

## Engineer Survey Summary, December 2017

A total of 213 engineers responded to the survey, approximately 55% (213/393) of all PHS engineers. Survey questions were answered from June 2017 to July 2017. (Note that the PHS total engineer count as of 12/13/17 is 393.

Current Agency Detail				
	Survey Respondents		Engineers in PHS	
	No. of Engineers	% of Respondents	No. of Engineers	% Responding by Agency
AHRQ	0	0%	0	0.00%
ASH	0	0%	0	0.00%
ASPR	3	1%	0	0.00%
ATSDR	0	0%	0	0.00%
CDC	12	6%	18	66.67%
CMS	4	2%	4	100.00%
DOI - NPS	17	8%	28	60.71%
EPA	20	9%	32	62.50%
FDA	40	19%	75	53.33%
HRSA	0	0%	3	0.00%
IHS	105	49%	209	50.24%
NIH	6	3%	8	75.00%
OS	1	0%	0	0.00%
Other	5	2%	14	35.71%
PCS	0	0%	1	0.00%
SAMHSA	0	0%	1	0.00%
<b>Total</b>	<b>213</b>	<b>100%</b>	<b>393</b>	

Engineers by current agency detail.

Education					
	No. of Degrees				Grand Total
	0	1	2	3	
Bachelor	3	200	8	0	211
Master	19	136	11	0	166
Doctoral	43	9	0	0	52

Education, by degree, is shown left. This table represents the number of engineering or public health related degrees obtained at each collegiate education level. This figure does not include degrees being currently pursued by officers. The 3 respondents that indicated they have 0 bachelor's degrees each have a related master's degree or higher.

Engineering Specialty	No. of Engineer	% of Respondents
Civil	130	61.32%
Mechanical	22	10.38%
Electrical	13	6.13%
Chemical	11	5.19%
Biomedical	24	11.32%
Other (please specify)	35	16.51%

Number of engineers by specified engineering specialty is shown left.

- 8% (16/213) listed more than one specialty
- 17% (35/213) listed “other” specialties

Engineering Specialties (Other)		
Aeronautical	Agricultural	Biological Engineering
Computer Engineer	Economics	Environmental
Fire Protection	Industrial	Mining
Reliability	Sanitation	Structural
Construction	Systems	
Focus on Water and Wastewater Treatment and Systems		

Left is a table showing the responses given when “other” specialty was selected. Environmental was the most common “other” engineering specialty and was reported 16 times.

Licensed Engineers by Professional Engineer Credential	No. of Engineers
Civil	103
Mechanical	10
Electrical	3
Environmental	31
Chemical	0
Other (please specify)	6

Number of engineers currently licensed, by PE credential, is shown left.

- 72% (153/213) respondents have a PE license
- Most common PEs
  - 48% (103/213) have a Civil PE
  - 15% (31/213) have a Environmental PE
- 8 engineers dual PEs (Civil and Environmental)

### Licensed Engineers by Agency

	No. of Engineers with PE
ASPR	1
CMS	2
FDA	3
NIH	3
CDC	10
DOI - NPS	16
EPA	19
IHS	86
Other (please specify)	4

Number of engineers currently licensed, by Agency, is shown left. As you can see the IHS has the most licensed engineers followed by EPA, DOI-NPS and CDC.

### Engineers with Certifications

	No. of Engineers	% of Respondents
CEM – Certified Energy Manager	12	13.64%
CHFM – Certified Healthcare Facilities Manager	10	11.36%
CDM - Certificate in Disaster Management	0	0.00%
CHA - Certificate in Humanitarian Assistance	0	0.00%
CPH - Certificate in Public Health	6	6.82%
DEE - Diplomat in Environmental Engineering	1	1.14%
EMT – Emergency Medical Technician	4	4.55%
LEED - Leadership in Energy and Environmental Design	5	5.68%
PMP - Project Management Professional	10	11.36%
RS – Registered Sanitarian	4	4.55%
RAC - Regulatory Affairs Certified	1	1.14%
Other	59	67.05%

Number of engineers with specific certifications is shown left.

