NMSU Environmental Health & Safety Annual Report - 2015

NM STATE UNIVERSITY

ENVIRONMENTAL HEALTH & SAFETY

ANNUAL REPORT 2015

INTRODUCTION

Mission

Environmental, Health and Safety supports the NMSU mission by promoting a safe, healthful environment in a proactive and cost effective manner that helps the University community minimize their risk.

EH&S is committed to facilitating University safety, health and environmental protection by providing and coordinating programs and services that support teaching, learning and research activities. Through these EH&S programs and our partnerships with various constituents of the campus and regulatory agencies, we prevent personal injury, recognize and control hazards, minimize risk and loss, and provide leadership in environmental stewardship.

EH&S fulfills its mission by implementing programs and services in nine major areas.

1. Education and Training
2. Research and Laboratory Safety
3. Chemical and Hazardous Waste Management
4. Occupational Safety for Shops, Agriculture and Office Operations
5. Campus Safety
6. Accident, Incident and Exposure Investigations
7. Loss Prevention and Loss Control
8. Emergency Preparedness
9. Environmental Compliance

VISION

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

Our goals are to have a workplace free of injuries and hazardous exposures, to prevent or minimize any adverse impact to the environment, to provide services of the highest quality to the NMSU system and to be recognized as leaders in the areas of environmental protection, health and safety. Responsibility for health, safety and environmental protection will be an integral requirement of all employees and students of New Mexico State University.

Department Values

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

The EH&S 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.

OVERVIEW OF 2015

- NMSU Facilities and Services, Luis Lopez, honored with Friend of Safety Award.
- EH&S scores high in customer satisfaction. Some categories over a 10% increase since 2013.
- EH&S facilitated 6 external regulatory compliance inspections with no penalties.
- EH&S completed over 100 regulatory compliance reports to external agencies.
- Research support continued with expanded services such as detailed protocol reviews and focus on lab decommissioning.
- Safety training was provided face to face to 3865 persons in just over 280 safety classes.
- EH&S now offers online: Employee Safety, Radiation Safety Refresher, Bloodborne Pathogen Refresher and SPCC Awareness.
- In combined departmental efforts, NMSU achieved 97% compliance in delivering General Employee Safety Training online.
- Employee injury and illnesses continued a trend of less injury and illness cases over the recent five year period compared to previous years with a 50% decrease from 2004.
- 90% of supervisors completed the Supervisor Accident Investigation Report with the assistance of EH&S.
- Loss control program includes facility safety inspections in total of 6176 rooms, 428 of which were laboratories. This includes main campus, remote campuses and Ag Science Centers.
- EH&S completed certification inspections on 158 Fume hoods using a student inspector.
- The fume hood certification assignment and tracking were migrated into the NMSU AIMS system. Every fume hood on main campus was assigned a unique ID number and entered in the AIM system as an "asset". Preventative maintenance work orders are generated for the certification.
- There were 201 responses to incidents primarily involving indoor air quality complaints and minor hazardous materials spills/incidents, a 21% increase from 2014.
- Responded to 18 hazmat spill emergency calls.
- Issued validation for 1402 driver's permits, of which 328 were for utility cart use.
- EH&S promoted safe bicycling by providing information to new students, by organizing Spring and Fall Youth Safety Trainings, by staging group safety rides as well as installing bike lanes, share-the-road signs, sharrow road symbols, and new parking racks.
- EH&S has partnered with Walmart to provide prescription safety glasses locally and cost effectively.
- EH&S Personnel attended FEMA – Readiness: Training Identification and Preparedness Planning Class.
- EH&S oversaw 65 abatement projects that generated 286 cubic yards of waste, 30 of which required NESHAP filing with NMED.
- Picked up, processed, and shipped 46,000 pounds of waste in 2015. The team managed 3,119 waste items.
- The cost per pound of waste was 2% less than the previous year.
- EH&S picked up and identified 80 unknown chemicals. Chargebacks resulted in $4,000.
- Applied for and received a NRC RAM license use of a nuclear gauge (soil moisture gauge) at the Bureau of Reclamation Brackish Groundwater National Desalination Research Facility in Alamogordo, NM.
- NRC Audit of above mentioned RAM license. No deficiencies were noted.
- Renewal of 5 X-Ray Certificates of Registration with the NMRCB.
- Unannounced inspection at CEMRC by NMRCB. No deficiencies noted.
- Continued support of Biosafety Program through committee application reviews, monthly training support and disposal of biohazardous wastes.
- First NMED Air Permit Compliance Inspection in three years. NMED asked eight times for more information. In the end NMSU received no formal "Notices of Violation" and no fines.
- Completed closure design for the NMSU landfill. Closure activities to start in 2016.
- The City of Las Cruces performed a formal inspection for wastewater operations. No deficiencies were noted.

NMSU Utility Plant Operator Receives Friend of Safety Award

Writer: Adriana M Chavez

Luis Lopez, the lead plant operator of the Charles Strickland Central Utility Plant at New Mexico State University, was given the university's Friend of Safety award Friday morning.

The gold globe award was given to Lopez during a workforce meeting for Facilities and Services. Drew Kaczmarek, assistant director of the Environmental Health & Safety department, nominated Lopez for the award.

Lopez has been with NMSU for 24 years. He

currently leads the front line operation of three boilers and a turbine to provide both heat and electricity to the main campus. Two of the boilers date back to 1965 which add challenges due to their age, Kaczmarek said.

"As Luis has stated in the past, starting up boilers is literally a 'controlled explosion' which requires keen attention to detail," Kaczmarek said. "He continues to be a pillar of knowledge for the Central Plant, and he leads the training of key staff both below and above in regards to operational safety/environmental compliance and unique historical issues involving NMSU equipment."

Kaczmarek said that in June 2015, Lopez played a key role during a full day, unannounced Environmental Protection Agency Air Compliance Inspection at the Central Plant. Lopez led a full tour and answered multiple equipment questions posed by the inspector.

"In the end, NMSU received no formal Notices of Violation or fines, which is independent validation that Luis is doing a fine job," Kaczmarek said.

Lopez was surprised that he received the award, but said he appreciated the recognition of the work he does at the plant.

"I just come to work and do what I can to make the university a better place," Lopez said while being congratulated by his coworkers.

Lopez is one of only six award recipients since it was established in 2008. The award was inspired by the contributions of Michael Johnson, a chemistry professor, and Mary O'Connell, a Regents Professor in plant and environmental sciences, to improve the safety in science laboratories on campus. Environmental Health & Safety staff nominate deserving NMSU employees for the award before voting for the winner.

Katrina Doolittle, NMSU's executive director of Environmental Health & Safety, said the award acknowledges achievements that make a positive impact on the safety culture on campus.

"It's given to people who have made a long-term impact," Doolittle said. "They have, through their own efforts in their areas, made huge changes. They've gone above and beyond and made this a safer and more protected environment for us all."

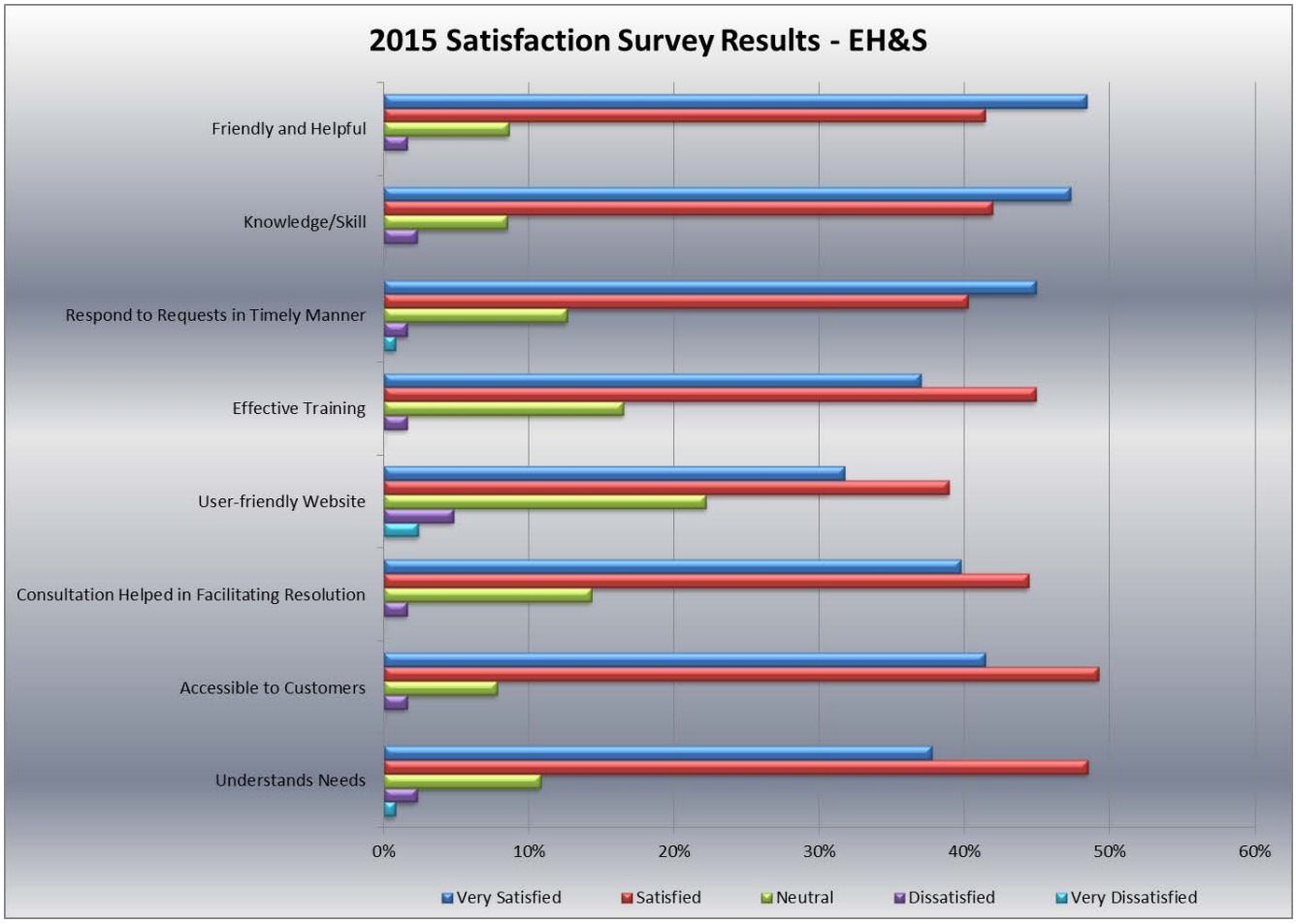
FACILITIES AND SERVICES CUSTOMER SATISFACTION SURVEY

Environmental Health & Safety was reorganized to Facilities and Services (FS) in July 2010 and has participated in FS's customer satisfaction survey each year with positive improvements, in particular for the last 2 years. In 2015 there were approximately 128 respondents to the survey. According to the survey results report, "EHS is a shining example of an FS unit for customer satisfaction." **(Table 1)**

Table 1: Areas of improvement in the categories of Satisfied and Very Satisfied.

