

NMSU Environmental Health Safety & Risk Management (NEW in 2018) Annual Report - 2017

NM STATE UNIVERSITY

ANNUAL REPORT 2017

EHS&RM

INTRODUCTION

MISSION

Environmental Health Safety & Risk Management (EHS&RM) supports the NMSU mission by helping the campus community make decisions and take actions consistent with an unconditional commitment to safety and environmental stewardship.

EHS&RM is committed to continuous improvement and quality programs and services that support occupational safety, teaching, learning and research activities. Through EHS&RM programs and our partnerships with various constituents of the campus and regulatory agencies, we promote a safe, healthful environment and help the University community to recognize and control hazards and minimize their risk and loss, and provide leadership in environmental stewardship.

EHS&RM fulfills its mission by implementing programs and services in ten major areas. Our newest program of Risk Management will be in place in 2018. Efforts to transition Risk Management and expand initiatives began in 2017.

VISION

NMSU will be a recognized leader by customers, regulators, and our peers in establishing an effective safety culture, which holds employees at all levels accountable for environment, health, and safety performance.

Our goals are to have a workplace free of injuries and hazardous exposures, to prevent or minimize any adverse impact to the environment, to provide services of the highest quality to the NMSU system and to be recognized as leaders in the areas of environmental protection, health and safety. Achieving this goal is the responsibility of every member of the New Mexico State University system.

DEPARTMENT VALUES

Our department will be comprised of individuals committed to our mission, *achieving* our vision and the highest professional practices and standards. We provide *quality services* to our customers by understanding their individual needs and measuring our effectiveness. We carry out our responsibilities with knowledgeable professionalism. We provide *innovative*, reasonable and timely solutions. We empower and require accountability of our team in a supportive work environment where we can achieve our full potential.

The Environmental Health Safety & Risk Management Team will practice their profession by following recognized scientific principles and management practices, factually *communicating* to affected parties their findings in an *honest*, straightforward manner; exhibit the highest level of *integrity, honesty and empathy*, while never compromising the public's welfare. Our team will strive for continual education and professional development, to provide superior customer service in all areas, to perform service only in the areas of competence, and maintain information as confidential when appropriate.

STANDING: JOSE L GAMON, MICHAEL NEVAREZ, DAVID SCHOEP, POLLY WAGNER, JACK KIRBY, KATRINA DOOLITTLE, DREW KACZMAREK, GINGER PARKER, KARL DYKMAN, ROSE MELENDREZ

SITTING: LUIS MORALES, DERRIK WOOTTON, EILEEN NEVAREZ, RYAN PERAITA, MICHAEL LUCERO

NOT PICTURED: STEVE MOATES

WELCOME FROM THE EXECUTIVE DIRECTOR

Welcome to the tenth annual report for New Mexico State University Environmental Health Safety and Risk Management. We are excited to share EHS and Risk Management highlights to help tell our story. Risk management functions transitioned to EHS this year adding a new dimension to our department. Through these expanded duties and connections, we engage even more members of the campus community and visitors in our services and loss control efforts.

This report is only made possible through the dedication to excellence and collaboration that our EHS&RM staff strives for daily. As a team, we take great pride in our accomplishments and in creating partnerships that contribute to the health and safety of our state wide university system.

I thank you in advance for taking time to review this report and learn something about safety, environmental protection and risk management at NMSU. We also thank our fellow partners, friends of safety, faculty and staff, researchers, various safety and loss control committee members for their commitment to health, safety and loss prevention. Their collaborative efforts and pride in being part of a great University that discovers how to do it safely makes NMSU a safe and healthy place to teach, learn and serve our community and state.

We capture a lot of metrics in this report and it may seem long but this has been our mechanism for communicating progress, trends and contributions to the safe operation of this university. EHS and Risk Management has many programs to help provide a safe and environmentally responsible campus but we do not accomplish this alone. Safety is the responsibility of every member of the campus community.

Accountability is critical to having a proactive safety culture and integrating safety into daily processes is good management and risk control. Every administrator is responsible for ensuring that all research and work activities are conducted within requirements, and supervisors have particular responsibility for activities and training of those who report to them and all are expected to promote a culture of safety. Every student, employee, faculty and contractor must be committed to working in a safe and environmentally conscious manner for everyone's benefit.

Thank you and have a safe day,

Katrina Doolittle

Katrina Doolittle, Ph.D.
Executive Director

OVERVIEW OF 2017

- Efforts to transition Risk Management to EHS&RM began in 2017 to include claims management and a new Risk website.
- Scores in all 8 categories of the FS Customer Satisfaction Survey increased from 2016 for EHS&RM.
- EHS&RM negotiated a 41% reduction in hazardous waste penalty assessed by NMED. Facilitated four additional external compliance audits with no penalty.
- EHS&RM completed 76 regulatory compliance reports to external agencies.
- Instructor led safety training was provided to 2919 persons in 235 safety classes.
- New Online EHS&RM courses are Fundamentals of Laboratory Safety, Fundamentals of Laser Safety, PI Responsibilities in Lab Safety and Emergency Preparedness.
- In combined departmental efforts, NMSU achieved 93% compliance in delivering General Employee Safety and Emergency Preparedness Training online (11,974 employees).
- Employee injury and illnesses continued a trend of fewer cases over the recent 7-year period compared to previous years with a 59% decrease from 2006. Over 10 years, we saved $562,000 in worker comp premiums.
- 87% of supervisors completed the Supervisor Accident Investigation Report with the assistance of EHS&RM.
- Loss control program includes facility safety inspections in total of 4028 rooms, 483 of which were laboratories. 94% response of corrective actions completed.
- Collaboration between Fire Department and EHS&RM resulting in improved efficiencies with FD taking over general building fire/safety inspections.
- EHS&RM completed certification tests on 234 fume hoods using a student inspector.
- There were 208 responses to incidents primarily involving indoor air quality complaints and minor hazardous materials spills/incidents.
- Issued validation for 1454 driver's permits, of which 348 were for utility cart use.
- EHS&RM promoted safe bicycling and awarded bronze Bike Friendly University by promoting safe bicycling, education, and improved infrastructure and new facilities.
- EHS&RM oversaw 50 asbestos abatement projects that generated 83 cubic yards of waste, 9 of which required NESHAP filing. Supported 186 assessments on asbestos, mold and lead related concerns.
- Unannounced NMED Air Permit Compliance Inspection with no violations.
- Remote generator monitoring was installed for more efficient tracking and compliance.
- Closure activities have continued for the NMSU Landfill. One-step closer to opening the area for additional parking for stadium events.
- The City of Las Cruces performed a formal inspection for wastewater operations. No deficiencies were noted.
- EHS&RM shipped 18 hazmat shipments for various academic departments. FAA external inspection conducted with no violations noted.
- Unannounced NMED hazardous waste inspection with no violations for EHS&RM operated Environmental Management Facility.
- Picked up, processed, and shipped 47,394 pounds of waste that included 2,749 individual waste items.
- The cost per pound of waste was 2.5% less than the previous year.
- Recycling continues with 3200 pounds of diesel fuel recycled at $0. Received $500 rebate on refrigerant recycled.
- There were no significant incidents, spills or worker exposure involving radioactive material or radiation producing devices.
- 74 pounds of radioactive waste was disposed of using decay-in-storage resulting in lower cost of disposal.
- Support Biosafety Program committee application reviews, monthly training support and disposal of biohazardous wastes.

FACILITIES AND SERVICES CUSTOMER SATISFACTION SURVEY

EHS&RM was reorganized to Facilities and Services (FS) in July 2010 and has participated in FS's customer satisfaction survey each year with high rates of satisfaction among respondents. While last year experienced a slight decline in all areas, this year all the areas of EHS&RM showed increases among those who were satisfied or very satisfied. "Knowledge in their areas of specialty" received the highest percentage of respondents who were satisfied or very satisfied (87%). "Understanding my needs and the requirements of my department" had the largest increase in combined satisfaction from last year, increasing 7% from 73% in 2016 to 80% in 2017 **(Figure 1).**

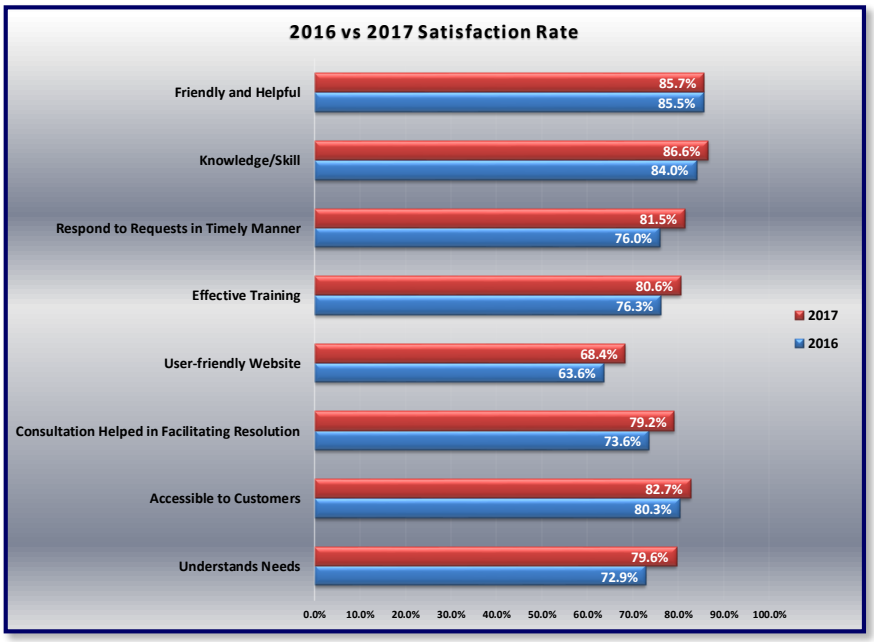


Figure 1: Combination of Very Satisfied & Satisfied

In 2017, there were approximately 98 respondents that scored EHS&RM on eight different categories shown in **Figure 2**.

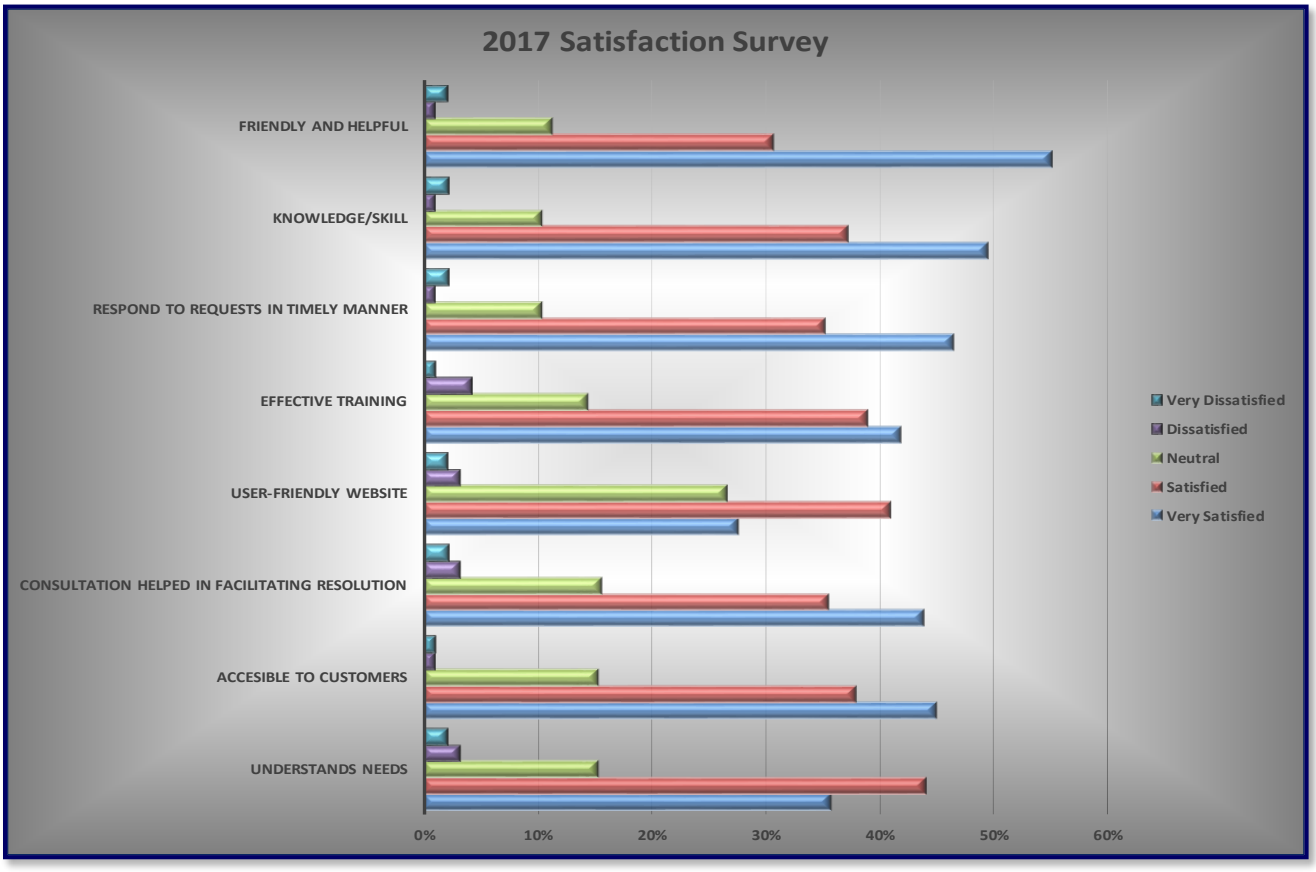


Figure 2: Satisfaction Survey

COMPLIANCE INITIATIVES & SUPPORT

The realm of regulatory compliance and span of responsibility for EHS&RM is ongoing and forever changing with increased regulations or new regulation. Each area of responsibility is described in detail of each section of this report. These areas are highly visible and frequently audited. Every year, EHS&RM facilitates several unannounced regulatory compliance inspections from various State of New Mexico and City of Las Cruces agencies **(Figure 3)**. For the first time since 1993, NMSU received a notice of violation and penalty from one of the 13 agencies. The New Mexico Environment Department (NMED) increased their scope of inspections and placed added focus on enforcement. The result of their four-day hazardous waste inspection was a notice of violation with penalty. Chancellor Carruthers authorized EHS&RM to negotiate with NMED Hazardous Waste Bureau and the positive outcome is a 41% reduction in penalty for final cost of $18,510. Additional attorney fees were avoided and the case efficiently closed.

