

# Analysis of EPA's Federal Facilities Restoration and Reuse Office (FFRRO) Regional Program Performance: Fiscal Years 2005-2012

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November, 2013

# Final Draft

Note: This report is an internal evaluation based solely on EPA reporting.

## Acronyms/Abbreviations

ARAR	Applicable or Relevant and Appropriate Requirements
CCs	National Priorities List Construction Completions
DDs	Decision Documents
DOD	Department of Defense
EPA	Environmental Protection Agency
FFRRO	Federal Facilities Restoration and Reuse Office
Final RODs	Records of Decision
FYRs	Five-Year Reviews
IC	Institutional Control
MMRP	Military Munitions Response Program
OFA	Other Federal Agency
RA Proj Comps	Remedial Action Project Completions
RA Starts	Remedial Action Starts
RI/FS Starts	Remedial Investigation / Feasibility Study Starts
ROD	Record of Decision
SWRAUs	Sitewide Ready for Anticipated Use
TCE	Trichloroethylene
UXO	Unexploded Ordnance

## **Introduction**

This is a summary report of a series of analyses of the Federal Facilities Restoration and Reuse Office (FFRRO) regional programs' performance in meeting annual targets for the last eight years. These analyses are intended to assist EPA in understanding more fully the national trends over time, the difficulties encountered by the Regions as they strive to meet their targets, and the ways in which Regions can improve their future performance.

The report comprises two parts. Part I is a statistical analysis of the past eight years (2005-2012) of regional performance data regarding eight target measures. Part II is an analysis of the data gathered from regional offices regarding reasons for missed/substitute targets.

## Part I. Analysis of Targets Met and Missed

### Section 1. Data Characteristics and Assumptions

Part I analyzes the factors affecting EPA Regions meeting their annual federal facility cleanup targets. Fiscal year 2005-2012 data was reviewed regarding the eight program measures from all ten EPA Regions. The measures are:

- Decision Documents (DDs)
- Final Records of Decision (Final RODs)
- Five-Year Reviews (FYRs)
- National Priorities List Construction Completions (CCs)
- Remedial Action Project Completions (RA Proj Comps)
- Remedial Action Starts (RA Starts)
- Remedial Investigation/Feasibility Study Starts (RI/FS Starts)
- Sitewide Ready for Anticipated Use (SWRAUs)

Several statistical approaches were explored before deciding on the final approach presented in this report. It was concluded that the most reasonable approach was to accept substitute sites: Regions that changed their original site(s)—for measures requiring specific site designations—were considered to have *met* their target(s). In addition, all data (for any Region, year, and measure combination) was excluded with zero targets/ zero actuals. Thus, a neutral set-aside of these data was created, neither rewarding nor penalizing Regions with high numbers of target values (and corresponding end-of-year accomplishments) that equaled zero.

Note that since EPA did not collect Sitewide Ready for Anticipated Use (SWRAUs) data in 2005 and 2006, the tables/figures below contain 20 fewer data points for this measure.

Our final data decision criteria were:

- Target (regional commitment) = Actual (end-of-year accomplishment) is a Met (excluding Target 0 = Actual 0).
- Target with site substitution is a Met.
- Target with higher Actual value is a Met.
- Target with lower Actual value is a Miss.
- Target 0 = Actual 0 is removed from the analysis.

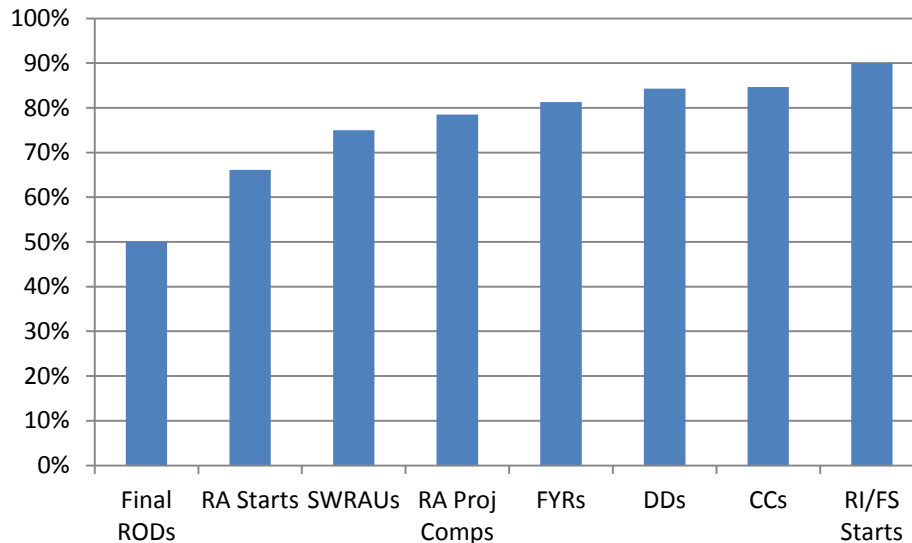
## Federal Facilities Regional Program Performance

Table 1 displays the number of data points by performance measure (total = 438), ordered by percentage met (lowest to highest). The **Target 0 = Actual 0** row displays the 182 data points where Regions committed to zero targets –which were eliminated from the analysis.

Category	Final RODs	RA Starts	SWRAUs	RA Proj Comps	FYRs	DDs	CCs	RI/FS Starts	Total
Met	18	47	25	58	60	67	23	41	339
<b>Percentage Met</b>	<b>48.6%</b>	<b>68.1%</b>	<b>73.5%</b>	<b>79.5%</b>	<b>83.3%</b>	<b>83.8%</b>	<b>85.2%</b>	<b>89.1%</b>	<b>N/A</b>
Missed	19	22	9	15	12	13	4	5	99
Target 0 = Actual 0	43	11	26	7	8	0	53	34	182
Data Not Available	0	0	20	0	0	0	0	0	20
<b>Total</b>	<b>80</b>	<b>80</b>	<b>60</b>	<b>80</b>	<b>80</b>	<b>80</b>	<b>80</b>	<b>80</b>	<b>620</b>
<b>Total in Final Analysis</b>	<b>37</b>	<b>69</b>	<b>34</b>	<b>73</b>	<b>72</b>	<b>80</b>	<b>27</b>	<b>46</b>	<b>438</b>

**Table 1. Number of Data Points by Measure (2005-2012)**

Figure 1 graphically displays the percentage of targets met by measure.



**Figure 1. Percentage of Targets Met by Measure (2005-2012)**

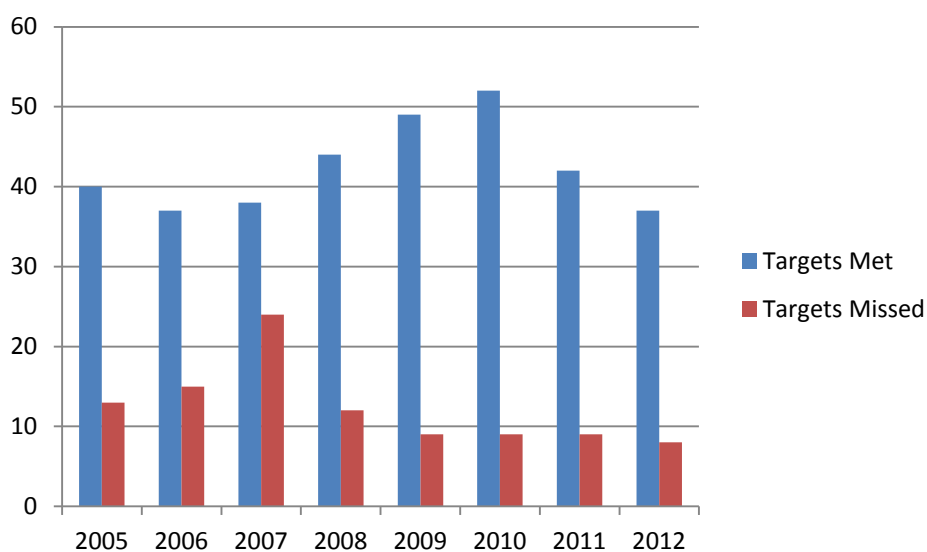
## Section 2. Year Analysis

Table 2 displays the number of targets met/missed by year, across all measures and Regions. The **2005** and **2006** rows each have 10 fewer data points since the SWRAUs measure did not begin until 2007.

