

# Environmental Health Safety & Risk Management Annual Report - 2018



# ANNUAL REPORT 2018



## INTRODUCTION

### MISSION

Environmental Health Safety & Risk Management (EHS&RM) supports the NMSU mission and LEADS 2025 goals by helping the campus community make decisions and take actions consistent with an unconditional commitment to safety, loss control and environmental stewardship.

EHS&RM is committed to continuous improvement, 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. We help the University community to recognize and control hazards to 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 was put in place in January of 2018. Efforts to transition Risk Management and expand initiatives began in 2017.



### VISION

NMSU system will excel and be recognized 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 goal is to have a workplace free of injuries and hazardous exposures, to prevent or minimize any adverse impact to the environment, 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, to *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 IN PICTURE: STEVE MOATES, JOE CHAVEZ AND MCKENSI SPEARS**

## WELCOME FROM THE EXECUTIVE DIRECTOR

Welcome to the eleventh 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 added to EHS in January 2018 are followed by a new reporting line to the Chancellor's Office starting in July 2019. These changes reflect the expanding focus and efforts to build the Enterprise Risk Management program. 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 Team strives for daily. 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 boldly shape the future of NMSU and foster a safe and healthy place to work, learn and serve the broader community.

We capture an extensive amount 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 and loss prevention is the responsibility of every member of the campus community.

Accountability is critical to having a proactive safety culture and integrating safety and risk control into daily processes is good management. Every administrator is responsible for ensuring that all learning, 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, Ph.D.  
Executive Director



## OVERVIEW OF 2018

- EHS&RM will reorganize from FS to Chancellor's Office July 2019.
- Scores in all 8 categories of the FS Customer Satisfaction Survey increased in 2017 for EHS&RM. 2018 data will be updated in report when available.
- EHS&RM facilitated six external compliance audits with no penalty.
- EHS&RM completed 90 regulatory compliance reports to external agencies.
- Peer bench-marking tool shows EHS&RM 25% below staffing need for NMSU square footage.
- Instructor led safety training was provided to 2622 persons in 215 safety classes.
- In combined departmental efforts, NMSU achieved 94% compliance in delivering Emergency Preparedness Training online (11,187 employees).
- Online General Employee Safety is now mandatory training included in onboarding of all new employees.
- Employee injury and illnesses continued a trend of fewer cases over the recent 8-year period. A 33% decrease from 2017 to 2018.
- Over 11 years, NMSU has seen savings of \$532,000 in worker's comp premiums.
- Efforts to transition Risk Management to EHS&RM began in 2017 to include claims management and a new Risk website. Transition was complete in January 2018.
- New risk management initiatives and detailed reviews by EHS&RM have resulted in ~\$90,000 in cost savings for NMSU.
- Loss control program includes facility safety inspections in total of 3888 rooms, 450 of which were laboratories. Inspections resulted in 95% compliance.
- EHS&RM completed certification tests on 289 fume hoods using a student inspector.
- There were 170 responses to incidents primarily involving indoor air quality complaints and minor hazardous materials spills/incidents.
- Issued validation for 1428 driver's permits, of which 379 were for utility cart use.
- Promoted safe bicycling and NMSU ranked in the 40 best bike friendly college campuses.
- Emergency Planning Committee updated NMSU's All Hazards Emergency Operations Plan and Line of Succession information.
- EHS&RM oversaw 44 asbestos abatement projects that generated 108 cubic yards of waste, 9 of which required NESHAP filing. Supported 156 assessments on asbestos, mold and lead related concerns.
- Central Plant now has dedicated gas lines to each of the three boilers, improving air emissions tracking and reporting.
- Remote generator monitoring was installed for efficient tracking and air compliance.
- Closure activities have continued for the NMSU Landfill.
- The City of Las Cruces performed a formal inspection for wastewater operations. No deficiencies were noted.
- NMSU SPCC Plan, has been updated per EPA requirements.
- EHS&RM shipped 15 hazmat shipments for various academic departments; internationally and domestically.
- Picked up, processed, and shipped 39,841 pounds of waste that included 2,787 individual waste items.
- \$76,361 in avoided disposal fees due to bulking compatible items of chemical waste.
- Recycling continues with 5400 pounds of diesel fuel recycled at \$0.
- NMSU Main Campus and CEMRC received an unannounced regulatory inspection performed by the NMRCB. There were no violations noted for either location.
- 197 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.

# CUSTOMER SATISFACTION SURVEY TO BE UPDATED

EHS&RM will reorganize from Facilities and Services (FS) to Chancellor’s office July 2019. The department experienced 9 years of positive feedback on FS customer satisfaction survey each year with high rates of satisfaction among respondents. While 2016 experienced a slight decline, in 2017 all the areas of EHS&RM showed increases in 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).

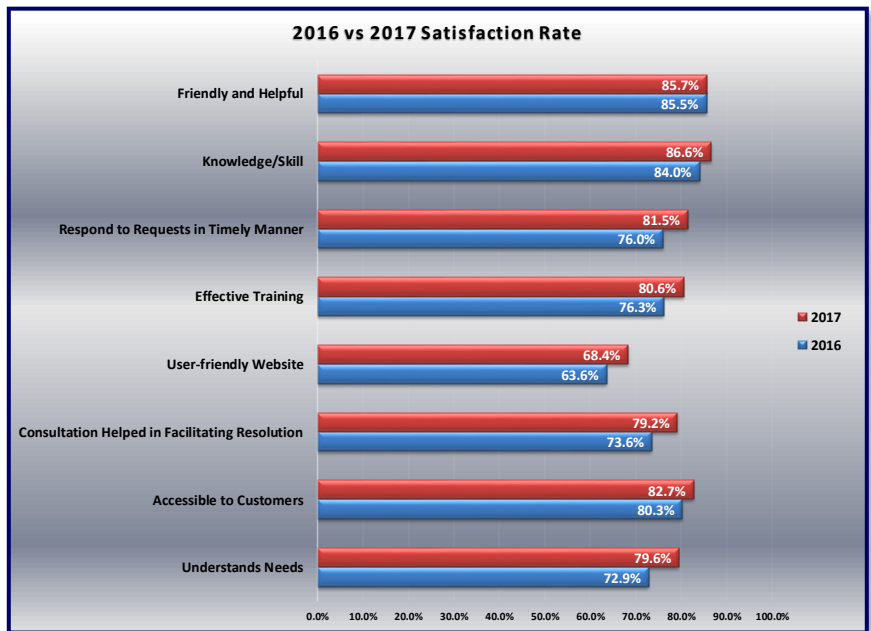


Figure 1: Combination of Very Satisfied & Satisfied

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

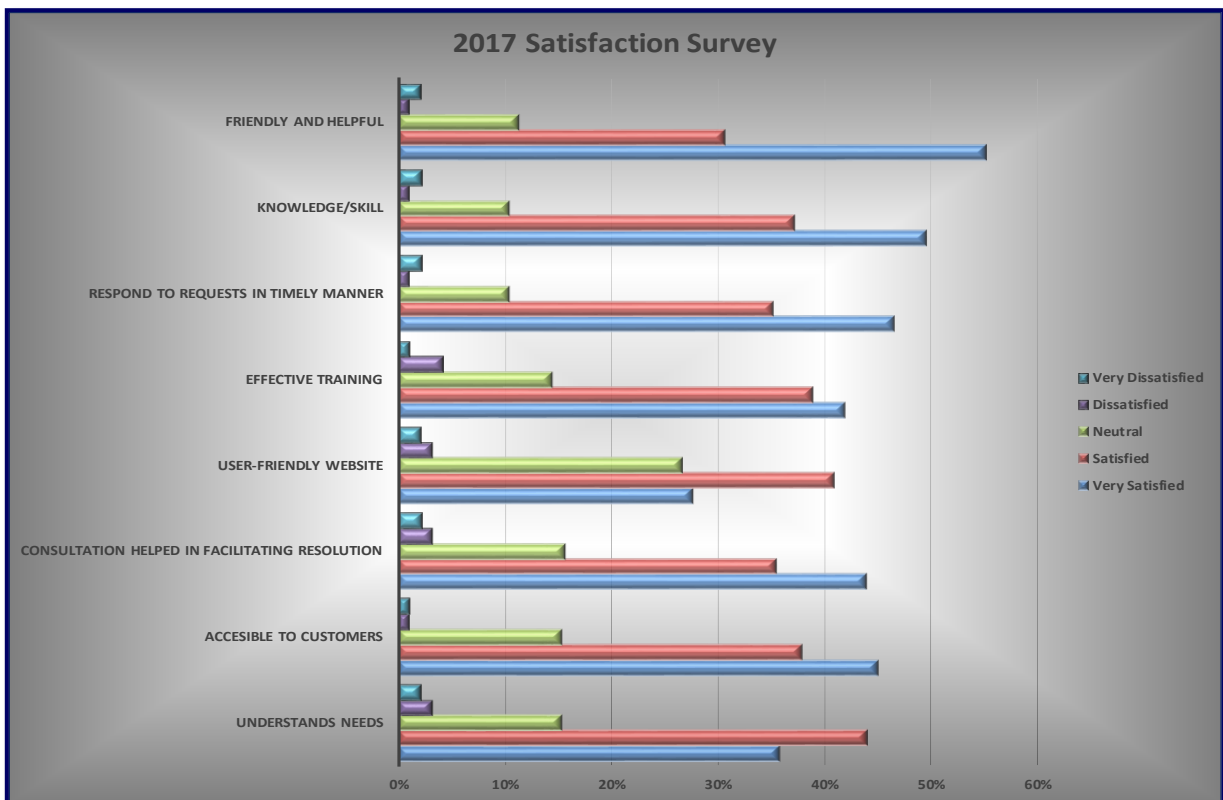


Figure 2: Satisfaction Survey

## 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 New Mexico Environment Department (NMED) in 2017. With

EHS&RM taking the lead on negotiations, the penalty was reduced from \$31,500 to \$18,510, a 41% reduction in final cost and avoided attorney fees.

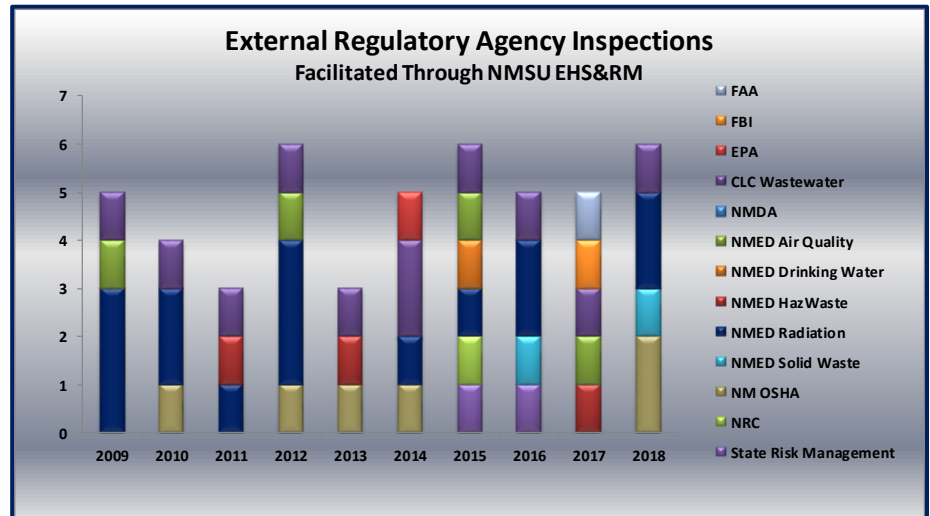


Figure 3: Unannounced Regulatory Compliance Inspections

EHS&RM is also responsible for routine compliance reporting to these same governing external agencies. In 2018, EHS&RM submitted approximately 90 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 in the form of inspection, reporting, research of regulations and services to promote efficient, safe and compliant operations.

## RESEARCH SUPPORT

In order to facilitate safe and legally compliant innovation 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.

