

Analysis of EPA's Federal Facilities Restoration and Reuse Office (FFRRO) Regional Program Performance: Fiscal Years 2005-2011

MDB, Inc.

Doing Well by Doing Good

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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 their annual targets for the last seven years. MDB, Inc. conducted these analyses at the direction of Brendan Roache, assessing the successes and lessons learned by the EPA regional programs. 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 seven years (2005-2011) 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. MDB reviewed the 2005-2011 data regarding the eight program measures from all ten EPA Regions.¹ 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)

We explored several statistical approaches with FFRRO before deciding on the final approach presented in this report. We 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, we excluded all data (for any Region, year, and measure combination) with zero targets/ zero actuals. Thus, we created a neutral set-aside of these data, 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.

¹ For an earlier version of this report, comprising 2005-2010 data, MDB worked with a subcontractor, Neptune and Company.

Table 1 displays the number of data points by performance measure (total = 393), ordered by percentage met (lowest to highest). The **Target 0 = Actual 0** row displays the 147 data points where Regions committed to zero targets – and which we eliminated from the analysis.

Category	Final RODs	RA Starts	SWRAUs	RA Proj Comps	FYRs	DDs	CCs	RI/FS Starts	Total
Met	17	41	24	51	52	59	22	36	302
Percentage Met	50.0%	66.1%	75.0%	78.5%	81.3%	84.3%	84.6%	90.0%	N/A
Missed	17	21	8	14	12	11	4	4	91
Target 0 = Actual 0	36	8	18	5	6	0	44	30	147
Data Not Available	0	0	20	0	0	0	0	0	20
Total	70	70	50	70	70	70	70	70	540
Total in Final Analysis	34	62	32	65	64	70	26	40	393

Table 1. Number of Data Points by Measure (2005-2011)

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

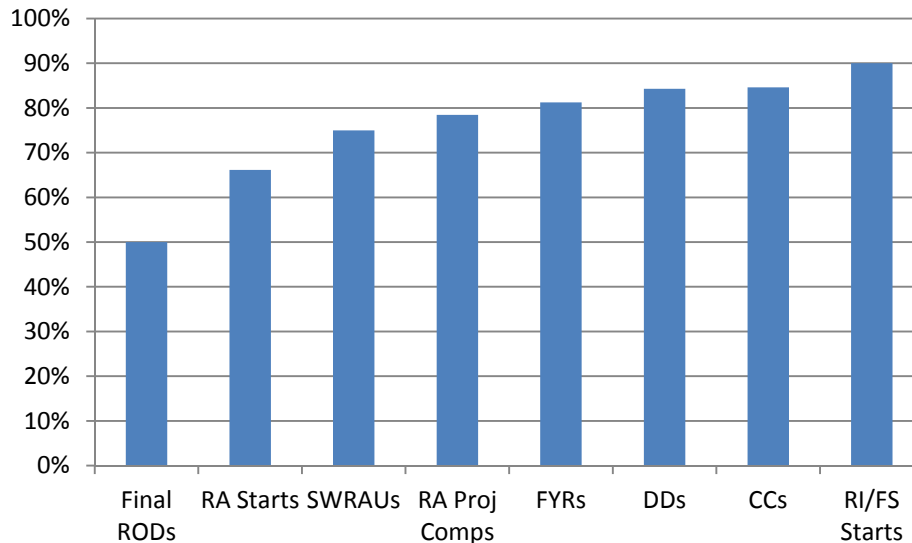


Figure 1. Percentage of Targets Met by Measure (2005-2011)

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
Total =	302	N/A	91	393	147	540

Table 2. Number of Targets Met/Missed by Year (2005-2011)

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 11 witnessed an increase in the number of performance measurement targets with a zero commitment (from 19 in FY 2010 to 29 in FY 2011). Since we exclude these zero target commitments from our analysis, this results in an apparent decline in the number of targets being met, but there was no increase in targets missed.

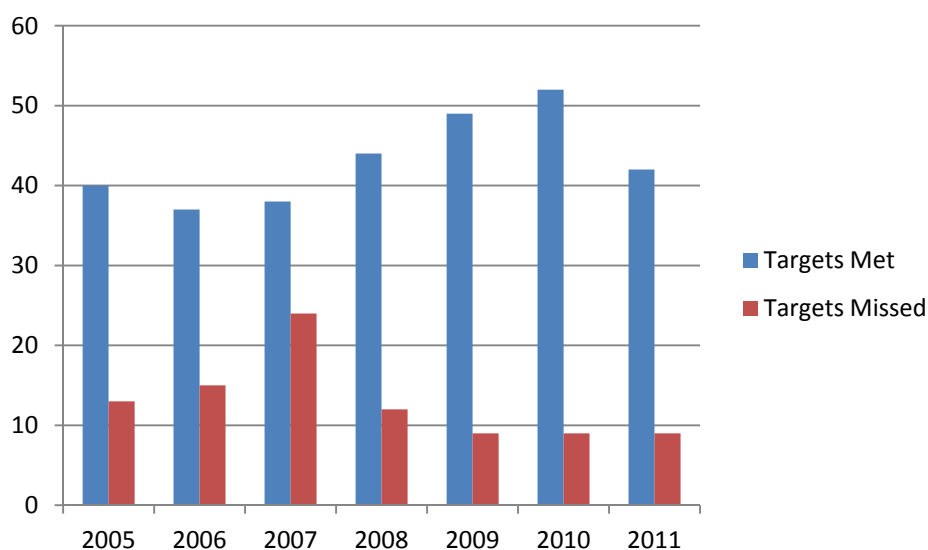


Figure 2. Number of Targets Met/Missed by Year (2005-2011)

Figures 3a and b indicate 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 seven-year period.

