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#WMS2016



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# Long-Term Stewardship and CERCLA Five-Year Review at Hanford



# ACKNOWLEDGMENTS: DRAFT Guide for FYR Writers

## CERCLA Five-Year Review

A DRAFT GUIDE FOR WRITERS | OCTOBER 2, 2014



# The CERCLA Five-Year Review

- An assessment of the performance of remedial actions to ensure protection of human health and the environment
- OSWER 2001 FYR Comprehensive Guidance
- EPA website
  - [www.epa.gov/fedfac/fyr.htm](http://www.epa.gov/fedfac/fyr.htm)
  - [www.epa.gov/superfund/fiveyearreview](http://www.epa.gov/superfund/fiveyearreview)

# RPMs Top 10 Comments

1 One protectiveness statement per Operable Unit (OU) not issued.

2 Protectiveness statements issued for OUs that don't need them.

3 Not issuing protectiveness statements for OUs that need them, particularly for sites under construction.

4 The wrong protectiveness statement was chosen.

5 A sitewide protectiveness statement was not issued where appropriate, or vice versa.

# RPMs Top 10 Comments

- 6 Reports don't link to the Remedial Action Objectives (RAOs) or the risk basis of the Record of Decision (ROD).
- 7 Report provides insufficient support for the protectiveness statement.
- 8 Reports are long, not focused on the essential elements of FYR.
- 9 Not enough information is provided to identify the status of issues being tracked from the previous FYR.
- 10 Reports include topics that do not affect current or future protectiveness of the remedy, such as Operation and Maintenance (O&M)

# Draft Guidance for FYR Writers

- To help resolve the issues identified by the OIG and by the EPA RPMs:
- EPA's Federal Facilities Restoration and Reuse Office (FFRRO) formed the FYR Interagency Workgroup (Workgroup). Members on the Workgroup include: EPA, the Department of Interior, Defense and its service components (Army, Navy, Air Force, and the Office of the Secretary of Defense) and the Department of Energy.

# Goals of New Guidance Module

- **Write shorter, more focused reports**
- **Stay up to date**
- **Write to a broad audience**
- **Submit easily reviewed reports with fewer comments**
- **Choose and support protectiveness statements**
- **Understand what the reviewer is looking for**
- **Reduce costs to produce a FYR**

# Steps to the FYR

- Public Notification
- Visit websites for most current tools
  - [www.epa.gov/fedfac/fyr.htm](http://www.epa.gov/fedfac/fyr.htm)
  - [www.epa.gov/superfund/fiveyearreview](http://www.epa.gov/superfund/fiveyearreview)
- Assemble the team
- Develop a schedule
  - Hanford began planning 24+ months prior to deliverable
- Establish what OUs are reviewed for Protectiveness Statements
  - Hanford evaluated 30 OUs
    - Included evaluation of previous FYR reports
- Data gathering and writing

# Example Table

OU	Facility's Name	Common Name	Decision Date	RAOs	Remedy
OU1	OT020	Sitewide GW plumes	9/29/94 Action Memo  8/30/04 ROD	Prevent exposure to GW > MCL  Restore GW	MNA ICs
OU2	ST022	Sump Leach Field	8/30/97 ROD  9/30/02 ESD	<ul style="list-style-type: none"> <li>•Reduce GW concentrations</li> <li>•Prevent Plume expansion</li> <li>•Prevent exposures to HI&gt;1 or risk &gt;10<sup>-5</sup></li> </ul>	MNA ICs