2018 - EH&S Compliance Reporting to External Agencies	
Regulatory Agency	Reports Submitted
City of LC- Utilities	5
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	20
NMED Drinking Water Bureau	13
NMED Groundwater Quality Bureau	1
NMED Hazardous Waste Bureau	4
NMED Radiation Control Bureau	5
NMED Solid Waste Bureau	19
NMED Surface Water Bureau	1
OSHA	2
Rocky Mountain Low Level Radioactive Waste Board	1
US EPA Region 6	1
Washington State - Office of Radiation Protection	1
<b>Total Reports Submitted</b>	<b>90</b>

Table 1: Compliance Reporting

## 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.

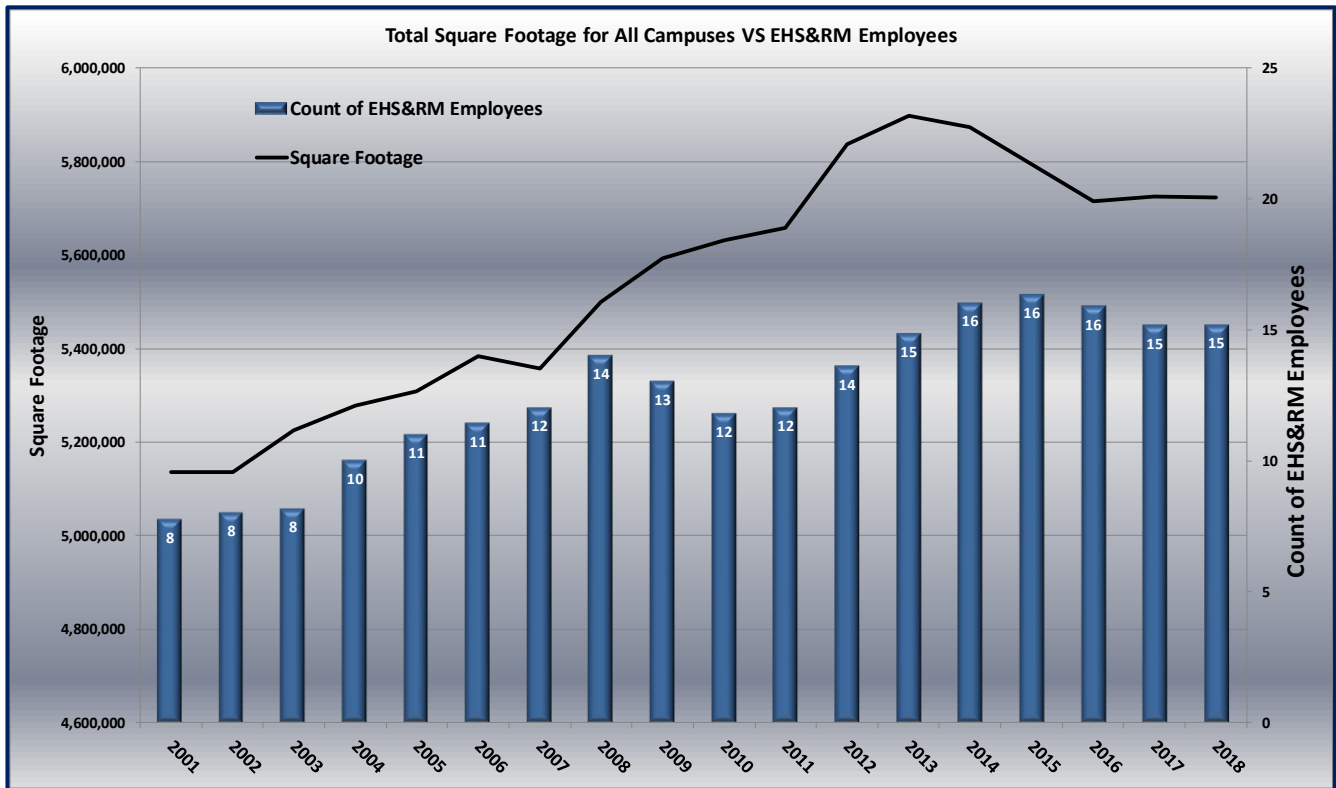


Figure 4: Square footage to EHS&RM FTEs

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

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 the NMSU enterprise 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 2898 people in 2018 (**Figure 5 & Table 2**). Of these 2898 people, 2622 of them were trained through approximately 215 instructor-led training classes. The remaining 276 employees were trained via online training. The large number of online training in 2017 was due to implementation of new online training modules. Credit was given to almost 500 attendees that watched the PI Responsibility online module as departmental group training following the instructor led Laboratory Safety Refresher course.



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, Employee Safety and Emergency Preparedness modules were developed to meet this requirement. In 2018, The University achieved a 94% compliance rate in the delivery of the required compliance training. There were a total of 11,187 employees that completed one or both of the safety modules available (**Figure 5**). Effective in early 2018, the Employee Safety module is included in the new employee onboarding compliance program. All new employees will automatically be assigned the module for required completion.

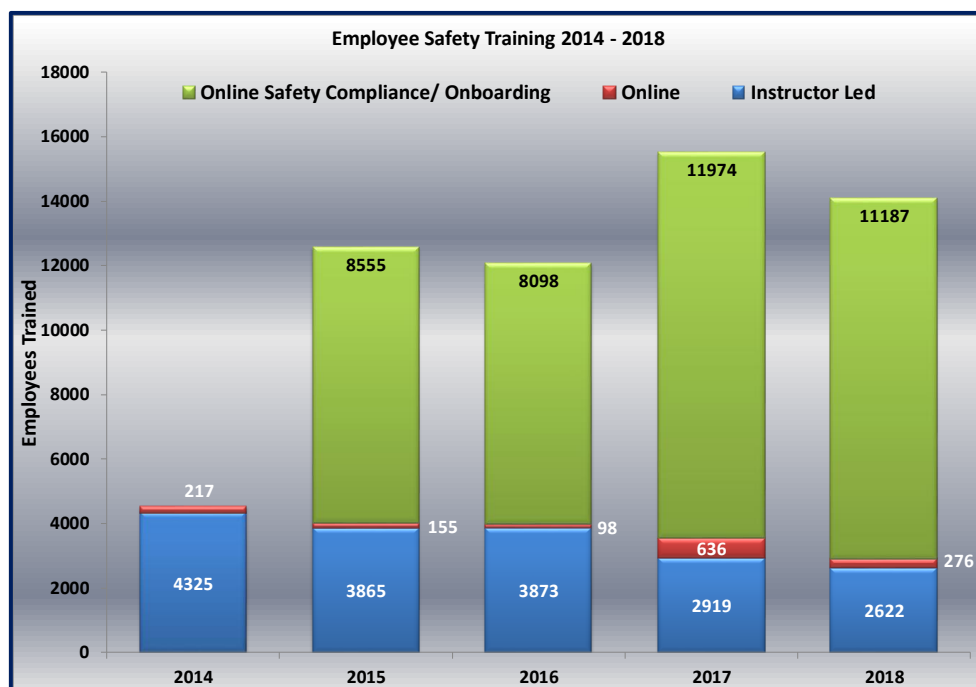


Figure 5: Employee Safety Training

In continued efforts to increase compliance in all safety training, EHS&RM continues to add new online training courses. Online training gives our employees and researchers an efficient and effective method to meet their safety training requirement.

EHS&RM now offers the following online courses:

- Analytical X-Ray Safety
- Bloodborne Pathogen Refresher
- Dry Ice Shipper Training
- Employee Safety
- Fundamentals of Laser Safety
- Fundamentals of Laboratory Safety
- Hazard Waste Management Refresher (Shops)
- Laboratory Safety and Hazardous Waste Management Refresher
- Principal Investigator Responsibilities in Laboratory Safety
- Radiation Safety Refresher
- SPCC Awareness (Spill Prevention Controls and Countermeasures)

Course	# in 2018
Lockout Tagout	4
Nuclear Gauge Safety And Transportation	8
Scaffold and Fall Protection	11
Analytical X-Ray Safety	14
Basic Laser Safety	16
Aerial Lift Safety	26
PI Responsibility in the Lab	35
Lifting Safety and Ergonomics	37
Respirator Safety and Refit	40
Ladder Safety	47
Basic Radiation Safety	51
Worker Protection Standard (WPS)	52
Biosafety Awareness	55
Bloodborne Pathogen	56
Animal Worker Safety	66
Fork Lift Safety	76
Special Training Classes - Seminar	91
Hazardous Waste Management	107
Asbestos Awareness	119
Workplace Safety Awareness	156
Employee Safety - Instructor Led	236
Laboratory Standard	329
Hazard Communication	336
Defensive Driving	407
Laboratory Safety Refresher (With Hazardous Waste Recap)	483
<b>Total</b>	<b>2858</b>

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 special classes in 2018 are:

- Annual refresher of Laboratory Safety for 483 faculty, staff and students working in a lab environment.
- 4 hour - annual refresher of Workforce Safety Training for ~120 Facilities employees (**Figure 6**).
- Annual Float Safety training for staff participating in Homecoming parade and float inspections.



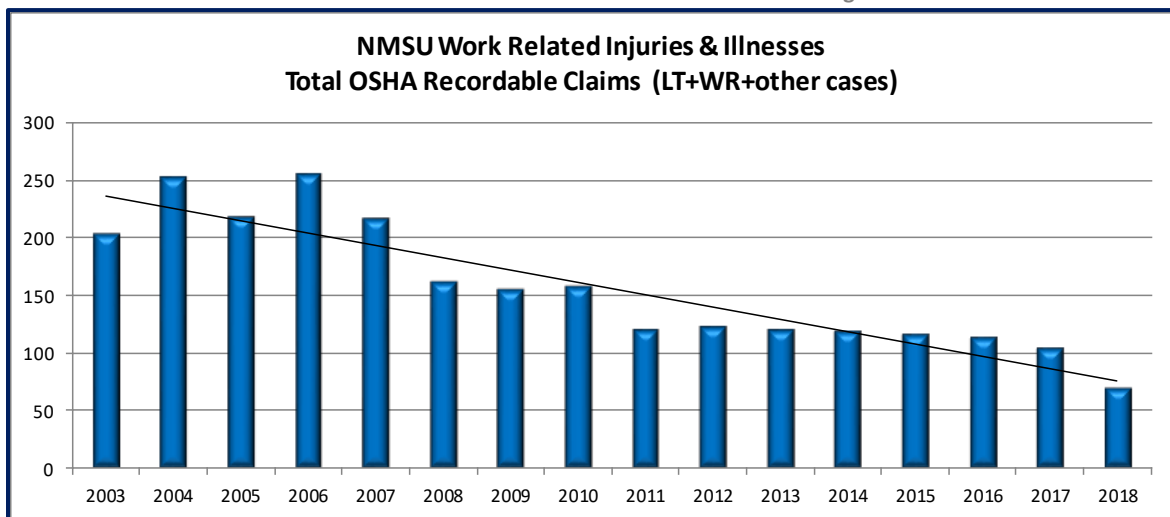
Figure 6: Maintenance Safety Refresher Training

## EMPLOYEE INJURY & ILLNESS

### OSHA 300 LOG

The 2018 annual OSHA Form 300A summary of employee injuries and illnesses is posted on the NMSU [safety website](#). **Figure 7** shows a trend of reduction in injury and illness cases. There is demonstrated long term impact associated with a progressive employee safety program. As we strive to have a workplace free of injuries and hazardous exposures, recordable cases for NMSU employees continues to decrease.

Figure 7: OSHA Recordable Claims



The OSHA recordable cases include those cases which had days away from work, cases with days of restricted duty and other recordable cases which include treatment such as prescribed medicine or stitches. There were only 70 OSHA recordable cases in 2018 which is a significant 33% decrease from the previous year.