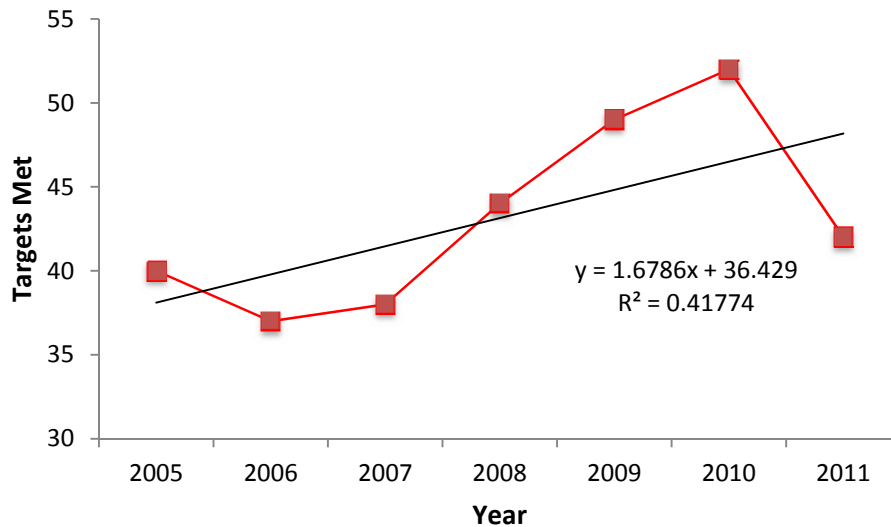


Figure 3a. Graphical display of Table 2 target met data, with the trend line superimposed on the data, the regression equation below the trend line, and R^2 printed on the graph.

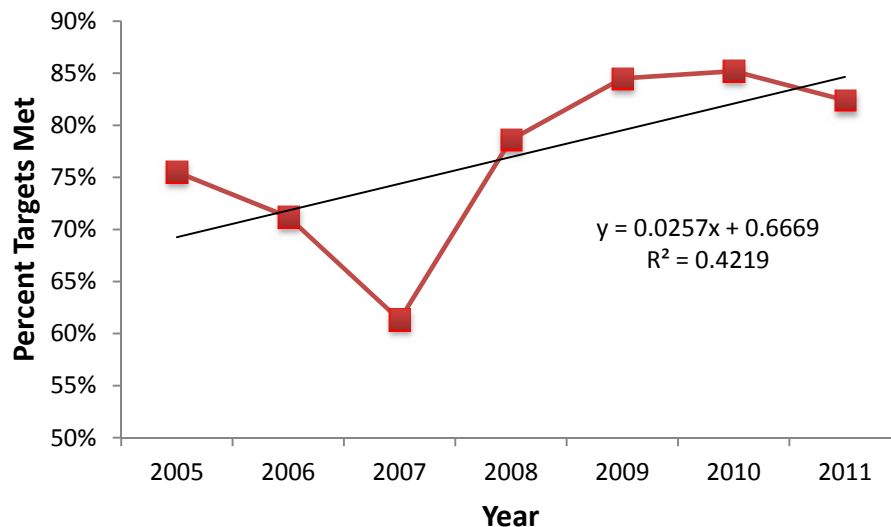


Figure 3b. Graphical display of Table 2 target met data expressed as percentages, with the trend line superimposed on the data, the regression equation below the trend line, and R^2 printed on the graph.

One could misinterpret Table 2 and Figures 2 and 3a as demonstrating a significant decline in Regions meeting their targets in FY 2011. However, as one sees in Figure 3b, the Regions continued meeting over

80% of their targets for which they had a commitment greater than zero. As Figure 3c (below) indicates, the Regions significantly increased the number of measures to which they committed zero targets. Figure 3d also demonstrates a large difference between Regions in terms of the percentage of measures to which they committed zero targets.

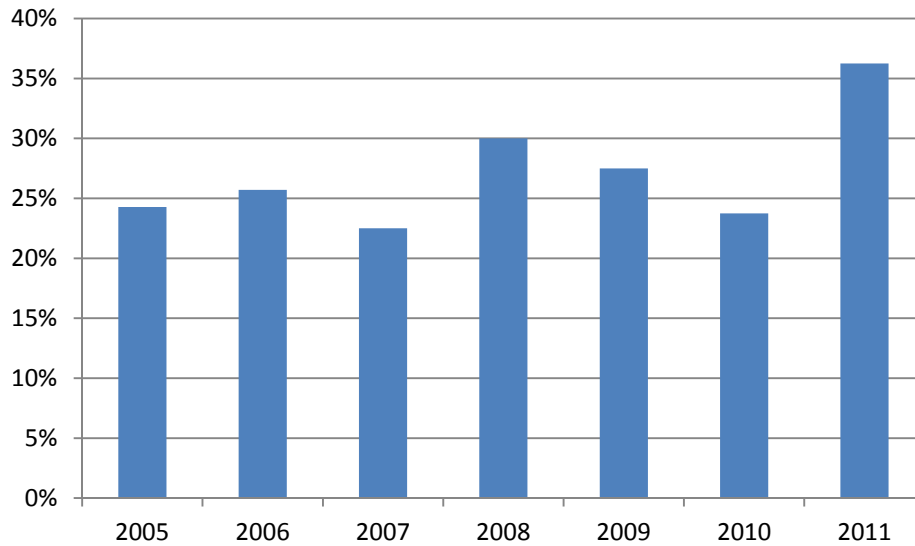


Figure 3c. Percentage of Zero Targets (Relative to Total Possible Targets) by Year

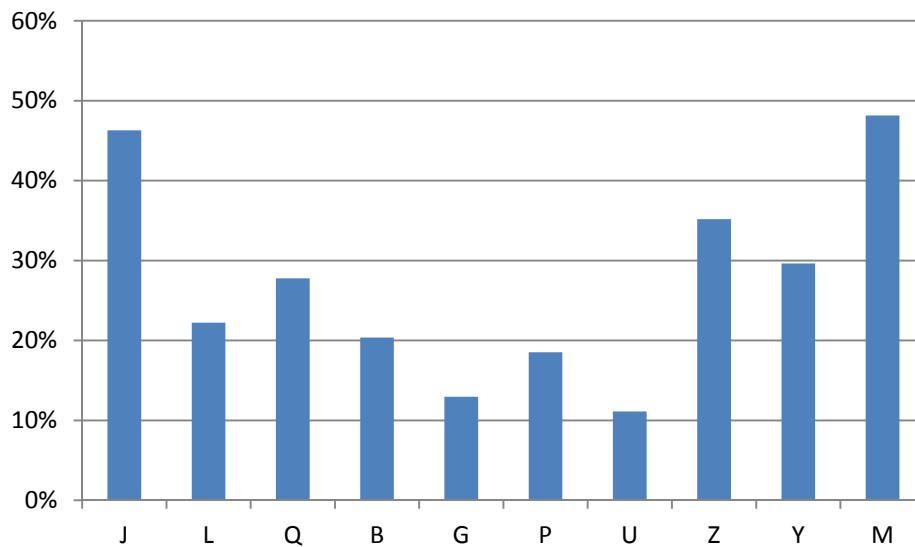


Figure 3d. Percentage of Zero Targets (Relative to Total Possible Targets) by Region (2005-2011)

Section 3. Measure Analysis

Based on Table 1, the number of targets met by the Regions was higher for almost every measure than the number of targets missed. The exception was Final RODs, which had the same number of targets met and missed (17). The Regions had higher totals for FYRs, DDs, and RA Project Completions due to the fact that fewer data were deleted for these measures (zero estimated/actual targets); as a result, those measures had a high number of targets met.