# Hanford Table

Source OU (43)	Waste Sites*	Doc.Doc.	Contractor	GTB Comments:	Year of CERCLA Decision																										
					WCH	PRC	MSA	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	CUM
100-BC-1	59	IR	*																												
100-BC-2	29	IR	*																												
100-DR-1	89	IR	*																												
100-DR-2	23	IR	*																												
100-FR-1	74	R	*																												
100-FR-2	18	R	*																												
100-HR-1	49	IR	*																												
100-HR-2	17	IR	*																												
100-IU-1	4	R	*																												
100-IU-2	49	R	*																												
100-IU-3	3	R	*																												
100-IU-4	1	R	*																												
100-IU-5	1	R	*																												
100-IU-6	40	R	*																												
100-KR-1	23	IR	*																												
100-KR-2	107	IR	*																												
100-NR-1	135	IR	*																												
100-OL-1	0	R	*																												
1100-EM-1	8	R	*																												
1100-EM-2	9	R	*																												
1100-EM-3	7	R	*																												
1100-IU-1	6	R	*																												
200-BC-1	27	R	*																												
200-CB-1	17	R	*																												
200-CP-1	23	R	*																												
200-CR-1	8	R	*																												
200-CU-1	5	R	*																												
200-CW-1	11	R	*																												
200-CW-3	16	IR	*																												
200-CW-5	5	R	*																												
200-DF-1		R	*																												
200-DV-1	43	AM	*																												
200-EA-1	122	*AM	*																												
200-IS-1	75	R	*																												
200-OA-1	63	*AM	*																												
200-PW-1	7	R	*																												
200-PW-3	5	R	*																												
200-PW-6	4	R	*																												
200-SW-1	2	R	*																												
200-SW-2	28	R	*																												
200-WA-1	150	*AM	*																												
300-FF-1	39	R	*																												
300-FF-2	107	R	*																												
<b>TOTAL</b>	<b>1518</b>																														

# To Review or Not?

## **No Review Required**

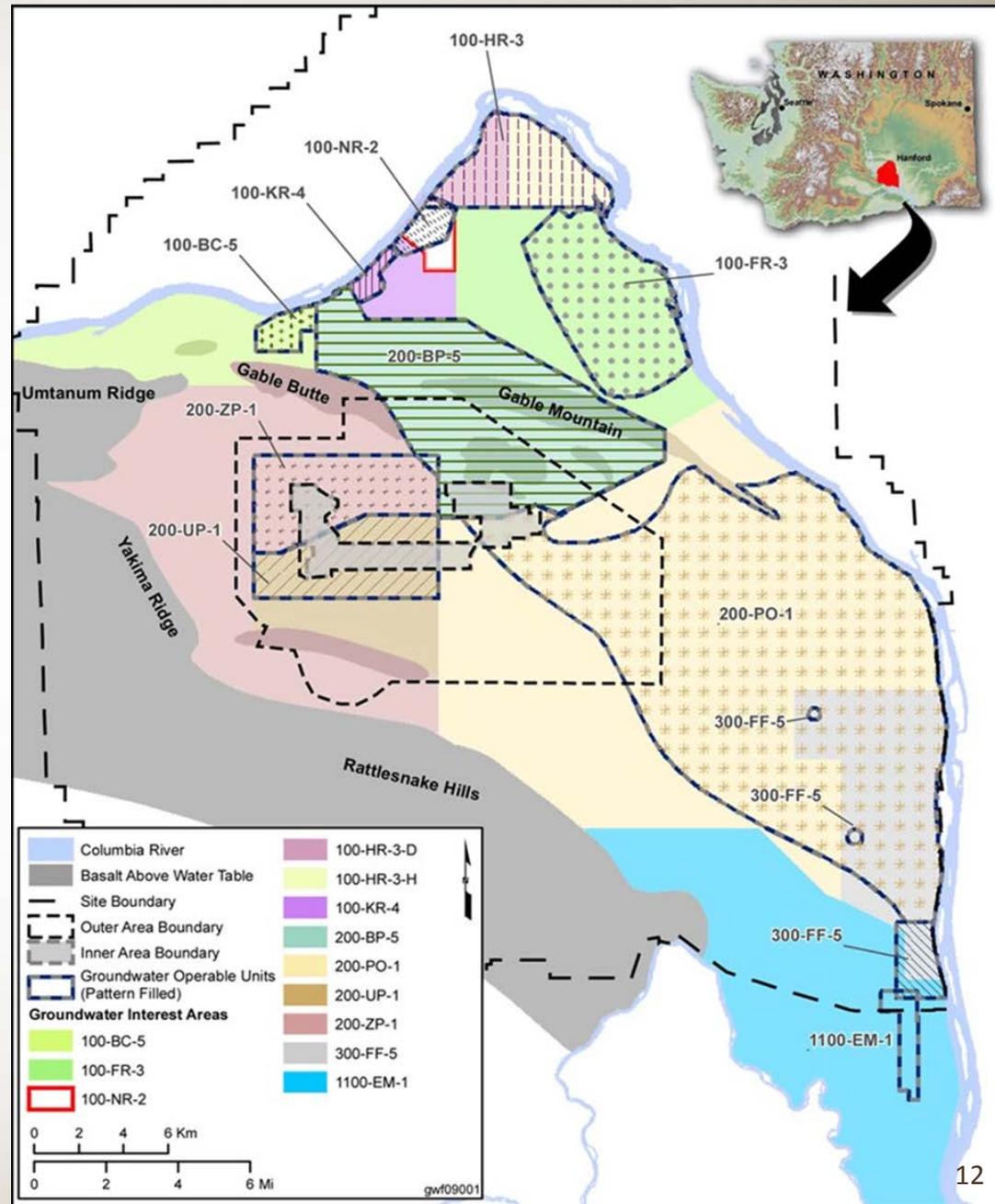
- If no decision document (e.g., ROD or removal action memo) exists, there is no remedy and an evaluation is not required. If construction of the remedy has not started, a review is not required.

