



# **Environmental Health Safety & Risk Management**

**Annual Report – 2019  
&  
COVID-19 Support - 2020**



**BE BOLD. Shape the Future.**



## WELCOME FROM THE EXECUTIVE DIRECTOR

The year 2020 and the COVID-19 pandemic brought much clarity about the importance of enhancing safety and working together to define safety in our varied working and learning environments. This year was unlike any other and we navigated uncharted waters. With strong leadership, excellent communications and exceptional collaboration, we managed to minimize risk, while maintaining a strategic focus on LEADS 2025 goals. Environmental Health Safety & Risk Management adapted and served NMSU in many new ways to bridge the gaps and meet the challenges of a continuously changing environment and new requirements. Despite many challenges, and sufferings that many experienced, and in no way minimizing those here, we have seen positive things happening. Some of the positive outcomes are bulleted below and have influenced an overall expanded positive focus on safety culture for NMSU.

- EHS&RM Executive Director participated in weekly Town hall meetings (23 in all), Rapid Response Team and Central Administration Response Team to help with the challenges and rapid changes we all faced with COVID-19 (check out <https://president.nmsu.edu/welcome-to-the-office-president-john-floros/town-hall/> and <https://ready.nmsu.edu/plan/index.html>)
- We established basic safety protocols that served to minimize risk while working with many tiger teams to focus on essential and mission critical face-to-face activities. Those basic safety protocols served as a guide as we adapted and adjusted through a continuously shifting environment. Those plans led the way while the State of NM worked to create their COVID Safe Practices for different types of operations.
- Adaptations included establishing review processes and interpreting NM COVID-19 Safe Practices to be implemented across ranges of university operations not previously engaged by EHS&RM, thus forming valuable collaborations and risk management through the process of facilitating almost 500 unique safety plans.
- EHS&RM engaged with almost every tiger team established by Vice Chancellor Johnston under NMSU Ready Plan.
- EHS&RM learned new ways to communicate safety, provided just in time training, developed more online safety training options, procured specialized respiratory protection fit testing equipment, facilitated and created remote work processes, all working together to meet regulatory and safety needs.
- EHS&RM training room upgrade with new technologies was initiated and funded to adapt to the current situation.
- We have become more efficient at certain aspects of our work and ensured all compliance points were met regardless of COVID-19 impacts.

During this time, we have all learned to adapt quickly, make the best of situations and adjust to meet a myriad of new safety guidelines and establish controls that fit with our university mission. This work is done with integrity, professionalism and genuine concern and I am incredibly happy to be a part of the leadership that led NMSU through the pandemonium that ensued with COVID-19.

Thank you and have a safe day,

Katrina Doolittle, Ph.D.



## INTRODUCTION

As described by Dr. Doolittle in the welcome letter, NMSU and Environmental Health Safety & Risk Management (EHS&RM) experienced an unusual year and unprecedented times for NMSU in the year of COVID-19. The overall scope of departmental services increased considerably to support COVID-19 response. Where operations were business as usual, it still looked very different in 2020. As a result, the “usual” 2019 Annual Report also looks a little different and includes EHS&RM contributions to 2020 COVID-19 responses for NMSU.

There will be a small section that elaborates on Dr. Doolittle’s summary in the welcome letter. This section will outline the efforts put forth by EHS&RM in 2020 for pandemic. The remainder of this report will be the full 2019 annual report for EHS & Risk Management.

## 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 11 major areas. In 2020, COVID-19 health and safety support to the NMSU system was added as a new area of service.



## 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.



TOP ROW FROM LEFT TO RIGHT: MCKENSI SPEARS, EILEEN NEVAREZ, JOSE GAMON, RICKY TURCO, JACK KIRBY

MIDDLE ROW FROM LEFT TO RIGHT: GINGER PARKER, ROSE MELENDREZ, LUIS MORALES, POLLY WAGNER, KATRINA DOOLITTLE

BOTTOM ROW FROM LEFT TO RIGHT: DAVID SCHOEP, DREW KACZMAREK, KARL DYKMAN, DERRIK WOOTTON, MICHAEL LUCERO, JOE CHAVEZ

## COVID-19 IN 2020

Everything changed for the NMSU community in March of 2020; the COVID-19 Pandemic became very real and hit the NMSU community very fast and hard as far as change in everyday life and NMSU operations. The highest priority was the health and safety of all NMSU stakeholders. EHS & Risk Management was at the forefront of these efforts. With strong leadership, communication and collaboration, the EHS&RM team adapted and served NMSU to minimize risk and meet the challenges of a continuously changing environment and new requirements.

To expand on positive outcomes Dr. Doolittle mentions in the welcome letter of this report, the following outlines the extraordinary work the EHS & RM team accomplished in the year of the COVID-19 pandemic.

- Early Actions of the EHS&RM Team
  - The Executive Director was instrumental in activation of the Communicable Disease Preparedness component of NMSU All Hazards Emergency Operation Plan. This was in collaboration with the Central Administration Response Team. In addition, participated in the weekly town hall meetings alongside the NMSU President and the Pandemic Rapid Response Team.
  - The Research Safety Team distributed a research laboratory safe shutdown procedure to departments and PIs with laboratories very early when COVID-19 hit when it became obvious the university operations would be severely curtailed by the pandemic.
  - The Hazardous Waste Team remained onsite as essential personnel throughout the pandemic to continue their routine support functions; the departmental “Boots on the Ground”.
  - Transitioned all of the EHS&RM Team, with the exception of the Hazardous Waste group, to work primarily from home for office work and on campus as needed to perform onsite functions.
  - The Data Management Administrator provided department wide support and served as a technical point of contact with ICT for staff having technical computer and connection problems.
  - Established basic safety protocols as guidance for the NMSU community as plans were made to return to work in early summer of 2020;
    - [NMSU Employee Safety and Administrative Protocols for Return to Campus](#)
    - [NMSU COVID-19 Cleaning and Disinfection Protocols](#)
    - [NMSU EHS&RM Pandemic Face Coverings](#)
    - [NMSU Reporting of COVID-19 and Notifications](#)
  - Assisted with the establishment of COVID safety resource web page including uploading of various COVID guidance documents and links to resources such as the CDC and NMDOH webpage, <https://safety.nmsu.edu/index/covid-19-health-safety-resources/> .
- Return to Research and Creativity Support
  - Worked closely with the Vice President for Research (VPR) and OVPR staff to rapidly develop and stand up the Return to Research and Creativity (RTRC) plan / program to ensure critical research and creativity activities could continue in a safe manner after the COVID-19 pandemic hit the university.
    - Stood up a [RTRC web page](#) for easy access to the research community.
    - [Risk-based phased approach](#) to allow research and creative activities to continue or resume.

- Developed an easy to use, web-based [COVID safety plan development tool](#) for PIs including an automatic function to route completed plans through department heads, deans and back to the OVPR for review and approval.
  - Developed a targeted [COVID safety training course](#) for researchers and staff.
- Review of COVID-19 Safe Operation Plans has been ongoing during the pandemic, as well as assisting departments with questions and concerns related to student, staff, and faculty COVID safe operations. As a department, there were close to 500 plans reviewed for COVID Safety practices. Examples of the type of plans reviewed:
  - Research and Creativity return to work plans (~310).
  - Activity and event registration plans (~60).
  - Various departmental and university business operation plans for face to face activities to include (~120):
    - Athletics
    - Marching Band Camp and Music Department operations
    - Golf course operations, Natatorium and Activity Center operations
    - Chili Pepper Institute
    - HRTM Food Production with Café 100 lunches and wine tasting courses
    - Creative Media Institute productions
    - Internships and practicums for Colleges of Education programs including Kinesiology & Dance, Athletic Training, Counseling and Educational Psychology; Health and Social Services Nursing and Social Work; Arts & Sciences Nursing, and DACC Dental programs. These reviews include COVID Safe Plans and all applicable affiliation agreements with various agencies.
    - ROTC, NMDA, 4H Youth Groups and many more.
- Assisted in the development of new protocols and expanded scope of the Activity Registration Committee. This team will now (in 2021) be the centralized process to receive approval for all COVID safe plan reviews with the exception of academic activities and Research operations; these plans will all be reviewed and recommended for approval by EHS&RM.
- The hazardous waste group supported all EHS&RM staff who worked remotely by completing on-campus administrative assistance (e.g., mail runs, scans, computer support, etc.)
- Respirator Safety and Fit-Testing
  - Procured a new quantitative Respirator Fit Testing Equipment capable of testing N95 respirators.
  - Quickly converted Respirator Safety Training course from instructor-led to on-line format.
  - Performed 58 respirator fit tests on NMSU staff between March and December 2020.
  - Assisted DACC with setting up an in-house respirator fit testing program for DACC Dental and other Health Science programs. Trained 10 DACC staff members to perform qualitative respirator fit tests for their staff and students required to wear N-95 respirators.
- Safety Training and Website Support



- In collaboration with Center of Learning and Professional Development Department, assisted in development of the COVID Safe – Return to Work system-wide university training, as well as many other COVID Safe training modules distributed throughout the university.
- Transitioned instructor-led training to online or Zoom format when possible.
- Updated department website training information.
- Contracted with VIVID Learning Systems to provide the university with additional, professional on-line safety training to support university operations.
- Continued face-to-face training for Forklift, Aerial Lift and Defensive Driving Courses. Adapted training room and protocols as COVID safe.
- New COVID Safety Webpage on the EHS & RM webpage.
- Uploading COVID safety documents and links to other university resources
- Continuation of Pre-COVID EHS&RM Support Functions. Campus did not completely shut down and steadily ramped up, even after the initial slow-down. As a result, the majority of EHS&RM support functions continued unabated. The primary impact was on scheduling with some, but not all, operations delayed. The team persevered throughout and accomplished their tasks without a gap in services.
  - Continued, on schedule, with all permit and regulatory required environmental compliance activities related to drinking water, storm water, wastewater, and solid waste.
  - Provided support to Facilities and Services related to all asbestos containing materials requirements and indoor air quality concerns.
  - Hazardous waste pickups from campus departments continued uninterrupted and quarterly off campus shipments were completed safely and on schedule as required by the EPA.
  - All campus Air Permit Report data collection continued uninterrupted and monthly reports were completed on schedule as required by the EPA.
  - Safety inspections (chemical laboratories, shops, lasers, ag. research facilities and other research-related facilities) with a focus on active locations and operations.
  - Radiation Safety Program
    - Laboratory area and dose rate surveys
    - Leak testing of sealed radioactive sources
    - X-Ray machine inspections
    - Radioactive Material Shipping and receiving services
    - Dosimeter exchange
  - Annual chemical fume hood certifications
  - Experiment safety plan reviews and hazard assessments
  - Incident response and exposure investigations
  - Hazardous material shipping services
  - Defensive Driving course and NMSU driving permit services
  - Employee Injury response and investigation



- Insurance Claim Management and Risk management operations to include annual survey to the State of NM and contract reviews

## **EHS & RISK MANAGEMENT 2019 ANNUAL REPORT**

### **HIGHLIGHTS OF 2019**

- EHS&RM reorganizes from FS to Chancellor's Office July 2019.
- Scores in all 8 categories of the FS Customer Satisfaction Survey were 75% and higher.
- EHS&RM facilitated 4 external compliance audits with no penalty.
- EHS&RM completed 85 regulatory compliance reports to external agencies.
- Peer benchmarking tool shows EHS&RM 25% below staffing need for NMSU square footage.
- Instructor led safety training was provided to 2592 persons in 185 safety classes.
- In combined departmental efforts, NMSU achieved 94% compliance in delivering Emergency Preparedness Training online (11,353 employees).
- Online General Employee Safety is now mandatory training included in onboarding of all new employees.
- Employee injury and illnesses was increased by 20%, however trend line is still in decrease.
- Over 12 years, NMSU has seen savings of \$532,000 in worker's comp premiums.
- New risk management initiatives and detailed reviews by EHS&RM have resulted in ~\$67,000 in cost savings for NMSU.
- Loss control program includes facility safety inspections in total of 4,352 rooms, 622 of which were laboratories.
- EHS&RM completed certification tests on 346 fume hoods using a student inspector.
- There were 115 responses to incidents primarily involving indoor air quality complaints and minor hazardous materials spills/incidents.
- Issued validation for 1078 driver's permits, of which 447 were for utility cart use.
- Emergency Planning Committee updated NMSU's All Hazards Emergency Operations Plan and Line of Succession information.
- EHS&RM oversaw 48 asbestos abatement projects that generated 1,231 cubic yards of waste, 21 of which required NESHAP filing. Supported 98 assessments on asbestos, mold and lead related concerns.
- Updated the Greenhouse Gas Management Plan for the first time in 7 years with new regulations and emissions calculations methods.
- Remote generator monitoring was installed for efficient tracking and air compliance.
- Closure activities have continued for the former 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 10 hazmat shipments for various academic departments; internationally and domestically.
- Picked up, processed, and shipped 48,000 pounds of waste that included 2,893 individual waste items.
- \$104,932 in avoided disposal fees due to bulking compatible items of chemical waste.
- Recycling continues with \$5,000 saved by recycling 15 refrigerant cylinders at \$0.
- Addition of 4 new x-ray machines to the existing X-ray Certificate of Registration.
- Support Biosafety Program committee application reviews, monthly training support and disposal of biohazardous wastes.