Area – Satisfied and Very Satisfied	2013 Result	2014 Result	2015 Result
EH&S team members are friendly and helpful when contacted	84%	86%	90%
EH&S team members are knowledgeable in their areas of specialty	86%	89%	89%
EH&S team members respond to all requests in a timely manner	73%	78%	85%
EH&S team members provide effective training	76%	82%	82%
EH&S website is user friendly and helpful in providing access to information that a user needs	63%	65%	71%
EH&S consultation helped facilitate the resolution of the user's request	74%	78%	84%
EH&S is accessible to its customers	81%	87%	91%
EH&S understands the needs and requirements of the user's department	77%	79%	86%

Figure 1: Customer Satisfaction Survey Results



COMPLIANCE INITIATIVES

The realm of regulatory compliance and span of responsibility for EH&S is growing. These areas are highly visible and frequently audited. EH&S environmental program compliance

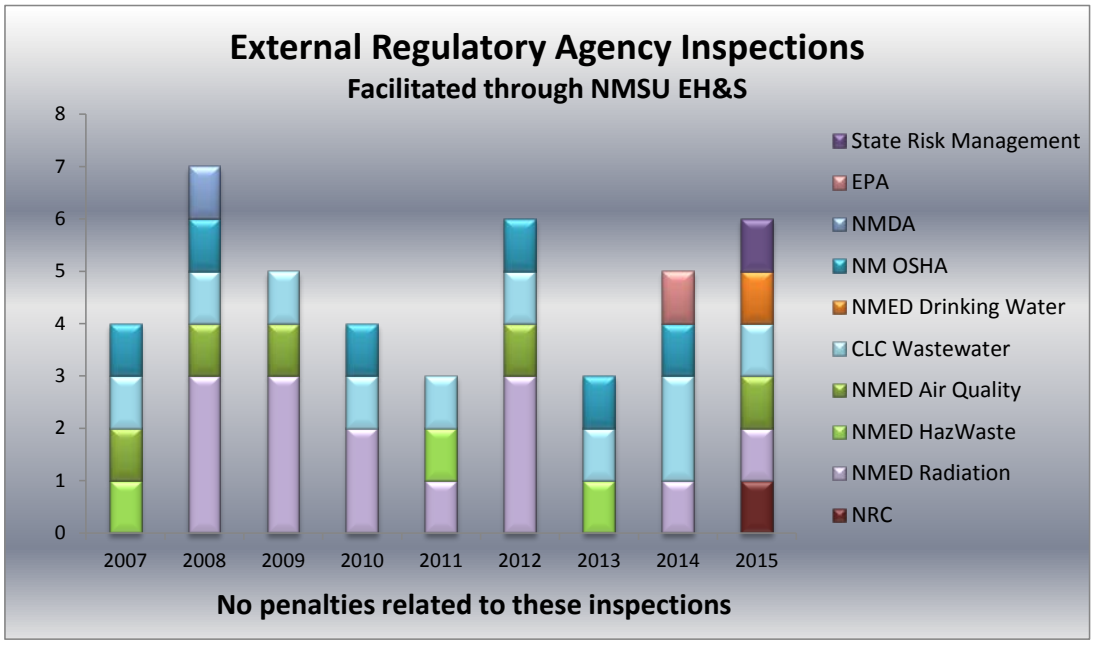


Figure 2: External Regulatory Agency Inspections

responsibilities were recently expanded and now include: Stormwater Management, Drinking Water, Solid Waste, Wastewater and Spill Prevention Controls and Countermeasures.

Every year, EH&S facilitates several regulatory compliance inspections from various State of NM and City of Las Cruces agencies **(Figure 2)**. Inspections by the controlling agencies may have some findings, however, quick and effective resolutions have resulted in no penalties since 1993 for all EH&S operated programs.

In addition to these external inspections EH&S is also responsible for routine compliance reporting to these external agencies. In 2015, EH&S submitted approximately 100 compliance reports (**Table 2).**

Table 2: Compliance Reporting

EH&S Compliance Reporting to External Agencies 2015	
Regulatory Agency	**Reports Submitted**
City of LC	3
NM Dept Homeland Security & EM	1
NM Occupational Health Safety Bureau	13
NM Worker's Comp Administration	1
NM Risk Management Division	5
NMED Air Quality Bureau	35
NMED Drinking Water Bureau	17
NMED HW Bureau	1
NMED Radiation Protection Bureau	10
NMED Solid Waste Bureau	7
NMED Surface Water Bureau	1
RM LL RadWaste Board	2
US Environmental Protection Agency	2
US Nuclear Regulatory Commission	2
Total Reports Submitted	**100**

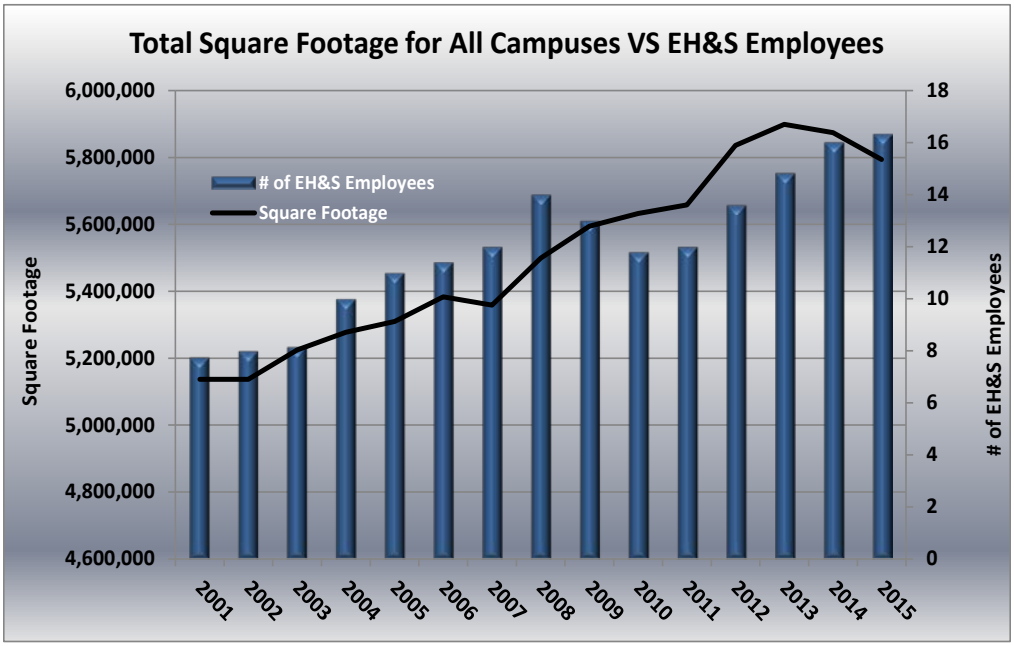
RESEARCH SUPPORT

In order to facilitate safe and legally compliant teaching and research, the EH&S 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 EH&S implications: the Radiation Safety Committee, the Institutional Biosafety Committee, and the Animal Care and Use Committee. These committees fulfill specific federal

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

UNIVERSITY GROWTH AND EH&S SUPPORT

Based on a benchmarking tool created by another university safety professional, it is possible to achieve a reasonable estimation of the number of EH&S FTEs 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 EH&S Staffing.



This benchmarking tool indicates NMSU is estimated to have 23 FTE EH&S employees based on the factors mentioned. **Figure 3** shows the current relationship.

Maintaining safety staff for basic services and university compliance is a primary goal and focus of EH&S and Facilities and Services.

CENTRALIZED SAFETY TRAINING

EH&S offers safety training classes designed to meet the employee training requirements of specific state and federal regulations to minimize risk and injury. We deliver applicable safety training to NMSU facilities state-wide and have developed strong partnerships with academic, research and operations departments through our safety training program.

Figure 4: Employee Safety Training 2015-2014

The EH&S Team delivered training to 4020 people in 2015 **(Figure 4 & Table 3).** Of these 4020 people, 3865 of them were training through approximately 280 instructor-led training classes. The remaining 155 employees were trained via online training. EH&S now offers the following online courses: Annual Radiation Safety Refresher, Annual Bloodborne Pathogen Refresher and SPCC Awareness (Spill Prevention Controls and Countermeasures).

Table 3: Safety Training Given in 2014 and 2015

Course	# Trained
Aerial Lift Safety	24
Analytical X-Ray Safety	39
Animal Worker Safety	82
Asbestos Awareness	131
Basic Laser Safety	3
Basic Radiation Safety	42
Biosafety Awareness	57
Bloodborne Pathogen	241
Campus Safety Orientation	0
Confined Space	0
Defensive Driving	484
Emergency Preparedness	51
Employee Safety - Instructor Led	556
Fork Lift Safety	71
Hazard Communication	415
Hazardous Waste Management	95
Job Hazard Analysis	0
Laboratory Safety Refresher (With Hazardous Waste Recap)	414
Laboratory Standard	261
Ladder Safety	18
Lifting Safety and Ergonomics	140
Lockout Tagout	138
Nuclear Gauge Safety And Transportation	12
Respirator Safety and Refit	82
Scaffold and Fall Protection	2
Special Training Classes - Seminar	159
Tractor and Equipment Safety	0
Worker Protection Standard (WPS)	11
Workplace Safety Awareness	492
Total	**4020**

In addition to these online courses and with combined university departmental efforts, General Employee Safety is also now online. As required by the State of NM Loss Prevention and Loss Control Regulations, employees must pass a series of applicable compliance training that include General Employee Safety. In 2015, The University achieved a 97% compliance rate in the delivery of online General Employee Safety. (8555 employees) (**Figure 4)**.

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

Highlights of these special classes given in 2015 are:

- Annual Refresher of Laboratory Safety for 414 faculty, staff and students working in a lab environment.
- 4 hour - Annual Refresher of Workforce Safety Training for ~150 Facilities employees.
- Annual Float Safety Training for staff participating in Homecoming parade and float inspections.

Laboratory Safety Refresher at Gerald Thomas Hall

EH&S has transitioned management of employee safety training records and EH&S safety class registration functions from an internal system over to NMSU Training Central enterprise. Employees may now check their training history, view courses and register for EH&S safety classes using this system.

EMPLOYEE INJURY & ILLNESS

The annual summary of employee injuries and illnesses is posted on the NMSU safety website. This log lists summary information on cases and lost work days or days with restricted work because of a reportable injury or illness by NMSU employees in 2015. **Figure 5** shows a continued trend of less injury and illness cases over the recent five year period compared to previous years.

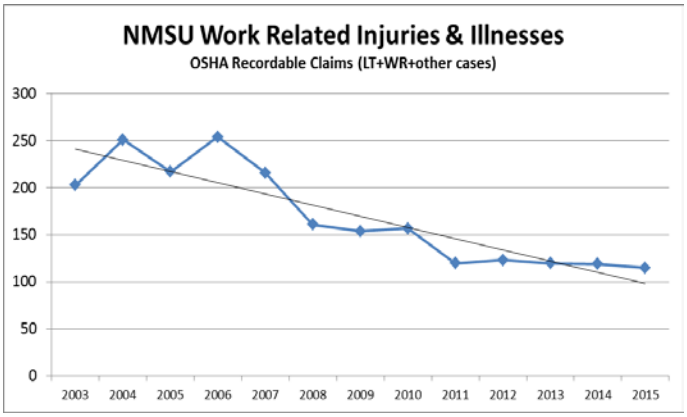


Figure 5: OSHA Recordable Claims

LOSS PREVENTION

Employees are reminded to report work-related injuries and illness to their supervisor. In 2015, 90% of supervisors completed a Supervisor Accident Investigation Report and determined cause of the incident and what mitigation steps should be taken. EH&S reviews each report of injury or illness and provides recommendations to supervisor.

