.31	0	0.00	7.48
12.23.2 - Construction	6,303	12,694	1.26	1.26	0.63	0	0.00	5.93
12.24 - Recycling	23,539	55,482	2.39	2.39	1.54	1	3.60	22.94
12.24.1 - Computer Components/Lighting Components	2,698	6,166	1.33	1.33	0.71	0	0.00	18.22
12.24.2 - Scrap Metal	6,205	12,956	2.35	2.35	1.48	0	0.00	16.80
12.24.3 - Material Management	1,586	3,182	1.57	1.57	0.75	0	0.00	8.00
12.25 - Natural Resources Sciences	28,913	57,592	0.60	0.60	0.21	0	0.00	11.90
12.25.1 - Wetland Delineation	32,165	62,959	0.61	0.61	0.21	0	0.00	9.14
12.27 - Environmental Quality Assurance (EQA)	74,139	149,224	0.61	0.61	0.25	0	0.00	10.73
13.0 - Chemicals	31,848	86,785	1.18	1.18	0.65	1	2.30	7.38
13.1 - Catalyst	7,441	17,087	0.67	0.67	0.27	0	0.00	14.32
13.2 - Nitrogen	27,777	78,377	1.51	1.51	0.92	1	2.55	6.69
13.3 - Water Treatment	33,072	69,717	1.15	1.15	0.57	1	2.87	12.47
13.4 - Gas Processing	23,869	50,415	1.28	1.28	0.81	1	3.97	8.85
13.6 - Oil Processing	11,996	25,557	0.86	0.85	0.41	1	7.83	8.16
14.0 - Manpower	36,776	77,320	0.78	0.78	0.37	1	2.59	10.24
14.1 - Catering and Food Services	10,136	22,506	1.35	1.35	0.76	0	0.00	19.18
14.2 - Clerical	36,234	77,273	0.68	0.68	0.30	0	0.00	12.68
14.3 - Labor	132,848	308,382	1.21	1.21	0.59	1	0.65	8.76
14.3.1 - Vendor Stocking of Inventory	3,989	8,406*	2.21	2.21	1.28	0	0.00	25.46
14.3.4 - Forklift Operator	50,982	112,293	0.94	0.93	0.41	2	3.56	14.50
14.4 - Tools & Stores	36,491	82,867	0.98	0.98	0.45	1	2.41	14.73
14.5 - Product Loading	15,838	34,867	0.98	0.98	0.46	1	5.74	19.57
14.6 - Personnel Transportation	9,852	21,233	1.16	1.16	0.53	0	0.00	20.03

## Table 2: 2012 Injury and Illness Rates by ISN Work Type

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			Total Recordable Incident Rate (TRIR)	Nonfatal Total Recordable Incident Rate (Nonfatal TRIR)	Days Away/Restricted or Transfer Rate (DART)	Total Number of Fatalities	Fatality Rate per 100,000 Workers	Incident Severity (In Days)
14.7 - Contract Operators	24,092	57,130	1.40	1.39	0.65	2	7.00	17.41
14.8 - Mechanic - Equipment - Repair	63,646	137,165	1.39	1.38	0.65	2	2.92	10.00
14.8.1 - Tool Repair	28,441	61,032	0.90	0.90	0.39	0	0.00	11.35
14.8.2 - Belt Splicing	11,691	25,935	1.64	1.64	0.85	0	0.00	15.33
14.8.3 - Maintenance of Rotating Equipment	24,359	50,141	1.95	1.95	0.88	0	0.00	10.41
14.9 - Emergency Medical Responder/Medical Technician	11,064	23,366	1.22	1.22	0.74	0	0.00	20.39
14.10 - Service/Maintenance Technician	55,923	121,966	1.75	1.75	0.85	3	4.92	9.61
14.10.2 - Millwright Service	48,480	101,190	1.63	1.63	0.70	0	0.00	9.28
14.10.3 - Pressure/Temperature Service	31,334	85,416	1.43	1.43	0.74	0	0.00	7.62
14.10.4 - Water Line Maintenance	13,892	28,826	1.67	1.66	0.75	1	6.94	12.49
14.10.5 - Lubrication System Maintenance	13,681	29,496	1.79	1.79	0.88	0	0.00	11.59
14.10.6 - Automation Service	13,271	27,876	1.33	1.33	0.64	0	0.00	12.68
14.10.7 - Pipe Fitting	75,665	165,893	1.06	1.06	0.46	2	2.41	10.54
14.10.8 - Dust Collectors/Baghouses	18,078	38,672	1.99	1.99	0.89	0	0.00	13.83
14.10.9 - Refrigerated Equipment	10,486	21,705	2.11	2.10	1.09	1	9.21	11.79
14.11 - Liquid Product Transfer Service	10,916	23,399	1.28	1.28	0.67	0	0.00	15.77
14.16 - Person In Charge (PIC)	7,006	14,770	1.68	1.68	0.96	0	0.00	19.06
14.17 - Recruiting and Staffing Service	17,015	33,673	0.70	0.70	0.34	0	0.00	20.97
15.0 - Mobile Equipment	139,556	301,480	1.33	1.33	0.70	3	1.99	14.04
15.1 - Repair on-site	31,995	69,246	2.45	2.44	1.26	1	2.89	9.54
15.1.1 - Forklift Maintenance and Repair	17,675	35,936	4.01	4.00	1.98	3	16.70	10.33
15.1.2 - Vehicle Maintenance	13,125	27,364	3.68	3.67	1.58	2	14.62	8.27
15.2 - Tire repair	28,469	61,176	3.42	3.41	1.63	1	3.27	7.49
15.3 - Tractor	10,704	21,648	3.24	3.24	1.27	0	0.00	7.30
15.3.1 - Mechanical/Maintenance Service	17,756	38,090	3.38	3.38	1.46	0	0.00	8.79
16.0 - IT	6,397	13,280	1.02	1.02	0.42	0	0.00	4.59
16.1 - Computers	39,487	81,738	0.53	0.53	0.29	0	0.00	10.50
16.2 - Towers/Antennas (Communication)	3,800	8,349	1.22	1.22	0.46	0	0.00	2.22
16.3 - Pagers	3,034	6,193	1.78	1.78	0.61	0	0.00	6.45
16.4 - Telephones	19,665	41,702	1.20	1.20	0.50	0	0.00	5.88
16.5 - Distributive Control Systems	11,049	24,554	0.77	0.77	0.32	0	0.00	3.15