# CUSTOMER SATISFACTION SURVEY

EHS&RM reorganized from Facilities and Services (FS) to Chancellor’s office in July 2019.

EHS&RM participated in its final year of the FS Customer Satisfaction Survey in 2018 (there was a delay in the receipt of results). The department experienced many years of positive feedback with high rates of satisfaction among respondents. In 2018, none of the response categories were under 75% in combined satisfaction; however, a few of the categories decreased slightly. The biggest

increase combined satisfaction levels were in the website category. This was a 6% increase over 2017’s low of 68% for the website (Figure 1).

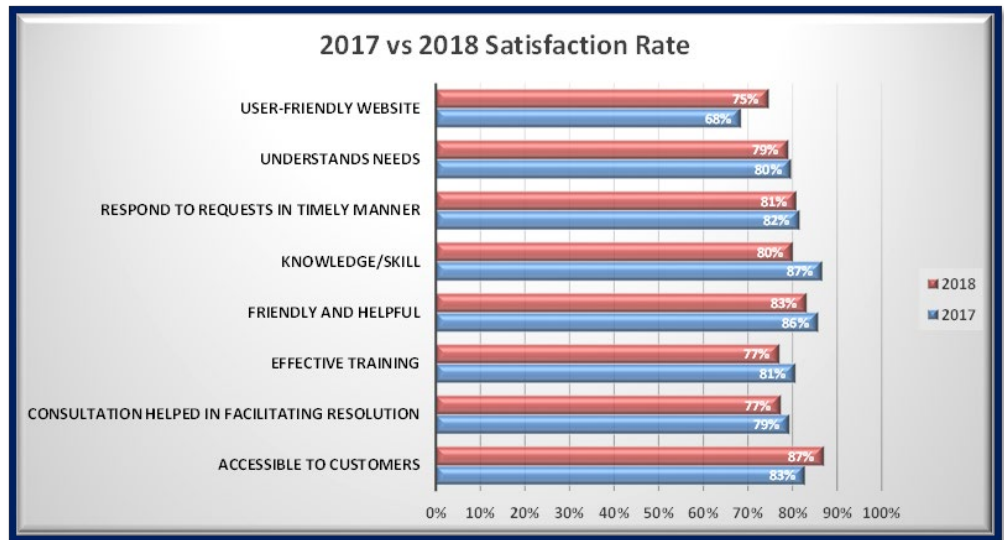


Figure 1: Combination of Very Satisfied & Satisfied

In 2018, there were approximately 101 respondents that scored EHS&RM on eight different categories shown in Figure 2.

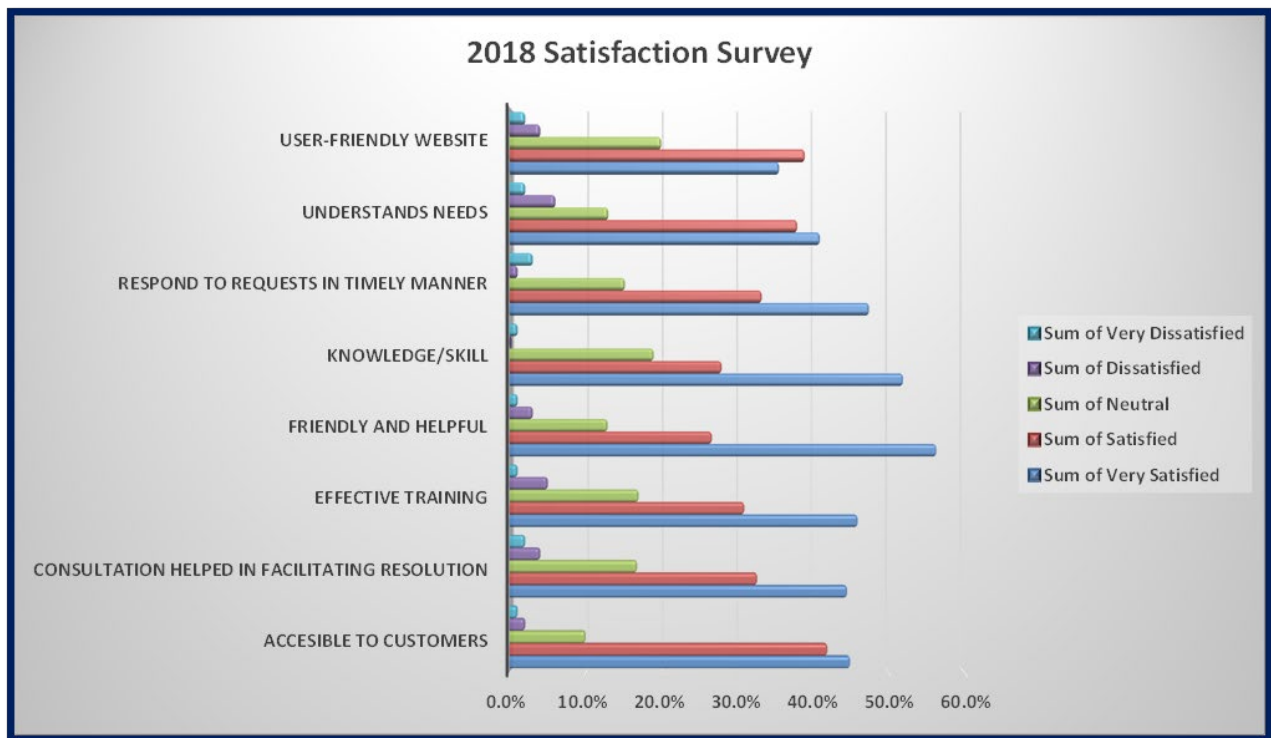


Figure 2: Satisfaction Survey

## COMPLIANCE INITIATIVES & SUPPORT

The realm of regulatory compliance and span of responsibility for EHS&RM is ongoing and forever changing with increased regulations. 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**). In 26 years, NMSU has only received one penalty fee for programs under EHS&RM responsibility. This was in 2017 for \$18,510.

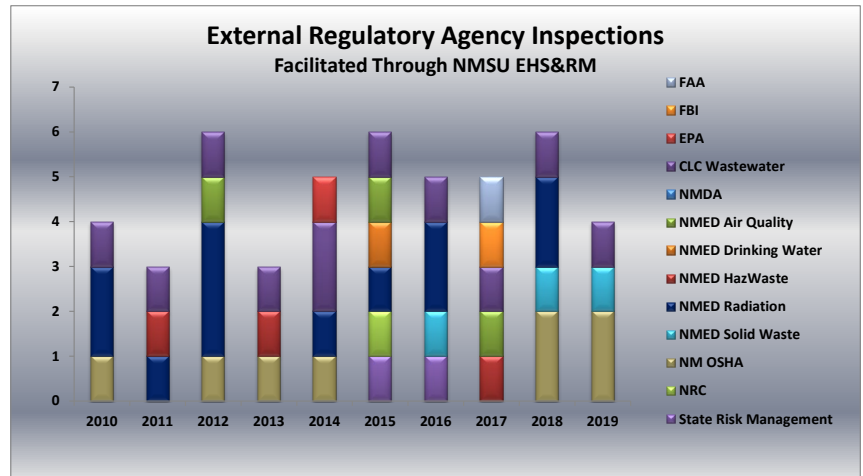


Figure 3: Unannounced Regulatory Compliance Inspections

EHS&RM is also responsible for routine compliance reporting to these same governing external agencies. In 2019, EHS&RM submitted approximately 85 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, experiment safety planning assistance, annual research facility/ process inspections, safety training, hazardous material shipping and hazardous waste disposal services for researchers at NMSU. There are three faculty research oversight committees with significant EHS&RM involvement: Radiation Safety Committee, Institutional Biosafety Committee, and Animal Care and Use Committee. These committees fulfill specific state and federal regulatory requirements in areas of safe use and management of radioactive materials, biological hazardous materials and animal protections used in research activities 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 compliance with state and federal regulations.

2019 - 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	16
NMED Drinking Water Bureau	13
NMED Groundwater Quality Bureau	2
NMED Hazardous Waste Bureau	1
NMED Radiation Control Bureau	7
NMED Solid Waste Bureau	18
NMED Surface Water Bureau	1
DEA	1
OSHA	2
US EPA Region 6	1
Washington State - Office of Radiation Protection	1
<b>Total Reports Submitted</b>	<b>85</b>

Table 1: Compliance Reporting

## UNIVERSITY GROWTH AND EHS&RM STAFFING

Based on a benchmarking tool, created by Bob Emery at University of Texas, 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.

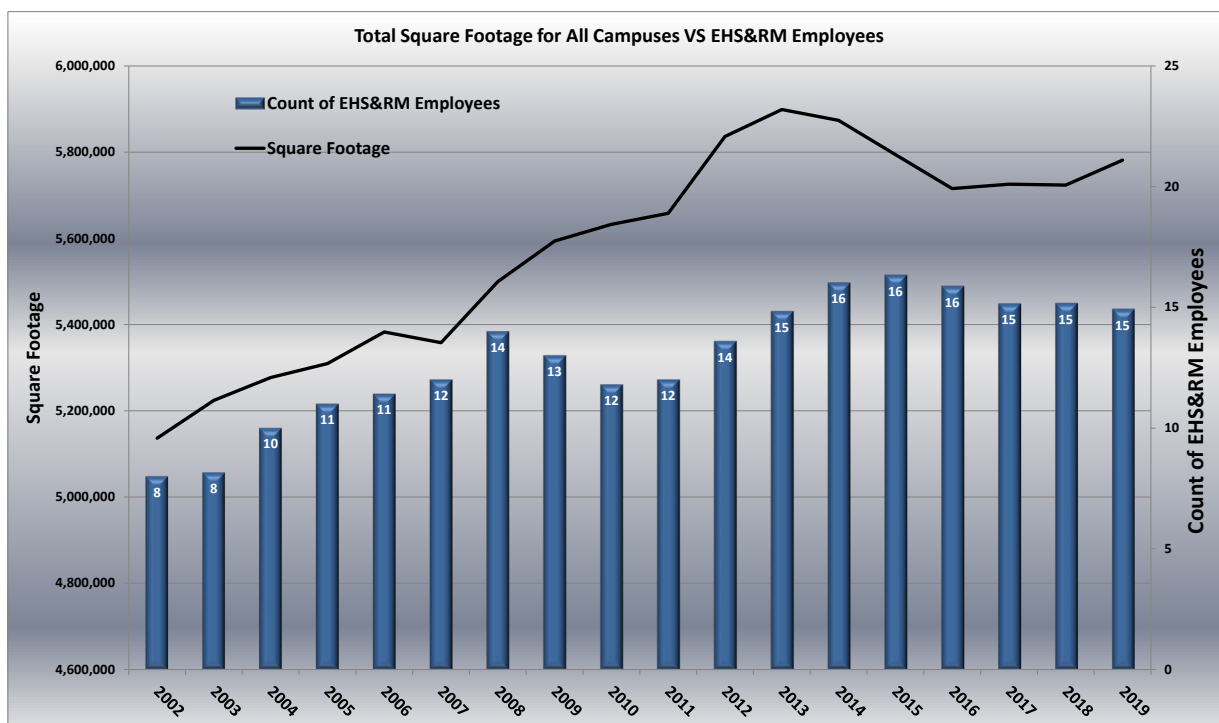


Figure 4: Square footage to EHS&RM FTEs

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 3006 people in 2019 (**Figure 5 & Table 2**). Of these 3006 people, 2592 of them were trained through approximately 185 instructor-led training classes. The remaining 414 employees were trained via online training.

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 2019, The University achieved a 94% compliance rate in the delivery of the required compliance training. There were a total of 11,353 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.

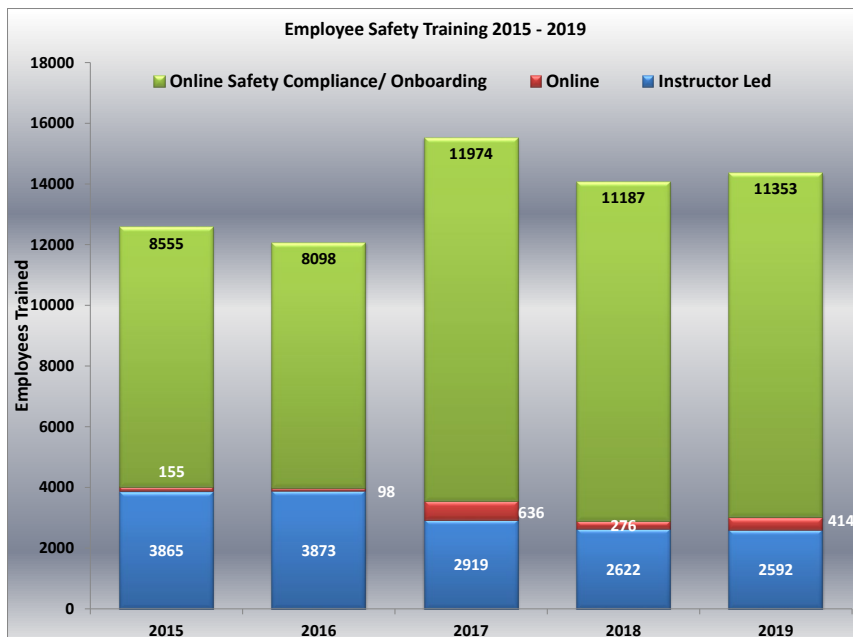


Figure 5: Employee Safety Training

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)
- Hazard Communication (Via Zoom)
- Hazardous Waste Management
- Respirator Protection Training (Class is online, Fit Test is in person).