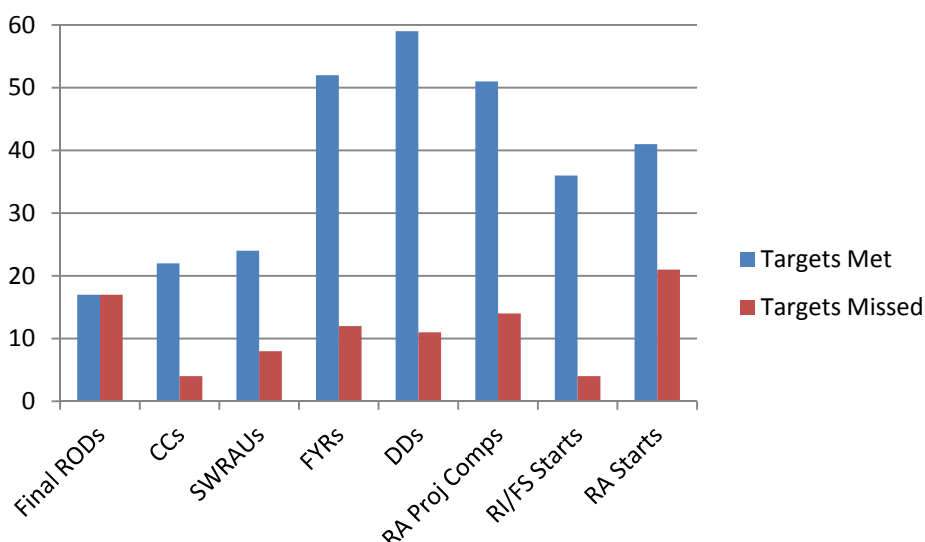


Figure 4. Number of Targets Met/Missed by Measure (2005-2011)

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
Total Met	17	22	24	52	59	51	36	41
% Met	50.0%	84.6%	75.0%	81.3%	84.3%	78.5%	90.0%	66.1%
Target Missed	17	4	8	12	11	14	4	21
Target 0 = Actual 0	36	44	18	6	0	5	30	8

Table 3. Number of Targets Met by Measure and Year (2005-2011)

Section 4. Regional Analysis

Table 4 and Figure 5 present the number of targets met/missed by Region.² The overwhelming observation is that Region L never missed a target over the past seven years, and Region M missed very few targets.

Region	Targets Met	Percent Met	Targets Missed	Total in Analysis	Target 0 = Actual 0
J	20	69.0%	9	29	25
L	42	100.0%	0	42	12
Q	22	56.4%	17	39	15
B	30	69.8%	13	43	11
G	40	85.1%	7	47	7
P	32	72.7%	12	44	10
U	39	81.3%	9	48	6
Z	28	80.0%	7	35	19
Y	23	60.5%	15	38	16
M	26	92.9%	2	28	26
Total	302	N/A	91	393	147

Table 4. Number of Targets Met/Missed by Region (2005-2011)³

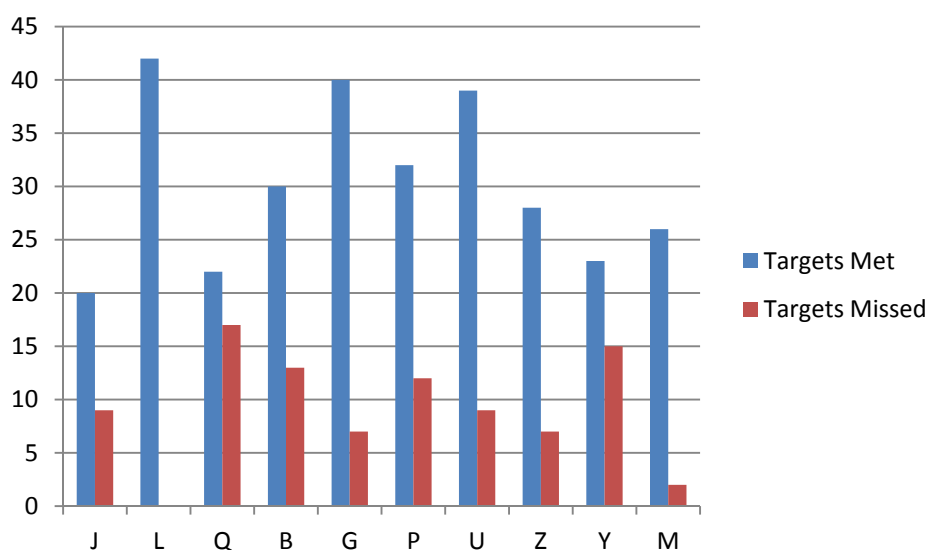


Figure 5. Number of Targets Met/Missed by Region (2005-2011)

² In this report, we have assigned letters to the Regions and have displayed regional data in a random order.

³ Since the SWRAUs measure began in 2007, each Region has two fewer values.

