

Puerto Rico Electric Power Transmission and Distribution System

Puerto Rico Public-Private Partnerships Authority

November 25, 2019

Appendices

Prepared by: PSEG Puerto Rico LLC

CONFIDENTIAL AND PROPRIETARY DATA

This proposed Operation and Maintenance Agreement (OMA) includes information and data which in accordance with the instructions in the RFP has been marked as “confidential and proprietary”, and shall not be disclosed outside of the Puerto Rico Electric Power Authority (PREPA) and their advisors for this project and shall not be duplicated, used, or disclosed – in whole or in part - for any purpose other than to evaluate this response.

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1.4 Approach to O&M Services

1.4.A PSE&G Sustainability Report

2018



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Message from the Chairman



Ralph Izzo
Chairman, President and Chief Executive
Officer, Public Service Enterprise Group

The latest report from the UN's Intergovernmental Panel on Climate Change delivered sobering news: The world's nations are not acting quickly enough to avoid the most damaging impacts of climate change. Under current policies, we will miss our global carbon-reduction targets needed to avoid such effects as rising temperatures, drought and sea-level rise.

The report's authors reiterated that the most effective path to deep decarbonization is to reduce our reliance on fossil fuels – and coal, in particular.

I believe, and I have said often, that man-made climate change and our response to it are the preeminent challenge of our time. How PSEG and others in our industry respond to this challenge will define our legacy.

Not only must the energy sector rise to meet this challenge, but I also believe that the industry can be a catalyst for change that spreads to all corners of the economy, as private industry leads America's movement toward sustainability and toward meeting our moral obligation to help reduce global carbon emissions.

I'm extremely proud to say that PSEG has taken bold steps toward a low-carbon future. We have proposed a combination of energy efficiency improvements, renewable energy development, vehicle electrification and clean power generation – a full-time effort that we are confident will help us make significant progress toward that future.

We recognize that society wants – and the threat of climate change compels us to provide – cleaner energy with lower emissions. Clearly, the development of renewables, such as solar and wind, will continue to occupy center stage in the transformation of the energy sector. At PSEG, we've been busy building grid-connected solar farms on landfills and old industrial sites to provide clean energy to all of our customers, regardless of income or geography.

New Jersey, under the leadership of Gov. Phil Murphy, is embarking upon the nation's largest effort to develop offshore wind generation – a significant step toward New Jersey's goal of 3,500 megawatts by 2030.

However, energy security requires a diversity of resources. That's why we can't afford to lose sight of the fact that existing nuclear power safely supplies nearly half of New Jersey's electricity and more than 90 percent of its carbon-free electricity. Nor should we overlook the contribution of low-cost natural gas in replacing coal as the nation's leading fuel source of electrical power.

The combination of these factors – investment in renewables, preservation of nuclear and the continued phase-out of coal – have helped U.S. power producers shrink their carbon footprint and drop below the transportation sector in overall impact on the climate.

Our utility also is taking steps to reduce emissions.

Around the country, natural gas utilities – especially those with older infrastructure, such as PSE&G and

others in Northeastern cities – are modernizing their underground networks by replacing aging cast-iron and unprotected steel pipes with more durable materials that are less prone to leaks that are a source of methane emissions.

But at PSEG, we also are pursuing a larger picture – one that includes re-imagining our entire business model, from one that is based on selling as much gas and electricity as possible to one that is aimed, instead, at helping customers save energy.

In October, PSE&G introduced the [largest energy efficiency program](#) ever proposed in New Jersey. I am extremely proud of this initiative, which aims to reduce our state's energy consumption by as much as 2 percent and has the potential to more than double our recent carbon reduction goal of 13 million tons.

By building an energy system that is based on using less, we can help customers save energy and save money, while also limiting our collective impact on the environment.

Building a sustainable, low-carbon energy future may be the largest civic works project ever undertaken. PSEG has a clear responsibility to assume a leadership role.

To accomplish these reductions and savings, it will require thousands – maybe millions – of intermediate steps. We have 2.5 million electric and gas customers across our New Jersey service territories and we need to take advantage of each individual relationship to spread the benefits of sustainability in the same way utilities spread the availability of electricity and gas over the past century: one customer, one community at a time. Clean energy resources, such as solar and wind, will be part of that. Other innovations, such as electrifying transportation and energy storage, will be transformative.

But I believe it is energy efficiency – reshaping our business by helping customers to reduce their energy consumption – that has the power to revolutionize the energy sector and provide the sweeping reductions that are needed to meet our climate challenges.

Every little bit helps. If we do what we can for each customer, the ripple effect of energy efficiency will surpass all others in its value to environmental and climate health.



Ralph Izzo
Chairman, President and Chief Executive Officer, Public Service Enterprise Group Incorporated,
December 2018

Our New Focus on Citizenship



Rick Thigpen
Senior Vice President,
Corporate Citizenship

PSEG has established a longstanding legacy of investing in the communities we serve. We sincerely believe that a successful company has a duty to not only support, but also to lift up, each of these communities.

The core values that have defined PSEG since its inception more than 115 years ago continue to guide us today. While many things have changed in that time, our commitments to our employees, shareholders, customers and communities have remained constant. Each of these commitments will ensure that we thrive during our second century of People providing Safe, reliable, Economic and Greener energy.

Our stakeholders expect us not only to be a commercial enterprise, but also to serve a social purpose. At PSEG, we consider it our responsibility to create value for our stakeholders while also contributing to societal objectives.

This year, PSEG established a new business function devoted to Corporate Citizenship – a change that recognizes the relevance of citizenship to the strategic business objectives of our company. The purpose of this new unit, which also includes our Sustainability function, is to reinforce the ideal of our founder, Thomas McCarter – “to serve the state of New Jersey and to make it a better place in which to work and live” – and, at the same time, to implement our progressive regulatory agenda, to respect and enhance the priorities of the diverse communities we serve, and to fulfill our stakeholders’ expectations.

PSEG’s ability to deliver on its mission also depends on the diverse talents of our employees. We have a responsibility to develop our workforce in line with our strategic goals. Our efforts to promote diversity and inclusion make us a stronger company, and our support for wellness programs helps us maintain a healthier and safer workforce of more than 13,000 employees.

PSEG’s commitment to corporate citizenship and sustainability is balanced between our social and environmental responsibilities – and reflects our dedication to acting in a manner that is responsible, ethical and deliberate, balancing the needs of the business with the needs of the community.

This report reflects our commitment to transparency and disclosure, and details our balanced approach to key environmental, social and governance (ESG) issues, including the U.N. Sustainable Development Goals and our newly established human rights practice.

We are proud to present PSEG’s 2018 Sustainability Report.

A handwritten signature in black ink, appearing to read 'Rick Thigpen', written over a light grey background.

Rick Thigpen
Senior Vice President, Corporate Citizenship

About This Report



Public Service Enterprise Group Inc. (PSEG) strives to be a leader in building an economically strong, environmentally responsible energy future.

We are pleased to share with our customers, communities, shareholders and employees our 2018 Sustainability Report, which updates our progress toward this goal.

Sustainability is deeply woven into our history, but takes on new dimensions all the time. This new report – our ninth in a series – discusses the many ways that our focus on sustainability aligns with our vision for being a recognized leader for **P**eople providing **S**afe, reliable, **E**conomic and **G**reener energy.

Each section of this report offers a critical look at the issues that matter most to our company and stakeholders as we strive to enhance the benefits we bring to people and reduce our environmental impact.

In this report, the first that is completely web-based, we discuss a number of key challenges and our concerted efforts to transform these challenges into growth opportunities. We are determined to continue our leadership role by working hard every day to better serve our customers and navigate an ever-changing energy marketplace.

This report was developed primarily according to the Global Reporting Initiative (GRI) G4. A complete GRI guide is available [here](#) and includes the Electric Utility Sector Supplement for reporting on industry-specific information.

Additionally, to better serve our customers and investors, PSEG is incorporating the Edison Electric Institute's (EEI) Version 1 environmental, social, governance and sustainability-related (ESG/sustainability) reporting template into its annual reporting. This is part of an ongoing EEI-led initiative to help provide the financial community with more uniform and consistent ESG/sustainability data and information. EEI launched a pilot ESG/sustainability reporting template in December 2017. The latest version of the template is available [here](#).

Feedback

We welcome your feedback on our performance and reporting. For additional information about this report, the Global Reporting Initiative information posted on our website or PSEG's sustainability initiatives, please contact Angela Ortiz at Angela.Ortiz@pseg.com or send your comments to sustainability@pseg.com.

PSEG's Sustainability Approach



Parklands Solar Farm (10.14 MW-dc)
The Parklands Landfill, Bordentown, NJ

Sustainability is an approach to living life with a long-term view. It's how we manage the resources that sustain our lives – human, economic, environmental and the surrounding social fabric.

Energy empowers people and enables improvements in quality of life – it affects how we provide education and health care, and it drives the economic development necessary to ensure that every child grows up to have an equal opportunity to live a healthy, productive and economically viable life. We think about enabling that kind of future.

At PSEG, we innovate across our business, finding new ways to reduce energy consumption and deliver power to our customers more efficiently and sustainably. We help communities prosper. We invest in people.

It is important that we, at PSEG, put social awareness, economic growth and environmental protection – equally – at the forefront of our agenda. They are not mutually exclusive concepts. In fact, together they define sustainability.

Ultimately, our vision for PSEG is one where sustainability – for the benefit of the environment, the economy and our organization – is integrated seamlessly with our overall goal of making New Jersey a better place to work and live.

How We Manage Sustainability

Employees across the entire company, at all levels, are involved with managing sustainability. We pride ourselves on being a company with strong leadership, engaged employees and proven processes to manage sustainability throughout the business. We continue to emphasize the role that all of our employees have in achieving higher levels of operational excellence, which is fundamental to the future we are trying to build as a diverse, successful enterprise.

Our focus on sustainability reflects a deep recognition that our continued ability to prosper as a business depends on helping others to prosper, too. Thus, we have expanded the definition of success to include not only profitability, but also several environmental and social dimensions of performance. We strive to be both systematic and comprehensive in our approach to sustainability-related issues. Doing so helps us to remain true to our most important commitments and to further improve performance.

Leading from the Top

Sustainability begins with our leadership. PSEG's Executive Officer Group is responsible for providing sound leadership and management that contributes to the company's long-term success and sets the right example for employees. Representing a wide range of experience, our officers take an active leadership role not only with regard to our business goals, but also with environmental issues and community and employee engagement.

PSEG established a corporate Environmental, Health and Safety (EHS) Policy in 1996. This policy, reviewed and approved by the PSEG Board of Directors, reflects the principles by which PSEG operates in eight areas: associate health and safety, nuclear safety, climate change, environmental compliance, risk reduction, pollution prevention and resource conservation, open communication and continuous improvement.

[Learn more](#) about PSEG's EH&S Policy and Environmental Management System.

Corporate Sustainability Goals

With all of our sustainability efforts, we set our sights on supporting PSEG's strategic business model as well as our strategic objectives. The sustainability goals we have set for ourselves reflect the alignment between our sustainability approach and the way we conduct our business.

Goal 1: To be a clear leader in reliability and safety, customer service and providing clean energy

Goal 2: To be recognized as a great place to work where engaged employees are our differentiator

Goal 3: To be a thought-leader and active implementer of energy and environmental policy goals

Goal 4: To be a strong partner of all the communities in which we operate, in keeping with our role for more than 100 years in promoting a more sustainable future

Our Priority Issues

For the report, we focus our efforts on the following issues that we consider are most relevant to our business, the communities we serve and our environmental impacts and the risks and opportunities associated with them.

- Reliability and resiliency
- Stakeholder engagement
- Employee engagement
- Strong [commitment to our customers](#)
- Financial performance
- Clean air and climate change
- Energy efficiency
- Renewable energy
- Talent attraction and retention
- Diversity & inclusion

We develop goals and management processes for most of these, which are described in more detail throughout this report.

Governance and company profile



Economic Performance

Summary of economic
Key Performance Indicators.

[VIEW SUMMARY](#)

About PSEG

Company Overview

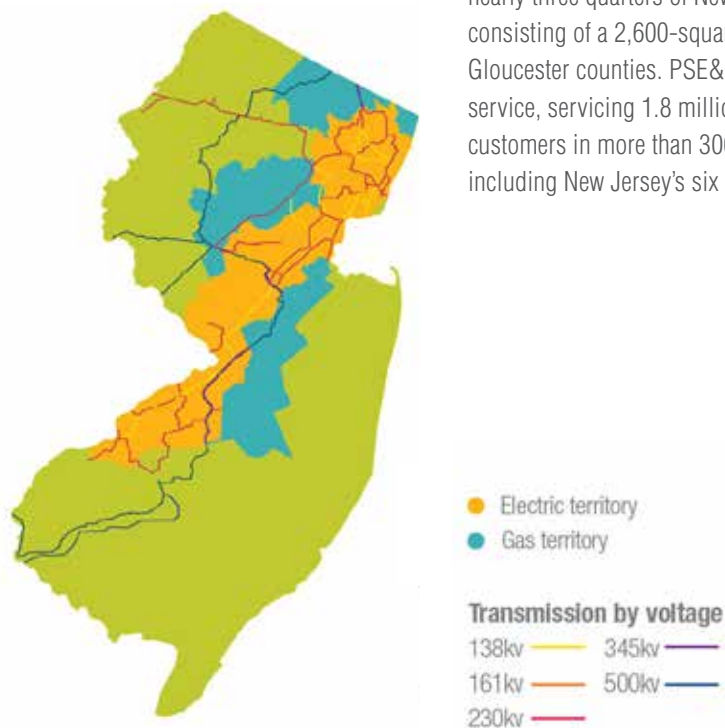
Public Service Enterprise Group Incorporated (PSEG) is New Jersey's largest provider of electric and gas service, serving 2.2 million electric customers and 1.8 million gas customers, approximately 70 percent of the state's population. We also own and operate an 11,500-megawatt fleet of power plants in the Northeast and Mid-Atlantic regions of the United States. We have been recognized not only for outstanding reliability, but also for our renewable solar energy and energy efficiency efforts. PSEG has been named to the Dow Jones Sustainability North America Index for 11 consecutive years. In 2016, PSEG was named to the first-ever Forbes "Just 100" list of companies celebrated as exemplary corporate citizens. PSEG is a publicly traded (NYSE: PEG) diversified energy company among the nation's leading utilities with approximately \$40 billion in assets and a member of the Standard and Poor's 500. Our headquarters are in Newark, New Jersey. PSEG's principle operating subsidiaries are Public Service Electric and Gas Company (PSE&G), PSEG Power LLC (PSEG Power) and PSEG Long Island LLC.



Public Service Electric and Gas Company (PSE&G)

Public Service Electric and Gas Company is a regulated public utility company engaged in the transmission and distribution of gas and electricity. One of the largest combined electric and gas companies in the United States, PSE&G is also New Jersey's oldest and largest publicly owned utility. The Public Service Corporation was formed in 1903 by amalgamating more than 400 gas, electric and transportation companies in New Jersey; it was renamed Public Service Electric and Gas Company in 1948. PSE&G currently serves

nearly three quarters of New Jersey's population in a service area consisting of a 2,600-square-mile diagonal corridor from Bergen to Gloucester counties. PSE&G is the largest provider of gas and electric service, servicing 1.8 million gas customers and 2.2 million electric customers in more than 300 urban, suburban and rural communities, including New Jersey's six largest cities.



PSEG Power

A major independent power producer in the U.S., [PSEG Power](#) operates one of the most balanced portfolios in the country, both in terms of fuel mix and market segment (base load, load following and peaking), which helps us generate the power our customers need, when they need it. PSEG Power also is focused on transforming its generating fleet with reliable, efficient and cleaner energy, nearing the completion of its 1,800 MW construction program of new gas-fired combined-cycle generation at three sites. New plants in Sewaren, New Jersey, and Prince George's County, Maryland, were placed in service in 2018. The third, in Bridgeport, Connecticut, is expected to come online in 2019.



- PSEG Fossil operates the company's portfolio of natural gas, coal and oil-fired electric generating units.
- PSEG Nuclear operates the Salem and Hope Creek Nuclear Generating Stations in Lower Alloways Creek, New Jersey, and is a part-owner of the Peach Bottom Nuclear Generation Station in Delta, Pennsylvania.
- PSEG Energy Resources & Trade
- PSEG Power Ventures
- PSEG Solar Source

PSEG Long Island

PSEG Long Island operates the electric transmission and distribution system of the Long Island Power Authority (LIPA), serving approximately 1.1 million customers in Nassau and Suffolk counties and the Rockaway peninsula of Queens, New York. PSEG Long Island began operations on January 1, 2014, under a 12-year agreement. In January 2015, PSEG Power began providing fuel procurement and power management services for LIPA under a separate agreement. PSEG Long Island has committed to improving processes and public perception with the goal of becoming a best-in-class electric utility.



PSEG's Vision, Strategy, Commitments

This year marks PSEG's 115th year as a company, a testament to the sustainability of our business model that benefits our customers, our shareholders and the communities we serve. PSEG's vision is to be a recognized leader for safe, reliable, economic and greener energy – today and for our next 115 years – a vision that expresses the value of who we are and what we have been throughout our long history.

To achieve this vision and ensure sustainability, PSEG has long pursued a business strategy based on operational excellence, financial strength and disciplined investment. We emphasize sound fundamentals in executing our strategy, including through our efforts to:

- Improve utility operations by increasing our investments in transmission and distribution infrastructure projects designed to enhance system reliability and resiliency, meet our customers' expectations and support public policy objectives;
- Maintain and expand a reliable, efficient and environmentally responsible generation fleet with the flexibility to utilize a diverse mix of fuels, allowing us to respond to market volatility and capitalize on opportunities; and
- Sustain a solid financial profile capable of meeting our growth objectives.

Reinforcing Our Core Commitments

PSEG has a long history of ethical behavior on which we have built our business and earned the trust of those we serve. A good name is more than a source of pride; it gives us credibility in the marketplace, in the communities where we work and among current and potential employees.



In a changing business climate, we recognize the importance of constantly reinforcing the guiding principles that we stand for and live by, in all we do as a company and in the behaviors and actions of our 13,000 employees. We recently strengthened our already robust compliance program with the addition of a new chief compliance officer. We emphasize five Core Commitments:

- Safety
- Integrity
- Continuous Improvement
- Diversity & Inclusion
- Customer Service

Standards and values guide the company

Our standards go beyond integrity. Reflecting this, we adopted a new name – the PSEG Standards of Conduct – to emphasize that our standards represent how we conduct ourselves in the way we do business.

The PSEG Standards of Conduct and Core Commitments form the foundation of our ethics program.

PSEG is committed to conducting operations in accordance with the highest ethical standards and in compliance with the law. We require every employee and contractor to uphold our commitments and standards to work with PSEG.

The PSEG Standards of Conduct, reviewed and approved by the PSEG Board of Directors, describes the company's expectation of employee and contractor conduct in the workplace. Our Standards of Conduct set common expectations for interaction with investors, customers, coworkers, competitors, vendors, government officials, the media and others. Our entire staff of management, administrative, supervisory and technical associates must complete training on the Standards of Conduct and results are reported to the Audit Committee of the Board of Directors annually. We ensure accountability by defining responsibility, reporting breaches, tracking results and responding to issues.



Corporate Governance

Through the oversight of our Board of Directors, guided by our [Corporate Governance Principles](#) and the [Standards of Conduct](#), we have established a leadership structure to effectively manage our business, focusing on operational excellence, financial strength and disciplined investment. Our risk management program forms an integral part of our corporate culture, along with the core values of safety, diversity and transparency.

Good governance promotes accountability and trust in our company. We have adopted what we believe are strong corporate governance standards and practices to assure effective management by our executives and oversight by our [Board of Directors](#).

Our Corporate Governance Principles and the charters of our board committees emphasize the independence and responsibilities of our outside directors. These are outlined in detail in our proxy statement, together with the skills and qualification of each member of our board. [Read more](#) about our board's committees and charters.

Engaging Our Stakeholders

Building strong relationships with our stakeholders is essential to maintain a high level of trust, understanding and service. We engage with stakeholders in various ways that accommodate their needs and

find that we learn a lot in the process. Connecting with our customers, investors, employees, communities, government officials, regulators and suppliers helps us run a better business to meet environmental and social expectations.

