

Corrective Action Update: LEANing in a New Direction

HAZARDOUS WASTE FORUM
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RCRA Corrective Action Genesis

RCRA Hazardous & Solid Waste Amendments – 1984

- **CA Permitting Authorities - 3004(u) and (v)**
- **CA Order Authorities - 3008(h), 7003, 3013**

HW Management System Final Rule – July 15, 1985

- **40 CFR 264.101(a) & (b)**

HW Codification Rule for 1984 RCRA Amendments Final Rule – December 1, 1987

- **40 CFR 264.100(e) & 40 CFR 264.101(c)**

3004(u) and 40 CFR 264.101 Nexus

- **3004(u) - CONTINUING RELEASES AT PERMITTED FACILITIES.**—Standards promulgated under this section shall require, and a permit issued after the date of enactment of the Hazardous and Solid Waste Amendments of 1984 by the Administrator or a State shall require, **corrective action for all releases of hazardous waste or constituents from any solid waste management unit at a treatment, storage, or disposal facility seeking a permit under this subtitle, regardless of the time at which waste was placed in such unit.** Permits issued under section 3005 shall **contain schedules of compliance for such corrective action (where such corrective action cannot be completed prior to issuance of the permit) and assurances of financial responsibility for completing such corrective action.**
- **40 CFR 264.101(a)** - The owner or operator of a facility seeking a permit for the treatment, storage or disposal of hazardous waste must institute **corrective action as necessary to protect human health and the environment for all releases of hazardous waste or constituents from any solid waste management unit at the facility, regardless of the time at which waste was placed in such unit.**
- **40 CFR 264.101(b)** - Corrective action will be specified in the permit in accordance with this section and subpart S of this part. The permit will **contain schedules of compliance for such corrective action (where such corrective action cannot be completed prior to issuance of the permit) and assurances of financial responsibility for completing such corrective action.**

3004(v) and 40 CFR 264.101 Nexus

- **3004(v) - CORRECTIVE ACTIONS BEYOND FACILITY BOUNDARY.**—As promptly as practicable after the date of the enactment of the Hazardous and Solid Waste Amendments of 1984, the Administrator shall amend the standards under this section regarding corrective action required at facilities for the treatment, storage, or disposal, of hazardous waste listed or identified under section 3001 to require that **corrective action be taken beyond the facility boundary where necessary to protect human health and the environment unless the owner or operator of the facility concerned demonstrates to the satisfaction of the Administrator that, despite the owner or operator's best efforts, the owner or operator was unable to obtain the necessary permission to undertake such action.** Such regulations shall take effect immediately upon promulgation, notwithstanding section 3010(b), and shall apply to: (1) all facilities operating under permits issued under subsection (c), and (2) all landfills, surface impoundments, and waste pile units (including any new units, replacements of existing units, or lateral expansions of existing units) which receive hazardous waste after July 26, 1982. Pending promulgation of such regulations, the Administrator shall issue corrective action orders for facilities referred to in paragraphs (1) and (2), on a case-by-case basis, consistent with the purposes of this subsection.
- **40 CFR 264.101(c) -** The owner or operator must implement **corrective actions beyond the facility property boundary, where necessary to protect human health and the environment, unless the owner or operator demonstrates to the satisfaction of the Regional Administrator that, despite the owner's or operator's best efforts, the owner or operator was unable to obtain the necessary permission to undertake such actions.** **The owner/operator is not relieved of all responsibility to clean up a release that has migrated beyond the facility boundary where off-site access is denied. On-site measures to address such releases will be determined on a case-by-case basis. Assurances of financial responsibility for such corrective action must be provided.**