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

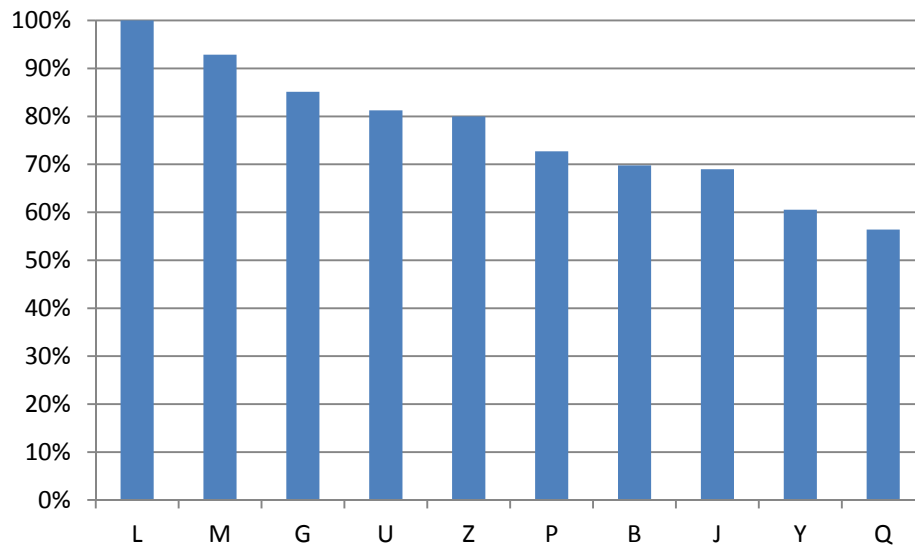


Figure 6. Percentages Met by Region (2005-2011)

Figure 7 displays the total number of accomplishments, adding all of the values for all eight measures for the past seven 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.

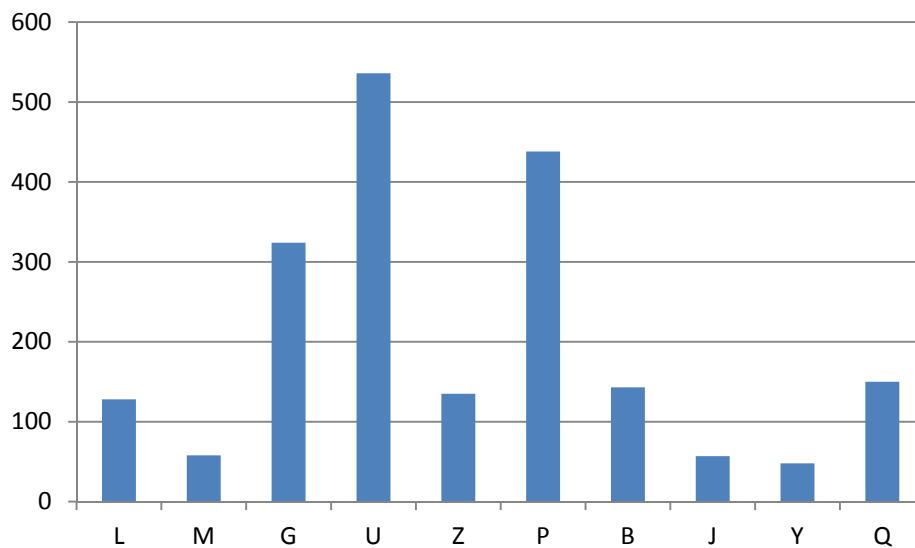


Figure 7. Accomplishment Totals by Region (2005-2011)

Section 4.1 Regional Analysis by Measure⁴

Figure 8 presents the number of years in which each Region met/missed its Final RODs target. The results for three Regions (J, L, and 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).

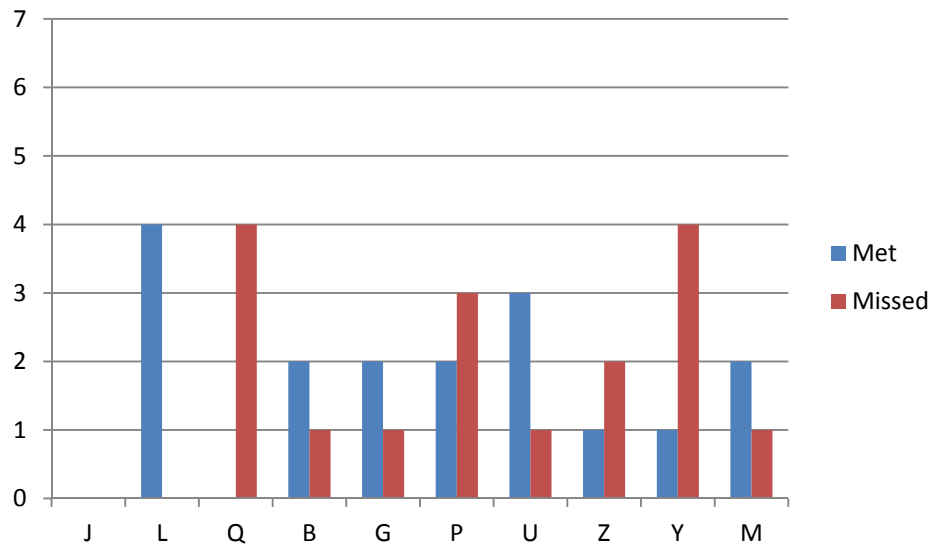


Figure 8. Number of Years in Which Each Region Met/Missed Its Final RODs Target (2005-2011)

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

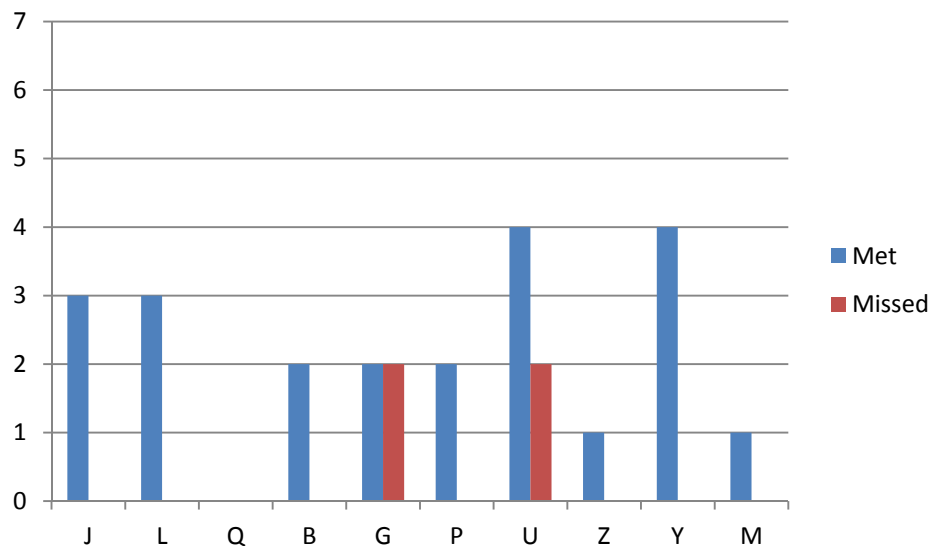


Figure 9. Number of Years in Which Each Region Met/Missed Its CCs Target (2005-2011)

⁴ All of the charts (except one) in this section show a maximum value of 7 since this report covers 7 fiscal years.