Course	Sum of 2019
Tractor and Equipment Safety	4
Analytical X-Ray Safety	6
Lockout Tagout	14
Lifting Safety and Ergonomics	22
PI Responsibility in the Lab	23
Basic Laser Safety	25
Respirator Safety and Refit	32
Animal Worker Safety	33
Ladder Safety	36
Emergency Preparedness - Instructor Le	44
Worker Protection Standard (WPS)	46
Basic Radiation Safety	53
Special Training Classes - Seminar	64
Biosafety Awareness	65
Aerial Lift Safety	68
Fork Lift Safety	77
Asbestos Awareness	115
Bloodborne Pathogen	139
Workplace Safety Awareness	140
Employee Safety - Instructor Led	141
Hazardous Waste Management	152
Laboratory Standard	335
Hazard Communication	381
Defensive Driving	458
Laboratory Safety Refresher (With Hazardous Waste Recap)	533
<b>Total</b>	<b>3006</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 2019 are:

- Annual refresher of Laboratory Safety for 533 faculty, staff and students working in a lab environment.
- 4 hour - annual refresher of Workforce Safety Training for ~115 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 2019 annual OSHA Form 300A summary of employee injuries and illnesses is posted on the NMSU [safety website](#). **Figure 7** shows there is a 20% increase in recordable injuries from 2018 to 2019. NMSU experienced an anomaly in 2018 with only 70 recordable injuries, a 33% decrease from 2017. Despite the increase in 2019, the chart shows a continued trend of less injury and illness cases compared to previous years. There is demonstrated long term impact associated with a

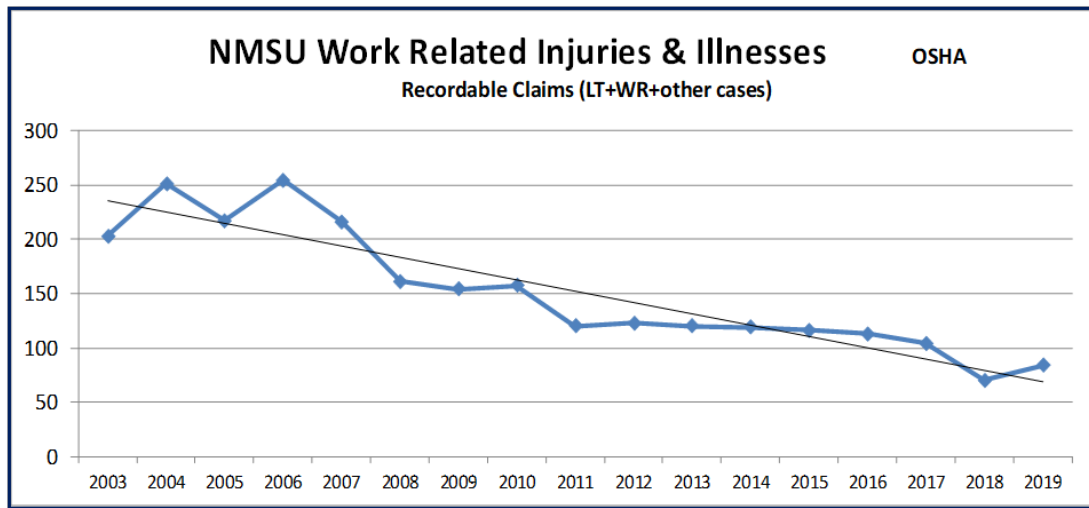


Figure 7: OSHA Recordable Claims

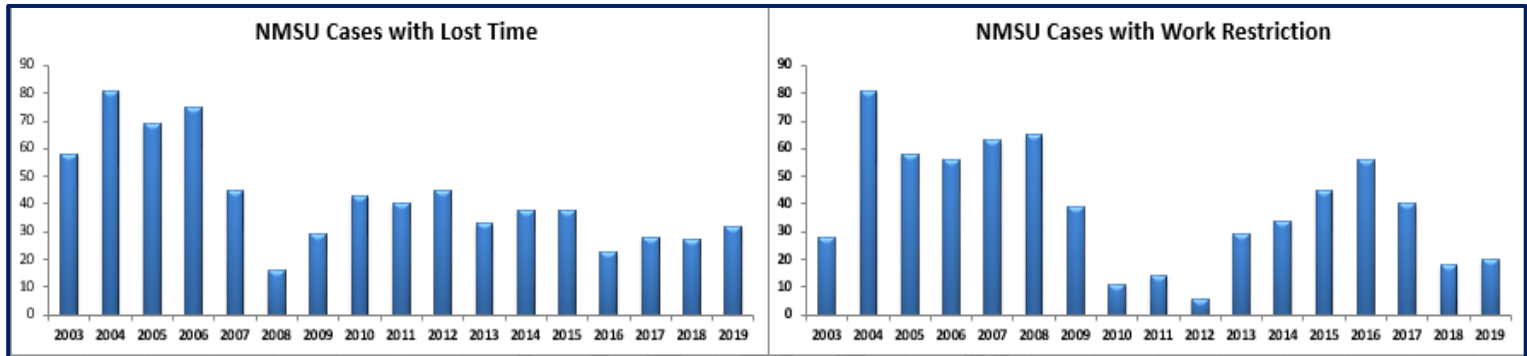
progressive employee safety program. We will continue to improve our safety programs and strive to have a workplace free of injuries and hazardous exposures, and recordable cases for NMSU employees. The OSHA recordable cases include those cases which had days away from work, cases with days of restricted duty and other recordable cases which include treatment such as prescribed medicine or stitches.

## INJURY PREVENTION

Employees are instructed to report work-related injuries and illness to their supervisor through training and operational safety meetings. In 2019, 86% 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.

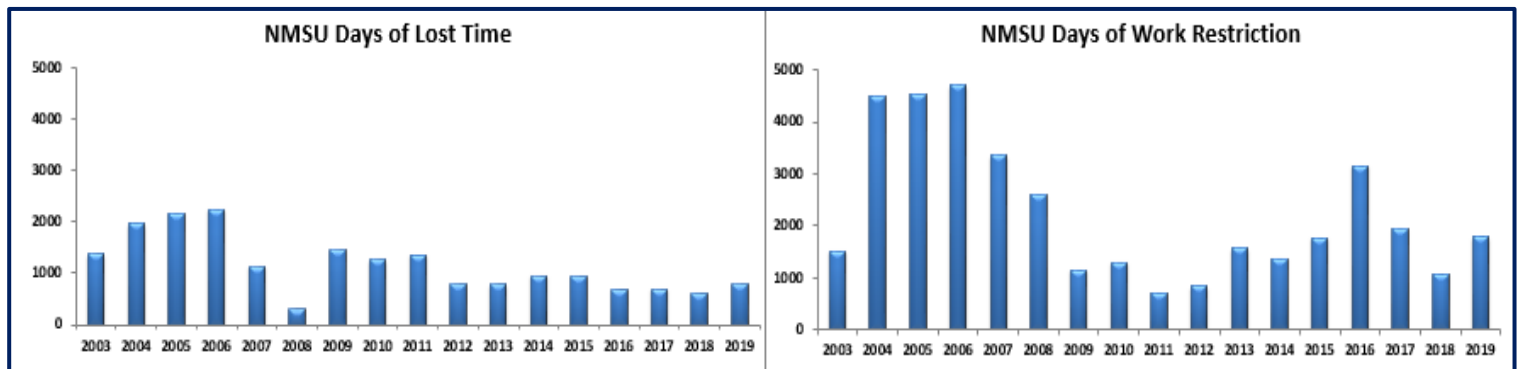
The bar charts (**Figure 8**) compare cases with lost time and cases with work restriction.

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 increase in the cases with lost time and a corresponding increase of 29% in the number of lost workdays. In addition, there was a slight increase in cases with work restriction and a 69% increase in days of work restriction. Overall Days Away Restricted or Transferred (DART) Rate is 15% higher than 2018. Even though higher due to our anomaly in 2018, this still 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 gives the average number of lost days per recordable incident. This measures how critical the injuries or illness sustained were by using the number of lost days per accident as a proxy for severity. In conjunction with other metrics and processes, this rate will help NMSU to determine if job tasks are higher risk. A high severity rate would show that there is a least one and potentially more than one serious injury or illness. A lower severity rate would indicate those incidents that were not as severe.

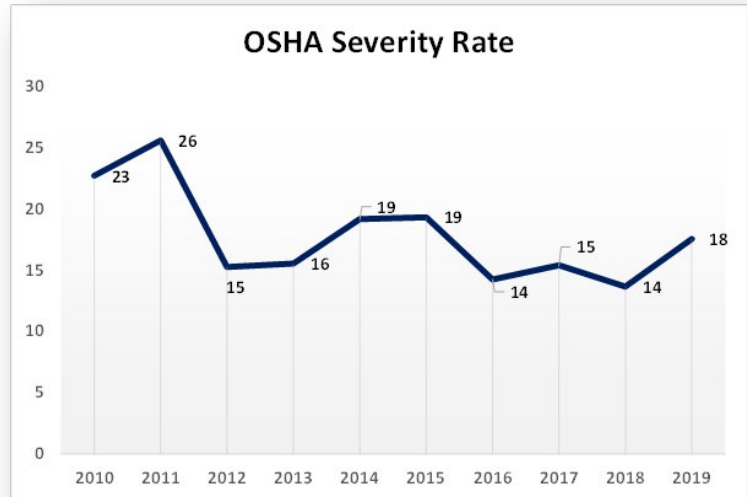


Figure 10: OSHA Severity Rate

**Figure 10** shows a consistent decrease in serious injuries over time. NMSU had a level trend of 14 – 15 severity rate from 2016 – 2018. In 2019, there was an increase to 18. This is due to a 29% increase in lost days due to injury or illness. In this next year, EHS&RM will focus on improved data management and metrics utilizing upcoming upgraded software. This will give the ability to drill down for the facts of cases with a high number of days lost and evaluate for potential safer work practices.

## 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 (FY14

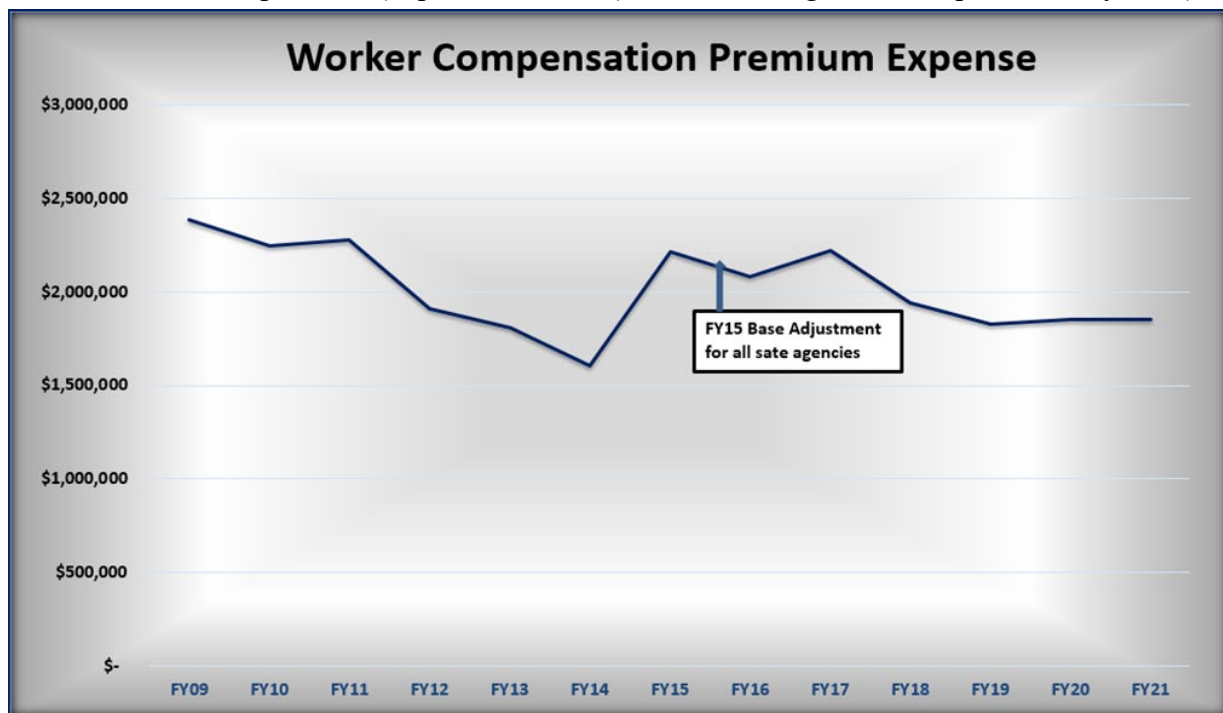


Figure 11: WC Premium Expense

– FY18 for FY21 premiums). The remaining 10% is exposure data (payroll) compiled from the yearly exposure survey collected in early spring from each insured entity.