Year	Targets Met	Percentage Met	Targets Missed	Total in Analysis	Target 0 = Actual 0	Total
2005	40	75.5%	13	53	17	70
2006	37	71.2%	15	52	18	70
2007	38	61.3%	24	62	18	80
2008	44	78.6%	12	56	24	80
2009	49	84.5%	9	58	22	80
2010	52	85.2%	9	61	19	80
2011	42	82.4%	9	51	29	80
2012	37	82.2%	8	45	35	80
<b>Total =</b>	<b>339</b>	<b>N/A</b>	<b>99</b>	<b>438</b>	<b>182</b>	<b>620</b>

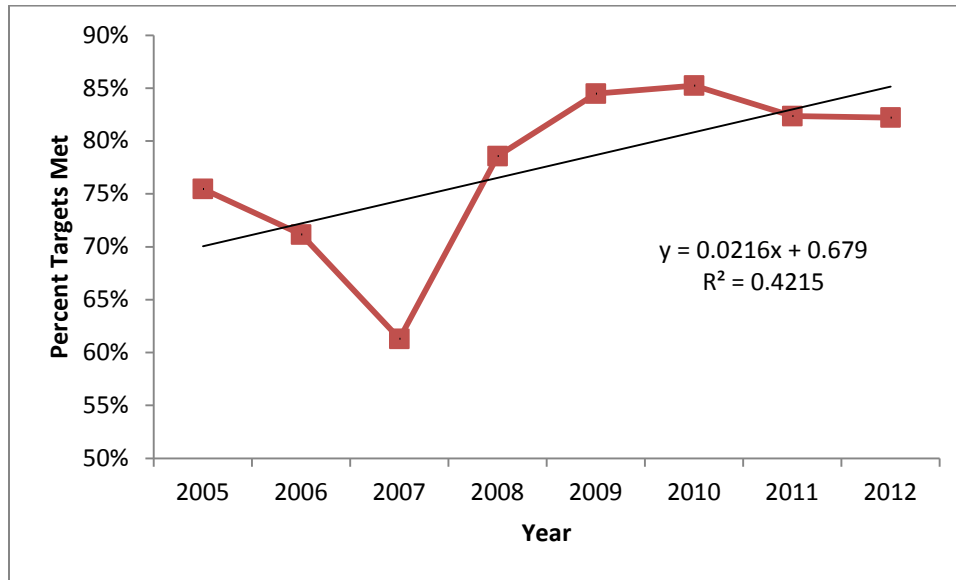
**Table 2. Number of Targets Met/Missed by Year (2005-2012)**

Figure 2 graphically presents the data from Table 2. It indicates that Regions met more targets than missed, and it seems that in general, the Regions are meeting their targets more frequently over time. As can be seen in Table 2 and Figure 2, FY 12 witnessed an increase in the number of performance measurement targets with a zero commitment (from 29 in FY 2011 to 35 in FY 2012). Since zero target commitments were excluded from the analysis, this results in a decline in the percentage of targets being met, but there was actually a decrease in targets missed from the previous year.



**Figure 2. Number of Targets Met/Missed by Year (2005-2012)**

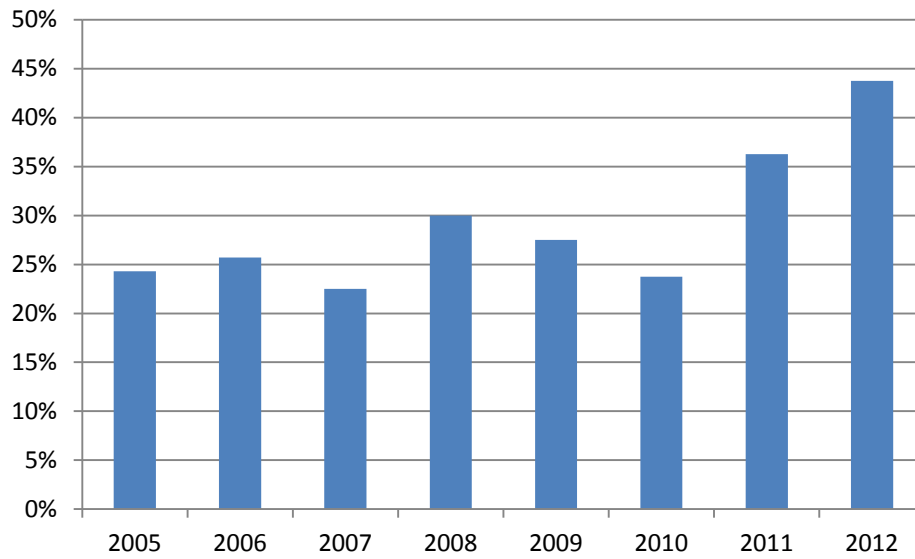
Figure 3a indicates that there is no statistically significant trend (p-value = 0.1361) through time, based on results from Kendall's statistical test for trend. The test indicates that the trend line is no different from one with a slope of zero. Thus, the number of targets met across Regions and measures is not increasing or decreasing in a statistically significant manner over the eight-year period.



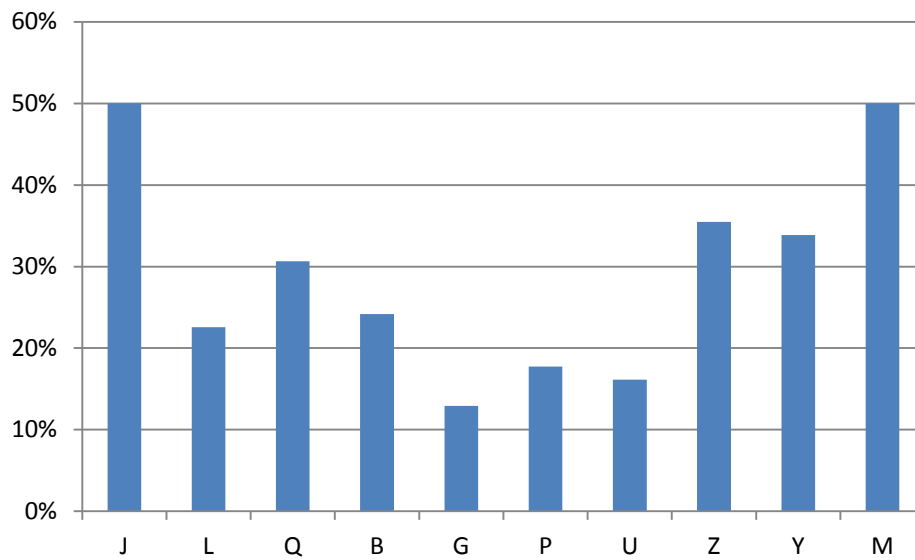
**Figure 3a. Graphical display of Table 2 target met data expressed as percentages, with the trend line superimposed on the data, the regression equation below the trend line, and  $R^2$  printed on the graph.**

One could misinterpret Table 2 and Figure 2 as demonstrating a significant decline in Regions meeting their targets in FY 2012. However, as shown in Figure 3a, the Regions continued meeting over 80% of their targets for which they had a commitment greater than zero. As Figure 3b (below) indicates, the Regions significantly increased the number of measures to which they committed zero targets. Figure 3c also demonstrates a large difference between Regions in terms of the percentage of measures to which they committed zero targets.