Figure 10 presents the number of years in which each Region met/missed its SWRAUs target (2007-2011). Four Regions met all of their targets, four Regions each missed one, and two Regions each missed two.

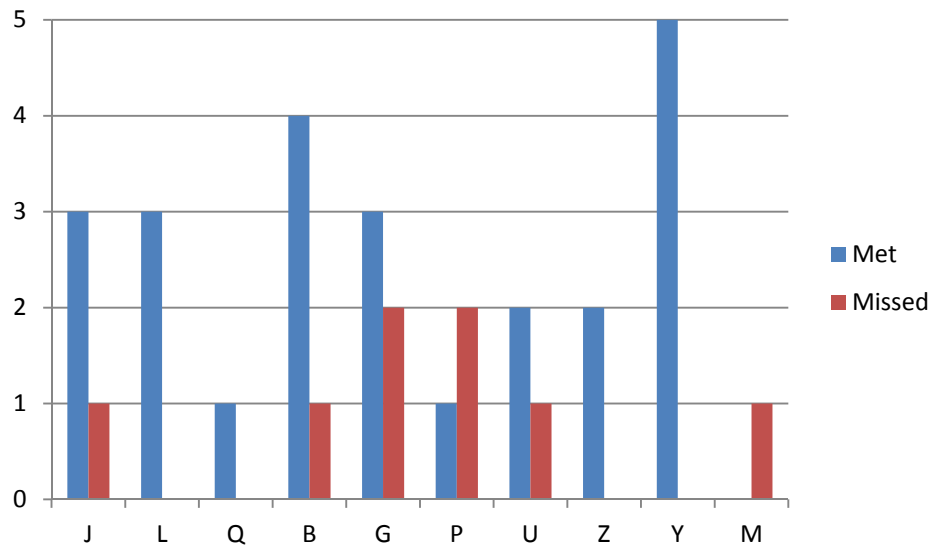


Figure 10. Number of Years in Which Each Region Met/Missed Its SWRAUs Target (2007-2011)

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

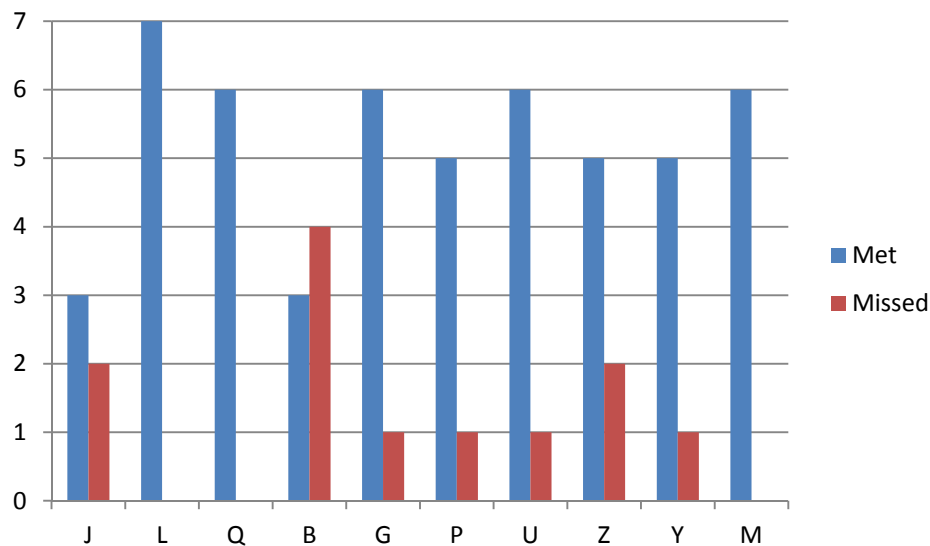


Figure 11. Number of Years in Which Each Region Met/Missed Its Five-Year Reviews Target (2005-2011)

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

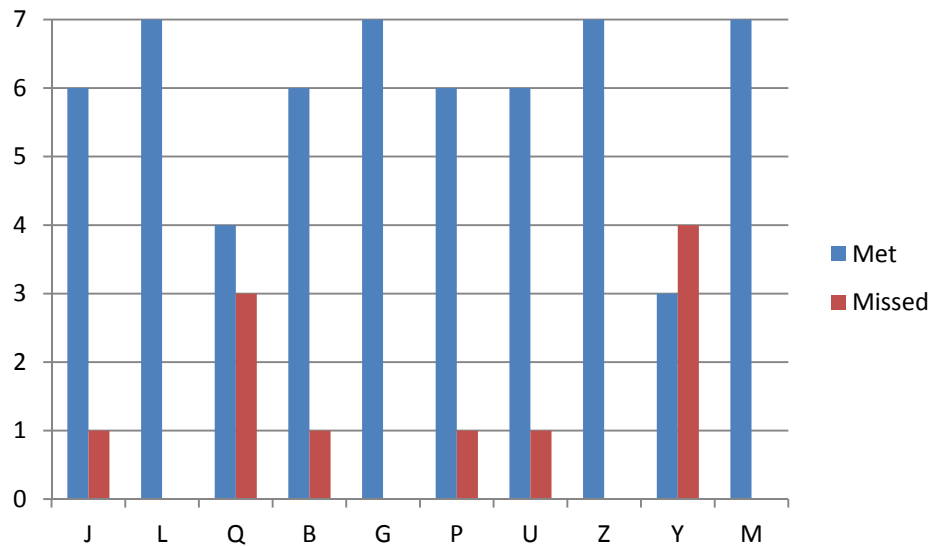


Figure 12. Number of Years in Which Each Region Met/Missed Its Decision Documents Target (2005-2011)

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 more targets than it met.