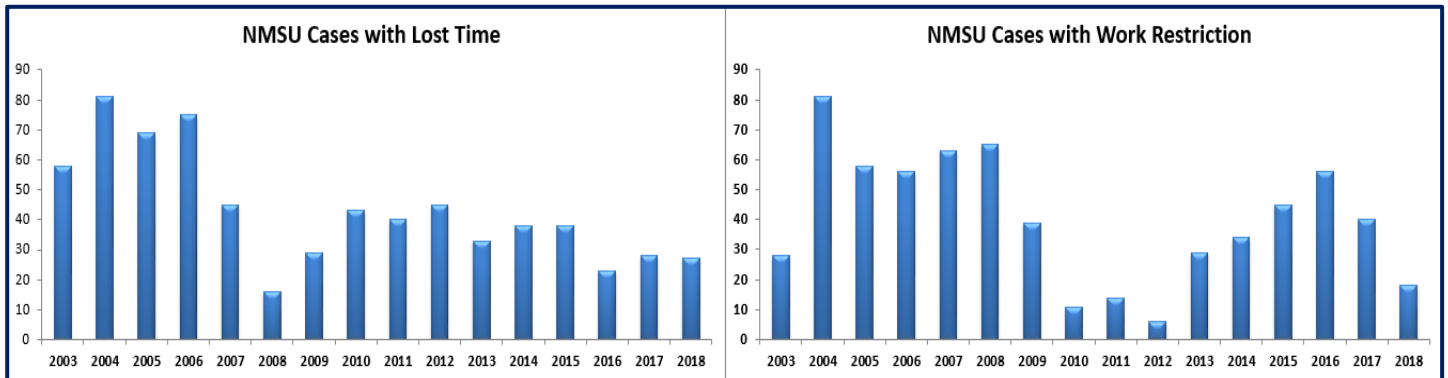
### INJURY PREVENTION

Employees are instructed to report work-related injuries and illness to their supervisor through training and operational safety meetings. In 2018, 83% 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, monitors supervisor reports, sends reminders to supervisors and provides recommendations for corrective action and/or prevention.

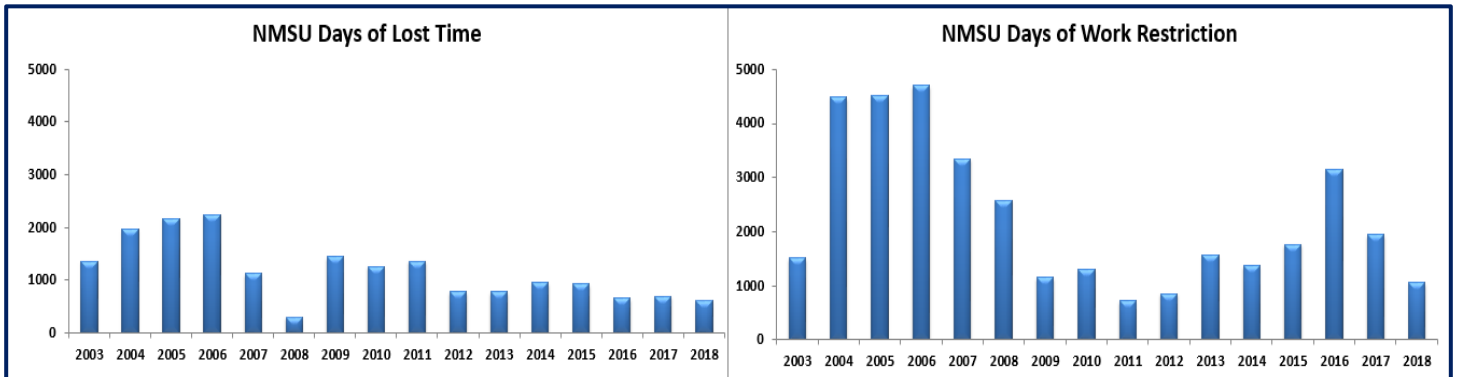
The bar charts (**Figure 8**) compare cases with lost time and cases with work restriction .

Figure 8: Cases with Lost Time and Work Restriction



The bar charts (**Figure 9**) compare days with lost time and days with work restriction.

Figure 9: Work Restriction



There was a slight decrease in the cases with lost time and a corresponding decrease of 12.6% in the number of lost workdays. In addition, there was a 55% decrease in cases with work restriction and a 45% drop in days of work restriction. Overall Days Away Restricted or Transferred (DART) Rate is 33% lower than 2017. In comparison to an 11% drop in 2017 to 2016, this is a significant accomplishment of the employees’ efforts to work safely. This indicates the return to work policies and efforts of continuous improvement to work safety are effective.

### THE OSHA SEVERITY RATE

The OSHA severity rate normalizes the injury data to make it comparable from year to year regardless of employee changes. This rate calculation considers the number of lost days of work and total hours worked each year. **Figure 10** shows a consistent decrease in serious injuries over time.

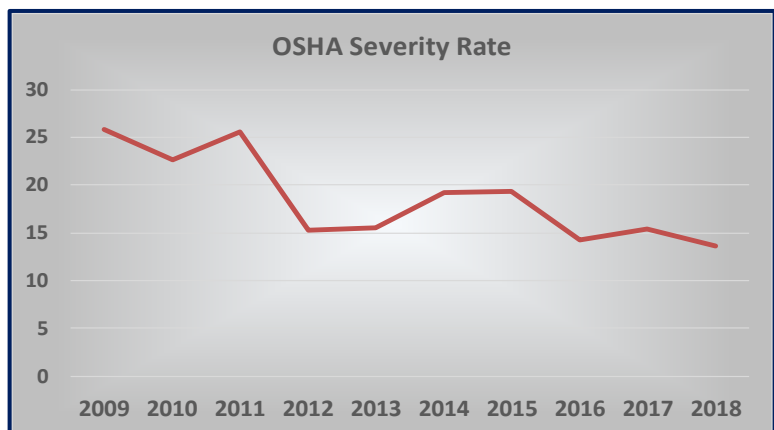


Figure 10: OSHA Severity Rate

## WORKERS' COMPENSATION PREMIUM RATE

The workers' compensation risk rate premium assessed by state Risk Management Division (RMD) is weighted heavily for experience; the actual expense of injury and illness claims. These premiums are based on 90% experience (expense of claims) from the designated five prior fiscal years (FY13 – FY17 for FY20 premiums). The remaining 10% is exposure data (payroll) compiled from the yearly exposure survey collected in early spring from each insured entity.

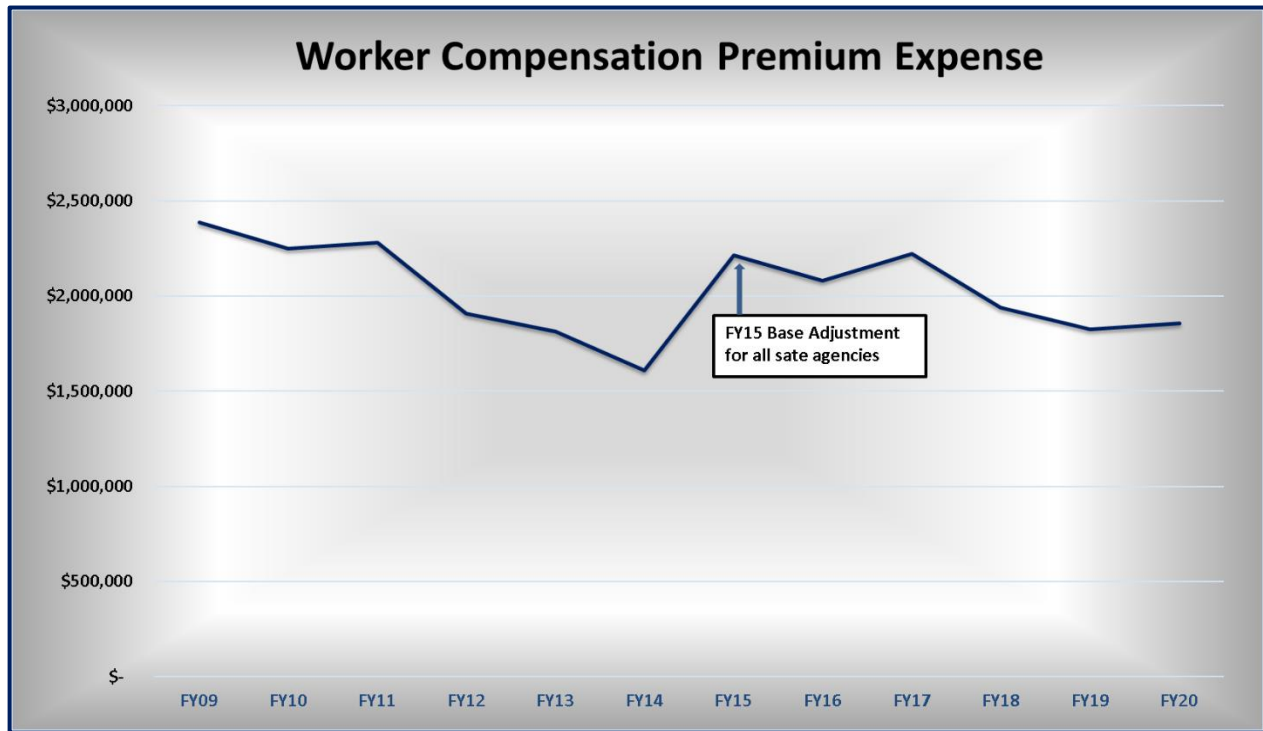


Figure 11: WC Premium Expense

Worker's risk avoidance resulted in a decreased premium over 11 years, a savings of approximately \$532,000 (Figure 11). This was despite the RMD increase in base rate for all agencies in FY15, which was done 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 127 worker compensation claims filed with RMD in FY19 for a total paid to date cost of \$335,622. 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 and identifies initiatives to improve outcomes such as return to work procedures, repeat injury follow up and situational awareness training.

Injury Type	Cost	% of Total Injuries
Strain	\$202,280	34%
Fall/Slip	\$102,117	24%
Strike/Step	\$8,940	6%
Cut/Puncture/Scrape	\$5,416	10%
Struck By	\$4,978	13%

Table 3: Types of Injury and Cost

Listed in Table 3 are the injury types with the highest treatment costs for FY19. These five categories account for 91% of injury costs. The highest claim to date for FY19 is \$46,800 for a strain and the highest claim for FY18 was for a strain. 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 12**) is year to date by category for FY11 – FY19. 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 and may include medical, expenses, and legal.