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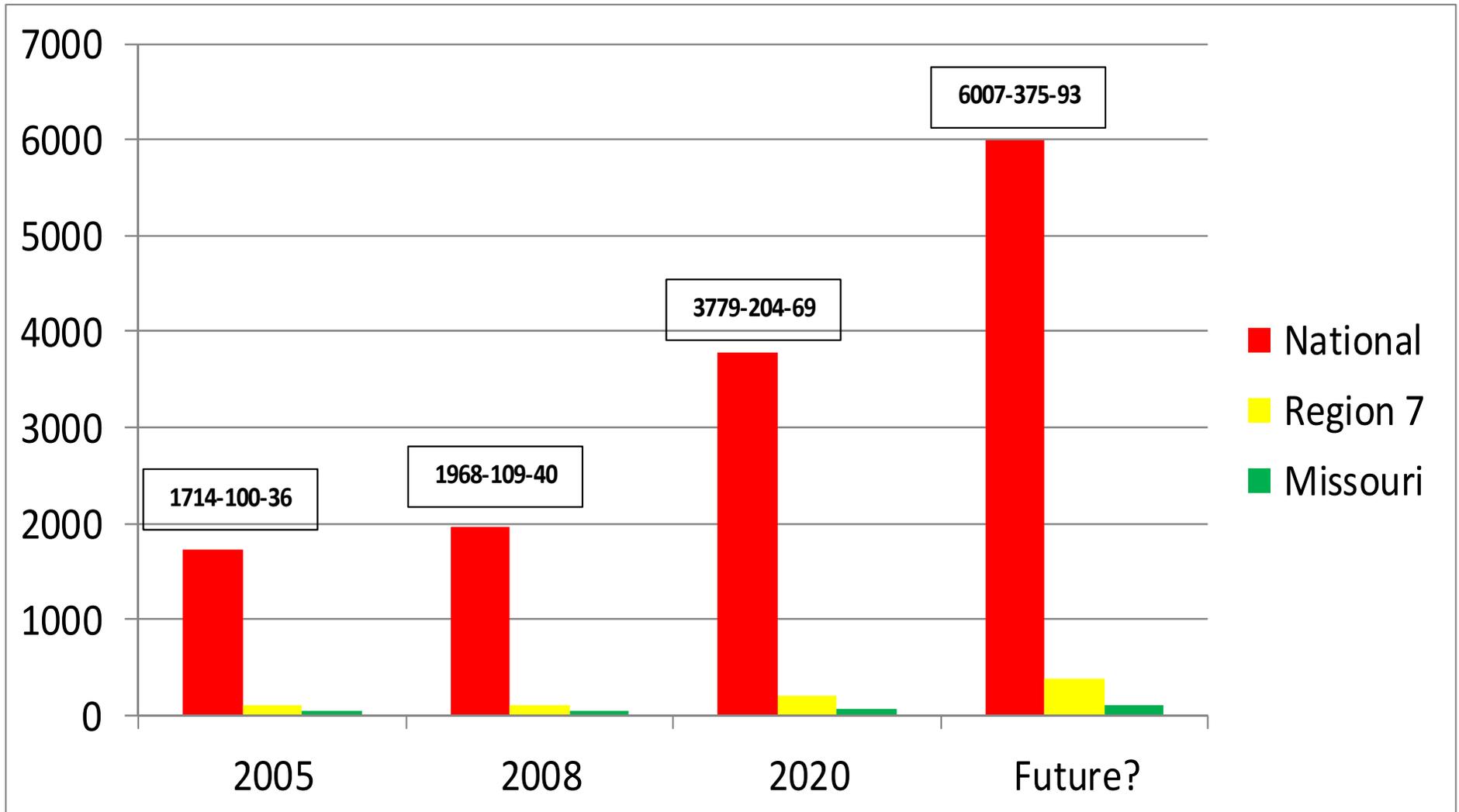
Fast Forward.....

US General Accounting Office Report - July 2011

“Early Goals Have Been Met in EPA's Corrective Action Program, but Resource and Technical Challenges Will Constrain Future Progress.”

“To sustain progress in the RCRA corrective action program and better align the 2020 program goals with resources it will take to attain them, the EPA Administrator should direct cognizant officials to assess the agency's remaining corrective action workload, determine the extent to which the program has the resources it needs to meet these goals, and take steps to either reallocate its resources to the program or revise the goals.”