Worker’s risk avoidance resulted in an overall decreased premium over 12 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 the reducing trend in the number of work related injury and illness claims, despite the slight increase in this last year.

There were 129 worker compensation claims filed with RMD in FY19 for a total paid to date cost of \$335,622. There were an additional 58 claims filed for the first half of FY20 (last 6 months of 2019). 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.

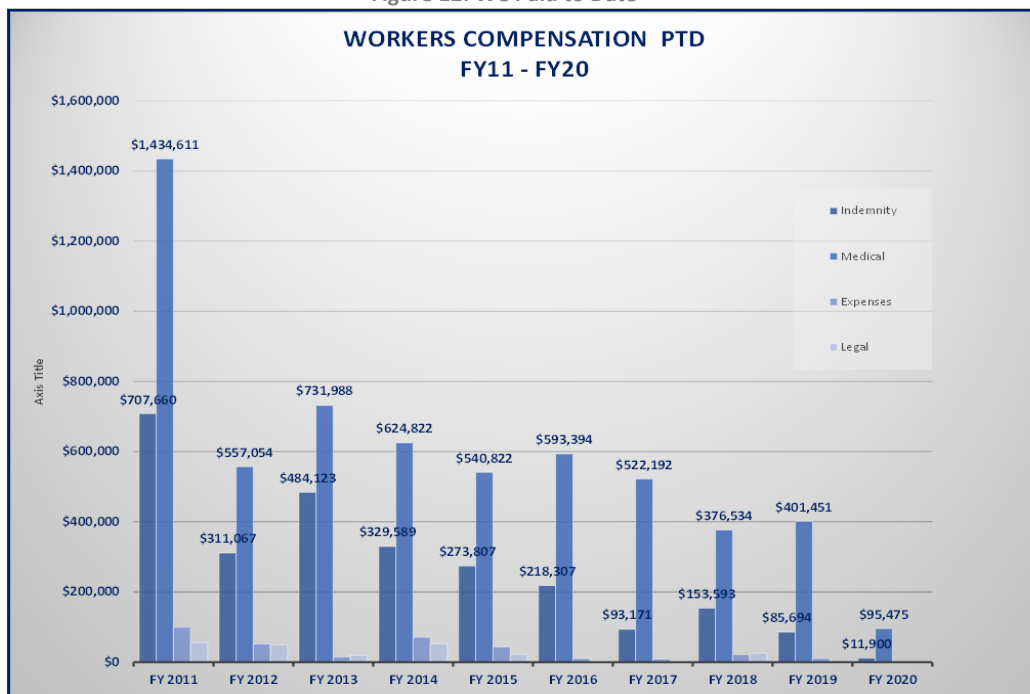
Injury Type	Cost	% of Total Injuries
Strain	\$297,204	34%
Fall/Slip	\$157,926	24%
Strike/Step	\$18,355	5%
Cut/Puncture/Scrape	\$10,893	13%
Struck By	\$5,951	10%

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 86% of injury costs. The highest claim to date for FY19 is \$64,500 for a slip and fall. 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 – FY20 (first 6 months). 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 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 through the first half of FY20. These are fluid amounts as many recent claims are still open and accruing expense.

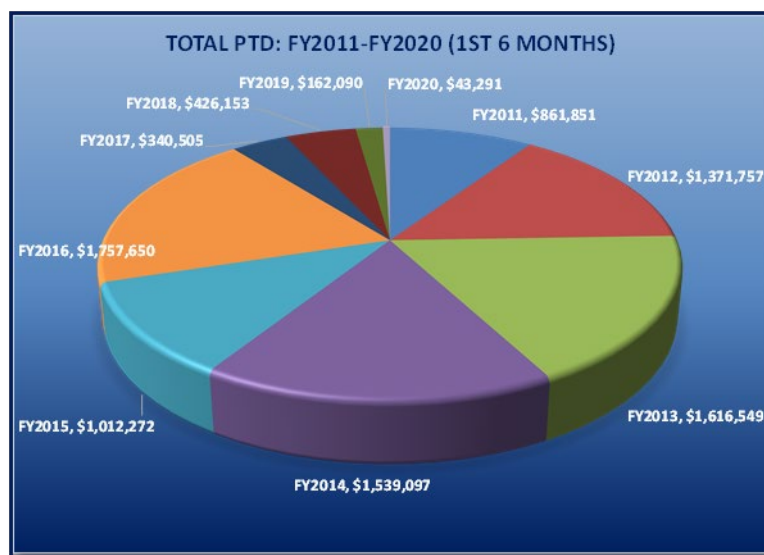
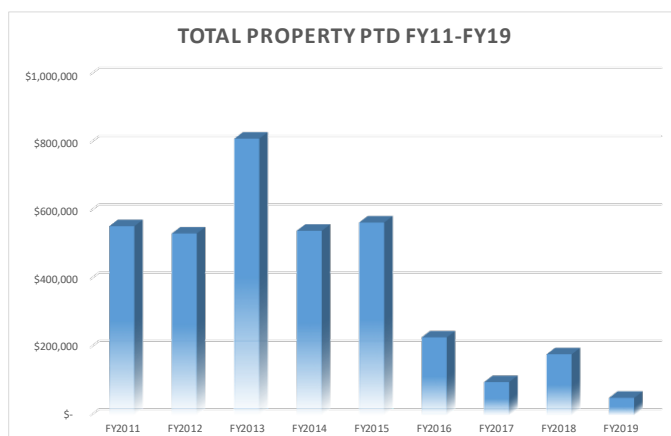
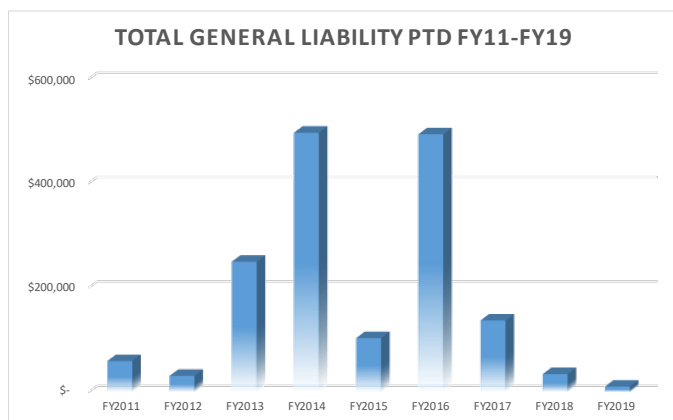


Figure 13: Claims Expense - Total PTD by Fiscal Year

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



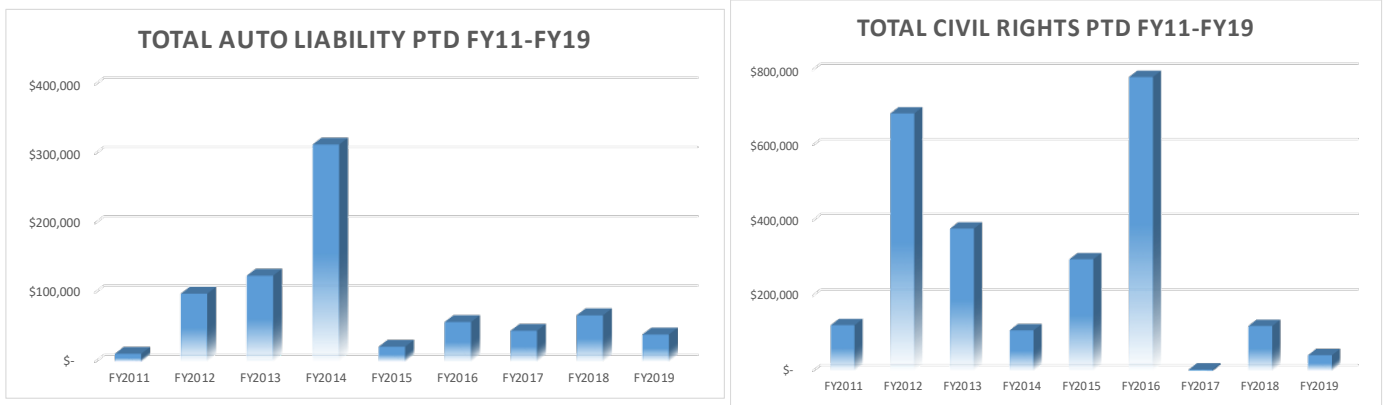


Figure 14: Highest Paid Expense

Premium cost is based on experience (expense of claims) from the designated five prior fiscal years (FY14 – FY18 for FY21 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 12 years has increased in areas of liability and property, however we are now starting to see slight decreases in recent years. The premium related to worker compensation has held steady for the last 3 years (90% is based on experience) (Figure 15).

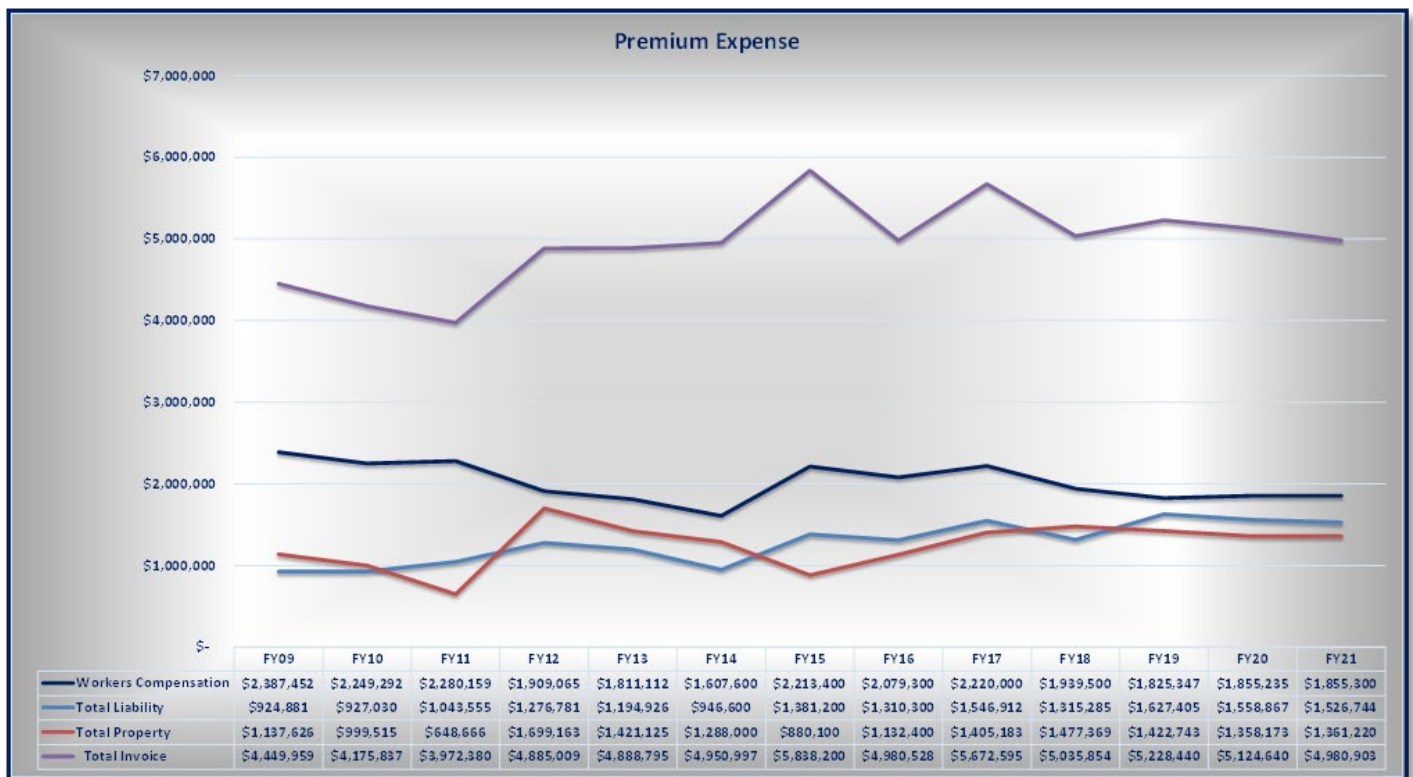


Figure 15: Annual Premium Expense

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 2019 and 2020 to date. 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.

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 2019, \$7,300 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.