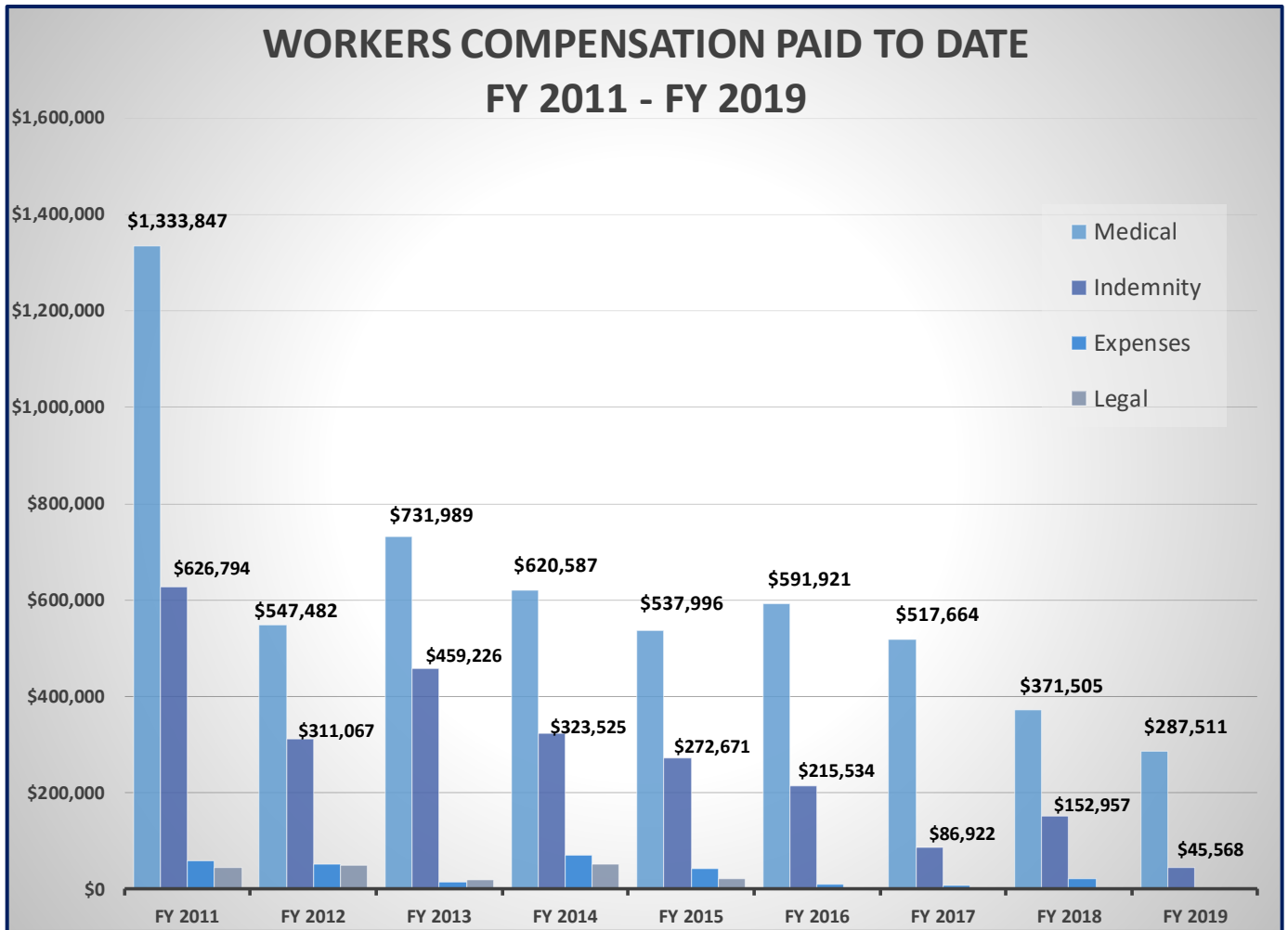


Figure 12: WC Paid to Date

## RISK MANAGEMENT

Efforts to transition Risk Management from Procurement Services to EHS began in 2017. The transfer was complete in 2018 and the EHS Department officially became Environmental Health Safety & Risk Management. These Risk Management functions new to EHS are followed by a new reporting line to the Chancellor’s Office beginning July 2019. These changes reflect the expanding focus and efforts to build Enterprise Risk Management at NMSU.

EHS&RM is responsible for administering risk management and insurance programs in compliance with NMSU and the State of New Mexico Risk Management Division’s (RMD) policies, procedures and state law. This includes coverage under the State’s Risk Management Program, covering worker’s compensation, liability risks and property risks that include buildings, equipment, fine art and vehicles.

One component of Risk Management is property and casualty claims management. EHS&RM works closely with the Property & Casualty (PAC) and the Loss Prevention Loss Control (LPLC) Bureaus of RMD to ensure efficient and accurate claims processing for liability and property loss. RMD

captures the claims data and provides semi-annual reports to NMSU by fiscal year. EHS&RM utilizes these reports and performs regular data mining, charting and reporting for the NMSU LPLC committee. These reports are presented in quarterly Loss Prevention Loss Control committee meetings and submitted to the LPLC Bureau at RMD. The NMSU LPLC committee evaluates trends to identify areas of concern needing further evaluation. The LPLC committee establishes new initiatives to reduce risk in the areas of high loss. **Figure 13** shows the Paid-to-Date total of claims expense at the end of Fiscal Year 18. These are fluid amounts as many recent claims are still open and accruing expense.

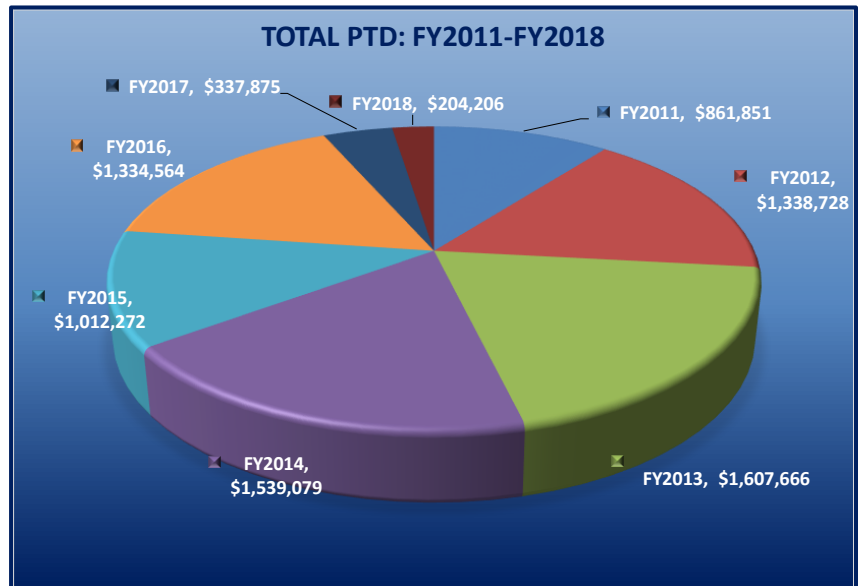


Figure 13: Claims Expense - Total PTD by Fiscal Year

The types of claims with highest expense are shown in the following charts by Fiscal Year (**Figure 14**).

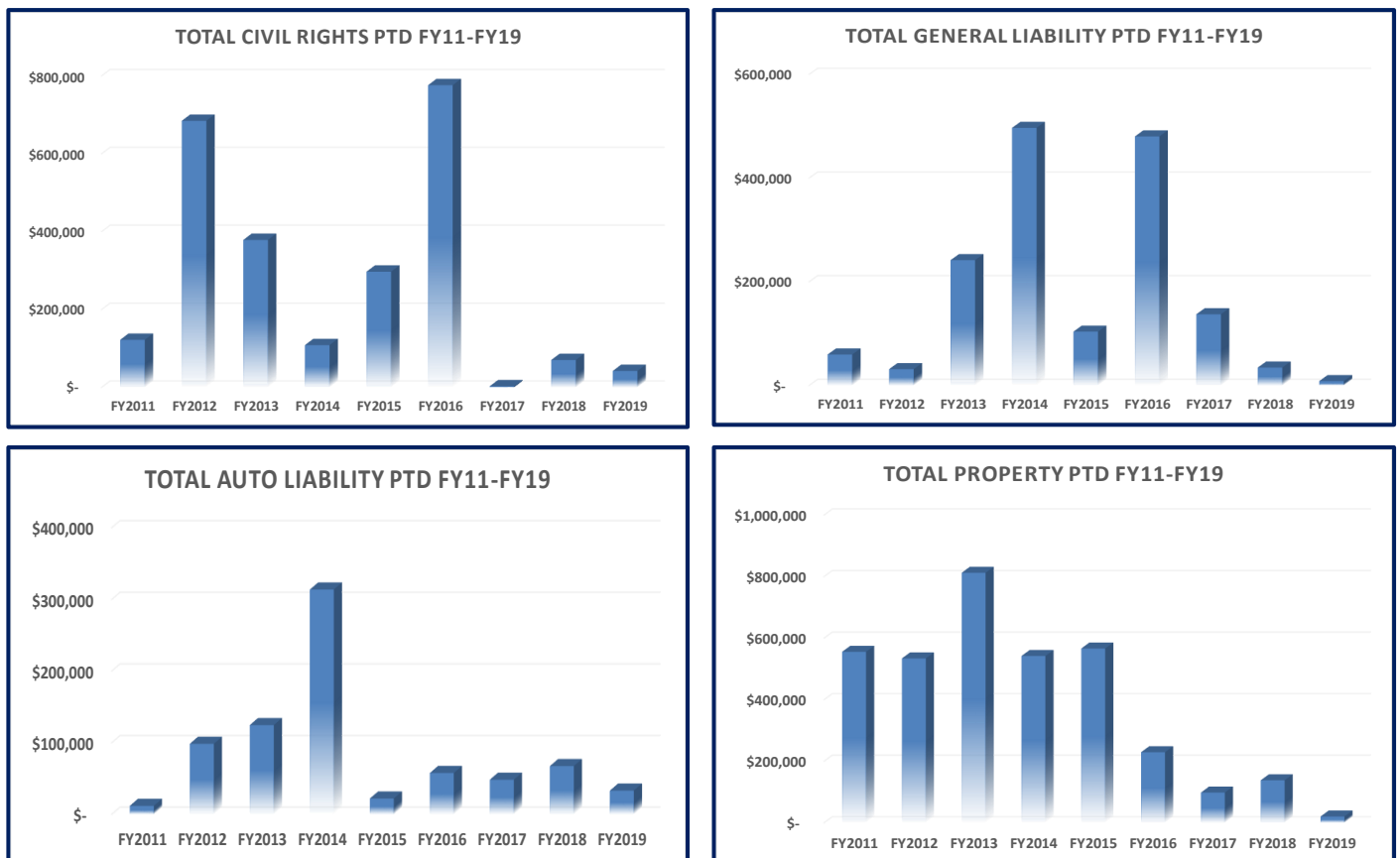
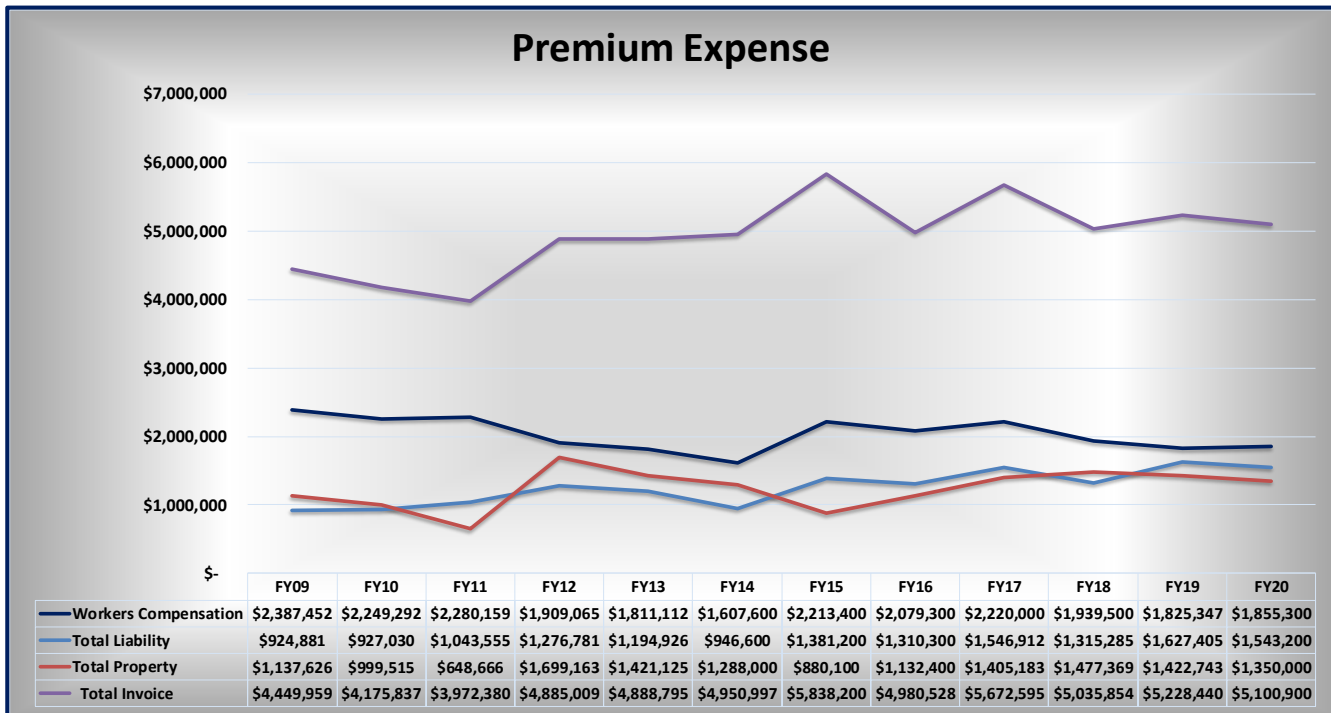


Figure 14: Highest Paid Expense

Premium cost is based on experience (expense of claims) from the designated five prior fiscal years (FY13 – FY17 for FY20 premiums) plus exposure data compiled from the yearly exposure survey

collected in early spring from each insured entity. The weighted percentage that makes up the premium calculation varies with type of coverage. For example, the liability premium which includes civil rights claims is based 70% on experience and 30% on exposure. The total net premium expense over the last 11 years has increased in areas of liability and property. However, there is a net decrease in premium related to worker compensation (90% is based on experience) (**Figure 15**).