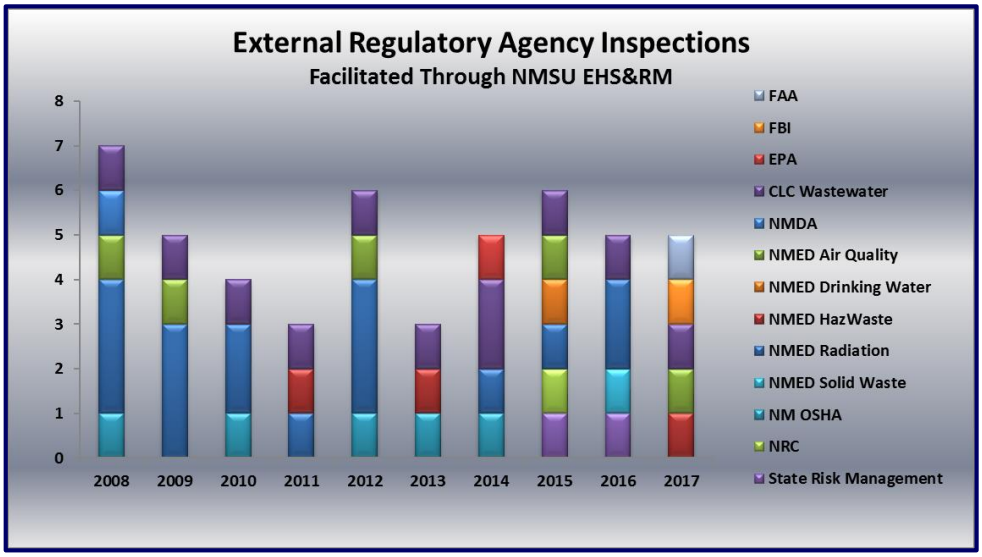


Figure 3: Unannounced Regulatory Compliance Inspections

EHS&RM is also responsible for routine compliance reporting to these same governing external agencies. In 2017, EHS&RM submitted approximately 76 compliance reports **(Table 1).** In addition to the regulatory compliance represented in **Table 1** and **Figure 3**, EHS&RM provides a high level of compliance support to all NMSU entities. EHS&RM will assist in research of regulations and will provide guidance to ensure an efficient, safe and compliant operation.

2017 - EHS &RM Compliance Reporting to External Agencies	
Regulatory Agency	**Reports Submitted**
City of LC- Utilities	4
NM Dept Homeland Security & EM	1
NM Occupational Health Safety Bureau	11
NM Worker's Comp Administration	1
NM Risk Management Division	4
NMED Air Quality Bureau	21
NMED Drinking Water Bureau	14
NMED HazWaste	2
NMED Solid Waste Bureau	11
NMED Surface Water Bureau	1
Federal Aviation Administration	1
FBI	1
OSHA	1
US Environmental Protection Agency	2
Washington State - Office of Radiation Protection	1
Total Reports Submitted	**76**

Table 1: Compliance Reporting

RESEARCH SUPPORT

In order to facilitate safe and legally compliant instruction and research, the EHS&RM department provides regulatory guidance, protocol review, experimental plan assistance, annual inspection, training and hazardous material disposal for the faculty and research teams at NMSU. There are three faculty research oversight committees with significant EHS&RM implications: Radiation Safety Committee, Institutional Biosafety Committee, and Animal Care and Use Committee. These committees fulfill specific

federal regulatory requirements in areas of safe use and containment of radioactive and biological materials research and animal protections at NMSU. EHS&RM is a regular member on two of these committees, provides administrative support for one and supports the Occupational Health & Safety Program, which is essential for the third. This work facilitates state and federal compliance.

UNIVERSITY GROWTH AND EHS&RM STAFFING

Based on a benchmarking tool created by another university safety professional, it is possible to achieve a reasonable estimation of the number of EHS&RM full time employees needed for an institution. The findings indicated that total net assignable square footage (NASF) and Lab NASF are the most statistically significant and pragmatic factors to demonstrate a relationship between square feet and EHS&RM staffing.

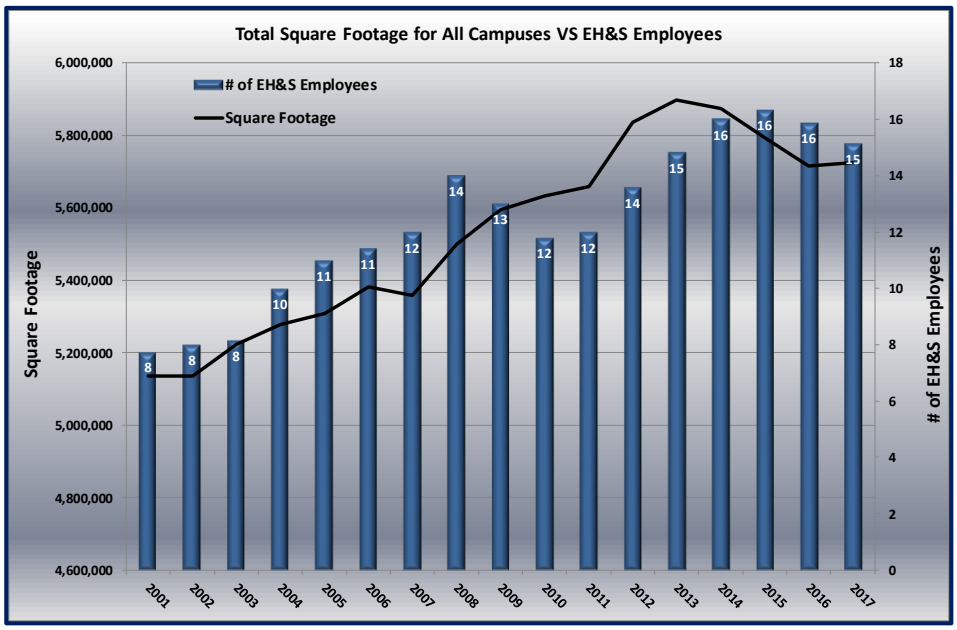


Figure 4: Square footage to EHS&RM FTEs

This bench-marking tool indicates NMSU is estimated to need 20 FTE EHS&RM employees based on the factors mentioned. **Figure 4** shows the current relationship which shows EHS&RM is 25% below benchmarks. Increasing EHS&RM staff to provide safety and compliance services for the university system must be a higher budget priority. This is critically important as responsibility for risk management and expectations for improvement are being assumed, so far, without resources.

CENTRALIZED SAFETY TRAINING

Figure 5: Safety Training

EHS&RM offers safety-training classes designed to meet the employee training requirements of specific state and federal regulations to minimize risk and injury.

Applicable safety training is delivered to NMSU facilities system-wide by EHS&RM. Strong partnerships have been developed with academic, research and operations departments through the safety training program. The EHS&RM Team delivered training to 3555 people in 2017

(Figure 5 & Table 2). Of these 3555 people, 2919 of them were trained through approximately 235 instructor-led training classes. The remaining 636 employees were trained via online training. EHS&RM now offers the following online courses: Fundamentals of Laser Safety, Fundamentals of Laboratory Safety, Principal Investigator Responsibilities in Laboratory Safety, Annual Radiation Safety Refresher, Annual Bloodborne Pathogen Refresher, Dry Ice Shipper Training and SPCC Awareness (Spill Prevention Controls and Countermeasures).

As required by the State of NM Loss Prevention and Loss Control Regulations, employees must pass a series of applicable compliance training that must include an employee safety module. Through the Compliance Certification Program, General Employee Safety and Emergency Preparedness modules have been developed to meet this requirement. In 2017, The University achieved a 93% compliance rate in the delivery of the required compliance training. With overlap of two compliance training periods, there were a total of 11,974 employees that completed one or both of the safety modules available (**Figure 5)**. Effective in early 2018, the Employee Safety module will be included in the new employee onboarding compliance program.

Course	Sum of 2017
Nuclear Gauge Safety And Transportation	2
Scaffold and Fall Protection	4
Basic Laser Safety	5
Lockout Tagout	5
Aerial Lift Safety	21
Ladder Safety	35
Analytical X-Ray Safety	41
Basic Radiation Safety	43
Lifting Safety and Ergonomics	47
Fork Lift Safety	58
Animal Worker Safety	64
Respirator Safety and Refit	77
Biosafety Awareness	81
Special Training Classes - Seminar	82
Hazardous Waste Management	105
Bloodborne Pathogen	119
Worker Protection Standard (WPS)	128
Asbestos Awareness	130
Workplace Safety Awareness	139
Laboratory Standard	305
Employee Safety - Instructor Led	350
Hazard Communication	371
Defensive Driving	408
Laboratory Safety Refresher (With Hazardous Waste Reca	448
PI Responsibility in the Lab	487
Total	**3555**

Table 2: Types of Safety Training Classes

The strong relationships developed with stakeholders is evidenced in repeated requests for the EHS&RM team to present special sessions on current safety issues which helps departments comply with multiple regulatory training requirements of annual refreshers.

Highlights of these special classes in 2017 are:

- Annual refresher of Laboratory Safety for 448 faculty, staff and students working in a lab environment.
- 4 hour - annual refresher of Workforce Safety Training for ~125 Facilities employees (**Figure 6).**
- Annual Float Safety training for staff participating in Homecoming parade and float inspections.
- Function specific Legionella in Water Systems training to Central Plant Team.

Figure 6: Maintenance Safety Refresher Training

EMPLOYEE INJURY & ILLNESS

OSHA 300 LOG

The 2017 annual summary of employee injuries and illnesses is posted on the NMSU safety website. This log shows a count of reportable injury and illness cases and a summary of lost work days or days with restricted work related to these cases. There were only 104 recordable cases in 2017 which is down 8% from previous year. **Figure 7** demonstrates a continued trend of reduced injury and illness cases over the recent seven year period compared to previous years.

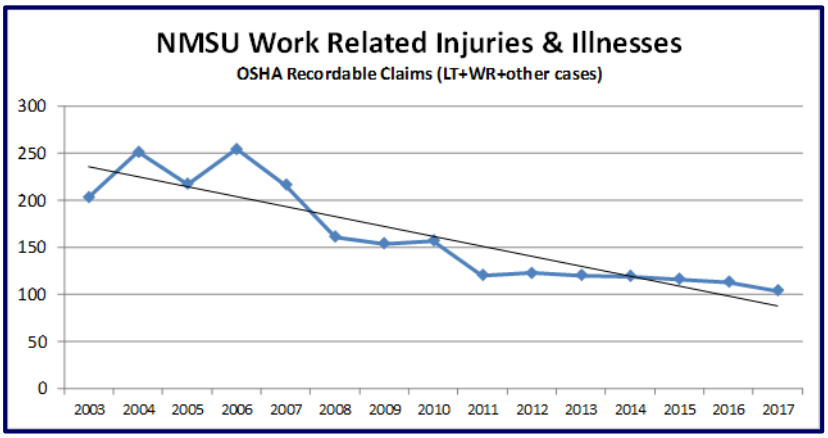


Figure 7: OSHA Recordable Claims

LOSS PREVENTION

Employees are reminded to report work-related injuries and illness to their supervisor. In 2017, with EHS&RM monitoring and reminders, 87% of supervisors completed a Supervisor Accident Investigation Report and determined cause of the incident and what mitigation steps should be taken. EHS&RM reviews each report of injury or illness and provides recommendations to the supervisor.

The bar charts (**Figure 8**) compare cases with lost time and the number of days away from work.

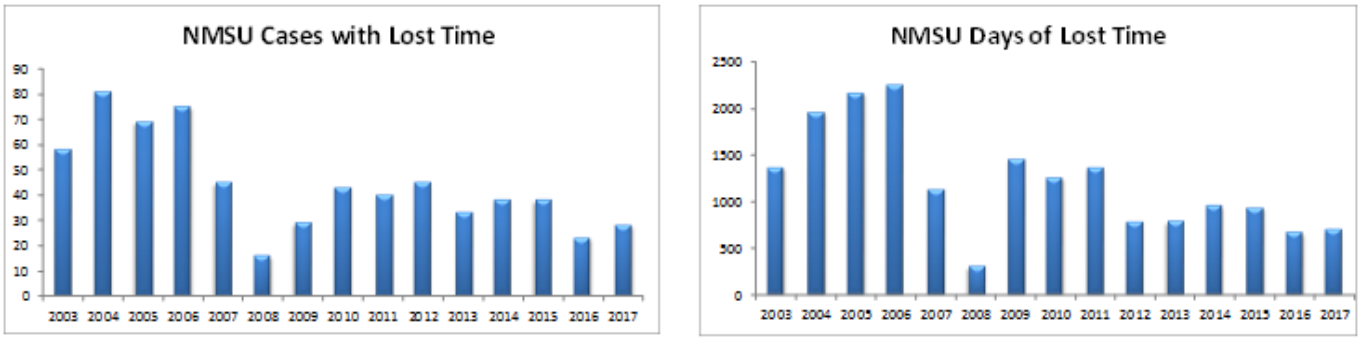


Figure 8: Lost Time

The bar charts (**Figure 9**) compare cases with work restriction and the number of days at work with restricted duty.

