Kentucky Division of Environmental Program Support

Annual Report

Fiscal Year 2022

(July 2021 to June 2022)

September 8, 2022

Energy and Environment Cabinet

Department for Environmental Protection

502-564-6120 (Lab)

dep.ky.gov/deps

DIVISION OF ENVIRONMENTAL PROGRAM SUPPORT

100 Sower Blvd Suite 104

Frankfort, KY 40601

Mission Statement:

It is the mission of the Division of Environmental Program Support (DEPS) to provide scientific data of known accuracy and precision in a timely manner to programs within the Department for Environmental Protection to enable those programs to make appropriate environmental decisions. The division maintains a technically skilled and properly trained staff and a fully equipped environmental chemistry laboratory to accomplish its mission.

Message from the Assistant Director:

On behalf of all the staff in the Division of Environmental Program Support (DEPS), it is with great pleasure to present to you, this year's DEPS Annual Report. This report summarizes the divisional activities and accomplishments that took place during the fiscal year 2022 (July 1, 2021, to June 30, 2022).

The DEPS laboratory (testing) numbers has seen a steady increase (24%) from the previous year.

PFAS has once again been a DEP priority analysis and the lab continues to prepare for an increasing need for this type of testing. Our highly skilled staff developed and brought a PFAS Fish Tissue analysis on-line this fiscal year and began releasing reports in late fall/early wintertime from three previously identified priority sites. This sampling project has been incorporated into a fish tissue study that will be released to the public later this year. Since that time the DOW has provided the lab with over 150 other fish tissue samples from a variety of creeks and lakes throughout the state. The plan is to continue collecting data from all the ambient water sources in Kentucky.

South Shore sampling continued to be a steady monitoring site for much of the fiscal year. Monthly sampling was being performed on this particular water plant and its wells since the 2019 PFAS Drinking Water Study was released. The outlook for this site has recently seen some positive changes and less regular testing is needed. Water is now being supplied from another source, while a long-term remedy can be secured.

DEPS does work for a variety of clients and programs within the cabinet. Some are fairly regular and others are on a more, as needed basis. More than 22 percent of the total number of samples delivered can be credited to the DOW Ambient Monitoring group. This is not an unusual occurrence by any means, but I feel it deserves mentioning how much work this program brings into the lab. They not only deliver many samples, but the field office personnel are very good at communicating plans for their collections. They are dependable and DEPS lab staff appreciates their professionalism. I am not saying that others aren't doing a great job in their respective areas but due to the extremely large amount of work, it is comforting to see this type of work arriving in this manner.

I am truly blessed to have such high-quality employees (technically and personally) working in the centralized laboratory facility. They could easily find jobs elsewhere but they have chosen to call this place home. CHEMIST skills are difficult to translate or compare to other professional work duties. It takes a great deal of dedication to the science and requires significant amount of concentration and attention to the details. The quality of the work being performed is our number one priority and not everyone can perform at this level. The instruments are wonderful tools of the trade, but the human element must not go unrecognized.

Thank you, All!

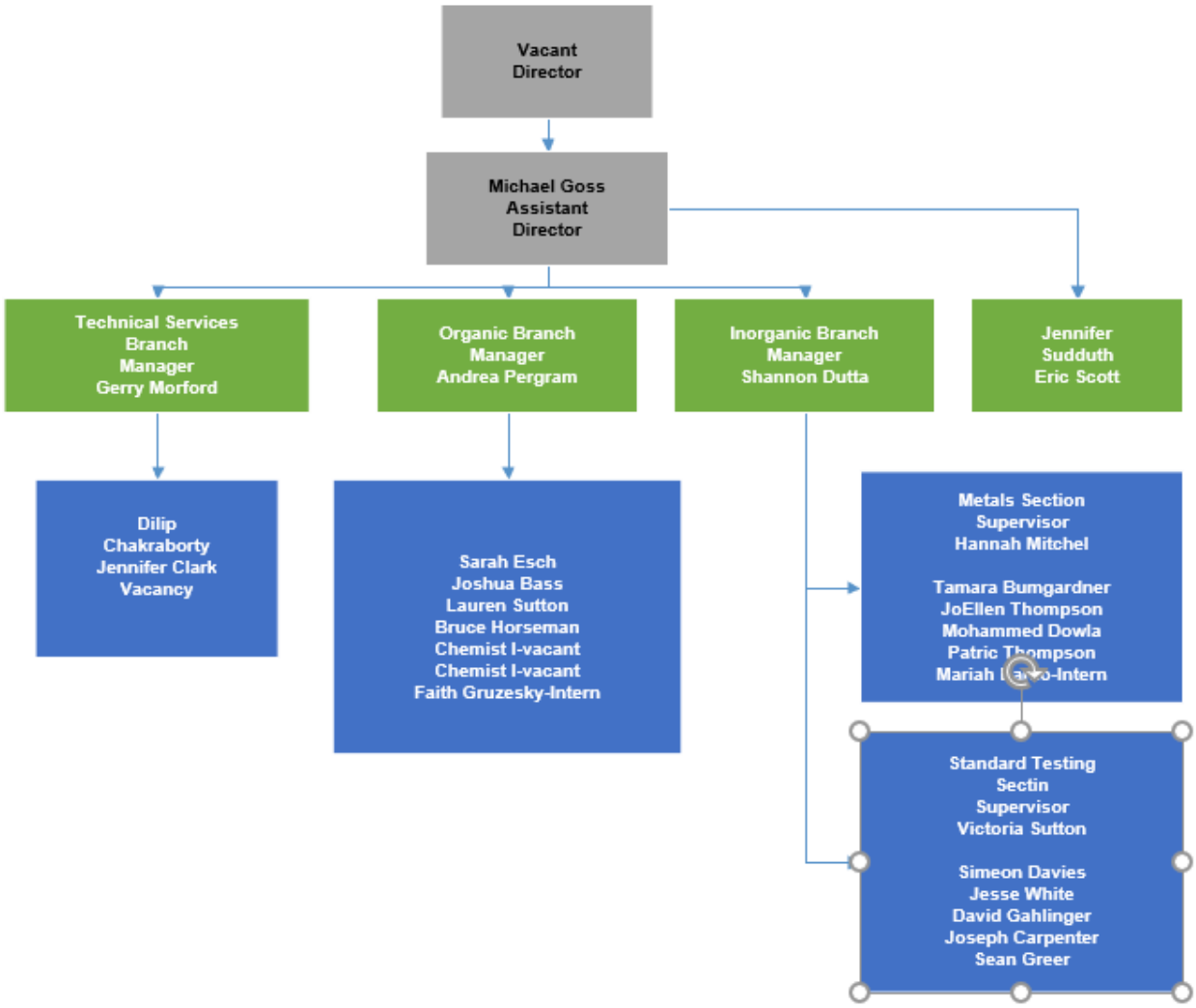
Michael Goss
Assistant Director, DEPS

Divisional Background:

