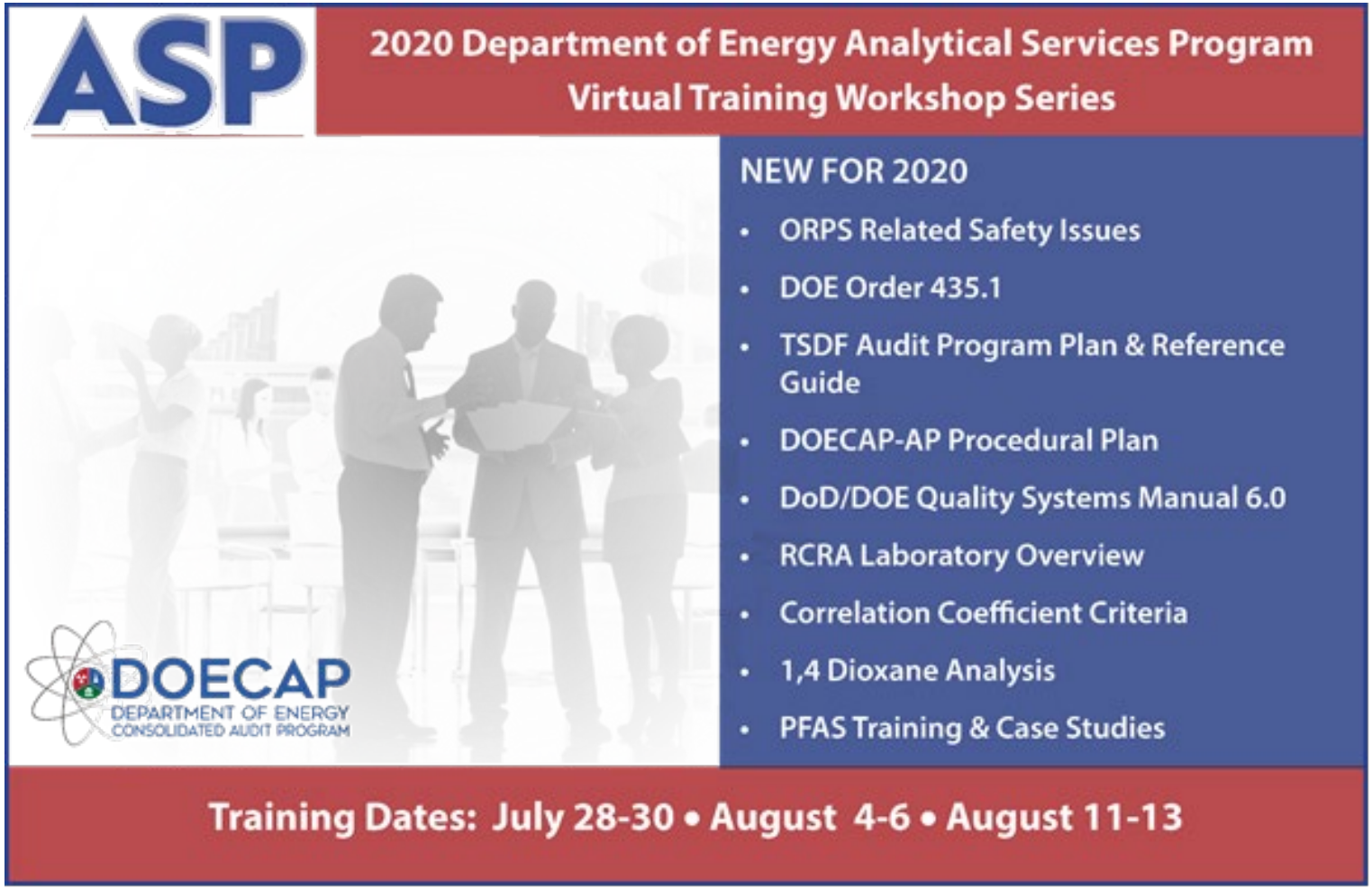

ASP
2020 Department of Energy Analytical Services Program
Virtual Training Workshop Series
NEW FOR 2020
• ORPS Related Safety Issues
• DOE Order 435.1
• TSDF Audit Program Plan & Reference Guide
• DOECAP-AP Procedural Plan
• DoD/DOE Quality Systems Manual 6.0
• RCRA Laboratory Overview
• Correlation Coefficient Criteria
• 1,4 Dioxane Analysis
• PFAS Training & Case Studies
DOECAP
DEPARTMENT OF ENERGY
CONSOLIDATED AUDIT PROGRAM
Training Dates: July 28-30 • August 4-6 • August 11-13

Logistics

- Please maintain your audio on MUTE ☺
- Question and Answer Sessions will follow each session.
- Questions can be submitted using the CHAT on your WEBEX screen.
- All presentations will be posted at the end of the series on the DOECAP Sharepoint (SP) site and the registration page link for those without SP access.
- Restroom breaks are at your leisure
- Workshop Questionnaire- Weekly email link to the workshop questionnaire