Some of our stakeholder interests overlap and some compete, so we have been striving to take a proactive approach that reaches out to:

- Educate stakeholders on our operations;
- Support and engage in local community activities, initiatives, and betterment programs;
- Respond openly and immediately to stakeholder concerns about construction, design, operation and environmental compliance of our operations; and
- Give stakeholders a voice in decisions that could impact them.



PSEG STAKEHOLDERS

PSEG's Stakeholder Engagement Council helps with the definition of the engagement scope for each stakeholder and the available communication channels.

Our Regional Public Affairs managers are an important face of stakeholder engagement in each region of our utility service area. They are trained and experienced in addressing public concerns and facilitating public hearings for stakeholders. They manage each step of stakeholder engagement and make critical decisions to continually improve our stakeholder engagement practices.

PSEG Stakeholder Engagement Council

In 2015, PSEG established its Stakeholder Engagement Council. Governed by a charter, the council is led by an executive from our External Affairs organization and includes representatives from different parts of the company. The role of the council is to consider key issues the company is facing (short- and long-term), while also considering the interests and concerns of our key stakeholder groups and devising engagement strategies to find common denominators and design mutually beneficial strategies.

Ways we Engage Specific Stakeholders

Accountability is one of PSEG's most important core values, informing our efforts to build even stronger stakeholder relationships. We recognize that our credibility ultimately depends not on words but on deeds - on living up to our commitments and taking responsibility for our actions and results.

The importance of maintaining good, transparent lines of communications with our stakeholders cannot be overemphasized. Our experience is that different stakeholder groups prefer to communicate in different ways. We provide numerous channels tailored to the needs of each group for our stakeholders to communicate their interests and help us address issues or concerns.

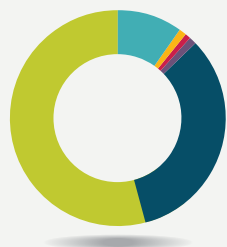
Economic Key Performance Indicators

Fleet Availability

Unit/Plant	2018 Capacity Factor (%)
Nuclear	
Salem Unit 1	97.9
Salem Unit 2	84.6
Hope Creek	88.8
Peach Bottom Unit 2	93.4
Peach Bottom Unit 3	94.2
Coal	
Keystone	83.4
Conemaugh	76.9

2018 Energy Produced

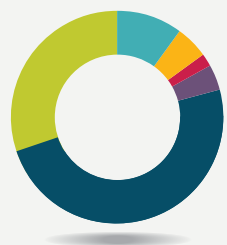
Total 57,093 GWh



Gas **33%**
Nuclear **55%**
Coal **10%**
Oil/Kalaeloa **1%**
Pumped Storage **<1%**
Solar **<1%**

2018 Fuel Diversity

Installed Capacity – Total MW 11,872



Gas **49%**
Nuclear **31%**
Coal **10%**
Oil/Kalaeloa **5%**
Pumped Storage **2%**
Solar **3%**

Power Operations

We are determined to be a leader in our industry through our commitment to operational excellence, financial strength and disciplined investment.

Reliability at PSEG is also about having power plants that are available to run as needed to help meet the energy needs of millions of people. Our generation fleet is not only one of the largest in the northeastern United States, but also one of the most diverse by fuel mix and dispatch capability. This diversity improves our ability to meet market demand around the clock from season to season.

PSEG Power faces challenges primarily due to a changing energy marketplace driven by lower prices. In response, our generation portfolio has been reconfigured to establish a more efficient, less carbon-intensive fleet. At the same time, we continue to find ways to increase the efficiency and performance of PSEG Power assets while lowering costs – without compromising safety or reliability.

Economic Key Performance Indicators

Utility Operations

	<i>Number of Customers December 31, 2018</i>	<i>Electric Sales/Gas Sold & Transported</i>
Electric	2.3 million	41,889 GWh
Gas	1.8 million	2,630 M Therms ¹
	<i>Historical Annual Load Growth 2014-2018</i>	<i>Projected Annual Load Growth 2018-2020E²</i>
Electric	0.3%	1.0%
Gas	1.7%	0.4%

Sales Statistics

Data as of December 31, 2018

2018 Sales Mix

	<i>Residential</i>	<i>Commercial</i>	<i>Industrial</i>	<i>2018 Peak Load</i>
Electric	33%	58%	9%	~10,000MW
Gas	58%	38%	4%	—

Transmission Statistics

	<i>Network Circuit Miles</i>	<i>Base Return on Equity³</i>	<i>2018 YE Rate Base</i>
Electric Transmission	1,941	11.68%	\$8.7B

Utility Operations

PSE&G currently serves nearly three quarters of New Jersey's population in a service area consisting of a 2,600-square-mile diagonal corridor across the state from Bergen to Gloucester Counties. PSE&G is the largest provider of gas and electric service, servicing 1.8 million gas customers and 2.3 million electric customers in more than 300 urban, suburban and rural communities, including New Jersey's six largest cities. PSE&G invested \$3 billion in 2018 capital expenditures to upgrade, expand and enhance the reliability and resiliency of its electric and gas Transmission and Distribution system. ReliabilityOne has recognized PSE&G as the most reliable electric utility in the Mid-Atlantic region for the 17th consecutive year in 2018.

¹ Firm gas sales only.

² Estimated annual growth per year, assumes normal weather.

³ FERC ROE is comprised of a base 11.18% plus a 0.50% adder for participation in a regional transmission organization (RTO). Certain PSE&G projects also have various ROE adders approved by the FERC to promote transmission infrastructure development.

E = Estimated

Economic Key Performance Indicators

Electric and Gas Distribution and Solar Statistics

	<i>Network Miles/Solar MW Installed</i>	<i>Base Return on Equity</i>	<i>2018 YE Rate Base</i>
Electric Distribution	22,468	9.6%	\$10.0B
Gas Distribution	18,000		
Solar and EE Assets	122 MW _{DC}		\$0.6B

Renewables Program

	<i>2009–2018 In Service</i>	<i>Total MW Program Plan</i>	<i>Total Investment</i>
Solar Loan I, II, III	118 MW	178 MW	\$298 Million
Solar 4 All, Extension & Ext. II	122 MW	158 MW	\$638 Million

Solar 4 All is our 158 megawatt (MW) program that utilizes rooftops, solar farms, utility poles and landfills/brownfields for large-scale, grid connected solar projects. The revenue PSE&G receives from the sale of solar energy, capacity, the sale of the solar credits (SRECs) and the federal investment tax credit (ITC) realized is returned to customers, offsetting the overall cost of the Solar 4 All Program.

The **Solar Loan** Program is the second piece of PSE&G's solar development strategy. PSE&G's program has made approximately \$298 million of financing available through year-end 2018 to help homeowners and businesses develop approximately 1,500 solar installations (118 MW of solar capacity). The loans generally finance up to 70% of the total cost of the solar installation and are repaid using solar renewable energy credits (SRECs), which are generated by the solar installation.

Economically Vibrant Energy Future



Powering Progress

The modern electric grid is one of the 20th century's great achievements. This didn't happen by chance. For more than a century, the mission and mandate of utilities were closely aligned with a major goal of society: Providing universal access to an around-the-clock supply of reliable, affordable power.

As larger community goals have changed, energy companies such as PSEG have evolved to remain aligned with them – for example, by helping to meet urgent deadlines for reducing global emissions of carbon dioxide and other greenhouse gases.

Today, the role of the utility is evolving as we adjust to meet the changing expectations of customers. At PSEG, our vision of the future is one where customers use less energy, the energy they use is cleaner, and its delivery is more reliable and more resilient than ever.

Under the banner of “[Powering Progress](#),” our company has established new business priorities to help this vision of the future become a reality – for the benefit of the environment, our customers and our shareholders. Our new priorities include:

Energy efficiency: The first and most significant change will be a reordered focus of our core mission – shifting from the 20th-century model in which utilities sought to sell as much electricity as possible, to a new approach in which our mandate is to help customers use less energy and, by doing so, help them to save money on their monthly bills.

We believe this transition to energy efficiency must be a top priority for utilities in the future. Energy efficiency delivers clean energy benefits similar to solar or wind, but at a fraction of the cost to consumers.



Clean energy: The U.S. and other nations already are beginning the conversion to renewable resources, such as solar, terrestrial wind and offshore wind. PSEG is New Jersey's leading developer of solar energy resources and is a supporter of multi-state efforts to develop offshore wind facilities off the Mid-Atlantic coastline.

We also must continue to work with state and federal policymakers to preserve our existing carbon-free energy sources, such as nuclear.

And because transportation represents the nation's largest source of greenhouse gases, utilities should lead the drive to electrify the sector – cars, trucks, buses and trains – by investing in a universal EV-charging infrastructure.

Connected customers: Energy companies are reimagining the electric grid as a digital network that not only delivers electricity, but also provides customers access to a universe of clean energy resources and services. In the short-term, such smart grid technology would provide real-time data on outages – and give restoration crews the information they need to respond to disruptions immediately.

Smart-grid technology also will enable customers to access a variety of data to help customize their energy use in whatever manner suits their needs.

Infrastructure: Energy companies evolve, we must also realize that the existing energy grid remains essential. That's why we should continue to invest in modernizing the nation's aging electric and gas infrastructure.

And finally, to achieve this vision, and ensure sustainability, PSEG has long pursued a business strategy based on operational excellence, financial strength and disciplined investment.

Energy companies are leading a new era of growth and change that will once again provide widespread benefits for the communities we serve. If utilities are able to evolve quickly, we can and will lead the energy industry toward a stronger, cleaner, more efficient future.



Reliability is the foundation of our success

Since our company was founded in 1903, customers have relied upon PSE&G to keep the power flowing. Even as storms grow more severe, our 2.2 million electric customers and 1.8 million gas customers expect the lights to stay on and to have high quality gas service. We're proud to meet these reliability expectations, time and time again.

PSE&G designed and constructed a large portion of New Jersey's energy grid to last – and it shows. Our electric and gas infrastructure is the foundation for one of the most reliable, resilient utilities in the nation. We have been named the [Mid-Atlantic region's most reliable electric utility for 17 consecutive years](#). Nationwide, PSE&G's reliability ranks among the top 10 percent of utilities with more than 500,000 customers.

PSE&G's average system outage duration is 45 minutes, substantially lower than the national average of 1 hour 47 minutes, and many of our customers do not experience any outages. When the power does go out – usually when a storm brings down tree limbs and power lines – PSE&G customers on average are restored within 71 minutes, one of the best response rates in the industry. PSE&G responds to gas leaks within an hour 99.9 percent of the time. [Learn more](#) about our Electric System Upgrades.

As customer needs and weather patterns change, we must continue to make the necessary investments in the infrastructure and programs that are the very foundation of our state's economy and way of life. PSE&G has a projected capital investment program of \$12 - \$16 billion over the next five years to continue our momentum to modernize and upgrade the transmission grid. That builds upon the \$13.7 billion worth of investments made in the past decade to maintain the reliability that our customers have come to expect.

Under our Energy Strong program, for example, we are elevating switching and substations to minimize the risk of losing power. We are infusing the network with advanced microprocessors and other advanced technology to more quickly identify trouble spots and expedite repairs. Today, nearly 500,000 customers who lost power under Superstorm Sandy will not lose power when the next big storm hits. [Learn more](#) about our Energy Strong Program.

With PSE&G's Gas System Modernization Program, which began in 2016, we are accelerating replacement of aging cast-iron and unprotected steel gas pipes in communities across our territory to reduce leaking methane, a potent greenhouse gas. By the end of 2018, approximately 450 miles of high-risk pipe will have been replaced, with 875 miles more to be replaced by 2023. [Learn more](#) about our Gas System Modernization Program.

Our groundbreaking [Clean Energy Future](#) proposal also would have enormous benefits for the environment, customers and the company. These three filings call for historic investments in energy efficiency, electric vehicle charging infrastructure, in utility-scale energy storage capabilities, and in technology, including smart meters, that will help PSE&G take great leaps forward in sustainability, reliability and resiliency. See the details here: <https://www.psegpoweringprogress.com/>

In 2018, PSE&G proposed a five-year extension of Energy Strong that calls for the continued hardening of gas metering and regulating stations against flooding, as well as to reduce potential methane releases and add redundancy to the natural gas system in the event of a major gas supply disruption.

Working with Suppliers



We value suppliers who share our commitment to reliability, quality and integrity. We have strong relationships with our suppliers and depend on them to meet the highest standards of service.

Working with as many suppliers as we do is a complex process that requires thoughtful and meticulous management. We expect our suppliers to meet our ethical standards and have a procurement and supplier management process that conforms to the highest standards in the industry.

PSEG's management practices and ethical code, our Standards of Conduct, are woven into everything we do, including our relationships with suppliers. When considered for a new contract of any type, suppliers go through a rigorous pre-qualification review. After contract award, PSEG Procurement monitors the performance of key suppliers in concert with the Corporate Health and Safety organization. In addition, a third-party compliance auditor verifies certain health and safety information to conform with regulatory and PSEG standards. Key suppliers are graded based upon performance metrics and incentives are included in a majority of key supplier contracts. [Read more](#) about our relationship with suppliers.

Supplier Diversity

PSEG's [supplier diversity](#) process has been in place for over 30 years, utilizing a number of processes and initiatives to grow business relationships and expenditures with certified minority-women-veteran-, and service disabled veteran-owned businesses. In 2017, PSEG achieved historic results by spending more than \$532 million or 18.6 percent with MWVBE's due in part to PSEG's internal performance goals, aggressive outreach methods, business advocacy partnerships, education, mentoring and communication.

PSEG's primary outreach initiative is hosting PSEG-sponsored complementary external supplier diversity procurement fairs to connect and interview minority, women, veteran, and service disabled veteran-owned businesses for potential procurement opportunities with PSEG's Procurement organization and PSEG leadership. Each fair includes a supplier workshop on "How to do Business with PSEG with business

success tips” and a diverse supplier presentation. PSEG helps to expand attending business suppliers’ opportunities by including PSEG’s top prime suppliers, New Jersey-regulated utilities and major New Jersey corporations at each of its fairs.

PSEG is an active corporate member of numerous external supplier diversity advocacy organizations that share their extensive minority, women, veteran, and service disabled veteran-owned business databases for our procurement bid and contract inclusion.

Transforming our company with technology



For 115 years, PSEG has done business using traditional infrastructure – from pipes, poles and wires to technology. But that reliance on tradition is changing. Imagine your energy provider at the center of a two-way digital communication network, a transformation taking it from your everyday energy delivery company to a technology company that also provides energy services.

At PSEG, we are calling this transformation the Energy Cloud, a proposal that reimagines today’s energy grid as a network connecting homes and businesses with a universe of clean energy sources and services, using data to help customers customize their energy use in whatever manner suits their needs.

At the core of the Energy Cloud (proposed to the BPU in September 2018) is the implementation of smart meters – safe, state-of-the-art hardware and software that provide two-way communications between the customer and PSE&G, allowing for real-time data gathering and analysis.

Smart meters benefit customers because this technology can assist in shortening power outages, provides more accurate restoration times and providing more accurate billing and usage. It also benefits the environment – reducing our carbon footprint by reducing the number of PSE&G vehicles on the road; paving the way for broader adoption of clean energy such as rooftop solar; and providing useful data to improve vegetation management.

The Energy Cloud’s most transformative benefits are aimed at customers:

- Artificial intelligence will help PSE&G anticipate a customer billing question or generate offers for smart home automation, WorryFree appliance monitoring or an energy efficiency program;
- Machine learning will analyze smart meter data and detect anomalies such as an outage or an aging appliance, alert the customer and recommend a remediation plan;
- Smart home assistants, such as Google or Amazon AI assistant, will help customers manage their financial and sustainability goals with functions like setting a monthly spend or carbon footprint target

Smart meters are central to the Energy Cloud because they provide the customer data that enables this array of new tools and services.

PSE&G also will soon be able to digitize nearly 100 percent of customer interactions, resulting in reduced costs and increased customer satisfaction.

Our technological transformation won't stop there. Generating electricity with very low levels of carbon pollution will be a vital part of New Jersey's clean energy future.

Utilizing energy storage technology, PSE&G can better integrate renewable energy onto the electric grid, providing resiliency for critical infrastructure and enabling electric lines to handle greater capacity during times of peak electric use.

Advances in technology play a key role in PSEG's power generation business, as well. Continuing PSEG PSEG Power's efforts to increase reliability and operate a cleaner, more efficient fleet, PSEG Fossil commenced commercial operation of two new combined-cycle natural gas plants in 2018, in Sewaren, New Jersey and Prince George's County, Maryland. A third is under construction in Bridgeport, Connecticut, scheduled for operation in June 2019.

These combined-cycle plants use state-of-the-art emissions control technology, resulting in cleaner generating capacity to help meet their regions' energy needs. They run primarily on clean, efficient natural gas and will support electric system reliability for the next 40 years.

Greening the energy future



Responding to the challenge of climate change

PSEG has recognized for several decades that climate change is a real phenomenon that impacts our planet. Inclusion of climate change in our business plans has been a part of the PSEG culture since 1990. PSEG recognizes that there is no simple or short-term solution to address both mitigation and adaptation of global climate change. As new challenges arise, we have adapted our business plans to develop cost-effective solutions to meet these challenges.

New Jersey has been in the forefront on energy evolution. The state published its first Energy Master Plan (EMP) in 1991. The development of the EMP included input from a diverse group of stakeholders, including PSEG. The plan included policy positions and implementation strategies to meet the state's energy requirements through 2000. One of the initial state energy policy goals was "to protect our environment through wise and efficient energy use." In particular, the EMP encouraged the development of cost-effective solar energy and demand-side energy efficiency. PSEG embraced the goals of the EMP and actively sought actions to support these goals.

In parallel, the United States embraced a leadership role in developing strategies to address climate change when it signed onto the United Nations Framework Convention on Climate Change (UNFCCC)



in 1992. The objective of the UNFCCC treaty was to stabilize greenhouse gas emissions to 1990 levels by 2000. PSEG accepted the challenge and was the first electric utility in the United States to volunteer to participate in President Clinton's Climate Challenge Program in 1993. Our participation in the Climate Challenge Program was one mechanism to support New Jersey's goals under the EMP. We successfully met this goal and stabilized our carbon dioxide emissions from our New Jersey plants to 1990 levels by 2000.

PSEG sought additional opportunities to reduce our carbon footprint. PSE&G signed on to EPA's voluntary Natural Gas STAR Program in 1993. The Natural Gas STAR Program is designed to promote the implementation of cost-effective technologies and practices to reduce CH₄ emissions. Also, PSEG joined EPA's WasteWise Program in 1995. Under this program, partners demonstrate how they reduce waste and incorporate sustainable materials management into their waste-handling processes. The program provides a tool to calculate GHG emission reductions associated with recycling and waste-minimization activities. PSEG's recycling rates have consistently exceeded 90 percent.

Since the UNFCCC was founded, member countries have continued to meet annually to assess progress. In December 1997, the members reached agreement on the Kyoto Protocol on Climate Change. The Clinton Administration committed to a requirement to reduce total emissions on average of 7 percent below 1990 levels; however, Congress never ratified the treaty. Nevertheless, PSEG continued to acknowledge the electric utility industry's need to play a leadership role in developing national strategies to address climate change. Building on the success of the Global Climate Challenge Program, PSEG joined EPA's Climate Leaders program in 2002 to reduce the six greenhouse gases covered under the Kyoto Protocol – carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulfur hexafluoride (SF₆). Under this program, PSEG committed to reduce its CO₂-equivalent GHG emissions on a pound-per-megawatt-hour basis by 18 percent from 2000 levels by Dec. 31, 2008. PSEG surpassed this goal by achieving a 31 percent reduction, due primarily to the fact that more than half our power comes from nuclear generation.