## Table 2: 2012 Injury and Illness Rates by ISN Work Type

ISN Work Type <sup>[a]</sup>	Total Number of Employees	Total Number of Exposure Hours (in 1,000s)	Injuries and Illnesses <sup>[b]</sup>			Fatalities <sup>[d]</sup>		Severity <sup>[e]</sup>
			Total Recordable Incident Rate (TRIR)	Nonfatal Total Recordable Incident Rate (Nonfatal TRIR)	Days Away/Restricted or Transfer Rate (DART)	Total Number of Fatalities	Fatality Rate per 100,000 Workers	Incident Severity (In Days)
16.6 - Radios	24,771	53,377	0.62	0.62	0.22	0	0.00	4.00
16.7 - Msc. Technical Services	7,041	14,348	1.09	1.09	0.45	0	0.00	10.28
16.8 - Audio Visual	23,412	50,016*	0.74	0.74	0.28	0	0.00	5.51
16.9 - Software	3,193	6,581	0.76	0.76	0.24	0	0.00	0.20
16.9.1 - Software Installation & Repair	3,302	6,786	0.71	0.71	0.21	0	0.00	0.21
16.10 - Telecommunication	6,672	13,876	1.66	1.66	0.68	0	0.00	6.88
16.11 - Hardware Installation & Repair	10,821	22,330	1.74	1.74	1.16	0	0.00	6.23
17.0 - Safety	44,647	94,920	0.62	0.62	0.27	0	0.00	11.51
17.1 - Fire Protection	61,216	131,383	1.03	1.03	0.48	0	0.00	8.21
17.1.1 - Fire Sprinkler Service	31,399	66,580	1.74	1.74	0.86	0	0.00	8.61
17.1.2 - Fire Sprinkler Installation, Inspection & Testing	23,675	49,757	1.78	1.78	0.95	1	4.02	8.64 (7.69*)
17.1.3 - Fire Extinguisher Service	3,705	7,607	1.79	1.79	1.16	0	0.00	10.49
17.1.4 - Heavy Equipment Fire Suppression System	2,164	4,418	1.95	1.95	1.13	0	0.00	10.51
17.2 - Emergency Response	20,807	45,782	0.95	0.95	0.58	0	0.00	12.79
17.3 - Security	133,484	251,852	1.31	1.31	0.63	2	1.59	14.81
17.3.1 - Trafficking/Gate Guarding	88,582	154,663	1.29	1.29	0.52	1	1.29	18.92
17.3.2 - Security System Installations	28,142	56,421	1.47	1.47	0.67	1	3.54	6.53
17.3.3 - Cameras/Closed Circuit Television	25,392	50,751	1.44	1.44	0.67	1	3.94	6.29
17.3.4 - Outdoor Warning/Sirens	27,548	56,082	1.27	1.27	0.59	1	3.57	6.77
17.5 - Medical Services	20,367	43,896*	0.63	0.63	0.30	0	0.00	7.51
17.6 - Confined Space Attendant (fire watch/hole watch)	47,220	104,788	0.96	0.96	0.43	0	0.00	13.73
17.7 - Confined Space Rescue	22,091	48,935	0.88	0.88	0.38	0	0.00	11.03
17.8 - Fall Protection	19,480	42,810	0.97	0.97	0.38	0	0.00	10.48
17.9 - Access Platforms	6,309	13,559	1.24	1.24	0.43	0	0.00	14.77 (8.87*)
18.0 - Trucking/Transportation	139,006	327,847	1.24	1.24	0.68	5	3.05	14.34
18.1 - Hauling	84,823	201,232	1.71	1.70	0.98	12	11.93	20.66
18.1.1 - Water Trucks/Hauling	22,554	56,224	1.78	1.76	1.03	4	14.23	17.10
18.1.2 - Fresh Water Hauling	15,499	39,814	1.50	1.49	0.84	2	10.05	16.29
18.1.3 - Heavy Truck Hauling (dump or larger)	106,490	240,455	1.50	1.49	0.78	10	8.32	18.32
18.1.4 - Oversized/Heavy Materials	69,876	161,757	1.04	1.03	0.48	4	4.95	15.55
18.2 - Freight	14,564	34,260	1.69	1.69	1.03	0	0.00	20.68