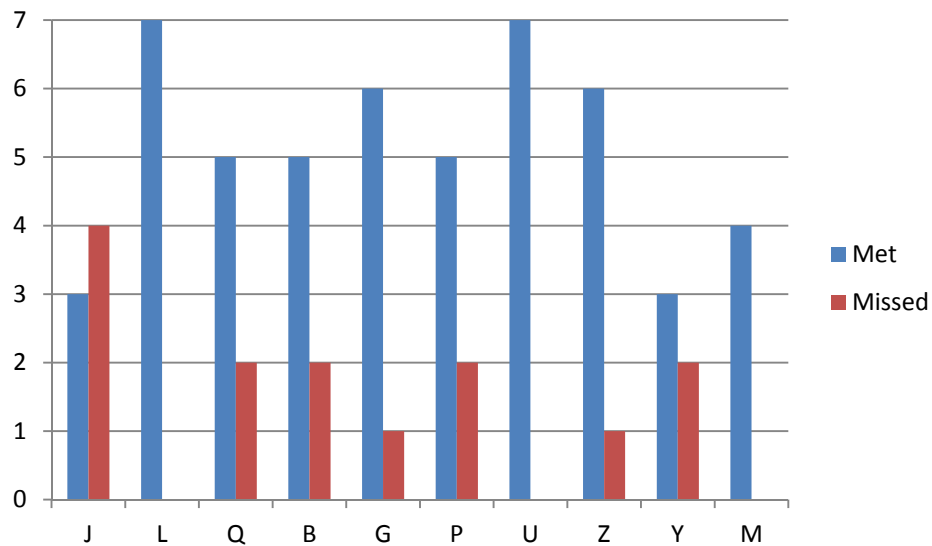


Figure 13. Number of Years in Which Each Region Met/Missed Its RA Project Completions Target (2005-2011)

Figure 14 presents the number of years in which each Region met/missed its RI/FS Starts target. Seven Regions met all of their targets, two Regions had zero targets, and one Region missed more targets than it met.

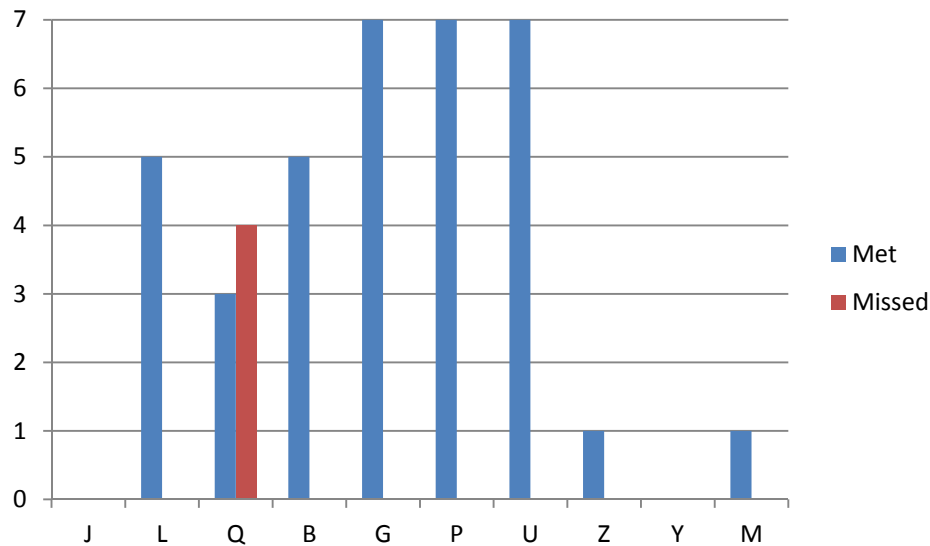


Figure 14. Number of Years in Which Each Region Met/Missed Its RI/FS Starts Target (2005-2011)

Figure 15 presents the number of years in which each Region met/missed its RA Starts target. Three Regions met all of their targets, four Regions met more targets than they missed, and three Regions missed more targets than they met.

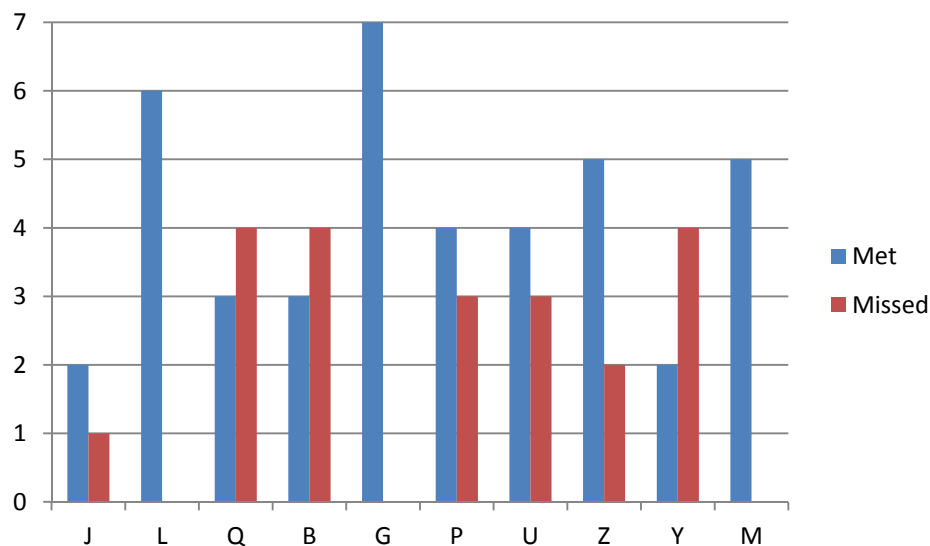


Figure 15. Number of Years in Which Each Region Met/Missed Its RA Starts Target (2005-2011)

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. At the direction of EPA, MDB compiled a list of Program Managers and Remedial Project Managers who could provide that information. We contacted them via e-mail plus phone calls when necessary. (**Update:** Beginning in FY 2011, officials could enter missed-target explanations into an online application.)

MDB analyzed the explanations that the regional officials provided and catalogued them under various categories; we also determined which parties shouldered responsibility for missed/substitute targets (Other Federal Agencies (OFA), EPA, state officials, and/or local officials).