2020 Department of Energy Analytical Services Program Virtual Training Workshop Series Agenda

Week 1: TSDF Sessions					
Day	**Date**	**Time PM (EST)**	**Track**	**Session Title**	**Presenter**
Tuesday	28-Jul	1:00-1:45	General	ASP Program Updates and Changes	Steve Clark, Analytical Services Program Manager Office of Environment, Health, Safety and Security, Office of Sustainable Environmental Stewardship (AU-21) U.S. Department of Energy, Headquarters (Germantown)
		1:45-2:30	Laboratory	DOECAP-AP Procedural Plan	Steve Clark, U.S. Department of Energy
		2:30-3:00	Laboratory	DOECAP-Accreditation Program Trends Analysis	Steve Clark, U.S. Department of Energy
Wednesday	29-Jul	1:00-1:45	TSDF	DOE ORPS Related Safety Issues	Ashley Ruocco, Office of Environment, Health, Safety and Security, Office of Sustainable Environmental Stewardship (AU-21) U.S. Department of Energy, Headquarters (Germantown)
		1:45-3:00	TSDF	DOE Order 435.1	Susan Krenzien, Senior Project Manager, IEI, Inc.
Thursday	30-Jul	1:00-2:00	TSDF	DOECAP Treatment, Storage and Disposal Facility (TSDF) Audit Program Plan and Reference Guide	Steve Clark, U.S. Department of Energy
		2:00-2:30	TSDF	TSDF Description Sheets, Site Information Sheets, Remote Audits-	Pete Yerace, Environmental Specialist, DOE-EMCBC
		2:30-3:00	TSDF	TSDF Audit Trends Analysis	Pete Yerace, DOE-EMCBC

DOE Occurrence Reporting- Environmental and Chemical Safety

July 29, 2020

Ashley Ruocco
Office of Sustainable Environmental Stewardship (AU-21)
Donna Joy
Contract Support to AU-21

Office of Environment, Health, Safety and Security

Outline

- ORPS Overview
  - Database
  - Requirements
- Reporting Categories Reviewed
  - RCRA Violations
  - Environmental Violations
  - Chemical Safety
  - Waste Handling
  - Shipping
- Common Quality Assurance Deficiencies
- Resources

What is the ORPS Database?

- The ORPS database is web-based.
- Provides storage and retrieval of ORPS reports.
- ORPS reports can contain:
  - Location and Date
  - Event description
  - Immediate actions
  - Causes
  - Corrective Actions
  - Extent of Condition
- Provides search capabilities.

ORPS account holders must:

- Be a DOE fed or contractor
- Have a need-to-know to access the database

ORPS Requirements

- DOE Order 232.2A, *Occurrence Reporting and Processing of Operations Information*.
  - The DOE-wide occurrence reporting requirements were introduced in 1990.
  - Revisions occurred in 1993, 1995, 1997, 2003, 2011, and 2017.
- ORPS general information is located at: http://energy.gov/ehss/policy-guidance-reports/reporting/occurrence-reporting-and-processing-system
- There are three ORPS Training Modules:
  - Module 1- General Occurrence Reporting
  - Module 2- ORPS Database Data Entry
  - Module 3- ORPS Search Techniques

DOE O 232.2A Reporting Criteria

Occurrences are categorized by reporting criteria. There are 10 groups of reporting criteria.

Group 1 - Operational Emergencies

Group 2 - Personnel Safety and Health

Group 3 - Nuclear Safety Basis

Group 4 - Facility Status

Group 5 - Environmental

Group 6 - Contamination/Radiation Control

Group 7 - Nuclear Explosive Safety

Group 8 - Packaging and Transportation

Group 9 - Noncompliance Notifications

Group 10 - Management Concerns and Issues

When Something Happens

- CATEGORIZATION:
  - Following discovery of an event or condition, and within 2 hours of discovery, determine if the event or condition meets the threshold for reporting into the ORPS database (DOE O 232.2A) and which reporting criteria applies.

- INITIAL NOTIFICATION: Within 2 hours of Categorization
  - Notify appropriate personnel.
  - DOE/NNSA Facility Representative or Designated DOE Representative.
  - Other Contacts, i.e., Federal Counterparts, State or Local Authorities, etc.