The Division of Environmental Program Support (DEPS) was created in 2009 (Executive Order 2009-538). The Department for Environmental Protection (DEP) consolidated all internal support functions into this new division to create efficiencies and reduce costs. These functions included departmental administrative services, environmental laboratory services, and environmental response team (ERT) coordination. In fiscal years 2015 and early 2016, these functions expanded to include information/public records management, application development human resources management, and departmental budgeting.

In 2017 the Energy and Environment Cabinet (EEC) underwent another reorganization. This reorganization resulted in the abolishment of GAPS and the transfer of those administrative functions to the newly created Office of Administrative Services (OAS) within EEC. Three branches previously located in the DEPS structure were reorganized into the newly formed OAS. This left the Division of Environmental Program Support with two branches. One being the Environmental Response Branch and the other the Environmental Services Branch.

On November 16th, 2018, the Division of Environmental Program Support underwent its last reorganization. This structural change resulted in the re-establishment of the chemistry laboratory located at 100 Sower Blvd as the Division of Environmental Program Support and the movement of the ERT Branch into the Division of Waste Management. DEPS is now made up of only laboratory staff. There are currently 25 fulltime cap positions with 2 of those position being vacant at the end of this fiscal year. Those vacancies are Chemist I positions in the Organic Branch. The division currently employs two (2) fall interns with educational backgrounds in Chemistry. Management's goal is to instill a love of the environmental chemistry field while working for the department with DEPS gaining a long-term quality career employee.



Accomplishments:

- The Inorganic and Organic Branches are responsible for conducting analysis of all current Inorganic and Organic testing found in the division's LOQAM (Laboratory Operations Quality Assurance Manual). There are currently 188 individual analytical methods or SOPs (Standard Operating Procedures) that detail how a test or method procedure is performed. Annually, each staff are responsible and sign off for reading and following the method that pertains to their area of expertise and responsibilities. Updating their own procedure as needed through discovery on their own or via internal/external audits. Much of this task has been completed for all current and certified methods. The only ones that still need updating are those that are seldom used or need further review. Beyond the nearly 200 "analytical" methods the DEPS lab is also tasked with updating over 50 administrative and laboratory quality control processes and procedures. A yearly review of these manuals is mandated by laboratory accrediting programs and reports on these updates are provided during individual audits and the DEPS annual management review.
- Reporting all data to respective clients within 14 days of sample receipt; The 14-day turn-around-time (TAT) goal is one that is set by the Assistant Director and not required by the department or cabinet

level administrator. Management feels that this is an attainable goal when all systems are running smoothly. Getting data to our clients quickly without sacrificing quality is beneficial to all parties. At the time that this goal was implemented the TAT for the lab was historically hovering around a 30-day average. FY22 TAT ended at around 20.4 days.

- Developing new methods as requested by the Department for Environmental Protection to meet current programmatic changes and environmental demands; The Organic Branch pushed out a new PFAS Method in September of 2021. This method is for fish tissue analysis but can also be utilized for soil and sludge samples. The DEPS lab already has NELAP approved methods for potable and non-potable water. Fish have become a normal type of request and is part of a robust project plan for the Division of Water and its Ambient program. DEPS is also working on a new method for both drinking water and surface water that will provide more reportable compounds of interest. Other methods that have been developed this past year are equally important. Glyphosate was moved from an older HPLC instrument to a newer LCMSMS this fiscal year. This is a much-improved method for determining if there is Glyphosate in our groundwater and surface water systems and can see much lower quantities. The Organic Branch staff also developed or combined two methods that look for HABs in various water matrixes. Microcystins, Cylindrospermopsin and Anatoxin A can all now be identified in one analysis.

- Testifying and defending in court all sample results and analytical data originating and reported by the division; On occasion a DEPS Chemist or Environmental Scientist will be asked to appear in court as part of the prosecuting team. Since some of the work being performed in the lab uncovers a wrongdoing, enforcement action is required. Those that do not agree to pay a fine can often be subpoenaed to appear and court. Many times the case is settled out of court before any testimony has to be made. This fiscal year on two separate occasions, analyst have had to provide information to the USEPA Criminal Investigation Division and EPA attorneys. No one has had to appear in court but they are on standby, if needed.

- Conducting all testing related to Proficiency Test (PT) studies to maintain accreditation and certification with both National Environmental Laboratory Accreditation Program (NELAP) and US EPA drinking water certification programs; The DEPS participated in 7 (full) PT studies this fiscal year and several rapid return retests. A total of 1503 analytes were reported with a 98.3% satisfactory rating. For the PFAS PT studies this past fiscal year the lab has a 100% rating. Hitting the mark every time for drinking water 537.1 and the non-potable 8327 method(s).

- Reviewing and implementing both current and new state and federal laws and regulations that effect DEP programs, including the Clean Water Act, Resource Conservation and Recovery Act (RCRA), Safe Drinking Water Act (SDWA) and the Comprehensive Environmental Response Compensatory Liability Act (CERCLA); DEPS is current with all the current state and federal laws and regulations and is certified by NELAP and USEPA accrediting groups.

- Completion of all sample requests; All regular water and soil matrix samples for FY22 have been completed and reported to respective clients. DEPS does currently still have 76 fish tissue samples that are incomplete. Nearly all of them are waiting for a Mercury analysis to be performed. The loss of a key analyst in this area in December has placed this tissue test request behind. None of these tissue samples are PFAS related. They are regular DOW ambient fish tissue requests that get Pesticide, PCB and Total Metals analysis. The good news is that they are freeze dried and kept frozen until they are ready for analysis and their holding times are not a quality issue.