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

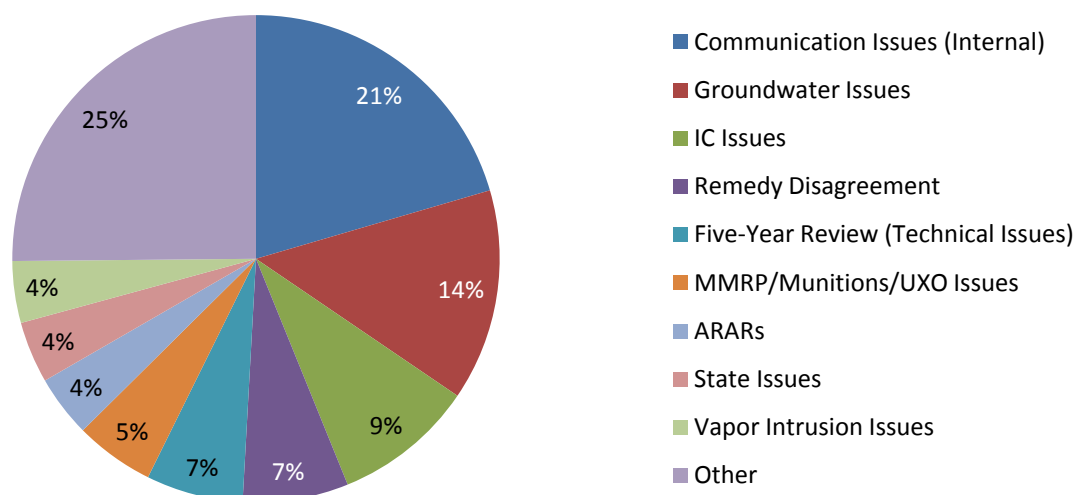


Figure 16. Missed/Substitute-Target Explanations by Category (All Regions)
 (The “Other” category includes Disagreement on remedy, chemical-specific issues, funding, etc. See Appendix B for a full list of categories, including those under “Other.”)

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 was 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

Fifty 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 22% are distributed across six to nine Regions (see Figure 17).

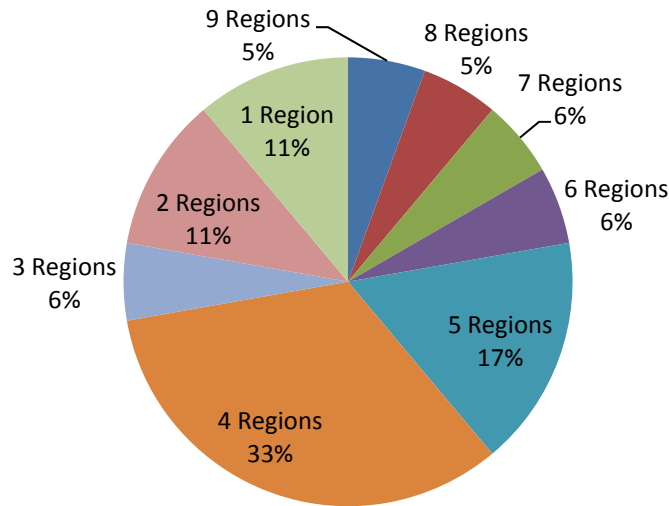


Figure 17. Distribution (Prevalence) of Categories

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**.
- Five Regions had **Five-Year Review (Technical Issues)**, **Remedy Disagreements**, and **Remedy Schedule Slippage**.
- Four Regions had **ARARs**, **Chemical-Specific Issues**, **Communication Issues (OFA)**, **Five-Year Review (Schedule Slippage)**, **State Issues**, and **Vapor Intrusion Issues**.
- Three Regions had **Documents Revised by OFA**.
- Two Regions had **Communication Issues (Interagency)** and **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).

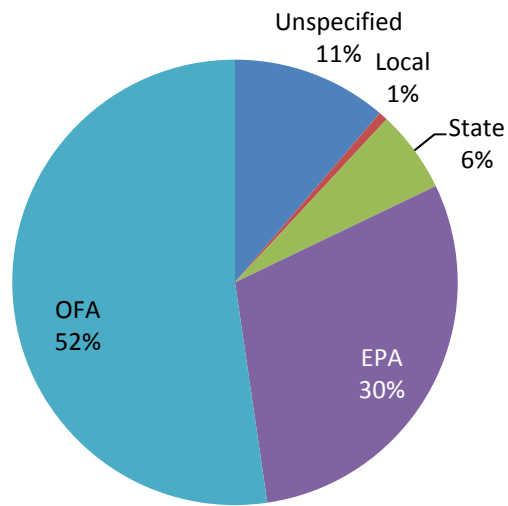


Figure 18. Responsible Parties (All Regions)⁵

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

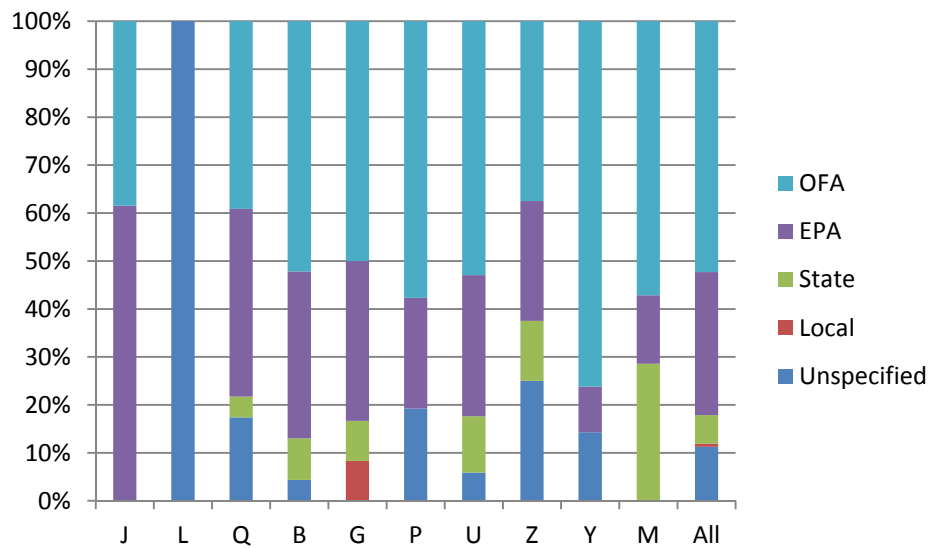


Figure 19. Responsible Parties (All Regions)

⁵ "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, and Total Accomplishments (2005-2011).