Example of an ORPS Report

SC--BHSO-BNL-BNL-2017-0001 NOTIFICATION

Occurrence Report
After 2017 Redesign

Brookhaven National Laboratory (BOP)

(Name of Facility)

Balance of Plant - Infrastructure (Other Functions not specifically listed in this Category)

(Facility Function)

Brookhaven National Laboratory — Brookhaven National Laboratory

(Site) (Contractor)

Name: SMITH, JOHN

Telephone No.: (555) 123-4567

(Facility Manager/Designee)

Name: SMITH, JOHN

Telephone No.: (555) 123-4567

(Originator/Transmitter)

Name: **Date:**

(Authorized Classifier (AC))

Occurrence Report Number: SC--BHSO-BNL-BNL-2017-0001

TEST REPORT: Chemical Spill

Report Type and Date: NOTIFICATION

	Date	Time
Notification:	05/15/2017	15:23 (ETZ)
Initial Update:		(ETZ)
Latest Update:		(ETZ)
Final:		(ETZ)

Example of an ORPS Report continued

Report Level: H

Division or Project: Chemistry Department

Secretarial Office: SC - Science

System, Bldg., or Equipment: Building 98

UCNI?: No

Plant Area: Building 98

Date and Time Discovered: 05/14/2017 15:00 (ETZ)

Date and Time Categorized: 05/14/2017 15:05 (ETZ)

DOE HQ OC Notification:

Date	Time	Person Notified	Organization
05/14/2017	16:00 (ETZ)	J. Doe	BNL
05/14/2017	16:05 (ETZ)	E. Presley	TN

Other Notifications:

Date	Time	Person Notified	Organization
05/15/2017	10:00 (ETZ)	V. Presley	TN

Subject or Title of Occurrence:

TEST REPORT: Chemical Spill

Reporting Criteria:

Description of Occurrence:

On May 14, 2017, at Brookhaven National Laboratory (BNL), three cartons arrived at Receiving (Building 98). Each carton contained six identical 2.5 liter bottles. One of these cartons was lifted by an employee. Upon lifting, the bottom opened and one of the six 2.5 liter bottles in the box fell and broke.

The fire department was called and they cleaned the spill using sodium bicarbonate and spill pads and placed the waste into plastic buckets. The pH of the liquid was checked using pH indicator paper and the solution had a pH of 0 (highly acidic).

Is Subcontractor Involved? Yes

Name: ABC Company

Immediate Actions Taken and Results:

The fire department was called and they cleaned the spill using sodium bicarbonate and spill pads.

ISM:

5) Provide Feedback and Continuous Improvement

Cause Code(s):

A7B4C01 - Other problem; No Cause is Applicable; No Cause is Applicable
A3B3C01 - Human Performance Less Than Adequate (LTA); Knowledge Based Error; Attention was given to wrong issues
-->couplet - NA

Description of Cause:

Corrective Actions

(* = Date added/revised since final report was approved.)

Lessons Learned:

Similar Occurrence Report Numbers:

HQ Keyword(s):

HQ Summary:

Uploaded Documents:

You_say_multitasking_like_it_s.pdf
Other
Document Description:

Updated Report Information:

ORPS Reports – Report Levels

- Report Levels are assigned to each Reporting Criteria. The Report Level provides a means to reflect perceived risk associated with a given occurrence.
  - Report Levels take into consideration the potential health, safety and security consequence of an occurrence to personnel, the public, the environment, and the operational mission.
  - Report Levels are High (H), Low (L), & Informational (I), and are assigned to each Reporting Criteria.

- Report levels assigned starting 10/1/2017, the totals are as follows (through 2019):
  - High - 188
  - Low - 1082
  - Informational - 646