New Jersey continued to be a leader in addressing climate change. Gov. Jon Corzine issued an Executive Order which, established goals to reduce GHG emissions by 80 percent below 2006 levels by 2050. The passage of the Global Warming Response Act of 2007 supports implementation of key elements of the executive order. As a leader in the energy industry and responsible corporate citizen, PSEG established a new goal of reducing economy-wide GHG emissions by 25 percent from 2005 levels by 2025. PSEG met this goal 14 years ahead of schedule. We achieved this goal through implementation of energy efficiency programs, deployment of renewable energy, increasing nuclear output and building clean, efficient natural gas plants. This transformation of the energy business in a cost-effective manner requires heightened collaboration with the state. Energy companies can deploy capital over the long term to ensure conservation and renewable energy gains are sustained. Funding

mechanisms are necessary to ensure utilities realize a fair return on investments. During this time, PSEG implemented the following:

- Received approval from NJBPU for PSE&G's [Solar Loan Program](#) which aids businesses and homeowners in financing solar panel installations
- Investment in grid-connected solar capacity outside of PSE&G's territory
- Received approval from NJBPU for several targeted energy efficiency programs
- [Hospital Efficiency Program](#)
- Residential Whole House Efficiency Program
- [Direct Install Program](#) (PSE&G's Energy Saver Program) for Small Businesses, Government Facilities and Non-Profits
- Residential Multifamily Housing Program
- Received approval from NPBPU to replace portions of PSE&G's old cast-iron and unprotected steel gas mains ([Gas System Modernization Program](#))
- Replacement of auto fleet with hybrids and introduced the nation's first hybrid bucket trucks
- Implemented employee workplace charging programs for PSEG employees and other employers in the PSE&G territory; and
- Lowered our carbon footprint by making several of our facilities more energy efficient through utilization of the U.S. Green Building Council's Leadership in Energy and Environmental Design rating system

In 2012, New Jersey was hit by Superstorm Sandy. The storm's ferocity revealed the vulnerability of our infrastructure to damage from severe storms. This event prompted PSEG to consider climate change adaptation into our business plans in addition to mitigation. PSE&G received approval from NJBPU to invest in resilient electricity and natural gas infrastructure in the wake of Superstorm Sandy (Energy Strong program).

In 2016, PSE&G became a founding partner of EPA's Natural Gas STAR Methane Challenge by committing to replace 1.5 percent of PSEG's cast-iron gas mains and associated service lines by 2021.

Thanks to a pioneer partnership between PSE&G, Environmental Defense Fund (EDF), Google Earth and Colorado State University, we have been able to benefit from the use of advanced methane detection technology to prioritize pipeline replacement efforts. By using that data to help plan gas line replacement

efforts, PSE&G was able to reduce methane emissions more quickly, by replacing significantly fewer miles of gas lines than would have been necessary to achieve the same emissions savings. The effort was part of a three year, \$905 million program approved by the New Jersey Board of Public Utilities in November 2015. As we move ahead with the implementation of the Gas System Modernization Program II, PSE&G is continuing the use of this technology in support of replacement planning prioritization. To learn more about our partnership, results and the Impact of leak flow rate on gas line replacement priority, [click here](#).

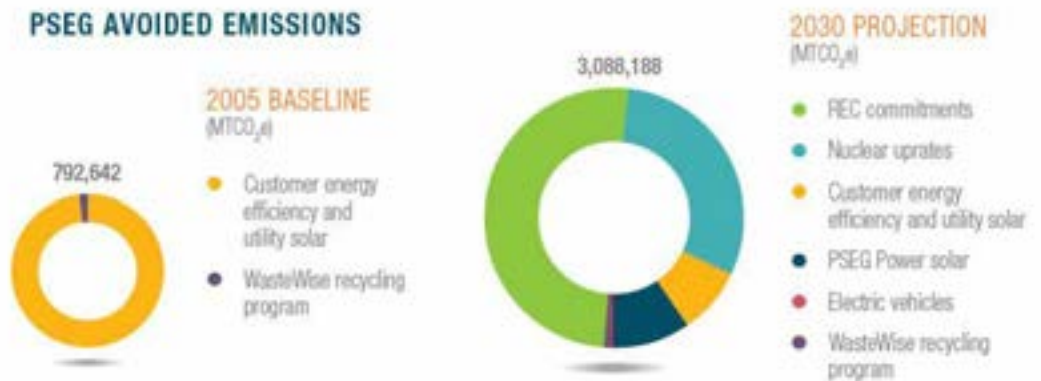
In 2017, we closed our two remaining New Jersey coal-burning power plants. Our coal-fired unit in Connecticut is scheduled to retire in 2021. At the same time, we are constructing three new power plants – one each in both New Jersey and Maryland, which opened in 2018, and a third in Connecticut, expected to open in 2019 – that each will use highly efficient, natural gas-fired combined-cycle technology. As we continue this transformation of our power business, emissions levels of NO_x and SO₂ as well as CO₂ and other pollutants will be reduced from our 2005 baseline, along with residuals from the coal-burning process and the need to employ chemicals to treat them.

PSEG is New Jersey's leading developer of renewable energy – having spent more than \$1.7 billion to develop large-scale, grid-connected solar projects in New Jersey and around the U.S., as well as providing loans to help customers finance solar capacity on homes and businesses. We also support New Jersey Gov. Phil Murphy's efforts to develop 3,500 megawatts of offshore wind resources.

In early 2018, PSEG announced its new goal of eliminating 13 million metric tons of CO₂-equivalent (MMTCO₂e) by 2030 from 2005 levels. Our new goal expands upon our previous reduction goals and includes activities that avoid GHG emissions. The new goal includes the following actions:

- Accounting for avoided emissions from the post-2005 uprates at our nuclear facilities
- Retirement of our New Jersey and Connecticut coal plants
- Efficiency upgrades of our existing natural gas combined-cycle fleet
- PSE&G's Gas System Modernization Program, which will begin a five-year second phase in 2019, replacing aging cast-iron and unprotected steel natural gas infrastructure with new, more durable plastics to reduce leaks of methane
- Continued replacement of traditional fleet vehicles with hybrid vehicles and the installation of idle mitigation technology on fleet vehicles
- Solar and energy efficiency investments and programs
- Electric vehicle charging programs for our employees and our commercial/industrial customers

- Recycling of industrial waste under EPA's Waste Wise program
- Emission reductions in fulfilling PSEG Power's REC commitments



PSEG believes that there are tremendous opportunities to further reduce GHG emissions through energy efficiency programs, but it will require a new regulatory compact. Energy utility companies are uniquely positioned to lead in the effort to deploy more energy efficiency programs. PSEG can achieve this by investing in energy-saving appliances and fixtures, all while receiving appropriate compensation for encouraging smart energy use. With the right economic incentives, energy efficiency can be a much larger contributor to our low-carbon future.

In September 2018, PSE&G filed a comprehensive Clean Energy Future proposal with the NJBPU that included the largest energy efficiency program in the history of New Jersey. As a part of this filing, PSE&G is seeking NJBPU approval of a rate design change, called the Green Enabling Mechanism (GEM). This is a proposal to decouple revenues from sales volumes and thereby encourage energy efficiency. If approved, the GEM will remove the incentive to sell more energy and will instead encourage utility investments in energy efficiency, renewables and other clean energy technologies that will ultimately benefit all customers by bringing down bills and reducing emissions.

The Clean Energy Future proposal contains four components:

- **Energy efficiency:** Since 2010, we have invested approximately \$400 million in energy efficiency initiatives that reduce emissions in hospitals, multifamily housing and buildings occupied by nonprofits and government agencies. This new program will allow customers at all income levels to use up-front rebates and other financial incentives to purchase more efficient appliances, smart thermostats and other

equipment; get free and affordable energy audits, reports and system design advice; get free and low-cost energy efficiency kits, tools and installations; and seed funding for new energy-saving techniques.

- **Electric vehicles:** To date, we have spent in excess of \$800,000 to install more than 200 charging stations in employer locations and travel corridors. This new EV proposal jump-starts broader use of EVs by supporting nearly 40,000 EV chargers, the bulk of which are for residential use. It includes mixed-use and public DC fast-charging. CEF also supports EV innovation, including custom projects for airports, ports and other transit facilities and grants for school districts to buy and operate electric school buses.
- **Energy storage:** This component calls for 35 megawatts of energy storage capacity over six years through five programs: solar smoothing, distribution deferral, mobile storage for outage management, microgrids for critical facilities and peak reduction for public sector facilities. CEF will begin to put New Jersey on track to meet the Clean Energy legislation's goal of 600 megawatts of energy storage by 2021 and 2,000 megawatts by 2030.
- **Energy Cloud:** PSE&G's Energy Cloud program is designed to improve reliability and customer service and reduce the carbon footprint. This major undertaking includes a plan to educate customers about the many benefits of smart meters. If approved, PSE&G intends to install the smart meters by 2024.

The Clean Energy Future filings have the potential to more than double our new carbon-reduction goal upon approval by the New Jersey Board of Public Utilities.

Experience has shown us that developing and implementing integrated energy and environmental policies to achieve the necessary deep reductions in GHG emissions to properly address climate change requires leadership and a long-term commitment. As stated above, we have adapted our business plans to meet the short-term goals to implement cost-effective measures to mitigate and adapt to climate change. However, PSEG maintains that a national solution is required to achieve significant emission reductions. Through the years PSEG has supported implementation of an economy-wide price on carbon. PSEG has been and continues to be ready to partner with state, regional and federal representatives to tackle the greatest environmental challenge of our time.

Preserving nuclear as a clean energy leader



Preserving nuclear as a clean energy leader PSEG's longstanding history of generating clean energy and protecting our environment is made possible by our Salem and Hope Creek nuclear plants in Lower Alloways Creek, New Jersey, and part-ownership of the Peach Bottom nuclear plant in Delta, Pennsylvania. As the second-largest commercial nuclear generating facility in the country, the Salem and Hope Creek plants' ability to provide power 24/7 has a significant impact on New Jersey and the region. In addition to providing nearly half of New Jersey's electricity, the plants play a key role in supporting its clean energy goals. In New Jersey, more than 90 percent of the state's emissions-free power generation comes from nuclear energy. This benefits the environment, including the air we breathe, by helping to avoid harmful emissions that contribute to climate change and public health issues.

During the past year, the New Jersey Legislature and Governor Phil Murphy recognized nuclear power's vital role in the state's clean energy policy, passing Zero Emissions Certificate legislation that will help ensure that Nuclear Power remains an important component of NJ's energy supply. In 2019, the State will select the plants that would be eligible to receive this incentive.

New Jersey also benefits from nuclear power in many other ways. Salem and Hope Creek continue to set new standards for excellence by reinforcing the important role they play every day. In 2017, PSEG's nuclear fleet – Salem, Hope Creek and Peach Bottom – operated at a 93.9 percent capacity factor for the year and produced a record 31.8 terawatt-hours of electricity. This includes Hope Creek's first breaker-to-breaker run, when it ran nonstop for 517 consecutive days and set a new plant generation record of 10.6 terawatt-hours. These unprecedented achievements speak to nuclear power's position as the most reliable energy source.

Nuclear also plays a critical role in maintaining the diverse supply of fuels used to generate electricity in New Jersey and other states that belong to the PJM network. Fuel diversity contributes to the reliability, resiliency and affordability of the energy grid.

For PSEG, our nuclear plants are also about community. As the largest employer in Salem County and one of the largest employers in South Jersey, we help drive the local economy. The plants support 1,600 direct jobs plus an additional 1,000 contractors twice a year for scheduled refueling outages. Thousands of additional jobs are also supported by the \$800 million in economic activity the plants generate each year.

Most importantly, our nuclear operations are about safety. Working with our regulators and industry peers, we continue to implement best practices that enhance our ongoing commitment to safe, event-free operations. [Read](#) our Nuclear Emergency Plan.

To learn more about our nuclear operations, [visit](#) our PSEG Nuclear LLC page.



Stewardship of our precious water resources

PSEG's power plant operations use water in a variety of ways – in steam turbines, for cooling in boilers and to reduce air emissions. Therefore, meeting water quality standards is an issue we confront daily. We have consistently worked to reduce the use of potable water at our plants and to economize our use of other water sources.

PSEG guidelines call for all of our power plants to ensure that they maintain the quality and quantity of water in both the intake and discharge processes. Our Salem cooling water intake uses the best-available technology to safely remove and return fish to the river. We also monitor pH and temperature of water that is returned to rivers; we are in compliance with state environmental quality permits. We also treat all water used for industrial purposes on-site and both our measured and reported water data are externally verified in several ways by federal and state regulatory agencies.

The generation technologies that PSEG Power uses have been evolving in recent years. As part of this evolution, PSEG has been retiring generation units that used river or estuarine water for once through cooling and replacing them with technology that includes closed-cycle cooling. This process continues with the 2017 retirement of the Hudson and Mercer coal-powered units in New Jersey, and the announced retirement of our Bridgeport unit in Connecticut in 2021.

New generation that became operational in 2018 in Sewaren, New Jersey, and at the Keys Energy Center in Prince George's County, Maryland, employs combined-cycle combustion technology with air-cooled condensers. These units are powered primarily by natural gas, with oil as a backup fuel. Use of water will be employed only as the steam driver for the heat-recovery boilers. The new unit under construction in Bridgeport, Connecticut employs similar technology.

In addition to discharges related to power generation, PSEG manages storm water at its outdoor locations. PSEG has designed and put in place systems to treat industrial wastewater, reduce the concentration of pollutants in discharges and reduce the potential for storm water to carry pollutants from its facilities.

Working to reduce water use footprint

PSEG has taken the following steps recently to reduce its water use footprint:

- Several existing units in the PSEG fleet have minimized use of once through cooling water systems (which withdraw high volumes of water with relatively low water consumption rates, and also can affect local aquatic habitats) by using technologies such as closed-cycle cooling that repeatedly recycle water instead of releasing it immediately into local waterways (BEC, Bergen, Linden, Hope Creek).
- The Bergen and Linden generating stations use an alternate source of cooling water from local POTWs recycled "gray water"

- Recently built generating stations – Sewaren Unit 7, Keys Energy Center, and Bridgeport Harbor Unit 5 – all utilize air cooled condenser technology instead of evaporative cooling towers for the steam turbine generators, thus eliminating the need for makeup water for the main generating cycle. The new units employ highly efficient combined cycle technology. A limited amount of city water is used for makeup to the heat recovery steam generators and small auxiliary coolers.
- In 2012, PSEG repowered water-cooled units at our Kearny plant and New Haven plant with simple cycle combustion turbine units that are air cooled and do not use cooling water.
- Recent retirement of the Hudson and Mercer coal powered units in NJ and Sewaren 1-4 gas powered units that used local surface water for cooling.
- Planned retirement of Bridgeport coal powered unit (Unit 3) in Connecticut in 2021.

Monitoring quality of water

- PSEG complies with all aspects of the station's NPDES Discharge to Surface Water Permits and the discharge limits within those permits.
- PSEG also implements treatment/processes to ensure the discharges remain below those regulatory limits and continuously works with regulatory agencies to commit to reductions in permit limits as requested by the agencies.
 - Examples include installing metals treatment technology at Linden Generating Station in 2016 to reduce metal concentrations in discharge and working with the state agency (NY DEC) to agree/commit to a lower limit for Total Residual Chlorine limit at Bethlehem Energy Center (BEC).
 - PSEG also has installed Manufactured Treatment Devices (MTDs), which are pre-fabricated stormwater treatment structures that utilize settling, filtration, and other technology to remove pollutants from stormwater runoff. These have been installed at Sewaren, Kearny and Bridgeport Harbor Station to assist in treating stormwater runoff from the sites and ensuring water quality best management practices are in place.

Options from a longer term point of view

- New generation units including Sewaren 7, Keys Energy Center, and Bridgeport Harbor Unit 5 employ combined cycle combustion technology with air cooled condensers, removing the need for use of surface water or other sources of water for cooling. Minimal use of water is only employed as the steam driver for the heat recovery boilers and minor auxiliary cooling. The life expectancy of these plants is approximately 30 years, so these plants will continue to provide reduced demands on local water sources and reduced risk as it relates to water risk and drought scenarios.

Biodiversity



All along the southern shores of the Delaware River, colonial-era farmers built dikes to make land more suitable for agriculture. Conversion of these saltwater marshes was important to the colonial economy, but, centuries later, we also understand that the process destroyed breeding grounds for native fish, plants and wildlife.

PSEG's [Estuary Enhancement Program](#) was created in 1994 in cooperation with New Jersey's Department of Environmental Protection, and calls for PSEG to restore marshes and habitats that were altered long ago to grow salt hay and other crops.

The estuary enhancement program – which at 21,000 acres is the largest privately funded tidal marsh restoration project in U.S. history – is a prime example of PSEG's commitment to biodiversity in the communities we serve.

The estuary program includes sites along both sides of the Delaware River surrounding the Salem and Hope Creek nuclear generating stations, and farther south along Delaware Bay. As part of the program, PSEG also maintains fish migration ladders along more than a dozen Delaware River tributaries; monitors the river's fish population as far north as Trenton; and has made upgrades to fish-protection technology in the Salem plant's cooling-water intakes.

Today, the salt marshes once again are filled with grasses and algae that provide food and shelter for spawning fish, and habitats for many native birds and wildlife, including threatened and endangered species such as bald eagles, black rails and ospreys.

PSEG's commitment to natural resources extends to our impact on the land, as well.

As New Jersey's oldest and largest utility, PSE&G maintains nearly 1,000 miles of electric transmission rights-of-way, keeping trees and other vegetation well clear of lines so that power keeps flowing to the more than 2 million homes and businesses our company serves across the state.

While this work is essential, we are committed to carrying it out in the most environmentally sensitive way possible. There are more than 50 different threatened or endangered species of plants and animals known to be living along or adjacent to our transmission rights-of-way. Their presence means that we have to take great care about when and how we do this essential work so we don't conflict with the various life stages of these species.

For example, we have used specially equipped helicopters to change out aging towers in sensitive wetlands and parklands. Instead of relying on trucks, cranes and other heavy equipment, the helicopters safely transported equipment and new tower structures to the construction areas to minimize our impact on the

environment. And after our work was complete, we restored the right of way to its former state, re-grading the ground, spreading new topsoil and planting native seeds.

Similarly, we have modified our maintenance activities to protect the nesting areas of the golden-winged warbler, a small migratory bird, and the frosted elfin, a butterfly native to North America. Working with wildlife experts, we have planted nectar sources and host plants like milkweed on our rights of way. We have installed “critter crossings” so that reptiles and amphibians could safely traverse our construction areas.

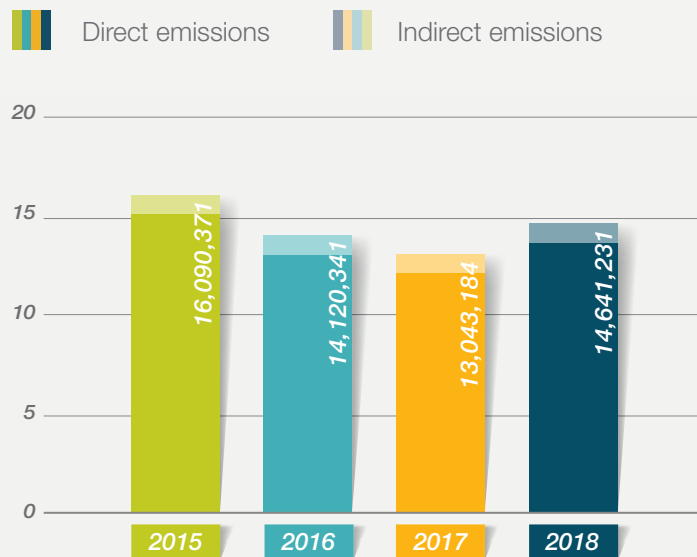
Our infrastructure is also home to eagles and osprey. Environmental specialists routinely assist the NJ Department of Environmental Protection with banding young eagles that are nesting on our towers. Working with the Hackensack Riverkeeper, employees have built nesting platforms at one of PSEG’s generating stations to support the increasing osprey population.

We know our customers want safe and reliable electricity, and they expect us to protect the environment in the state we call home. We are working hard to do both.

Environmental Key Performance Indicators

GHG Total Emissions

Metric tons CO₂e in millions



Climate Change

In 2018, PSEG's Scope 1 and Scope 2 emissions were approximately 14 million tons of CO₂e. The small increase in our emissions from 2018 is due to the new Combined Cycle Units that started operating last year.

Emissions Intensity Rate

PSEG's low intensity rate is due primarily to the fact that more than half of our power comes from nuclear generation. In addition, PSEG retired its NJ coal-fired units in 2017 and continues to invest in solar energy.