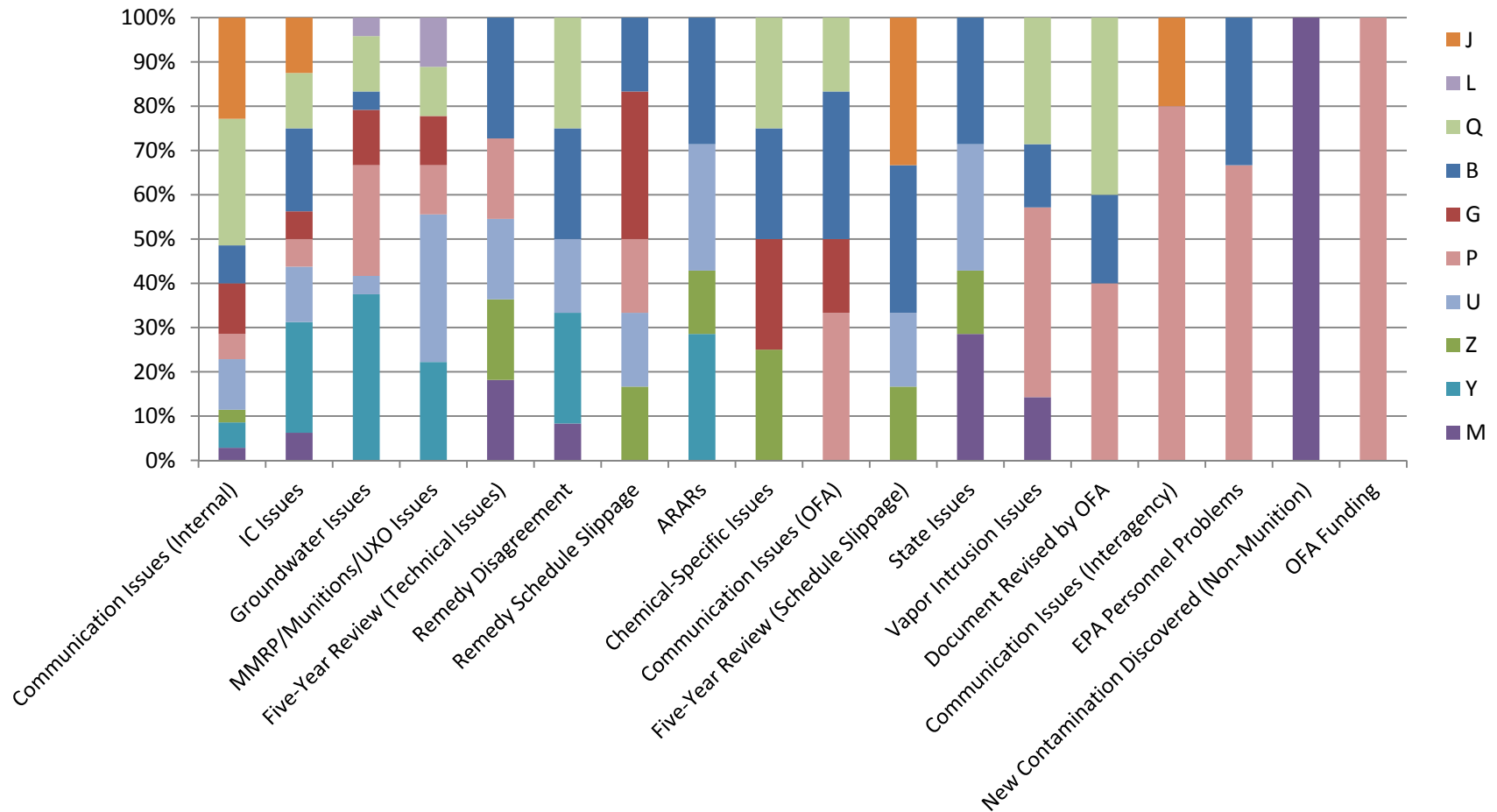
Region	# of NPL Sites	# NPL Non-CC	Weighting Factor / % of Remaining Non-CC	Full-Time Equivalent (FTE)	Weighting Factor / % of FTE	Total Accomp	% Total Accomp	% Met
J	10	3	2.6%	7.6	6.5%	57	2.8%	69.0%
L	15	10	8.6%	9.5	8.2%	128	6.3%	100.0%
Q	14	12	10.3%	7.8	6.7%	150	7.4%	56.4%
B	30	11	9.5%	17.5	15.1%	143	7.1%	69.8%
G	31	22	19.0%	20.7	17.8%	324	16.1%	85.1%
P	31	29	25.0%	15.0	12.9%	438	21.7%	72.7%
U	19	15	12.9%	17.1	14.7%	536	26.6%	81.3%
Z	9	6	5.2%	11.1	9.6%	135	6.7%	80.0%
Y	8	4	3.4%	4.3	3.7%	48	2.4%	60.5%
M	6	4	3.4%	5.6	4.8%	58	2.9%	92.9%
Total:	173	116		116.2		2,017		

Table 5. NPL Weighting Based on the Number of NPL Sites, Non-Construction Completion Sites, and Full-Time Equivalents (2005-2011)

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

Explanations	Occurrences
Communication Issues (Internal)	20.47% (35)
Groundwater Issues	14.04% (24)
IC Issues	9.36% (16)
Remedy Disagreement	7.02% (12)
Five-Year Review (Technical Issues)	6.43% (11)
MMRP/Munitions/UXO Issues	5.26% (9)
ARARs	4.09% (7)
State Issues	4.09% (7)
Vapor Intrusion Issues	4.09% (7)
Communication Issues (OFA)	3.51% (6)
EPA Personnel Problems	3.51% (6)
Five-Year Review (Schedule Slippage)	3.51% (6)
Remedy Schedule Slippage	3.51% (6)
Communication Issues (Interagency)	2.92% (5)
Document Revised by OFA	2.92% (5)
Chemical-Specific Issues	2.34% (4)
OFA Funding	2.34% (4)
New Contamination Discovered (Non-Munition)	0.58% (1)

Appendix C. Distribution of Categories across All Regions



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