ORPS by the Numbers

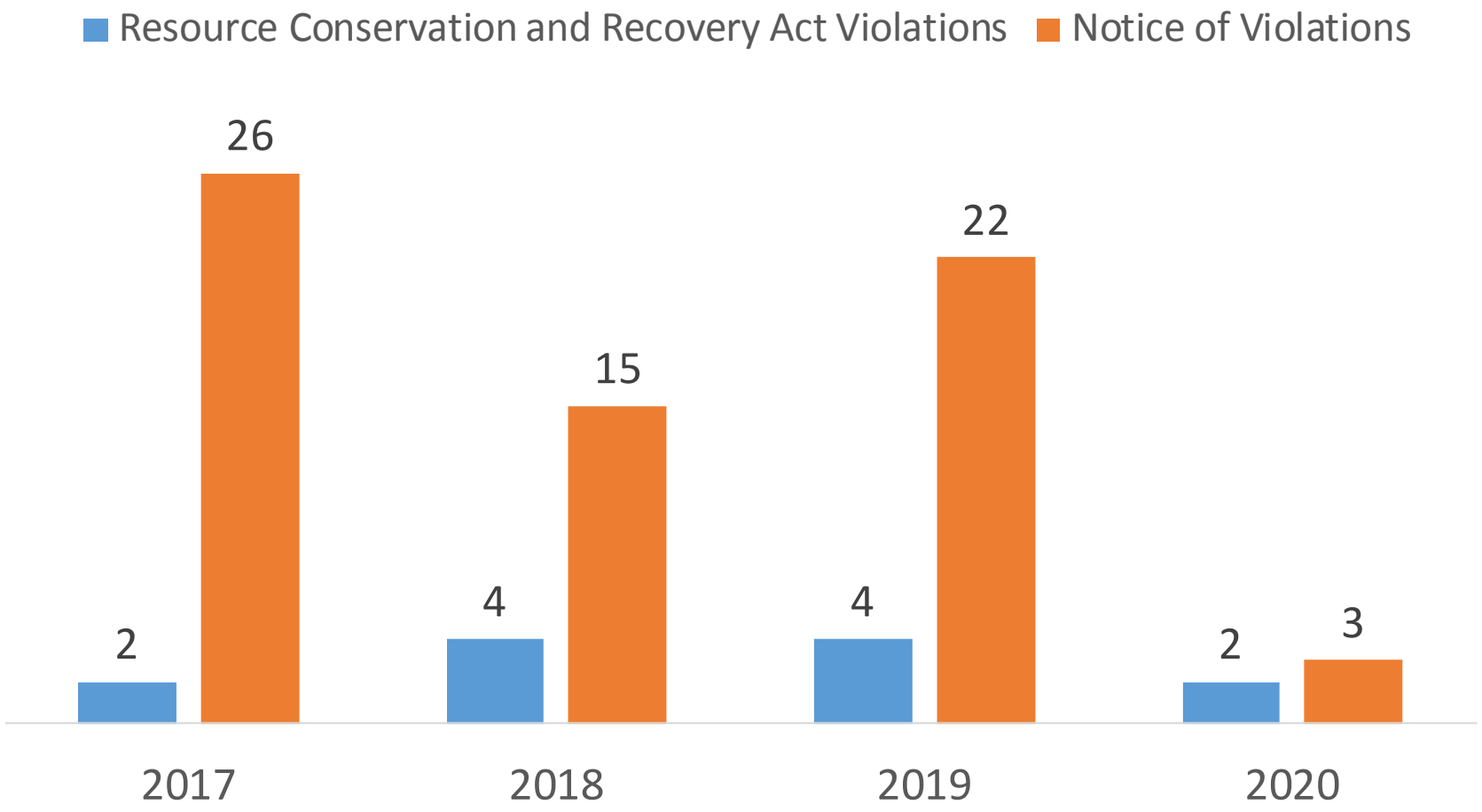
As of **7/14/2020 there are over 62,000 occurrence reports** in the ORPS database. Below are the five-year averages (2015 to 2019) for specific ORPS events.

- There have been **950 reports per year on average**.
- Violation of Authorization Basis events average 49 reports per year.
- Lockout/Tagout events (electrical and mechanical) average 73 reports per year.
- Electrical safety events average 86 reports per year
- Environmental releases (radiological, underground storage tank, hazardous materials and potable water) average 35 reports per year.
- Near Miss events (electrical and other) average 86 reports per year.
- Shipping incidents/regulation non-compliances average 20 reports per year.
- Facility fires average 25 reports per year.
- Equipment degradation/failure reports average 139 per year.
- Injuries other than first aid average 104 reports per year.

Reporting Categories Reviewed

- Environmental
  - Releases
  - Ecological and Cultural Resources
- Management Concerns
- Near Misses

RCRA Violations and NOVs
2017 through June 10, 2020



Example RCRA Event

NA--LASO-LANL-SIGMA-2018-0003: Management Concern: Repeat Hazardous Waste Concerns