## Federal Facilities Regional Program Performance



**Figure 3b. Percentage of Zero Targets (Relative to Total Possible Targets) by Year**

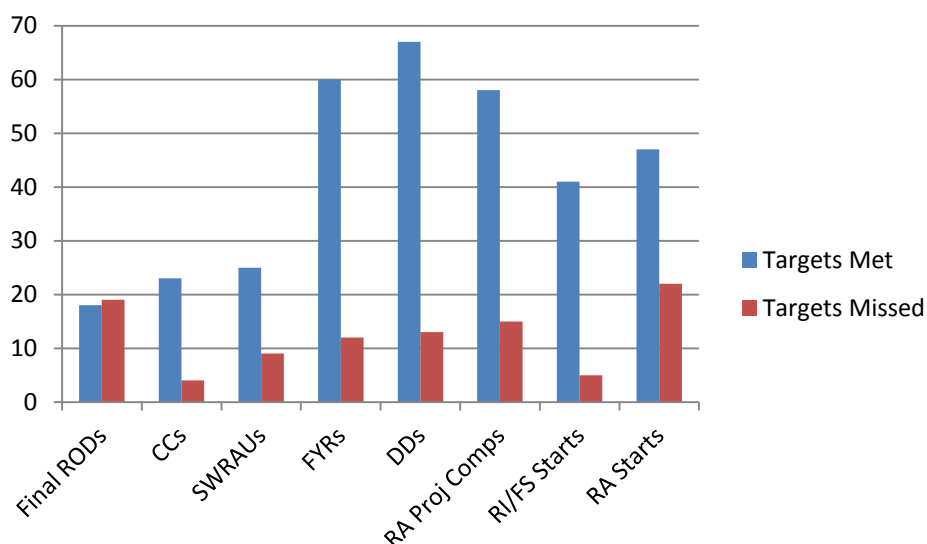


**Figure 3c. Percentage of Zero Targets (Relative to Total Possible Targets) by Region (2005-2012)**



### Section 3. Measure Analysis

Based on Table 1, the number of targets met by the Regions was higher for every measure than the number of targets missed with the exception of Final RODs. The Regions had higher totals for FYRs, DDs, and RA Project Completions due to the fact that fewer data were removed from the analysis for these measures (zero estimated/actual targets); as a result, these measures had a high number of targets met.



**Figure 4. Number of Targets Met/Missed by Measure (2005-2012)**

Table 3 presents the number of targets met for each measure, by year.

Year	Final RODs	CCs	SWRAUs	FYRs	DDs	RA Proj Comps	RI/FS Starts	RA Starts
2005	3	3	NA	8	9	7	5	5
2006	4	5	NA	6	7	6	4	5
2007	1	4	5	5	9	3	6	5
2008	3	1	7	7	7	8	5	6
2009	3	4	4	10	9	9	5	5
2010	3	4	4	7	9	10	6	9
2011	0	1	4	9	9	8	5	6
2012	1	1	1	8	8	7	5	6
Total Met	18	23	25	60	67	58	41	47
% Met	48.6%	85.2%	73.5%	83.3%	83.8%	79.5%	89.1%	68.1%
Target Missed	19	4	9	12	13	15	5	22
Target 0 = Actual 0	43	53	26	8	0	7	34	11

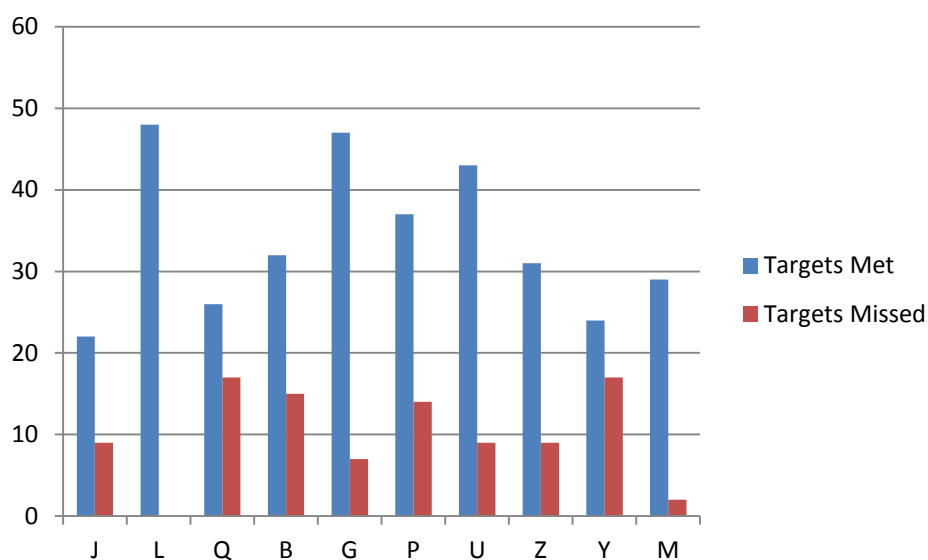
**Table 3. Number of Targets Met by Measure and Year (2005-2012)**

## Section 4. Regional Analysis

Table 4 and Figure 5 present the number of targets met/missed by Region. The overwhelming observation is that Region L never missed a target over the past eight years, and Region M has missed very few targets.

Region	Targets Met	Percent Met	Targets Missed	Total in Analysis	Target 0 = Actual 0
J	22	71.0%	9	31	31
L	48	100.0%	0	48	14
Q	26	60.5%	17	43	19
B	32	68.1%	15	47	15
G	47	87.0%	7	54	8
P	37	72.5%	14	51	11
U	43	82.7%	9	52	10
Z	31	77.5%	9	40	22
Y	24	58.5%	17	41	21
M	29	93.5%	2	31	31
<b>Total</b>	<b>339</b>	<b>N/A</b>	<b>99</b>	<b>438</b>	<b>182</b>

**Table 4. Number of Targets Met/Missed by Region (2005-2012)<sup>1</sup>**

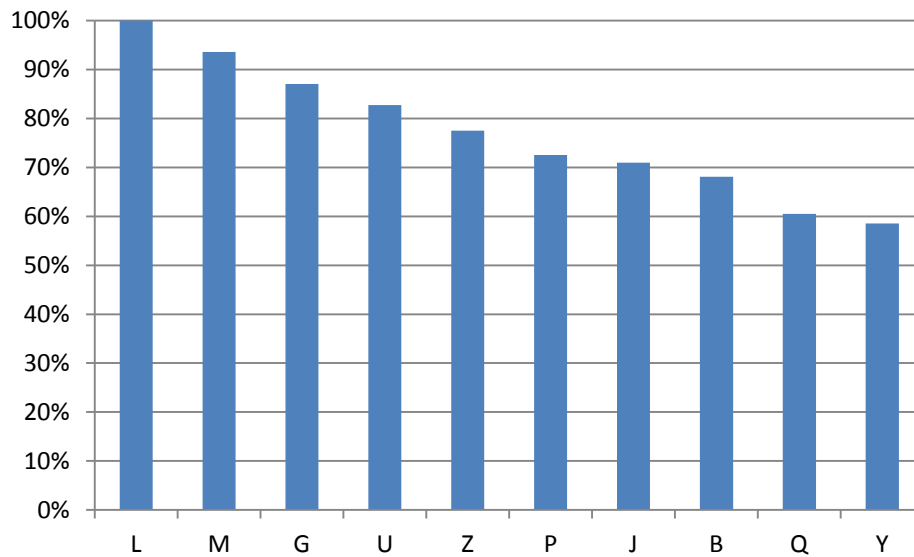


**Figure 5. Number of Targets Met/Missed by Region (2005-2012)**

<sup>1</sup> Since the SWRAUs measure began in 2007, each Region has two fewer values.