## Table 2: 2012 Injury and Illness Rates by ISN Work Type

ISN Work Type <sup>[a]</sup>	Total Number of Employees	Total Number of Exposure Hours (in 1,000s)	Injuries and Illnesses <sup>[b]</sup>			Fatalities <sup>[d]</sup>		Severity <sup>[e]</sup>
			Total Recordable Incident Rate (TRIR)	Nonfatal Total Recordable Incident Rate (Nonfatal TRIR)	Days Away/Restricted or Transfer Rate (DART)	Total Number of Fatalities	Fatality Rate per 100,000 Workers	Incident Severity (In Days)
18.3 - Tank Truck	64,395	151,657	1.56	1.56	0.88	4	5.28	18.16
18.3.1 - Waste - Non Hazardous	62,746	148,597	1.83	1.83	1.10	4	5.38	18.24
18.5 - Logistics	9,169	21,503	1.73	1.72	1.05	1	9.30	15.91
18.6 - Weigh Scale Service	1,538	3,699	2.11	2.11	1.14	0	0.00	21.87 (14.14*)
18.7 - Pick-up and Delivery Driver	36,980	82,203	2.05	2.05	1.37	1	2.43	12.51
18.8 - Tarping	3,954	9,964	3.95	3.95	2.29	0	0.00	23.84
19.0 - Down Hole Services	-	-	-	-	-	-	-	-
19.2 - Pumper Svc.	18,816	60,468*	1.49	1.49	0.83	0	0.00	6.72
19.4 - Well Drilling (Workover/Completion)	22,108	69,255*	1.41	1.41	0.77	0	0.00	6.10
19.6 - Consultant - Well Service	20,881	64,822*	1.37	1.37	0.75	1	3.09	6.64
19.11 - Well - Services	23,133	68,788*	1.59	1.59	0.88	2	5.81	9.03
19.11.1 - Snubbing Coil Tubing	24,964	73,629	1.40	1.40	0.76	1	2.72	8.66
19.14 - Plug and Abandonment	20,482	64,759*	1.42	1.41	0.80	1	3.09	7.86
20.0 - Offshore Operations	25,472	75,092	1.33	1.33	0.74	0	0.00	7.39
20.3 - Inland Marine Service	5,176	12,709	1.51	1.51	0.68	0	0.00	2.13
20.4 - Marine Service	802	2,046	0.68	0.68	0.49	0	0.00	24.57 (0.33*)
20.5 - Offshore Construction	10,409	24,397	0.67	0.64	0.26	4	32.79	10.00
20.5.1 - Marine Construction	2,207	5,922*	1.72	1.72	0.84	0	0.00	7.31
20.6 - Diving	2,151	4,659	0.99	0.99	0.56	0	0.00	13.83
20.13 - Blasting & Painting	28,818	58,637	0.31	0.31	0.11	0	0.00	8.53
20.14 - Instrumentation	11,665	24,088	0.70	0.70	0.18	0	0.00	3.71
20.14.1 - Pneumatic	11,540	23,980	0.74	0.74	0.19	0	0.00	5.53
20.14.2 - Electrical	12,423	25,902	0.76	0.76	0.22	0	0.00	6.38
20.17 - Rigging	46,762	117,786	0.84	0.83	0.44	4	6.79	7.03
21.0 - Retail (Petroleum Products Distribution)	4,447	10,001	1.26	1.26	0.52	0	0.00	12.19
21.1 - General Contracting	11,434	23,982	1.26	1.24	0.54	2	16.68	10.13 (8.99*)
21.2 - Tank & Piping (UST)	13,905	33,857	1.35	1.35	0.66	1	5.91	14.57
21.3 - Tank & Piping (UST) Maintenance	10,675	27,182	1.54	1.53	0.79	1	7.36	16.88
21.5 - Canopies/Awnings & Installation	2,494	5,580	1.22	1.15	0.54	2	71.69	2.97
21.6 - Materials/Geotechnical Testing	5,255	10,544	0.82	0.82	0.44	0	0.00	20.95
21.10 - Electrical Construction	12,916	26,818	1.63	1.63	0.67	0	0.00	6.69