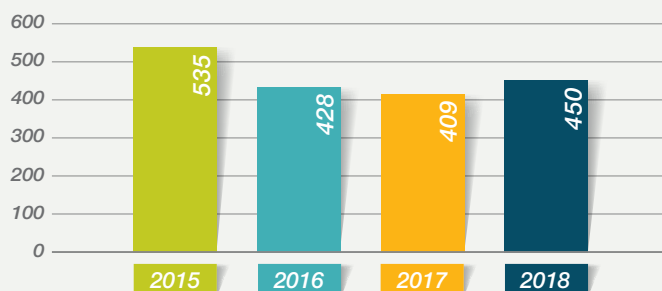
Scope 3 Emissions 2018



Use of sold products **48%**
Purchased goods and services **11%**
Fuel and energy-related activities **22%**
Capital goods **19%**

Emissions Intensity Rate*

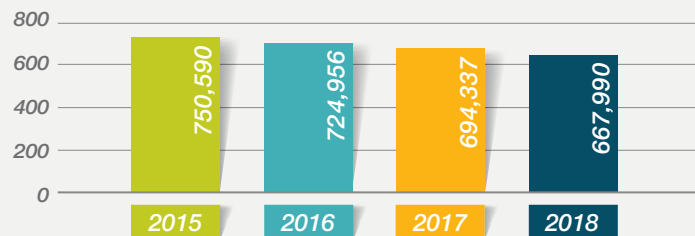
Lbs/Mwh



Environmental Key Performance Indicators

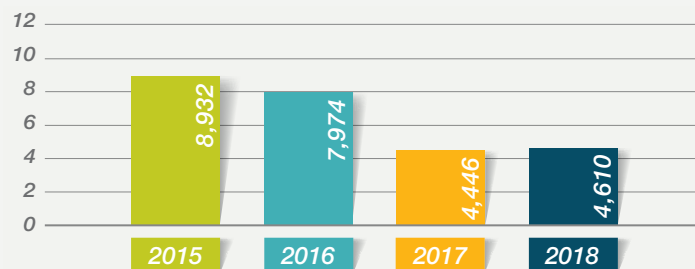
Methane Emissions

Metric tons of CO₂e in thousands



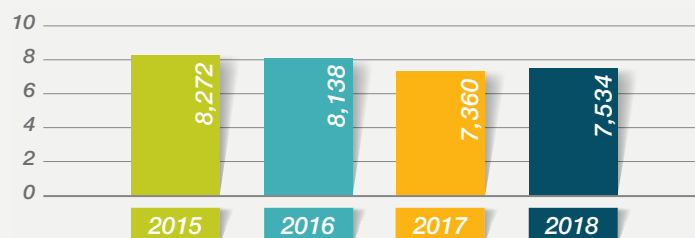
NOx Emissions

Metric tons in thousands



SOx Emissions

Metric tons in thousands



Methane Emissions

In New Jersey, PSE&G owns and maintains more than 17,900 miles of gas mains that transport natural gas to our 1.87 million gas customers. PSE&G's transmission pipelines account for only about 58 miles. Cast iron was the material of choice from the late 1800s to the mid-1900s. PSE&G has been steadily and systematically replacing these mains based on condition, age and other factors. During the past 10 years, PSE&G has replaced more than 770 miles of cast iron and 340 miles of unprotected steel main. Our replacement strategy is considered an industry best practice and has been highly successful: From 2008-2017, our leaks-per-mile average is only 0.228 (approximately 8,000 leaks per year).

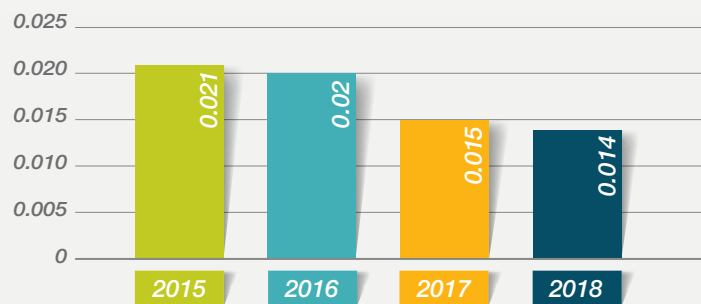
Air Emissions

PSEG is transforming its generation fleet to be cleaner and more efficient while emphasizing the continued importance of fuel diversity to ensure reliable and affordable energy. As we continue this transformation, emissions levels of NOx and SO₂ as well as CO₂ and other pollutants will be reduced from our 2005 baseline, along with residuals from the coal-burning process and the need to employ chemicals to treat them.

Environmental Key Performance Indicators

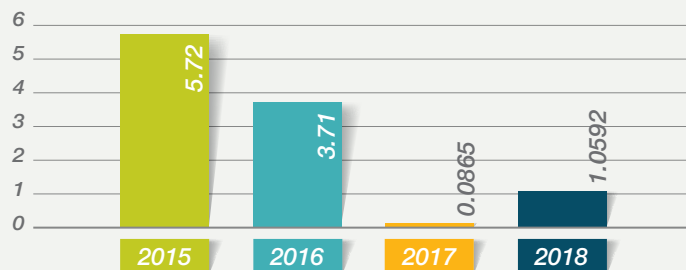
Mercury (Hg) Emissions

Metric tons



SF6

Metric tons



Environmental Violations

Significant fines (\geq USD \$10,000) related to environmental or ecological issues.

Number of Violations

2015:	3
2016:	0
2017:	6
2018:	0

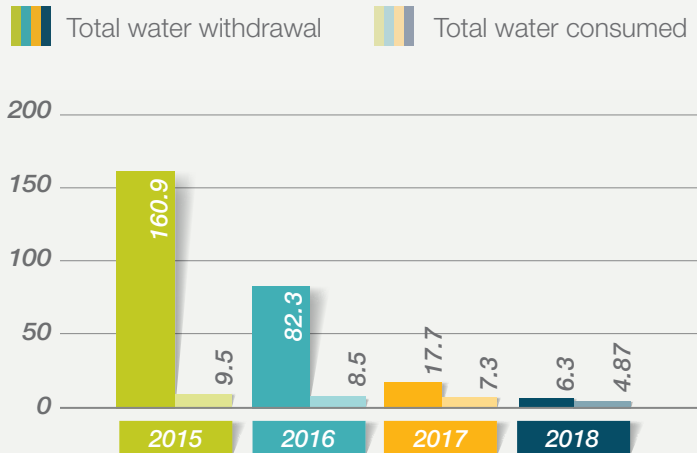
Amounts

2015:	\$30,000
2016:	0
2017:	\$38,000
2018:	0

Environmental Key Performance Indicators

Water Usage (Power Generation)

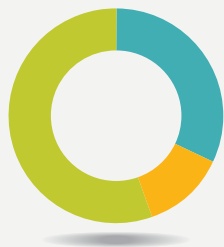
Cubic meters in millions



Water

In 2018 PSEG Power used more than 80 million of cubic meters of water, but returned back to the source more than 91% of it. We have minimized the use of fresh water by using dry-cooling technologies and reclaimed water.

Sources of Fresh Water Use 2018



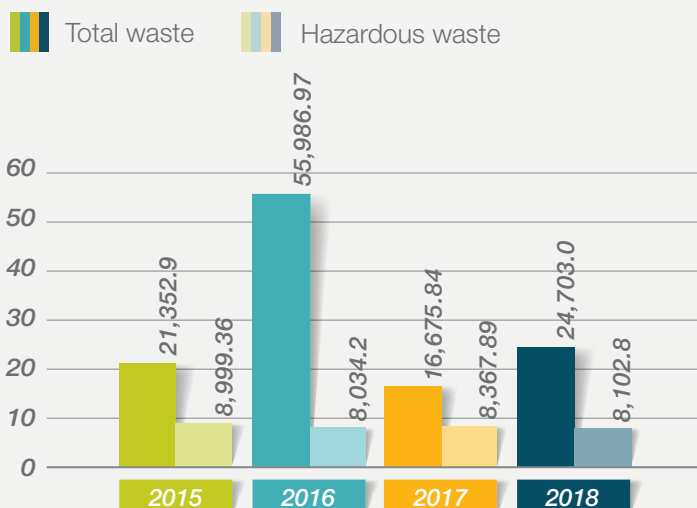
Fresh surface water **55.55%**
Municipal water **31.7%**
Fresh ground water **12.69%**

Waste

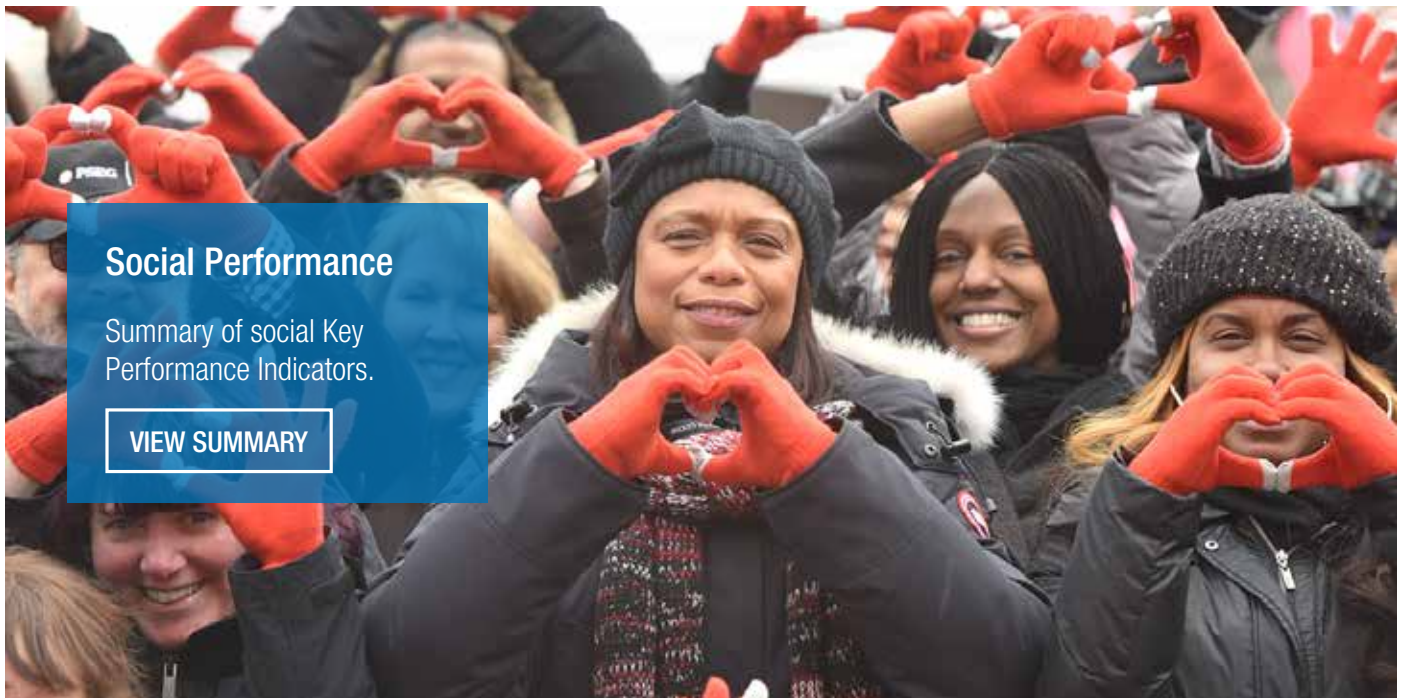
At PSEG we reduce our waste, reuse materials and find ways to safely extend the life of equipment. The amount of waste generated by our operations has been fluctuating in the last few years as we finalize our transmission upgrades and gas modernization program.

Waste

Metric Tons



People Strategy



Giving back to our communities

In September 2018, dozens of ready-to-work volunteers – including more than 70 PSEG employees – arrived in Paterson, N.J. with an ambitious goal: In just a few hours, to build an entire playground on what had previously been an empty corner of Westside Park.

It's hard work. Volunteers are asked to pitch in on a variety of tasks, from assembly to construction to landscaping to clean-up.

But when the work is finished, a neighborhood's children have a brand-new space for play.

The Paterson playground is PSEG's sixth such project in cooperation with the Kaboom! organization. In addition to volunteer hours, the PSEG Foundation contributed \$97,000 to the effort.

It's also an example of PSEG's [culture of volunteerism and commitment to community investment](#).

For PSEG, public service is synonymous with who we are – it's part of our name. We're more than just PSEG employees. We're the friends, neighbors and family members you connect with every day. We recognize the importance of being active participants in our community and giving back where it is needed most.



Each year, our employees continue to show their generosity and commitment to our communities – donating thousands of volunteer hours and tens of thousands of dollars to organizations throughout New Jersey and Long Island. PSEG supports their charitable contributions by matching employees' gifts to nonprofit community organizations and schools.

Employees can receive matching gifts to qualified 501(c)(3) organizations for charitable contributions up to \$2,500, and educational matching gifts up to \$5,000 and in 2017, PSEG matched more than \$819,000. Employees can also receive up to \$1,000 per year in volunteer grants for qualified 501(c)(3) organizations, which include youth sports groups, and veterans, fire and rescue organizations. In 2017, the company provided volunteer grants totaling more than \$84,000.

More importantly, our employees volunteer their time and talent every day to help build stronger communities. These volunteer efforts are supported by the PSEG Foundation, which provides additional assistance for hundreds of community groups and schools throughout the region. This includes programs that build and sustain neighborhoods, protect our environment, encourage Science, Technology, Engineering and Math (STEM) careers and so much more.

PSEG's diversity and inclusion efforts also include dozens of employee business resource groups (EBRGs) where employees with common interests can join together to celebrate their culture and experiences. From ethnic heritage to young professionals to military veterans, there's a group for everyone and an opportunity to work together for our business and more importantly our communities.

For more than a century, PSEG's success has been the direct result of our dedicated employees who work around the clock to keep the power flowing for New Jersey and the region. This diverse group of people is more than just an office assistant, lineman or plant operator. Each day, they represent dozens of different cultures and backgrounds that make PSEG a great place to work. This wealth of knowledge and viewpoints leads to informative discussions and ways to improve our business. All employees are encouraged to speak up and expected to challenge the status quo.

For PSEG and its employees, it's not just where we do business – it's also our home too.



Diversity & Inclusion as a business imperative

Diversity & Inclusion makes things work for our employees, our business operations, our customers and our community. Providing energy and energy services to some of the most diverse communities in the nation is an important distinction for PSEG. As responsible corporate citizens and leaders in the energy field, we know that reflecting, valuing and leveraging diversity & inclusion means we can continue to attract different people with different minds who bring us better ideas and the best solutions.

During the past year, we have continued to solidify our commitment to live by these principles.

PSEG Chairman, President and CEO Ralph Izzo joined hundreds of leaders of the world's leading companies and business organizations in signing of the CEO Action for Diversity and Inclusion™ commitment – pledging to leverage their individual and collective voices to advance diversity and inclusion in the workplace.

Within PSEG, we named a new Chief Diversity Officer who also oversees the company's community involvement as Senior Director-PSEG Corporate Citizenship and Culture.

Since then, we also have created a scorecard to more deeply understand our current state and set clear goals. The scorecard measures performance in areas such as diversity in recruitment and hiring, promotions and development program participation.

We doubled up on building our awareness and skills. We launched an online training library of topics ranging from emotional intelligence to cohesive teamwork. And we conducted in-person teaching sessions on fostering a harassment-free workplace and understanding implicit biases.

We continued to build grassroots engagement with ongoing support of Employee Business Resource Groups centered on interests, including age and ethnicity. They provide a drumbeat of information, events and support across the company, helping to build a more welcoming workplace.

And externally, we also have continued our robust efforts in growing supplier diversity and outreach, including giving by our PSEG Foundation.

Additional efforts include:

- The PSEG Foundation invests 33 percent of its grant-making to diversity and inclusion, and invests deeply in urban communities, including Newark, home of PSEG headquarters for 115 years.
- PSEG earned a score of 100 on the LGBTQ-focused Human Rights Council Corporate Equality Index in 2017.

- PSEG enforces a zero-tolerance policy on harassment and fosters a culture of accountability, empathy and knowledge.
- Of the \$2.1 billion worth of business conducted with other New Jersey-based companies, \$532 million was spent with minority-, women- and veteran-owned suppliers – representing close to 19 percent of PSEG's total supplier spend, a more-than-300 percent increase over the last decade and a new all-time high.

The culmination of our 2018 efforts is a PSEG Diversity and Inclusion Summit, with PSEG's 200 top executives alongside 150 diversity & inclusion culture ambassadors across all levels of PSEG – as well as a cohort of special local guests. The event is an opportunity to hear from our leaders and prominent external stakeholders about the business imperative of diversity and inclusion, and the leadership and understanding it will take to proudly honor our dedicated, resilient – and often heroic – teams, while also courageously and openly transforming our culture.

PSEG has received various recognition for our efforts to date, including being named to Forbes' 2018 list of American's Best Employers for Diversity. And our efforts to further evolve will continue throughout next year and beyond.

Talent & Rewards

PSEG is a company with strong ethical values and a deep commitment to its employees. We understand that our success ultimately depends on our ongoing ability to attract, develop and retain a highly skilled, diverse and engaged workforce. We advocate the continuous improvement of operations through a culture that recognizes the value of diversity and inclusion and where all employees are engaged and comfortable speaking up. Indeed, our people are the key to achieving operational excellence in providing safe, reliable, economic and greener energy.

Each year, we review our people strategy to ensure we have the initiatives in place to deliver on the enterprise strategic goals. PSEG promotes an environment where employees develop and utilize skills, feel comfortable sharing their ideas and concerns, and directly support the achievement of key business objectives. We continue to invest in our human capital to meet business challenges and are confident that these efforts contribute to a high-performance culture.

Employee engagement is an important part of our journey to continuously improve as a company. Our engagement initiatives focus on issues such as comfort in speaking up, building employee capabilities through our People Strong curriculum, and fostering diversity and inclusion to ensure we move forward effectively as one team. We want to build a culture where everyone not only contributes, but also feels valued and appreciated, and has a range of opportunities for growth and development.

We identify and manage numerous risks and opportunities through our people strategy. This is evidenced

in our commitment of maintaining employee and public safety, good relations with our labor unions and a highly engaged workforce.

To maintain engagement, we keep our employees informed through a variety of communication forums. The PSEG intranet (myPSEG) provides employees with a wide range of helpful information on their total rewards package including salary and benefits, retirement plans and services. We maintain an electronic catalog of policies, practices and procedures so employees know exactly how to excel. Internally, public information is communicated through myPSEG, daily Outlook Online emails and PSEG Outlook, our employee newsmagazine. In addition, our frontline supervisors and management teams routinely convey information of importance to our workforce.

People select companies that share their values. We find that job candidates are drawn to us because of our reliability, reputation and core commitments including safety, integrity, diversity and inclusion, customer focus and aspire to achieve excellence in all we do through continuous improvement initiatives; along with our clean energy initiatives, environmental stewardship and community role. PSEG has provided opportunities for our employees to grow with us for over 115 years, and we will continue to foster a workplace environment that contributes to this success.

TOTAL REWARDS

Taking great care of our customers starts with making sure we take great care of our employees. We continually strive to provide our employees with a market competitive total rewards package supporting our strategic objective to attract, retain and develop a high-performing and diverse workforce.

We conduct market research and analysis and adjust our reward programs periodically to ensure we remain competitive with the external marketplace. Our comprehensive rewards package empowers employees to be their best. [Learn more](#) about PSEG's benefits.

Lifestyle and employee wellbeing are essential to a safe and high-performance culture. PSEG recognizes the importance of offering comprehensive benefits to our employees and dependents. PSEG makes available additional services beyond traditional benefits to support and encourages employee wellbeing through physical, emotional, financial and social health. Our Be Well program focuses on employee risk factors that impact our employees' performance and drive health care costs. We offer a variety of programs to support employee wellbeing which include on-site fitness centers, health screenings, customized weight loss programs, walking challenges and incentives. A strong corporate wellness council, consisting of various union and management personnel, has played a significant role in promoting employee wellbeing and related programs. These resources are available to all full-time employees.