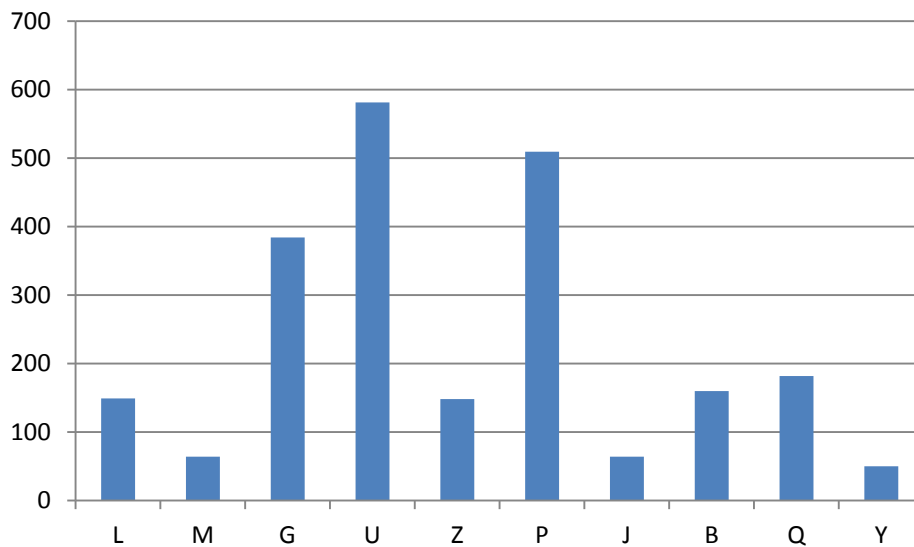
## Federal Facilities Regional Program Performance

Figure 6 displays the percentage of targets met by Region, in descending order.



**Figure 6. Percentages Met by Region (2005-2012)**

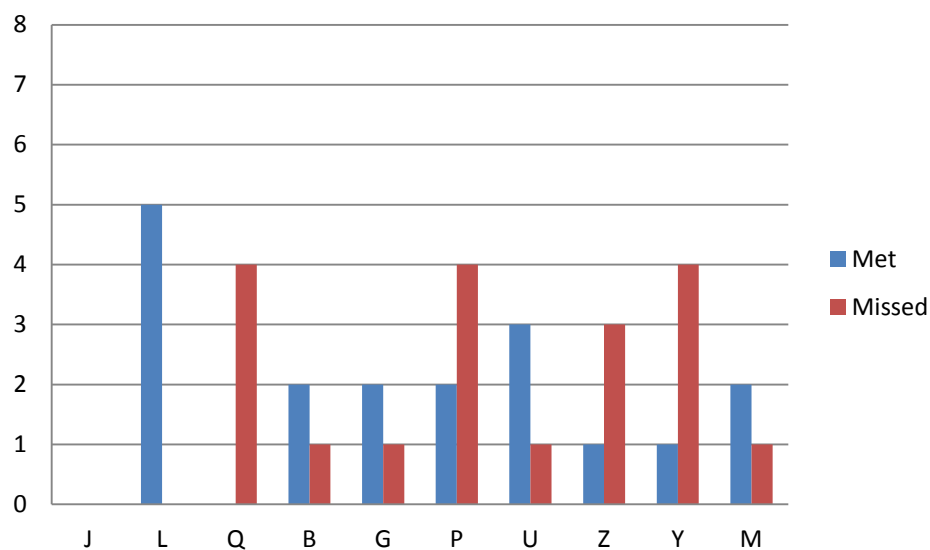
Figure 7 displays the total number of accomplishments, adding all of the values for all eight measures for the past eight years, by Region. It is useful to compare Figures 6 and 7 in order to assess (a) how well Regions met their targets and (b) the Regions' *numerical* accomplishments; this gives a glimpse as to how workload may factor into the assessment of each Region's performance.



**Figure 7. Accomplishment Totals by Region (2005-2012)**

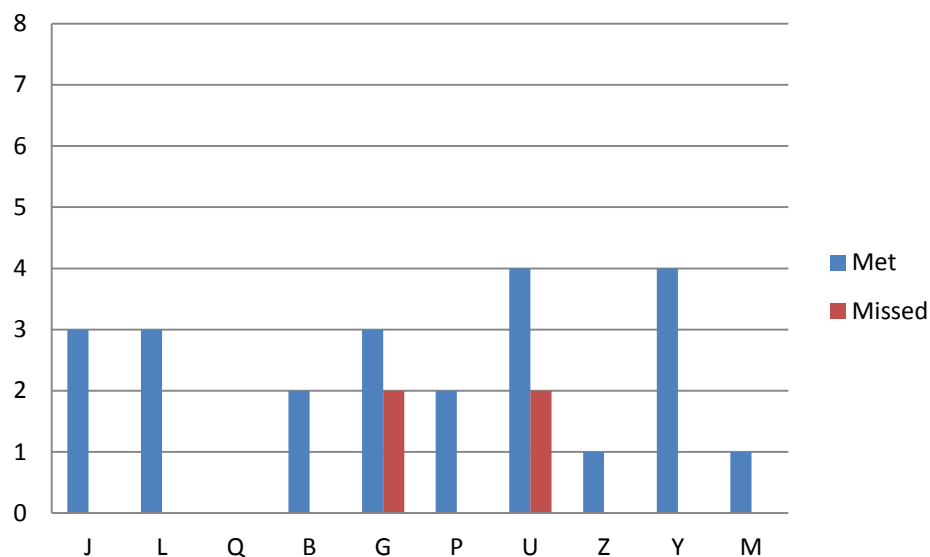
### Section 4.1 Regional Analysis by Measure<sup>2</sup>

Figure 8 presents the number of years in which each Region met/missed its Final ROD target. The results for three Regions (J, L, Q) are most striking. One Region (L) did not miss any targets, while another Region (Q) missed all of the years in which it had target data (it had three years of zero targets). As a result of data exclusion, Region J had no data to graph (i.e., all Region J data were zero targets).



**Figure 8. Number of Years in Which Each Region Met/Missed Its Final RODs Target (2005-2012)**

Figure 9 presents the number of years in which each Region met/missed its CC target. Seven Regions met all of their targets. Only two Regions missed targets.