Corrective Action Baseline Evolution



National GPRA Goals for 2020 CA Baseline Facilities by End of FFY 2018*

Human Exposures Controlled - 92%

Contaminated Groundwater Migration Controlled - 76%

Final Remedy Implementation - 73%

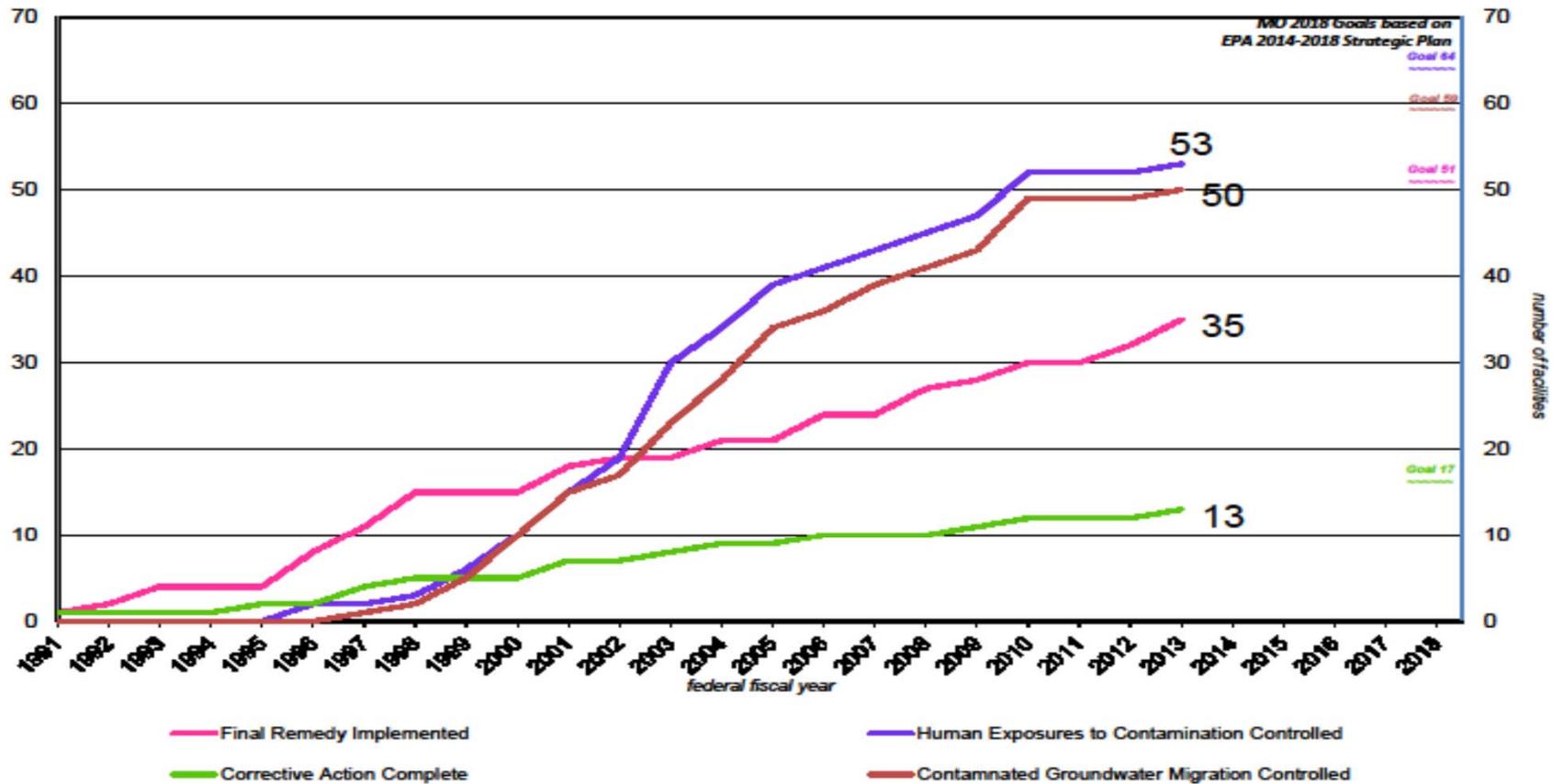
Corrective Action Complete - 25%

*Source: EPA FFY14-18 Strategic Plan

http://www2.epa.gov/sites/production/files/2014-04/documents/epa_strategic_plan_fy14-18.pdf

2020 CA Goals - Current Missouri Status

National RCRA Corrective Action Performance Measures in Missouri
(Based on 69 Baseline Facilities and the Federal Fiscal Year)



Despite Our Successes, Why is Corrective Action Taking So Long?

- **Regulatory/Guidance and Corrective Action Process Development and Implementation**
 - Technical Disagreements
 - Inflexible Work Plans
- **Human** and Financial **Resources**
- New/Changing Environmental Standards
 - Toxicology/Exposure Assumptions
 - Vapor Intrusion
- Changing Technology