The bar charts below compare cases with lost time and the number of days away from work.

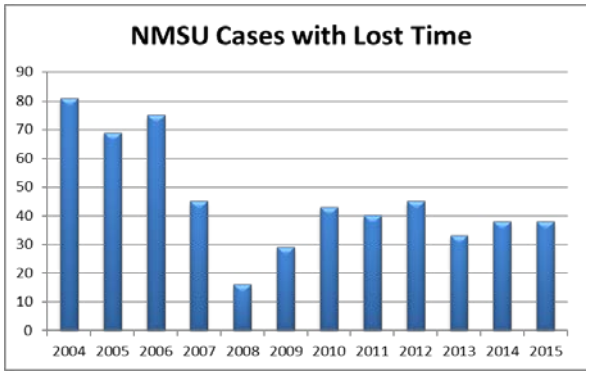


Figure 6: Cases with Lost Time

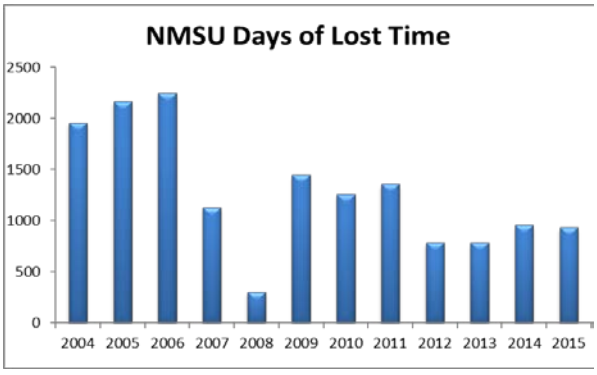


Figure 7: Days of Lost Time

The bar charts below compare cases with work restriction and the number of days at work with restricted duty.

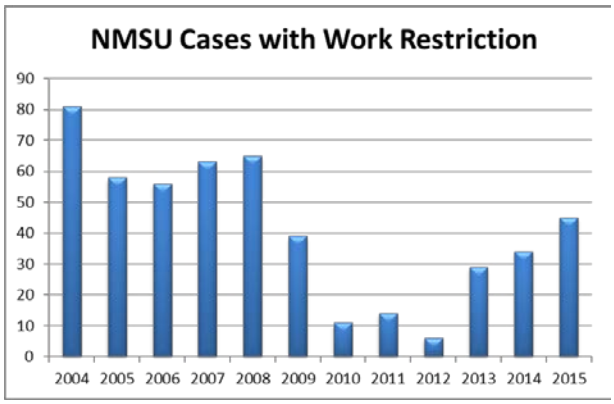


Figure 8: Cases with Work Restriction

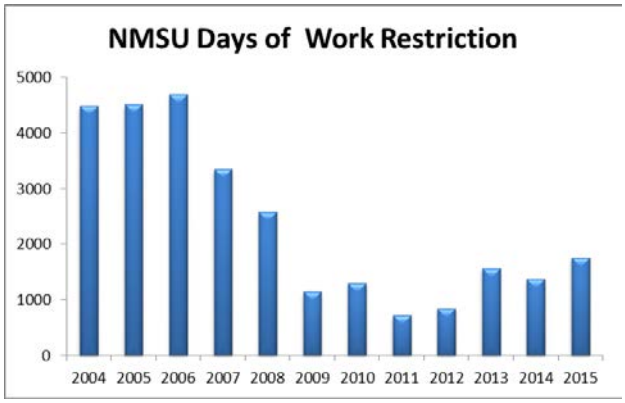


Figure 9: Days of Work Restriction

The total cases and total days with lost time and work restriction have clearly decreased over time.

The worker compensation insurance premiums are based on five years of experience and a decrease in premium is evident (**Figure 10**) and a reflection of the history (experience) of reduced injury rates. The reduction in workers compensation claims has had less significant positive financial impact in the last two years because the State increased the base premium for all starting FY 2015.

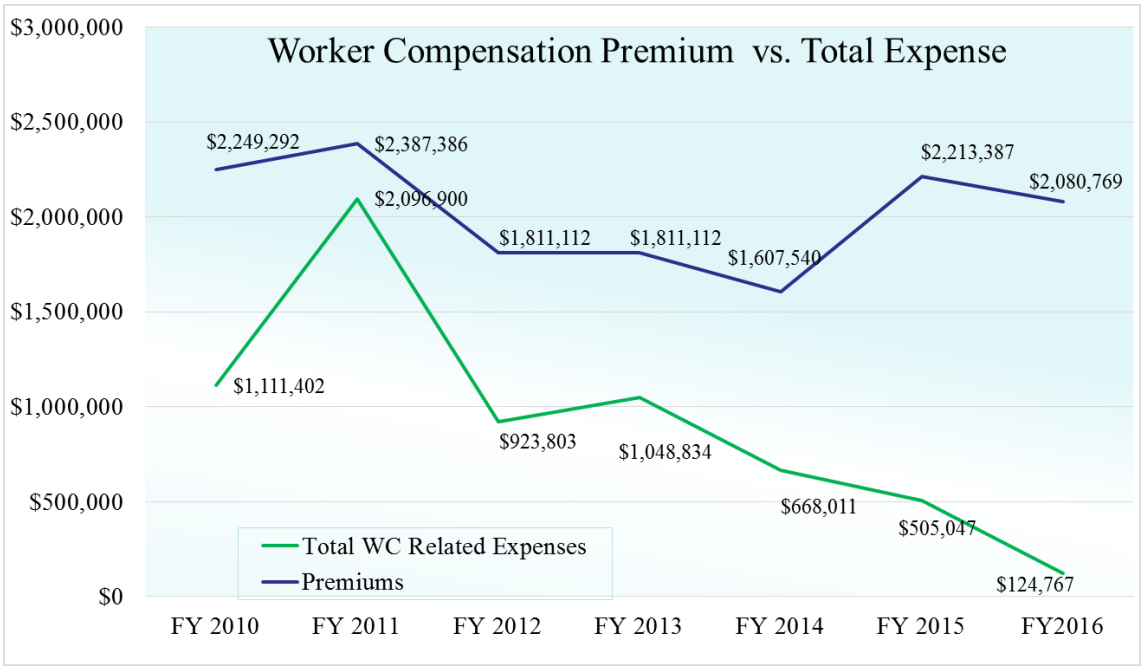


Figure 10. Work Related Injuries and Illnesses – OSHA Recordable Claims

The number of serious injuries with high cost has diminished.

Worker Compensation Losses			
Fiscal Year	# Claims	# Claims > $100,000	Type of injury
2010	213	2	1 Fracture, 1 Strain Averaging in excess of $283,000
2011	194	6	3 Contusions, 1 Fracture, 2 Strains Averaging in excess of $208,000
2012	189	3	3 Strains Averaging in excess of $138,500
2013	176	2	1 Contusion, 1 Strain Averaging in excess of $150,168
2014	171	0	
2015	159	0	
2016	77	0	

Table 4. Work Related Injuries –Cases with Accumulated Loss over $100,000

LOSS PREVENTION AND LOSS CONTROL PROGRAM OVERVIEW

To minimize and reduce personnel losses from work related injury and illness, EH&S provides NMSU with an aggressive, 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 EH&S services focus on proactive inspection of hazardous work areas and ensuring safety equipment is functioning properly.

Building Inspection

EH&S also follows up with the responsible parties to ensure a corrective action plan is in place to address any deficiencies that may have been found during inspection.

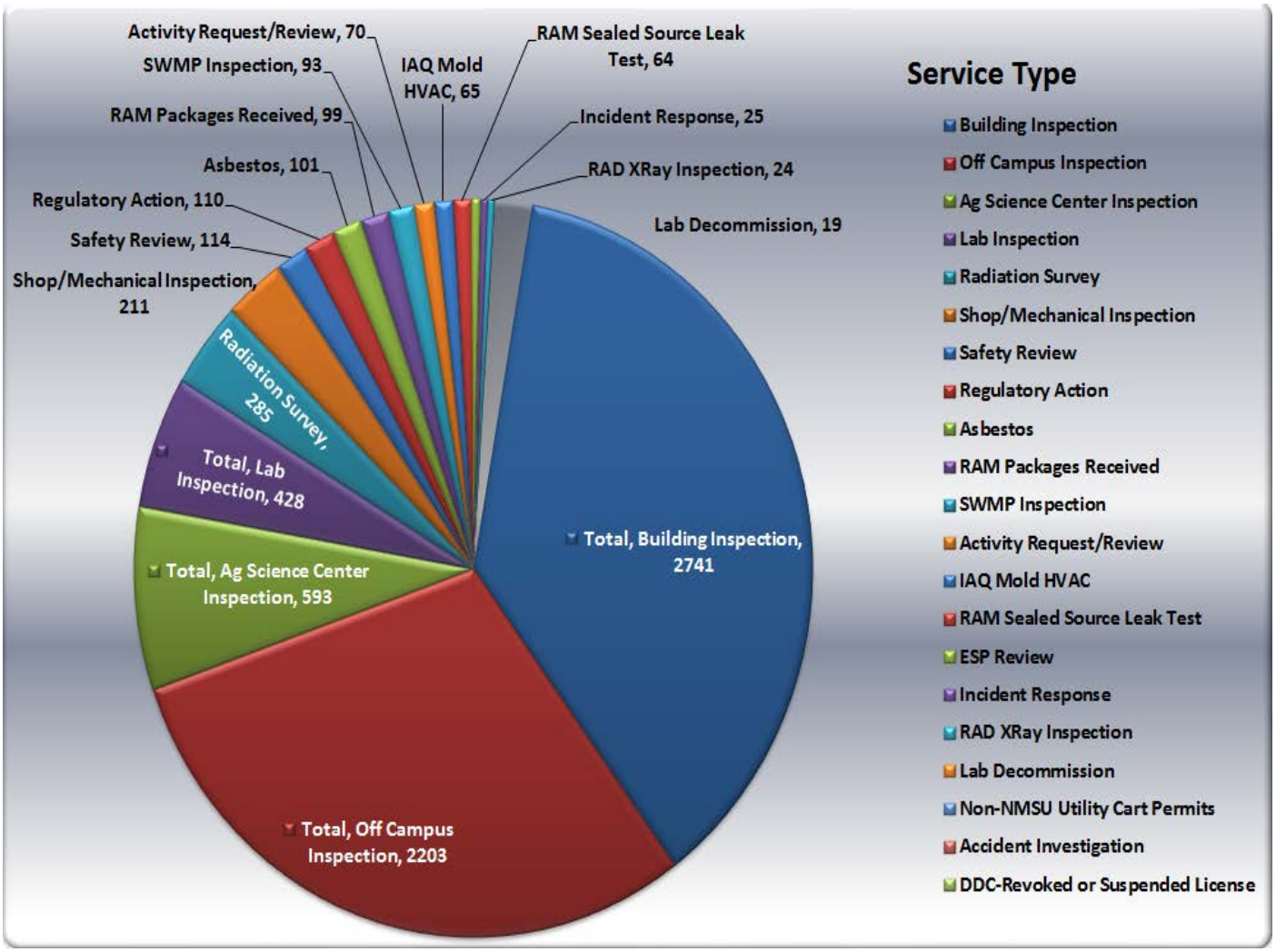


Figure 11, shown above, demonstrates the services provided by the EH&S team throughout 2015.