## Table 2: 2012 Injury and Illness Rates by ISN Work Type

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			Total Recordable Incident Rate (TRIR)	Nonfatal Total Recordable Incident Rate (Nonfatal TRIR)	Days Away/Restricted or Transfer Rate (DART)	Total Number of Fatalities	Fatality Rate per 100,000 Workers	Incident Severity (In Days)
21.11 - Consulting Engineer	15,721	31,473	0.76	0.76	0.31	0	0.00	7.49
21.12 - Asphalt Paving	10,811	20,379	2.49	2.48	1.55	1	9.81	5.63
21.13 - Engineering Design	6,071	13,023	0.74	0.74	0.38	0	0.00	20.06
21.15 - Inspector Services	3,581	7,669	1.30	1.30	0.63	0	0.00	0.40
21.16 - HVAC	9,086	18,253	2.14	2.14	1.00	0	0.00	10.41
21.18 - Tank & Vessel Cleaning	8,391	17,776	0.98	0.98	0.54	0	0.00	11.41 (9.66*)
21.20 - Septic System Pump Out	961	2,227	2.87	2.87	1.62	0	0.00	8.28
21.21 - Landscaping & Mowing	6,549	10,258	2.34	2.34	1.17	0	0.00	15.35
21.22 - Security Fire Protection	20,958	42,158	1.55	1.55	0.74	1	4.74	6.65
21.23 - Water / Sewer Piping Construction	11,444	21,777	2.32	2.32	1.25	0	0.00	6.72
21.24 - Underground Storage Tank Removal	4,718	10,637	1.35	1.32	0.86	2	37.60	11.07 (8.94*)
21.25 - Cathodic Protection - Materials	5,517	12,457	0.93	0.93	0.31	0	0.00	12.00
21.27 - Civil Construction for Concrete Paving	13,411	26,762	2.02	2.01	1.04	1	7.47	6.31
22.0 - Supplier	41,027	84,075	1.49	1.49	0.88	2	4.76	7.10
22.1 - Gasses	42,343	88,010	2.06	2.06	1.55	0	0.00	6.37
22.1.1 - Industrial Purposes	82,496	174,117	1.90	1.90	1.45	2	2.30	8.22
22.3 - Furniture Supplier	-	-	-	-	-	-	-	-
22.3.2 - Delivery/Installation	6,561	13,023*	3.03	3.03	1.98	0	0.00	7.66
22.4 - Industrial Pipe, Fittings and Valves	14,322	29,934	2.22	2.20	0.71	3	20.04	4.55 (4.03*)
22.4.1 - Tower/Vessels/Pipe Assemblies Manufacturer	1,008	2,292	2.18	2.18	0.61	0	0.00	1.84
22.5 - Chemicals	14,728	30,337	1.68	1.67	1.04	1	6.59	8.94
22.6 - Packaging Suppliers, Equipment and Services	10,917	22,835	2.36	2.35	1.45	2	17.52	6.44
22.7 - Doors/Frames/Hardware	3,376	7,057*	3.06	3.00	1.47	2	56.68	8.42 (6.85*)
22.9 - Industrial Storage and Shelving	1,047	2,082	3.17	3.17	1.83	0	0.00	8.00
22.11 - Electrical Supplies	22,402	39,685	2.83	2.82	1.99	1	5.04	13.25
23.0 - Sales	23,509	47,365*	1.76	1.76	1.07	0	0.00	7.72
23.1 - Bits & Tools	44,516	87,280	2.17	2.17	1.42	3	6.87	9.67
23.2 - Safety Equipment	89,056	178,186	2.01	2.00	1.38	3	3.37	8.69
23.3 - Lube & Fuels	40,418	77,519	2.39	2.39	1.64	3	7.74	11.89
24.0 - Pharmaceutical	2,316	4,681	0.77	0.77	0.34	0	0.00	9.11
24.1 - Validation	11,299	22,773	0.25	0.25	0.13	0	0.00	1.43

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			Total Recordable Incident Rate (TRIR)	Nonfatal Total Recordable Incident Rate (Nonfatal TRIR)	Days Away/Restricted or Transfer Rate (DART)	Total Number of Fatalities	Fatality Rate per 100,000 Workers	Incident Severity (In Days)
24.1.2 - Mechanical	18,605	39,828	0.88	0.88	0.32	0	0.00	6.16
24.1.3 - Electrical	14,791	31,128	0.91	0.91	0.42	0	0.00	10.31
24.1.4 - Process	8,418	18,088	0.55	0.55	0.25	0	0.00	9.82
24.2 - Commissioning Quality	4,749	10,715	0.69	0.69	0.21	0	0.00	8.68
24.2.2 - Mechanical	12,333	26,920	0.94	0.94	0.39	0	0.00	7.80
24.2.3 - Electrical	24,175	49,447	0.80	0.80	0.31	0	0.00	6.63
24.2.4 - Process	8,283	17,673	0.51	0.51	0.26	0	0.00	10.91
25.0 - Labs/Cleanrooms	6,188	12,826	1.34	1.34	0.64	0	0.00	11.93
25.2 - Testing and Balancing	6,263	13,938	1.10	1.10	0.57	0	0.00	13.42 (11.41*)
25.3 - Contamination Control	3,616	8,391	0.83	0.83	0.52	0	0.00	32.54
25.5 - Cleanroom Installation	2,461	4,846	1.24	1.24	0.70	0	0.00	17.00
25.6 - Sampling Services	35,007	72,139	0.66	0.66	0.31	0	0.00	11.20
25.8 - Lab Instruments	11,309	22,571	0.95	0.95	0.49	0	0.00	8.10
26.0 - Energy	5,014	10,961	0.91	0.91	0.58	0	0.00	8.18
26.1 - Electrical Generation	27,888	56,495	0.69	0.69	0.29	0	0.00	3.32
26.2 - Steam Generation	10,989	22,726	0.77	0.77	0.30	0	0.00	3.01
27.0 - Heavy Equipment	81,839	177,027	1.41	1.41	0.65	2	2.26	14.71
27.1 - Sales	12,880	26,276	5.03	5.02	1.90	1	7.61	5.58
27.2 - Service/Repair	26,285	54,877	3.57	3.57	1.54	0	0.00	5.80
27.3 - Operation	63,977	143,770	1.40	1.40	0.71	3	4.17	18.97
27.4 - Rentals	12,080	24,702	4.70	4.70	1.57	0	0.00	4.84
27.5 - Inspection	10,627	22,711	3.50	3.50	1.60	0	0.00	7.74
28.0 - Fixed Cranes	22,372	47,481	1.30	1.30	0.63	0	0.00	9.32
28.1 - Rentals	2,379	5,206*	3.04	3.04	2.11	0	0.00	11.22
28.1.1 - Overhead and Gantry	2,917	6,642	3.61	3.61	2.14	0	0.00	11.17
28.2 - Operator/Rigger	7,554	16,424	1.80	1.80	1.07	0	0.00	11.05
28.2.1 - Operator/Rigger - Overhead and Gantry	7,015	15,410	2.38	2.38	1.32	0	0.00	7.21
28.3 - Service / Repair	4,643	10,331	2.21	2.21	1.53	0	0.00	10.45
28.3.1 - Service / Repair Overhead and Gantry	6,859	15,641	2.52	2.52	1.38	0	0.00	7.04
28.4 - Inspection	6,159	14,243	1.60	1.60	1.08	0	0.00	10.77
28.4.1 - Inspection - Overhead & Gantry	7,952	18,564	2.07	2.07	1.20	0	0.00	7.86