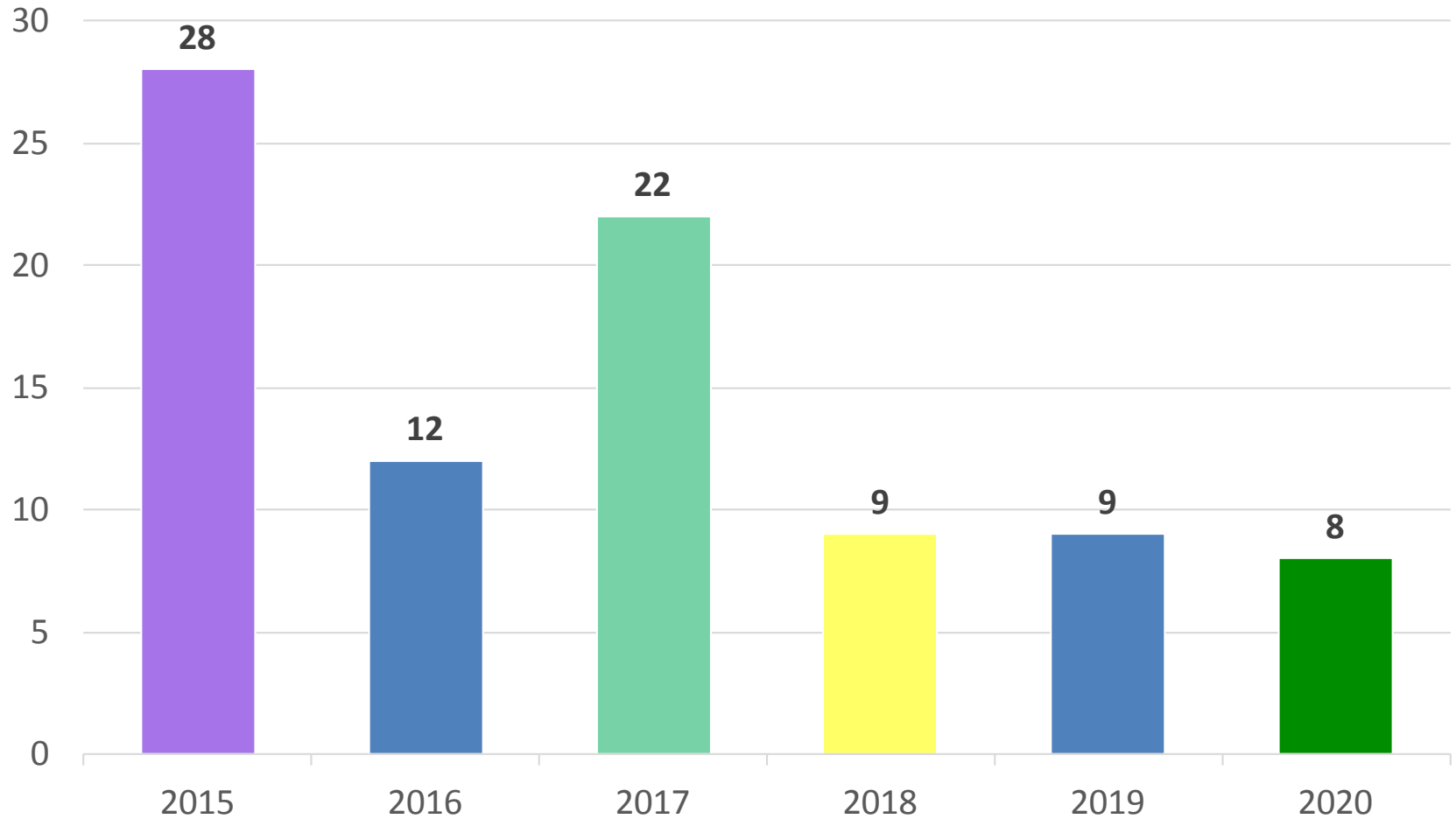
- On October 25, 2018, a management concern was declared following a series of four hazardous waste management events associated with the Sigma Division cleanup project within a three-month period.
  - Two equipment oil leaks during transport
  - Improper storage of lead contaminated equipment
  - Contaminated drum shipped under an incorrect waste profile.
- The project has been decommissioning and disposing of legacy equipment as low-level waste and mixed low-level waste since October 2017.
- The Environmental Protection and Compliance Waste Management Services team had a large turnover of personnel during 2018. There was significant pressure to get shipments out before the end of the fiscal year. The Project Manager for the project has changed multiple times since the start of the project.

Example NOV

NA--LSO-LLNL-LLNL-2017-0001 NOV Received from San Joaquin County for Routine Inspections Performed at Site 300

- On January 11, 2017, a Notice of Violation was received from the San Joaquin County Environmental Health Department for routine inspections performed at Site 300.
- The inspection report included eight violations in four categories. Four violations were related to record keeping and/or documentation, one violation was related to container management, two violations were related to labeling and storage, and one violation was related to universal waste.
- Actions to remedy the deficiencies were started immediately following the inspections. The majority of the issues were corrected prior to receiving the final report.