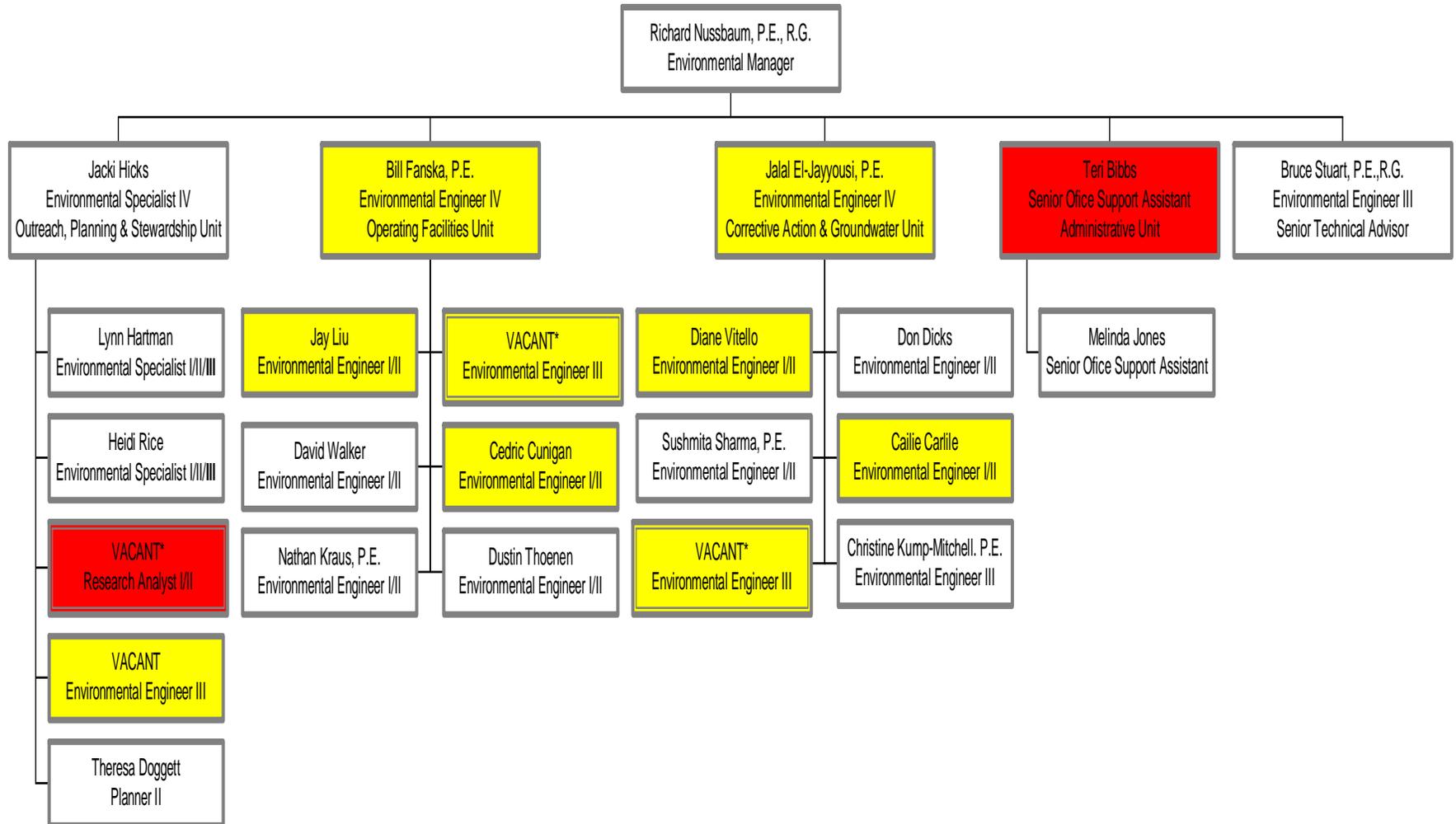
Regulatory/Guidance Elements

- 1984 HSWA - 3004(u) & (v), 3008(h), 3013, 7003
- 1985/1987 Federal Rulemakings - 40 CFR 264.101
- State Rulemaking/EPA Authorization
- 1990 Subpart S Proposed Rulemaking (later withdrawn)
- 1993 Government Performance and Results Act (GPRA)
- 1996 Advance Notice of Proposed Rulemaking (ANPR)
- 1998 Post-Closure Rule
- 1999 Environmental Indicator Guidance
- 2010 National Enforcement Strategy for CA (NESCA)
- Regulatory Instrument Development