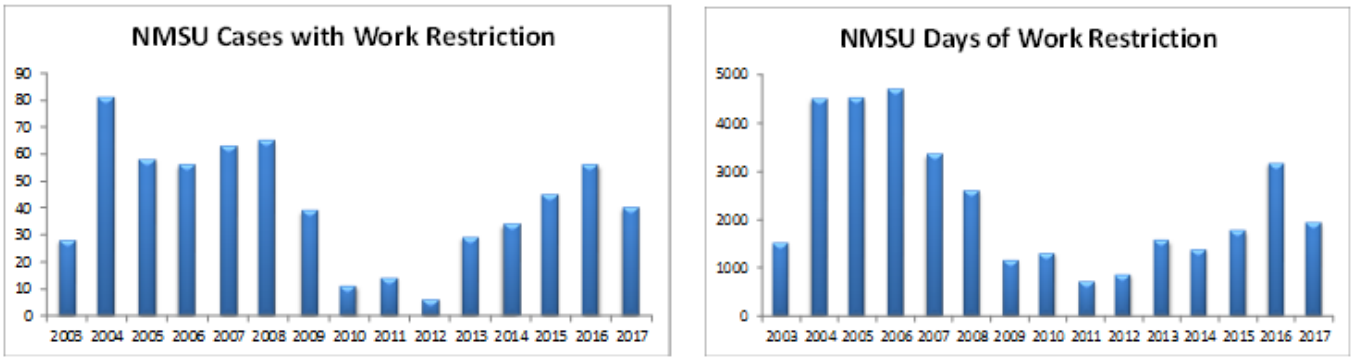


Figure 9: Work Restriction

There was a slight increase in the cases with lost time and a corresponding increase in the number of lost workdays. However, there was a 29% decrease in cases with work restriction and a 39% drop in days of work restriction. Even with the slight increase of cases with lost time our overall Days Away Restricted or Transferred (DART) Rate is 11% lower than 2016. This rate calculation is normalized by hours worked. We show positive trend of less serious injuries accompanied by an increased number of days that employees returned to work on restricted duty. This indicates the return to work policies and recently modified procedures are effective.

WORKERS' COMPENSATION RISK RATE

The workers' compensation risk rate premium assessed by state Risk Management Division (RMD) is weighted heavily for experience, which is the actual cost of injury and illness claims. In detail, these premiums are based on 90% experience (cost of claims) from the designated five prior fiscal years (FY12 – FY16 for FY19 premiums). The remaining 10% is exposure data (payroll) compiled from the yearly exposure survey collected in early spring from each insured entity.

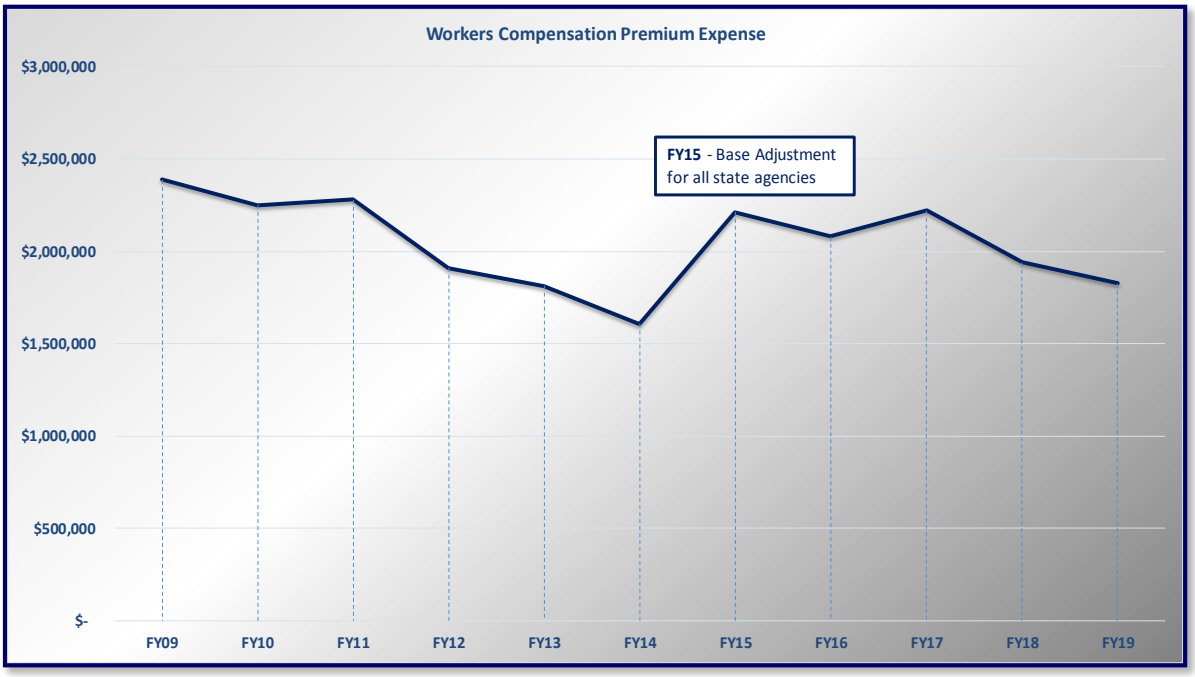


Figure 10: Premium Expense

Worker's risk avoidance resulted in a decreased premium over 10 years, a savings of approximately $562,000 (**Figure 10**). This was despite the RMD increase in base rate for all agencies in FY15, which was to improve the health of reserves. In addition to premium reduction, workers going back to work and avoided medical expense are added cost savings. This is a significant positive financial impact of the long-term success in reducing the number of work related injury and illness claims.

There were 116 worker compensation claims filed in FY17. The first half of FY18 to date is 70 injuries with a total paid cost of $104,558. The top two departments with injuries remained consistent with previous year. Facilities & Services and Dona Ana Community College. Loss Prevention Loss Control Committee reviews these trends quarterly and identifies initiatives to improve outcomes such as return to work procedures, supervisor injury follow up and situational awareness training.

Injury Type	Cost	% of Total Injuries
Contusion	$50,649	30%
Strain	$40,521	33%
Fracture	$5,741	3%
Laceration	$2,661	9%
Puncture	$1,183	7%

Table 3: Types of Injury and Cost

Listed in **Table 3** are the injury types with the highest treatment costs for the first half of FY18. These five categories account for 96% of injury costs. The highest claim to date for FY18 is $11,945 for a strain and the highest claim for FY17 was $93,264 for a contusion. As the claims age and treatment status remains open, expenses for these claims continue to tally beyond fiscal year end.

Total claims paid to date include costs for indemnity, medical expense, and legal payments. The following chart **(Figure 11)** is year to date by category for FY13 – FY18 (1st half). Indemnity payments can extend past the closure of the claim and is based on the maximum medical improvement (MMI) and disability impairment of the injury buy may include medical, expenses, and legal.

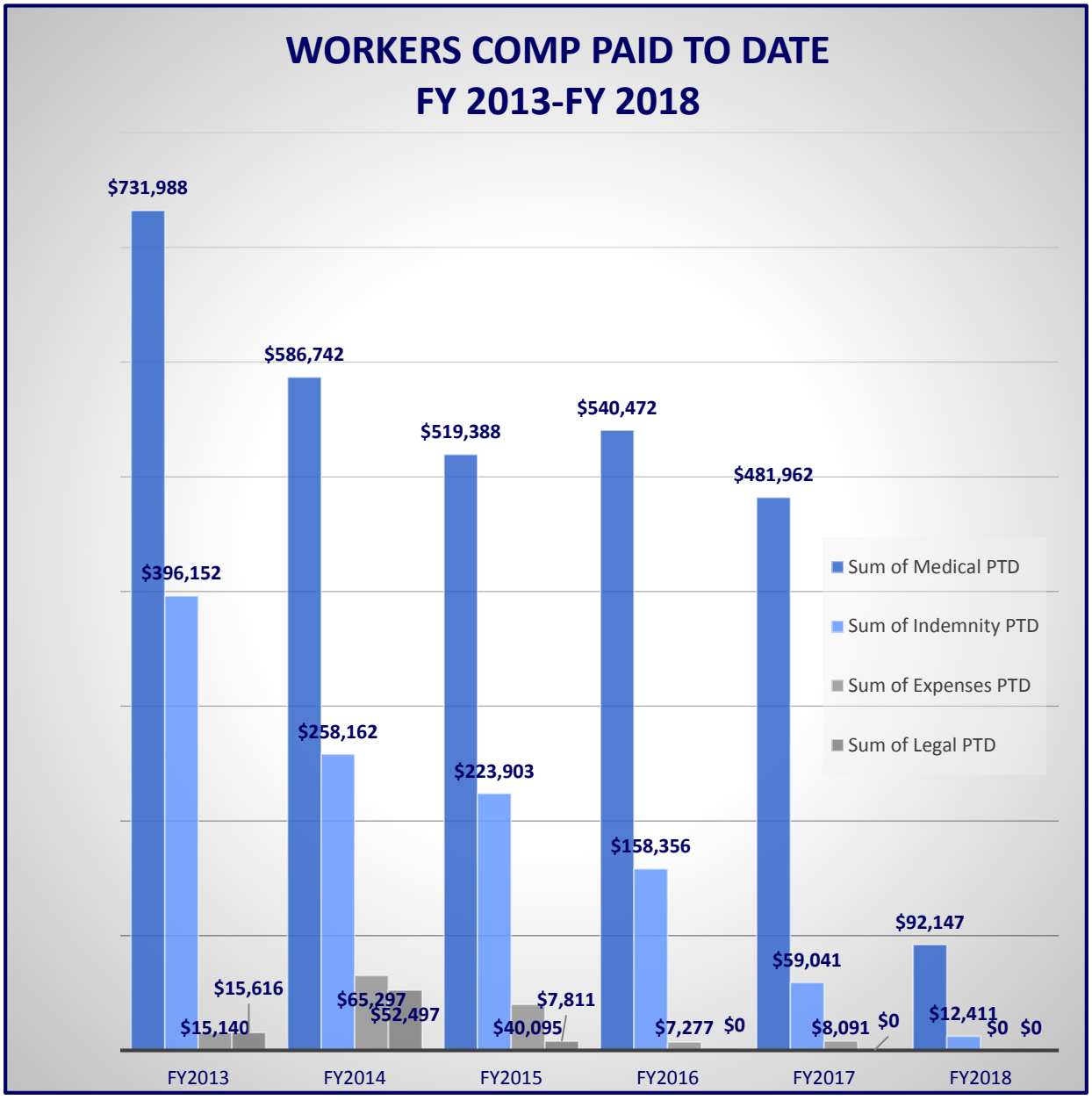
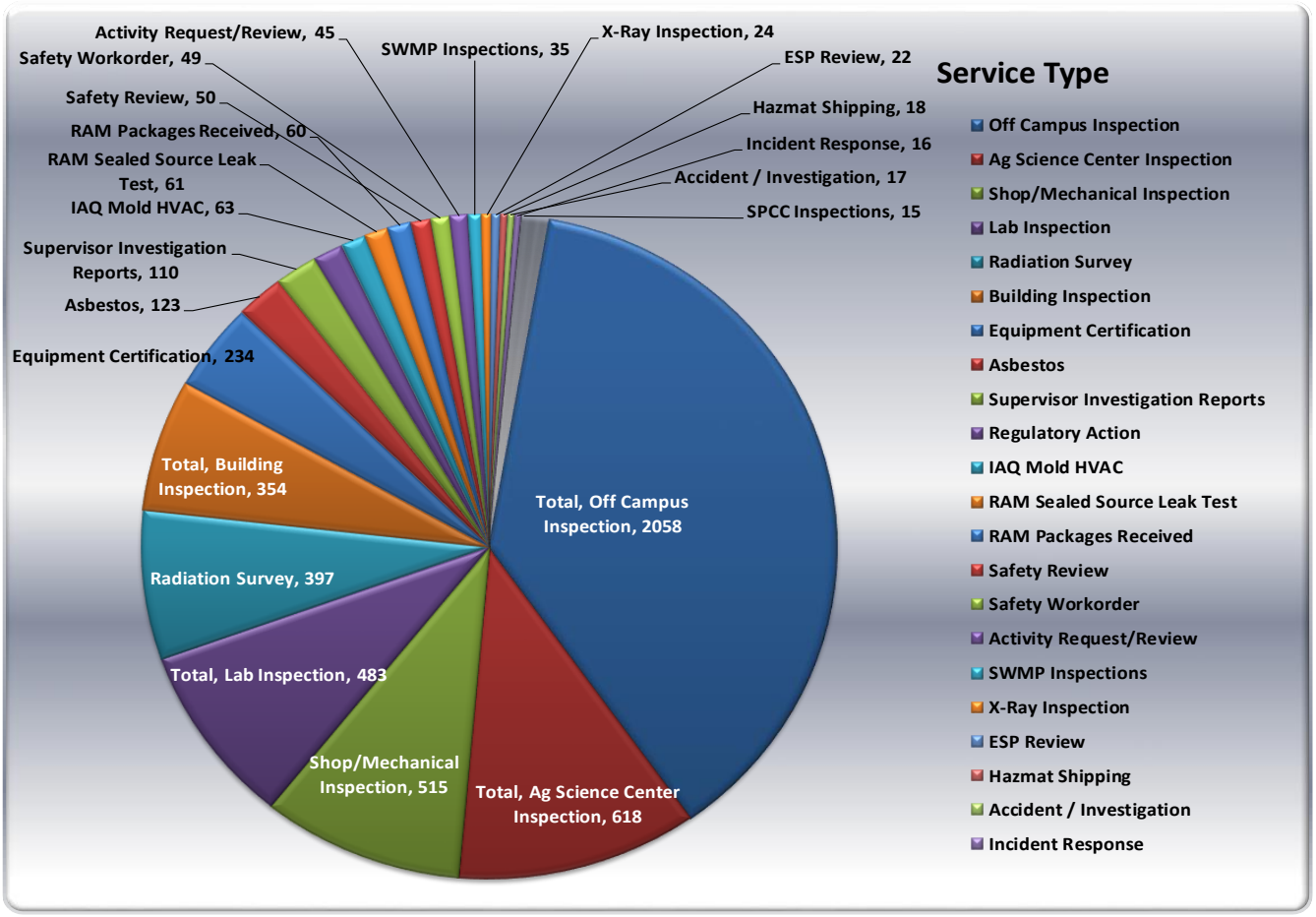