DEPS Organic Branch Test List and Numbers:

- Volatile Organic Compounds -784
- Semi-volatile Organic Compounds - 64
- Pesticides Analysis - 297 (water); 197 (fish)
- Herbicides Analysis - 305
- BTEX Analysis - 10
- Trihalomethanes (THMs) - 91
- Total Petroleum Hydrocarbons - 22
- Oil and Grease - 31
- Diesel Range Organics - 22
- Technical Chlordane - 3
- Haloacetic Acids (HAAs) - 96
- Toxaphene - 2

PFAS – 180 (water); 320 (fish)
Microscystins (HAB) - 10
Cylindrospermopsin (HAB) - 10
Anatoxin-A (HAB)- 10
PAH Analysis - 17
PCB Analysis – 302 (water); 192 (fish)
Ethanol - 0
Glycols - 0
Caffeine - 305
MBAS - 0
Glyphosate – 152

The Organic Branch also coordinates, plans, and assigns a sample workload for all organic preparation, analysis, and reporting. Test results within the branch vary from 4,000 to 5,000 individual test results annually.

DEPS Inorganic Branch, Metals Section Test List and Numbers:

- Total Metals by ICPMS

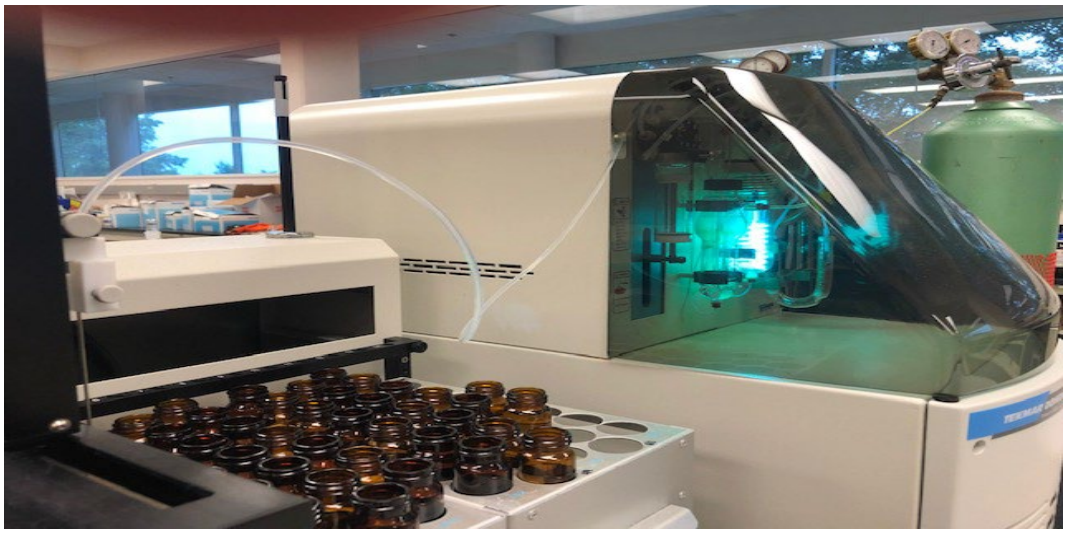
1. Aluminum - 2245
2. Antimony - 2245
3. Arsenic -2245
4. Barium - 2245
5. Beryllium - 2245
6. Cadmium - 2245
7. Chromium - 2245
8. Cobalt - 2245
9. Copper - 2245
10. Lead - 2245
11. Manganese – 2245
12. Molybdenum - 2245
13. Nickel - 2245
14. Selenium - 2245
15. Silver – 2245
16. Strontium – 19
17. Tin – 19
18. Titanium – 19
19. Thallium – 2245
20. Vanadium – 2245
21. Zinc – 2245

- Total Metals by ICP:

1. Calcium – 2346
2. 2. Boron – 108
3. Iron – 2346
4. Lithium – 108
5. Magnesium – 2346
6. Potassium – 2346
7. Sodium – 2346

- Hexavalent Chromium Analysis - 29
- Mercury Analysis by CVAA - 1235
- Low Level Mercury by CVAF - 1076
- Toxicity Characteristic Leaching Procedure (TCLP) - 10

The Metals Section also coordinates, plans, and assigns a sample workload for all Metals preparation, analysis, and reporting. Annual test request numbers within the Metals Section can vary from 9,000 to 10,000 individual tests.



DEPS Inorganic Branch, Standard Testing Section Test List and Numbers:

- Acidity - 1873
- Alkalinity - 2049
- Ammonia - 1922
- CBOD - 276
- Chloride - 1633
- Color - 131
- Conductivity - 1547
- Corrosivity - 2
- Hardness - 13
- Ion Chromatography - 867
    - Fluoride
    - Chloride
    - Nitrite
    - Bromide
    - Nitrate
    - Phosphate
    - Sulfate
- Total Dissolved Solids (TDS) - 1173
- Total Organic Carbon (TOC) - 1816
- Total Kjedahl Nitrogen (TKN) - 1746
- Total Phosphorus - 1806
- Total Suspended Solids (TSS) - 2226
- Turbidity – 1695
- Nitrate – 1566
- Nitrite – 17
- Ortho Phosphate – 210
- pH – 318
- Phenolics – 6
- Residual Chlorine – 13
- Settleable Solids – 2
- Sulfate - 1283

The Annual test request numbers within the Standard Testing Section can vary from 25,000, 30,000 individual tests.

Above, Jennifer Clark (ES4 -Technical Services Branch) checks samples temperature and pH before logging them into the Laboratory Information Management System (LIMS).

Technical Services Branch

The Technical Services Branch serves a different type of role from the other branches. Below you will find a listing of some of these responsibilities.

- Overseeing and providing technical support and advice for all testing sections and branches of the division by scheduled and unscheduled audits of methods and procedures within the laboratory;
- Overseeing all aspects (non-analytical) related to Proficiency Test (PT) studies, including placing orders for the tests, ensuring all personnel analyze their respective samples on time, combining results for electronic delivery and distributing the results once received with proper corrective action requests;
- Communicating PT related work with vendors, NELAP and USEPA to maintain accreditation and certification with both NELAP and the USEPA drinking water program;
- Communicating knowledge of the current state and federal laws or regulations that effect DEP programs, including the Clean Water Act, Resource Conservation and Recovery Act (RCRA), Safe Drinking Water Act (SDWA), and the Comprehensive Environmental Response Compensatory Liability Act (CERCLA);
- Distribution of Chain of Custody (COC) and copies of sample reports to all clients. All data deliverables are in the electronic form and are refined and suited to best meet the needs of the individual program requests; and

- Ensuring all laboratory balances, ovens, refrigerators, freezers, walk-in coolers, incubators, desiccators, thermometers, pipettes, and other fine measuring devices are properly maintained, calibrated, and checked for accuracy as required for NELAP and USEPA guidelines.