Corrective Action Process Elements

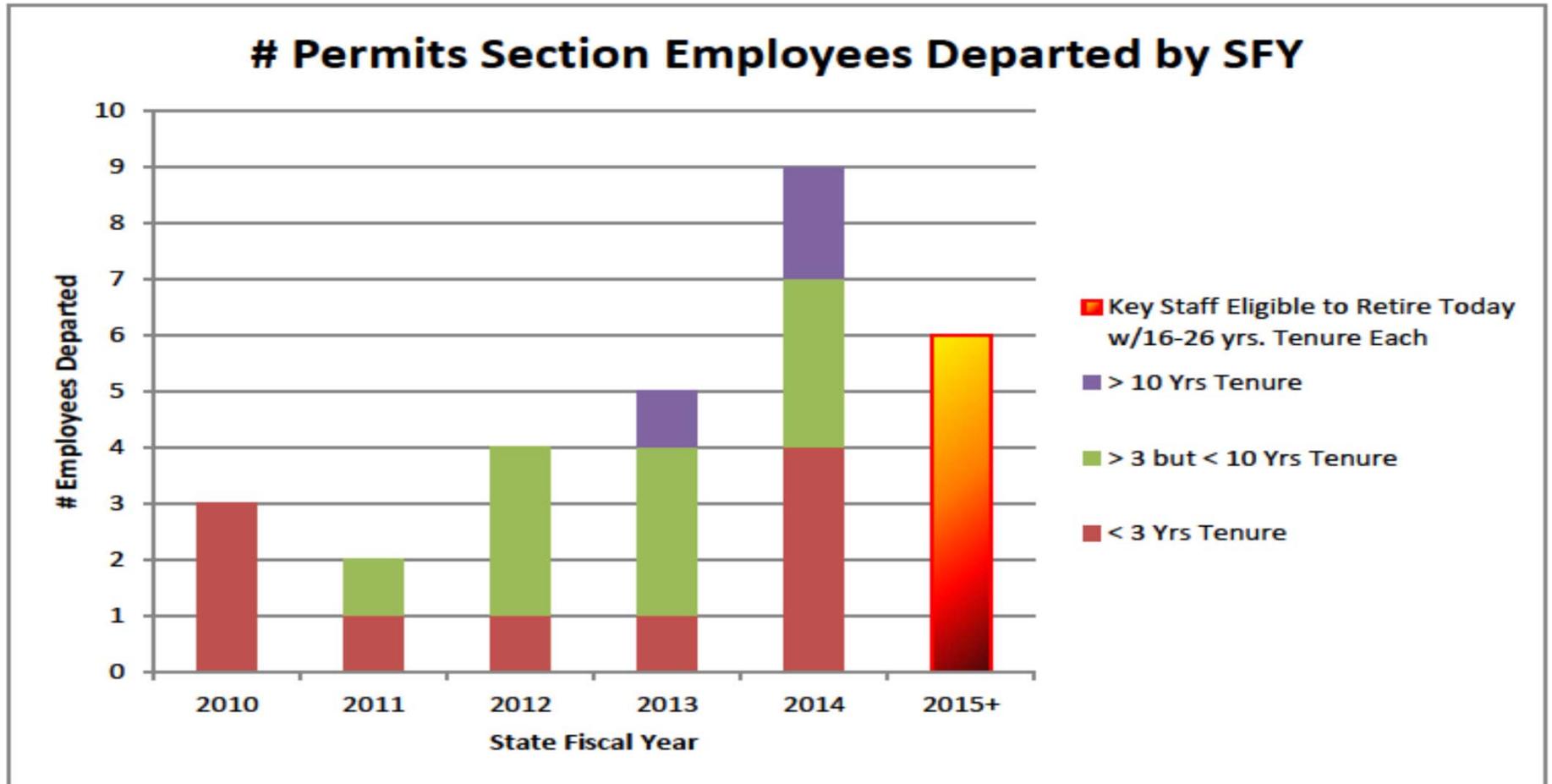
- RCRA Facility Assessment (1986 EPA Guidance)
- RCRA Facility Investigation (1989 EPA Guidance)
- Corrective Measures Study (1994 EPA CA Plan)
- Statement of Basis (1991 EPA Guidance)
- Corrective Measures Implementation (1994 EPA CA Plan)
- Peripherals
 - Public Participation (1996 Guidance)
 - Environmental Indicator Evaluations (1999 Guidance)
 - Groundwater Handbook (2001/2004 Guidance)
 - Ready for Anticipated Use Determinations (2007 Guidance)
 - Financial Assurances Issues/Facility Bankruptcy