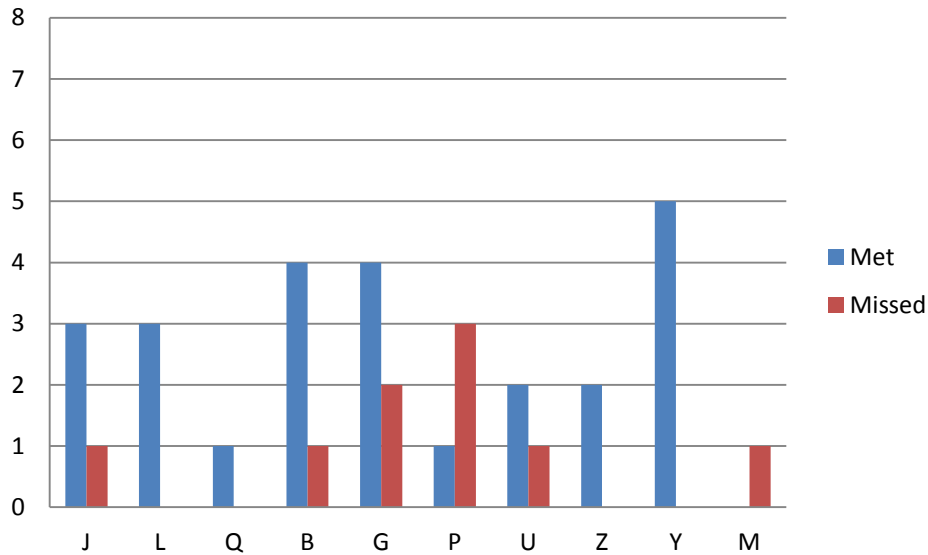


**Figure 9. Number of Years in Which Each Region Met/Missed Its CCs Target (2005-2012)**

<sup>2</sup> All of the charts in this section show a maximum value of 8 since this report covers 8 fiscal years.

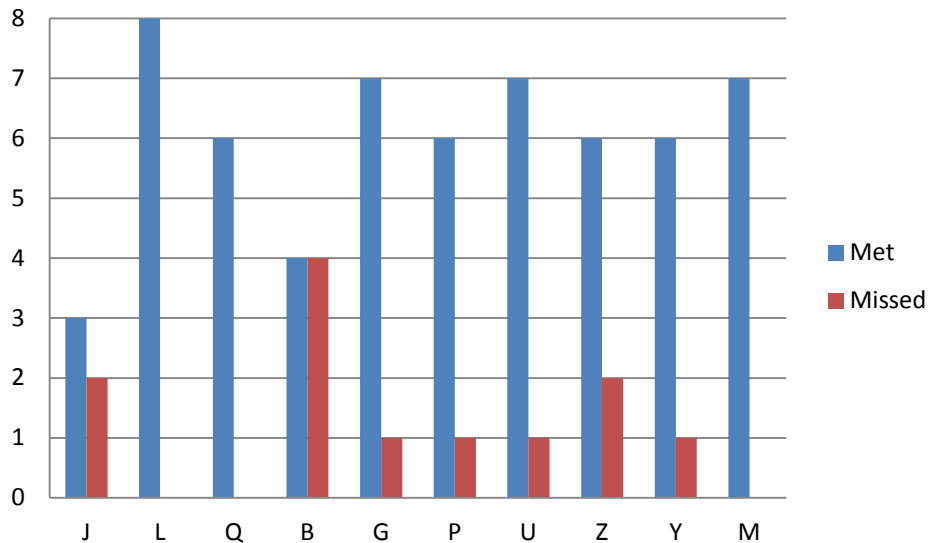
## Federal Facilities Regional Program Performance

Figure 10 presents the number of years in which each Region met/missed its SWRAU target (2007-2012). Four Regions met all of their targets, four Regions each missed one, and one Region missed two and one Region missed three.



**Figure 10. Number of Years in Which Each Region Met/Missed Its SWRAUs Target (2007-2012)**

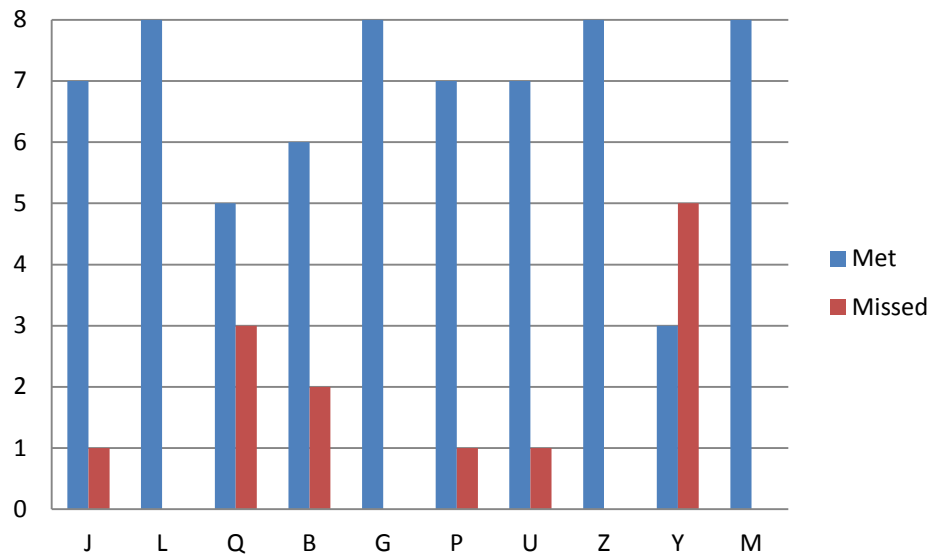
Figure 11 presents the number of years in which each Region met/missed its Five-Year Review target. Three Regions met all of their targets, and four Regions only missed one target each.



**Figure 11. Number of Years in Which Each Region Met/Missed Its Five-Year Reviews Target (2005-2012)**

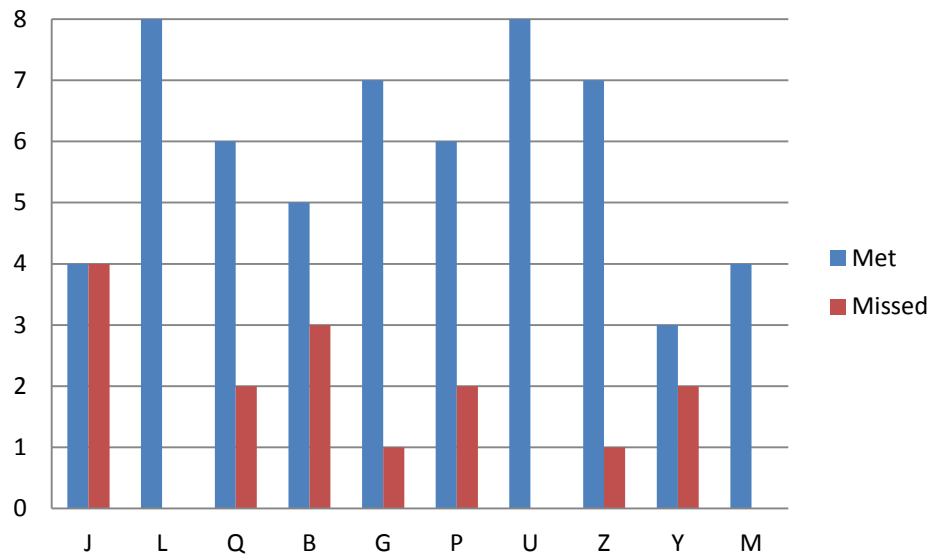
## Federal Facilities Regional Program Performance

Figure 12 presents the number of years in which each Region met/missed its Decision Document target. Four Regions met all of their targets, and three Regions missed one target each.