## **Review Required**

- Generally, FYRs are conducted if an implemented remedial action results in any residual hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for UU/UE.

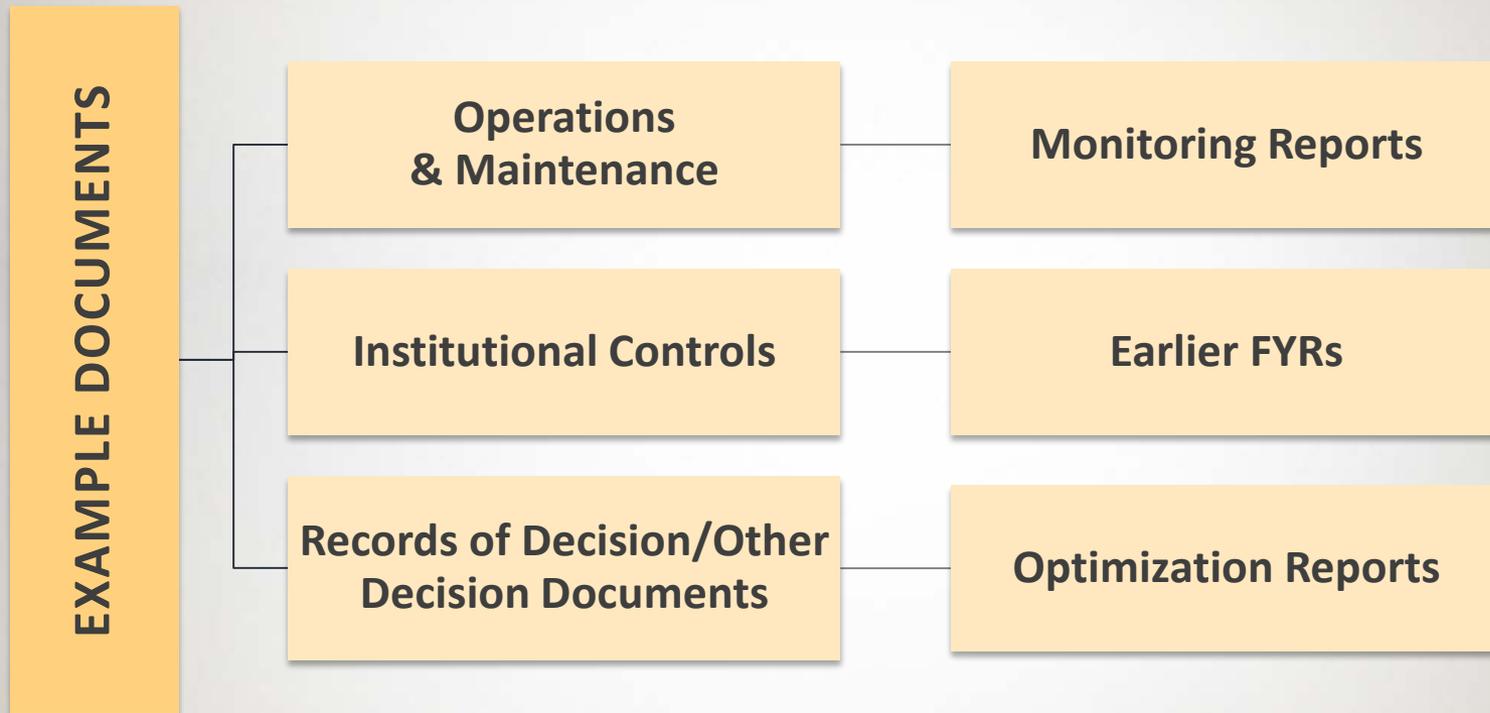
# Hanford Results

- Eliminated discussion of 14 OUs from previous FYR
- Early concurrence with EPA on what to include