Figure 15: Annual Premium Expense



In order to reconcile with the detailed expense and premium data provided by RMD, EHS&RM maintains an internal log for every Notice of Incident (NOI) and Notice of Claim (NOC) that is submitted through EHS&RM. **Table 4** provides a summary of notices received in calendar year 2018. Not all of these NOC's or NOI's are filed with NM RMD. In consultation with the department, EHS&RM will evaluate and decide whether to file claim or handle internally. These decisions are based on factors such as expense of loss and deductible, third party involvement, or if a minor incident that needs documentation only. Once a claim is filed, then EHS&RM will act as liaison between NM RMD, NMSU department or third party to facilitate claim.

Type	2018
NOC: NMSU Auto	11
NOC: NMSU Property	18
NOC: Tort-3rd Party	20
NOI: Record Only	123
<b>Total</b>	<b>172</b>

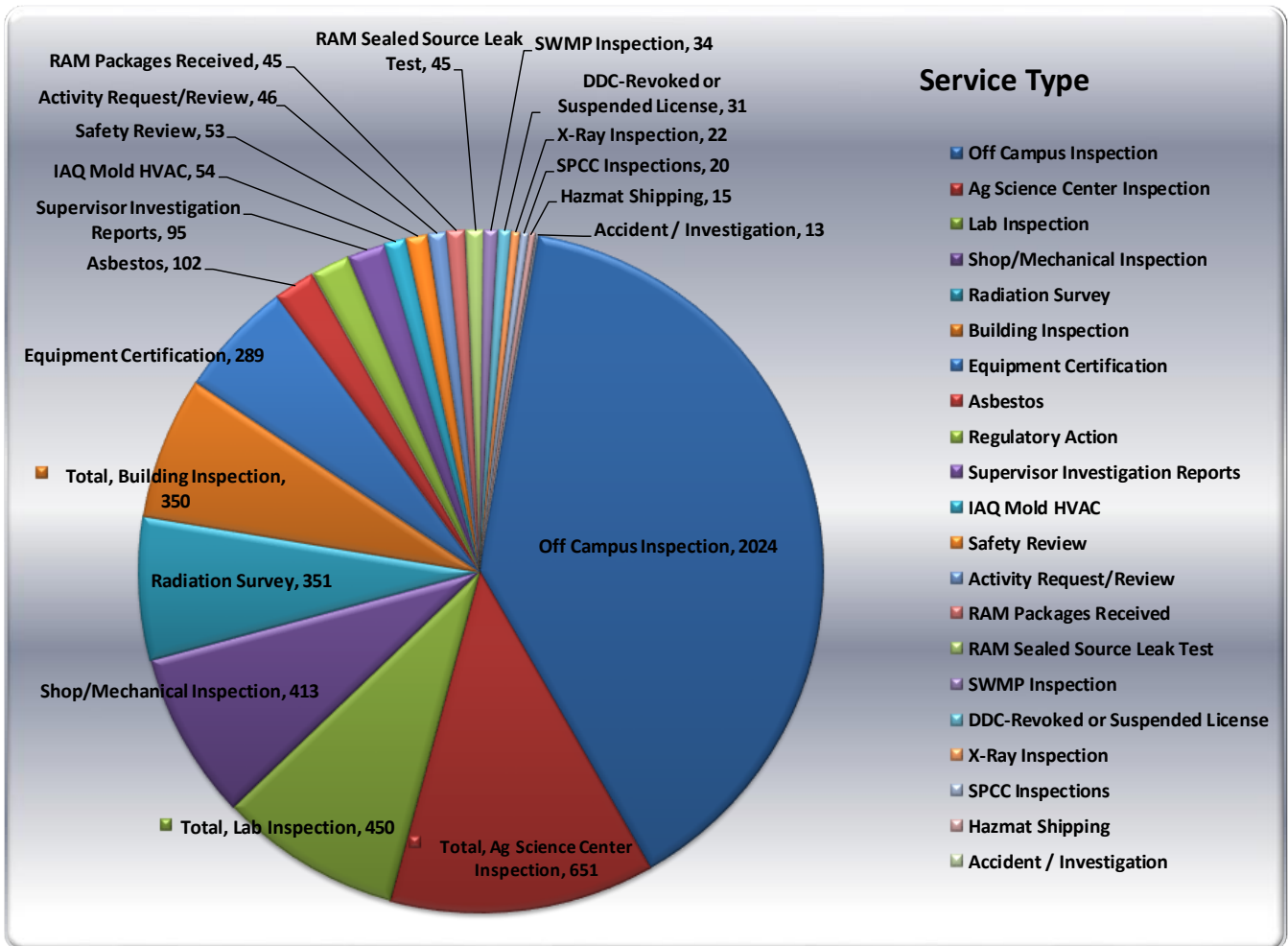
Table 4: Type Received by EHS&RM

After facilitation of first claims early on, EHS&RM quickly learned RMD rules and began implementation of two initiatives that have resulted in cost savings for NMSU: 1) EHS&RM's Claim Specialist began to facilitate third party insurance claim recovery for departments. By handling third party claims in-house, there is no RMD deductible. In the first year, \$5000 was saved for NMSU. 2) EHS&RM performs a detailed review of final closure of claims. In this review, it is verified that the actual expenses are compared to final payment received from RMD. This has resulted in ~\$18,000 of recovered money previously missed. In addition to these new initiatives, itemized billing is now requested to RMD for premium invoices and reviewed. The FY2019 premium invoice review resulted in two beneficial findings, an annual \$8,000 savings of Workers' Comp premiums for a facility no longer in operation by NMSU and a \$60,000 error in invoicing of unmanned aerial systems coverage. EHS&RM will continue to look for opportunities to reduce risk for NMSU and find cost savings.

# 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 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 16**).

Figure 16: EHS&RM Services Performed in 2018



In 2018, 95% compliance was obtained of 3,888 room inspections. EHS&RM follows up with the responsible parties to promote corrective action to address any deficiencies found during inspection. There is currently 55% response rate of identified corrective actions completed for 2018 (**Figure 17**).

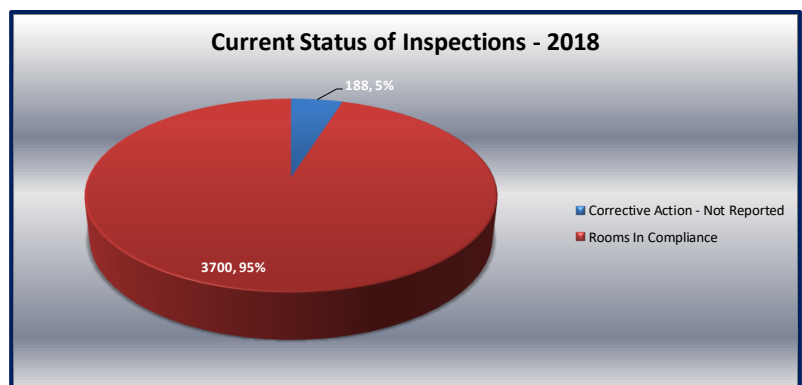


Figure 17: Inspection Status

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%.



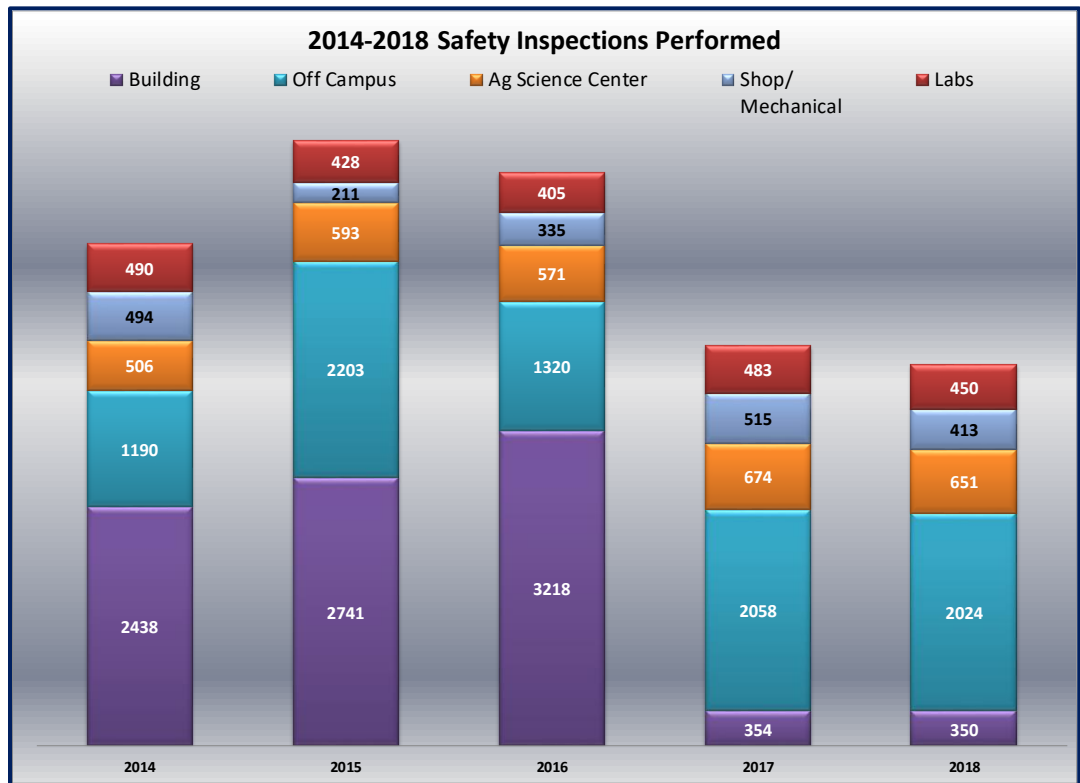
# GENERAL SAFETY INSPECTIONS

## LABORATORY AND BUILDING INSPECTIONS

In 2018, 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 2018, EHS&RM submitted multiple safety work orders utilizing requested Building Repair & Renewal (BRR) funding to correct facility safety deficiencies and improve safety equipment system wide.

Figure 18: Safety Inspections System Wide

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.



In 2018, 3,888 rooms in NMSU facilities statewide were inspected (**Figure 18**). Items to note from Figure 14 are:

1. An 89% reduction in main campus building inspections in 2017. These reductions resulted from a collaborative effort with the NMSU Fire Department to optimize efficiencies. The general building safety inspections transferred to the Fire Department and the high hazard area inspections remained with EHS&RM. EHS&RM continues to perform general building and high hazard safety inspections at remote facilities.
2. A 20% decrease in Shop/Mechanical inspections. These reductions were a result of Dan Williams Hall being slated for demolition in 2019. The building was not inspected in 2018.
3. A 7% reduction in laboratory inspections from 2017. This was primarily due to the completed renovation of Jett Hall. Chemical Engineering faculty and staff were moving back into their labs and requested additional assistance from EHS&RM to complete additional lab inspections in order to set up new labs properly. These additional inspections at the end of 2018 caused a delay in the routine inspections for Skeen Hall which were eventually completed in early 2019.
4. 2017 Ag Science category updated to reflect corrected data.

## 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 19: Student Inspector

In 2018, 289 fume hoods were certified (**Figure 20**). An EHS&RM student inspector (**Figure 19**) performs most hood certifications. There is a 23.5% increase of certifications in 2018 from 2017. In 2015, the fume hood certification assignment and tracking were migrated into the NMSU AIMS system. At this point, the majority of fume hoods are now tracked as an asset in the AIM system as well as the recertification of previously failed fume hood certifications.