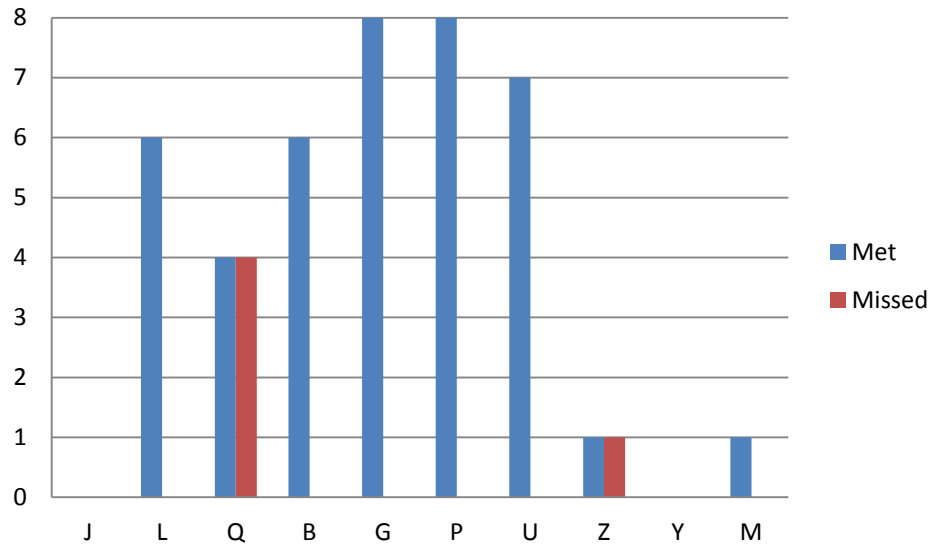
**Figure 12. Number of Years in Which Each Region Met/Missed Its Decision Documents Target (2005-2012)**

Figure 13 presents the number of years in which each Region met/missed its RA Project Completions target. Three Regions met all of their targets, and one Region missed as many targets as it met.



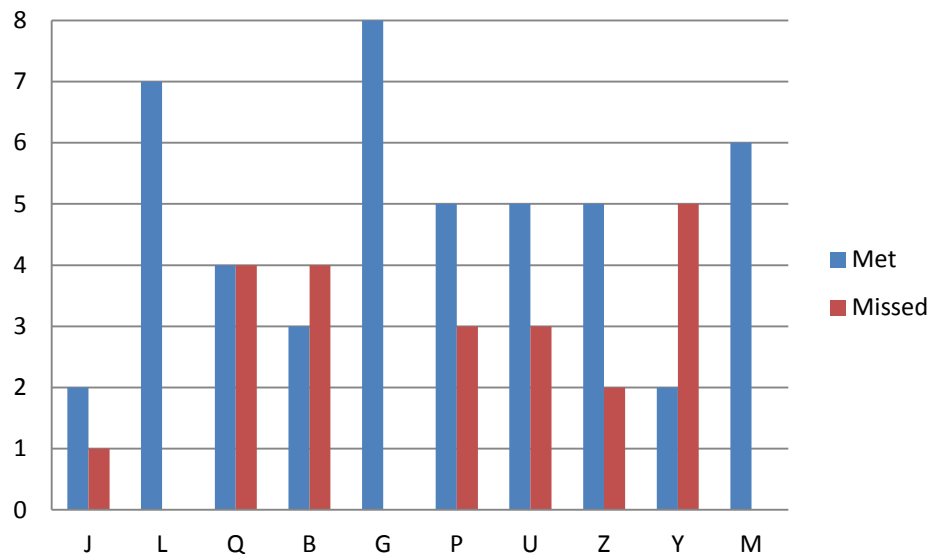
**Figure 13. Number of Years in Which Each Region Met/Missed Its RA Project Completions Target (2005-2012)**

Figure 14 presents the number of years in which each Region met/missed its RI/FS Start target. Six Regions met all of their targets, two Regions had zero targets, and two Regions missed as many targets as they met.



**Figure 14. Number of Years in Which Each Region Met/Missed Its RI/FS Starts Target (2005-2012)**

Figure 15 presents the number of years in which each Region met/missed its RA Start target. Three Regions met all of their targets, four Regions met more targets than they missed, one Region missed as many targets as it met, and two Regions missed more targets than they met.



**Figure 15. Number of Years in Which Each Region Met/Missed Its RA Starts Target (2005-2012)**

## Part II. Analysis of Missed/Substitute-Target Explanations

### Section 1. Methodology

The following effort focused on compiling and analyzing the reasons for the Regions' missed/substitute targets. Explanations for missed targets were analyzed and catalogued under various categories; the next step was to assign appropriate parties responsibility for missed/substitute targets (Other Federal Agencies (OFA), EPA, state officials, and/or local officials).

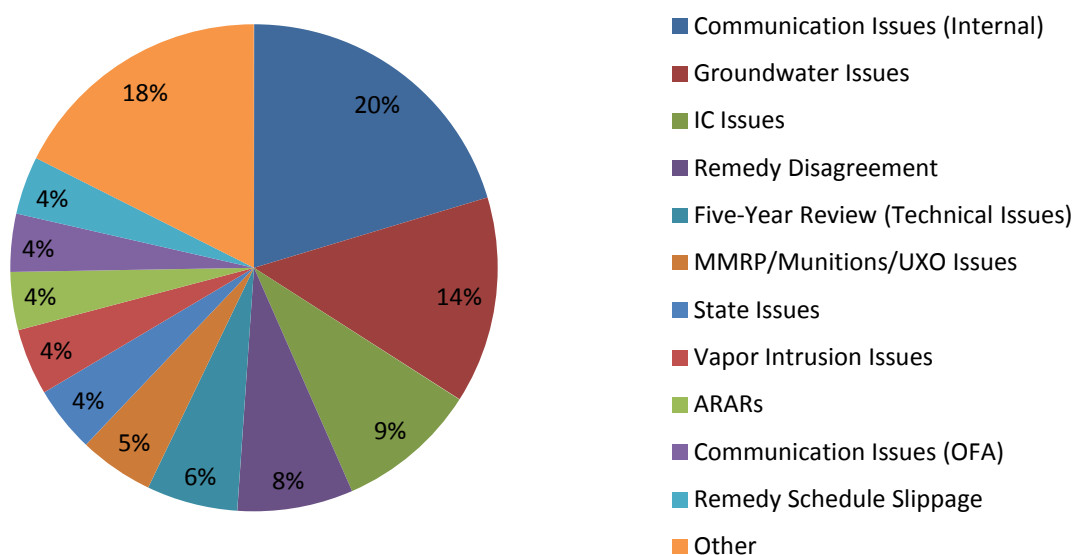
**Note:** In Part I, it was indicated that if a Region met a target by substituting one site for another, then that substitution "counted" – i.e., Regions were recognized for meeting their numerical targets, regardless of whether they did so with their originally designated sites. For Part II's analysis, however, explanations were sought for any originally targeted site that did not meet its goal, even if the Region found a substitute. Thus, Part II's data include both missed and substitute sites.



## Section 2. Results

### Section 2.1. Categories

Figure 16 shows the distribution of explanations (from all Regions), by category.



**Figure 16. Missed/Substitute-Target Explanations by Category (All Regions)**  
(The “Other” category includes chemical-specific issues, funding, etc. See Appendix B for a full list of categories, including those under “Other.”)