Community Investment



In 2012, Superstorm Sandy cut brutally across New Jersey and New York with a surge of wind and water that devastated coastal communities. At one point, 90 percent of PSE&G's electric customers found themselves without power. Homes were moved off their foundations. Electric infrastructure was, in some places, beyond repair.

Spurred by their experience with Sandy, students at Stevens Institute of Technology – starting with only an ordinary shipping container – designed and built a prototype for a new kind of sustainable, resilient home meant to withstand the threats of rising sea levels and survive increasingly damaging storms.

The Stevens team – a mix of students with experience in engineering, energy efficiency, architecture, business, communications, management and computer science, and guided by the university's expert faculty – created the [SURE House](#), a structure designed to be both sustainable and resilient in the face of a changing climate.

The students' efforts earned national recognition for themselves and for Stevens, winning the U.S. Energy Department's Solar Decathlon against students from the U.S. and around the world.

The [SURE House](#) is the product of a funding partnership that links PSEG with Stevens – a partnership that produces benefits far beyond our organization.

The PSEG Foundation provided \$325,000 to support development of the Stevens [SURE House](#). The PSEG Foundation also granted \$1.5 million to Stevens in support of research focused on energy conversion and storage. These programs strengthen middle- and high school STEM education.

The foundation's financial contributions to Stevens are part of the more than \$8 million invested each year the vitality of our state and communities where PSEG does business. The PSEG Foundation provides funding for programs in three key areas: STEM and Workforce Development (37 percent), Sustainable Neighborhoods (49 percent), and Safety and Disaster Preparedness (14 percent). More than 33 percent of all PSEG Foundation grant-making supports diversity and inclusion objectives.

Key funding initiatives include:

- **STEM education:** The PSEG Foundation supports the New Jersey Institute of Technology 2018 Solar Car Team - the university's first-ever, full-size, solar-powered electric vehicle to compete in the 2,000-mile "American Solar Challenge" competition to design, build, and drive solar-powered cars in a cross-country, time/distance rally event. The team has more than 60 members in 21 majors.
- **Sustainable neighborhoods:** The PSEG Institute of Sustainability Studies at Montclair State University (MSU) provides program support for sustainable communities and businesses that complement the

Sustainable Jersey program. PSEG's \$1.3 million funding is matched to provide internship opportunities to students from MSU and other New Jersey universities.

- **Safety:** With Sesame Workshop, the PSEG Foundation supported the creation of an [emergency preparedness program](#), "Let's Get Ready," and an emergency response program, "Here for Each Other" (\$1.3 million). The programs provide materials in English and Spanish for families, community leaders and educators. Materials are online for easy access and include workbooks about creating an emergency plan, videos, a free app and teacher instruction.

Sesame Workshop and PSEG Foundation's new 2018-19 program, "Brave, Strong, Resilient," (\$900,000) seeks to build resiliency in children and families with curriculum to help children explore and express their feelings, practice problem-solving strategies and develop patience and confidence.

In 2018, the PSEG Foundation also is developing plans to launch a stakeholder engagement and planning process to initiate a five-year, \$5 million Signature Initiative.

A firm commitment to New Jersey for 115 years and to the communities served by PSEG is embodied in our name, Public Service. Many things have changed since our founding, but our unwavering commitment to the community – both by the company and by our employees – has remained a constant.

The link between safety, health and wellness



In May 2018, Vaughn Stanziale was running weekend errands when a powerful springtime storm struck northern New Jersey, fueled by strong winds that brought down trees and power lines. As Stanziale passed through a grocery store parking lot, he spotted a frightening sight – power lines had fallen across a SUV, with the driver still behind the wheel.

Stanziale, a PSE&G Service Technician, ran from his own vehicle and called to the driver to stay inside her car. He knew that downed power lines might still be energized, and that inside the car was the safest place to be until utility crews could arrive and de-energize the lines.

The car's driver – Lauren Feldman of Livingston, N.J. – was grateful for [Stanziale's quick thinking, which may have saved her life](#). Stanziale stayed on the scene until crews arrived to help her exit the car safely.

"I'll never forget looking out of my car window and seeing (Stanziale) and thinking, 'I am so happy he stayed,'" Feldman said.

Safety is PSEG's No. 1 priority – and we're proud of the safety culture we have created throughout our organization. Vaughn Stanziale's [selfless response demonstrates the value of a culture that encourages safe behavior](#) not only on the job but outside the workplace, as well.

In 2018, PSEG marked the 20th anniversary of its Health & Safety Councils, the foundation of the company's safety culture. Working together, our company's leadership and its dedicated workforce committed themselves to strengthening the safety culture of PSEG. [Read](#) our Health and Safety Commitment.

As a result, over the years our safety record has shown steady improvement, with declines both in the frequency of injuries, as well as the severity. The previous two years have been the safest in PSEG's history – establishing new record lows for OSHA-reportable incidents in 2016 and 2017.

As we continue to build on our health and safety culture, we aim to achieve our vision of Target Zero – where no one gets hurt – through a strong commitment to continuous improvement and employee involvement. We have begun to expand our efforts into areas such as driver safety and eliminating distracted driving; contractor safety and ensuring that PSEG's safety culture extends to all who share our workplaces.

We also are increasingly aware of the role that an employee's well-being plays in maintaining a safe work environment. Personal health is a driver of how an employee performs at work. Moving forward, we will aggressively continue to integrate safety and personal wellness and we will concentrate on the prevention of work-related injuries through improvement in our physical, mental, emotional, social and financial well-being.

[Learn more](#) about our Health and Safety Systems.

Human Rights:

PSEG recently put in place a human rights practice that underscores our commitment to minimize any adverse effects our operations may have on people or communities. This new practice, along with other policies such the employee proposition, reaffirms our commitment towards ethical behavior and shows how that commitment starts from within. The [practice](#) was developed using the United Nations' Guiding Principles on Business and Human Rights as a reference and if an employee, business partner, supplier, customer or other stakeholder witnesses or learns of any incident that may involve a violation of our [human rights practice](#), they can report it, anonymously if desired, to the company's Office of Ethics & Compliance at: ethics.compliance@pseg.com or hotline: 973-430-6405.

Social Key Performance Indicators

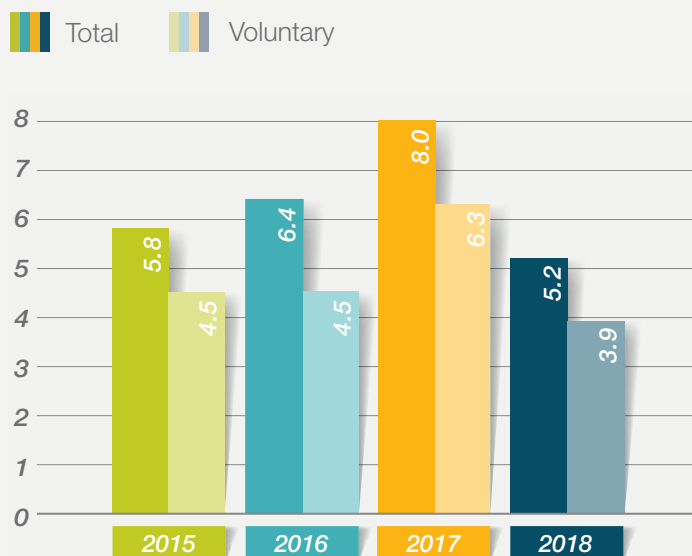
Employee Count

2014	2015	2016	2017	2018
12,699	13,029	13,065	12,945	13,145

Employees as of December 31, 2018

	PSE&G	Power	PSEG LI	Service
Non-Union	2,003	1,057	899	1,041
Union	5,315	1,067	1,510	255
Total	7,318	2,124	2,409	1,296

Employee Turnover Rate



Human Resources

As of December 31, 2018 PSEG had 13,145 employees 62% of which are covered under a collective bargain agreement.

Employee Engagement

Employee Engagement is an important part of our journey to continuously improve as a company, building a culture of respect and inclusion.

PSEG and our employees work together to live our Core Commitments – Safety, Integrity, Continuous Improvement, Diversity & Inclusion and Customer Service.

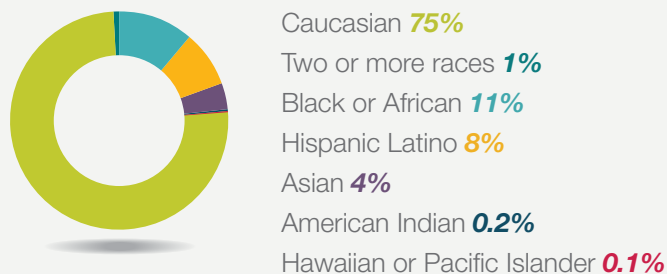
Employee Turnover Rate

PSEG ensures that there is a strong culture knowledge transfer and robust succession planning to ensure business continuity.

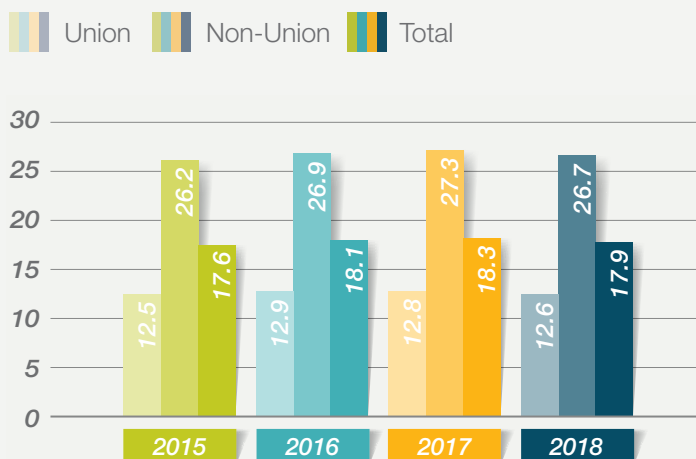
NOTE: Data provided reflects all our Business Units and 100% of our FTEs as of Dec. 31, 2018, unless otherwise noted.

Social Key Performance Indicators

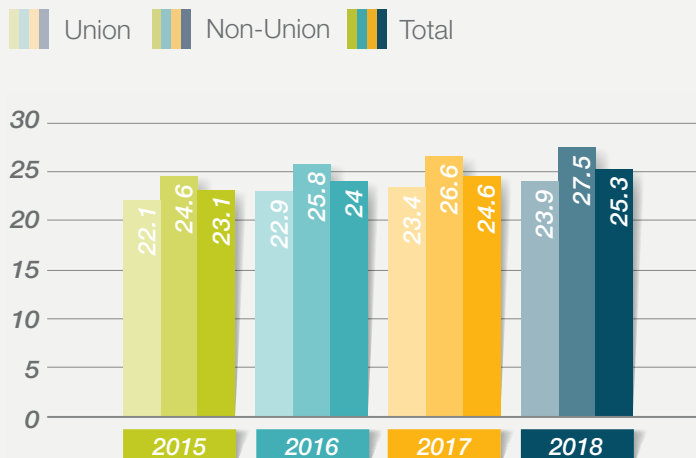
Workforce Breakdown by Race, 2018



% Women in Workforce



% People of Color in Workforce



Diversity

PSEG's commitment to diversity and inclusion is embedded in our talent acquisition, talent mobility, and learning and development processes to support our efforts to attract, develop and retain a diverse workforce.

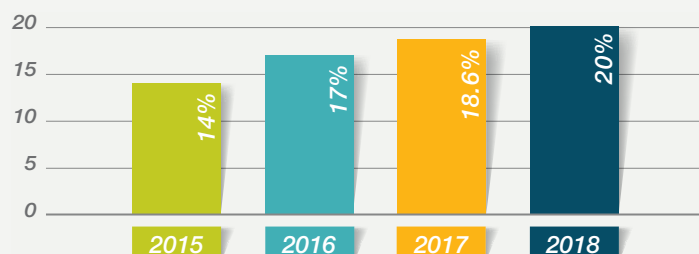
A diverse company is a strong company. We believe in a culture that values and promotes equal opportunity. Our diversity strategy focuses on our workplace, workforce and marketplace.

A workplace that respects team members is the first step in our diversity strategy. We strive to build a culture that is inclusive through awareness, team member support and decision making, and engagement of underrepresented employees.

PSEG increased the overall percentage of women and people of color in our workforce over the past three years. This is attributed to deep focus on diversity as part of our Talent Acquisition strategy.

Social Key Performance Indicators

Supplier Diversity



Lost-Time Injury Frequency Rate

	2015	2016	2017	2018
Employees	0.52	0.36	0.38	0.37
Contractors	0.45	0.43	0.47	0.41

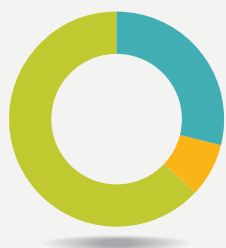
Days Away, Restricted and Transfer Rate

	2015	2016	2017	2018
	0.81	0.67	0.53	0.60

Osha Recordable Incident Rate

	2015	2016	2017	2018
	1.16	0.9	0.87	0.99

2018 Type of Philanthropic Activities



Community investment **61.52%**
 Commercial initiatives **30.64%**
 Charitable **7.84%**

Supplier Diversity

PSEG supplier diversity process has been in place for over 30 years utilizing a number of processes and initiatives to grow business relationships and expenditures with certified minority, women, veteran and service disabled veteran owned businesses.

In 2018 PSEG achieved historic results of over \$576 million or 20% with MWVBE's due in part to PSEG's internal performance goals, aggressive outreach methods, business advocacy partnerships, education, mentoring and communication.

Health and Safety

In 2018, we improved on our record-setting 2016 safety performance, achieving a record-low number of reportable injuries for the third consecutive year. In 2017 there were zero employee fatalities and zero contractor fatalities.

Community

In 2018, PSEG established a new business function devoted to Corporate Citizenship – a change that recognizes the relevance of citizenship to the strategic business objectives of our company and reinforces the core mission where we do business better places to live and work.

Commitment to Transparency



Supporting the U.N. Sustainable Development Goals (SDGs)

There are many challenges facing humanity. In order to secure the future for the Earth and its inhabitants, the governments of 193 United Nations member states in September 2015 signed a joint development plan, which included a program with 17 Sustainable Development Goals.

Based on our analysis, we believe our core business, initiatives, social impact agenda and philanthropic efforts contribute to – and can benefit from – many areas of focus within the 17 SDGs. The graphic below summarizes the topics most relevant to our core business and provides links to sections where we discuss our approach and contributions:

Our core business most closely aligns with:

- **Goal 7:** Ensure access to affordable, reliable, sustainable and modern energy for all.
- **Goal 8:** Decent work and economic growth
- **Goal 9:** Build resilient infrastructure, promote sustainable industrialization and foster innovation.

- **Goal 11:** Make cities inclusive, safe, resilient and sustainable.
- **Goal 13:** Take urgent action to combat climate change and its impacts.

Our activities also support other SDGs. Find examples within this report using the table below.

4 QUALITY EDUCATION 	7 AFFORDABLE AND CLEAN ENERGY 	8 DECENT WORK AND ECONOMIC GROWTH 	9 INDUSTRY, INNOVATION AND INFRASTRUCTURE 	11 SUSTAINABLE CITIES AND COMMUNITIES 	13 CLIMATE ACTION 	15 LIFE ON LAND 
Ensure inclusive and quality education for all and promote lifelong learning	Ensure access to affordable, reliable, sustainable and modern energy for all	Promote inclusive and sustainable economic growth, employment and decent work for all	Build resilient infrastructure, promote sustainable industrialization and foster innovation	Make cities inclusive, safe, resilient and sustainable	Take urgent action to combat climate change and its impacts	Sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss
<ul style="list-style-type: none"> • PSEG Foundation • STEM education investments • MSU Institute for Sustainability Studies • Educational matching gift 	<ul style="list-style-type: none"> • EE programs • Solar 4 All • Solar Loan Program • Solar Source Program 	<ul style="list-style-type: none"> • Target zero • Spending forecast infrastructure • Job creation • Benefits and job security 	<ul style="list-style-type: none"> • Energy Strong • Fleet optimization • EV programs 	<ul style="list-style-type: none"> • PSEG Foundation • Sustainable Jersey • Sustainable neighborhoods 	<ul style="list-style-type: none"> • New GHG goal and climate strategy • Keys energy center • Sewaren 7 • Solar Loan • Solar 4 All • SF₆ emissions 	<ul style="list-style-type: none"> • Ecosystem impact mitigation • Fleet optimization • EV programs

Transparency and Disclosure

PSEG's commitment to transparency includes responding annually to Carbon Disclosure Project (CDP) survey on carbon and the Version 1 of the EEI ESG template, the first and only industry-focused and investor-driven ESG reporting framework. For the full version of these documents along with our 2018 GRI template, click the links below.

- [Carbon Disclosure Project \(CDP\)](#)
- [EEI ESG Reporting Template](#)
- [EEI ESG Sustainability Template – Quantitative Information](#)
- [PSEG Global Reporting Initiative \(GRI\)](#)
- [2017 PSEG Sustainability Report](#)
- [2015 PSEG Sustainability Report](#)
- [2014 PSEG Sustainability Report](#)
- [2013 PSEG Sustainability](#)



PUBLIC SERVICE ENTERPRISE GROUP INC.
80 Park Plaza
Newark, New Jersey 07102

1.4.B PSEG Long Island Awards and Recognitions

Appendix 1.4.B – PSEG Long Island Awards and Recognition

2019
Marcum Workplace Challenge - Largest Fundraiser – July 2019
Marcum Workplace Challenge - Largest Participant – July 2019
LIBN – Corporate Citizen of the Year – June 2019
March of Dimes – No. 1 Participant – April 2019
March of Dimes - No. 1 Fundraiser – April 2019
2018
American Heart Association – Go Red for Women Fundraising – February 2018
EEI – Support in restoring service following Hurricane Irma – January 2018
March of Dimes – Community Hero Award – April 2018
March of Dimes – Top Participant – April 2018
March of Dimes – Top Fundraiser – April 2018
Marcum Workplace Challenge - Greatest Participation – July 2018
Marcum Workplace Challenge - Beneficiary Fund Challenge Award for Most Money Raised Above Registration Fee – July 2018
New York Blood Center – Diamond Award – April 2018
Tree Line USA – April 2018
Red Cross, LI Chapter Corporate Leadership Honoree - May 2018
2017
American Cancer Society Making Strides Breast Cancer Walk – Highest Participants – October 2017
Association for Fundraising Professionals - Gilbert Tilles Award for Corporate Philanthropy and Community Involvement – November 2017
KUBRA – Illuminating Innovation Award – March 2017
LIBN - Corporate Citizen of the Year, Large Business – June 2017
March of Dimes - Corporate Hero – April 2017
Marcum Workplace Challenge – Beneficiary Fund Challenge Award for Highest Donations Raised Above Registration Fee – July 2017
Marcum Workplace Challenge – Greatest Participation Award – July 2017
NICE- Analytics Excellence - May 2017

North Atlantic Mutual Assistance Group Key Contributor Award – Most Times Offering Support – October 2017
Tree Line USA – April 2017
United Way - Live United Corporate Champion Award - May 2017
2016
March of Dimes - Named #1 in participating and fundraising and receiving the Corporate Citizenship Award for dedication to the communities PSEG Long Island serves
American Cancer Society's "Making Strides Breast Cancer Walk" - Recognized for having the highest number of participants
Marcum Workplace Challenge - Recognized for the greatest participation from employees; received Beneficiary Fund Challenge Ward for the Highest Donations Received Above the Registration Fee
Long Island Business News - Awarded Corporate Citizenship Award for Large Businesses
iConnect - Received Illuminating Innovation Award for lighting control innovation
Tree Line USA - March 2016
2015
ENERGY STAR - Partner of the Year Award for sponsoring energy efficiency programs that improve the efficiency of products, homes, and buildings within PSEG Long Island's community and territory
Certificate of Special Congressional Recognition - Awarded for initiative, service, and achievement in the utility industry
March of Dimes/March of Dimes for Babies - Corporate Citizenship Award; Recognition for Highest Participation and Highest Total Donations
St. John's Peter J. Tobin College of Business - Received Excellence-in-Residence Appreciation Award as Project Sponsor
Tree Line USA - March 2015
2014
ENERGY STAR - Partner of the Year for energy efficiency program delivery
American Cancer Society's "Making Strides Breast Cancer Walk" - Received Flagship Sponsor Award for corporate sponsorship, highest number of participants, and highest amount of donations
Chartwell - Awarded Best Practice Award for superior brand marketing
March of Dimes/ March of Dimes for Babies - Gold Sponsor; Crystal Team Award; Highest Total Donations and Highest Participation
Tree Line USA – April 2014