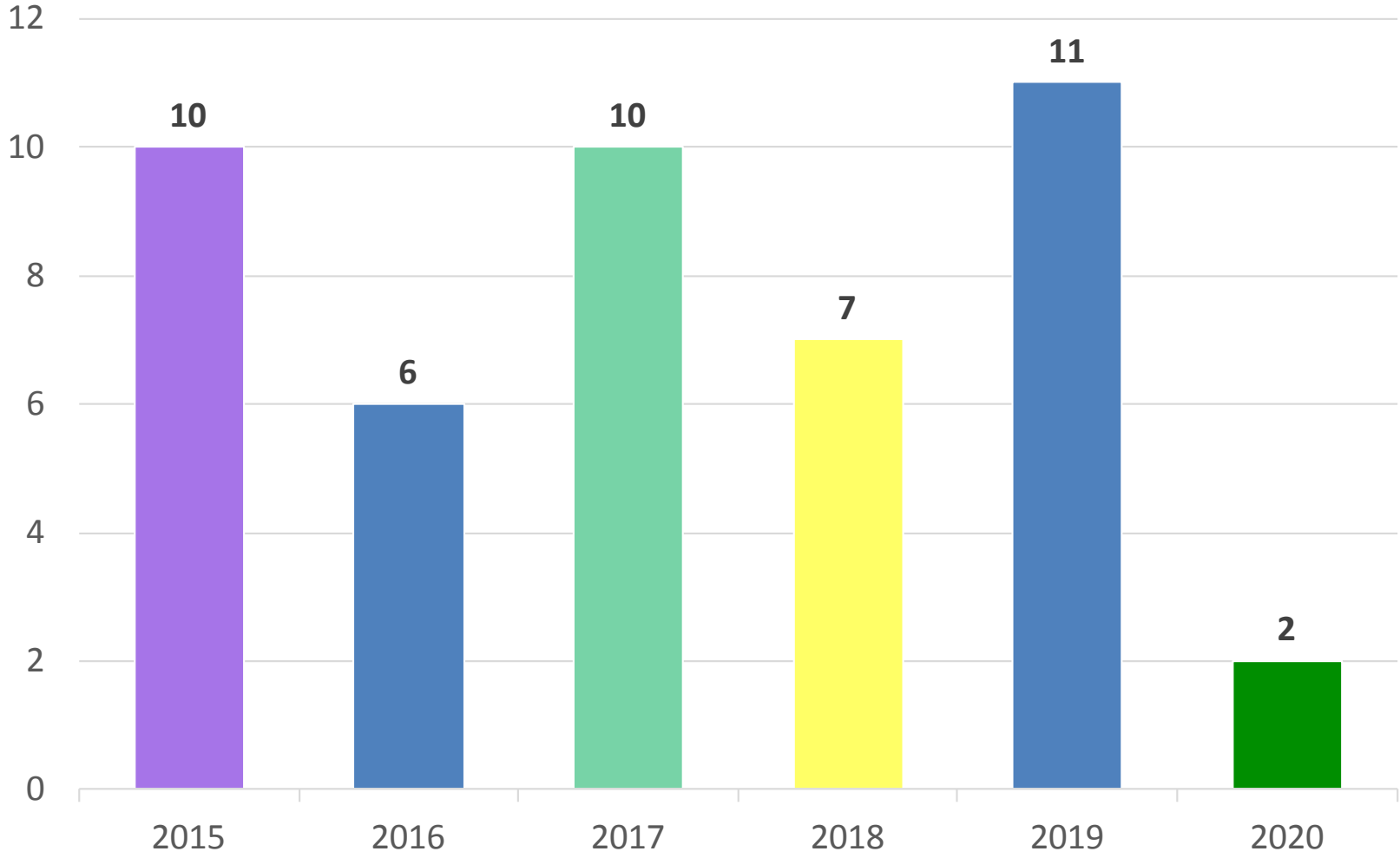
ORPS Chemical Safety Reports by Year



Example Chemical Safety Event

EE-GO--NREL-NREL-2020-0007 Inadvertent Mixture of Chemicals in Lab Results in Near-Miss

- On June 15, 2020, two researchers in the Molecular Biology and Biophysics group of the Biosciences Center were in the Macromolecular Crystallography Lab.
- Worker #1 was preparing to conduct a protein purification process using a General Electric Akta Fast Protein Liquid Chromatography (FPLC) system.
- Worker #1 emptied the waste container and added one cup of concentrated bleach into the waste container.
- Worker #1 started the process run using a 2 Molar ammonium sulfate buffer.
- A mild chlorine smell was noticed.
- Worker #2 stopped the FPLC instrument and carried the waste container, containing 440 mL of buffer and bleach ammonium sulfate mixture to the laboratory sink.
- Worker #2 added tap water to dilute the mixture and let it sit in the lab sink.
- Worker #2 then noticed that solution in the container was fuming. Worker #2 closed the open lab door, and Worker #1 placed the container inside the ventilated chemical fume hood.