Here are examples of the missed-target explanations:

- **Communication Issues (Internal)**
  - RPM did not get final management approval by the end of the fiscal year.
  - The Region did not meet all the requirements of the SWRAU definition in time.
- **Groundwater Issues**
  - Delays in approving the modified Feasibility Study for Monitored Natural Attenuation delayed ROD, RD, and RA.
  - Dispute on beneficial reuse of groundwater and whether there were enough data to select a monitoring natural attenuation remedy.
- **Five-Year Review (Technical Issues)**
  - DOD submitted a five-year review document, and EPA responded with detailed comments. DOD was also pursuing a partial deletion at the site as a priority.
  - The deadline for submitting the 5 year review was missed.
- **IC Issues**
  - Problems with proper documentation of Institutional Control (IC) implementation for some older RODs.
  - Significant additional IC information was requested by EPA.
- **Remedy Disagreement**

- Disagreements between EPA and DOD relating to the Feasibility Studies and subsequent potential remedy changes.
- Extensive discussion on the vapor intrusion components of the Supplemental Proposed Remedial Action Plan are ongoing and have not yet come to resolution.
- **MMRP/Munitions/UXO Issues**
  - The old planned final ROD date was missed because new areas were identified that needed to be investigated through the MMRP process.
  - Remaining work involved the implementation of a new policy dealing with munitions and ordnance related substances.
- **State Issues**
  - The FY 2005 Final ROD deadline was missed because of policy differences and negotiations between EPA and the DOD, along with state considerations.
  - Conflicts between EPA, DOD and the State over TCE toxicity value, vapor intrusion, perchlorate sampling, and interpretation of state ARARs.
- **ARARs**
  - Unresolved issues regarding Alternate Concentration Limits
- **Communication Issues (Interagency)**
  - Regional Counsel was short-handed for most of the year. Additionally, the levels of review and concurrence that RODs had to undergo were increased.
- **Remedy Schedule Slippage**
  - Delays in finalizing the Remedial Action Completion Report because the Construction Completion Report was delayed.
  - Construction of the remedy is ongoing through the next fiscal year.

## Section 2.2. Distribution of Issues

Forty five percent of the missed/substitute-target explanations' categories are distributed across either four or five Regions, 28% are distributed across one to three Regions, and 27% are distributed across six to nine Regions (see Figure 17).

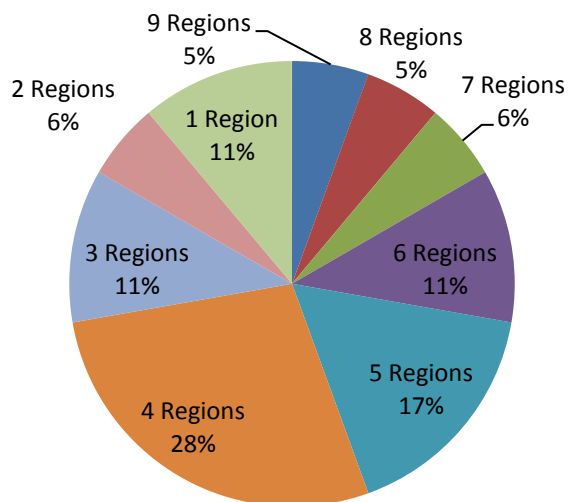


Figure 17. Distribution (Prevalence) of Categories

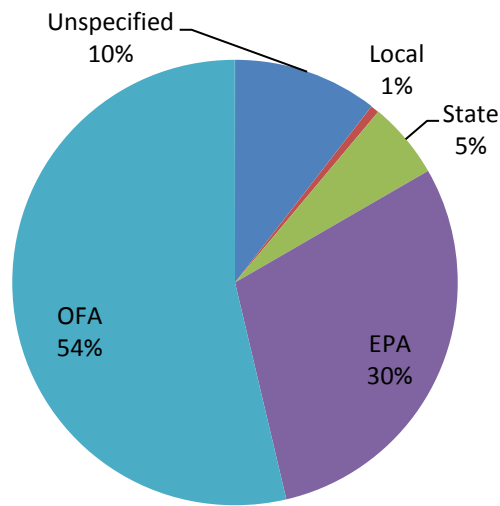
More specifically:

- Nine Regions had missed targets involving **Communication Issues (Internal)**.
- Eight Regions had **IC Issues**.
- Seven Regions had **Groundwater Issues**.
- Six Regions had **MMRP/Munitions/UXO Issues** and **Remedy Disagreements**.
- Five Regions had **Communication Issues (OFA)**, **Five-Year Review (Technical Issues)**, and **Remedy Schedule Slippage**.
- Four Regions had **ARARs**, **Chemical-Specific Issues**, **Five-Year Review (Schedule Slippage)**, **State Issues**, and **Vapor Intrusion Issues**.
- Three Regions had **Communication Issues (Interagency)** and **Documents Revised by OFA**.
- Two Regions had **EPA Personnel Problems**.
- **New Contamination Discovered (Non-Munition)** and **OFA Funding Issues** each occurred in one Region.

For a chart showing the geographic breadth of each category, see Appendix C.

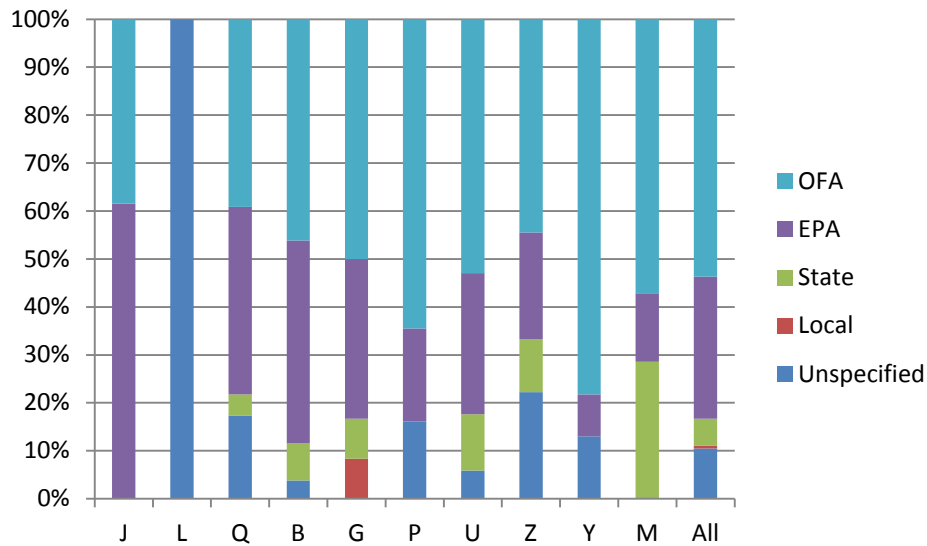
### Section 2.3. Responsibility

Figure 18 shows the distribution of parties responsible for missed/substitute targets (all Regions).



**Figure 18. Responsible Parties (All Regions)<sup>3</sup>**

Figure 19 shows the distribution of parties responsible—within each Region—for missed/substitute targets, based on how often respondents identified them as such.



**Figure 19. Responsible Parties (All Regions)**

<sup>3</sup> “Unspecified” signifies missed targets for which responsibility was not clearly identifiable.

## Part III. Appendices

### Appendix A. Weighting Data

Table 5 displays our attempt to weight performance by each Region's share of remaining Non-CCs, FTEs *spent* in 2012, and Total Accomplishments (2005-2012).