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			Total Recordable Incident Rate (TRIR)	Nonfatal Total Recordable Incident Rate (Nonfatal TRIR)	Days Away/Restricted or Transfer Rate (DART)	Total Number of Fatalities	Fatality Rate per 100,000 Workers	Incident Severity (In Days)
29.0 - Mobile Crane	147,166	340,595	0.92	0.92	0.43	6	3.52	7.85
29.1 - Rental	47,905	125,230	1.43	1.42	0.76	3	4.79	9.05
29.1.1 - Rental - Crawler	3,448	8,383	1.72	1.67	0.67	2	47.72	8.72
29.1.2 - Rental - Rough Terrain	4,399	10,362	1.87	1.83	0.69	2	38.60	7.36
29.1.3 - Rental - Telescopic	8,773	19,323	1.86	1.86	1.00	0	0.00	8.69
29.1.4 - Rental - Truck Mounted	8,469	17,886	2.11	2.11	1.10	0	0.00	9.70
29.1.5 - Rental - Wheel Mounted	7,083	14,802	1.93	1.93	1.01	0	0.00	9.04
29.2 - Operator / Rigger	128,966	305,221	0.99	0.98	0.47	7	4.59	8.02
29.2.1 - Operator / Rigger - Crawler	5,872	13,338	1.30	1.27	0.54	2	29.99	8.24
29.2.2 - Operator / Rigger - Rough Terrain	7,479	17,583	1.59	1.57	0.64	2	22.75	7.18
29.2.3 - Operator / Rigger - Telescopic	11,143	24,225	1.63	1.63	0.84	0	0.00	8.85
29.2.4 - Operator / Rigger - Truck Mounted	10,844	23,468	1.71	1.71	0.84	0	0.00	9.01
29.2.5 - Operator / Rigger - Wheel Mounted	8,866	18,462	1.69	1.69	0.87	0	0.00	9.84
29.3 - Service / Repair	44,763	100,104	1.14	1.14	0.57	3	5.99	10.43
29.3.1 - Service / Repair - Crawler	3,391	6,558	4.94	4.94	0.88	0	0.00	3.61
29.3.2 - Service / Repair - Rough Terrain	1,753	3,788	3.33	3.33	1.21	0	0.00	9.10
29.3.3 - Service / Repair - Telescopic	2,935	6,348	3.06	3.06	2.05	0	0.00	14.24
29.3.4 - Service / Repair - Truck Mounted	3,863	8,325	3.10	3.10	1.73	0	0.00	11.06
29.3.5 - Service / Repair - Wheel Mounted	3,630	7,982	2.33	2.33	1.50	0	0.00	12.58
29.4 - Inspection	5,771	12,666	2.10	2.10	1.25	0	0.00	10.17
29.4.1 - Inspection - Crawler	779	1,738	3.91	3.91	1.96	0	0.00	15.56
29.4.2 - Inspection - Rough Terrain	1,027	2,242	3.57	3.57	1.70	0	0.00	13.28
29.4.3 - Inspection - Telescopic	2,437	5,310*	3.58	3.58	2.45	0	0.00	14.56
29.4.4 - Inspection - Truck Mounted	3,023	6,589	3.22	3.22	2.06	0	0.00	13.07
29.4.5 - Inspection - Wheel Mounted	2,814	6,149	2.93	2.93	1.95	0	0.00	13.02
30.0 - Mining	3,076	7,269	1.62	1.60	0.72	1	27.52	13.69
30.1 - Demolition/Salvage	1,701	3,699	0.81	0.81	0.54	0	0.00	33.07
30.1.1 - Equipment	1,473	3,122	3.40	3.40	1.86	0	0.00	10.98
30.1.2 - Scrap Bin Removal	1,611	3,293	1.15	1.15	0.73	0	0.00	26.21
30.3 - Environmental Services	12,504	24,388	0.62	0.62	0.29	0	0.00	10.82
30.4 - Equipment Maintenance	19,792	34,143*	3.20	3.20	1.96	0	0.00	6.23