1.4.C Experience in IT Systems

Appendix 1.4.C – Experience in utility information technology systems

Business Applications Area		
Customer Care	Current PSEG Long Island Tools	Current PSEG Tools
Customer Accounting	CAS custom	SAP Industry Solution for Utilities (IS/U)
Customer Care (dispatch)	SAMM/CGI	SAP IS/U, CGI Computer-Aided Dispatch (CAD)
On-Line Self Service	SiteCore, Alexa, Mobile App	Sitecore, Alexa, Mobile App
Customer Load Profiling	Lodestar	SAP IS/U, Lodestar
Electronic Billing	EBO/ ISIS Papyrus, Kubra	SAP IS/U, IBM CMOD, Kubra
Call Center Interface	Custom add to CAS	SAP IS/U, Salesforce, custom web apps
Banking Clearing House	ACH Processing	SAP IS/U, ACH processing
Collection Meeting	Varolli, Debt Next	SAP IS/U, CGI CAD
Cashier Function	Core iPay	SAP IS/U
Customer Complaint Meeting	Custom on VB and Oracle	SAP IS/U, social media, telephony integration
Distributed Resource Meeting	Custom on spread sheet	SAP
Customer Relationship Management	CAS and Salesforce.com	SAP and Salesforce.com
IVR	Nuance	Nuance
Outage Management	Current PSEG Long Island Tools	Current PSEG Tools
GIS	ESRI	ESRI
Service Restoration	CGI, CAS	CGI Outage Management System (OMS)/CAD integrated with SAP IS/U, OSII DSCADA, Mobile field dispatch with CGI CAD, GIS systems
Emergency Restoration procedures	CGI, SAP	
Emergency Restoration procedures	Arcos, Field Mobility (custom mobile app)	CGI OMS/CAD, SAP IS/U
Interruption Reporting	CGI	CGI OMS, OSII DSCADA
Equipment out of Service	EOOS (Custom on Cold Fusion)	OSII DSCADA, Custom Maintenance Management System (CMMS)

Meter Management	Current PSEG Long Island Tools	Current PSEG Tools
Meter Reading	ITRON Premier Plus/L&G	ITRON/L&G, AMR, manual meter reading
Interval Metering	ITRON MV-90/L&G	ITRON MV-90/L&G
Meter Inventory and Tracking	Automated Meter System MIMS	Power track
Work & Maintenance Management	Current PSEG Long Island Tools	Current PSEG Tools
Work Order Management	CGI/SAP	CGI CAD/SAP
Infrastructure Maintenance	CGI/SAP	CGI CAD/SAP, CMMS
Damage Claims	DTS Electric commercial	Custom FileNet Solution
Finance, HR, Material Management	Current PSEG Long Island Tools	Current PSEG Tools
General Ledger	SAP ECC, SuccessFactors, Ariba	SAP ECC, SuccessFactors, Ariba

1.4.D PSE&G Storm Manual 2019 Index

Storm/Outage Restoration Plan

Manual Owner: Ernesto Cadiz

REV 4.00

April 4, 2019

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1.4.E Types of Assets and Services Managed

Appendix 1.4.E – Types of Assets and Services Managed

Type	PSEG	Details
500kV, 230kV, 138kV overhead transmission lines	1,271 miles	Steel lattice and monopole towers
345kV, 230kV, 138kV High Pressure Fluid Filled and Solid Dielectric UG Transmission Cable	308 miles	Includes pumping stations and terminators. Several lines have dynamic line rating equipment
Transmission Switching Stations 500kV to 230kV, 345kV to 230kV, 230kV to 138kV, all with multiple transformers	41	Large auto-transformers typically 1,000 MVA at 500kV, 750 MVA at 345kV and 550MVA at 230kV all with LTCs. Gas Circuit Breakers at 500kV, 230kV and 138kV. Some Oil circuit Breakers at 138kV. Other assets include: Circuit Switchers, CCVTs, Stand-alone CTs, Disconnect Switches, Protective Systems, Transmission SCADA (EMS) with over 120 field RTUs
Transmission supplied substations 230kV/138kV to 13.8kV	80	Each facility utilizes two or four 45MVA transformers and feeds 8 to 12 13.8kV distribution circuits rated at 8 to 10 MVA connected load. Each circuit is nominally operated at half load and all are loop tied through re-closers to another circuit. Each circuit is at least sectionalized at the mid-point. Heavily loaded / high customer count circuits are sectionalized into thirds
Sub-transmission fed substations, 69kV to 13.8kV and 26kV to 4kV	166	The 69kV to 13.8kV share all the features of the transmission fed 13KV stations. 26kV to 4kV stations utilize two or three 15 MVA transformers feeding 6 to 8 radial distribution circuits rated at 3 MVA.
Customer owned substations	200	PSE&G has switching responsibility and maintenance oversight for the high side breakers
69kV sub-transmission overhead circuits	140 miles	Recently reclassified as transmission in a FERC filing
26kV sub-transmission both overhead and conventional underground	2,064 miles	
13.2kV and 4.16kV distribution circuits	19,958 miles	
Network Facilities	Major urban centers	Large 26kV fed networks in Newark, Jersey City, Trenton, Paterson, New Brunswick and Newark Airport
Transmission SCADA	N/A	Energy Management System (EMS) and Electric Systems Operations Center (ESOC). Interfaces with all facilities on the transmission system and 10,700 MW of in-state generation
Distribution SCADA	N/A	Interfaces with all distribution facilities and over 2,000 pole top re-closers associated with the 13.8kV loop scheme
Electric Division HQ	4	
Electric Division Sub-HQ	4	
Transmission Engineering and Construction Facility	1	
Customer Operations	N/A	Call centers, billing, payment processing and a new state-of-the-art customer information system

Type	PSEG Long Island	Details
500kV, 230kV, 138kV overhead transmission lines	235	Steel Mono poles, Lattice
345kV, 230kV, 138kV, 69kV High Pressure Fluid Filled and Solid Dielectric UG Transmission Cable	313 Miles	Includes pumping plants, telemetry, circulation, shuttle, rapid circulation with forced cooling, conventional and GIS terminations and automatic low pressure trip equipment. *Includes 10 miles of NYPA-owned 345kV
Transmission Switching Stations 500kV to 230kV, 345kV to 230kV, 230kV to 138kV, all with multiple transformers	0	There are three 345kV to 138kV substations. 4G and 5M are LIPA-owned and 4HG is owned by NYPA
Transmission supplied substations 230kV/138kV to 13.8kV	27	This number omits twelve 138kV transmission substation that do not supply distribution load
Sub-transmission fed substations, 69/33/23kV to 13.8/4kV	135	
Customer-owned substations	105	This includes 69 LIRR stations
69kV sub-transmission overhead circuits	192	
23 & 35kV sub-transmission both overhead and conventional underground	74.5 miles of UG	UG includes direct buried cable, cable in conduit, aerial cable, submarine cable.(XLPE, EPR, PILC type cable is included)
13.8kV and 4.16kV distribution circuits	1,036	
Network Facilities	511 network transformers	Some urban area networks and several Malls
Transmission SCADA	N/A	Energy Management System (EMS) and Transmission Operations Center interfaces with all facilities on the transmission system and Long Island generation
Distribution SCADA	NA	Interface with over 2,000 ASU & Reclosers
Electric Division HQ	4	
Electric Division Sub-HQ	4	
Transmission Engineering and Construction Facility	1	
Customer Operations	NA	Call centers and Billing processing center

1.4.F **PSEG's Safety Standards and Procedures (Table of Contents)**

Safety Standards and Procedures

Manual Owner:

Michael Pokler – Compliance Manager – Utility Health and Safety

January 15, 2019 – Rev 3.02

Foreword

To: Distribution
Subject: Revised Safety Standards and Procedures Manual
Date: December 2018

Attached are details of the revision of the existing “Safety Manual”. The title of the manual is *Safety Standards and Procedures*. This manual reflects operational and regulatory changes as well as modifications compiled over the past several years.

The entire manual has been updated based on many years of experience in Company operations and the recommendations and requirements of recognized safety associations and authorities. Additional safety procedures will be issued from time to time, either verbally or in writing, and are to be considered an extension of the practices contained in this manual.

Since specific safety rules cannot cover all conditions that may arise on the job, each associate has a primary responsibility to follow the instructions contained in this manual, to be alert and to use good judgment for their own safety, the safety of their fellow workers and the general public.

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1.4.G Safety Root Cause Analysis

Incident Summary									
Incident Type	<input checked="" type="checkbox"/> Inj / Ill to Employee <input type="checkbox"/> Inj / Ill to Contractor <input type="checkbox"/> Near Miss <input type="checkbox"/> Motor Vehicle Accident <input type="checkbox"/> Switching Error <input type="checkbox"/> Public Incident <input type="checkbox"/> Hazardous Condition <input type="checkbox"/> Property Damage <input type="checkbox"/> Operating Error / Misoperation <input type="checkbox"/> Other: _____								
Employee	Name	xxxxxx xxxxxxxx		Employee Number	xxxxxx		Classification / Title	Division Mechanic	
	Business Area	Southern Electric		Reporting Location	Moorestown		Years in Position	15	Years of Service 17
Incident	Incident Location	300 New Albany Rd, Moorestown				Incident Date	7/3/2019		Time 11:45 AM
Other (as applicable)	Person In Charge	Xxxx				Equipment Involved:	None		
What Happened (Include description of incident and what happened and what resulted)	<p>Incident Alert: On July 3, 2019 at approximately 11:45 AM, a Division Mechanic cut the tip of his middle finger on his left hand. While working at the Moorestown Headquarters building, the Division Mechanic was cutting the protective shrink cap off of a reel of cable that was being prepped for pulling eyes, when the knife slipped and cut through his Kevlar cut resistant work glove into his finger. The employee notified his Supervisor and the Supervisor took the employee to Concentra Urgent Care in Mount Laurel. The wound was cleaned, and a bandage was applied. The employee was released to regular duty with no restrictions or medications. The treatment the employee received meets the criteria for a first aid incident.</p> <p>Detailed Description of Incident: On July 3, 2019, an Underground Crew returned to headquarters to load material for a 26kV cable failure in the city of Camden. The crew identified the cable reel required for the job and started to prepare the cable for pulling eyes. The Division Mechanic assigned this task cut through the friction tape holding the cable ends together then scored the heat shrink protective cap at the end of the 3 conductor cable. At this time the Division Mechanic started using his brown handled paper knife to pry off the protective end cap from one of the conductors while supporting the other conductors with his left hand, the end cap broke loose, the knife slipped and gouged the tip of his middle finger on his left hand. The Division Mechanic immediately removed his cut resistant work glove and noticed he had cut his finger. The employee notified his Supervisor and the Supervisor took the employee to Concentra Urgent Care in Mount Laurel. The wound was cleaned and a bandage was applied. The employee was released to regular duty with no restrictions or medications. The treatment the employee received meets the criteria for a first aid incident.</p>								

**Additional
Notes**

(Notes and/or facts
relating to incident)

Facts analyzed:**Emergency response:**

- The crew performed initial first aid.
- The crew Chief notified the Supervisor who immediately evaluated the employee.
- The Supervisor transported the employee to Concentra Urgent Care in Mount Laurel
- Appropriate medical care was provided

Environmental/weather conditions:

- Clear and warm

Safety standards and procedures followed by crew:

- Appropriate PPE worn by Employee: Hard hat, safety glasses, FR shirt, FR pants, safety shoes, cut resistant gloves.

Employee interview:

- The injured employee had stated that the knife he was using was brand new and sharp.
- The employee stated he was using the knife to pry off the end cap.
- The Injured employee stated that he could have used cutters to remove the end caps in this case.
- The Injured employee stated that he put his left hand in a bad position.

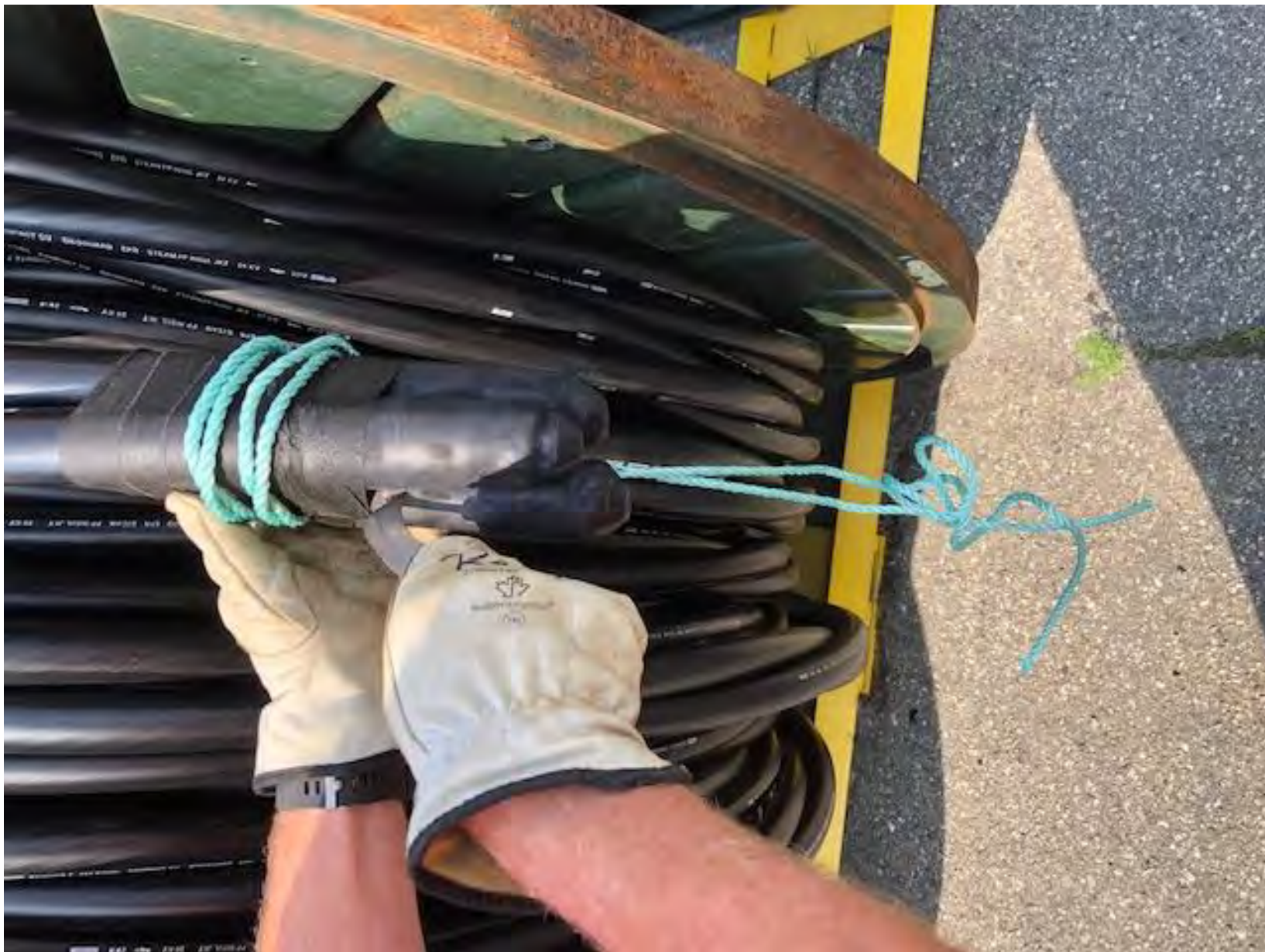
Reviewed documents:

- Job site photos












Root Cause

Root Cause	Corrective Action	Responsible Manager	Due Date
Employee failed to follow safe work practices while using a knife.	<p>Remind all Underground employees:</p> <ul style="list-style-type: none"> Utilize the proper tool for the job (don't use a knife as a prying tool) When using a knife always cut in a direction away from yourself, your hands and others. Minimize the use of a knife when possible. When another tool can perform the same job safer, use the safer tool! <p>Review (attached) knife usage presentations.</p> <div>   </div> <p>The Knife and how to use it safely.ppt Cut Prevention.pptx</p>	Xxxx	July 31, 2019

Contributing Factors, Lessons Learned & Action Plan

(Mark appropriate contributing factors in the Appendix) **Primary Factor(s) from Appendix to be noted as such. Use additional sheets if necessary.**

Contributing Factors and Lessons Learned	Corrective Action	Responsible Person	Due Date
<input checked="" type="checkbox"/> Contributing Factor or <input type="checkbox"/> Lesson Learned: The injured employee failed to keep his hand out of the line of fire.	<p>Remind all associates to:</p> <ul style="list-style-type: none"> Identify potential hazards Leave yourself a way out Keep out of the line of fire <p>Review (attached) Line of Fire presentation</p> <div>  </div> <p>line of Fire LOF 10-2018.pptx</p>	Xxxx	July 31, 2019

<input type="checkbox"/> Contributing Factor or <input checked="" type="checkbox"/> Lesson Learned: Although the cut resistant work glove has been the accepted PPE when using a knife, (see below) an evaluation should be performed to determine that the gloves we are using provides adequate protection and is the best PPE for the work being performed.	Investigate the cut resistant work glove to determine that it provides adequate protection and is the best type of glove for the work being performed.	Xxxx, AM Outside Plant	December 31, 2018
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Incident Analysis Team			
	Name	Title	Phone
IA Team Leader	Xxxx	Electric Distribution Manager	
IA Team Member	Xxxx	IBEW Shop Steward	
IA Team Member	Xxxx	Senior Distribution Supervisor.	
IA Team Member			
IA Team Member			
IA Team Member			
Team Self Evaluation			
Review the analysis and improvement action plan and confirm the following objectives:			
<input type="checkbox"/> Communication	Are the results of the investigation summarized in a Powerpoint that clearly communicates the event, lessons learned and actions?		
<input type="checkbox"/> Clarity	Is the root cause/contributing factors clearly identified?		
<input type="checkbox"/> Root Cause	Does the improvement plan identify and address the root cause of the incident?		
<input type="checkbox"/> Risk Reduction	How effective will the implementation of the action items be in reducing the risk of recurrence?		
<input type="checkbox"/> Responsibility	Are the individual action plans properly assigned? Have the action assignees accepted responsibility for the action?		
<input type="checkbox"/> Retraining	Is the employee involved in the incident receiving appropriate retraining, if applicable?		
<input type="checkbox"/> Due Dates	Are the action item due dates reasonable? How will follow-up before the due date be performed to ensure the item will be addressed?		
Manager Approval (Local manager of affected location)			
Above self-evaluation is complete and report is approved for distribution:			
Name:			
Print:			
Date Approved:			

List of Contributing Factors

☐ Engineering Factors

- ☐ Drawing/specification or data error
- ☐ Error in equipment or material selection
- ☐ Inadequate or poor design

☐ Equipment/Tools/Materials Factors

- ☐ Defective or failed part/material
- ☐ Error by manufacturer in shipping/marketing
- ☐ Inadequate inspection and maintenance
- ☐ Incorrect selection
- ☐ Incorrect use
- ☐ Poor condition

☐ Task Demand Factors

- ☐ Time Pressure
- ☐ High workload
- ☐ Simultaneous, Multiple tasks
- ☐ Repetitive actions/monotony
- ☐ Irrecoverable Actions
- ☐ Interpretation Requirements
- ☐ Unclear goals, roles, or responsibilities

☐ **Lack of/unclear standards**

☐ **Human Factors**

☐ **Communication issues**

☐ Job brief/risk assessment

☐ Unclear expectations

☐ Verbal communication problem

☐ Work area protection (signs/tags/demarcation etc.)