Region	# of NPL Sites	# NPL Non-CC	Weighting Factor / % of Remaining Non-CC	Full-Time Equivalent (FTE)	Weighting Factor / % of FTE	Total Accomp	% Total Accomp	% Met
J	10	3	2.94%	5.1	4.19%	64	2.79%	70.97%
L	15	8	7.84%	8.4	6.90%	149	6.50%	100.00%
Q	14	10	9.80%	6.7	5.50%	182	7.94%	60.47%
B	30	10	9.80%	16.3	13.38%	160	6.98%	68.09%
G	31	20	19.61%	25.1	20.61%	384	16.76%	87.04%
P	31	26	25.49%	17	13.96%	509	22.22%	72.55%
U	19	14	13.73%	25.7	21.10%	581	25.36%	82.69%
Z	9	5	4.90%	8.9	7.31%	148	6.46%	77.50%
Y	8	2	1.96%	3.3	2.71%	50	2.18%	58.54%
M	6	4	3.92%	5.3	4.35%	64	2.79%	93.55%
<b>Total:</b>	<b>173</b>	<b>102</b>		<b>121.8</b>		<b>2,291</b>		

**Table 5. NPL Weighting Based on the Number of NPL Sites, Non-Construction Completion Sites, and Full-Time Equivalents Spent in 2012**

## Federal Facilities Regional Program Performance

Table 6 displays our attempt to weight performance by each Region's share of remaining Non-CCs, FTEs *given* in 2012, and Total Accomplishments (2005-2012).

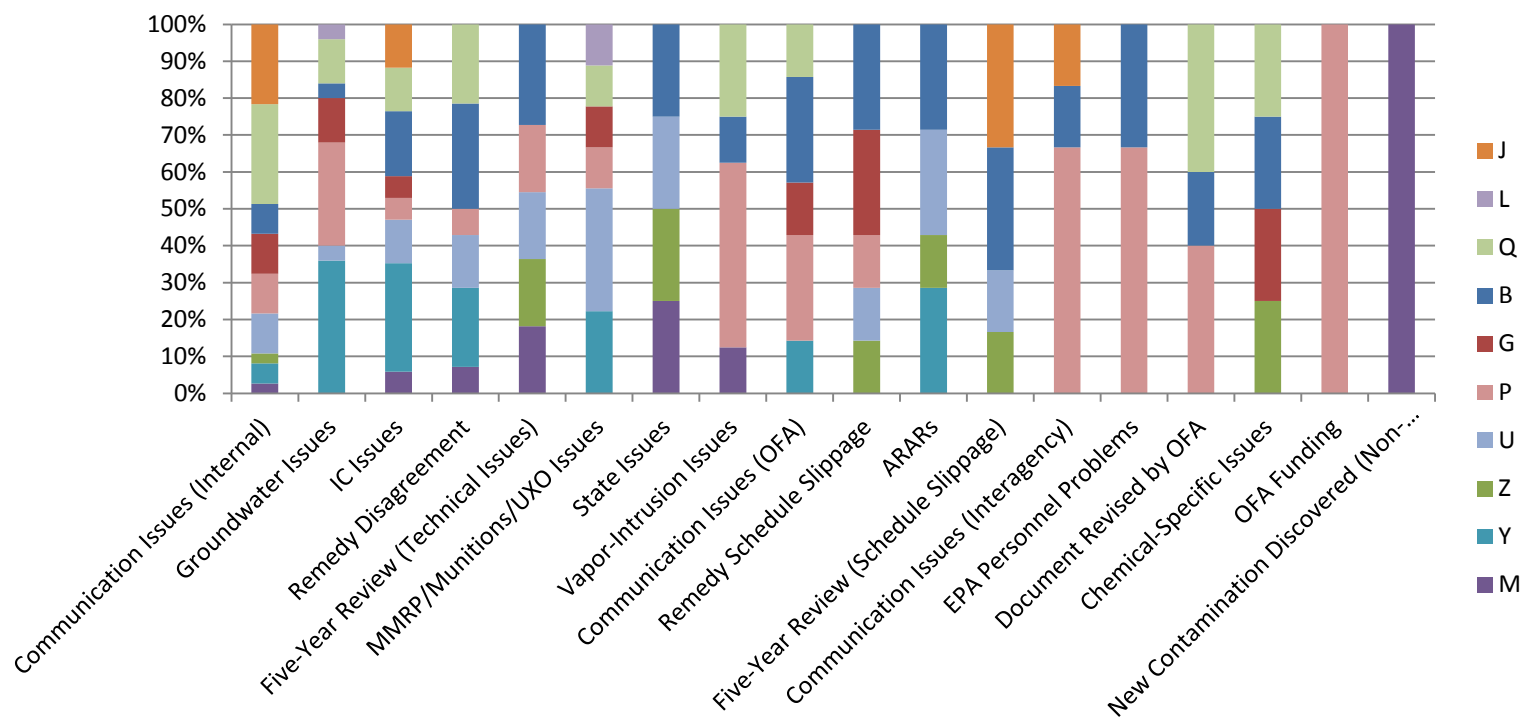
Region	# of NPL Sites	# NPL Non-CC	Weighting Factor / % of Remaining Non-CC	Full-Time Equivalent (FTE)	Weighting Factor / % of FTE	Total Accomp	% Total Accomp	% Met
J	10	3	2.94%	4.3	4.17%	64	2.79%	70.97%
L	15	8	7.84%	8.1	7.86%	149	6.50%	100.00%
Q	14	10	9.80%	7.2	6.99%	182	7.94%	60.47%
B	30	10	9.80%	16.2	15.73%	160	6.98%	68.09%
G	31	20	19.61%	20	19.42%	384	16.76%	87.04%
P	31	26	25.49%	14.4	13.98%	509	22.22%	72.55%
U	19	14	13.73%	16.4	15.92%	581	25.36%	82.69%
Z	9	5	4.90%	7.5	7.28%	148	6.46%	77.50%
Y	8	2	1.96%	3.8	3.69%	50	2.18%	58.54%
M	6	4	3.92%	5.1	4.95%	64	2.79%	93.55%
<b>Total:</b>	<b>173</b>	<b>102</b>		<b>103</b>		<b>2,291</b>		

**Table 6. NPL Weighting Based on the Number of NPL Sites, Non-Construction Completion Sites, and Full-Time Equivalents Given in 2012**

## Appendix B. Categories of Missed/Substitute-Target Explanations (All Regions)

Explanations	Occurrences	Percent of Total
Communication Issues (Internal)	37	20.33%
Groundwater Issues	25	13.74%
IC Issues	17	9.34%
Remedy Disagreement	14	7.69%
Five-Year Review (Technical Issues)	11	6.04%
MMRP/Munitions/UXO Issues	9	4.95%
State Issues	8	4.40%
Vapor Intrusion Issues	8	4.40%
ARARs	7	3.85%
Communication Issues (OFA)	7	3.85%
Remedy Schedule Slippage	7	3.85%
Communication Issues (Interagency)	6	3.30%
EPA Personnel Problems	6	3.30%
Five-Year Review (Schedule Slippage)	6	3.30%
Document Revised by OFA	5	2.75%
Chemical-Specific Issues	4	2.20%
OFA Funding	4	2.20%
New Contamination Discovered (Non-Munition)	1	0.55%

## Appendix C. Distribution of Categories across All Regions



**Figure 20. Distribution of Categories across All Regions  
(from the Most to the Least Widespread)**