Quality Assurance Annual Report: Fiscal Year 2022

To maintain certification by the National Environmental Laboratory Accreditation Program (NELAP), the Division of Environmental Support laboratory must pass each Non-Potable Water analyte twice each year. The USEPA Water Certification Program requires that the laboratory pass each Drinking Water analyte once each year. A number of Drinking Water and Non-Potable Water analytes submitted to the Performance Testing Provider are not part of either the NELAP Certification List or the EPA Drinking Water Certification list. These analytes are submitted for informational purposes. In CY2021, the laboratory was accredited by NELAP for 437 Non-Potable Water analytes and 14 Tissue analytes and was accredited by USEPA for 148 Drinking Water analytes, including the Unregulated Volatile Compounds.

During FY 2022, the laboratory analyzed Proficiency Testing samples as part of the laboratory's QA program and to maintain USEPA and NELAP accreditation. There were:

- Two Water Pollution (WP) studies: passed 893 out of 911 analytes reported (98.0% Acceptable).
- One Water Supply (WS) study: passed 120 out of 127 analytes reported (94.4% Acceptable).
- Two Soil studies: passed 418 out of 420 analytes reported (99.5% Acceptable)
- Out of 1503 total analytes reported, 1476 were correct (98.2% Acceptable).

  Clarification: Being incorrect doesn't mean they were missed completely. If the reported result falls below or above an acceptable range, it is missed. Most of the time when an analyte is missed it is found but just not inside the approved range.

- 36 Standard Operating Procedures (SOPs) were either written or revised in FY 2022. All SOPs are reviewed annually and either updated or documented as needing no changes.
- The Laboratory Operations and Quality Assurance Manual (LOQAM) and 7 Appendices were updated during FY 2022.
- In addition, documentation of MSDS sheets, standard and reagent tracking and preparation records, corrective action forms, NIST traceability of weights, certified thermometers and temperature devices were created and maintained. Calibration checks on the support equipment, such as temperature data loggers, thermometers used for certification, weights, ovens, and pipetting devices required for accurate laboratory results were also performed throughout the year. Since most of the samples and standards in the laboratory have specific temperature preservation requirements, temperature data files for the laboratory refrigerators, freezers and incubators were generated to track temperature changes. Initial Demonstrations of Capability for new methods, annual Ongoing Demonstrations of Capability and Method Detection Limits were performed by the analysts.
- The laboratory reported 259,425 analytes from 4055 samples in 114,379 containers during FY22

Other Activities of Importance:

The DEPS lab has been fortunate this fiscal year in that there have not been any external audits performed. Both the United States Environmental Protection Agency (USEPA) and the National Environmental Laboratory Accreditation Program (NELAP) performed audits in February and March respectfully, in 2021. They have not had to come back or visit virtually since that time. NELAP will be performing an on-site audit in March of 2023. Even though there haven't been external audits the DEPS lab still has a rigorous internal auditing program administered by the Technical Services Branch. Quality officers have performed numerous method audits throughout the year and provide a great service to our staff during these audits. The more that they are expose to their methods and the procedures the more likely they will be comfortable they will be when audited by an outside entity. The lab is currently "Provisionally Certified" by the USEPA and "Certified" by the NELAP accrediting authorities.

Now that the pandemic is virtually through, the DEPS lab can open all its analytical services to clients within the department. The testing activities supported eighteen (18) individual programs maintained by the Division of Water (DOW). This accounted for almost 59% of all samples analyzed. At the same time, DEPS provided testing for six (6) programs within the Division of Waste Management (DWM). DEPS was also the primary response laboratory for the Environmental Response Team (ERT). During this past fiscal year, 41 samples from several responses were brought in and analyzed by DEPS staff. The responses varied in depth and level of prioritization and responsiveness but were all equal in the quality of service provided. The most notable site by name would likely be the Rupp Arena elevator shaft construction site in Lexington. DEPS also provided testing support for Dawson Springs and Mayfield communities after the Western Kentucky Tornado disaster.

Besides the regular DEP monitoring programs, the DEPS lab also provided analytical support for the Department of Natural Resources (DNR) programs. Through detailed Memorandum of Agreement (MOA)s the lab provides regular testing for both the Cumulative Hydrologic Impact Assessment (CHIA) project and the Abandoned Mine Lands (AML) programs. In FY21-22 the lab received over 300 DNR related samples. This amount of sampling is over three times the previous year's request. Their work centers on the Inorganic Branch sections and provides quarterly pushes that make for a very busy time for all.

DEPS has continued to make great progress in PFAS analysis this fiscal year. The Organic Branch chemist have been able to analyze more samples this year due to the addition of new extraction equipment and newly developed methods on the instruments. A fish tissue method is now in full production and many samples have been analyzed via this method. Sources have been identified as a priority to the department and the staff at DEPS is providing them with quality data. DEPS has also begun analysis of select number of dry cleaner sites for the DWM – Hazardous Waste Federal CERCLA Brownfields program.

Analytical Instrument Updates:

Replacing equipment with newer, more efficient instruments over time has always been critical to the lab's ability to maintain productivity without additional staff. For a laboratory this size a budget should allocate 10% of their budget for new instruments. Scientific equipment of this

sophistication needs replaced every (10 years) due to vendors and service representatives not being able to find parts to fix them if they should fail. Technological advances over a ten (10) year period can also improve tremendously in the environmental testing sector. Keeping up with these advances allows the Commonwealth to benefit with lower detection levels, higher quality, reporting of new contaminants of concern, higher throughput, and efficiency. Over the years the laboratory has been able to acquire funding through various means for the purchase of much needed instrumentation. Sometimes the budget has been able to account for these purchases and sometimes the lab benefits from grant offerings and awards. The laboratory was very fortunate to be afforded the ability to purchase a couple new instruments this past fiscal year.