Type	2019	2020
NOC: NMSU Auto	17	3
NOC: NMSU Property	17	7
NOC: Tort-3rd Party	26	6
NOI: Record Only	144	48
<b>Total</b>	<b>209</b>	<b>64</b>

Table 4: Type Received by EHS&RM

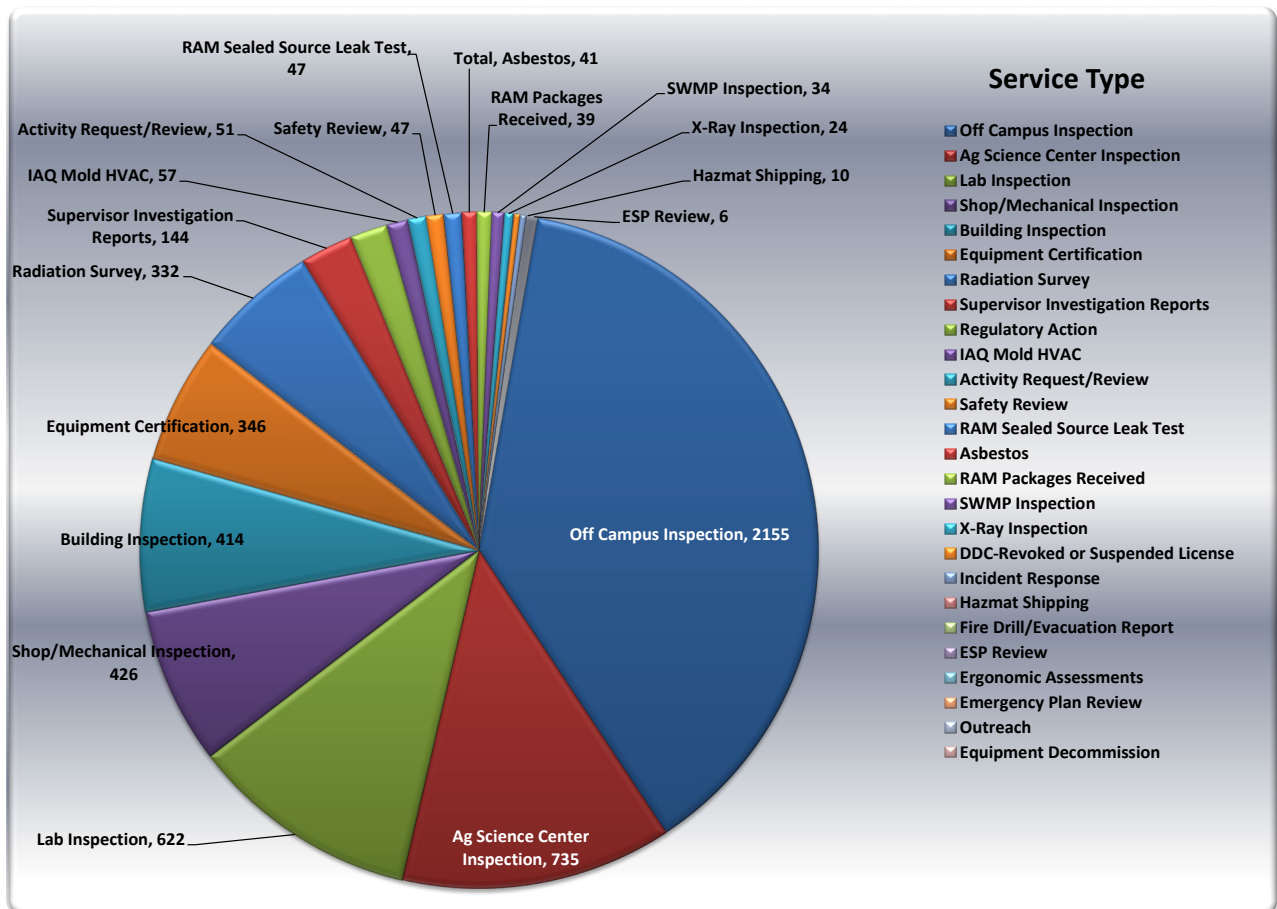
The FY2019 premium invoice review resulted in two beneficial findings, an annual \$8,000 savings of Workers' Comp premiums for a facility no longer in operation by NMSU and a \$60,000 error in invoicing of unmanned aerial systems coverage.

In addition, in FY20 NMSU EHS&RM worked closely with RMD in regard to billing of Unmanned Aerial Systems (aka drones). This collaboration resulted in approximately a \$67,000 reduction in UAS premium expense. This was a significant relief to those using drones in research with limited funding. 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 2019, 93% compliance was obtained of 4,352 room inspections. EHS&RM follows up with the responsible parties to promote corrective action to address any deficiencies found during inspection. There is currently 49% response rate of identified corrective actions completed for 2019 (Figure 17).

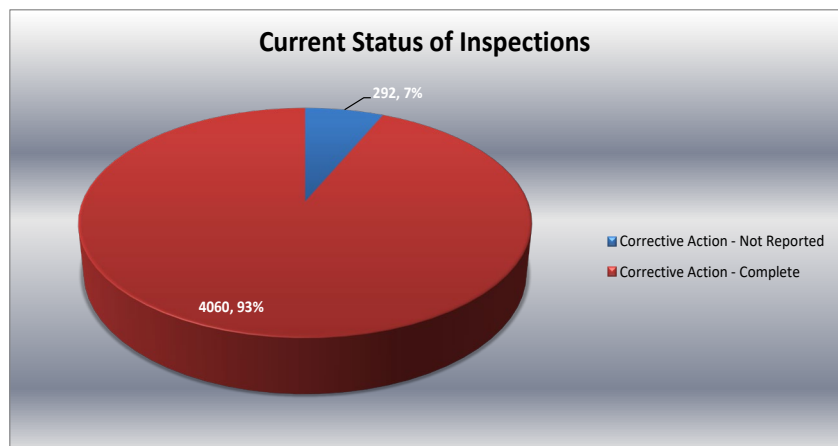


Figure 17: Inspection Status

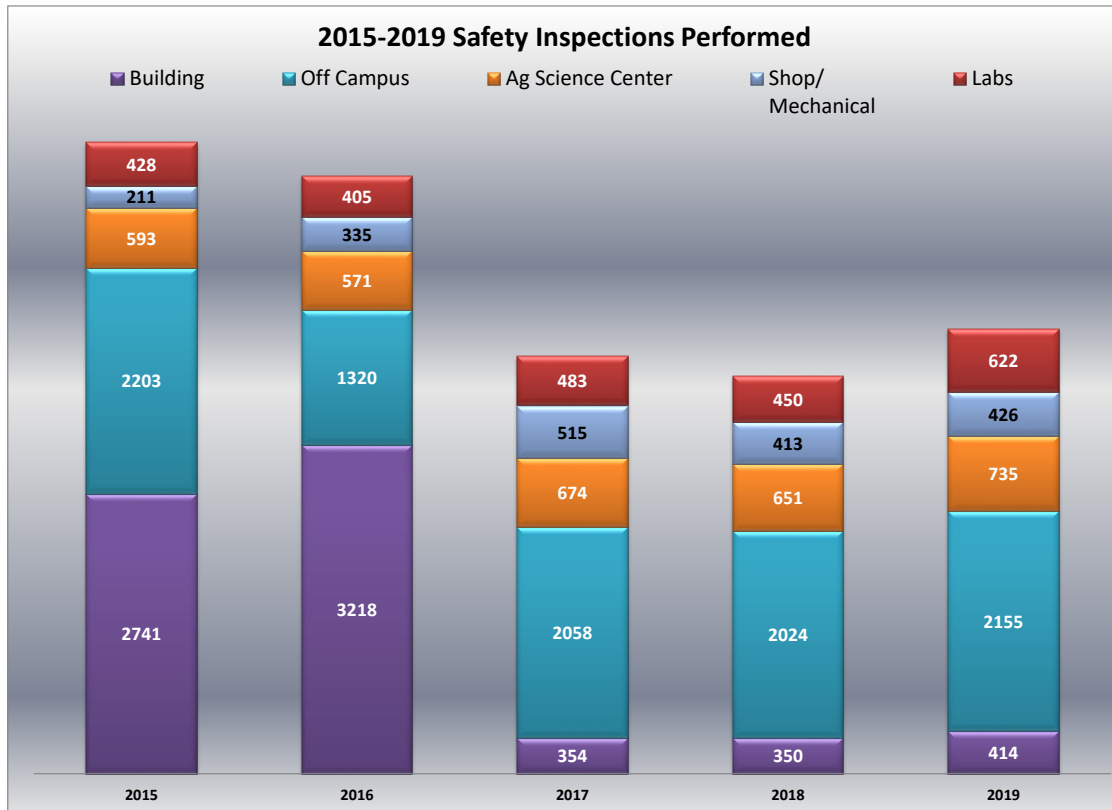
NMSU is subject to audit of the LPLC Program by the State of NM Risk Management Division. The last audit conducted was on April 26, 2016 and NMSU received a score of 98%.

# GENERAL SAFETY INSPECTIONS

## LABORATORY AND BUILDING INSPECTIONS

In 2019, 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

Figure 18: Safety Inspections System Wide



inspection reports for each location, which identified safety concerns and corrective actions.

EHS&RM routinely submits work orders to Facilities and Services utilizing Building Repair & Renewal (BRR) funding to correct facility safety deficiencies identified during inspections and continuously works to improve safety equipment 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 2019, 4,352 rooms in NMSU facilities statewide were inspected (**Figure 18**). Items to note from Figure 14 are:

Lab Inspections: There was a 37% increase (450 to 616 inspections) in the number of Lab Inspections in 2019 compared to 2018. This increase was due to a number of factors.

1. In 2019 the Research Safety Group began using the Postsecondary Education Facilities Inventory and Classification Manual (FICM) space codes associated with research space including associated support spaces to determine inspection locations in many on-campus buildings. This is part of an ongoing effort to standardize and align EHS&RM inspection data with information in other university data systems such as Space Management property data in the AIM system. The result was a significant increase in the number of rooms inspected in some on-campus buildings. The buildings with the largest impact included Thomas & Brown Hall (+36 rooms), Skeen Hall (+35 rooms), Gerald Thomas Hall (+16

rooms), Engineering Complex I (+18 rooms), and the Ed and Harold Foreman Engineering Complex (+18 rooms). This effort did not start until mid-year and areas inspected early in 2019 will be reevaluated/updated in 2020.

2. The number of rooms inspected in Jett Hall increased in 2019 (+8 rooms). More research space was re-commissioned in the newly renovated building and inspections were scheduled after PIs moved into their new labs.
3. Inspections occurred in twelve research space located in Gerald Thomas Hall and used by Family Consumer Sciences that were not inspected in 2018. The labs were last inspected very late year 2017 and re-inspected again in early 2019.
4. The Metabolism & Physiology Lab (+14 rooms) inspection was re-categorized as a Lab Inspection in 2019 instead of a Building Inspection.

Shop/Mechanical Inspections: A 19% increase in Shop/Mechanical inspections was primarily due to the following.

1. The Cropping Systems Research building (+16 rooms) was added to the inspection schedule.
2. Additional locations were inspected at the FS Central Plant (+17 rooms).
3. FS Motor Pool (+13 rooms), PSL Fabrication Shop (+10 rooms), PSL Machine Shop (+12 rooms) and Dan Williams Hall Annex (+25 rooms) were not inspected in 2018 but picked up again in 2019.
4. The Horse Farm Lab and Shop (+31 rooms) was misclassified as a Building Inspections in 2018.

Off Campus Inspections: There was a 23% increase in Off Campus Inspections in 2019 compared to 2018.

1. An additional building (Lucy Belle MA Bldg: +54 rooms) was added to the 2019 inspection of the Grants Community College.
2. DACC Chaparral (+27 rooms) and DACC Gadsden (+72 rooms) were added to the inspection schedule in 2019.
3. Additional rooms were inspected in 2019 at DACC, East Mesa (+15 rooms), DACC East Mesa (+26 rooms), and DACC Main (+29 rooms).

Building Inspections: There was a 20% decrease in the number of building inspections between 2018 and 2019 primarily due to the following factors.

1. The Horse Farm Lab & Shop (-31 rooms) was reclassified as a Shop/Mechanical inspection. Genesis B (-38 rooms). Beef Office (-6 rooms) and Feed Mill (-6 rooms) were not inspected in 2019. These will be inspected again in 2020.
2. Food Safety Laboratory Building (-8 rooms) was re-classified as a lab inspection in 2019.

## 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

An EHS&RM student inspector (**Figure 19**) performs most hood certifications. In 2019, 337 fume hoods were certified (**Figure 20**). Some hoods at remote locations such as community colleges were not certified in 2020 due to pandemic travel and use restrictions. The majority of these are located in teaching labs that were not in use when the facilities moved to remote learning for most of the year.