Figure 11: EH&S Services Performed in 2015

GENERAL SAFETY INSPECTIONS

LABORATORY AND BUILDING INSPECTIONS

In 2015, EH&S completed laboratory and building inspections throughout the state including the Las Cruces campus, community colleges, agricultural science centers and other affiliated NMSU facilities. EH&S generated detailed inspection reports for each location which identified safety concerns and corrective actions. In 2015 EH&S submitted ~490work orders worth an estimated $113,000 of Building Repair & Renewal (BRR) funding, to correct facility safety deficiencies and improve safety equipment on main campus.

High hazard areas including laboratories, shops, chemical / hazardous material storage areas, and mechanical rooms are inspected annually by the EH&S team. These safety inspections are required by a variety of local, federal and state regulatory agencies including the State of New Mexico Loss Prevention and Control Bureau. The method used to track inspections has evolved over the years as reflected in Figure 12. In 2015, a total of 6176 rooms in NMSU facilities statewide were inspected.

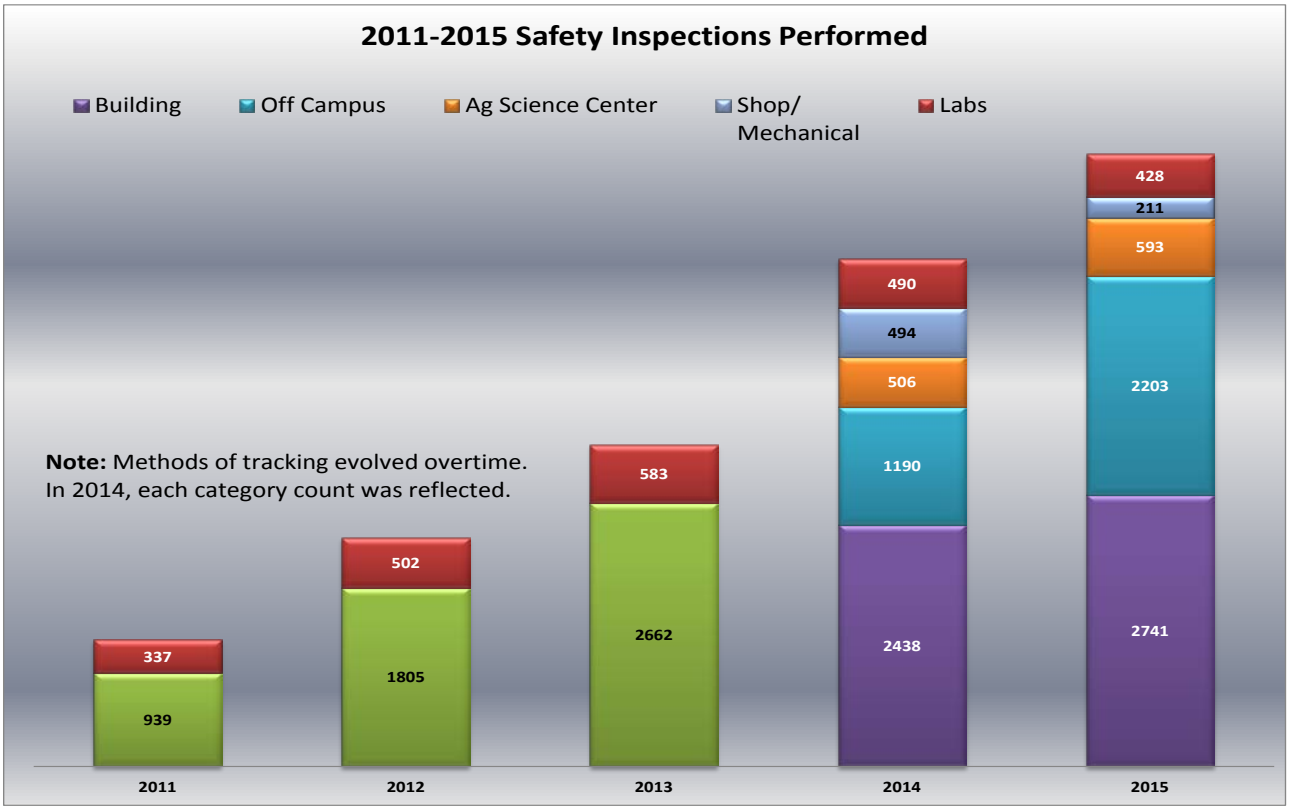


Figure 12: Safety Inspections

There was a slight reduction (13%) in the number of inspections categorized as “laboratory” inspections from last year. This drop was primarily due to two reasons:

1. A major renovation of Jett Hall was initiated in 2015. There are several laboratory and shop areas in this building that were not inspected this year because of the renovation. Jett Hall researchers have been temporarily relocated to several other existing laboratories and shops in other building and departments.
2. Inspections at some remote facilities this year were performed as an overall facility inspection and not a separate lab or shop inspection. Even though lab / shop areas were inspected, the inspection was not counted under the lab / shop inspection categories.

CHEMICAL FUME HOOD INSPECTION PROGRAM

Chemical fume hoods are a common yet critical safety engineering control in many laboratories at NMSU. EH&S 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

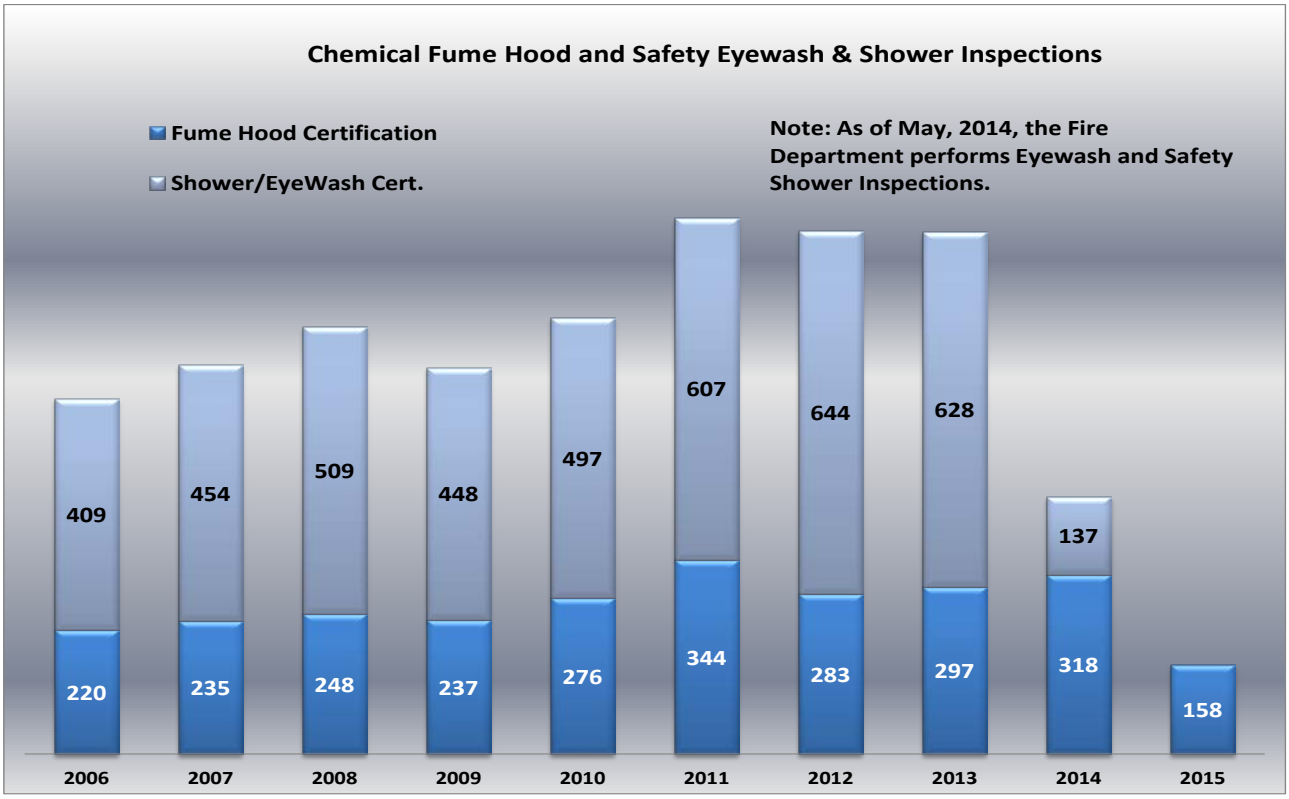


Figure 13: Equipment Inspections

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 WO submitted to Facilities and Services. The certification process is completed after the hood is repaired. In 2015, over 150 fume hoods were certified (**Figure 13**). A student inspector is used to perform most hood certifications. This allowed time for higher level EH&S staff to perform other critical functions.

Fume hood Inspection

In 2015, the fume hood certification assignment and tracking were migrated into the NMSU AIMS system. Every fume hood on main campus was assigned a unique ID number and entered in the AIM system as an "asset". Preventative maintenance work orders are generated for the certification and closed as each hood is certified. The hood certification data is entered into the AIMS system by the EH&S inspector, approved by the supervisors and ultimately stored in the AIMS system.

Until May 2014, EH&S was responsible for performing annual inspection / certification of area safety showers and eyewashes across main campus. Since then, the NMSU Fire Department has been responsible for doing these checks.

SAFETY SERVICES

In addition to general safety inspections EH&S also provides many other services to minimize loss and risk. Some of these additional services are described in the following paragraphs.

INCIDENT RESPONSE AND SAFETY EVALUATIONS

There were 201 responses to calls and concerns by our stakeholders, primarily involving indoor air quality concerns and concerns of asbestos, this was a 21% increase compared to last year (**Figure 14**).