# Information Gathering

# Examples of Existing Information



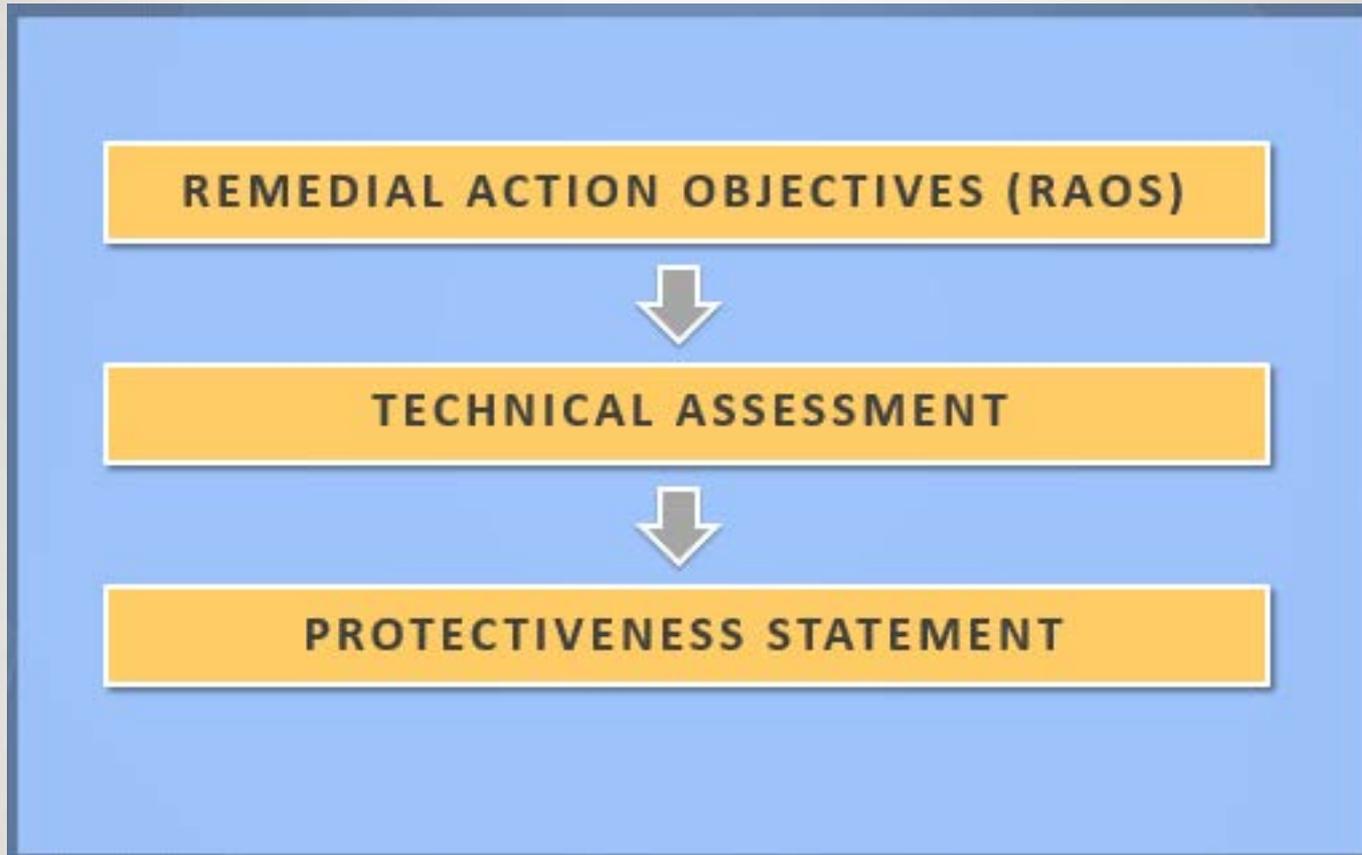
# Site Inspections

- Annual IC Assessments
- Land Use Controls
- Remedial Actions



# Assessing Protectiveness

# Critical Information Path



# Technical Evaluation