HWP Permits Section Organization

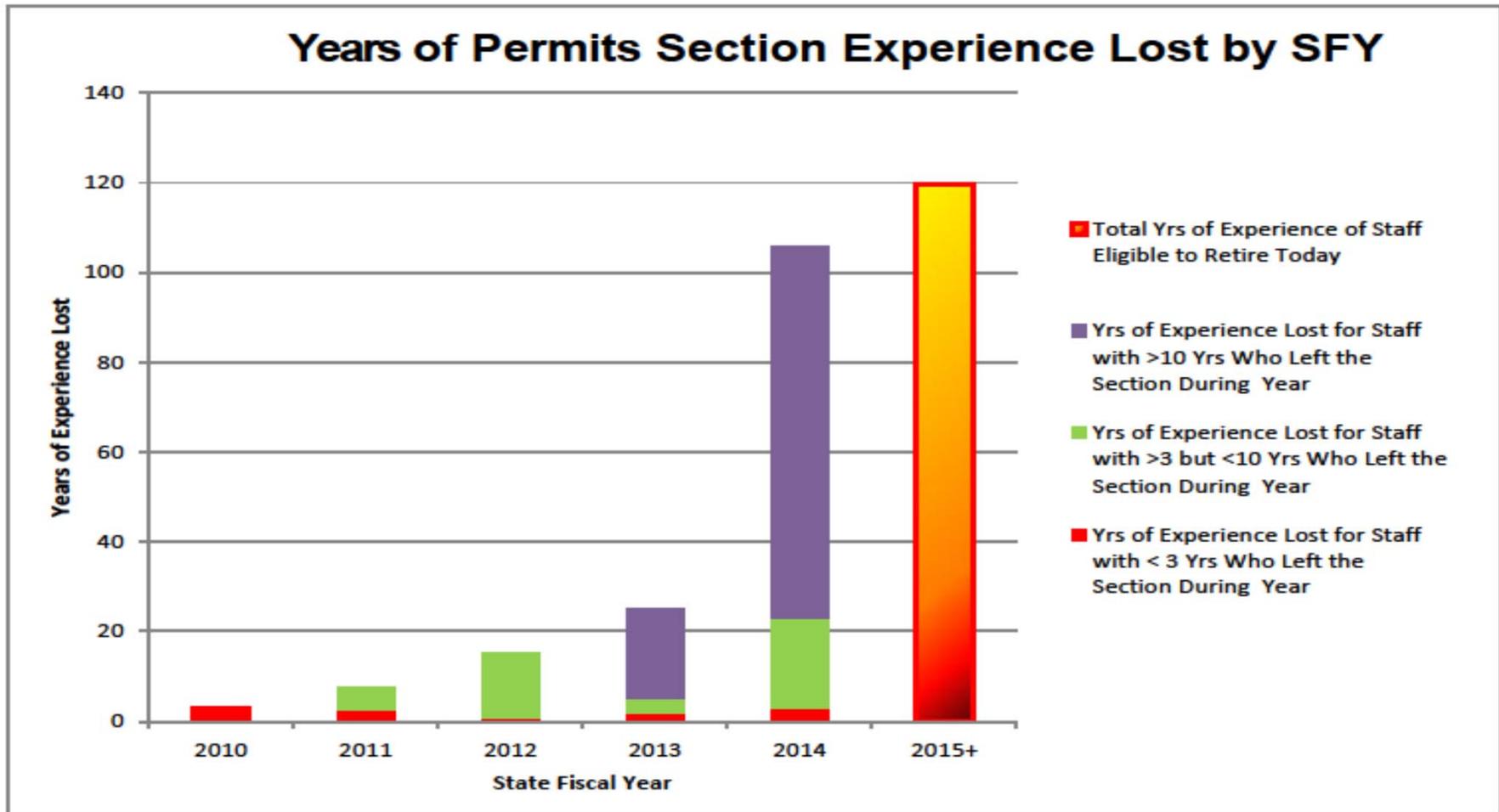




HWP Permits Section Departures

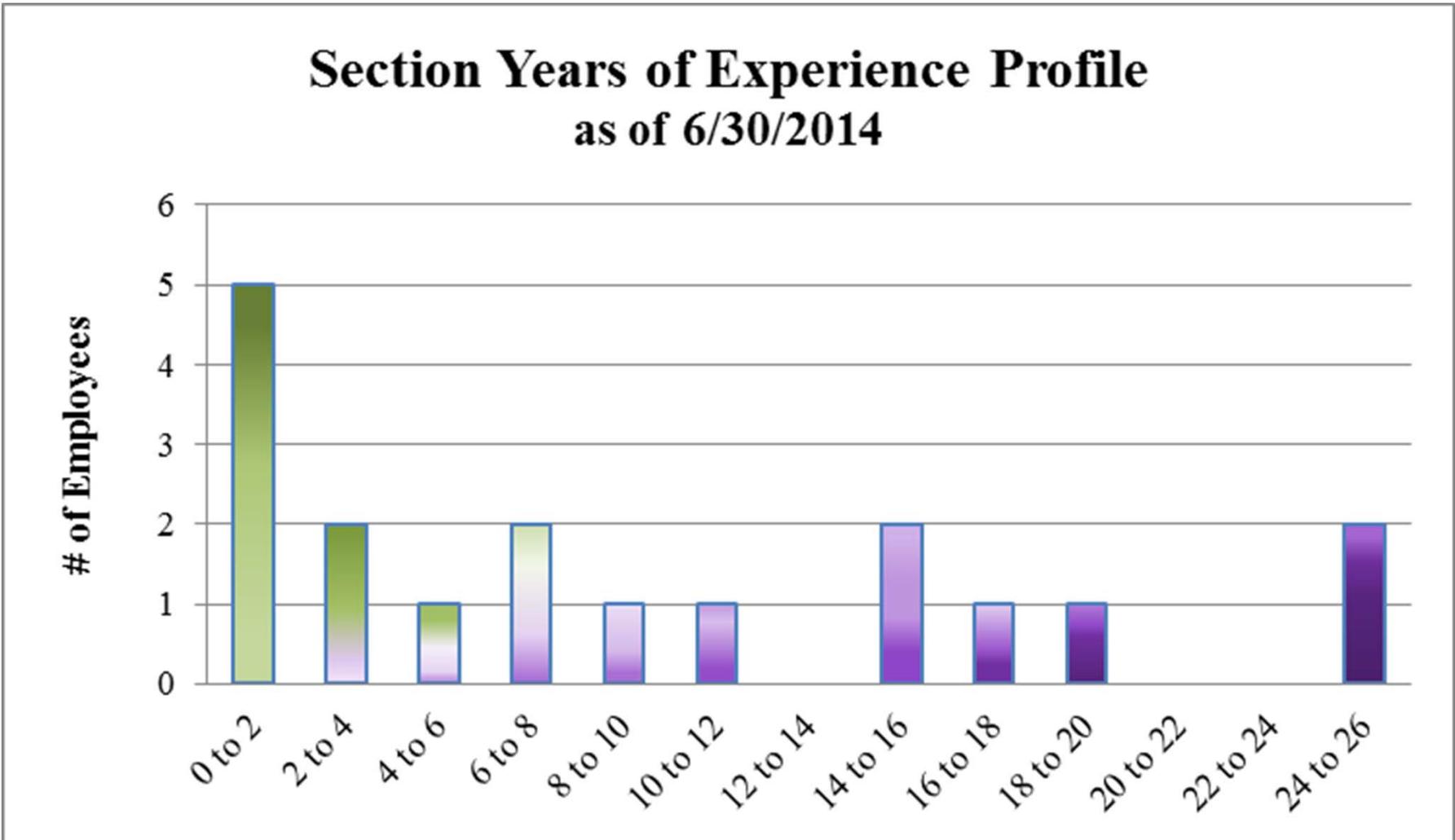


HWP Permits Section Experience Loss





HWP Permits Section Current Experience



What Has Been Done Recently to Try and Speed Things Up?

- 2010 National Enforcement Strategy for Corrective Action
- 2013/2014 Corrective Action Project LEAN
 - CA Process Step Evaluation
 - RCRA Facility Investigation (RFI)
 - Corrective Measures Study (CMS)
- RFI LEAN Event* Held in February 2013
- CMS LEAN Event* Held in May 2014
- Regional/State Pilots Underway

*More LEAN Information may be found at: http://epa.gov/waste/hazard/correctiveaction/lean_effort.htm

What is LEAN?

- **LEAN** - a collection of principles and methods that focus on the systematic identification and elimination of non-value added activities involved in producing a product or delivering a service to customers.



Corrective Action LEAN Events

- RCRA Facility Investigation (RFI) – Feb. 2013
 - EPA Regions 3, 7 and Headquarters
 - States: Missouri, Virginia
 - Regulated Industry & Consultants
- Final Remedy Selection – May 2014
 - EPA Regions 3, 7 and Headquarters
 - States: Kansas, Connecticut, California
 - Regulated Industry & Consultants



Key RFI “Pain Points” Identified

- 1. No agreement upfront on objectives with respect to site clean up**
2. Lack of initiative to elevate issues to determine streamline options
3. Multiple phases require approval for permit requirements
4. No proactive investigation strategy due to unclear objectives up front
5. Takes a long time to get up to speed (new people), revisiting decisions, etc. before proceeding
- 6. Lack of accountability to achieve quality product**
7. No documentation/historical documents
8. Poorly defined data quality objectives
9. Insufficient knowledge of site conceptual model
10. Competing objectives across parties
- 11. Varying perspectives around uncertainty tolerance**
12. Lack of defined product standards