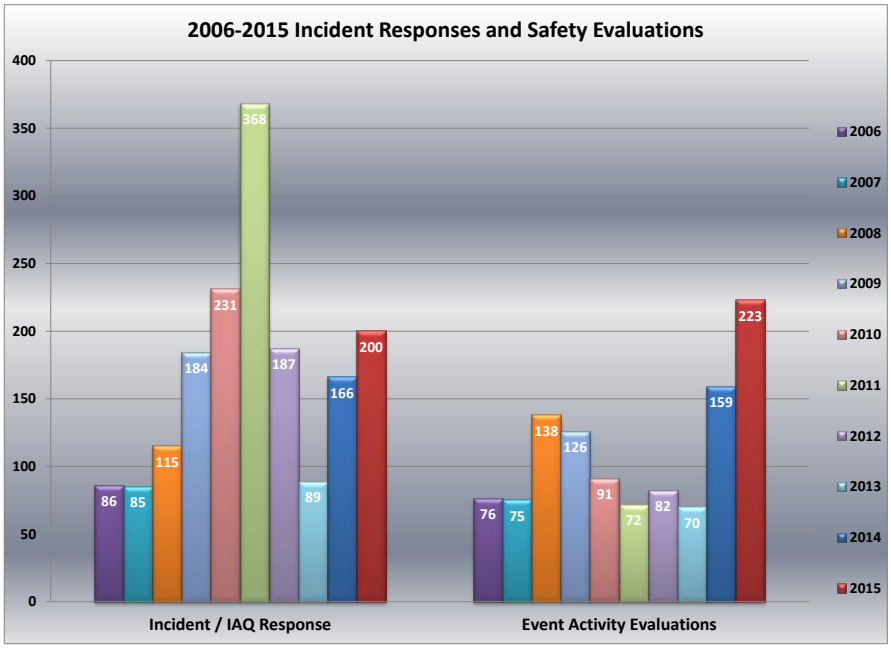


Figure 14: Incident Responses and Safety Evaluations

EH&S 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 2015, EH&S performed 223 safety evaluations (**Figure14**).

VEHICLE AND UTILITY CART SAFETY

As part of the NMSU Driving Policy 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. EH&S provides the defensive driving course as well as completes driver history checks to ensure validity of their driver's license. EH&S performs this license validation for every new driver and for three year permit renewals. This year there were 484 people that attended the Defensive Driving Course and a total of 1402 driver's licenses were validated and permits issued (**Figure 15**).

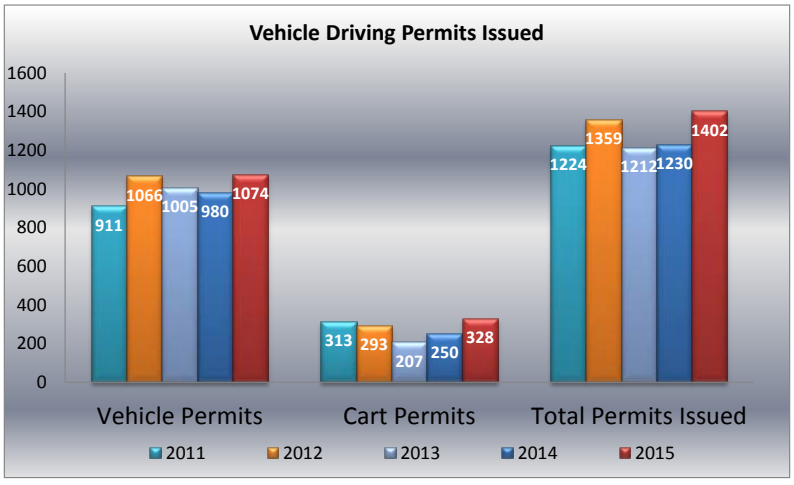


Figure 15: Driving Permits Issued

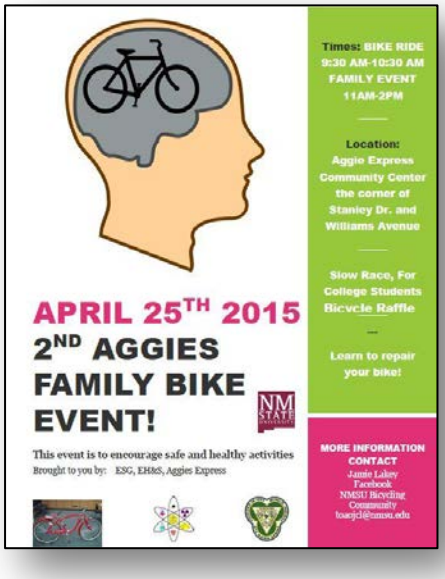
Out of the 1402 permits issued, 328 of them were for utility cart permits (**Figure 15**). The utility cart permit does not require the defensive driving course, but does require a license validation.

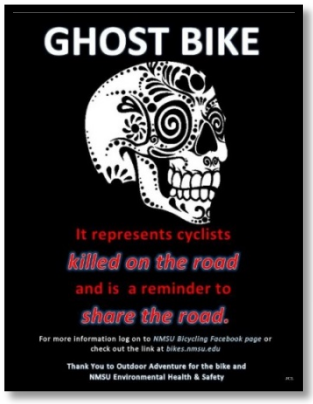
BICYCLE SAFETY

NMSU follows the Essential Elements of a Bicycle Friendly America; Encouragement, Education, Enforcement, Engineering and Evaluation. These "Five E's or Essential Elements are what makes NMSU a great place for bicycling. EH&S strives to promote and provide a more bicycle-friendly campus for students, staff and visitors. In 2015 EH&S added bicycle lanes on Arrowhead Drive, as well as Share the Road signs and 'Sharrows' on Williams Ave and Locust Streets, and installed new bicycle racks at Domenici Hall and Frenger Food Court. We ran an online bike survey, responded to requests via the NMSU Bike Community on Facebook, and are also currently involved with the BFU Taskforce in developing a Bike Share Program for the campus community and health research.

EH&S hosted several bike safety events this year including:

- Organized a New Year Safety Ride showing safe bicycling,
- Set up a Ghost Bike Memorial for cyclists killed/injured,
- Spring & Fall Bike Training for Aggie Youth/Families,
- A group bicycle ride in NMSU Homecoming Parade,
- Three group campus bike safety rides.





SAFETY EYEWEAR

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

Midway through 2015, EH&S partnered with Walmart locally to

Figure 16: Safety Eyewear Purchased

provide prescription safety glasses. This transition provides a better service to our employees, allows them to use their vision insurance (if applicable) and is more cost effective for NMSU. EH&S coordinated with departments and facilitated 85 requests for safety eyewear consisting of 30 pairs of prescription and 55 non-prescription safety eyewear (**Figure 16**). There were also 261 pairs of safety eye protection distributed to new lab personnel taking the Laboratory Standard class.

SAFETY INITIATIVES AND EMERGENCY PREPAREDNESS

Since the events of 9/11, Environmental Health & Safety 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 emergency preparedness events this year include:

- Distribution of NMSU Safety, Health & Security initiatives and annual refreshers.
- Update and distribution of All Hazards Emergency Operations Plan appendix.
- Testing of department Emergency Action Plans through unannounced fire drills.
- Testing of the Emergency Notification tools and updating emergency contact lists.
- Chairing University Safety Committee and Communicable Disease Preparedness Committee.
- Conducing Continuity of Operations Plan reviews.
- Establish process for CoOP and designation of essential personnel.
- Monthly collaboration with key NMSU staff on Emergency Planning Committee.
- Participated in new faculty orientation fair.
- Assisted in Central Administration presentation and tabletop scenarios related to emergency preparedness.
- NMSU EH&S Personnel along with NMDA Personnel attended the FEMA – Readiness: Training and Identification and Preparedness Planning Class

Facility Maintenance Crew Annual Refresher included Hands only CPR for about 150 employees

SPECIALTY PROGRAM MANAGEMENT

EH&S 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. Hazardous Waste Program
3. Radiation Safety Program
4. Biosafety Program
5. Environmental Compliance Program

Each of these programs is discussed in detail in the remaining sections of this report.

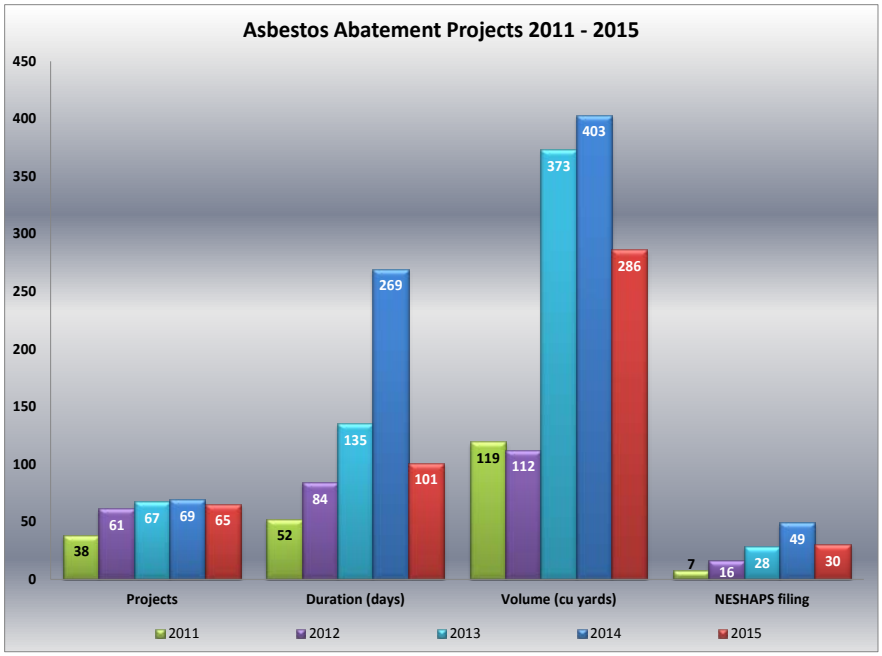
ASBESTOS ABATEMENT PROGRAM

In 2015, EH&S continued to provide NMSU departments with timely professional response and management of NMSU asbestos as well as mold and material containing lead. EH&S established a 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 EH&S project oversight and funded by the BR&R account.

Asbestos Abatement

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

During the year EH&S completed 65 abatement projects that generated 286 cubic yards of waste. Of these, 30 projects were of larger size and or type that required permitting through NESHAP permits from NMED (**Figure 17).** In addition, EH&S supported the campus on 165 reviews and incidents on asbestos and mold related issues.



During 2015 EH&S was able to increase our knowledge of the asbestos-containing materials on campus by completing Master Asbestos Surveys on Hadley Hall, Breland Hall, and Jett Hall. EH&S helped direct Projects Development & Engineering with arranging the abatement of Jett Hall for 2016.

With the support of the Purchasing Department via an RFP, EH&S established a beneficial pricing agreement in cost per unit for various abatement operations with six asbestos abatement contractors.

HAZARDOUS WASTE PROGRAM

The EH&S environmental compliance team picked up, researched, processed, and shipped 46,000 pounds of hazardous waste in 2015 compared to 55,000 pounds averaged over the previous five years (**Figure 18**). A trend of decreasing hazardous waste poundage is evident. A significant reason why the poundage of hazardous waste has decreased is because large weight items like old oil filled transformers and industrial labs with higher volume work have been removed from campus.