Figure 11: WC Paid to Date

LOSS PREVENTION AND LOSS CONTROL PROGRAM OVERVIEW

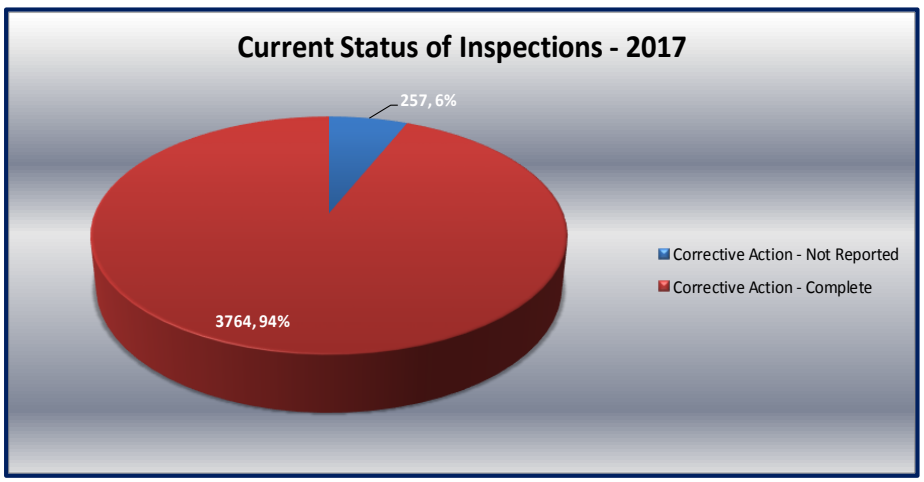
NMSU is regulated by the State of NM Loss Control Program, NMAC 1.6.4 Rule. To assist the university in complying with this rule and to minimize loss, EHS&RM provides NMSU with a proactive loss prevention and control program. This is multi-approach safety surveillance of workers and workplace, as well as, after the fact injury investigation to prevent similar incidents. Over 90% of EHS&RM services focus on proactive inspection of hazardous work areas and ensuring safety equipment is functioning properly **(Figure 12).**

Figure 12: EHS&RM Services Performed in 2017



EHS&RM also follows up with the responsible parties to ensure a corrective action plan to address any deficiencies found during inspection. There is currently 94% response rate of corrective actions completed for 2017 **(Figure 13)**.

Figure 13: Corrective Action Status



NMSU is subject to audit of the LPLC Program by the State of NM Risk Management Division. The last audit conducted was on April 26, 2016 and NMSU received a score of 98%.

General Safety Inspections

Laboratory and Building Inspections

In 2017, EHS&RM completed laboratory and facility safety inspections throughout the state including the Las Cruces campus, community colleges, agricultural science centers and other affiliated NMSU facilities. EHS&RM generated detailed inspection reports for each location, which identified safety concerns and corrective actions. In 2017, EHS&RM submitted multiple safety work orders worth an estimated $60,000 of Building Repair & Renewal (BRR) funding to correct facility safety deficiencies and improve safety equipment on main campus.

High hazard areas including laboratories, shops, hazardous material storage areas, and mechanical rooms are inspected annually by EHS&RM. These safety inspections are required by federal, state and local regulatory agencies including State of New Mexico Loss Prevention and Control Bureau.

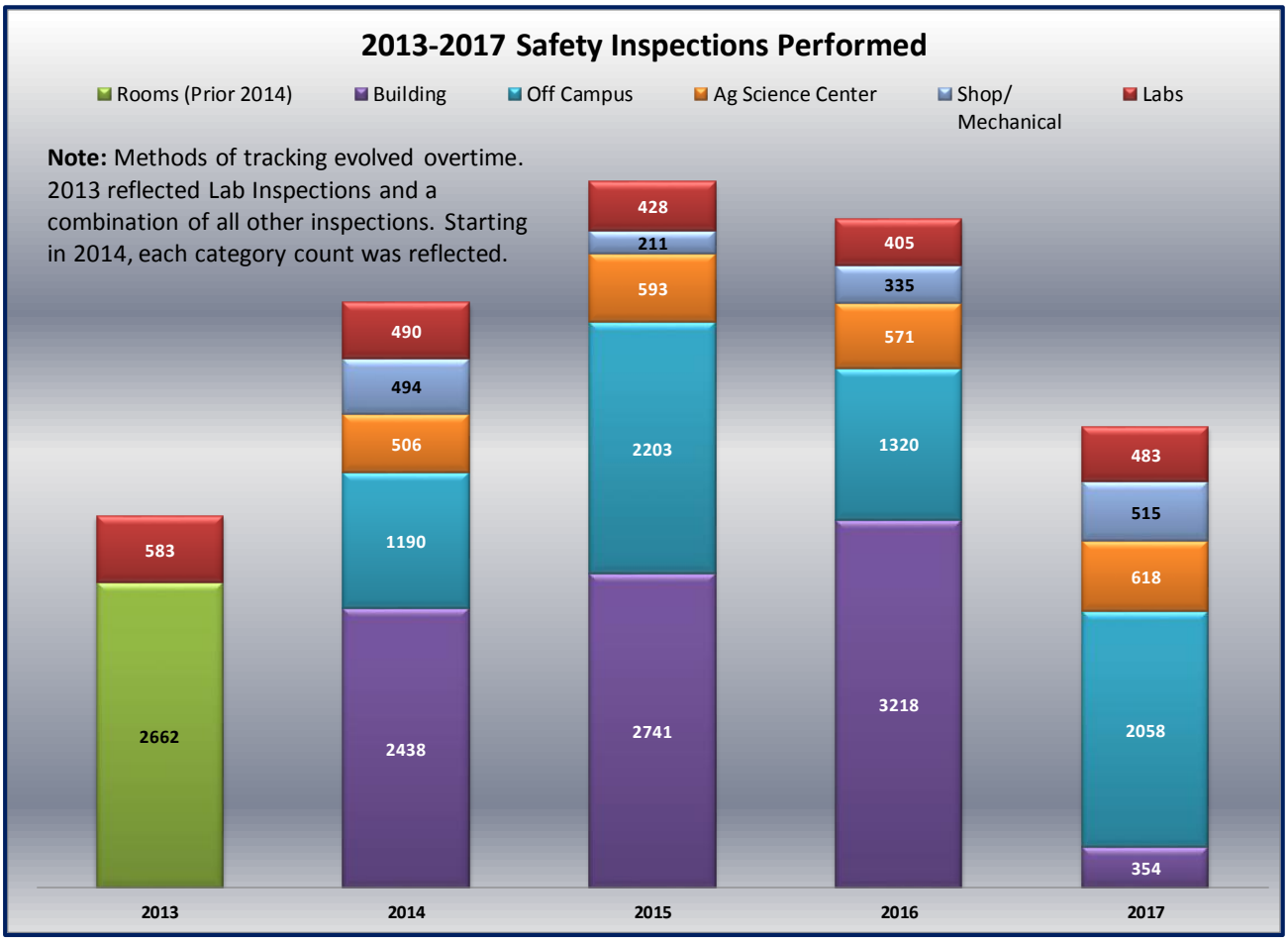


Figure 14: Safety Inspections System Wide

In 2017, 4028 rooms in NMSU facilities statewide were inspected **(Figure 14)**. There was an 89% reduction in main campus building inspections in 2017 and a 31% drop overall from 2016. These reductions resulted from a planned transfer of Las Cruces campus building inspection responsibility from EHS&RM to the NMSU Fire Department. The Fire Department was already performing fire safety inspections on buildings. Through collaborative efforts and optimizing efficiencies it was agreed that general building safety inspection for the Las Cruces campus would be the Fire Department responsibility and the inspection of high hazard areas would remain with EHS&RM. EHS&RM also continues to perform general building and high hazard safety inspections at remote facilities.

CHEMICAL FUME HOOD INSPECTION PROGRAM

Chemical fume hoods are a common yet critical safety engineering control in many laboratories at NMSU. EHS&RM is responsible for performing an annual operational check and certification of all chemical fume hoods on Las Cruces campus.

The certification process involves making a set of standard face velocity measurements to ensure the hood flow rate is adequate. It also includes checking the integrity and functioning of the hood surfaces, ductwork, utilities and controls. If the hood fails to pass a critical part of the certification the hood is tagged "out-of-service" and repair work request submitted to Facilities and Services. The certification process is completed again after the hood is repaired.

Figure 15: Student Inspector

In 2017, 234 fume hoods were certified (**Figure 16**). A student inspector **(Figure 15)** works at EHS&RM and performs most hood certifications.