**Think about the RAOs as you answer each question!**

**A**

IS THE  
REMEDY  
WORKING?

**B**

HAVE  
EXPOSURE  
**Assumptions**  
CHANGED?

**C**

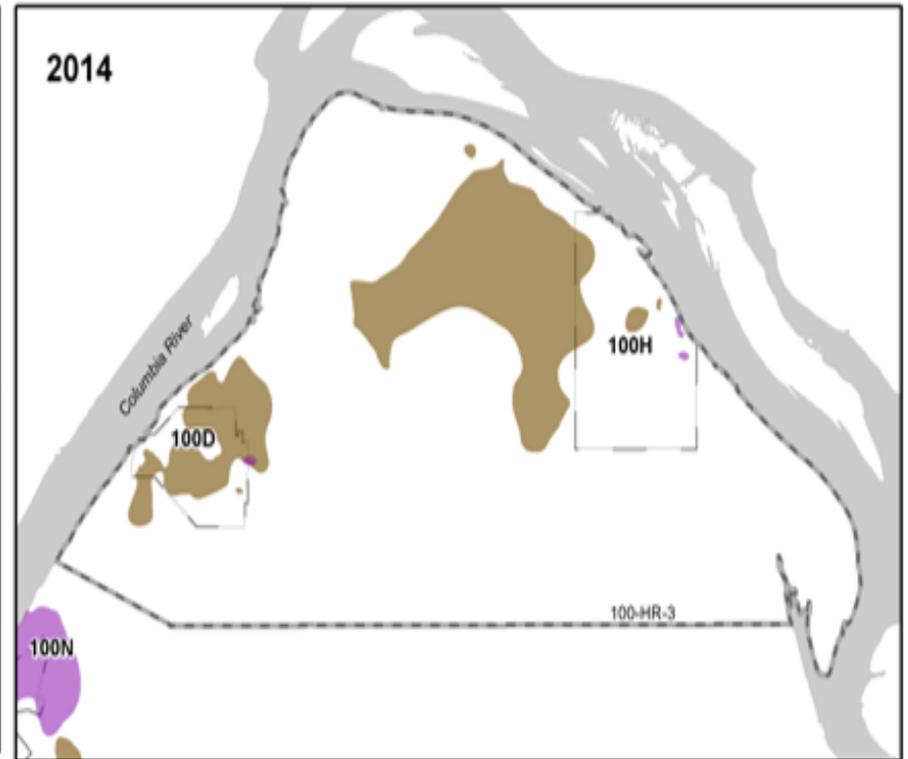
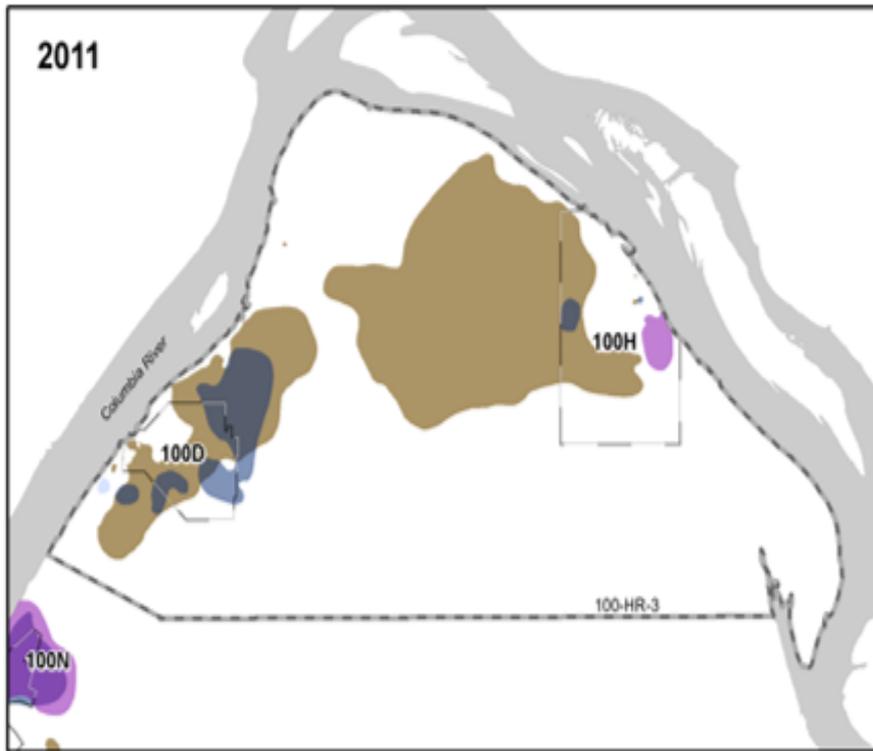
IS THERE  
ANYTHING  
ELSE TO  
CONSIDER?