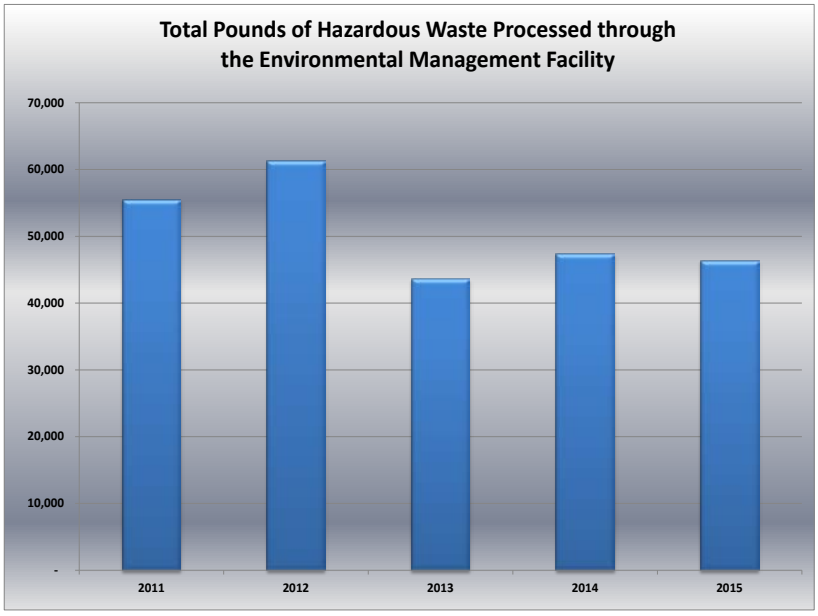


Figure 18: Total Pounds of Hazardous Waste Processed through the EMF

The team managed 3,119 different chemical items compared to 2,844 items averaged over the previous five years (**Figure 19**). Items of hazardous waste increased this year because lab inspections are focusing on chemical inventory tracking. This focus has resulted in labs disposing of additional expired or excess stock chemicals. Stock chemicals still require significant amounts of time to pick up, research, process and ship. Simply stated, an increase in items handled results in increase in staff time spent managing each container. It is approximately ten times cheaper and easier to dispose of a 1,000 pound oil filled transformer, then one pound of old diethyl ether which is potentially explosive. Most large, lower hazard, old chemical containers on campus have already been disposed. Smaller, higher hazard, lab stock chemical containers have not, and present new cost and labor challenges.

Figure 19: Total Items of Hazardous Waste Handled

Most of the non-routine waste workload resulted from large stock chemical clean outs (greater than 50 chemical items at one time) from 18 different departments/labs: ANRS (2), Chemistry (3), WERC (2), ME (2), Chemical Engineering, ECE, USDA, PES, EPPWS, FS Grounds, Activity Center, Print Shop, and Curriculum/Instruction. Overall, all hazardous waste items were disposed of legally and without any incident.

Hazardous Waste Team Mixing and Bulking Chemicals

Physically opening chemicals and pouring/mixing compatible chemicals into 55-gallon drums keeps the cost per pound for disposal low. Mixing chemicals is risky however, and requires keen attention to detail. In cumulative, the 5.0 FTE team spent 39 hours in restrictive, encapsulating protective suits and respirators while mixing chemicals on 20 different days. Overall, no adverse reactions occurred during mixing activities.

WASTE VOLUME AND COST TRENDS

Overall, NMSU's 46,000 pounds of routine hazardous waste was disposed of at a total cost of $93,000. The good news is that there was a slight decrease in the cost per pound for routine hazardous waste disposal in 2015. The cost per pound in 2014 was $2.06 versus $2.01 in 2015 (~2% less). The cost savings would have been more but our key waste contractors increased their prices ~5% overall in 2015. The team continues to coordinate with nine different environmental services contractors for continued cost savings: Clean Harbors, Veolia, Stericycle, USA Can Recycling Warehouse, Fuels, PSC, ACT, NEMS, 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 however leads to additional complexities with manifests, transportation, and billing.

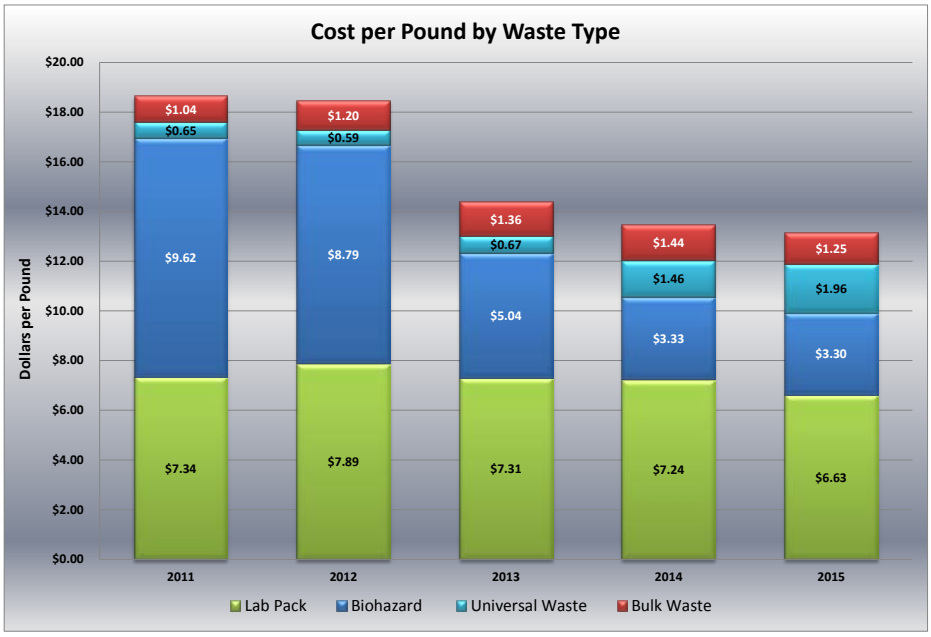


Figure 20: Cost per Pound by Waste Type

Another contribution to controlling disposal cost is that EH&S bulks or co-mingles compatible hazardous waste. It is important to note that the largest waste stream by pound "bulk hazardous waste" is also the lowest cost per pound (**Figure 21**). The average cost per pound of hazardous chemical waste varies by 5 fold with bulk waste being the lowest and lab pack waste being the highest (**Figure 20**).

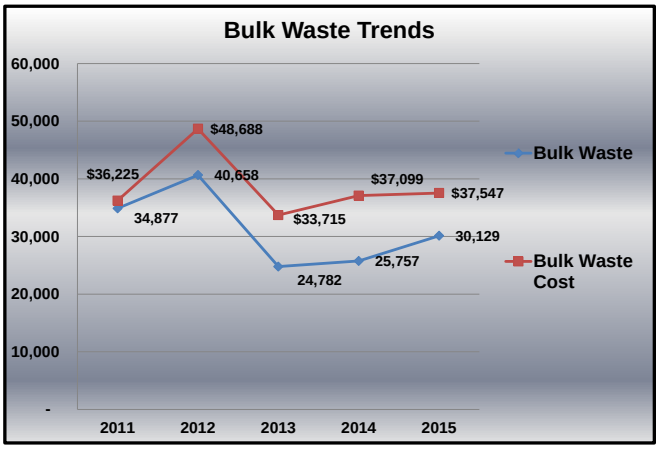


Figure 21: Bulk Waste Trends

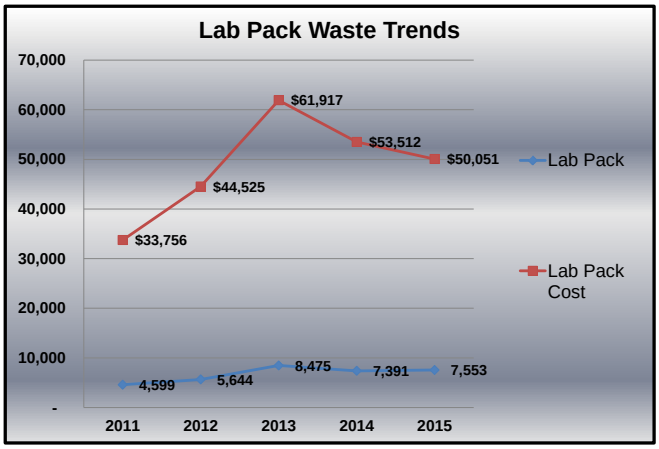


Figure 22: Lab Pack Waste Trends

EH&S contains the waste cost by researching and combining similar waste types so that 80% of the chemical waste can be shipped in bulk containers for disposal. The cost of bulk waste this year was $1.25 per pound compared to $6.63 per pound for lab pack waste (**Figure 20**) which is shipped off without additional handling. ***The savings in 2015 were $162,108 in avoided disposal fees that are due to bulking 80% 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 EH&S cannot control the types or volume of wastes being generated, we do strive to recycle as much as legally possible (**Figure 23**). Special contracts are established for the routine Universal Waste streams including batteries, mercury containing bulbs, and ballasts. We also recycle used oil whenever possible. Also of particular note is that there were seven separate times EH&S was able to (overall) re-distribute ~800 pounds of useable chemicals to other campus departments, or return to manufactures, resulting in a savings of ~$5,000. These graphs do not include contractor recycled waste during the major lighting replacement which was completed in the performance contract with Ameresco. EH&S environmental compliance team will continue to dedicate additional effort to seek out alternate disposal solutions in a commitment to sustainability at NMSU.

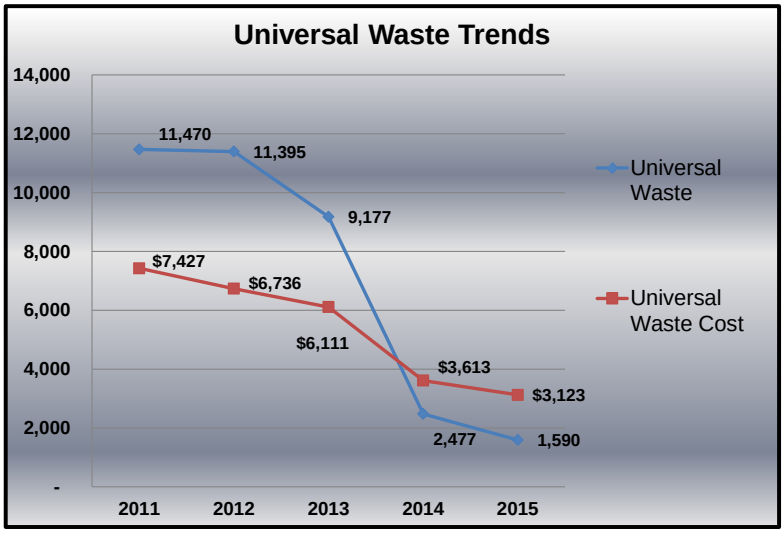


Figure 23. Universal Waste Trends

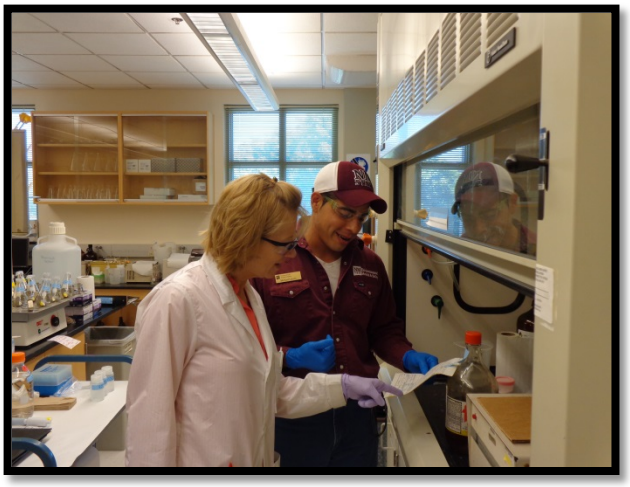
HAZARDOUS WASTE REPORTS & INSPECTIONS

Hazardous waste reports, inspections and standard operating procedures (SOPs) are essential components of a successful waste management program. Federal and State mandated reports completed and filed accurately and on time were: Tier II Chemical Inventory, Hazardous Waste Fees, and PCB Log. There were no external regulatory inspections in 2015. The team completed the first internal Chemical Bulking (Mixing) Master Check Sheets. Mixing chemicals into 55-gallon drums in Level B PPE is one of the most hazardous duties on campus. Completing pre, active and post-bulking check sheets keeps personnel focused on safety and compliance.