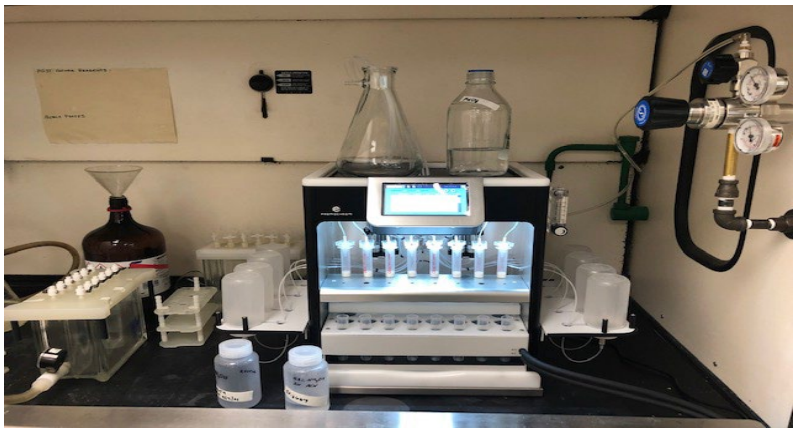
Because PFAS is of the highest priority for the department the DEPS lab was able to secure funding and purchase another instrument that is used to analyze for these contaminants of concern. This is the third instrument of this type, and it will be helpful in bringing the labs capability to where it is needed, both now and in the future. The instrument that was procured was an Agilent 6470A Triple Quadrupole LC/MS. This instrument will be utilized exclusively for the analysis of Per and Polyfluoroalkyl substances (PFAS) in a variety of water sources, such as drinking water, ambient lakes, rivers, and streams. It will also be utilized to look for these analytes in tougher matrixes like soil, sludge, and tissue samples. This instrument was purchased for a little over $167,000.

Agilent 6470A Triple Quadrupole LC/MS

Another notable and very expensive instrument purchase this past year was an Agilent 8890 VOC GC/MS or Volatile Organic Compound, Gas Chromatograph Mass Spectrometer. This instrument was purchased to replace an older and out of service instrument in the Organic Branch. This instrument was installed earlier this year and needs method development and quality control work completed before real samples can be analyzed. Once in operation this instrument will be able to run volatile organic compound samples for all the lab's clients. This instrument came into the lab at a price listing of $110,000.

Agilent 8890 VOC GC/MS

The last FY22 purchase request was submitted for approval back in April 2022. This piece of equipment is referred to as an automated Solid Phase Extraction unit or SPE-03. This piece of equipment is designed to automate the preparation procedure of various types of samples for PFAS analysis. The lab already has one of these instruments and has been getting some really good reviews from key organic branch staff. The company that this is being purchased from is PromoChrom Technologies Ltd. and is headquartered in British Columbia, Canada. The order was approved for purchase at the end of June but has not been delivered at the time of this report write-up. This important piece of equipment is priced at around $38,000.

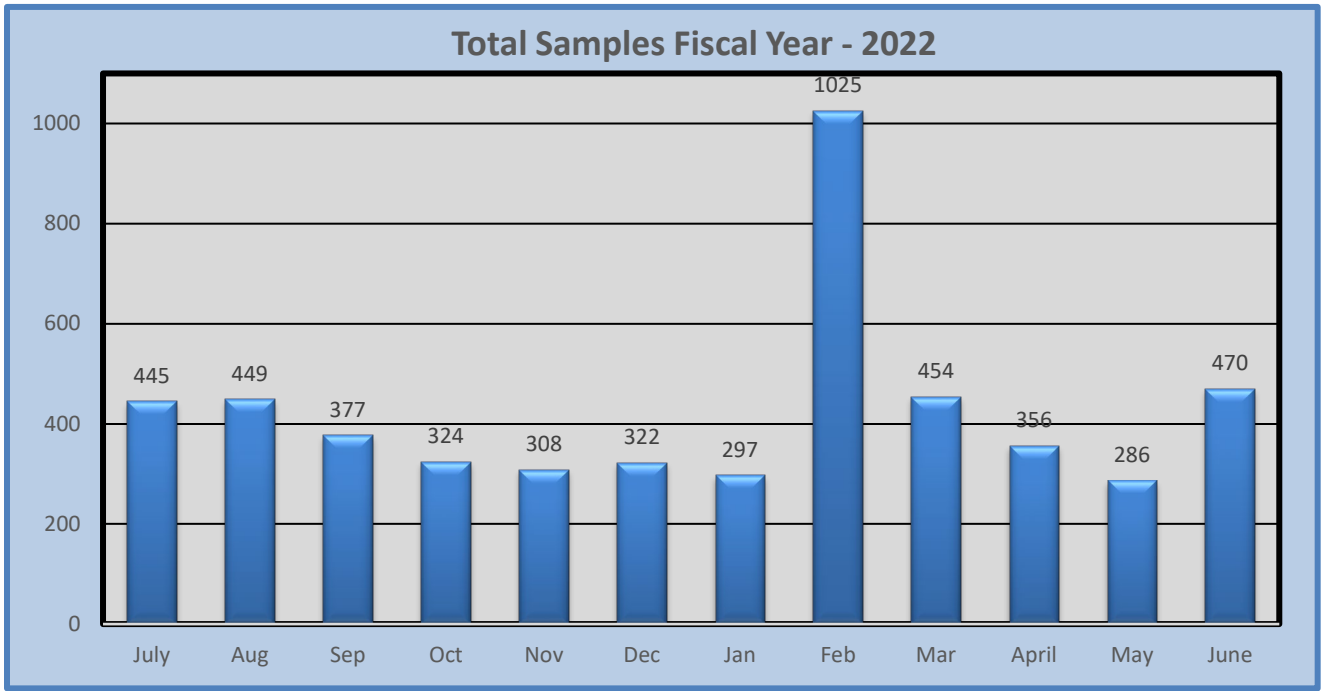


PromoChrom SPE-03 (Solid Phase Extractor

Testing Numbers:

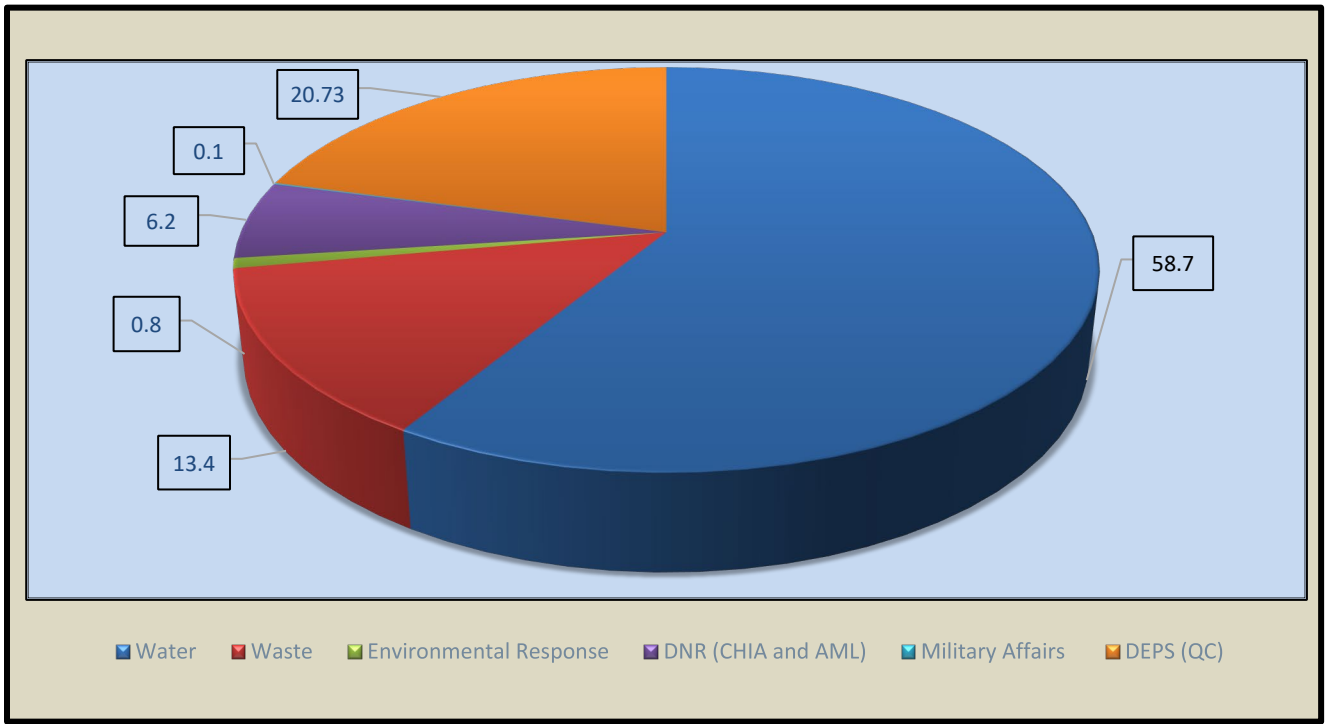
DEPS continues to provide testing services for the department in accordance with the allocated budget monies. In FY2022, the total number of samples analyzed was (5113) and the average turn-around time (TAT) was 20.41 days. In FY2021, the number of samples analyzed was (4122), with an average TAT of 18.60 days. Numbers were higher this year due to more activity being administered by the department's major divisions. The amount of time to turn them around also went up slightly this year. Instrument issues, personnel changes, COVID sicknesses and a higher volume of samples all contributed to the escalading TAT.

Notable Calendar Year Charts and Spreadsheets:



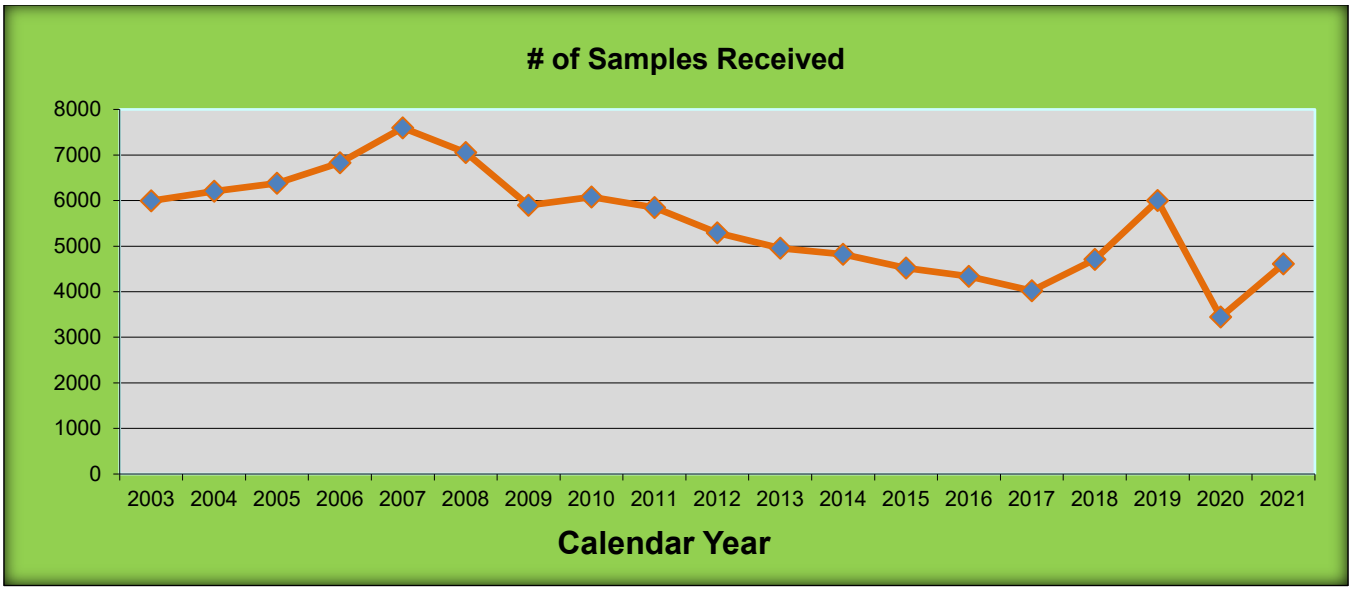
The graph above shows the total number of samples being logged into the lab each month of FY22

The graph above shows how the percentages have changed over the past 8 years.