## Table 2: 2012 Injury and Illness Rates by ISN Work Type

ISN Work Type <sup>[a]</sup>	Total Number of Employees	Total Number of Exposure Hours (in 1,000s)	Injuries and Illnesses <sup>[b]</sup>			Fatalities <sup>[d]</sup>		Severity <sup>[d]</sup>
			Total Recordable Incident Rate (TRIR)	Nonfatal Total Recordable Incident Rate (Nonfatal TRIR)	Days Away/Restricted or Transfer Rate (DART)	Total Number of Fatalities	Fatality Rate per 100,000 Workers	Incident Severity (In Days)
30.5 - General Services	-	-	-	-	-	-	-	-
30.5.1 - Fan Balancing	1,409	2,683	1.64	1.64	0.75	0	0.00	6.64
30.5.3 - Roadway Maintenance	1,385	2,811	1.92	1.92	0.92	0	0.00	12.74
30.7 - Major Construction	4,920	9,917	2.10	2.08	0.97	1	20.17	4.88
30.7.1 - Bridge Construction	11,359	21,524	2.12	2.11	1.15	1	9.29	6.07
30.7.6 - Pond & Dam Construction	11,099	20,927	2.08	2.08	1.10	0	0.00	4.28
30.9 - Prep Plant Repair	1,663	3,326	1.68	1.68	0.78	0	0.00	5.25
30.9.1 - Chute Work	851	1,739	2.42	2.42	1.27	0	0.00	5.62

[a] ISN Work Type is a detailed list of commonly performed work classifications and activities available in the ISNetworld database for selection by contractors. ISN Work Types cover multiple industries, and contractors are required to select at least one work type that best describes their activities or specialization. A record (contractor) can be classified with more than one ISN Work Type and is counted in each Work Type breakout selected.

[b] The injury and illness rates represent the number of injuries and illnesses per 100 full-time workers. See Appendix 2 on Incident Rate Calculations.

[c] The fatality rate represents the number of fatalities per 100,000 full-time workers. See Appendix 2 on Fatality Rate Calculations.

[d] The incident severity (in days) represents the number of days away from work per recordable incident. See Appendix 2 on Incident Severity (In Days) Calculations.

- Indicates that the data are suppressed because there are fewer than 10 contractors reporting for the cell.

\* Indicates that the difference between the rate computed using all valid records and that computed using only those records excluding the highest 0.5<sup>th</sup> percentile extreme values is greater than or equal to 10%. See sections 3 and 5 of Appendix 3 for more information.

\*\* Indicates that the reported fatality rate is greater than or equal to 100.

† Indicates that the largest contractor in the corresponding ISN Work Type contributes more than 70% of the Total Exposure Hours of all contractors in that ISN Work Type.

# Appendix 1: Definitions

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- 1. North American Industry Classification System (NAICS) Code:** The standard statistical classification codes underlying all establishment-based Federal economic statistics, classified by industry for the United States, Mexico and Canada. Under NAICS, a specific industry is represented by a two, three, four, five or six-digit numeric code. See the U.S. Census Bureau's [NAICS Web site](http://www.census.gov/naics)<sup>1</sup> for more information.
- 2. ISN Work Type:** A detailed list of commonly performed work classifications and activities available in the [ISNetworld](http://www.isnworld.com)<sup>2</sup> database for selection by contractors. ISN Work Types cover multiple industries, and contractors are required to select at least one work type that best describes their activities or specialization.
- 3. Recordable Injury and Illness:** An occupational injury or illness that requires medical treatment more than simple first aid and must be recorded and reported under the U.S. Occupational Safety and Health Administration (OSHA) recordkeeping requirements. See [29 CFR Part 1904](http://www.osha-slc.gov/pls/oshaweb/owastand.display_standard_group?p_toc_level=1&p_part_number=1904)<sup>3</sup> for OSHA recordkeeping requirements and definitions.
- 4. Days Away Injury and Illness:** A recordable injury or illness resulting in one or more days away from work.
- 5. Restricted Activity Injury and Illness:** A recordable injury or illness resulting in restrictions or limitations on an injured worker's work activities.
- 6. Job Transfer Injury and Illness:** A recordable injury or illness necessitating the transfer of an injured worker to a different job.
- 7. Incident Severity (In Days):** Average number of days away from work as a result of each recordable injury or illness.

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<sup>1</sup> <http://www.census.gov/naics>

<sup>2</sup> [ISNetworld.com](http://www.isnworld.com)

<sup>3</sup> [http://www.osha.gov/pls/oshaweb/owastand.display\\_standard\\_group?p\\_toc\\_level=1&p\\_part\\_number=1904](http://www.osha.gov/pls/oshaweb/owastand.display_standard_group?p_toc_level=1&p_part_number=1904)

# Appendix 2: Incident Rate Calculations

All data used in this report is obtained directly from contractor companies' OSHA 300 and 300A forms and are reviewed and verified by ISN Review and Verification Services (RAVS).