HAZARDOUS WASTE SPECIAL PROJECTS

In 2015 there were a number of large, special projects managed by the EH&S team:

- Chemical/Mechanical Engineering Clean Out due to renovations. Special Direct Labpack Shipment cost $11,000.
- 18 Hazardous Material Incident Responses, a number of them serious…from a mercury spill on a Saturday night to an abandoned pipe with explosive materials inside.
- 80 Unknown chemicals were picked up on campus and identified internally. Charge backs resulted in $4,000 recovered to EH&S budget.
- Two special landfill disposal projects resulted in ~1,000 pounds of silica containers and resin rolls being disposed of as non-hazardous waste saving ~$2,500.



RADIATION SAFETY PROGRAM

Most radioactive materials and devices that produce ionizing radiation used in research and teaching at NMSU are regulated through licenses or registration certificates issued to the university by the New Mexico Environment Department Radiation Control Bureau (NMRCB) as required by the State of New Mexico radiation protection regulations (NMAC 20.3). The university administration established the University Radiation Safety Committee (URSC) to develop and maintain a university-wide radiation safety program and provide oversight of the use of licensed materials and devices at NMSU. The EH&S Radiation Safety Manager (RSO) and technical staff are responsible for providing the day-to-day administrative and technical functions required to effectively manage the NMSU Radiation Safety program. The specific responsibilities of the URSC and RSO are described in detail in the NMSU Radiation Safety Manual.

NMSU RADIOACTIVE MATERIAL LICENSES

The university currently holds 3 separate radioactive material (RAM) licenses issued by government agencies. Two of the RAM licenses have been issued to NMSU by the NMRCB and 1 license is issued by the U.S. Nuclear Regulatory Commission (NRC).

1) **NMSU RAM License** (NMRCB License # AB151-44) – is a Type AB Broad-Scope license which authorizes the use of licensed RAM and sealed radioactive sources on main campus (Las Cruces) and at several remote NMSU facilities.

2) **CEMRC RAM License** (NMRCB License # AN317-14) – is a facility-specific license which authorizes the use of licensed RAM at the Carlsbad Environmental Monitoring & Research Center (CEMRC) located in Carlsbad, NM. The CEMRC is a university-owned research facility which contains several radiochemistry laboratories and an *in-vivo* radiobioassy laboratory (lung and whole body counter).

3) **NRC RAM License** (NRC License #30-35283-01) – is a facility-specific license which authorized NMSU researchers to use a specific 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 NRC has exclusive jurisdiction over the use of radioactive materials or devices at most federal facilities not under the jurisdiction of the U.S. Department of Energy (DOE) or U.S. Department of Defense (DOD).

Each license defines the type of use, specific radioisotopes, quantity, and general conditions or limitations for use at authorized locations listed on the license.

NMSU X-Ray Device Certificates of Registration

The University holds five x-ray device Certificates of Registration (COR) issued by the NMRCB which cover the 21 x-ray devices currently in use at NMSU.

1) **Analytical X-Ray COR** – this COR covers the 11 analytical x-ray devices used for teaching and research across the university. Examples of the types of devices covered under this COR include x-ray diffraction (XRD), x-ray florescence (XRF) and x-ray irradiators.

2) **NMSU Health Center COR** - covers a medical radiography x-ray machine located in the NMSU Health Center.
3) **DACC Dental Clinic COR** – covers 7 dental x-ray machines (6 intraoral and 1 panoramic x-ray) located in the DACC Dental Clinic.

4) **Kinesiology & Dance COR** – Covers 1 dual-energy x-ray absorptiometry (DXA) system used by researchers in the department.

5) **CEMRC COR** – covers a XRD system located in the CEMRC facility in Carlsbad, NM.

The CORs also identify the location where device(s) can be used as well as a list of conditions or limitations for using the device(s).

EH&S Radiation Safety Services

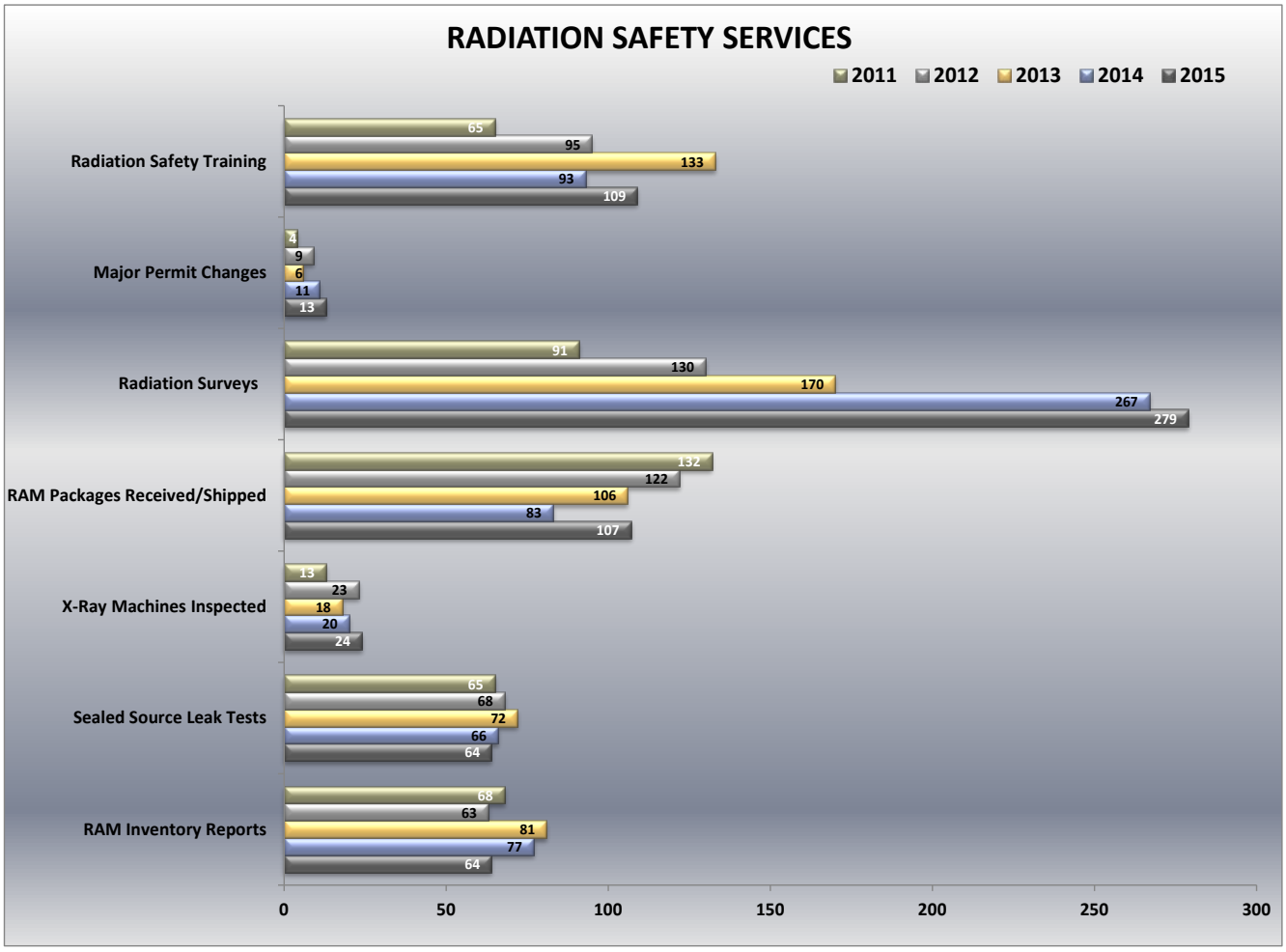
EH&S supports the mission of the URSC and provides several critical services to the university and authorized users including:

1) Records management for the radiation safety program.
2) Maintaining a university-wide inventory of licensed RAM and devices.
3) Maintaining and renewing RAM licenses & X-ray CORs.
4) Providing a variety of radiation safety training options.
5) Performing safety inspections and contamination surveys of authorized use and storage areas.
6) Decommissioning of equipment and areas where RAM has been used or stored.
7) Performing inspection of x-ray machines and devices.
8) Sealed source leak testing.
9) Centralized shipping / receiving of packages containing RAM.

10) Administration for the University Radiation Safety Committee and other functions and services associated with the NMSU Radiation Safety program.

A summary of common EH&S radiation safety program services are in included in **Figure 24.**

Figure 24: Radiation Safety Program Services



2015 Radiation Safety Program Highlights

1) An inspector with the NMRCB performed an unannounced inspection at the CEMRC facility in September. The scope the inspection covered program compliance with the applicable sections of the New Mexico radiation protection regulations and the specific conditions listed on the CEMRC / NMSU Radioactive Material License (AN317-14). The inspection included a review of radiation safety program records including employee exposure monitoring records, employee training records, radioactive material inventory records, survey meter calibration records, internal program reviews and other records associated with the radiation safety program. The inspection also included a walk-though of radioactive material laboratories in the CEMRC facility with on-site radiation safety personnel. No deficiencies or findings were noted on the final inspection report.

2) An inspector from the NRC performed an audit of the activities covered under the NRC license (#30-35283-01) in December. The scope the inspection covered program compliance with the applicable sections of the Federal (NRC) and State of New Mexico radiation protection regulations, and specific conditions listed on the NRC license. The type of things the inspector reviewed included internal nuclear gauge use / storage protocols, employee exposure monitoring records, employee training records and nuclear gauge transportation procedures. No findings or deficiencies were noted on the final inspection report.

3) Applied for and received a NRC RAM license (NRC license #30-35283-01) which 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. The license expires on December 31, 2025.

4) Five x-ray CORs were renewed with the NMRCB including:
   a) Analytical X-ray COR
   b) DXA COR (Department of Kinesiology & Dance)
   c) DACC Dental Clinic COR
   d) NMSU Health Center COR
   e) CEMRC X-Ray Diffraction (XRD) machine COR.

   All 5 CORs will expire in 2018.

5) The Athletics Department x-ray COR was terminated with the NMRCB and 2 medical radiography x-ray machines from the department were disposed and removed from the NMSU x-ray inventory.

6) Approximately 4900 pounds of bulk dry radioactive and bulk liquid mixed (radioactive + RCRA hazardous) waste generated at the CEMRC facility was disposed in 2015 (**Table 5**).