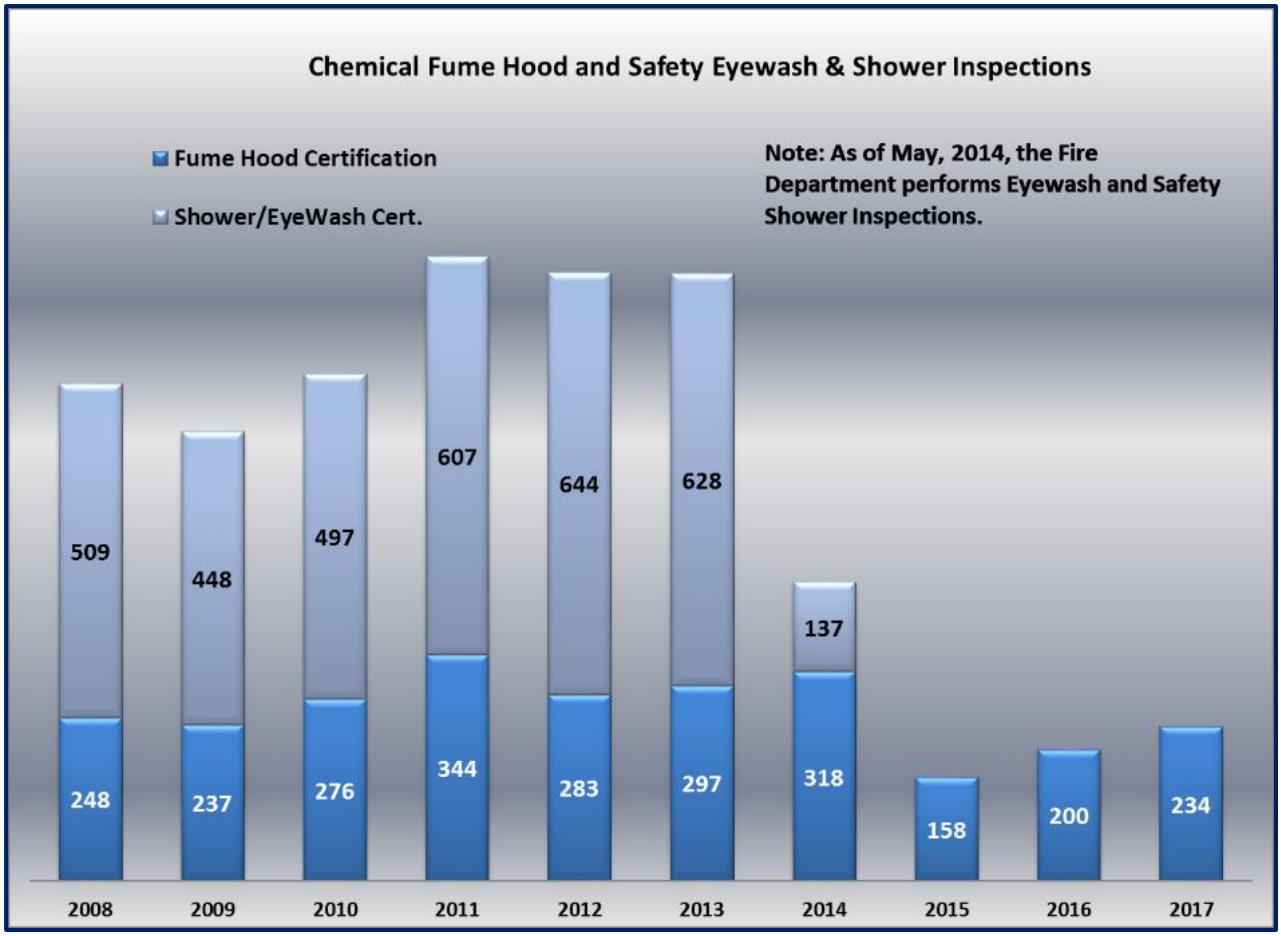


Figure 16: Chemical Fume Hood Inspections

SAFETY SERVICES

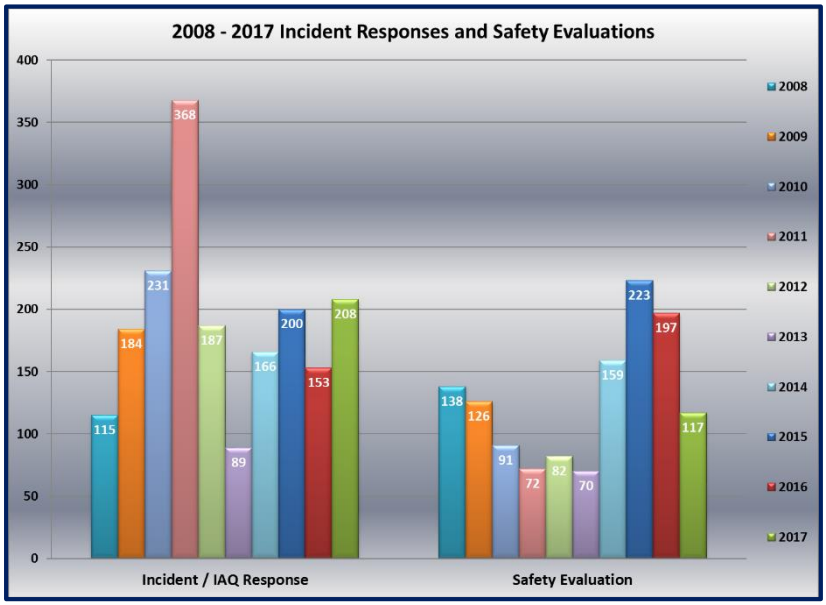
In addition to general safety inspections, EHS&RM also provides many other services to minimize loss and risk. These additional services are described in the following paragraphs.

INCIDENT RESPONSE AND SAFETY EVALUATIONS

There were 208 responses to concerns by stakeholders, primarily involving indoor air quality concerns and concerns of asbestos, this was a 36% increase compared to last year (**Figure 17**).

Figure 17: Incident Response and Safety Evaluations

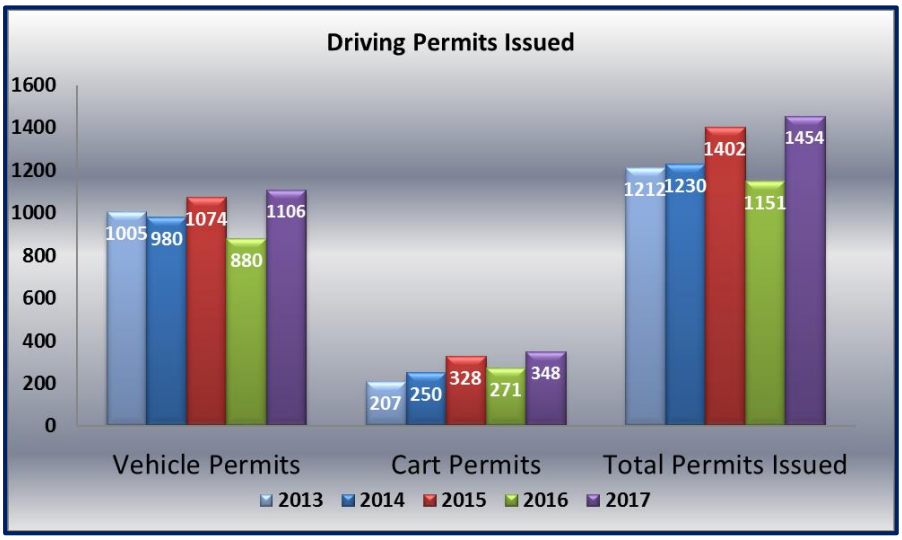
EHS&RM perform safety evaluations of various work activities, research experiments, and campus activity events. These evaluations are performed to ensure all regulatory requirements are met and that safe practices are in place before an activity or an experiment occurs. In 2017, EHS&RM performed 117 safety evaluations (**Figure 17**). Transition in Occupational Safety staffing and lead position vacancy contributed to a lower number of documented safety evaluations.



VEHICLE AND UTILITY CART SAFETY

Figure 18: Driving Permits Issued

As part of the NMSU Vehicle Use Procedure and the State Risk Management Loss Prevention and Control, all employees must be issued either a NMSU driver's permit or a utility cart permit to be eligible to drive university owned vehicles. EHS&RM provides the defensive driving course as well as completes driver history checks to ensure validity of their driver's license. EHS&RM performs this license validation for every new driver and for three year permit renewals. This year there were 408 people that attended the Defensive Driving Course and a total of 1454 driver's licenses were validated and permits issued (**Figure 18**).



Out of the 1454 permits issued, 348 of them were for utility cart permits (**Figure 18**). The utility cart permit does not require the defensive driving course, but does require a license validation.

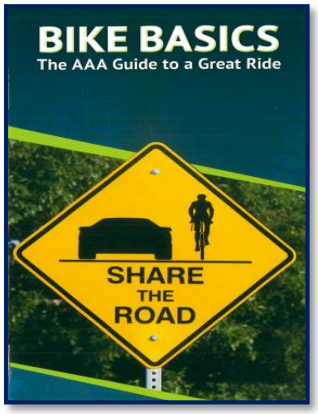
BICYCLE SAFETY

NMSU follows the Essential Elements of a Bicycle Friendly America; Encouragement, Education, Enforcement, Engineering and Evaluation. EHS&RM strives to promote and provide a more bicycle-friendly campus and successfully achieved Bronze status as a Bicycle Friendly University (BFU).

In 2017, EHS&RM continued joint work with Metropolitan Planning with the City of Las Cruces on citywide bicycle friendly upgrades and with Velo Cruces Bike Club on more related events. Along with the BFU Taskforce and Sustainability Council, there is continue the effort to obtain a campus Bike Share Program.

EHS&RM hosted several bike safety events this year including:

- Aggie Bike to work highlighted employees riding to work
- Bike maps, info, repairs & bike swap the Fall & Spring Aggie Bike Expos.
- Youth bike training at Spring Bike Rodeo and Aggie Safety Fair.
- Campus safety rides and group rides in the Homecoming Parade.
- Supported Annual Ride of Silence & community outreach at Ride Right Ride Bright & Jingle Bell Toy Ride.



SAFETY EYEWEAR

The EHS&RM Department facilitates the management of safety eyewear to employees that is applicable to their job function. This service is beneficial to NMSU as a mechanism to ensure safety eye protection meets the OSHA requirements for protective eyewear (OSHA 1926.102), as well as the American National Standards Institute (ANSI) standards.

Figure 19: Safety Eyewear

EHS&RM partners locally with Walmart to provide prescription safety glasses. This local convenience provides a better service to NMSU employees, allows them to use their vision insurance (if applicable) and is more cost effective for NMSU. EHS&RM coordinated with departments and facilitated 29 requests for prescription safety eyewear (**Figure 19**). There were 128 pairs of safety eye protection distributed to new lab personnel taking laboratory related classes from EHS&RM.

SAFETY INITIATIVES AND EMERGENCY PREPAREDNESS

Since the events of 9/11, EHS&RM has coordinated Safety & Security Initiatives at the beginning of each semester to raise awareness and collaborate with other departments in emergency planning and training. The safety initiatives and emergency preparedness include:

- Emergency Information Tab on safety.nmsu.edu.
- Guide to Prepare a Departmental CoOP.
- Bi-weekly Safety Tips on NMSU Hotline news feed.
- Online Emergency Preparedness and Loss Prevention mandatory compliance training.
- Distribution of NMSU Safety, Health & Security initiatives and annual refresher safety trainings.
- All Hazards Emergency Operations Plan and update CART Contact and Line of Succession Information (**Figure 20**).
- Testing of department Emergency Action Plans through unannounced fire drills with the NMSU Fire Department.
- Testing of the Emergency Notification tools and updating emergency contact lists for security personnel badges.

Figure 20: Link to All Hazards Emergency Operations Plan

- Chairing University Safety Committee, Co-chair for Communicable Disease Preparedness Committee and member of Emergency Preparedness Committee.
- Conducting Continuity of Operations Plan reviews and processing designated essential personnel listings.
- Monthly collaboration with key NMSU staff on Emergency Planning Committee.
- Assisted in engaging Central Administration and University Administrative Council in tabletop scenarios related to hazardous chemical explosion, weather closure and bomb threat.

PROGRAM MANAGEMENT

EHS&RM manages several specialty programs designed to meet a variety of local, state and federal worker safety and environmental protection regulations:

1. Asbestos Abatement Program
2. Environmental Compliance Program
3. Hazardous Materials Shipping Program
4. Hazardous Waste Program
5. Radiation Safety Program
6. Biosafety Program (Support)

ASBESTOS ABATEMENT PROGRAM

In 2017, EHS&RM continued to provide NMSU departments with timely professional response and management of NMSU asbestos as well as mold and material containing lead. EHS&RM established the NMSU Asbestos Management Program in 2009. The program is designed to ensure proper identification and management of asbestos containing materials in the older (pre-1981) NMSU buildings. Asbestos abatement for minor building remodels and general maintenance is sub-contracted to an outside licensed vendor with EHS&RM project oversight and funded by the BR&R account (**Figure 21**).

Figure 21: Asbestos Abatement

EHS&RM has one dedicated employee and an alternate, which are both qualified annually as asbestos inspectors. EHS&RM responsibilities are to provide immediate initial inspections, perform surveys and monitoring to assess potential environmental hazards, and conduct Asbestos Awareness Training for campus personnel. Facilities maintenance personnel attend the annual awareness training that provides information on potential locations of asbestos, type of materials that may contain asbestos and the NMSU procedure for notification.

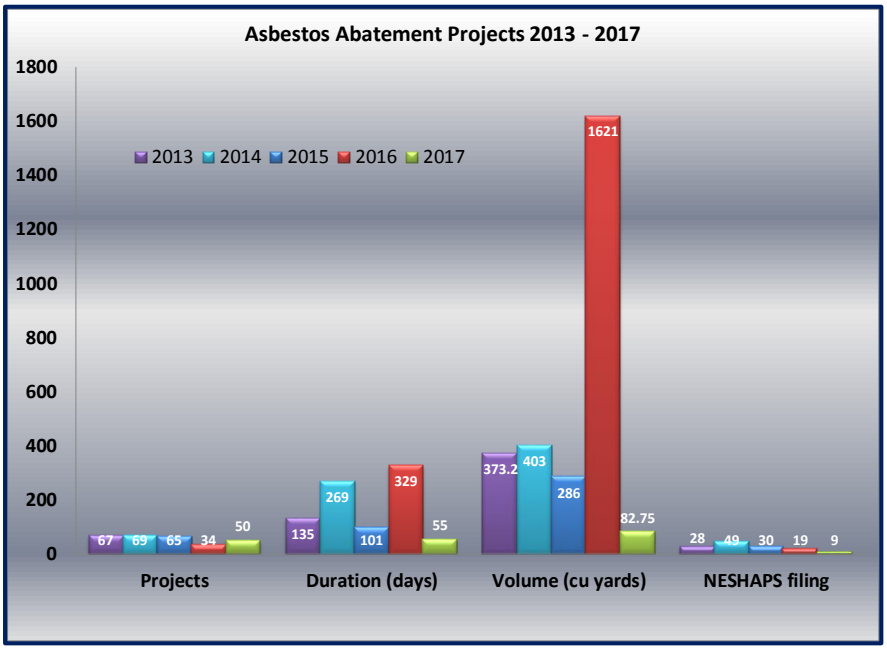


Figure 22: Asbestos Abatement Metrics

During the year, EHS&RM completed 50 abatement projects that generated 83 cubic yards of waste (**Figure 22)**. Of the 50 projects, 9 projects were of larger size and or type that required permitting through NESHAP from NMED**.** EHS&RM supported the campus on 186 reviews and incidents on asbestos and mold related issues.

ENVIRONMENTAL COMPLIANCE PROGRAM

TITLE V AIR PERMIT AND NSR AIR PERMIT

NMSU maintains two EPA/NMED Air Quality Permits; a Title V Air Permit (**Figure 23**) and New Source Review (NSR) Air Permit. These air permits ensure NMSU is monitoring campus emissions with the goal to keep them as low as possible.

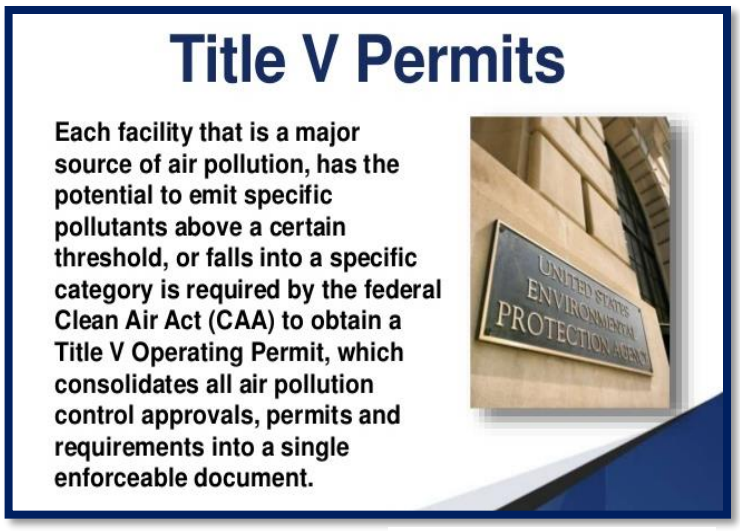


Figure 23: Title V Definition

EHS&RM ensured eleven detailed air reports were completed and filed accurately and on time to EPA/NMED:

1. Annual Air Report
2. (2) Semi-Annual Air Reports
3. Air Emissions Inventory
4. Greenhouse Gas Report
5. Turbine Test Protocol
6. Turbine Air Emissions Test Results
7. Air Fees
8. Generator Location/Monthly Operational Log
9. (2) Turbine Engine Exchange Detailed Notifications

These reports ensure we are documenting compliance with all air quality laws, collecting appropriate data, and identifying positive trends to build on or negative trends for correction to better protect health and the environment.