## 1. Incident Rate Calculations for Individual Contractors

- 1.1. Total Recordable Incident Rate [TRIR]** represents the number of recordable injuries and illnesses per 100 full-time workers and is calculated as:

$$\text{TRIR} = (N/EH) \times 200,000$$

Where:

N = Total number of recordable injuries and illnesses

EH = Total exposure hours, i.e., total hours worked by all employees during the calendar year

200,000 = Base for 100 equivalent full-time workers (working 40 hours per week, 50 weeks per year)

- 1.2. Nonfatal Total Recordable Incident Rate [Nonfatal TRIR]** represents the number of nonfatal recordable injuries and illnesses per 100 full-time workers and is calculated as:

$$\text{Nonfatal TRIR} = (N_{\text{NONFATAL}}/EH) \times 200,000$$

Where:

$N_{\text{NONFATAL}}$  = Total number of nonfatal recordable injuries and illnesses

EH = Total exposure hours, i.e., total hours worked by all employees during the calendar year

200,000 = Base for 100 equivalent full-time workers (working 40 hours per week, 50 weeks per year)

- 1.3. Days Away, Restricted Activity or Job Transfer Incident Rate [DART]** represents the number of recordable nonfatal injuries and illnesses resulting in days away from work, restricted activity or job transfer per 100 full-time workers and is calculated as:

$$\text{DART} = [(N_{\text{DAFW}} + N_{\text{DRAJT}})/EH] \times 200,000$$

Where:

$N_{\text{DAFW}}$  = Total number of nonfatal recordable injuries and illnesses resulting in days away from work

$N_{\text{DRAJT}}$  = Total number of nonfatal recordable injuries and illnesses resulting in restricted activity or job transfer

EH = Total exposure hours, i.e., total hours worked by all employees during the calendar year

200,000 = Base for 100 equivalent full-time workers (working 40 hours per week, 50 weeks per year)

- 1.4. Fatality Rate** represents the number of fatal work injuries per 100,000 full-time workers and is calculated as:

$$\text{Fatality Rate} = (N_{\text{FATAL}}/\text{EH}) \times 200,000,000$$

Where:

$N_{\text{FATAL}}$  = Total number of fatal work injuries

EH = Total exposure hours, i.e., total hours worked by all employees during the calendar year

200,000,000 = Base for 100,000 equivalent full-time workers (working 40 hours per week, 50 weeks per year)

- 1.5. Incident Severity (In Days)** represents the number of days away from work per recordable incident and is calculated as:

$$\text{Incident Severity (In Days)} = (N_{\text{DAYS}}/N)$$

Where:

$N_{\text{DAYS}}$  = Total number of days away from work

N = Total number of recordable injuries and illnesses

## 2. Incident Rate Calculations for Groups of Contractors (for a NAICS code or ISN Work Type Group)

- 2.1.** TRIR, Nonfatal TRIR, DART, and Fatality Rate are calculated by summing the exposure hours and numbers of injuries and illnesses across all contractors in the group before computing the rate. The calculation for a group of contractors will be:

$$\text{RATE} = (\sum N / \sum_i \text{EH}) \times \text{BASE INTEGER}$$

Where:

RATE = one of the four rates presented above: TRIR, Nonfatal TRIR, DART, or Fatality Rate. Represents an exposure hour weighted rate.

$\sum_i N = N_1 + N_2 + \dots + N_n$ , where  $N^4$  is equal to the total number of recordable injuries and illnesses for a contractor, and the summation formula is the sum of the values of the n contractors in the group (i.e., the sum of the total number of recordable injuries and illnesses across all contractors in the group).

<sup>4</sup> Includes only the injuries and illnesses used to calculate the specified rate: for TRIR, N is the total number of injuries and illnesses; for Nonfatal TRIR, N is the total number of nonfatal injuries and illnesses; for DART, N is the total number of nonfatal injuries and illnesses resulting in days away from work plus the total number of nonfatal injuries and illnesses resulting in restricted activity or job transfer; for Fatality Rate, N is the total number of fatal work injuries.

$\sum_i EH = EH_1 + EH_2 + \dots + EH_n$ , where EH is equal to the total exposure hours for a contractor, and the summation formula is the sum of the values of the n contractors in the group (i.e., the sum of the total exposure hours across all contractors in the group).

BASE INTEGER = 200,000 for TRIR, Nonfatal TRIR and DART calculations and 200,000,000 for the Fatality Rate calculation.

**2.2. Incident Severity (In Days)** is calculated by summing the number of days away from work and number of total injuries and illnesses across all contractors in the group before computing the rate. The rate calculation for a group of contractors will be:

$$\text{Incident Severity (In Days)} = (\sum_i N_{\text{DAYS}}) / (\sum_i N)$$

Where:

$\sum_i N_{\text{DAYS}}$  = The sum of the total number of days away from work across all contractors in the group.

$\sum_i N$  = The sum of the total number of recordable injuries and illnesses across all contractors in the group.

# Appendix 3: Analysis Procedure Summary

The procedures used in preparing and analyzing the data presented in Tables 1 and 2 are summarized below.

## 1. Data Cleaning and Preparation

- 1.1. Remove records where the total number of exposure hours is missing or equal to zero. Only records from U.S. contractors who belong to the relevant industry this report is developed for are utilized.
- 1.2. Identify invalid records due to missing data (such as missing Total Number of Recordable Injuries and Illnesses) for each incident rate calculation.
- 1.3. Remove records where Exposure Hours (EH) per Employee is less than 250 or more than 5,000 except for Upstream-Offshore contractors where 8,000 is used.
- 1.4. For each valid record, calculate TRIR, Nonfatal TRIR, DART, Fatality Rate, and Incident Severity (In Days) according to the formulas for individual contractors in Appendix 2.