☐ **Data Issues**

☐ EMS update

☐ Mapping error

☐ **Did not follow procedures/work practices/instructions/rules**

☐ Accepted practice caused a failure to follow procedure or instruction

☐ Improper switching order

☐ Inadvertent error

☐ Inattention to detail

☐ Incomplete research

☐ Misinterpretation

☐ Operated wrong device

☐ Order was not followed

☐ **Fatigue/Illness**

☐ **Inadequate knowledge/training**



- ☐ Inadequate content of training
- ☐ Insufficient practice or hands-on experience
- ☐ Insufficient refresher training
- ☐ No training provided

☐ **Individual Capabilities**

- ☐ 1 Unfamiliar with task/first time
- ☐ 2 Lack of knowledge
- ☐ 3 New technique not used before
- ☐ 4 Imprecise communication habits
- ☐ 5 Lack of proficiency/inexperience
- ☐ 8 Illness or fatigue
- ☐ 7 Can do attitude for crucial task
- ☐ 6 Indistinct problem solving skills

☐ **Inadequate PPE**

- ☐ Body - Fire retardant clothing
- ☐ Body - High visibility clothing
- ☐ Eyes
- ☐ Fall protection
- ☐ Feet
- ☐ Hands
- ☐ Head

☐Hearing

☐Respiratory protection

☐Rubber gloves/sleeves

☐**Management issues**

☐Company culture/leadership issues

☐Improper resource allocation

☐Inadequate administrative controls (procedures/policies/standards)

☐Inadequate communication of procedures/policies/standards/priorities

☐Inadequate employee selection/placement/qualifications

☐Inadequate supervision - Experience/development

☐Inadequate supervision - Knowledge/training

☐Inadequate supervision - Time/resources

☐Inadequate supervision - Leadership

☐Work organization or planning deficiencies

☐**Motor Vehicle/Equipment Operation**

☐Avoidance of another vehicle or object

☐Driving/traffic rules not followed

☐Encroachment of minimum approach distances

☐Inadequately secured load

☐Inappropriate operation of equipment

☐Inattention/distraction

☐ Unawareness of changing weather and road/driving conditions

☐ **Poor body positioning**

☐ **Human Nature Factors**

☐ Stress

☐ Habit patterns

☐ Assumptions

☐ Complacent/overconfidence

☐ Mind set (intentions)

☐ Limited short term memory

☐ Mental shortcuts (biases)

☐ Inaccurate risk perception

☐ **Work Environment Factors**

☐ **Controlled**

☐ Housekeeping

☐ Inadequate work area protection

☐ Incorrect management of hazardous substances/atmospheres

☐ Site preparation

☐ Work pace

- ☐ Distractions/interruptions
- ☐ Changes/departure from routine
- ☐ Confusing displays/controls
- ☐ Work around/OOS instrumentation
- ☐ Hidden system response
- ☐ Personality conflicts
- ☐ Lack of alternate indication
- ☐ Unexpected equipment conditions

☐ **Uncontrolled**

- ☐ Condition of terrain
- ☐ Dense population
- ☐ Other (describe below)
- ☐ Proximity to other utilities
- ☐ Weather conditions

Incident Analysis Level One Report

☐ Human Error Reduction Factors

☐ **Flawed Defenses** - defects in measures designed to protect plant equipment or people against hazards or to prevent the occurrence of active errors; functions include awareness, detection, warning, protection and escape.

- ☐ A Pre-job Brief
- ☐ B Procedure Adherence
- ☐ C 3 part communication
- ☐ D Turnover
- ☐ E Planning
- ☐ F Verification Practices
- ☐ G Self check/STAR
- ☐ H Peer check
- ☐ I First Check
- ☐ J Questioning attitude

- ☐ K Place keeping
- ☐ L Document preparation
- ☐ M Supervision/management
- ☐ N Workmanship
- ☐ O Post-job Critique
- ☐ P Tool/equipment use
- ☐ Q Safety
- ☐ S Housekeeping
- ☐ T Outside of Procedures (OOPS)
- ☐ U Flagging

☐ **Latent Organizational Weaknesses** - undetected deficiencies in the management control processes (e.g., strategy, policies, work control, training, and resource allocation), or associated *values* (shared beliefs, attitudes, norms, and assumptions), that create workplace conditions that provoke error (precursors) or degrade the integrity of defenses (flawed defenses).

- ☐ Basic Work Practices
- ☐ Computer Issues
- ☐ Control of Personal Resources
- ☐ Security Work Practices
- ☐ Equipment
- ☐ Housekeeping
- ☐ Industrial Safety
- ☐ Management Effectiveness

- ☐ Oversight
- ☐ Program Controls
- ☐ Documentation
- ☐ Material Availability
- ☐ Tools & Equipment Use
- ☐ Training & Qualifications
- ☐ Work Planning & Execution
- ☐ Work Scheduling

Attachments

<input type="checkbox"/> MV104	<input type="checkbox"/> Photographs	<input type="checkbox"/> Work & Security Logs	<input type="checkbox"/> Diagrams/drawing
<input type="checkbox"/> AIMS Reports	<input type="checkbox"/> Related Policies & Procedures	<input type="checkbox"/> Pre-Job Briefs	<input type="checkbox"/> Other IA related items

1.4.H 2017 Long Island Integrated Resource Plan and Repowering Studies

2017 INTEGRATED RESOURCE PLAN

PUBLIC COMMENT SUMMARY

COMMUNITY OUTREACH

PUBLIC ENGAGEMENT

- ▶ FOUR PUBLIC HEARINGS
- ▶ JUNE 21 & JUNE 22
- ▶ 110+ ATTENDEES
- ▶ 48 COMMENTERS

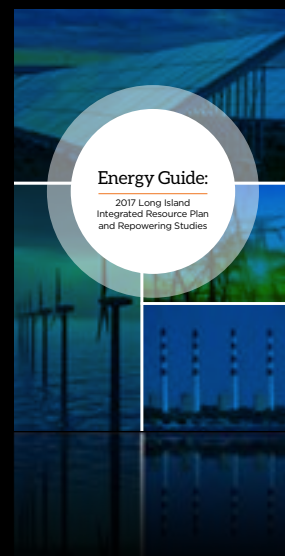


PRESS CONFERENCE @ SUFFOLK LEGISLATURE - JUNE 21

REPORTS & GUIDES

SUPPORTING DOCUMENTS:

- 2017 IRP SUMMARY ANALYSIS
- INDEPENDENT PLANNING REVIEWS
- REPOWERING REPORTS
- DPS OPINION
- POWER PLANT CONDITION ASSESSMENT
- GUIDES, CHARTS, PRESENTATIONS & FAQs



GOVERNMENT & MEDIA

- ▶ 35+ STAKEHOLDER, COMMUNITY & ELECTED OFFICIAL BRIEFINGS
- ▶ 50+ NEWS ARTICLES



COMMUNITY SUPPORT



“THIS PLAN VALIDATES OUR CALL FOR A TRANSITION AWAY FROM ANTIQUATED ENERGY TECHNOLOGY TO A MODERNIZATION OF OUR ENERGY INFRASTRUCTURE”

- ▶ **Adrienne Esposito, Executive Director
Citizens Campaign for the Environment**



“THE TIME IS NOW FOR FOR ALL PARTIES TO COME TO AN AGREEMENT ON BOTH THE FUTURE OF THE PLANTS AND THE TAXES BEING PAID BY ALL LONG ISLANDERS”

- ▶ **Mitch Pally, CEO
Long Island Builders Institute**



“WHAT WE ARE WITNESSING HERE IS A HISTORIC GAME CHANGER ON HOW LONG ISLAND PRODUCES ITS ELECTRICITY”

- ▶ **Gordian Raacke, Executive Director
Renewable Energy Long Island**



“WE APPLAUD THIS BOLD PROGRESS IN TRANSFORMING LONG ISLAND’S UTILITY INTO A MODEL FOR THE NATION.”

- ▶ **Lisa Dix, NY Senior Representative
Sierra Club**



“LIPA’S IRP PROVIDES AN EFFECTIVE ROADMAP THAT CUTS THE COST OF ENERGY & REDUCES OUR PROPERTY TAX BURDEN”

- ▶ **Kyle Strober, Executive Director
Association for a Better Long Island**



“LIPA’S PLAN ENVISIONS SMART AND STRATEGIC INVESTMENTS IN RENEWABLE ELECTRIC GENERATION THAT WILL INCREASE RELIABILITY AND LOWER COSTS”

- ▶ **Liz Gordon, Director
New York Offshore Wind Alliance**

COMMUNITY SUPPORT



**"I WANT TO COMMEND THE ENTIRE
IRP PROCESS AND THE OUTREACH TO
DESCRIBE ITS IMPORTANT FINDINGS"**

- ▶ Neil Lewis, Executive Director
LI Sustainability Institute



**"LIPA'S PLAN IS ILLUMINATING, SHOWING
US THAT BY TAPPING INTO THE GREAT
POTENTIAL OF OFF-SHORE WIND, LONG
ISLAND'S GRID WILL BE MORE EFFICIENT"**

- ▶ Anne Reynolds, Executive Director
Alliance for Clean Energy New York



**"IT'S REFRESHING TO SEE A
PLAN THAT VALUES THE PUBLIC
INTEREST OVER POLITICS"**

- ▶ Sammy Chu, Executive Director
US Green Buildings Council



**"CLIMATE CHANGE IS THE MOST CRITICAL
ISSUE OF OUR GENERATION. LONG ISLAND IS
TO BE COMMENDED FOR TAKING THE LEAD
MOVING TOWARDS A RENEWABLE ENERGY"**

- ▶ Ling Tsou, Co-Founder
United for Action



**"WE APPLAUD THE IRP AS A TRIUMPH IN
THE FIGHT AGAINST CLIMATE CHANGE
AND A BOLD MOVE TO ECONOMIC AND
EFFICIENT RENEWABLES"**

- ▶ George Povall, Director
All Our Energy



**"OFF-SHORE WIND REPRESENTS AN
OPPORTUNITY FOR THE LABOR COMMUNITY TO
GO TO WORK AND EARN A DECENT WAGE.
WHEN LABOR THRIVES, LONG ISLAND THRIVES"**

- ▶ Dick O'Cane, President
Nassau Suffolk Building Trades

COMMUNITY SUPPORT



"THIS IS THE BLUE PRINT WE NEED FOR ALL NEW YORKERS."

- ▶ Kim Fraczek, Director
Sane Energy Project



"LIPA'S PLAN IS IS A CRITICAL PART OF THE EMPIRE STATE'S COMMITMENT TO GET 50% OF OUR POWER FROM RENEWABLE SOURCES"

- ▶ Heather Leibowitz, Director
Environment New York



"FROM TURBINE CONSTRUCTION & MAINTENANCE & SUPPLY CHAIN JOBS, LARGE SCALE OFF-SHORE WIND DEVELOPMENT MEANS FORWARD PROGRESS"

- ▶ Tim McCarthy, Business Representative
IBEW 25



"LONG ISLAND'S LEADERSHIP IN STARTING THE TRANSITION TO CLEAN ENERGY IS TO BE APPLAUDED, MAINTAINED AND REPLICATED."

- ▶ Eric Weltman, Senior Organizer
Food & Water Watch



"WE MUST ACT NOW TO COMBAT CLIMATE CHANGE AND BUILD AND IMPLEMENT OFFSHORE WIND "

- ▶ Lisa Tyson, Director
Long Island Progressive Coalition



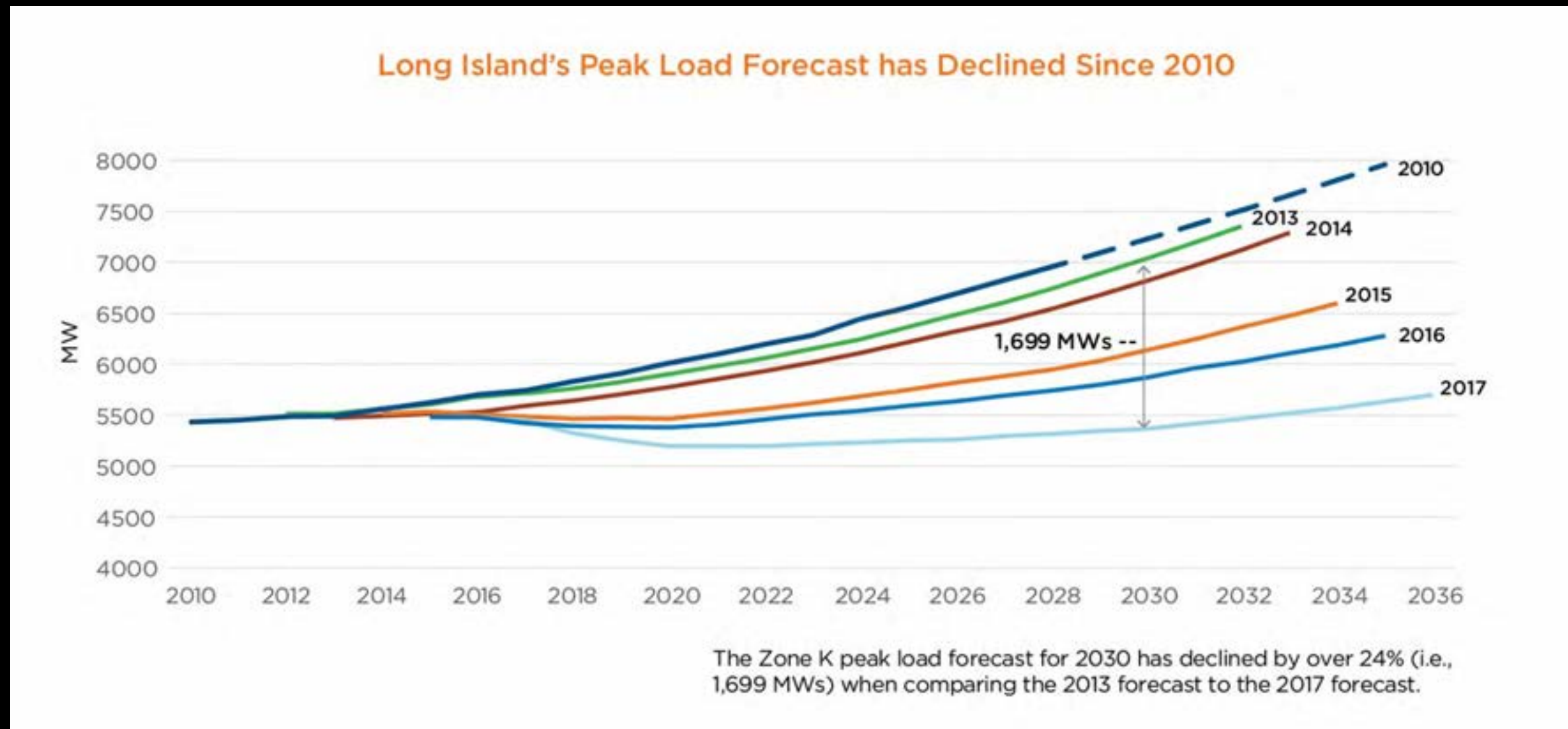
"WE ARE EXCITED TO PUT OUR SKILLED WORKFORCE ON THE JOB FOR A NEW AMERICAN INDUSTRY – OFFSHORE WIND."

- ▶ John Durso, President
Long Island Federation of Labor

2017 INTEGRATED RESOURCE PLAN

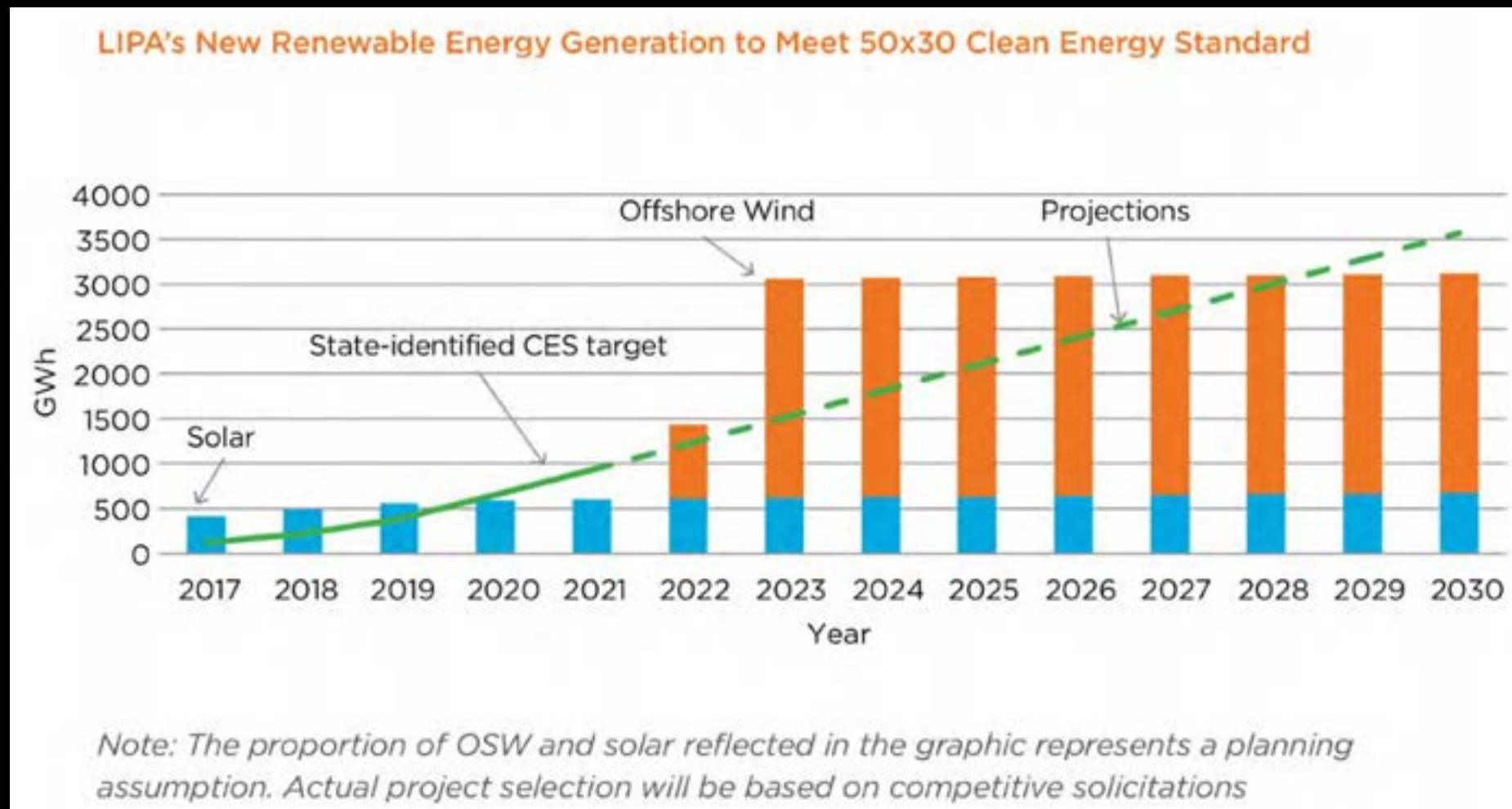
SUMMARY

LONG ISLAND'S PEAK LOAD FORECAST SHOWS DRAMATIC REDUCTIONS



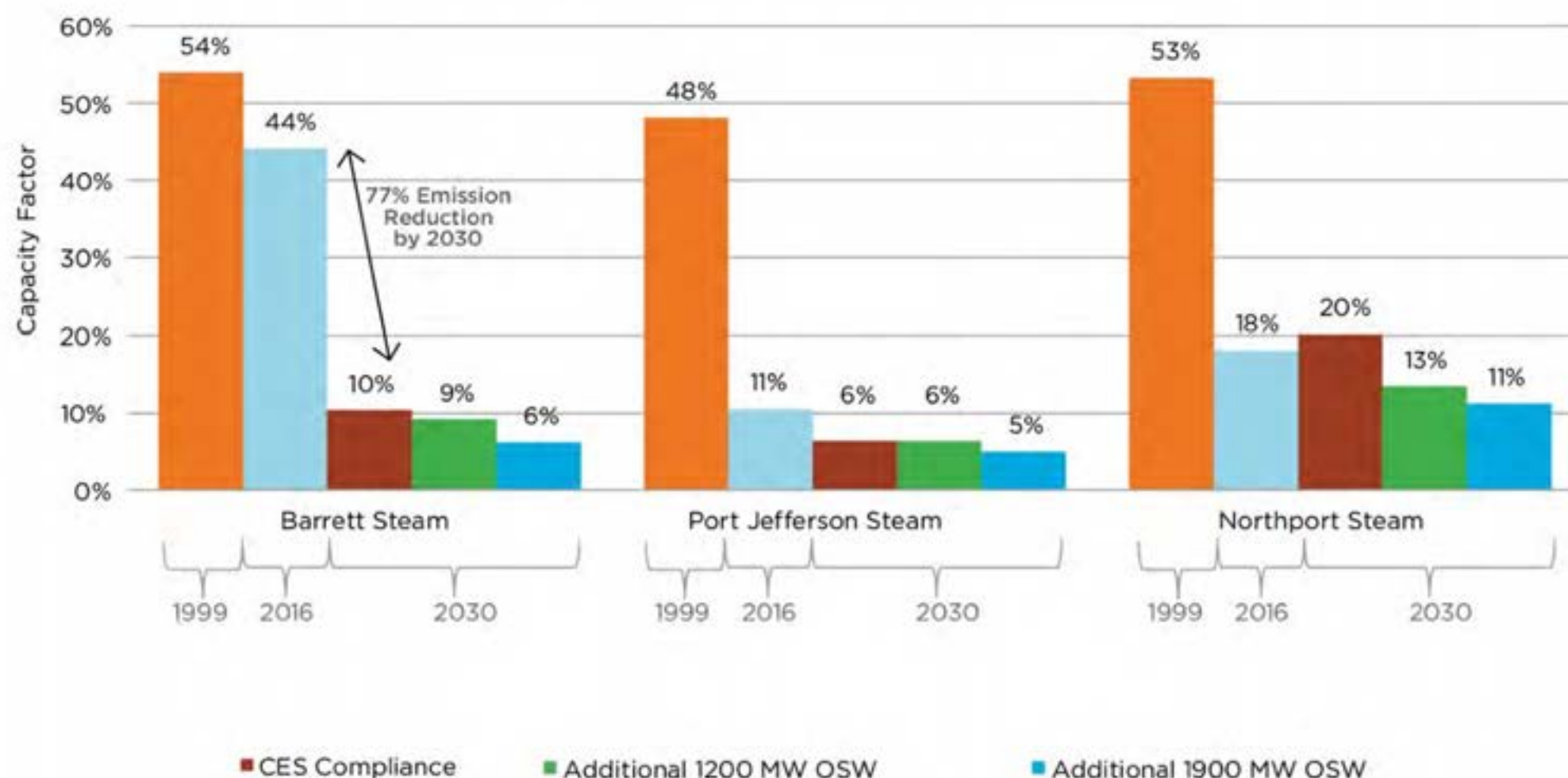
- ▶ FORECAST NEED FOR POWER PLANTS IN 2030 HAS DECLINED BY 1,700MW OR (24%)
- ▶ ENERGY EFFICIENCY & ROOFTOP SOLAR WILL REDUCE LOAD BY 950MW THROUGH 2030