- 6% have CEM certification
- 5% have CHFM certification
- 5% have PMP certification
- Commonly listed for “other”:
  - BCEE
  - Building Operator Cert
  - COR
  - EIT

Time on Deployment Team								
	TIER 1	TIER 1	TIER 1	TIER 2	TIER 2	TIER 2	TIER 2	
Years	RDF	RIST	NIST	APHT	MHT	SAT	CAP	TIER 3
1	5	1	0	2	0	0	0	24
2	3	0	0	5	0	0	0	9
3	9	2	1	6	0	0	0	7
4	5	1	3	3	0	0	0	10
5	2	1	1	4	0	0	0	6
6	2	0	0	4	0	0	0	7
7	3	1	0	2	0	0	0	16
8	3	0	0	3	0	0	0	13
9	1	0	0	1	0	0	0	7
10	0	0	0	4	0	0	0	13
11	5	0	0	3	1	0	0	3
12	2	0	0	0	0	0	0	7
13	0	0	0	0	0	0	0	3
14	1	0	0	0	0	0	0	5
15	1	2	0	1	0	0	0	10
16	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	1
18	0	0	0	0	0	0	0	1
19	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	2
21	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	2
23	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	1
25	3	2	2	2	2	2	2	6

Number of years engineers have served on deployment teams is shown left.

- 72% (153/213) Tier 3
- 21% (45/213) Tier 1 RFD
- 19% (40/213) Tier 1 APHT

It was noted when reviewing survey results, opportunities to move from the TIER 3 deployment team are very limited. Only 25% (54/213) of respondents or 13% (54/393) of all engineers were able to join a TIER 2 or TIER 2 team in the last 5 years.

Deployment History		
No. of Deployments	No. of Respondents	% of Respondents
0	78	37.50%
1-2	76	36.54%
3-4	32	15.38%
5-6	12	5.77%
7-8	6	2.88%
9-10	0	0.00%
>10	4	1.92%

Deployment history, by number of deployments, is shown in the table to the left.

- 37% of engineers have never deployed
- 36% have gone on 1-2 deployments

### Cumulative Deployment Experience

	No. of Respondents	% of Respondents
None	71	34.13%
<1 Month	51	24.52%
1-3 Months	54	25.96%
3-6 Months	19	9.13%
6-12 Months	4	1.92%
>1 Year	9	4.33%

Cumulative deployment experience can be seen in the table to the left.

- 25% of engineers have deployed more than one month
- 9% of engineers have deployed more than 3 months.
- Only 4% (9/213) engineers have deployed for a cumulative time of more than one year.

### Deployment Type

	No. of Respondents	% of Respondents
Humanitarian	42	31.11%
Disaster/Public Health Response	115	85.19%
Training Event	47	34.81%
Annual Event	20	14.81%

Deployment type was surveyed over 4 categories.

- 85% of deployments have been disaster related.

### Deployment Role

	No. of Respondents	% of Respondents
Disaster Engineer	110	54.46%
Safety Officer	29	14.36%
Planning Officer	26	12.87%
Admin Officer	23	11.39%
Logistic Officer	64	31.68%
Food/Nutrition Safety Officer	10	4.95%
Environmental Health Officer	22	10.89%
Other	55	27.23%

Deployment role.

- 54% (110/213) of engineers deploy as a Disaster Engineers.
- 32% (64/213) of engineers deploy as Logistics Officers.

### Desire for Deployment Opportunity

	No. of Respondents	% of Respondents
Yes	119	58.91%
No	17	8.42%
Maybe	66	32.67%

The table to the left shows the respondents desire to participate in a deployment if given the opportunity. As the numbers show there is a great need to increase deployment opportunities to all engineers as over 90% responded as “yes” or “maybe”.

Year of Last Deployment		
	No. of Respondents	% of Respondents
2016	66	32.67%
2015	38	18.81%
2014	15	7.43%
2013	13	6.44%
2012	2	0.99%
2011	9	4.46%
2010	10	4.95%
2009	9	4.46%
2008	5	2.48%
2007	10	4.95%
2006	3	1.49%
2005	7	3.47%
2004	10	4.95%
2003	4	1.98%
2002	1	0.50%

Year of last deployment. The overwhelming majority of respondents have deployed in the last 2 years. No deployments were reported prior to 2002 so that data was omitted from the table.

Language skills across the respondents are shown in the 2 tables below.

Language Skills		
	No. of Respondents	% of Respondents
None	119	58.91%
Spanish	39	19.31%
Chinese	6	2.97%
Tagalog	2	0.99%
Vietnamese	3	1.49%
French	12	5.94%
German	5	2.48%
Korean	1	0.50%
Arabic	2	0.99%
Russian	1	0.55%
Italian	1	0.55%
Other	32	15.48%

Language Skills Among Engineers		
American Sign Language		Cebuano
Bangla	Hindi	Urdu
Chamorro	Greek	Gujrati
Afrikaans	Navajo	Keres
Zulu	Nepalese	Tibetan
Haitian Creole	Hebrew	NEPALI
Portuguese	Pulaar	Swahili