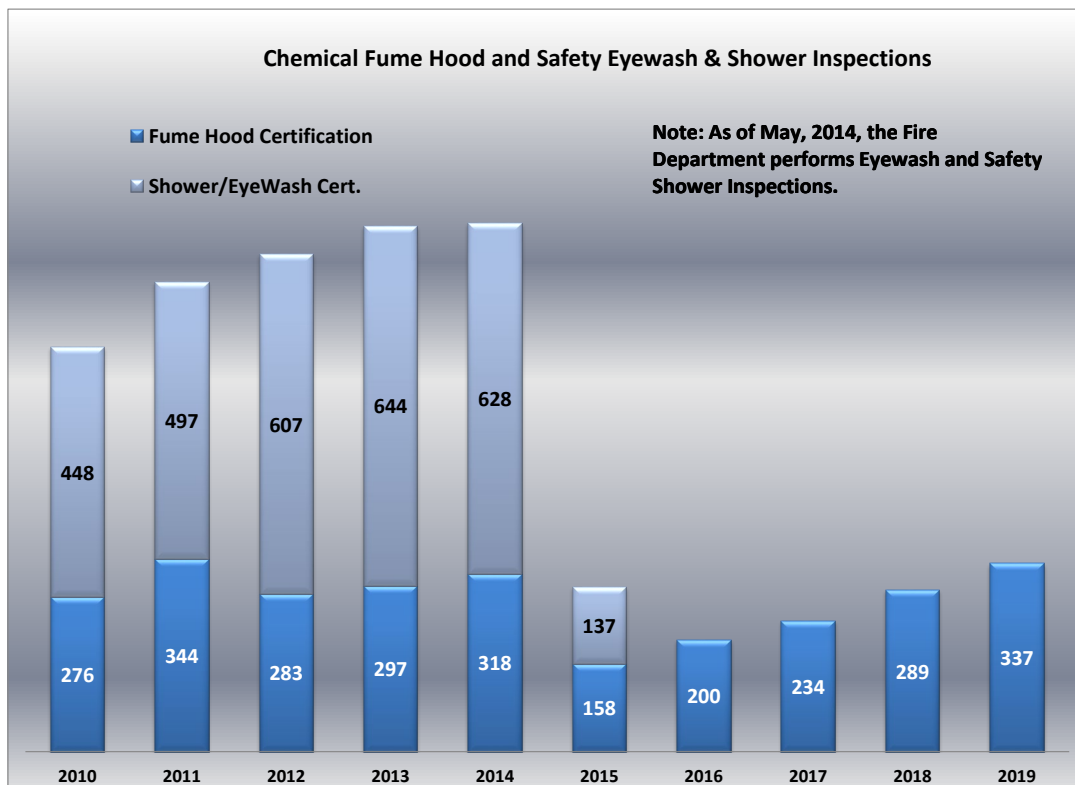


Figure 20: Chemical Fume Hood Inspections

## 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

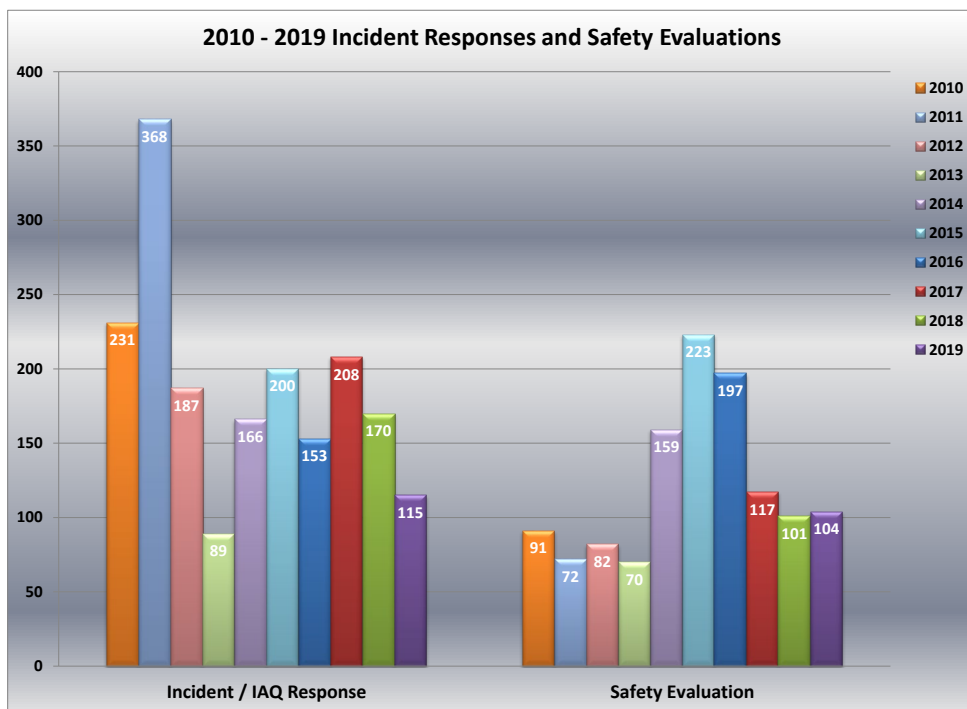


Figure 21: Incident Response and Safety Evaluations

There were 115 responses to concerns by stakeholders, primarily involving indoor air quality concerns and concerns of asbestos, this was a 32% decrease compared to last year (Figure 21). This is primarily due to less requests from FS and Housing. 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 2019, EHS&RM performed 104 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

458 people that attended the Defensive Driving Course and a total of 1525 driver's licenses were validated and permits issued (Figure 22).

Out of the 1525 permits issued, 447 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.

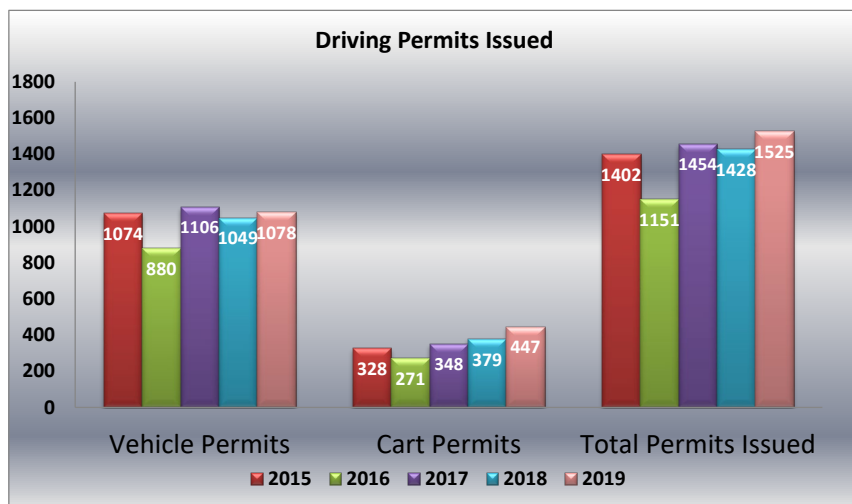


Figure 22: Driving Permits Issued



## 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 27 requests for prescription safety eyewear

(**Figure 23**) at an expense of \$5,872. Campus wide the allowed amount was increased to \$200 for each employee, this contributed to increased expense in 2019. There were 152 pairs of safety eye protection distributed to new lab personnel taking laboratory related classes.

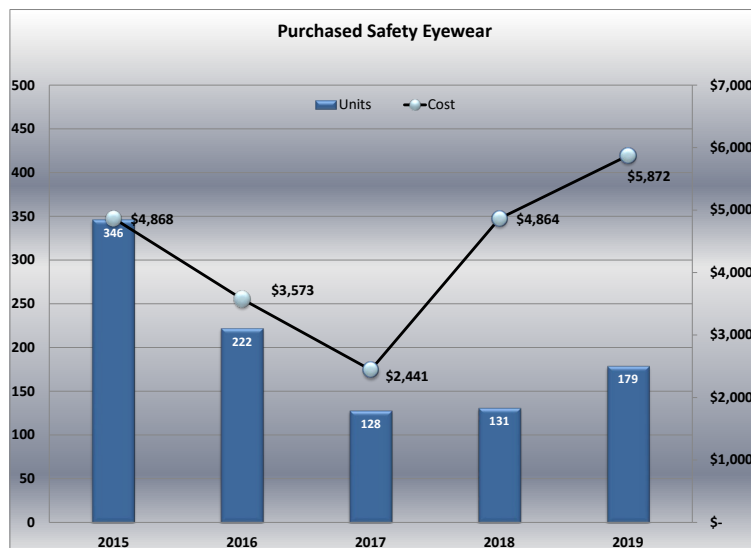


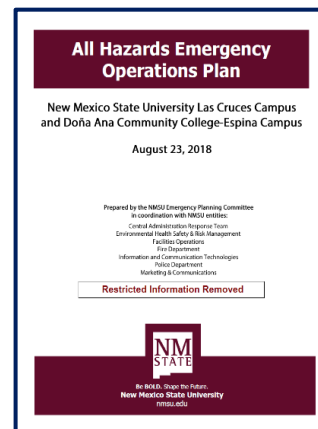
Figure 23: Safety Eyewear

## SAFETY INITIATIVES AND EMERGENCY PREPAREDNESS

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.

Figure 24: Link to All Hazards Emergency Operations Plan



- 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 2019, 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 25**).



Figure 25: Asbestos Abatement

training that provides information on potential locations of asbestos, type of materials that may contain asbestos and the NMSU procedure for notification.

In 2019, EHS&RM completed 48 abatement projects that generated 1,231 cubic yards of waste (**Figure 26**). Of the 48 projects, 21 projects were of larger size and or type which required permitting through NESHAP from NMED. EHS&RM supported the campus in 98 reviews and incidents on asbestos and mold related issues.

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

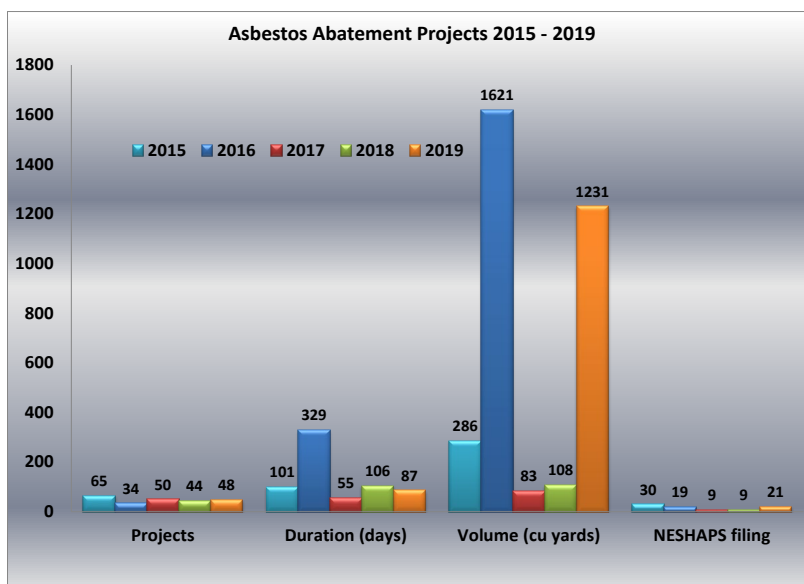


Figure 26: Asbestos Abatement Metrics

## 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 and Semi-Annual Air Reports
2. Air Emissions Inventory
3. Greenhouse Gas Report
4. Turbine Test Protocol
5. Turbine Air Emissions Test Results
6. Air Fees
7. Generator Location/Monthly Operational Log

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 2019 were:

- Title V Air Permit Renewal Application: Completed 90% of 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.
- Greenhouse Gas Management Plan: Updated NMSU's EPA required Greenhouse Gas Mgt. Plan for the first time in seven years. New regulations and emission calculation methods were added to the plan to bring us up to date. This plan ensures we are accurately tracking and reporting greenhouse gas emissions annually to EPA.
- New Responsible Official (RO): NMSU's RO (Associate VP, Facilities) retired after ~ten years of service. A new interim RO had to be designated and reported to NMED and EPA. Only a formally approved RO can certify air compliance reports within strict deadlines.

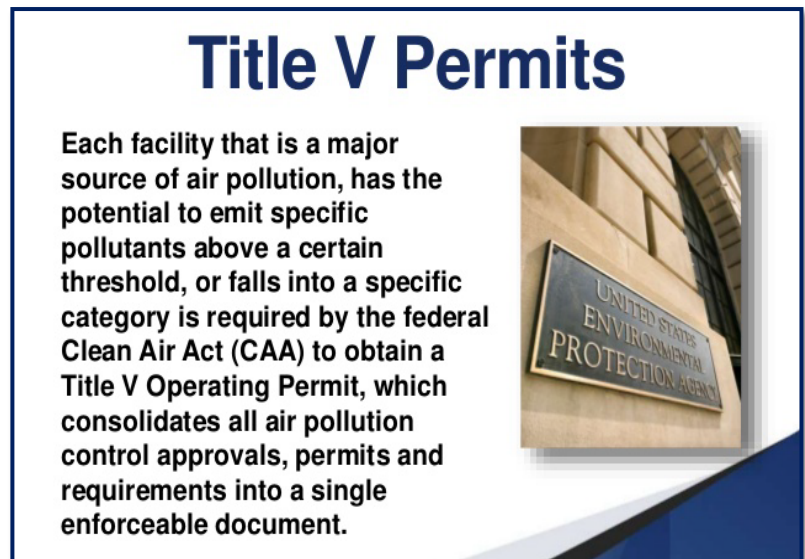


Figure 27: Title V Definition

### STORM WATER MANAGEMENT PROGRAM (SWMP)

This program is a requirement 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 2019 include the following:

- Submitted the annual update report to EPA and NMED Surface Water Quality Bureau in September, 2019. 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.