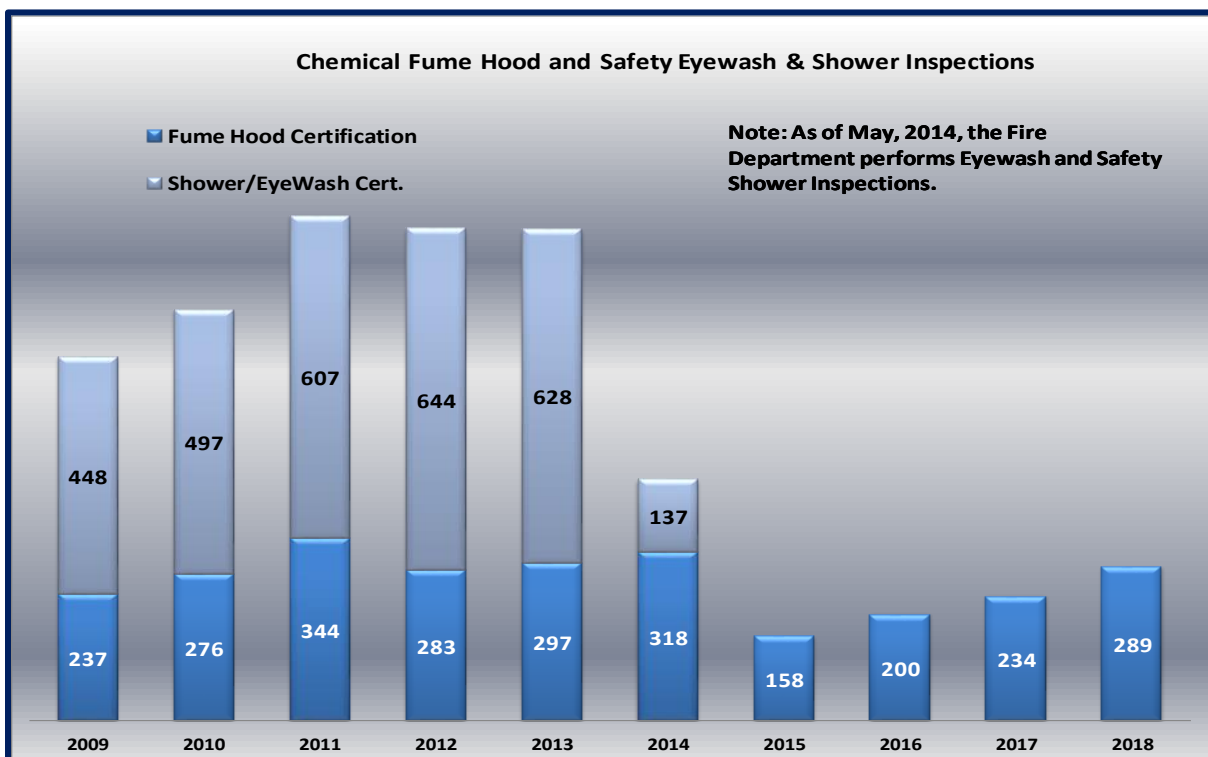


Figure 20: Chemical Fume Hood Inspections

## 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 107 responses to concerns by stakeholders, primarily involving indoor air quality concerns and concerns of asbestos, this was an 18% decrease compared to last year (**Figure 21**).

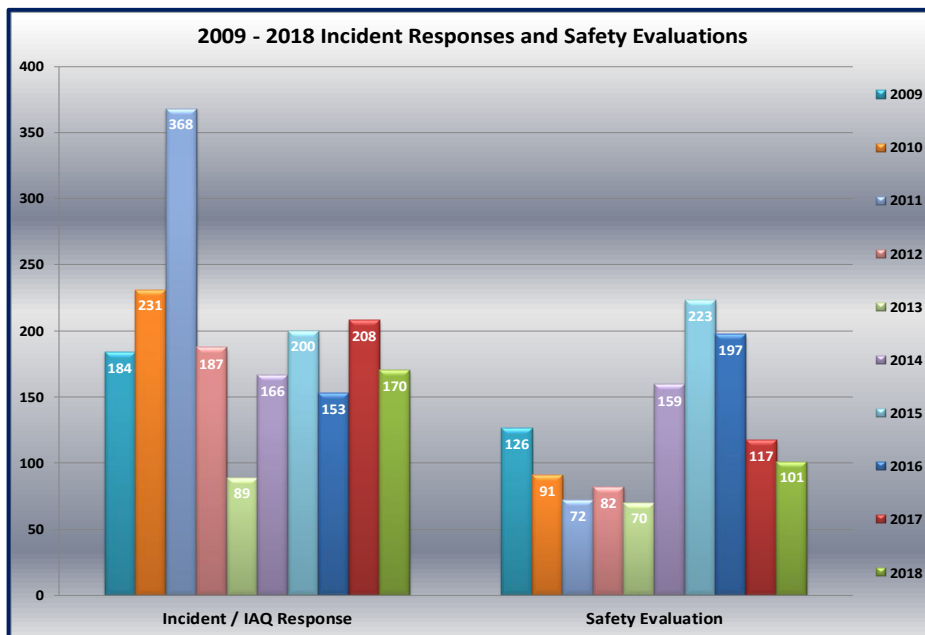


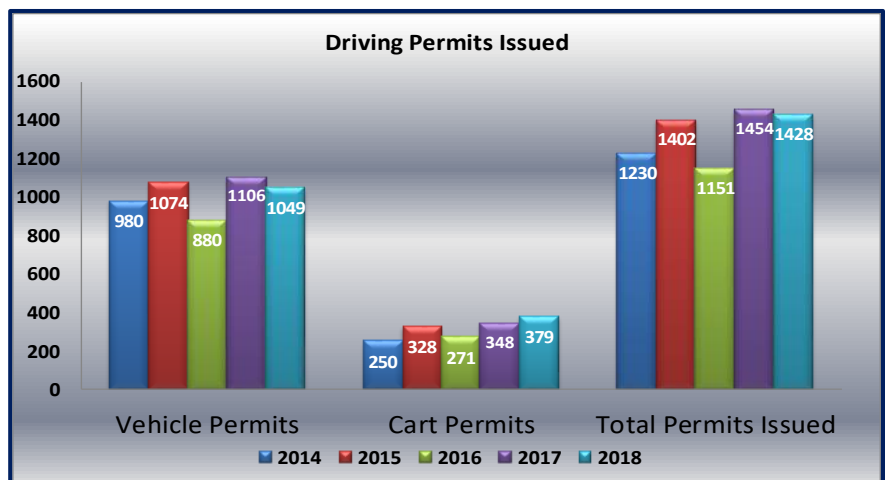
Figure 21: Incident Response and Safety Evaluations

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 2018, EHS&RM performed 101 safety evaluations (**Figure 21**). Addition of Risk Management actions and transition in Occupational Safety staffing contributed to variation in number of safety evaluations.

### VEHICLE AND UTILITY CART SAFETY

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 and completes driver history checks to ensure validity of their driver's license. EHS&RM performs the license validation for every new driver and for three year permit renewals. This year there were 407 people that attended the Defensive Driving Course and a total of 1428 driver's licenses were validated and permits issued (**Figure 22**).

Figure 22: Driving Permits Issued



Out of the 1454 permits issued, 379 of them were for utility cart permits (**Figure 22**). The utility cart permit does not require the defensive driving course, but does require a license validation.

## BICYCLE SAFETY

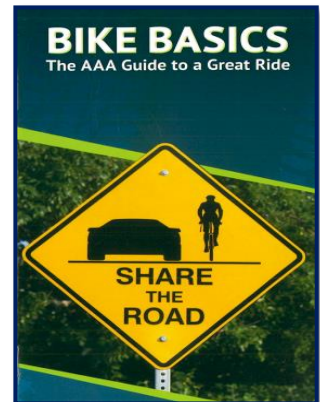


NMSU follows the Essential Elements of a Bicycle Friendly America; Encouragement, Education, Enforcement, Engineering and Evaluation. NMSU strives to promote and provide a more bicycle-friendly campus and successfully achieved Bronze status as a Bicycle Friendly University (BFU). NMSU ranked in the [40 best bike friendly college campuses](#).

There is continued 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 a continued effort to obtain a campus Bike Share Program.

There were 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.
- 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.
- Dedication of Bicycle Repair Stations in the name of David Shearer, retired NMSU EHS&RM Assistant Director.
- [NMSU Campus Bike Safety Overview Video](#)



## SAFETY EYEWEAR

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

EHS&RM partners locally with Walmart to provide prescription safety glasses. This local convenience allows employees use of vision insurance and is cost effective for NMSU.

EHS&RM facilitated 24 requests for prescription safety eyewear (**Figure 23**) at an expense of \$4,864.

Campus wide the allowed amount was increased to \$200 for each employee, this contributed to increased expense in 2018. There were 107 pairs of safety eye protection distributed to new lab personnel taking laboratory related classes.



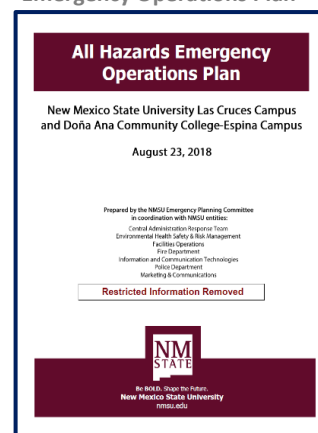
Figure 23: Safety Eyewear

## 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:

- Development and release of [Stay Safe](#) web site.
- [Emergency Information Tab](#) on [safety.nmsu.edu](http://safety.nmsu.edu).
- [Guide to Prepare a Departmental CoOP and Emergency Action Plan](#).
- 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.
- 2018 All Hazards Emergency Operations Plan update along with CART Contact and Line of Succession information (**Figure 24**).
- 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.
- Chairing University Safety Committee, Co-chair for Communicable Disease Preparedness Committee and Chair 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.

Figure 24: Link to All Hazards Emergency Operations Plan



## 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 2018, 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



Figure 25: Asbestos Abatement

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.

In 2018, EHS&RM completed 44 abatement projects that generated 108 cubic yards of waste (Figure 26). Of the 44 projects, 9 projects were of larger size and or type which required permitting through NESHAP from NMED. EHS&RM supported the campus in 156 reviews and incidents on asbestos and mold related issues.

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 25).

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

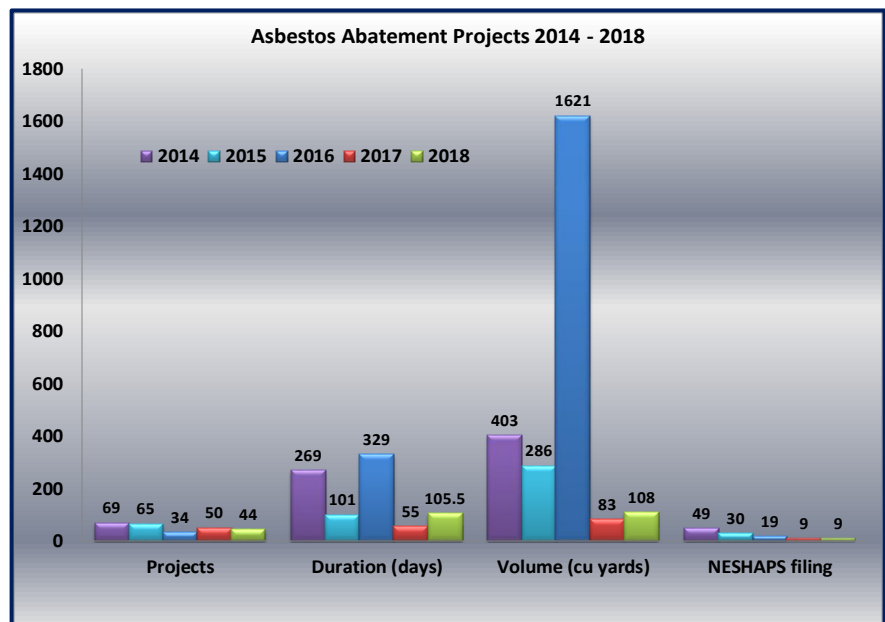


Figure 26: Asbestos Abatement Metrics

## 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 27**) 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.

EHS&RM ensured nine 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

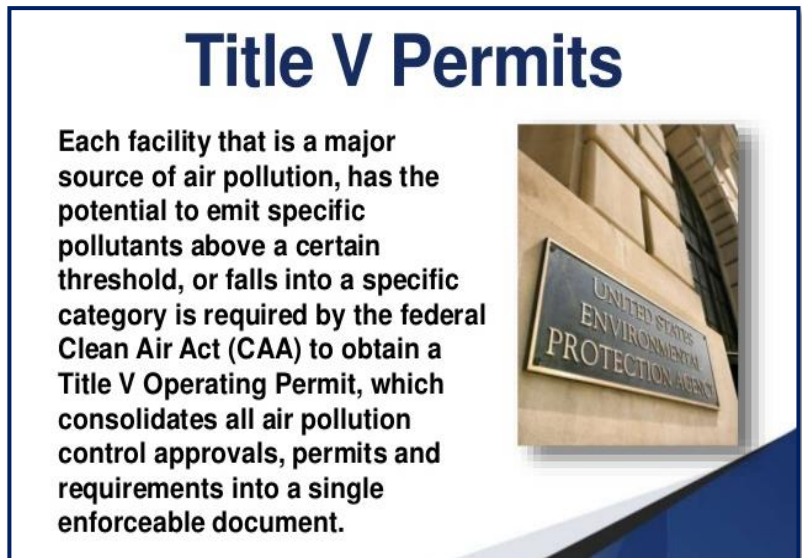


Figure 27: Title V Definition

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 2018 were:

- Completed installation of new gas lines to Central Plant Boilers: After three years of efforts, the Central Plant now has dedicated gas lines to each of our three boilers which improves emissions tracking and reporting for each unit.
- Title V Air Permit Renewal Application: Started the application process for a new Title V Air Permit. Every five years an extensive application has to be submitted to NMED for a new Title V Air Permit. This process will continue until the final submittal in May 2020.
- Remote Niagara Monitoring of Generator Run Times for Foster Hall: Building renewal funding was obtained to install remote generator monitoring via computer of the monthly run times for the Biology Department. Remote monitoring is much more efficient in tracking generator run times than physically visiting each campus generator monthly.