Table 5: Summary of Radioactive & Mixed Waste Disposal from CEMRC in 2015

Description	Number of Containers	Quantity (pounds)
Solid Dry Active Waste (DAW)	15	3000
Bulk Liquid Mixed Wastes	5	1900

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. EH&S works closely with the Biosafety Manager and Research Integrity and Compliance Office. EH&S maintains a strong role in the biosafety mission by providing the following direct support and services:

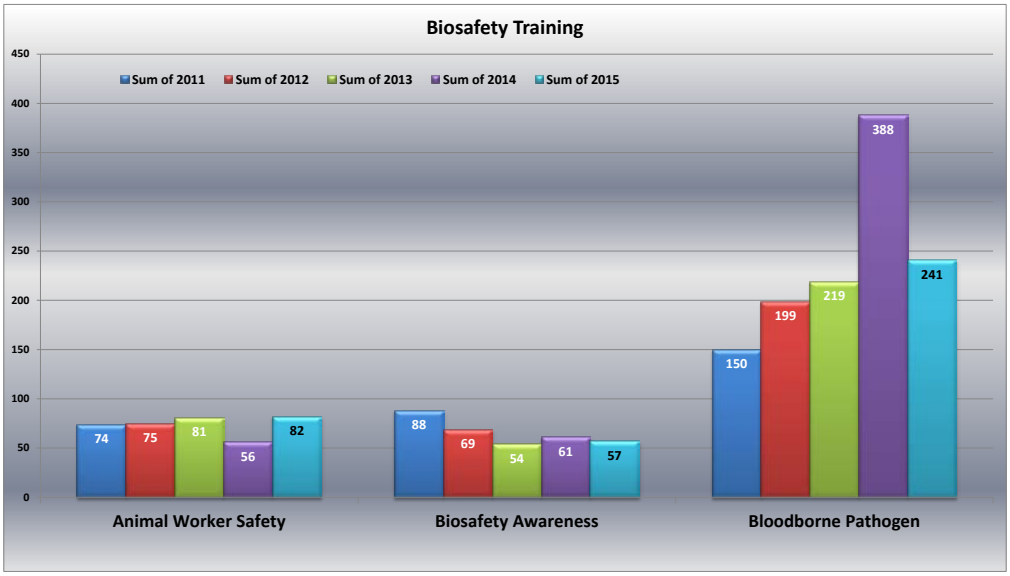


Figure 25. EH&S Biosafety Training

- Training equipment and facilities.
- Administrative support for biosafety training including scheduling classes, registration, and managing training records. **(Figure 25)**
- Web based Bloodborne Pathogen (BBP) training module delivers required annual refresher training showing increased training (**Figure 25**).
- Acting as voting primary reviewer and voting member of the Institutional Biosafety Committee (IBC).
- Collaboration with Biosafety Manager on safety programs, occupational health and safety and emergency preparedness response.
- EH&S support of the Institutional Animal Care and Use Committee (IACUC) – several incidents involving potential exposures were effectively mitigated by collaboration of EH&S 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 and specialized training and immunization was implemented.
- EH&S handles disposal for all biohazardous waste requiring incineration.

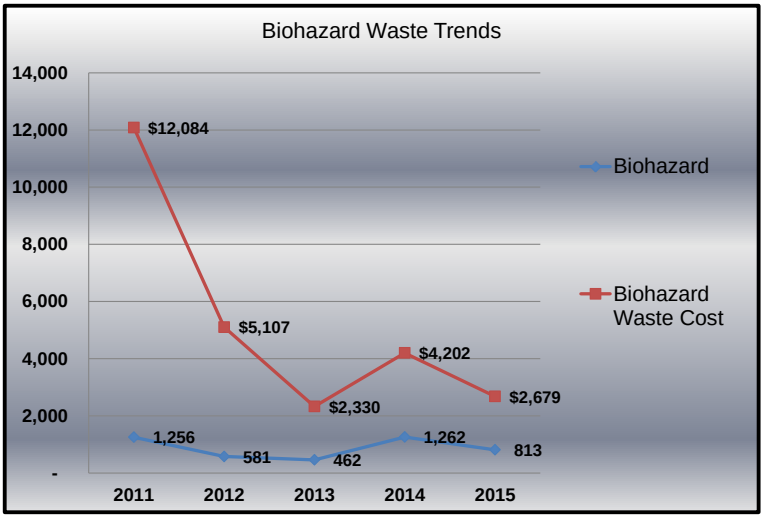


Figure 26. Biohazard Waste Trends

- EH&S has negotiated waste cost reduction through stricter segregation and switching treatment technologies from incineration to steam sterilization. *This dual approach results in huge cost savings that will continue forward for years to come (**Figure 26**).*

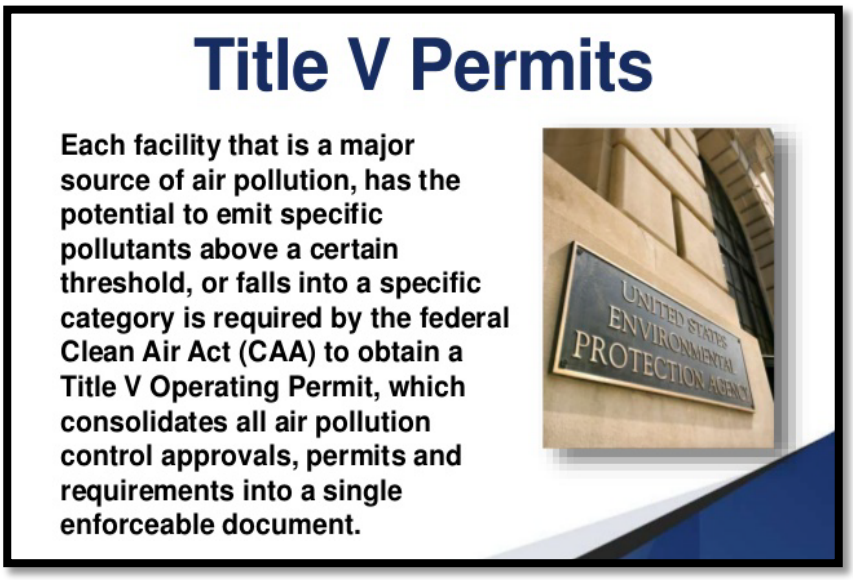
ENVIRONMENTAL COMPLIANCE PROGRAM

TITLE V AIR PERMIT AND NSR AIR PERMIT

NMSU maintains two EPA/NMED Air Quality Permits; a Title V Air Permit 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.

EH&S completed/ensured nine detailed air reports were filed accurately and on time to EPA/NMED:

- Annual Air Report
- (2) Semi-Annual Air Reports
- Air Emissions Inventory
- Greenhouse Gas Report
- Turbine Test Protocol
- Turbine Air Emissions Test Results
- Air Fees
- 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 2015 were:

NMED Air Permit Compliance Inspection on June 2, 2015: Underwent first unannounced NMED Air Permit Compliance Inspection in three years. Over the next five months NMED asked eight additional times for more air compliance information with 48 hour response times. In the end NMSU received no formal "Notices of Violation" and no fines.

NSR Air Permit Technical Revision Application Submitted: For the first time in 15-years submitted a Technical Revision Application to remove the option to burn fuel oil in NMSU Boilers #1 and #2. This will simplify NMSU Air Permits and assist with easier reporting and inspections.

Completed First Air Compliance Master Schedule Summary Sheet: The Air Compliance Master Schedule Summary Sheet details 21 items and deadlines that must be met to ensure NMSU remains in compliance.

Remote Niagra Monitoring of Generator Run Times for Arts Center: BRR funding was obtained to install remote generator monitoring via computer of the monthly run times for the Arts Center. Remote monitoring is much more efficient in tracking generator run times then physically visiting each campus generator monthly.

Cross Training and Communication Among Staff for Air Quality Issues: To best ensure a successful clean air program EH&S continues to visit the Central Plant at least monthly to meet with key staff on air issues and averages a monthly conference call with our air consultant Weston Solutions to stay current on complex, changing regulations. It is also important to establish cross training on Air Quality within our EH&S Team.

STORM WATER MANAGEMENT PROGRAM (SWMP)

Environmental program activities for EH&S related to regulatory compliance of the EPA-issued MS4 (municipal separate storm sewer system) permit; each year NMSU submits an annual report (to EPA) reporting progress over the previous year, as well as outlining best management practices (BMPs) to complete during the upcoming year.

Accomplishments in 2015 include the following:

- Submitted the annual update report to EPA and NMED Surface Water Quality Bureau in September, 2015.
- Conducted storm water awareness training as part of the NMSU Hazards Communication training.
- Continued in-house training allowing EH&S inspectors to perform MS4 required inspections as part of their annual safety inspections.
- All critical documents are filed on a well-managed network location.

SOLID WASTE

Regulatory compliance of NMSU's solid waste falls into two distinct categories; closure activities associated with the former NMSU landfill, and compliance of our two solid waste facilities (Aggie Recycling, and the NMSU Green Waste Compost Facility).

2015 solid waste accomplishments include:

- Completed the closure design per requirements of the 2013 Closure Post-Closure report, and initiate implementation.
- Submitted the three NMED-required annual Solid Waste Management reports on time.
- Submitted all required quarterly methane and semi-annual groundwater sampling monitoring reports.
- Acted as the NMSU lead on regulatory agency interactions related to applying for a permit to operate a composting facility on the NMSU main campus.

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 2015 drinking water accomplishments include:

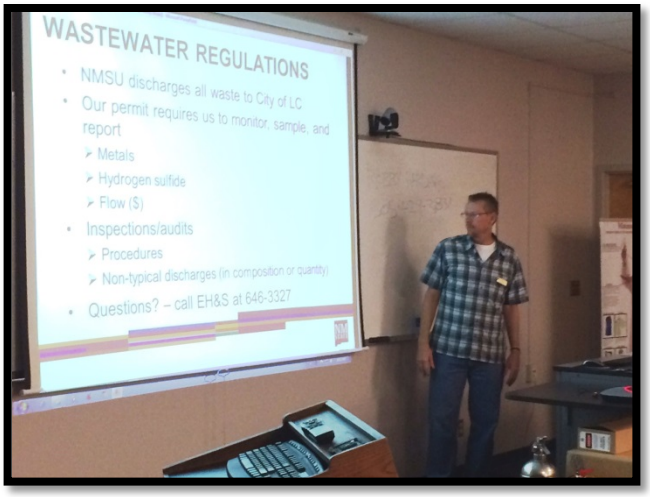
- Continued close collaboration with Facilities and Services Utilities personnel to ensure all compliance testing is performed on schedule and reported appropriately.
- EPA-required Consumer Confidence Report; this report was submitted to the NMED in March and posted to the NMSU website, per the required deadlines.

WASTEWATER

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

2015 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.



SPILL PREVENTION CONTROLS AND COUNTERMEASURES (SPCC)

EPA is the lead federal response agency for oil spills occurring in "inland waters" (which can include dry arroyos), and requires qualified facilities, such as NMSU, to prepare, certify, and implement an SPCC Plan. During 2015:

- EH&S maintained an inventory of all fuel/oil tanks subject to the SPCC rule
- EH&S conducted required inspections in order to comply with SPCC regulatory requirements.
- EH&S developed and released online SPCC Training for designated personnel handling oil.

THIS COMPLETES ENVIRONMENTAL, HEALTH & SAFETY ANNUAL REPORT 2015