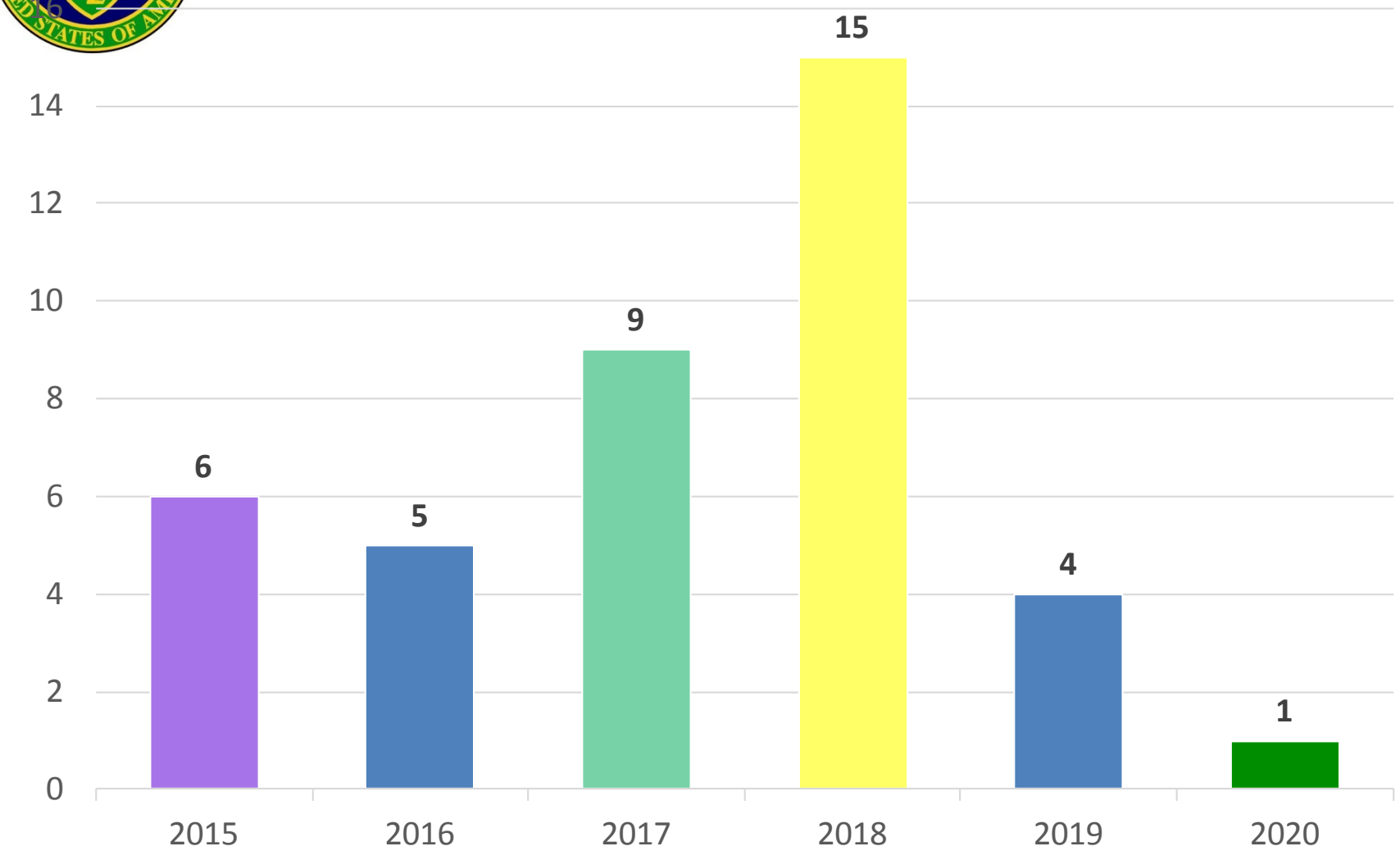

ORPS Waste Handling Reports by Year
12
10
8
6
4
2
0
10
6
10
7
11
2
2015
2016
2017
2018
2019
2020

Example Waste Handling Event

EM-ID--FID-RWMC-2018-0005 Improper Modifications to Quality Level-3 Drum Transfer Bags

- On December 13, 2018, the Fluor Accelerated Retrieval Project Operations Manager was informed that there were unauthorized modifications made to the Quality Level Three (QL3) Drum Packaging Station (DPS) drum transfer bags used in drum repackaging, in violation to Fluor Idaho's Nonconformance Report process.
- Numerous drum transfer bags used for packaging waste from the DPS units to new drums, were found to have the seams failing in the integral sleeves, specifically the sealed seam around the thumb. These seam failures were found during pre-installation inspections.
- Engineering contacted the manufacturer concerning the issue, and discussed options for receipt of acceptable replacement bags. Due to the volume of drum transfer bag sleeve failures operations would run out of bags prior to receiving replacements. Engineering and operations worked with maintenance to develop options to repair several existing sleeves on the drum transfer bags.
- The maintenance shop modified 10-12 bags, which were subjected to a rigorous tug/durability test and found to be adequate. A number of these bags were used during production. While modifying more bags the Maintenance Organization raised a question about the bags being QL3 items and whether the project should be modifying the sleeves, or whether the NCR process should be used.

ORPS Shipping Incident/Accident Reports by Year



Example Shipping Incident

NA--LASO-LANL-SIGMA-2018-0002 Management Concern: Off-Site LANL Hazardous Waste Transport

- On October 4, while performing a routine Department of Transportation (DOT) inspection of the Low-Level Waste (LLW) shipment, an Energy Solutions subcontractor driver identified about one gallon of oil leaking from the shrink-wrapped component of a LANL service contaminated objects -1, class 7 LLW onto the flatbed of the transport truck.
- The driver called 911 and the LANL Emergency Operations Support Center.
- The driver began to contain the oil leak until local and state first-responder arrived on scene.
- The New Mexico State Police evacuated the immediate area.
- The first responders utilized ERG 162 and established a protection area of 25 meters.
- The Roswell City Fire Department conducted a Level 1 and Level 2 radiological survey of the equipment and the transport truck with negative results for radiological contaminates.
- The State Police cleared the scene and released the truck and equipment back to the driver.
- A LANL team initiated a recovery plan and a recovery team was mobilized to Roswell, New Mexico, to retrieve and return the shipment to LANL.
- The total amount of liquid released did not exceed the one percent volume or reach the environment.