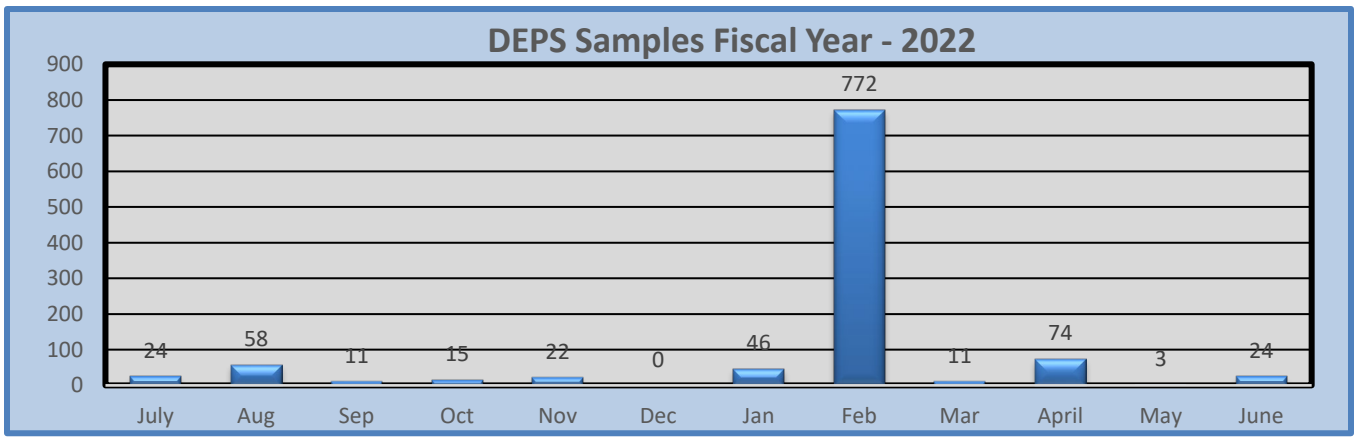
The graph above shows the percentage of samples from the various groups in FY22.

Division of Environmental Program Support – Samples Received from 1/01/03 to 12/31/21



This graph shows the total number of samples all the way back to 2003. Note the sharp decline in 2019 brought on by the Pandemic.

The below chart shows the quality control activities for the lab in fiscal year 2022, broken down into monthly intervals. The total number of samples that the DEPS lab logged in during this time frame totaled 1060 with most of this number entered in February. The reason for the extremely high number of samples in this month is due to a new QC program that the lab has implemented. With every start of the calendar year the lab is logging in ongoing demonstration of capability and method detection samples that are then used by each analyst throughout the year. This enables the LIMS to better track which analysis and analyst are keeping up with their responsibilities. These responsibilities are part of the labs NELAP accreditation and are now easily tracked for auditing and evaluation purposes.

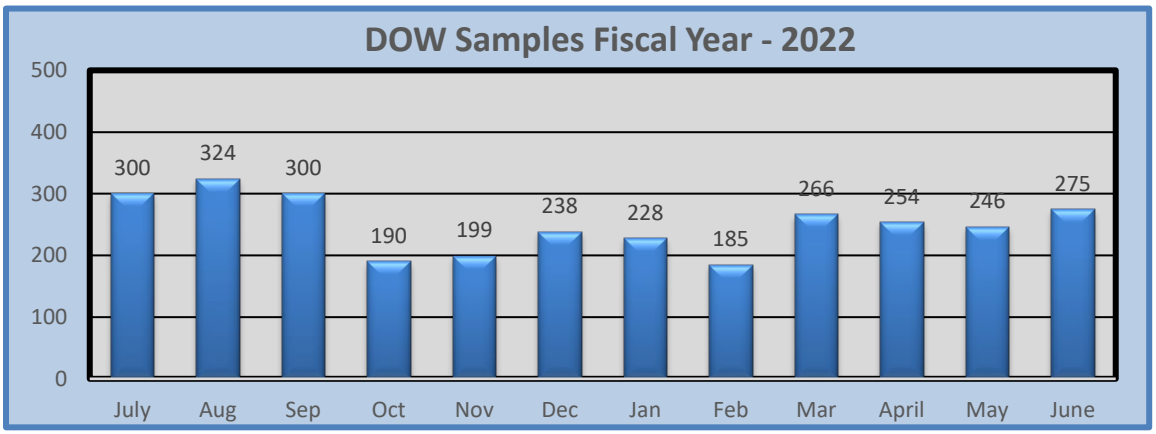


The spreadsheet below shows the last three years of samples logged into the labs LIMS system. Three of these (D20-22) are actually just different types of PT studies. Their purpose has been defined in previous reports. The DO2 program code is set up for internal lab investigations and in previous years housed internal QC such as IDC and MDLs. In 2021 the lab started logging these samples into the system as sample numbers and began listing them as IDC, MDL and ODCs. This helped our technical Services

Branch and other management in tracking of these types of QC samples. Although it appears that we have increased our QC substantially it just shows we are keeping a better accounting of the work we are doing year-round.

DOW Programs	FY20	FY21	FY22
D02 - Internal Lab QC (IDC, MDL)	192	70	10
D20 - PT WS Study	14	20	21
D21 - PT WP Study	68	67	67
D22 - PT Other (Soil)	29	26	21
IDC - Initial Demonstration	0	10	59
MDL - Method Detection Limit Study	0	97	113
ODC - Ongoing Demonstration	0	623	769

The below chart depicts the sample collection/sampling activities for the DOW programs in fiscal year 2022, broken down in monthly intervals. The total number of samples that the DEPS lab logged in during this time frame totaled 3005 with a monthly average number of samples being 250.