Additional special air compliance issues addressed in 2017 were:

- Unannounced NMED Air Permit Compliance Onsite Inspection: In October 2017, a new NMED Air Compliance Inspector conducted a detailed review of NMSU permit procedures/reporting. Overall, no notices of violations or fines were levied against NMSU.
- Additional Reporting: Although NMSU did not receive any formal violations from the inspection, NMED requested additional information in the form of semi-annual reports and turbine testing reports. Additional detailed reporting increases staff hours of an already stretched staff.
- Staff Turnover: In 2017, there was significant turnover in key air compliance staff. The Central Plant Lead Operator retired after 25 years of service and the Air Consultant for the past 20-years left the field for other opportunities. EHS&RM needed to invest additional man hours for training new staff on the nuances of NMSU air permits and operations.
- Remote Niagara Monitoring of Generator Run Times for PSL and Chemistry Dept.: Building renewal funding was obtained to install remote generator monitoring via computer of the monthly run times for PSL and the Chemistry Department. Remote monitoring is much more efficient in tracking generator run times then physically visiting each campus generator monthly. The NMED inspector visited all 18 of NMSU's backup generators while onsite and looked closely at monthly run time hours documented. All were deemed compliant.

STORM WATER MANAGEMENT PROGRAM (SWMP)

This program is related to regulatory compliance of the EPA-issued MS4 (municipal separate storm sewer system) permit. Each year NMSU submits an annual report (to EPA) that reports progress over the previous year and outlines best management practices (BMPs) to complete during the upcoming year.

Accomplishments in 2017 include the following:

- Submitted the annual update report to EPA and NMED Surface Water Quality Bureau in September, 2017. This report is successfully completed in-house which avoids consultant fees saving approximately $10,000 annually.
- Conducted storm water awareness training as part of the NMSU Hazards Communication training.
- Continued in-house training allowing EHS&RM inspectors to perform MS4 required inspections as part of their annual safety inspections (**Figure 24**).
- Monitored on-campus construction projects for storm water pollution prevention.
- All critical documents are filed on a network location allowing for quick retrieval.

Figure 24: Stormwater Inspection

SOLID WASTE

NMSU ensures regulatory compliance of two solid waste facilities; post-closure care requirements associated with the former NMSU landfill, and compliance of the Aggie Recycling Facility.

2017 solid waste accomplishments include:

- Continued post-closure monitoring and reporting for the former landfill.
- NMED approval of groundwater corrective action levels, assessment monitoring levels, and background concentration values for monitored constituents.
- Submitted required quarterly methane and semi-annual groundwater sampling monitoring reports.
- Submitted two NMED-required annual Solid Waste Management reports on schedule.

DRINKING WATER

Because of the potential adverse health effects, providing the NMSU community with high quality drinking water is one of the most critical environmental oversight activities. In 2017, drinking water accomplishments include:

- Continued close collaboration with Facilities and Services Utilities personnel to ensure all compliance testing is performed on schedule and reported appropriately. No violations were reported.

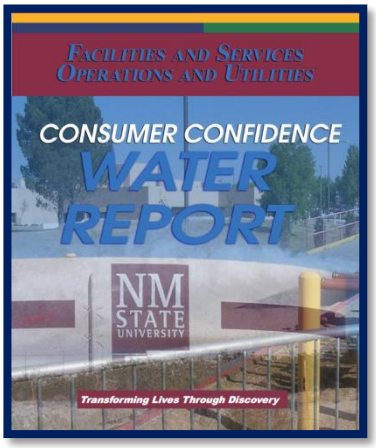


Figure 25: Link to 2016 Consumer Confidence Report

- EPA-required Consumer Confidence Report; this report was submitted to the NMED in May and posted to the NMSU website, per the required deadlines (**Figure 25**).

WASTEWATER

NMSU operates under wastewater discharge permit #82211 with the City of Las Cruces, as they receive/treat all NMSU wastewater. Complying with the discharge permit requirements comprises EHS&RM compliance activities in this area.

Figure 26: Wastewater Awareness Training

2017 accomplishments include:

- Completed four quarters of the required sampling and reporting to the City of Las Cruces on schedule. No violations were reported.
- System operations within the hydrogen sulfide limits (monitored monthly).
- City of Las Cruces conducted a formal annual inspection of wastewater operations; there were no violations.
- Awareness training to facilities maintenance crews (**Figure 26**).

SPILL PREVENTION CONTROLS AND COUNTERMEASURES (SPCC)

EPA is the lead federal response agency for oil spills occurring in waters of the US (which can include dry arroyos), and requires qualified facilities, such as NMSU, to prepare, certify, and implement an SPCC Plan.

During 2017:

- EHS&RM maintained an inventory of all fuel/oil tanks subject to the SPCC rule.
- EHS&RM conducted required inspections in order to comply with SPCC regulatory requirements.

HAZARDOUS MATERIALS SHIPPING

EHS&RM maintains primary responsibility of a fully compliant hazardous material shipping program for the main campus as well as provide support for other NMSU hazardous materials shipping operations throughout the state. This program is in compliance with applicable sections of the US Department of Transportation Regulations and requirements of the International Civil Aviation Organization (ICAO) which govern the shipment of regulated hazardous materials by air. EHS&RM shipped 18 shipments in 2017 of which several were international. FAA conducted an audit of the program in November of 2017, with no violations noted.

HAZARDOUS WASTE PROGRAM

The EHS&RM environmental compliance team picked up, researched, processed, and shipped 47,394 pounds of hazardous waste in 2017 compared to 48,860 pounds averaged over the previous five years (**Figure 27**). An annual trend of relatively stable hazardous waste poundage is emerging.

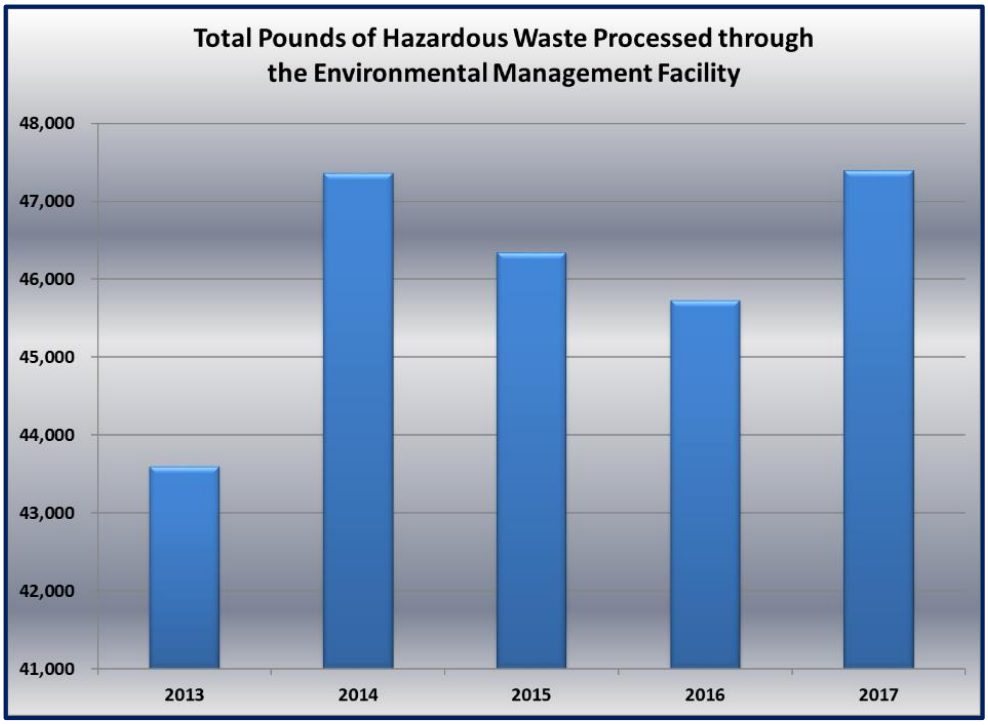


Figure 27: Total of Hazardous Waste through EMF

The team managed 2,749 different chemical items compared to 2,940 items averaged over the previous five years (**Figure 28**). There was a decrease in items disposed in 2017 mostly due to a high number of items disposed of in previous years from Jett Hall labs prior to renovation. Overall, most large, lower hazard, old chemical containers on campus have already been disposed. Smaller, higher hazard, lab stock chemical containers still exist and present most cost and labor challenges.

Figure 28: Total Items Handled

Most of the non-routine waste workload resulted from large stock chemical clean outs (greater than 50 chemical items at one time) from 15 different departments/labs: ANRS, Biology (2), Chemistry (3), Chemical Engineering, Civil Engineering, WERC (2), PES (2), NMDA, Media Productions, and Athletics. Overall, all hazardous waste items were disposed of legally and without any incident.

Physically opening chemicals and pouring/mixing compatible chemicals into 55-gallon drums keeps the cost per pound for disposal low. Mixing chemicals has inherent risk and requires keen attention to detail. In cumulative, the five staff spent 30 hours in restrictive, encapsulating protective suits and respirators while mixing chemicals on 15 different days **(Figure 29)**. Overall, no adverse reactions occurred during mixing activities.

Figure 29: Hazardous Waste Team Bulking Chemicals

WASTE VOLUME AND COST TRENDS

Overall, NMSU's 47,394 pounds of routine hazardous waste was disposed of at a total cost of $89,337. There was a 2.5% decrease in the cost per pound for hazardous waste disposal in 2017; the cost per pound in 2016 was $1.93 versus $1.88 in 2017 **(Figure 30)**. This is the fourth consecutive year the cost per pound has decreased. This can be attributed to limited staff turnover. The core waste management team has been together for three consecutive years and remains focused on efficiencies.

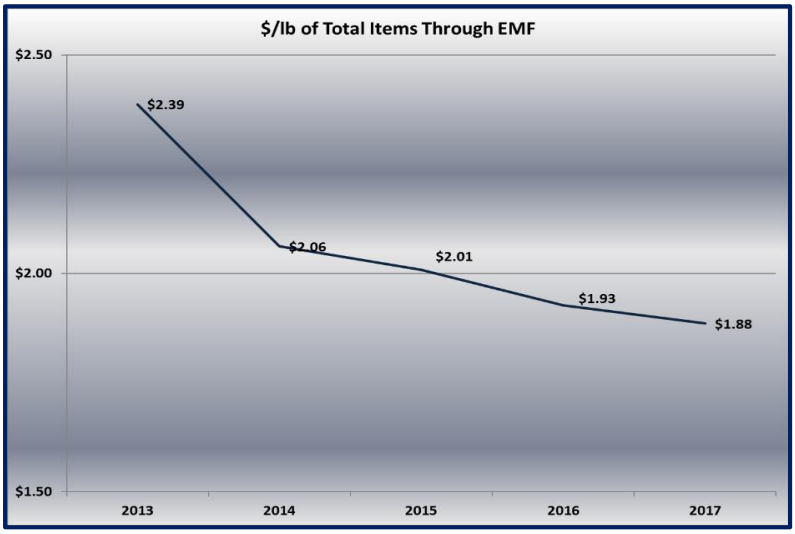


Figure 30: Cost per LB

The team continues to coordinate with eleven different environmental services contractors to handle each waste type to ensure continued cost savings: Clean Harbors, Veolia, Stericycle, USA Can Recycling Warehouse, Fuels, PSC, ACT, NEMS, Airgas, Interlab and Corralitos Landfill. By using specialized contractors for different projects, we are often able to reduce disposal and regulatory costs by thousands of dollars. Coordinating with numerous contractors can lead to additional complexities with manifests, transportation, and billing. The breakdown of each type of waste disposal is shown in **Figure 31**.

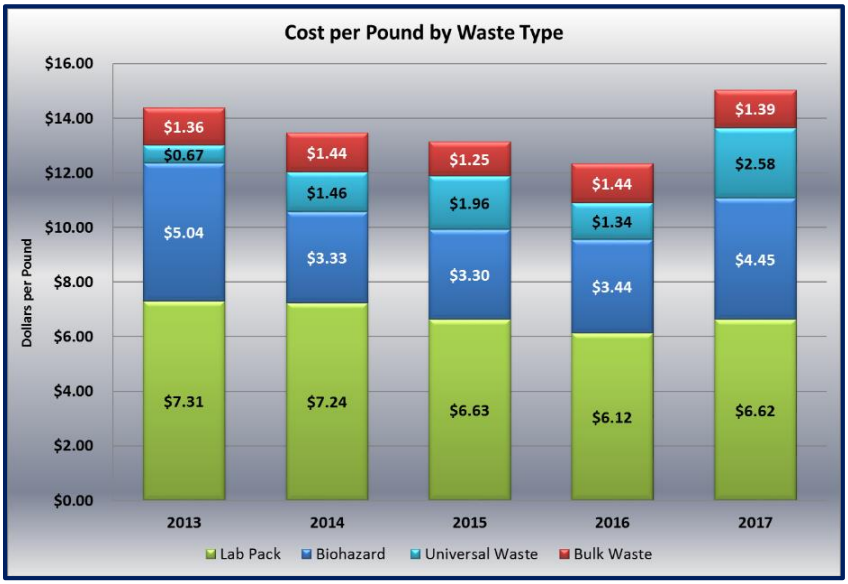


Figure 31: Breakdown of Type

Another contribution to controlling disposal cost is that EHS&RM bulks or co-mingles compatible hazardous waste versus lab packing those chemicals. The average cost per pound of hazardous chemical waste varies by fivefold with bulk waste being the lowest and lab pack waste being the highest (**Figure 32**).