During our last unannounced NMED air compliance inspection in 2017, 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 2018 include the following:

- Submitted the annual update report to EPA and NMED Surface Water Quality Bureau in September, 2018. 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 28**).
- Monitored on-campus construction projects for storm water pollution prevention.
- All critical documents are filed on a network location allowing for quick retrieval.



Figure 28: Stormwater Inspection

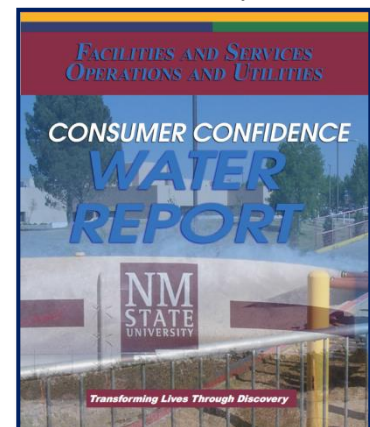
### SOLID WASTE

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.

2018 solid waste accomplishments include:

- Continued post-closure monitoring and reporting for the former landfill.
- Coordinated an expansion of the NMSU groundwater monitoring network with state regulatory agencies and contractors.
- Submitted required quarterly methane and semi-annual groundwater sampling monitoring reports.
- Submitted two NMED-required annual Solid Waste Management reports on schedule.

Figure 29: Link to 2018 Consumer Confidence Report



### 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 2018, 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.
- 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 29**).



## 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.

2018 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 30**).



Figure 30: Wastewater Awareness Training

## 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 2018:

- 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.
- EHS&RM revised the NMSU Spill Prevention Controls and Countermeasures Plan, per EPA requirements, to ensure all information is current and accurate.



## **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 15 shipments in 2018 of which several were international. FAA last 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 39,841 pounds of hazardous waste in 2018 compared to 46,083 pounds averaged over the previous five years (**Figure 31**). Annual poundage was down, but not considered a significant trend at this point.



Figure 31: Total of Hazardous Waste through EMF

The team managed 2,787 different chemical items compared to 2,926 items averaged over the previous five years (**Figure 32**). 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.

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: Chemistry (3), NMDA (2), Civil Engineering (2), EPPWS (2), Biology, ANRS, PES, WERC, FS, and DACC. Overall, all hazardous waste items were disposed of legally and without any incident.



Figure 32: Total Items Handled

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 person staff spent ~30 hours in restrictive, encapsulating protective suits and respirators while mixing chemicals on ~15 different days (**Figure 33**). Overall, no adverse reactions occurred during mixing activities.



Figure 33: Hazardous Waste Team Bulking Chemicals

WASTE VOLUME AND COST TRENDS

Overall, NMSU’s 39,841 pounds of routine hazardous waste was disposed of at a total cost of \$84,223, 6% less than 2017 (**Figure 34**). This is significantly less than the previous five-year average cost of \$94,444. Much of the cost decrease is attributed to 16% less poundage disposed. Some of the cost decrease can also be attributed to limited staff turnover. The core waste management team has been together for numerous years and remains focused on efficiencies. A word of caution, contractor prices increased significantly in 2019. Our main hazardous waste contract is also going out to bid in 2019.

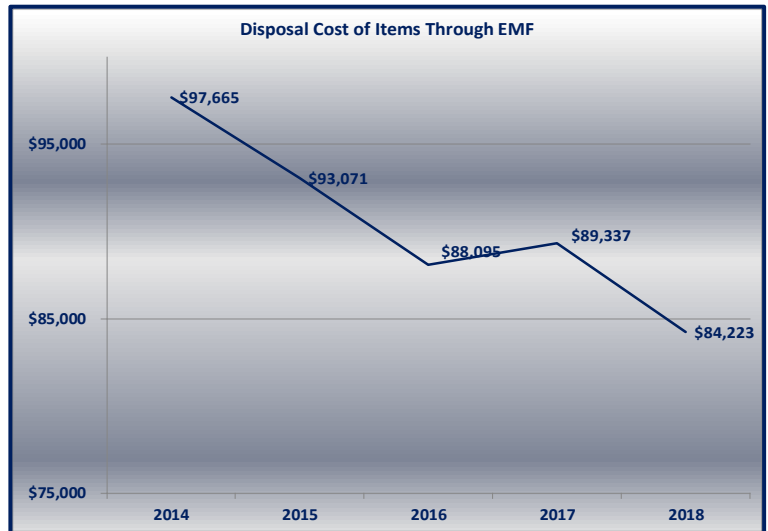


Figure 34: Disposal Cost

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

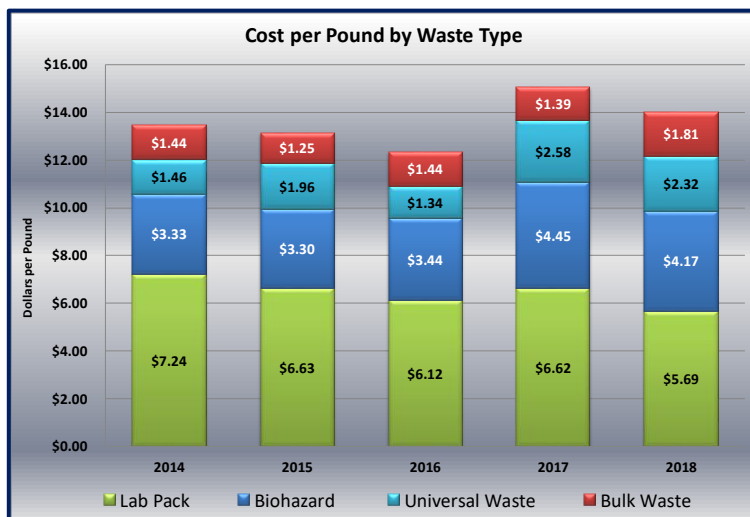
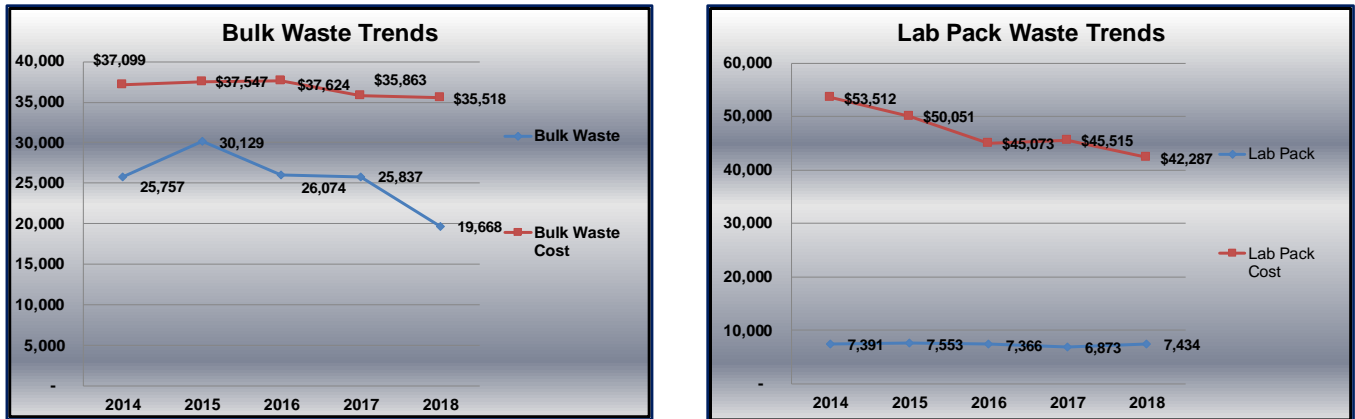


Figure 35: Breakdown of Type

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 35**.

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 36**).

Figure 36: Bulk vs Lab Pack Trends

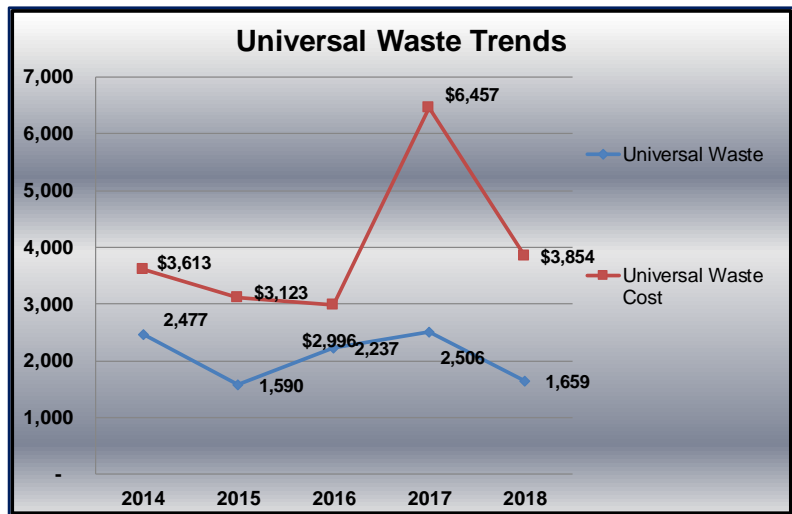


*EHS&RM contains the waste cost by combining similar waste types so that ~73% of the chemical waste can be shipped in bulk containers for disposal. The cost of bulk waste was \$1.81 per pound compared to \$5.69 per pound for lab pack waste (Figure 36). The savings in 2018 were \$76,361 in avoided disposal fees that are due to bulking 73% 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. Overall, Universal Waste costs stabilized in 2018 (Figure 37).

Figure 37: Universal Waste Trends



NMSU also recycles used oil/diesel fuel whenever possible. In 2018, 5,400 pounds of diesel fuel was recycled from an engineering unit on campus at a cost of \$0. Also of particular note, is that four large gas cylinders from an agricultural lab weighing 800 pounds in total were returned to their manufacturer at a cost of \$0. 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 Hazardous Waste Biennial Report, 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 training and distributing new NMSU Hazardous Waste/Material Tracking Forms 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 a penalty. In 2018, EHS&RM successfully negotiated a 41% reduction in the original hazardous waste penalty assessed by NMED, the total penalty paid was \$18,510.