Common QA Deficiencies

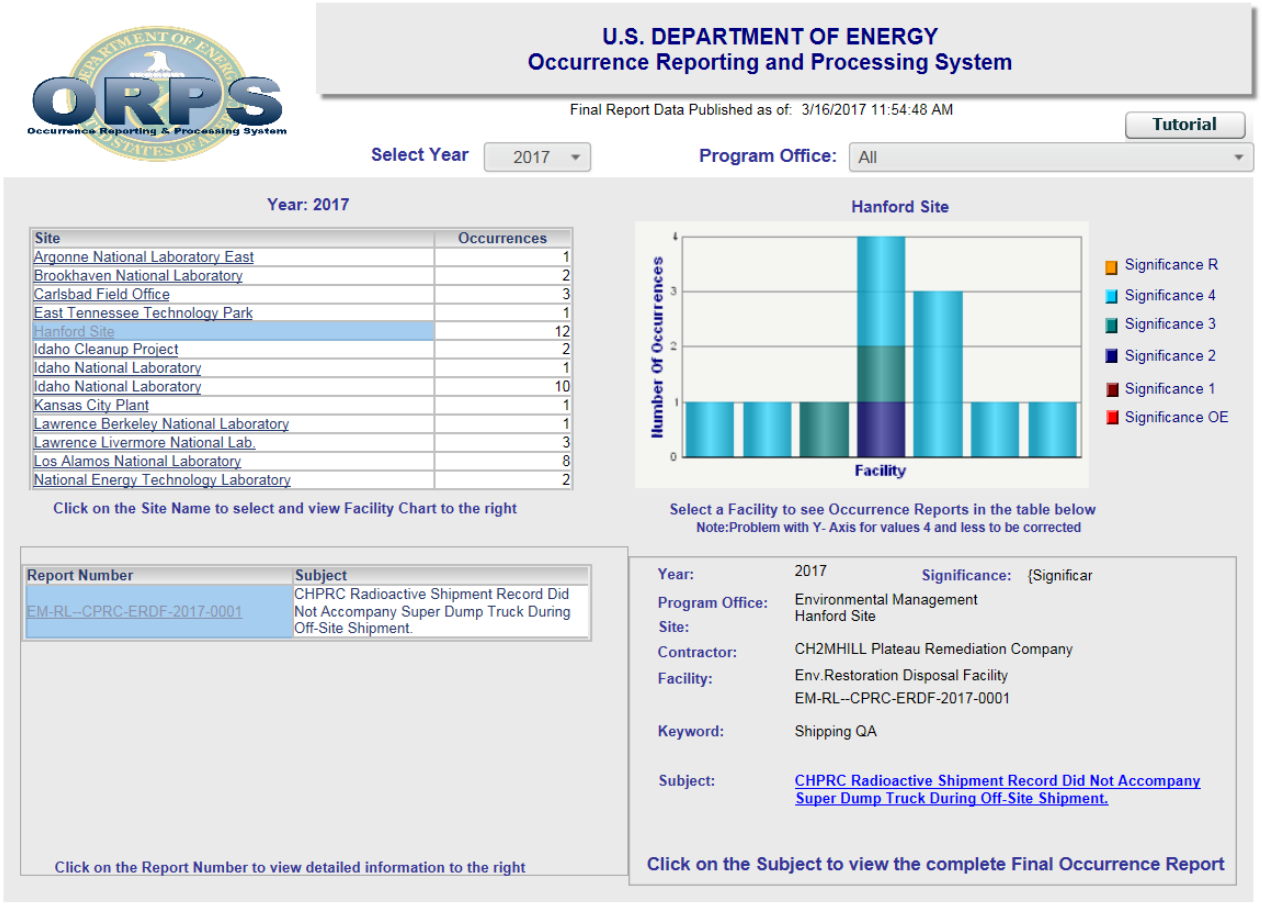
- Work Planning and Control
- Documents and Records
- Procurement
- Training and Qualification
- Inspection and Acceptance Testing

ORPS Final Reports

- ORPS Final Reports are publicly available. No classified information or Controlled Unclassified Information is allowed in ORPS.
- Available at http://energy.gov/ehss/policy-guidance-reports/dashboards
- Contents of the Public ORPS Dashboard –
  - Contains reports from 2005 to present
  - Data is updated daily
  - Information is displayed in tables and graphs
  - Searchable by reporting organization and event-oriented keywords
  - Full occurrence report can be viewed and printed

Publicly Available Occurrence Reporting and Processing System Dashboard

By Organization | By Keyword



Questions/Comments

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