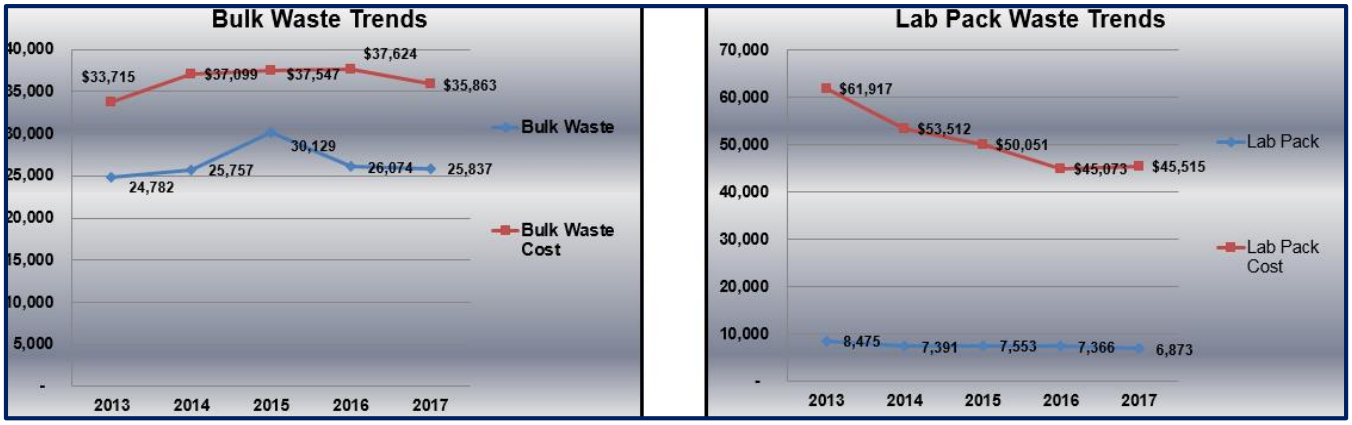


Figure 32: Bulk vs Lab Pack Trends

EHS&RM contains the waste cost by researching and combining similar waste types so that ~79% of the chemical waste can be shipped in bulk containers for disposal. The cost of bulk waste this year was $1.39 per pound compared to $6.62 per pound for lab pack waste (**Figure 31**). ***The savings in 2017 were $135,236 in avoided disposal fees that are due to bulking 79% of the chemical waste versus lab packing.***

RECYCLED WASTE

Campus operations, instruction and research programs generate a wide variety of hazardous and special wastes. Although EHS&RM cannot control the types or volume of wastes generated, the goal is to recycle as much as legally possible. Special contracts are established for the routine Universal Waste streams including batteries, mercury containing bulbs, and ballasts. Universal Waste costs increased significantly in 2017 due to increased disposal of thousands of CFL bulbs that were changed out for LED bulbs (**Figure 33**).

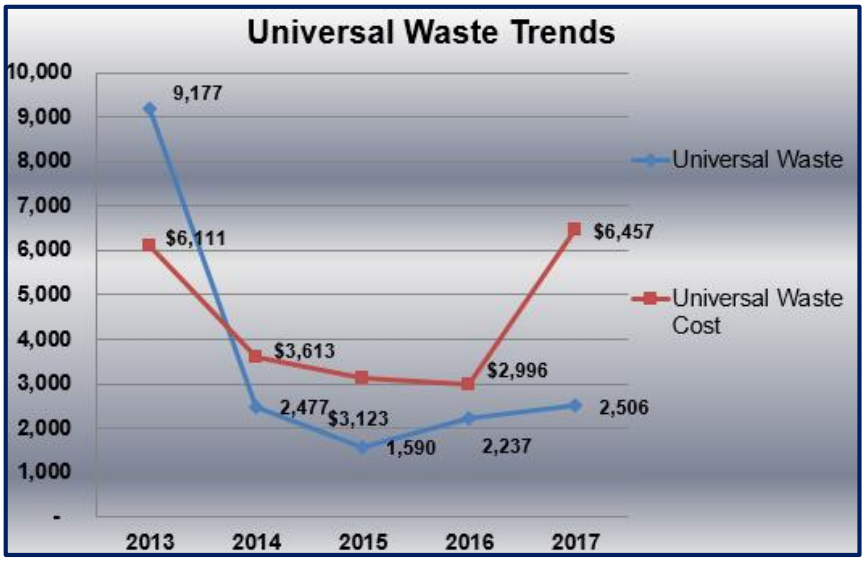


Figure 33: Universal Waste Trends

NMSU also recycles used oil/diesel fuel whenever possible. In 2017, 3,200 pounds of diesel fuel was recycled from an engineering unit on campus at a cost of $0. Also of particular note, is that nine medium sized gas cylinders of refrigerant was recycled and NMSU received a rebate check for $500. The EHS&RM environmental compliance team will continue to dedicate effort to seek out alternate disposal solutions in a commitment to sustainability at NMSU.

HAZARDOUS WASTE REPORTS & INSPECTIONS

Hazardous waste reports, standard operating procedures (SOPs), and inspections are essential components of a successful waste management program. Federal and State mandated reports completed and filed accurately and on time were the Tier II chemical inventory, hazardous waste fees, and PCB Log. There were sixty new entries made into the EHS&RM master Chemical Dictionary detailing specific hazard and disposal best practices. The team completed a new NMSU Hazardous Waste/Material Tracking form and new hazardous waste stickers to best meet new labeling laws.

NMSU underwent a four-day, unannounced, NMED hazardous waste compliance inspection conducted by three NMED personnel in September 2017. There were no violations or fines levied for EHS&RM controlled facilities and operations. However, there were labeling and closure violations in campus labs and shops. For the first time since 1993, these violations resulted in NMSU paying an $18,510 penalty. EHS&RM successfully negotiated a 41% reduction in the original hazardous waste penalty assessed by NMED.

EHS&RM will continue to provide guidance and oversight emphasizing the importance of properly closing and labeling all hazardous waste containers. It is the responsibility of the individual labs/shops to meet the requirements per the regulations. EHS&RM will rely on high-level administration support to encourage improved labeling/closure on campus in order to prevent potential future fines and negative publicity. New hazardous waste laws continue to take effect and stricter enforcement is being implemented and we expect this enforcement to be expanded to other campuses and research facilities.

HAZARDOUS WASTE TRAINING

In 2017, there were a number of training classes taught:

- 3-Hour Hazardous Waste Management Presentations: 10 (~100 attendees)
- 20-Minute Hazard Communication /Hazardous Waste Presentations: 28 (~360 attendees)
- 20-Minute Hazardous Waste Lab Refresher Presentations: 7 (~440 attendees)
- 20-Minute Special Facility Shop Presentations: 4 (~120 attendees)
- 30-Minute Hazwoper Presentations: 2 (~12 attendees) (**Figure 34**)
- 1-Hour National College and University Hazardous Materials Conference Presentation on safe chemical mixing procedures (~60 attendees)

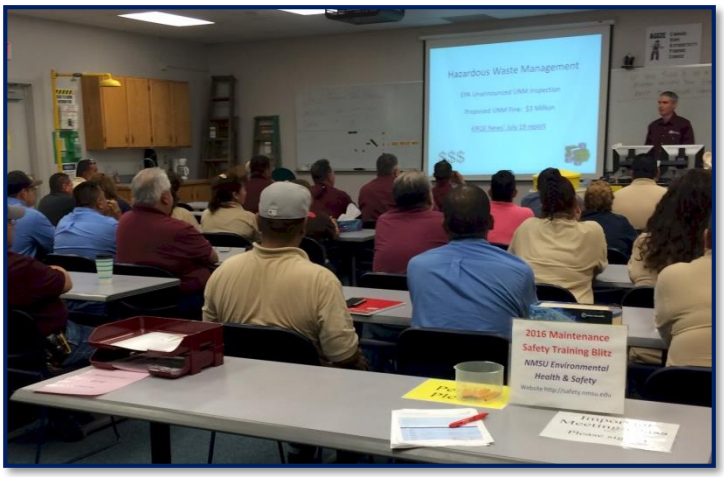


Figure 34: Facilities & Services Hazardous Waste Presentation

HAZARDOUS WASTE SPECIAL PROJECTS

In 2017, there were a number of incident response and special projects managed by EHS&RM:

- 17 Unknown chemicals were picked up on campus and identified internally. Charge backs resulted in $850 recovered to EHS&RM for expenses related to non-compliant containers labeling.

- 10 Hazardous material incident responses, some of which ranged from a mercury spill in a greenhouse to a large diesel spill in a parking lot in the center of campus (**Figure 35**).
- 37 High hazard chemicals (peroxide formers, additional solvent required) were identified and stabilized for safe disposal without additional contractor assistance saving ~$6,000.
- Standard internal EHS&RM quality control testing identified 88 significantly mislabeled chemicals that were re-labeled to ensure safe processing and reduced contractor fees.

Figure 35: Chemical Spill Incident Response

- A special landfill disposal project resulted in 800 pounds of decaying specimens from Biology disposed of as non-hazardous waste; savings of ~$3,000. Dr. Peter Houde from Biology had high praise for the EH&S support provided.
- Assisted the Veterinary Entomology Research Laboratory with free disposal of a truckload of old pesticides through a special NMDA program; saving NMSU ~$5,000.
- Disposed of 8 highly reactive lithium compounds through a special contractor at the relatively low cost of $650.
- Assisted CEMRC (2), Carlsbad Community College, and Artesia Ag. Science Center with special hazardous waste shipments.

One member of the team retired and a new Hazmat Tech Senior was hired to keep operations running smooth and cost effective.

RADIATION SAFETY PROGRAM

The majority of radioactive materials and radiation producing devices such as x-ray machines used in research and teaching at the university are regulated through licenses or device registration certificates issued to the university by State or Federal government agencies. There are specific regulations that govern the licensing, use, transportation and disposal of these materials and devices.

The university administration established the Radiation Safety Committee (RSC) to develop and maintain a university-wide radiation safety program to provide oversight of and guidance for the safe use of licensed radioactive materials and devices at NMSU. The RSC is composed of six faculty and senior technical

Figure 36: Monitoring for Radioactive Materials

staff that are subject matter experts on common techniques or the use of specific types of radiation-producing devices or have expertise with government regulations related to the licensing of radioactive materials and device and the management of radiation safety programs at a university. The Executive Director of EHS&RM and the University Radiation Safety Officer (RSO) are voting members on the committee. The RSO, who is specifically named on all licenses and x-ray machine registration certificates, works in the EHS&RM Department. The RSO and other department staff provide the day-to-day administrative and technical support required to effectively manage the university radiation safety program. The specific functions and responsibilities of the RSC and RSO are described in the NMSU Radiation Safety Manual.

RADIOACTIVE MATERIAL LICENSES

The university currently holds three separate radioactive material (RAM) licenses issued by State or Federal government agencies.

1. **RAM License #AB151-44** issued to the university by the State of New Mexico Radiation Control Bureau is a Type A/B Specific License of Broad Scope. This license authorizes the use of licensed radioactive material and different sealed radioactive sources at the Las Cruces campus as well as other, remote university facilities such as approved Agricultural Research Centers.
2. **RAM License #AN317-15** issued to the university by the State of New Mexico Radiation Control Bureau is a facility-specific license that authorizes the use of licensed radioactive materials at the Carlsbad Environmental Monitoring & Research Center (CEMRC). The CEMRC is a university-owned research facility located in Carlsbad, NM and is administered by the College of Engineering. The facility contains four low-level radiochemistry laboratories, a nuclear counting instrumentation laboratory, organic, inorganic chemistry laboratories, and an *in-vivo* radio-bioassay laboratory (lung and whole body counter).
3. **USNRC License #30-35283-01** – is a facility-specific license that authorizes NMSU researchers to use a nuclear gauge (soil moisture gauge) at the Bureau of Reclamation Brackish Groundwater National Desalination Research Facility in Alamogordo, NM. This facility is a Federal facility and the USNRC has exclusive jurisdiction over the use of radioactive materials and devices at this facility.

Each license describes the specific radioisotopes, chemical forms, maximum allowable quantities, and general conditions or limitations for using the licensed materials or devices listed on the license.

X-RAY DEVICE CERTIFICATES OF REGISTRATION

The New Mexico Radiation Control Bureau has issued NMSU six X-ray Device Certificates of Registration (CORs) that cover twenty-three x-ray devices currently in use at the university. These devices are in use in several different departments and administrative units. Each certificate lists the authorized location for use as well as the limitations and specific conditions for using the devices.