Figure 28: Storm water 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.

2019 solid waste accomplishments include:

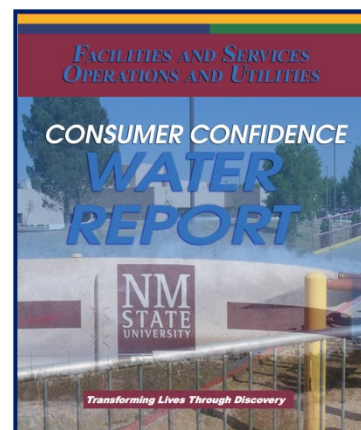
- Continued post-closure monitoring and reporting for the former landfill.
- Submitted required methane and groundwater sampling monitoring reports.
- Submitted two NMED-required annual Solid Waste Management reports on schedule.

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 2019, 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.

2019 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 2019:

- 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 10 shipments in 2019 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 48,000 pounds of hazardous waste in 2019 compared to 45,000 pounds averaged over the previous five years (**Figure 31**). Annual poundage was up, but not considered a significant trend at this point.

The team managed 2,893 different chemical items compared to 2,933 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.



Figure 31: Total of Hazardous Waste through EMF

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), Engineering (2), EPPWS (2), Biology, ANRS, PES, WERC, FS, Art, NMDA, and DACC. 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 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.

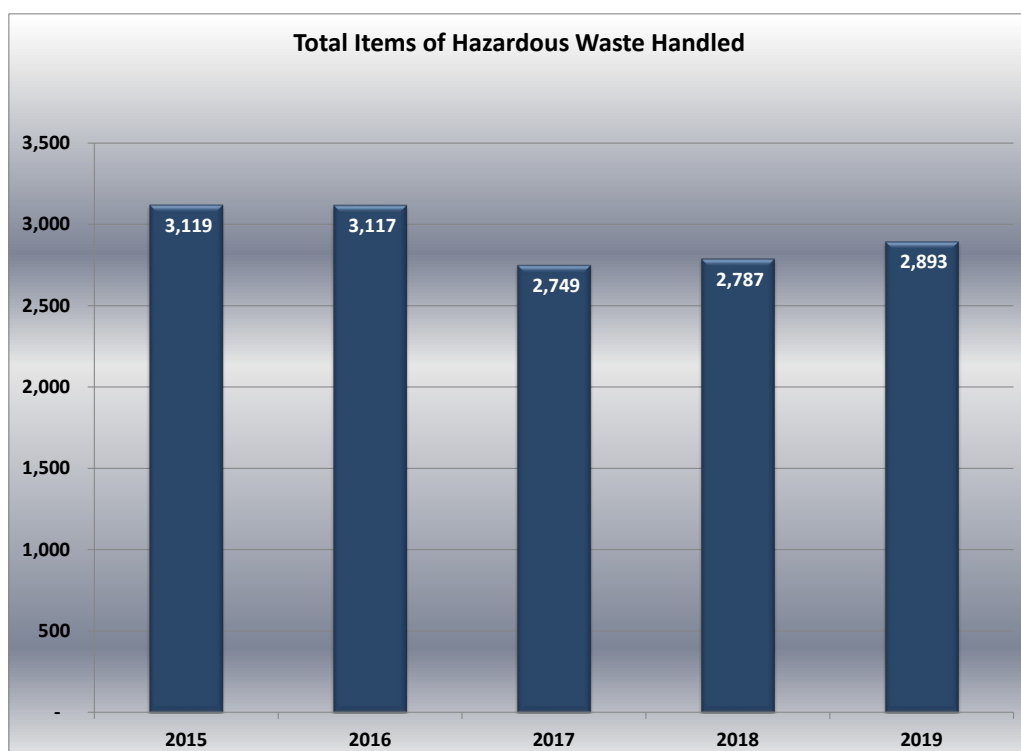


Figure 32: Total Items Handled

## WASTE VOLUME AND COST TRENDS

Overall, NMSU's 48,000 pounds of routine hazardous waste was disposed of at a total cost of \$92,688 (**Figure 34**). This is slightly more than the previous five-year average cost of \$89,483. Most of the cost increase is attributed to 3,000 pounds more of waste was disposed of in 2019 compared to the five-year average. The biggest reason overall costs have significantly increased for years is due to the fact that the hazardous waste group has had limited staff turnover. The core waste management team has been together for numerous years and remains focused on efficiencies. A word of caution, a new main hazardous waste contract will be awarded for the first time in eight years in 2020. It is very likely that contractor costs will increase in 2020.



Figure 33: Hazardous Waste Team Bulking Chemicals

The team continues to coordinate with twelve different environmental services contractors to handle each waste type to ensure continued cost savings: Clean Harbors, Veolia, Mediwaste, Stericycle, USA Can Recycling Warehouse, Fuels, ACT, NEMS, Airgas, Interlab, Las Cruces City Wastewater 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 35**.

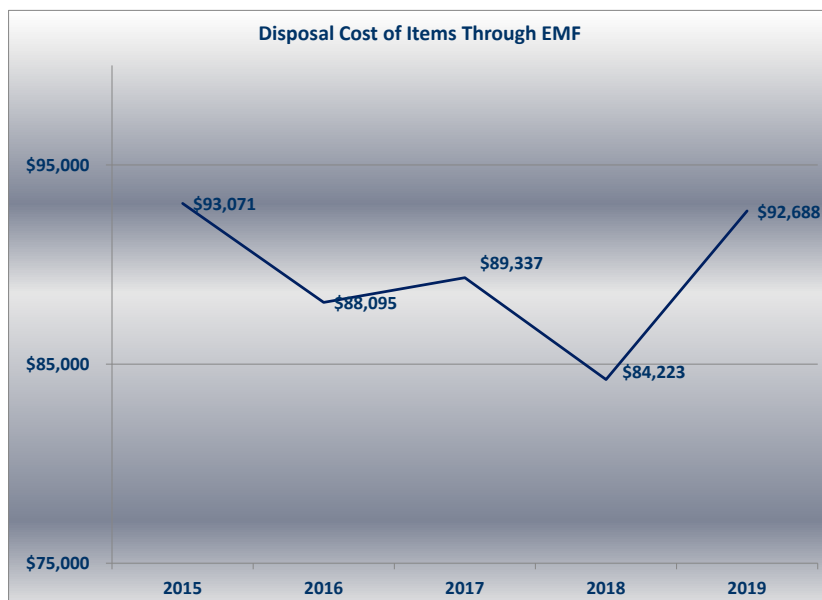


Figure 34: Disposal Cost

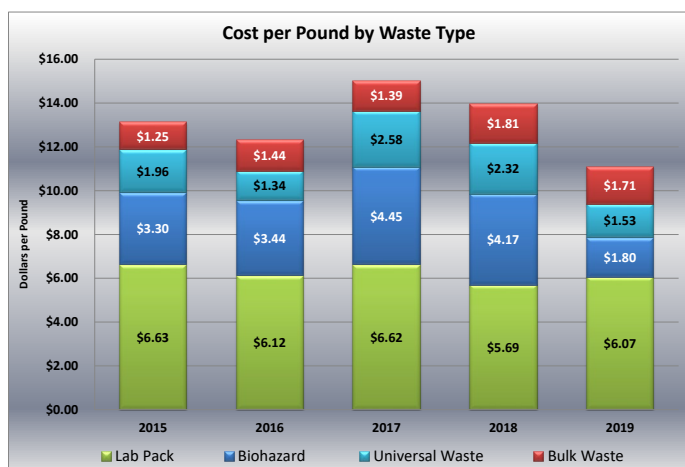
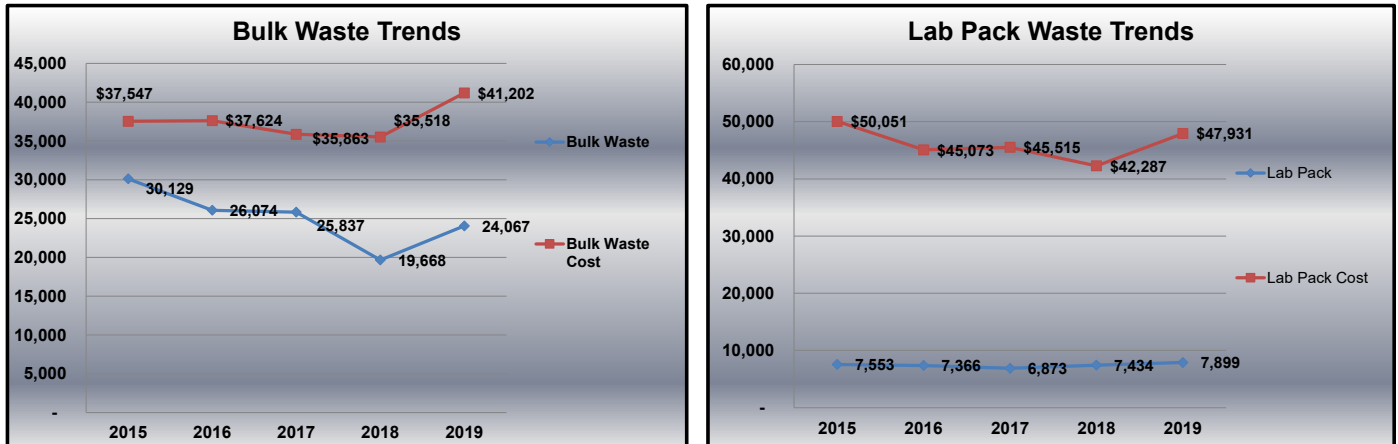


Figure 35: Breakdown of Type

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 threefold 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 ~75% of the chemical waste can be shipped in bulk containers for disposal. The cost of bulk waste was \$1.71 per pound compared to \$6.07 per pound for lab pack waste (Figure 36). The savings in 2019 were \$104,932 in avoided disposal fees that are due to bulking 75% 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 continued to decline in 2019 (Figure 37). In part this is due to fewer elemental mercury items and spills requiring disposal.

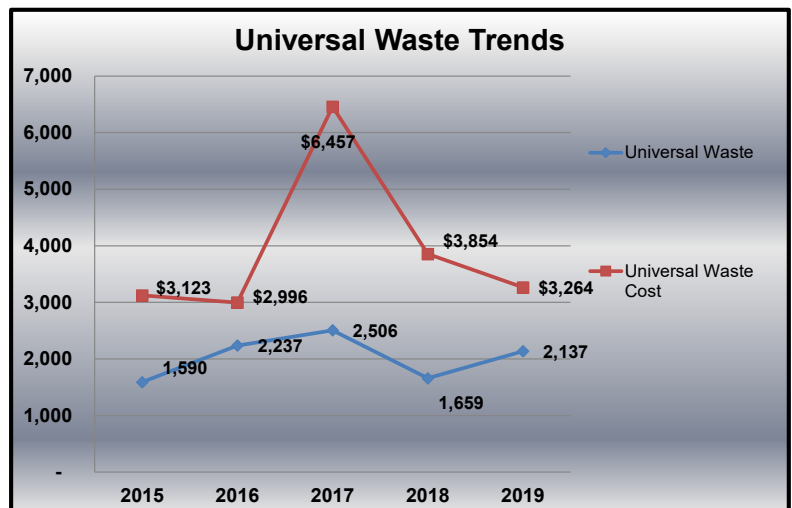


Figure 37: Universal Waste Trends

NMSU also recycles used oil/diesel fuel whenever possible.

Also of particular note in 2019, fifteen refrigerant cylinders were sent to a special contractor for recycling instead of disposal. This saved NMSU ~\$5,000. 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 continued training and



distributing new NMSU Hazardous Waste/Material Tracking Forms and new hazardous waste stickers to best meet new labeling laws.

NMSU did not undergo an unannounced NMED hazardous waste compliance inspection in 2019 (our last inspection was in 2017). Typically, NMSU experiences an inspection every ~4 years so we will likely have one soon. NMSU paid a penalty of ~\$20,000 in 2017 for labeling and closure violations in campus labs and shops (our first penalty since 1993). It is essential that all campus personnel continue to focus on ensuring all hazardous waste containers are fully closed, labeled “Hazardous Waste”, and each designated with at least one main hazard category- flammable, toxic, etc.