For more information: OSWER 2001 FYR Comprehensive Guidance: Section 4.0 Assessing the Protectiveness of the Remedy

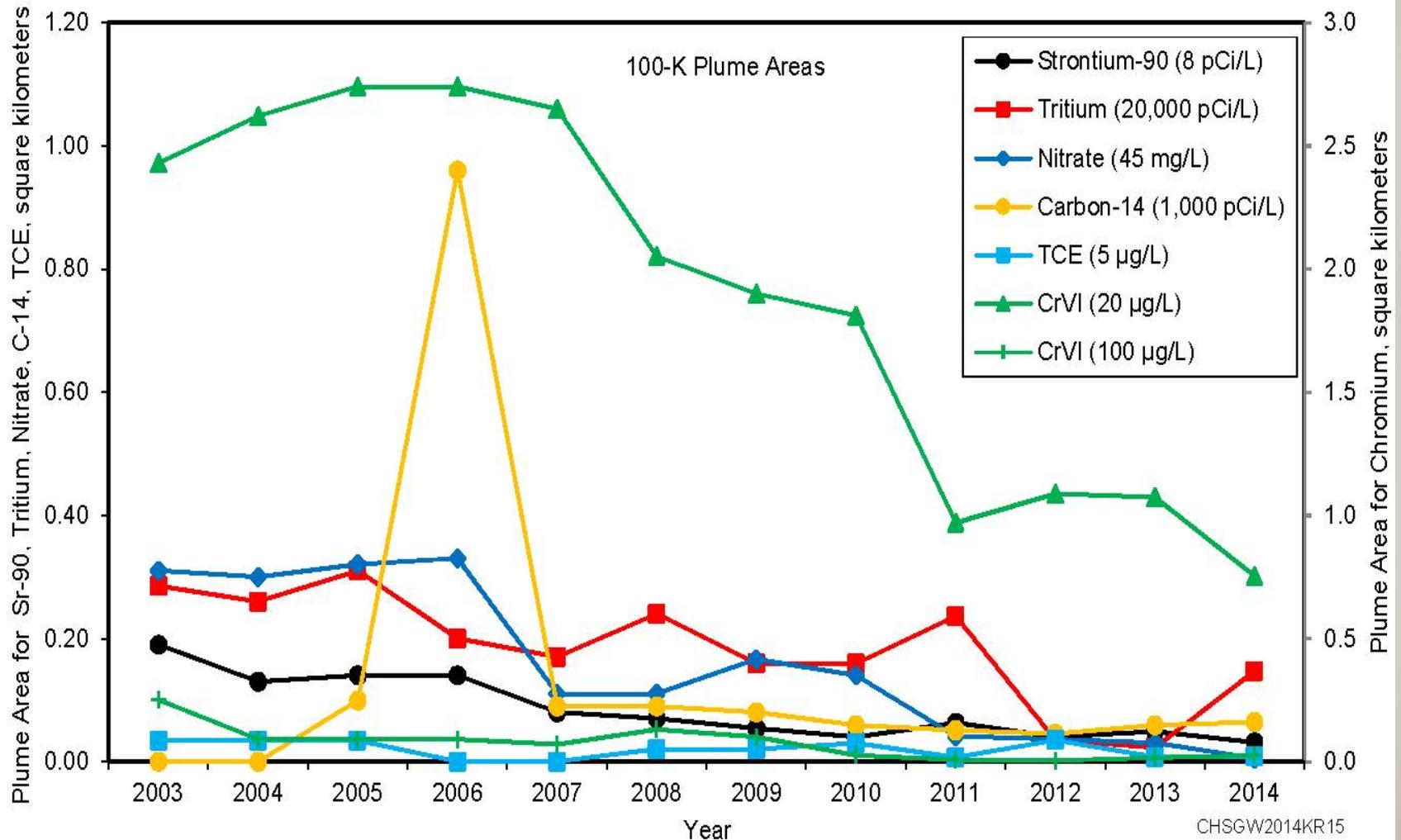
# Hanford Summary Table by OU

100-XX-X Remedy Implementation Summary								
Document Type	Date	Title						
Interim Action ROD, as amended	01/2003	EPA/ROD/RXX-XX/XX, Declaration of the Record of Decision for the 100-XX-X and 100-XX-X Operable Units, Hanford Site, Benton County, Washington						
RDR/RA Work Plans	08/2003	DOE/RL-XX-XX, Rev. 0, Remedial Design Report and Remedial Action Work Plan for the 100-XX-x and 100-XX-x Groundwater Operable Units Interim Action						
RAO (abbreviated description)	<ol style="list-style-type: none"> <li>1. Protect aquatic receptors in the river bottom substrate from contaminants in groundwater entering the Columbia River</li> <li>2. Protect human health by preventing exposure to contaminants in the groundwater</li> <li>3. Provide information that will lead to the final remedy</li> </ol>							
COCs	Hexavalent chromium, strontium-90, technetium-99, tritium, uranium, fluoride, and nitrate							
Interim Action Remedy								
Remedy Component (primary)	Implementation Status (approximate percentage complete as of September 2015) <sup>a</sup>						O&M Duration (~years) <sup>b</sup>	Est'd O&M Finish (year)
	0	1-25	26-50	51-75	76-99	100%		
P&T with ion exchange resins							TBD	TBD
Reinjection /Flow path control							TBD	TBD
Institutional controls							TBD	TBD