1. **UO 13 0004** –Certificate covers eleven analytical x-ray devices used for teaching and research. These devices are found in several locations and departments. The devices covered under this COR include:
    - Five x-ray diffraction (XRD) systems
    - Two x-ray florescence (XRF) systems
    - One x-ray irradiator
    - One pulsed nondestructive testing (NDT) x-ray system
    - Two medical x-ray systems used for teaching medical radiography (training phantoms exposures only; live patient exposures are not authorized)
2. **MO 13 0249** –Certificate covers one medical radiography x-ray machine located in the Aggie Wellness Center.
3. **DO 13 0272** –Certificate covers eight dental x-ray machines located in the DACC Dental Clinic:
    - Six intraoral dental x-ray systems
    - One panoramic dental x-ray system
    - One portable hand-held intraoral dental x-ray system
4. **BD 13 0292** – Certificate covers one dual-energy x-ray absorptiometry (DXA) system located in the Kinesiology & Dance department.
5. **UO 45 0370** – Certificate covers one portable, hand-held x-ray fluorescence (XRF) machine located at the NMSU Agricultural Science Center – Farmington.
6. **UO 15 0061** – Certificate covers one x-ray diffraction (XRD) system located at the CEMRC in Carlsbad, NM.

EH&S RADIATION SAFETY SERVICES

The RSO and other EHS&RM staff, support the mission of the RSC by providing several services that are critical to the effective management of a safe, regulatory compliant radiation safety program.

1. Radioactive Material License and X-Ray Certificate of Registration Management.
    a. The RSO is the primary point of contact between the university and the various State and Federal regulatory agencies that license radioactive materials, radiation-producing devices and promulgate State and Federal radiation protection regulations.
    b. The RSO is responsible for preparing application packages for new licenses, license modifications and license renewals prior to submitting the materials to regulators.
2. Radioactive Material and Radiation Producing Device Inventory Management
    a. Maintain a current inventory of all licensed radioactive material and registered radiation producing devices in use within the NMSU system.
3. Radiation Safety Training
    a. Develop, update and delivery of a diverse set of relevant radiation safety training courses for employees. All training courses meet or exceed the minimum worker training requirements described in pertinent regulations.
4. Compliance Inspections and Program Audits
    a. Perform periodic routine compliance inspections of laboratories and operations authorized to use licensed radioactive materials or radiation producing devices.

b. Perform regulatory mandated area radioactive contamination and dose rate survey measurements in radioactive material laboratories, storage areas and designated radiation areas (**Figure 37**).

c. Perform regulatory mandated program audits and surveys of x-ray machines and other registered radiation producing devices.

Figure 37: Liquid Scintillation Counter

d. Perform and document annual radiation safety program audits and reviews required by State and Federal radiation protection regulations. Present findings annually to the university RSC.

5. Sealed Source Leak Testing
    a. Perform regulatory-required, periodic leak tests of sealed radioactive sources.
6. Radioactive Material Shipping and Receiving
    a. Approve all orders of licensed radioactive material and receive all incoming packages containing licensed radioactive material. Receipt services include performing regulatory-required package contamination and dose rate surveys as well as delivery service directly to the ordering laboratory within three hours of initial receipt of the package.
    b. Provide certified hazardous material shipping services for regulated radioactive material packages and radiation-producing devices
7. Radioactive and Mixed Waste Disposal Service
    a. Collect, process and dispose of radioactive and mixed waste (radioactive + RCRA hazardous waste) generated by research activities.
8. Radiation Laboratory and Equipment Decommissioning Services
    a. Perform close out surveys of radioactive material use areas that are no longer needed and clearance surveys of potentially contaminated equipment prior to the equipment being released for transfer, sale or disposal.
9. Radiation Safety Program Records Management
    a. Manage all records required to be maintained by State and Federal radiation protection and licensing regulations.
10. University Radiation Safety Committee Administrative Support
    a. EHS&RM staff attend RSC meetings to take notes and generate meeting minutes.

A summary of the primary radiation safety program services performed by EHS&RM is shown in **Figure 38.**

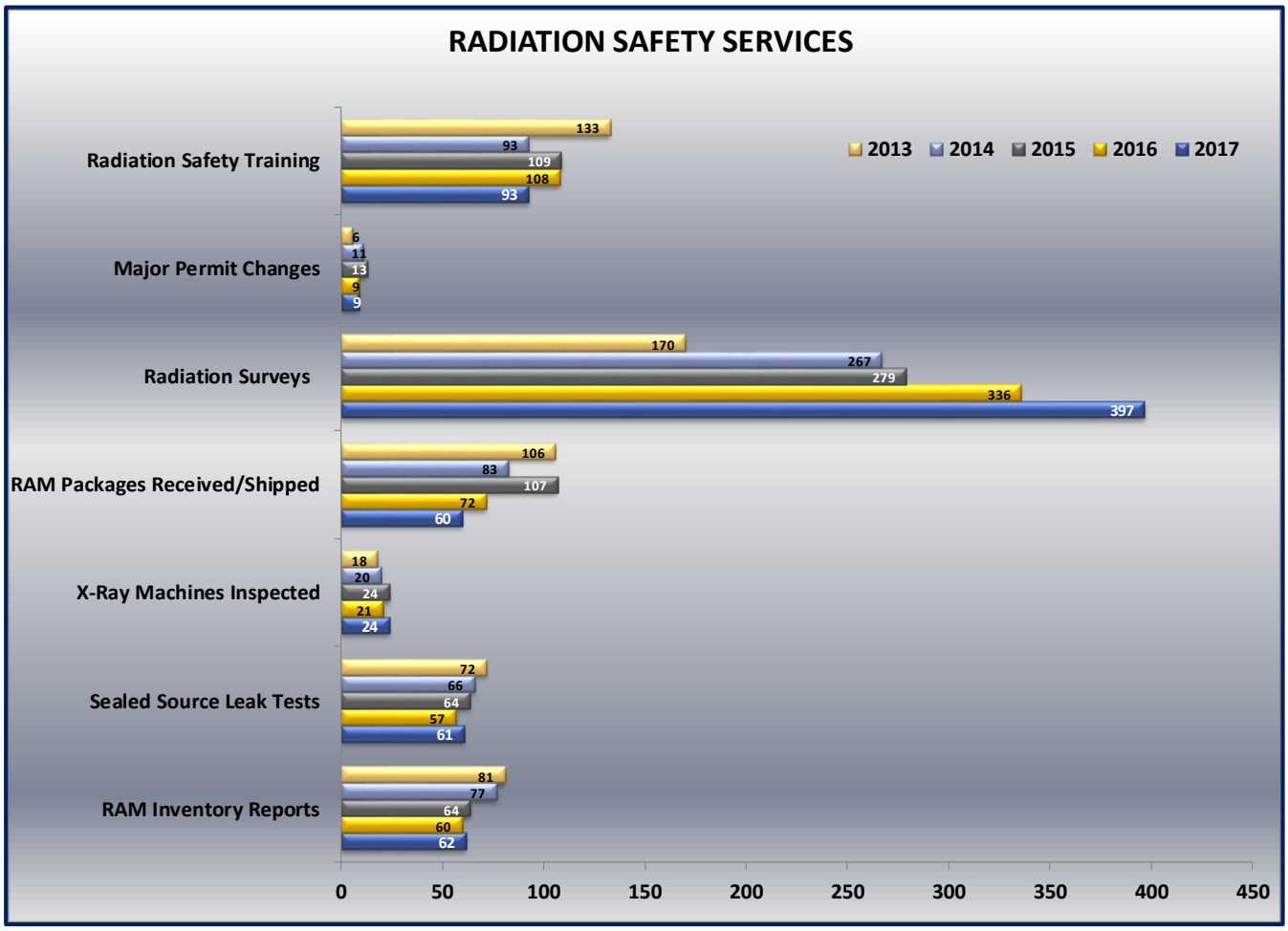


Figure 38: Radiation Safety Services

2017 Radiation Safety Program Highlights

1. The increase in radiation surveys shown in Figure 37 was primarily due to two factors:
    1) EHS&RM started analyzing the routine monthly contamination swipes generated by two RAM permit holders.
    2) The number of CEMRC surveys performed in 2017 was higher than normal because of extra area and equipment decommissioning surveys performed when one of the facility radiochemistry laboratories underwent renovation.
2. There were no inspections by State or Federal regulatory agencies in 2017. Unannounced inspections by the New Mexico Radiation Control Bureau are expected in 2018 for both the main campus and CEMRC radioactive material licenses.
3. There no significant incidents, spills or worker exposures involving radioactive material or radiation producing devices during 2017.
4. Dr. Tammy Chaffee, faculty with the DACC Radiologic Technology program, was appointed to the university RSC. She takes the place of Mr. Michael Stewart who retired from DACC in December 2016.
5. Seventy- four pounds (7 containers) of radioactive waste was processed and disposed as non-radioactive waste by decay-in-storage.

BIOSAFETY PROGRAM

In July of 2010, the Biosafety Manager position and program responsibilities were assumed by the Research Compliance Office. The decision to reorganize the position was based on the source of funding and desire to expand the position for a wider breadth of research compliance issues. EHS&RM works closely with the Biosafety Manager\Research Integrity and Compliance Office for Biosafety regulatory needs.

EHS&RM maintains a strong role in the biosafety mission by providing the following direct support and services:

- Training equipment and facilities.
- Administrative support for biosafety training including scheduling classes, registration, and managing training records **(Figure 39)**.

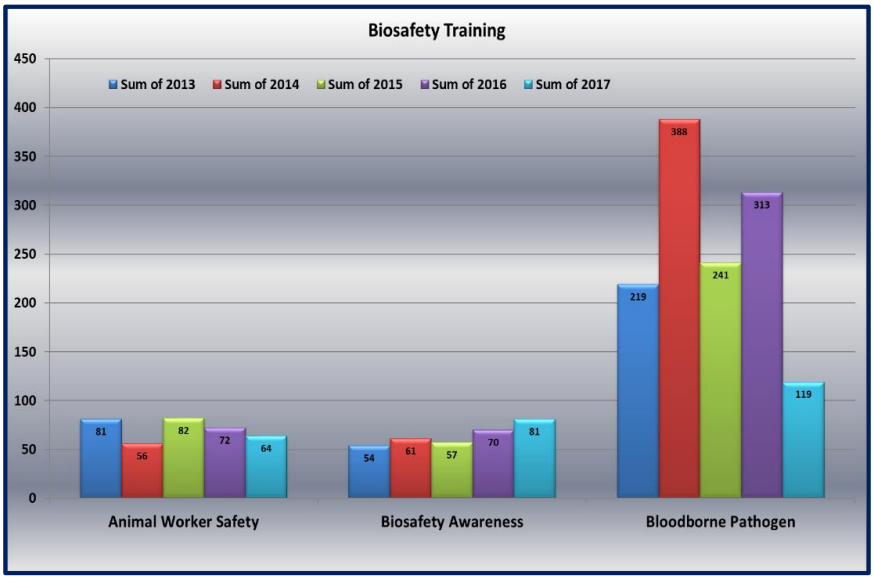


Figure 39: Biosafety Training

- Web based Bloodborne Pathogen (BBP) training module delivers required annual refresher training (**Figure 39**).
- Acting as voting primary reviewer and voting member of the Institutional Biosafety Committee.
- Collaboration with Biosafety Manager on safety programs, occupational health and safety and emergency preparedness response.
- EHS&RM support of the Institutional Animal Care and Use Committee (IACUC) – several incidents involving potential exposures were effectively mitigated by collaboration of EHS&RM and IACUC Chair. This is critical for success of the occupational health and safety program for animal workers.

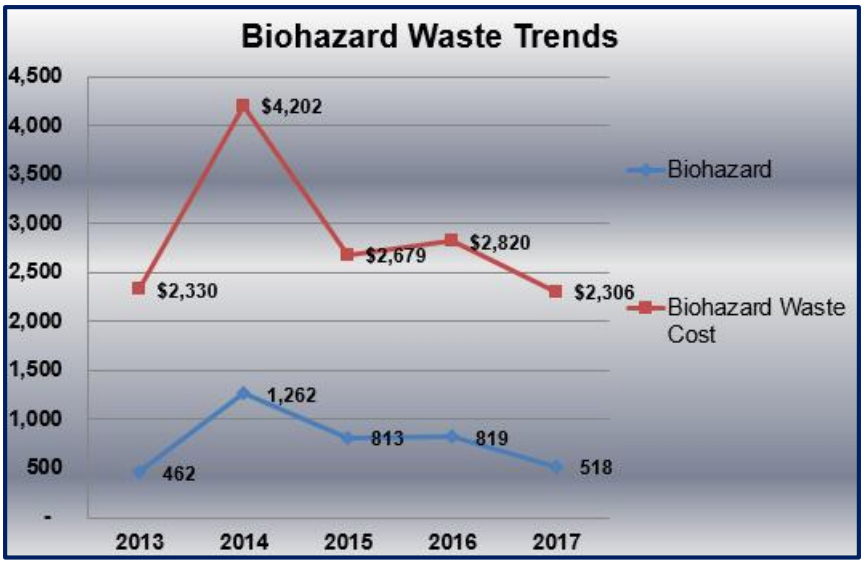


Figure 40: Biohazardous Waste Trends

- A full exposure hazard assessment for plumbers and waste water handlers was performed in 2015 and specialized training and immunization is completed as needed.
- EHS&RM handles disposal for all biohazardous waste requiring incineration.
- EHS&RM has negotiated waste cost reduction through stricter segregation and switching treatment technologies from incineration to steam sterilization. (**Figure 40**).

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THIS COMPLETES THE 2017 ENVIRONMENTAL HEALTH SAFETY & RISK MANAGEMENT ANNUAL REPORT

THANK YOU

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