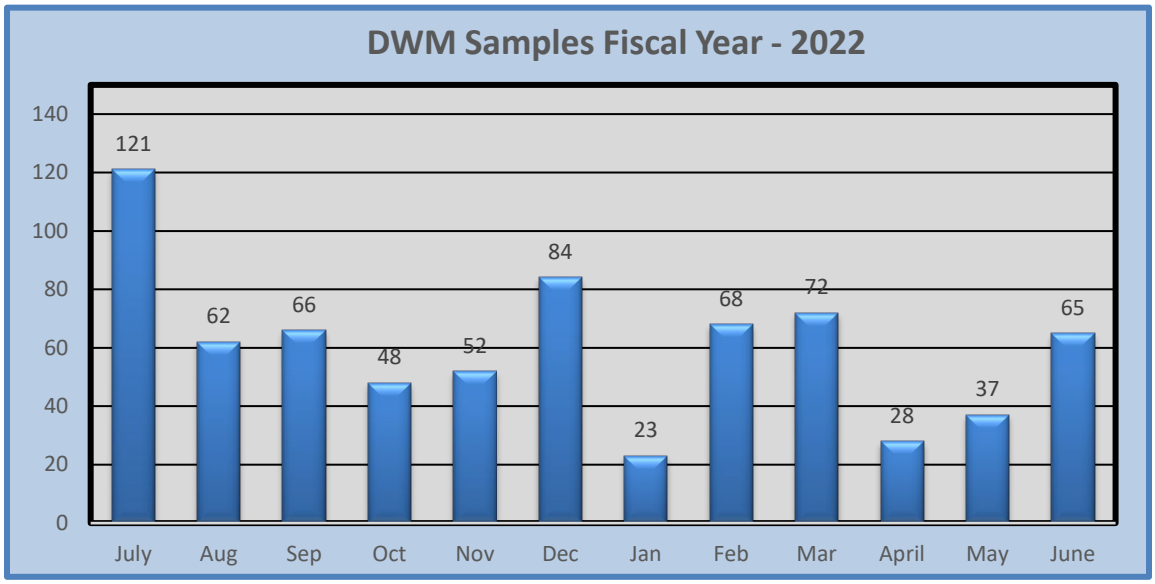


The spreadsheet below shows the total number of samples that the Division of Water programs brought into the DEPS lab during this past fiscal year along with the number from the previous two years. This data provides you with some idea as to what type of project changes have occurred over a longer period. Some programs may have been affected by the pandemic while others were scheduled to begin or end without any undue influence from an outside source.

DOW Programs	FY20	FY21	FY22
A02 - 106 Grant	290	249	238
A07 - Lakes - HAB Study	138		8
A16 - Lakes	128	13	141
A17 - Probabilistic	24	41	101
A18 - Drinking Water	256	21	205
A19 - Ambient	976	1070	1131

A20 - Fish Tissue	**193**	**209**	**328**
A21 - Groundwater	**23**	**26**	**40**
A22 - Wild Rivers	**41**	**30**	**46**
A25 - Reference Reach	**103**	**160**	**142**
A29 - Intensive Survey	**7**		
A39 - Groundwater Monitoring	**200**	**216**	**202**
A40 - Floyds Fork Monitoring	**165**		
A44 - TMDL	**82**	**5**	**2**
A46 - Success Monitoring	**494**	**149**	**109**
A49 - Smock Creek and Green River		**55**	
A51 - Supply QA & QC			**11**
A56 - Wetlands Monitoring	**167**		**26**
A66 - Cause and Source Analysis	**42**		**3**
A67 - 2020 NPS Glenn's Creek		**56**	**92**
A70 - PFAS	**227**	**213**	**180**

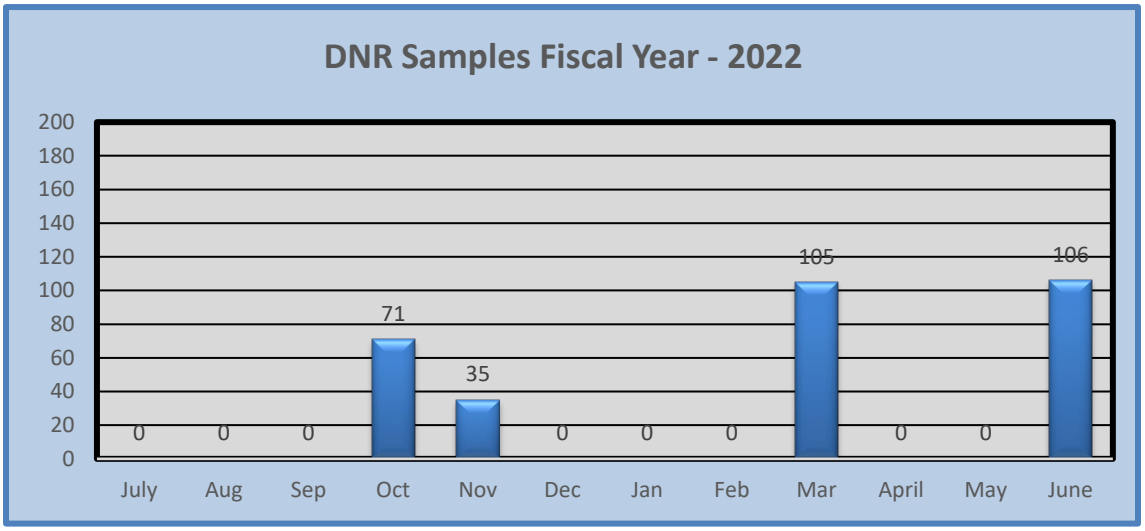
The below chart shows the sample collection/sampling activities for the DWM programs in fiscal year 2022, broken down in monthly intervals. The total number of samples that the DEPS logged in during this time frame total 726 with a monthly average number of samples being around 60. The Emergency Response Team samples are included in this DWM wrap up.



The spreadsheet below shows the total number of samples that the Division of Waste Management brought into the DEPS lab during this past fiscal year along with the number from the previous two years. This data hopefully provides one with a better idea as to what type of project changes have occurred over a little longer period. Some programs may have been affected by the pandemic while others were scheduled to begin or end without any undue influence from an outside source. Projects come and go like the Oil and Gas Well project. The B86 code has been set up for the DWM PFAS project and this one should show significant increases over the next couple of years.

DWM Programs	FY20	FY21	FY22
B02 - HW RCRA	46	23	56
B03 - HW Solid Waste	146	115	171
B11 - Oil and Gas Well	15		
B13 - Urban Background Study	177		
B24 - UST		12	31
B25 - HW State CERCLA	122	198	225
B51 - PGDP	144	188	189
B86 - HW -Fed CERCLA Brownfields			13
E01 - ERT	120	55	41

The below chart shows the sample collection/sampling activities for the DNR programs in fiscal year 2022, broken down in monthly intervals. The total number of samples that the DEPS logged in during this time frame total 317. DNRs CHIA or Cumulative Hydrologic Impact Assessment program is the main program for DNR currently. They collect their samples on a quarterly basis. AML or Abandoned Mine Lands is included but have not been as active over the last three years due to budget constraints. Their numbers will hopefully rebound in FY23.



The spreadsheet below shows the total number of samples that the Department of Natural Resources brought into the DEPS lab during this past fiscal year along with the number from the previous two years. This data is being provided to give one a better understanding of the normal routine or flow of samples from these two areas. Both programs were affected by the pandemic.

FY2021-22	FY20	FY21	FY22
P01 - CHIA	244	105	316
P04 - AML	4		1