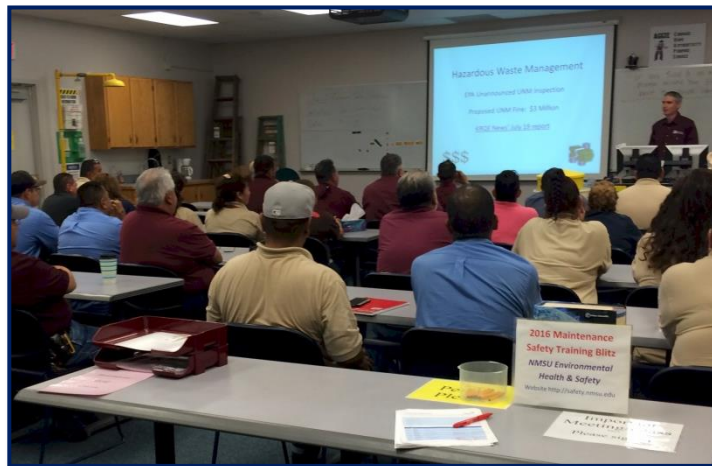
EHS&RM will continue to provide guidance and oversight emphasizing the importance of properly closing and labeling all hazardous waste containers. EHS&RM created a new, online Hazardous Waste Refresher Training Class to assist campus labs/shops understand and implement best management practices. Ultimately, 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 2018, there were a number of training classes taught:

- 3-Hour Hazardous Waste Management Presentations: ~10 (~100 attendees)
- 20-Minute Hazard Communication /Hazardous Waste Presentations: ~15 (~300 attendees)
- 20-Minute Hazardous Waste Lab Refresher Presentations: 4 (~400 attendees)
- 20-Minute Special Facility Shop Presentations: 3 (~100 attendees)
- 90-Minute HAZWOPER Presentation: 1 (~10 attendees) (**Figure 38**)

Figure 38: Facilities & Services Hazardous Waste Presentation



### HAZARDOUS WASTE SPECIAL PROJECTS

In 2018, there were a number of incident response and special projects managed by EHS&RM:

- 20 Unknown chemicals were picked up on campus and identified internally. Charge backs resulted in \$1,000 recovered to EHS&RM for expenses related to non-compliant labeling.
- 8 Hazardous material incident responses, some of which ranged from auto accident fluids to a serious chemical spill out of a refrigerator in the Chemistry Dept. (**Figure 39**).
- 34 High hazard chemicals (peroxide formers) were identified and stabilized for safe disposal without additional contractor assistance saving ~\$6,000.

Figure 39: Chemical Spill Incident Response



- Standard internal EHS&RM quality control testing identified 96 significantly mislabeled chemicals that were re-labeled to ensure safe processing and reduced contractor fees.
- Updated EPA mandated EMF Contingency Plan (emergency action plan) to best try and meet new complex regulations.
- Coordinated with an Engineering Researcher on the safe, cost effective disposal of algae waste from his group's experiments. In the end, 500 pounds of algae wastewater was able to be drained disposed and saved NMSU ~\$750 in disposal costs.
- Assisted with the safe, cost effective disposal of soil from a renovation project at the campus NMDA building. Ensured the soil was correctly tested and ultimately disposed of at a landfill at low cost.
- Assisted CEMRC (2), and NMSU Grants with special hazardous waste shipments. Assisted CEMRC in obtaining a hazardous waste compliance auditor (Trinity Consultants) to review operations to ensure compliance with new hazardous waste regulations at CEMRC.

## 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 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.



Figure 40: Monitoring for Radioactive Materials

## 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 and at 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 fluorescence (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.

#### EHS&RM 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 41**).
  - c. Perform regulatory mandated program audits and surveys of x-ray machines and other registered radiation producing devices.
  - 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.



Figure 41: Liquid Scintillation Counter



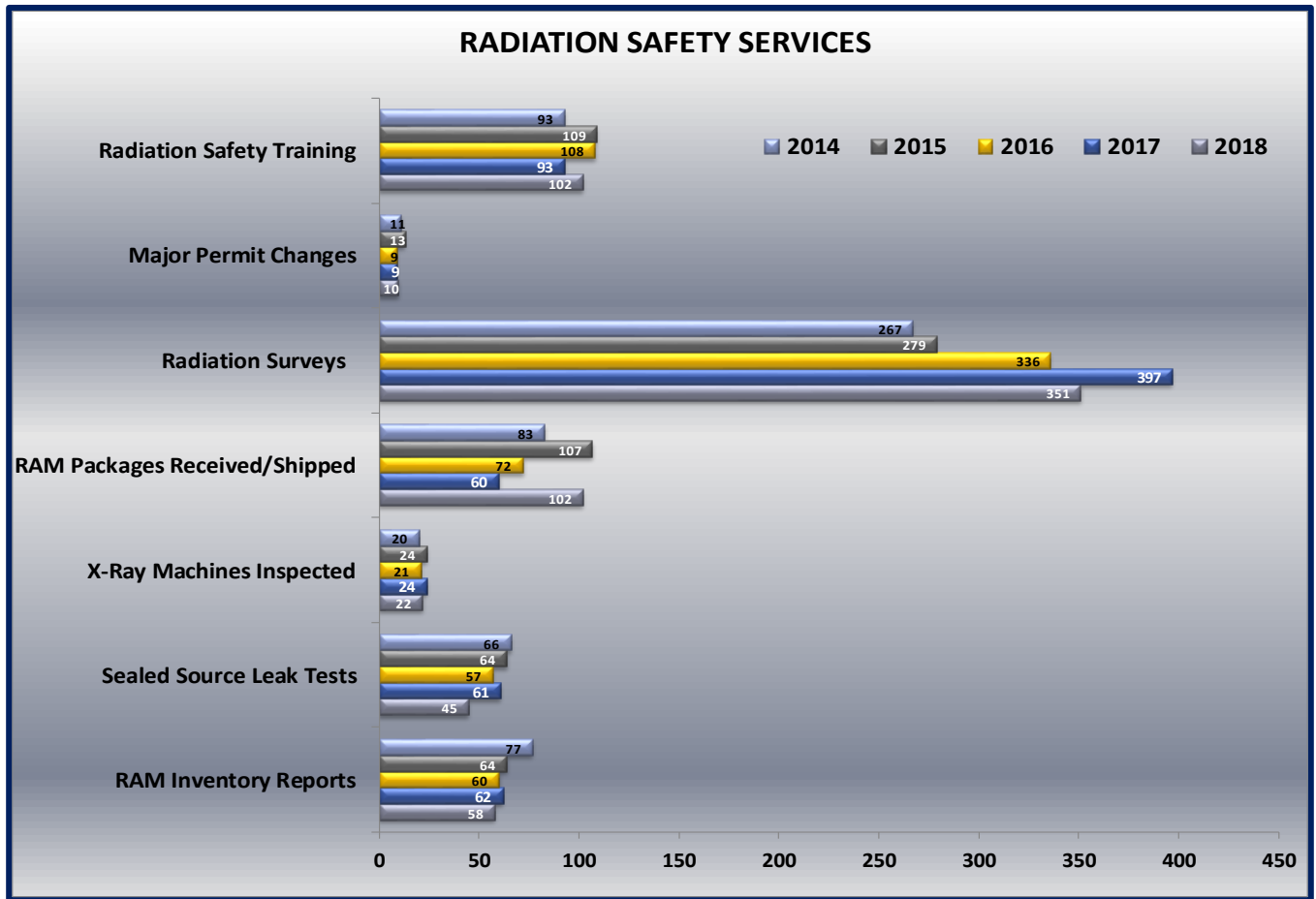
5. Sealed Source Leak Testing
  - a. Perform regulatory-required, periodic leak tests of sealed radioactive sources.
6. Radioactive Material Shipping and Receiving
  - a. Approve all orders of licensed radioactive material and receive all incoming packages containing licensed radioactive material. Receipt 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.

#### 2018 RADIATION SAFETY PROGRAM HIGHLIGHTS

1. In June and July 2018, both NMSU Main Campus and CEMRC received an unannounced inspection performed by the NMRCB. The inspection reviewed activities conducted under the radioactive material license #AB151-44 for the Las Cruces Campus and the radioactive material license #AN317-15 for CEMRC. The inspector focused on program compliance with the New Mexico Radiation Protection Regulations (20.3 NMAC) and the specific conditions listed on the license. There were no violations noted for either location.
2. In 2017, renovations of radiochemistry laboratories caused an increase in radiation surveys due to extra area and equipment decommissioning surveys needed. As renovations were completed the amount of surveys needed reduced as shown in 2018 (**Figure 42**).
3. There were no significant incidents, spills or worker exposures involving radioactive material or radiation producing devices during 2018.
4. Dr. Stephen Pate, Physics Professor was appointed to the chair of the university RSC in 2018.
5. 197 lbs (11 containers) of radioactive waste was processed and disposed as non-radioactive waste by decay-in-storage.

The primary radiation safety program services performed by EHS&RM are shown on the next page in **Figure 42**.

Figure 42: Radiation Safety Services

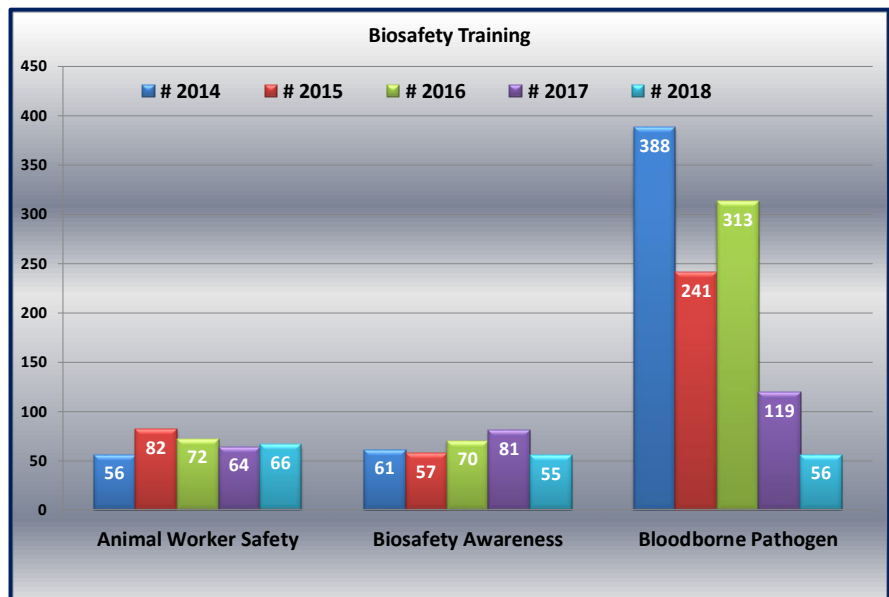


## BIOSAFETY PROGRAM

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:

Figure 43: Biosafety Training



- Training equipment and facilities.
- Administrative support for biosafety training including scheduling classes, registration, and managing training records.
- Web based Bloodborne Pathogen (BBP) training module delivers required annual refresher training (**Figure 43**). This training area needs to be emphasized for compliance improvement.
- Acting as voting primary reviewer and voting member of the Institutional Biosafety Committee.

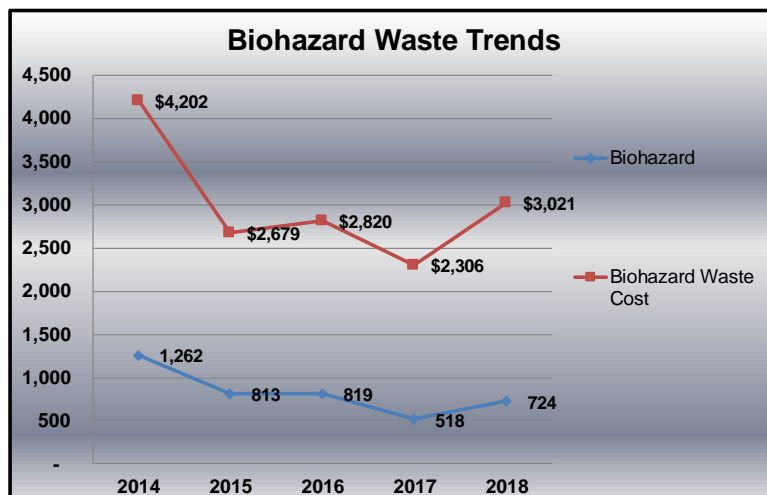


Figure 44: Biohazardous Waste Trends

- 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.
- 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 44**).

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**THIS COMPLETES THE 2018 ENVIRONMENTAL HEALTH SAFETY &  
RISK MANAGEMENT ANNUAL REPORT**

**THANK YOU**

**DISCOVER SAFETY AND PREVENT LOSS AT NEW MEXICO STATE UNIVERSITY**