Figure 38: Chemical Spill Incident Response

EHS&RM continues to maintain an online Hazardous Waste Refresher Training Class to assist campus labs/shops understand and implement best management practices. Also in 2019, EHS&RM created and distributed to labs/shops a new “Hazardous Waste Accumulation Point Inspection Checklist” focusing on the top thirteen items NMED looks at during unannounced inspections. 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 expand to other campuses and research facilities. For example, in 2019 NMED proposed increasing NMSU main campus annual hazardous waste fees from ~\$3,000 to \$20,000. NMED also proposed charging NMSU facilities across the state an annual fee of at least \$100 each if they generate any amount of hazardous waste, even if it is just alcohol wipes. EHS&RM challenged the new regulations strongly and had multiple conference calls with NMED. In the end, we were able to negotiate the main campus annual fee down from \$20,000 to \$5,000, but all additional NMSU facilities that generate hazardous waste throughout the state have to be identified separately, report, and pay annual fees to NMED for the first time in 2020.

### HAZARDOUS WASTE TRAINING

Training continued in 2019:

- 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 39**)



Figure 39: Facilities & Services Hazardous Waste Presentation

### HAZARDOUS WASTE SPECIAL PROJECTS

In 2019, 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 mercury spills requiring specialized equipment and PPE (**Figure 38**).
- ~35 High hazard chemicals (peroxide formers) were identified and stabilized for safe disposal without additional contractor assistance saving ~\$6,000.
- Standard internal EHS&RM quality control testing identified ~100 significantly mislabeled chemicals that were re-labeled to ensure safe processing and reduced contractor fees.
- Disposed of internally all the waste chemicals generated by the Art Dept. due to their move to a new building. By disposing of these chemicals through our normal, internal processes we saved ~\$5,000 in contractor costs.
- Disposed of internally ~150 abandoned chemicals at Engineering Dept. facilities at the base of A-Mountain. By disposing of these chemicals through our normal, internal processes we saved ~\$5,000 in contractor costs.
- Fully completed the transition to a new medical waste disposal contractor out of El Paso, Mediwaste. Total biohazardous waste cost for 2019 was only ~\$1,000, a record low. NMSU saved ~\$2,000 in 2019 funds due to the successful vendor switch. Also shared this info with other NMSU groups (DACC East Mesa, Athletics) to help them save funds too.
- Assisted CEMRC, Carlsbad CC, and Mora Agricultural Science Center with special hazardous waste disposal projects totaling ~\$15,000. These facilities often have unique waste streams that require extra coordination with disposal contractors.

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## 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 in teaching and research at NMSU. The committee currently includes of six faculty and senior technical staff that are subject matter experts on common techniques, use of specific types of radiation-producing devices, or have expertise in radiation safety and regulatory compliance related to the licensing of radioactive materials and devices. Both the Executive Director and the Radiation Safety Officer (RSO) in the EHS&RM department are voting members on the committee. 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:
  - Four x-ray diffraction (XRD) systems
  - One x-ray florescence (XRF) systems

- One analytical device
  - One x-ray cabinet irradiator
  - Three medical x-ray systems used for teaching medical radiography (demonstration and training; phantoms exposures only, live patient exposures are not authorized in the program).
2. **MO 13 0249** –Certificate covers one medical radiography x-ray machine located in the Aggie Wellness Center.
  3. **DO 13 0272** –Certificate covers eleven dental x-ray machines located in the DACC Dental Clinic:
    - Seven intraoral dental x-ray systems
    - One panoramic dental x-ray system
    - Three 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. A current inventory of all licensed radioactive material and registered radiation producing devices in use within the NMSU system is maintained.
3. Radiation Safety Training
  - a. A diverse set of relevant radiation safety training courses has been developed. All training courses meet or exceed the minimum worker training requirements described in pertinent regulations.
4. Compliance Inspections and Program Audits
  - a. Various types of compliance inspections of laboratories and operations authorized to use licensed radioactive materials or radiation-producing devices are periodically performed
  - b. Regulatory mandated area radioactive contamination and dose rate survey measurements in radioactive material laboratories, storage areas and designated radiation areas are performed.
  - c. Regulatory mandated audits and surveys of x-ray machines and other registered radiation

- producing devices are performed.
- d. Radiation safety program audits and reviews required by State and Federal radiation protection regulations are performed annually. Findings are summarized and presented to the university Radiation Safety Committee annually.
5. Sealed Source Leak Testing
    - a. Regulatory-required, leak testing of sealed radioactive sources is performed semi-annually.
  6. Radioactive Material Shipping and Receiving
    - a. All orders of licensed radioactive material are pre-approved by the RSO. EHS&RM staff also receive all incoming packages containing licensed radioactive material. Receiving services include conducting regulatory-required package contamination and dose rate surveys and delivery directly to the ordering laboratory within three hours of initial receipt of the package.
    - b. Packages containing DOT regulated radioactive material or radiation-producing devices must be shipped through EHS&RM certified hazardous material shipping service.
  7. Radioactive and Mixed Waste Disposal Service
    - a. All radioactive and mixed waste (radioactive + RCRA hazardous waste) generated by research activities is collected, processed and disposed through EHS&RM.
  8. Radiation Laboratory and Equipment Decommissioning Services
    - a. Close-out / decommissioning surveys of areas where radioactive material was authorized to be used and clearance surveys of potentially contaminated equipment prior to the equipment being released for transfer, sale or disposal is performed by EHS&RM staff.
  9. Radiation Safety Program Records Management
    - a. All records required to be maintained by State and Federal radiation protection and licensing regulations are maintained within EHS&RM.
  10. University Radiation Safety Committee Administrative Support
    - a. EHS&RM staff attend RSC meetings to take notes and generate meeting minutes.

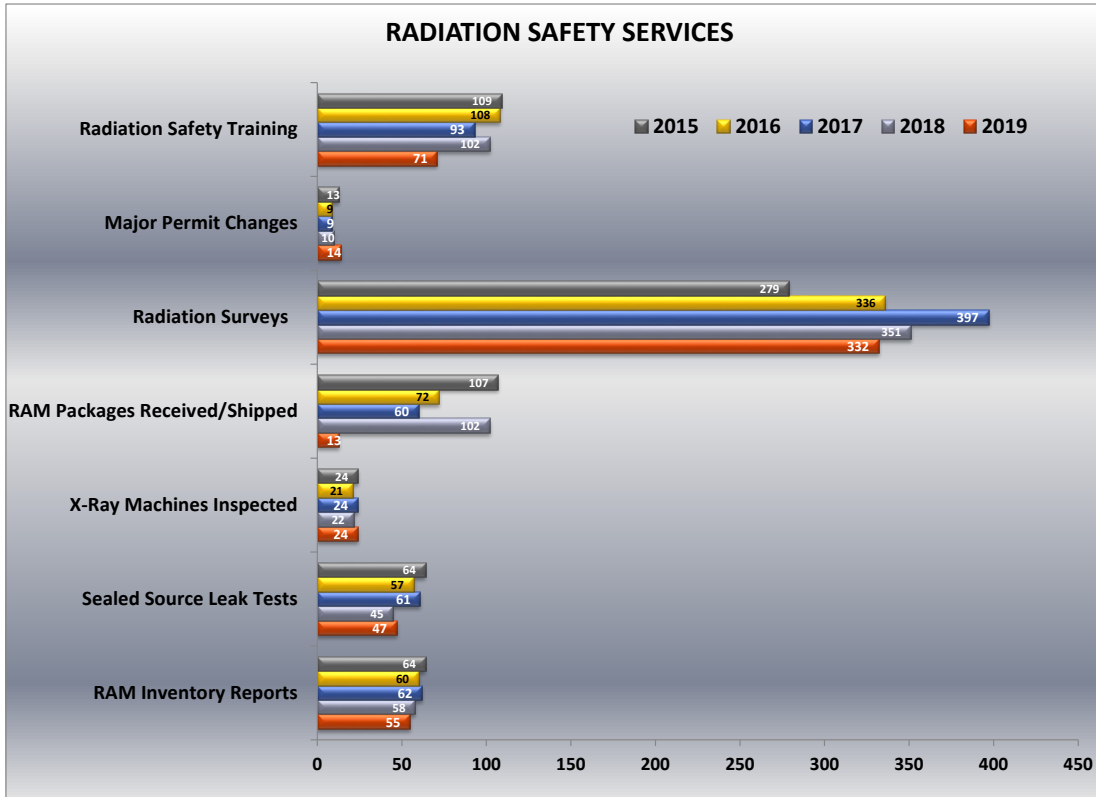
#### 2019 RADIATION SAFETY PROGRAM HIGHLIGHTS

1. No regulatory inspections related to the Radiation Safety Program occurred in 2019. In 2018 there were two unannounced inspections at NMSU facilities by NMED Radiation Control Bureau.
2. No reportable radiological incidents, spills, reportable exposures or other concerns were noted in 2019.
3. There was a slight decrease in the total number of radiation surveys in 2019 (**Figure 41**). This decrease was primarily due to the competition of laboratory renovations at the CEMRC facility. The number of surveys increased in 2018 due to a high number of surveys needed to support ongoing renovation activities over the year.
4. There were several changes to the x-ray safety program including:
  - a. Renewal of two X-Ray Certificates of Registration
  - b. Addition of four new x-ray machines to existing x-ray certificates of registration

- c. Removal of two x-ray machines from NMSU inventory. Both machines were sold through auction and removed from the applicable x-ray certificates of registration.

A summary of primary radiation safety program services performed by EHS&RM personnel are shown in **Figure 41**.

Figure 41: 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

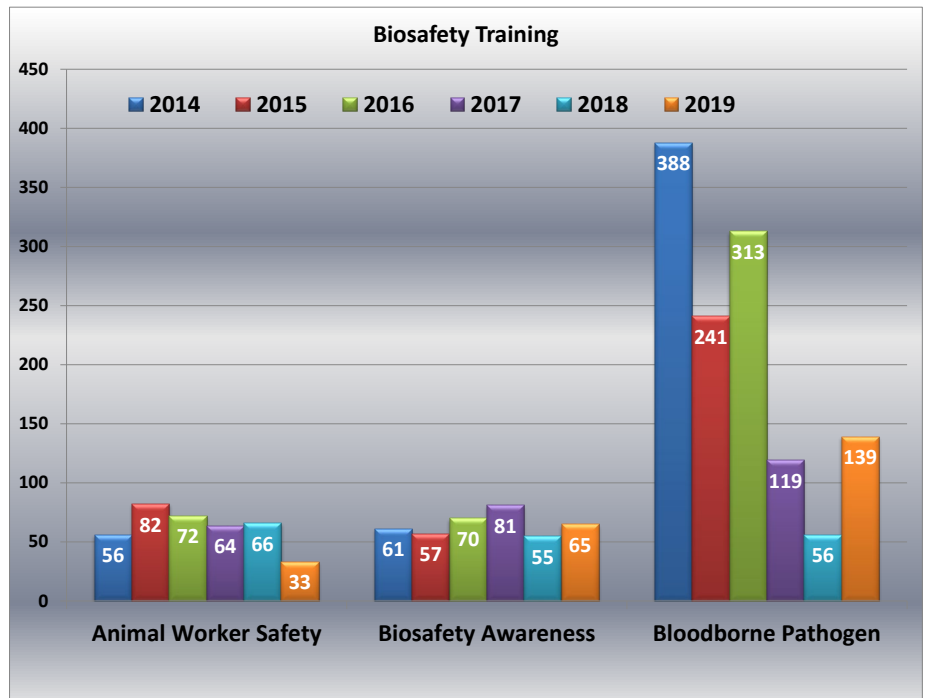


Figure 42: Biosafety Training

support and services:

- 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 42**). This training area needs to be emphasized for compliance improvement.
- 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.
- 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 43**).

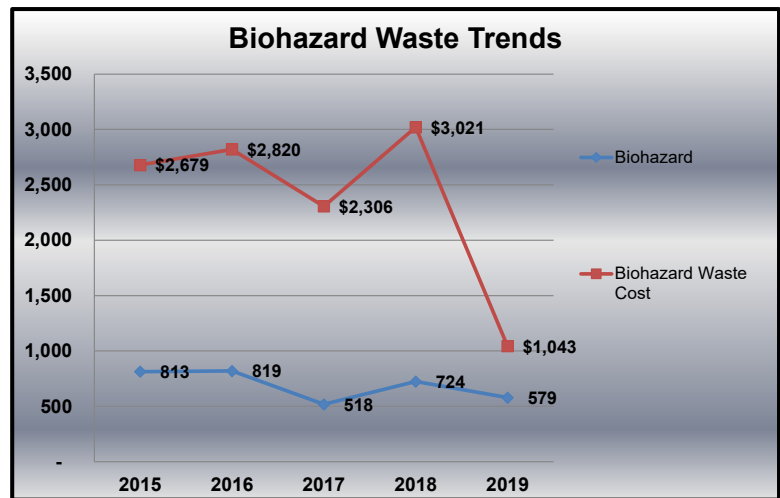


Figure 43: Biohazardous Waste Trends

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## EQUAL OPPORTUNITY STATEMENT

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**THIS COMPLETES THE 2019 AND 2020 ENVIRONMENTAL HEALTH SAFETY &  
RISK MANAGEMENT ANNUAL REPORT**

**THANK YOU**

**BE BOLD. Shape the Future.**

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