## 2. Injury and Illness Rates, Fatalities and Incident Severity (In Days) by NAICS Code

The injury and illness rates, fatalities and incident severity (in days) calculations by NAICS code for the cleaned data set include the following steps:

- 2.1. Calculate Total Number of Contractors ( $\sum_i N_{\text{CONTRACTOR}}$ ) for each two, three, four, five and six-digit NAICS code, i. For instance, calculations presented for two-digit NAICS codes will include all records with any of the three, four, five and six-digit NAICS codes that are subsumed in the two-digit industry classification.
- 2.2. Remove the whole row for the NAICS code if the total number of contractors calculated in Step 2.1 above is less than 10.
- 2.3. For each two, three, four, five and six-digit NAICS code, calculate exposure hour weighted injury and illness rates, fatalities and incident severity (in days) using formulas for groups of contractors in Appendix 2.
- 2.4. For each rate and fatality count computed in Step 2.3 above, if there are fewer than 10 contractors used in the calculation, suppress the reported rate or fatality count by replacing it with a dash ("-").
- 2.5. If the largest contractor contributes more than 70% of the total exposure hours for a given NAICS code, flag the total number of exposure hours with a symbol ("†") for that NAICS code.
- 2.6. If the fatality rate is greater than or equal to 100 for a given two, three, four, five and six-digit NAICS code, suppress the reported fatality rate by replacing it with a double-asterisk ("\*\*").

### 3. Injury and Illness Rates, Fatality Rates and Fatality Counts by NAICS Code without Those Records with Rates in the Highest 0.5<sup>th</sup> Percentile

When the number of records for a given NAICS code is small, extreme observations may unduly influence the reported rates and counts. Thus, Tables 1 and 2 also include the results of a sensitivity analysis conducted to evaluate the effect of those records with rates in the highest 0.5<sup>th</sup> percentile. The analysis steps include the following:

- 3.1. For each rate computed previously in Step 1, calculate rates for each NAICS Code by excluding contractors that are in the highest 0.5<sup>th</sup> percentile of the entire dataset using the steps outlined in Step 2.
- 3.2. Calculate the percentage difference between the injury and illness rate from Step 2.3 and 3.1 for each two, three, four, five and six-digit NAICS code.
- 3.3. Identify those rates that show a 10 percent or greater difference with an asterisk ("\*"). For example, a table entry of 2.3 (1.8\*) implies that 2.3 is the rate calculated with the entire dataset considered; 1.8 is the rate calculated with the highest 0.5<sup>th</sup> percentile extreme values removed; the difference between 2.3 and 1.8 is greater than or equal to 10 percent.

### 4. Injury and Illness Rates, Fatalities and Incident Severity (In Days) by ISN Work Type

The injury and illness rates, fatalities and incident severity (in days) calculations by ISN Work Type for the cleaned data set include the following steps:

- 4.1. Calculate Total Number of Contractors ( $\sum_j N_{\text{CONTRACTOR}}$ ) for each ISN Work Type, j. This is simply a count of the number of contractors that fall into the work type designation. A contractor can be categorized as more than one work type and thus may be included in the counts for numerous work types. However, unlike the calculations for NAICS codes, higher level work types do not include contractors at a more disaggregated level. For example, calculations presented for work type 1.0 – General Contractor do not include records in any of the work types at a lower level (e.g. 1.0.1 – Turnaround or 1.0.2 – Routine Maintenance).
- 4.2. Remove the whole row for the work type if the total number of contractors calculated in Step 4.1 above is fewer than 10, unless the work type has sub-work types with greater than or equal to 10 contractors.
- 4.3. For each ISN work type, calculate exposure hour weighted injury and illness rates, fatalities and incident severity (in days) using formulas for groups of contractors in Appendix 2.
- 4.4. For each rate and fatality count computed in Step 4.3, if there are fewer than 10 contractors used in the calculation, suppress the reported rate or fatality count by replacing it with a dash ("-").



- 
- 4.5. If the largest contractor contributes more than 70% of the total exposure hours for a given ISN work type, flag the total number of exposure hours with a symbol ("†") for that ISN work type.
  - 4.6. If the fatality rate is greater than or equal to 100 for a given ISN work type, suppress the reported fatality rate by replacing it with a double-asterisk ("\*\*").

**5. Injury and Illness Rates, Fatality Rates and Fatality Counts by ISN Work Type without Those Records with Rates in the Highest 0.5<sup>th</sup> Percentile**

When the number of records for a given ISN work type is small, extreme observations may unduly influence the reported rates and counts. Thus, Tables 1 and 2 also include the results of a sensitivity analysis conducted to evaluate the effect of those records with rates in the highest 0.5<sup>th</sup> percentile. The analysis steps include the following:

- 5.1. For each rate computed previously in Step 1, calculate rates for each ISN Work Type by excluding contractors that are in the highest 0.5<sup>th</sup> percentile of the entire dataset using the steps outlined in Step 4.
- 5.2. Calculate the percentage difference between the injury and illness rate from Step 4.3 and 5.1 for each ISN Work Type.
- 5.3. Identify those rates that show a 10 percent or greater difference with an asterisk ("\*"). For example, a table entry of 2.3 (1.8\*) implies that 2.3 is the rate calculated with the entire dataset considered; 1.8 is the rate calculated with the highest 0.5<sup>th</sup> percentile extreme values removed; the difference between 2.3 and 1.8 is greater than or equal to 10 percent.

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Health & Safety Performance Indicators  
Contractor Group Benchmarking, U.S.  
Manufacturing Industry

2012 Data

An ISN Publication: No.1310  
September 2013

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