➤ Primary “root” causes in the process resulting in delay

RFI LEAN Event Recommendations

- Shift work to the front of the process by conducting a standardized strategic forum with the key stakeholders/decision-makers. In Missouri, this would be the facility and their consultants, EPA, HWP, MDHSS and MGS.
- Ensure intended purpose of the strategic forum is upheld by adhering to the newly-developed meeting format and agenda designed to:
 - Exchange information and standard objectives
 - Exchange and address concerns
 - Discuss criteria and expectations
 - Hold open, candid discussions
 - Debate variations in viewpoints
 - Build trust
 - Reach agreement

LEAN Initiative: Key Differences in RFI Process

Current/Traditional

- First document is the RFI Work Plan
- No upfront decisions on sampling and analysis, conceptual site model, interim measures, etc.
- No standard process for resolving technical disagreements

Future/Ideal

- First document is the Corrective Action Framework (CAF)
- Decisions on sampling and analysis, conceptual site model, interim measures, etc. required prior to submission of the RFI Work Plan
- Process to elevate technical disagreements

What is Envisioned for the RFI?

Shifting 15 years of downstream activity in the current process to 3-5 months of strategic, preventative upstream activity in the future process is the difference between a 5 year completion and a 20 year completion.

<i>RCRA RFI Process</i>		
Process Stats	Current Process	Future Process
# of Hand-offs - <i>Internal to Agency</i>	44	11
# of Reviews / Approvals	33	7
# of Loopbacks / Re-dos	24	2
# of Documents generated	94	15
Total Avg. wait time in process	4.6 yrs	0.4 yrs
Total Avg. work time per process steps	14.8 yrs	4.7 yrs
TOTAL Avg. Cycle time in Process	19.4 yrs	5.1 yrs
% Value Add activity in process*	10%	51%

RFI LEAN RESULTS

Typical “70%” Scenario
19.4 years

EPA Regions 3 & 7
Average RFI Process
10 years

Potential Time Reduction
50-70% to 5.1 years

Remedy Selection Process LEAN Event

Root causes:

- **Corrective Action Objectives are not always clearly defined before beginning the Remedy Selection Process**
- **Lack of accountability to achieve quality product**

Take-Aways:

- **Facility Investigation Remedy Selection Track (FIRST), starting with Remedy Selection Process Meeting**
- **Three paths to select a remedy:**
 - **No Corrective Measures Study Needed**
 - **More Supporting Data Needed**
 - **Corrective Measures Study Needed**

What is Envisioned for Remedy Selection?

Remedy Selection Process		
	Current Process	TO BE Process
# of Hand-offs*	23	17
# of Reviews / Approvals	26	5
# of Loopbacks / Re-dos / Re-submissions	30	0
# of Documents Generated	75	8
# of Decision Points	9	4
Total avg. work time per step		
Total avg. wait time within steps and between steps	2,464 days	352 - 717 days**
Total avg. cycle time in process	6.75 years	1 - 2 years
% Improvement in time**	75 - 85% **	
% of Value Add activity in end to end process	20%	97%
* "Types" of Hand-offs have been added together (internal to agency, external to agency and internal to industry)		
** Range has been calculated and provided for the "3" potential paths within the process		

**Up to 40% of
CA Facilities still
need Remedy
Selection**

**Average Remedy
Selection Time
6.75 Years
(Range: 4-8 yrs)**

**Potential Time
Reduction
75-85%**

Remedy Selection Process User's Guide

- **Currently developing a user friendly guide incorporating all the new tools to assist Project Managers (PMs) in the implementation of LEAN-derived principles.**
- **The User Guide will be a valuable tool to show PMs which tools might apply best for their particular step in the Corrective Action process.**
- **Potential Guide Outline:**
 - **Overview**
 - **RFI**
 - **Remedy Selection**
 - **Metrics**
 - **Case Studies**

Missouri RFI LEAN Pilot Status

Zenith – Springfield, MO

- Interim Status (IS) post-closure (TSD) facility
- Initial kick-off CAF meeting - May 15, 2014
- Teleconference to discuss CAF comments - July 24, 2014
- On-site meeting/tour – September 11, 2014
- CAF Finalization – November 14, 2014

Omnium (former Farmland) – St. Joseph, MO

- State Corrective Action Consent Order – IS CA Facility
- Initial Kick-off On-Site Tour/Meeting – June 4, 2014
- Internal LEAN Stakeholder Meeting – June 27, 2014
- Monitoring well sampling proposal submitted – September 8, 2014
- Initial well sampling and CAF development pending



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Questions?