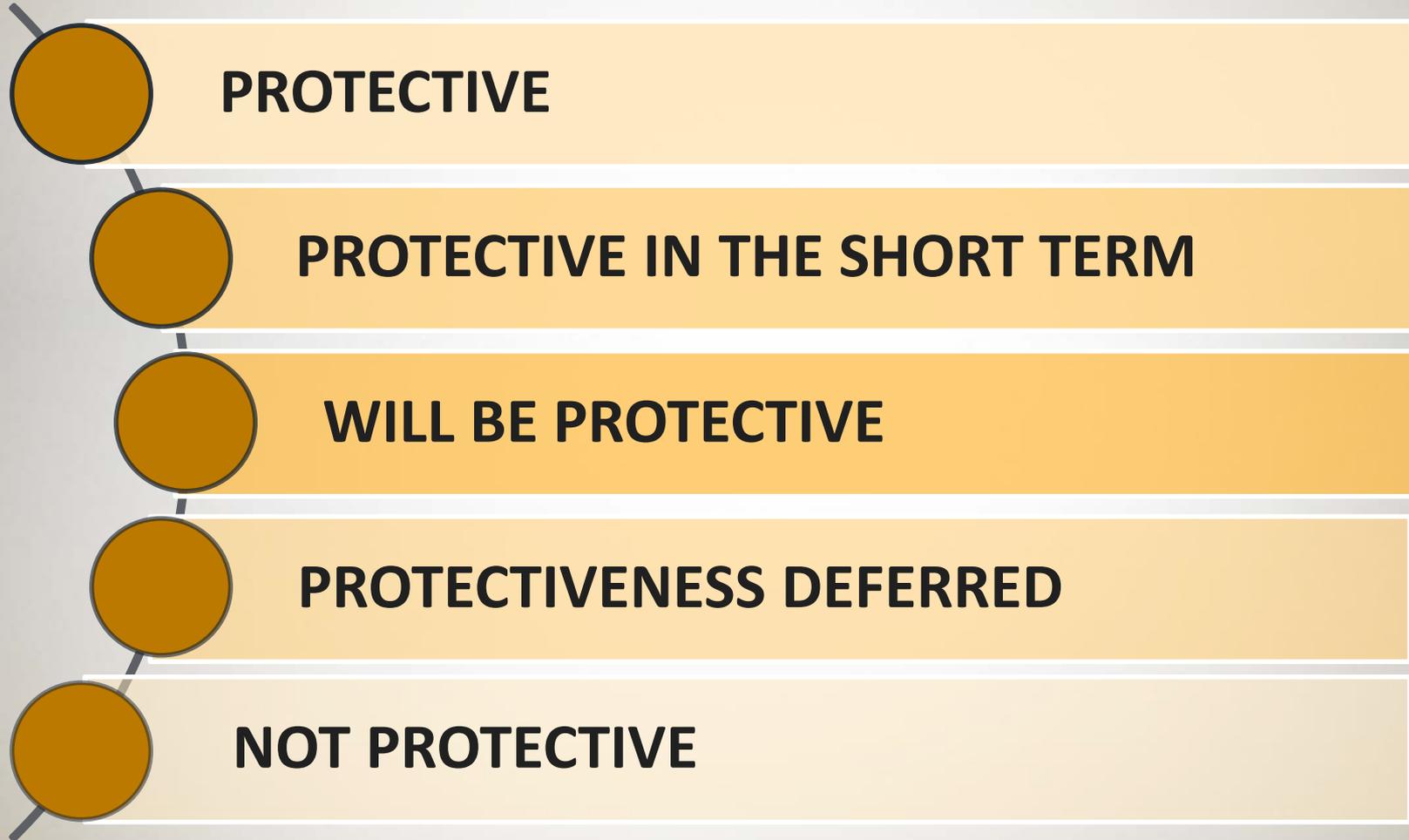
# Contaminant Plumes



# Plume Area Graphs



# Types of Protectiveness



# Issues and Recommendations

## Issues, and Recommendations Format

OU	ISSUES	AFFECTS PROTECTIVENESS (Y/N)	
		CURRENT	FUTURE
1	IC boundary does not include all of the area over the TCE plume	N	Y

## Follow-up Actions Format

OU	RECOMMENDATIONS	RESPONSIBLE PARTY	OVERSIGHT AGENCY	MILESTONE DATE	AFFECTS PROTECTIVENESS (Y/N)	
					CURRENT	FUTURE
1	Expand IC boundary	DOE	EPA	06/30/2015	N	Y

# Conclusions

- Speak to a broad audience
- Use plain language
- Relate RAOs and protectiveness
- Focus on the data review, technical assessment, and protectiveness status
- Summarized data to facilitate answering the three technical evaluation questions
- Stick to the critical information path
- Use hyperlinks to allow easy access to supporting information
- Use tables, graphs, maps, and diagrams to tell the main story

At Hanford,

- Used the guidance and training module
- EPA provided an informal review concurrent with the DOE-RL review
- EPA representatives attended monthly status meetings and DOE subject matter expert briefings
- The authors discussed content and format, along with the process to determine what OUs were going to be included and why, with EPA at a very early stage

# Questions

<http://www.hanford.gov/page.cfm/LongTermStewardship>

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