EXPANDING CLEAN ENERGY



- ▶ NY'S 50 PERCENT RENEWABLE BY 2030 CLEAN ENERGY STANDARD REQUIRES LIPA TO ADD 800MW OF NEW RENEWABLE GENERATION
- ▶ LOAD IS EXPECTED TO BE REDUCED BY 950MW THROUGH 2030 AS RESULT OF ENERGY EFFICIENCY, ROOFTOP SOLAR, AND OTHER 'BEHIND THE METER' INITIATIVES

RUN-TIME OF STEAM PLANTS FORECAST TO DECLINE



- ▶ RENEWABLES REDUCE USAGE & EMISSIONS OF FOSSIL FUEL PLANTS
- ▶ BUILDING NEW BASELOAD COMBINED-CYCLE PLANTS PROVIDE TOO FEW BENEFITS & RAISE CUSTOMER COSTS BY UP TO \$5 BILLION

NEW GENERATION FLEET FOR LI'S FUTURE ENERGY GRID

Characteristic	Existing PSA Units		Combined Cycle	New Units		
	Steam Units	Combustion Turbines		Peaking Units (Simple Cycle)		
				Large Frame	Small Frame	Area
Cold Start Time	26 - 30 hours	10-30 minutes	3 - 4 hours	10 min	10 min	≤ 10 min
Time (hours)	16	1	4	No technical minimum limit		
Ramp Rate (MWs/min)	2 - 4	NA	15 - 40	50 - 100+	25	25
Heat rate (Btu/kWh)	10,000 - 11,300	13,000-16,500	6,600 - 6,800	8,000 - 8,200	9,700	8,900 - 9,500



- ▶ MODERN PEAKING UNITS, BATTERIES & DEMAND RESPONSE PROVIDE MORE FLEXIBLE RESOURCES AND SUPPORT RENEWABLES

- ▶ BASELOAD COMBINED-CYCLE PLANT

PUBLIC COMMENTS & STAFF RESPONSE

**WERE THE ECONOMICS OF
REPOWERING POWER PLANT
INDEPENDENTLY VERIFIED?**

**YES. AN INDEPENDENT SECOND OPINION
BY THE BRATTLE GROUP VALIDATED THE
COSTS ASSOCIATED WITH REPOWERING.**

**THE PROPOSED BASELOAD POWER
PLANTS WOULD INCREASE CUSTOMER
BILLS BY UP TO \$5 BILLION.**



PUBLIC COMMENTS & STAFF RESPONSE

HOW DO YOU KNOW IF THE EXISTING STEAM PLANTS WILL CONTINUE TO OPERATE RELIABLY?

RCM TECHNOLOGIES CONDUCTED AN INDEPENDENT CONDITION ASSESSMENT OF NATIONAL GRID GENERATION AND CONCLUDED THAT WITH REASONABLE CAPITAL AND O&M EXPENDITURES THE PSA STEAM UNITS WILL CONTINUE TO OPERATE RELIABLY THROUGH THE LIFE OF THEIR CONTRACT.



PUBLIC COMMENTS & STAFF RESPONSE

THE IRP DOES NOT TAKE INTO ACCOUNT THE REDUCED OPERATING COSTS FROM PLANT EFFICIENCIES.

THE IRP DID ACCOUNT FOR OPERATING EFFICIENCIES AND CONCLUDED THAT REPOWERING THE PLANTS OR BUILDING NEW COMBINED CYCLE PLANTS IN ANOTHER LOCATION DO NOT PAY FOR THEMSELVES WITH FUEL SAVINGS.

COSTS

BENEFITS

Year	Costs (\$M)	Benefits (\$M)
2021	190	20
2022	185	22
2023	160	25
2024	155	28
2025	150	32
2026	145	35
2027	140	40
2028	135	45
2029	130	55
2030	120	55



PUBLIC COMMENTS & STAFF RESPONSE

THE ADVANTAGE OF A REPOWERED BARRETT PLANT IS THAT IT WOULD BE BUILT AT A HIGHER ELEVATION WHICH PREVENTS IT FROM FLOODING SUCH AS DURING SUPERSTORM SANDY.

THE EXISTING BARRETT STEAM PLANT WAS NOT FLOODED DURING SANDY, BUT THE SUBSTATION WAS. THAT SUBSTATION HAS SINCE BEEN ELEVATED.



PUBLIC COMMENTS & STAFF RESPONSE

WILL THE IMPACT ON THE FISHING COMMUNITY BE CONSIDERED WHEN PLANNING TO BUILD OFFSHORE WIND FARMS?

YES.

NYSERDA'S OFF-SHORE WIND MASTER PLAN WILL EVALUATE FISHERY IMPACTS & ADDRESS THE CONCERNS OF THE FISHING COMMUNITY.



PUBLIC COMMENTS & STAFF RESPONSE

DID PSEG LONG ISLAND CONSIDER THE FACT THAT THE WIND DOES NOT BLOW ALL OF THE TIME?

YES.

PSEG LONG ISLAND APPLIED A STANDARD OPERATING PROFILE FOR OFFSHORE WIND PROJECTS. THIS IS SIMILAR TO ASSUMPTIONS USED BY THE NEW YORK INDEPENDENT SYSTEM OPERATOR.



PUBLIC COMMENTS & STAFF RESPONSE

INCREASING RENEWABLES WILL INCREASE DEPENDENCE ON IMPORTED-FOSSIL FUEL ENERGY SOLD BY OFF-ISLAND COMPANIES.

ADDITIONAL RENEWABLES DISPLACE EXISTING GENERATION, BUT DO NOT INCREASE DEPENDENCE ON IMPORTS.



LIPA STAFF RECOMMENDATIONS

- ▶ **MEET** NEW YORK'S 50 X 30 GOAL WITH 800MW OF CLEAN ENERGY & 950MW OF ENERGY EFFICIENCY & ROOFTOP SOLAR
- ▶ **PARTNER** WITH NYSERDA TO REDUCE THE COST OF OFFSHORE WIND DEVELOPMENT
- ▶ **STUDY** LONG ISLAND'S PEAKING GENERATION FLEET & INTEGRATE BATTERIES AND DEMAND RESPONSE TO SUPPORT INTERMITTENT RENEWABLE GENERATION
- ▶ **RUN** COMPETITIVE SOLICITATIONS AMONG MULTIPLE SITES, TECHNOLOGIES AND DEVELOPERS TO OBTAIN THE LOWEST COST AND BEST SOLUTIONS FOR CUSTOMERS TO MEET ANY FUTURE NEEDS
- ▶ **DECLINE** TO MOVE FORWARD WITH REPOWERING STEAM PLANTS OR BUILDING NEW COMBINED CYCLE PLANTS
 - ▶ SPECIFIC PROPOSALS PROVIDE TOO FEW BENEFITS AT TOO MUCH COST TO CUSTOMERS
- ▶ **MONITOR** AND UPDATE IRP BASED ON EXPERIENCE AND TRENDS

1.4.I PSEG Energy Efficiency Awards

Appendix 1.4.I – PSEG is a Recognized Leader in the Energy Efficiency and Renewables Industry

Year	Award
2019	ACEEE Exemplary Programs 2018: PSE&G Hospital and Multifamily Programs
2019	Smart Energy Decisions Innovation Award: PSE&G Hospital Efficiency Program winner in the Energy Efficiency Incentive Programs category
2019	ASEP Energy Award for Outstanding Achievement in Non-residential Program Design & Implementation: PSE&G Hospital Efficiency Program
2019	ENERGY STAR® Partner of the Year Award - Energy Efficiency Program Delivery: PSEG Long Island Home Performance with ENERGY STAR®Program
2019	ENERGY STAR® Partner of the Year Award - Energy Efficiency Program Delivery: PSEG Long Island Energy Efficient Products Program
2018	ACEEE Exemplary Programs 2018: PSE&G Hospital and Multifamily Programs
2018	ACEE Region I – Energy Project of the Year: PSE&G Hospital Efficiency Program at Hackensack University Medical Center
2018	The Bishop's Award – St. Peter's Healthcare System: PSE&G Hospital Efficiency Program
2018	AESP – Energy Award for Outstanding Achievement in Residential Program Design and Implementation: PSE&G Multifamily Housing Program
2018	Department of Energy (DOE) Home Energy Score Century Club Award: PSEG Long Island Residential Efficiency Program
2018	Energy Management Collaborative - Top Utility Award: PSEG Long Island Commercial Efficiency Program
2017	Department of Energy (DOE) Home Energy Score Century Club Award: PSEG Long Island Residential Efficiency Program
2016	AESP – Energy Award for Outstanding Achievement in Residential Program, Design & Implementation: PSE&G Multifamily Housing Program
2016	Department of Energy (DOE) Home Energy Score Century Club Award: PSEG Long Island Residential Efficiency Program
2015	Alliance to Save Energy's Power Generation & Supply Star of Energy Efficiency Award: PSE&G Hospital Efficiency and Multifamily Housing Programs combined
2015	ENERGY STAR® Partner of the Year Award - Sustained Excellence: PSEG Long Island Energy Efficient Products Program
2015	ENERGY STAR® Partner of the Year Award - Sustained Excellence: PSEG Long Island Home Performance with ENERGY STAR®Program
2014	AEE Local Chapter Award – Energy Project of the Year: PSE&G Hospital Efficiency Program and Trinitas Regional Medical Center
2014	ENERGY STAR® Partner of the Year Award- Sustained Excellence: PSEG Long Island Home Performance with ENERGY STAR®Program
2014	ENERGY STAR® Partner of the Year Award - Sustained Excellence: PSEG Long Island Energy Efficient Products Program
2013	ACEEE Third National Review Exemplary Energy Efficiency Programs: PSE&G Multifamily Housing Program, recognized as exemplary (top category)
2013	ACEEE Third National Review of Exemplary Energy Efficiency Programs : PSE&G Hospital Efficiency Program, recognized with an honorable mention
2012	NJ Biz Healthcare Heroes Award: PSE&G Hospital Efficiency Program

1.4.J Executive Bios

Appendix 1.4.J – Executive Bios of Key Resources

Name	Entity	Title
<i>Mr. John A. Bridges</i>	PSE&G	Vice President – Electric Operations
<i>Mr. David M. Daly</i>	PSE&G	President and Chief Operating Officer; PSE&G
<i>Mr. Fred Daum</i>	PSE&G	Executive Director – Customer Operations
<i>Mr. Daniel Eichhorn</i>	PSEG Long Island PSEG Puerto Rico	President and Chief Operating Officer President
<i>Ms. Andrea Elder-Howell</i>	PSEG Long Island	Vice President - Legal
<i>Mr. Antonio Fernández</i>	PSEG	Chief Compliance Officer
<i>Mr. Aaron T. Ford</i>	PSEG	Corporate Security and Claims
<i>Mr. Joseph A. Forline</i>	PSE&G	Vice President - Gas Operations
<i>Ms. Kim Hanemann</i>	PSE&G	Senior Vice President - Electric Transmission and Distribution
<i>Mr. Scott Jennings</i>	PSEG Services	Senior Vice President – Corporate Planning, Strategy and Utility Finance
<i>Ms. Peggy Keane</i>	PSEG Long Island	Managing Director and Vice President-Construction and Operations
<i>Mr. David Lyons</i>	PSEG Services	Executive Director – Enterprise Business Intelligence
<i>Mr. Paul Napoli</i>	PSEG Long Island	Vice President – Power Markets
<i>Mr. John O'Connell</i>	PSEG Long Island	Vice President - Transmission & Distribution
<i>Ms. Karen Reif</i>	PSE&G	Vice President- Renewables and Energy Solutions
<i>Mr. Joseph Santamaria</i>	PSEG Services	Senior Vice President - Chief Information and Digital Officer
<i>Mr. Mike Schmid</i>	PSE&G	Vice President Asset Management & Centralized Services
<i>Mr. Rick Walden</i>	PSEG Long Island	Vice President - Customer Services

Executive Profile

John A. Bridges

Vice President – Electric Operations

Public Service Electric & Gas Company (PSE&G)



John A. Bridges was elected vice president of electric operations for Public Service Electric and Gas Company (PSE&G) in December 2015. He is responsible for all electric field operations, including safety and emergency preparedness.

Prior to his current role, Mr. Bridges was executive director of electric operations. He joined PSE&G in 1987 as an associate engineer and has held various engineering and management positions in electric operations, including supervising engineer, construction manager, operations and resource manager, and division manager.

Bridges holds a bachelor's degree in mechanical engineering from the New Jersey Institute of Technology in Newark, NJ. He also completed the Utility Executive Course at the University of Idaho. Bridges has served as a member of the Gateway Regional Chamber of Commerce and Urban League of Essex County.

Executive Profile

President and Chief Operating Officer,
PSE&G

David M. Daly



David M. Daly has been president and chief operating officer of Public Service Electric and Gas Company (PSE&G) since October 2017. PSE&G is New Jersey's oldest and largest regulated gas and electric delivery utility, serving approximately 2.4 million customers, nearly three-quarters of the state's population.

In addition, Mr. Daly is Chairman of the Board of PSEG Long Island, a New York subsidiary of Public Service Enterprise Group Incorporated (PSEG), which has been managing the electric transmission and distribution systems on Long Island and in the Rockaways since January 2014. PSEG Long Island serves 1.1 million customers. Prior to his current position, Mr. Daly served as president and chief operating officer of PSEG Long Island. He is a member of PSEG's Executive Officer Group.

Before his appointment to PSEG Long Island, Mr. Daly served as vice president - asset management and centralized services at PSE&G. Since joining PSE&G in 1983, Mr. Daly has held a variety of positions in utility operations and support services, including vice president of energy acquisition and technology, division manager - merger integration, director of utility operations services, director of corporate strategy, and general manager of transmission planning.

Earlier in his career, Mr. Daly held various first and second line supervisory positions in fossil generation plant operations, and served as a senior consultant at several industry consulting firms. He received his electrical engineering degree from the State University of New York Maritime College, and a Master of Business Administration degree from Rutgers University.

Mr. Daly serves on the boards of the American Gas Association, the New Jersey Utilities Association, Liberty Science Center and St. Vincent Academy.

Executive Profile

President and Chief Operating Officer,
PSEG Long Island

President, PSEG Puerto Rico

Daniel Eichhorn



In November 2019, Dan Eichhorn was named President of PSEG Puerto Rico pending execution of the contract with Puerto Rico Power Authority.

In addition, Dan Eichhorn was named President and Chief Operating Officer of PSEG Long Island in October 2017. PSEG Long Island operates the Long Island Power Authority's transmission and distribution system under a 12-year contract. PSEG Long Island is a subsidiary of Public Service Enterprise Group Incorporated, a publicly traded diversified energy company with annual revenues of \$9.1 billion.

Previously, Mr. Eichhorn served as PSEG Long Island's Vice President – Customer Services, an organization that he developed when PSEG Long Island was selected by the Long Island Power Authority (LIPA) to manage LIPA's electric transmission and distribution system. As Vice President, Mr. Eichhorn was responsible for customer satisfaction, marketing and marketing strategy, customer contact, meter-to-cash functions, and solar and energy efficiency programs.

Prior to this role, Mr. Eichhorn served as Director – Customer Contact and Technology for Public Service Electric and Gas Company (PSE&G), where he was responsible for assessing and implementing new customer technology, oversight of all call center operations, and oversight of the company's 16 customer service centers.

A veteran of PSE&G for 25 years, Mr. Eichhorn led the implementation of the company's new SAP-based customer information system. He has a broad background in electric and gas operations, customer operations and the appliance service business.

Mr. Eichhorn earned a Bachelor of Science in electrical engineering and a Master of Business Administration in finance from Drexel University. He attended numerous leadership development programs, including The Center for Creative Leadership, Darden School of Business and the Balanced Scorecard Management System

Executive Profile

Andrea Elder-Howell

Vice President – Legal

PSEG Long Island



Andrea Elder-Howell was named Vice President-Legal of PSEG Long Island in July 2018. In this role, Ms. Elder-Howell leads the legal team on Long Island and provides legal guidance on a variety of issues to key stakeholders at the utility.

Previously, Ms. Elder-Howell served as Senior Commercial Counsel at PSEG Long Island, where she advised and represented the utility in legal matters and commercial transactions, supported the company's strategic business plan and strategically addressed potential legal issues and concerns. She also reviewed, drafted and negotiated various commercial agreements while primarily supporting energy-related projects.

Prior to joining PSEG Long Island in 2014, Ms. Elder-Howell served as Vice President and Assistant General Counsel for RBS Sempra Commodities and Senior Commercial Counsel for KeySpan Energy/National Grid.

Ms. Elder-Howell has more than 20 years of experience working on sophisticated commercial transactions in the energy industry and is licensed to practice law in New York and New Jersey. She earned her bachelor's in accounting from Queens College, her juris doctorate from Rutgers University School of Law and Master of law in taxation from New York University School of Law. She currently serves on the Girl Scouts of Nassau County Board and previously served on the executive boards for the New York State Bar Association and the Nassau County Chapter of Jack & Jill of America, Inc. She has been recognized by the New York State Society for CPAs, Jack and Jill of America and New York State PTA for her dedication to promoting opportunities for youth on Long Island.

Executive Profile

Antonio Fernández

Chief Compliance Officer

PSEG Services Corporation



Antonio Fernández was named PSEG’s chief compliance officer in April 2016. In this role, he is responsible for overseeing PSEG’s compliance program, which involves managing PSEG’s respected ethics and compliance group and its highly successful NERC compliance group.

Mr. Fernández joined PSEG from General Electric (GE), where he served as GE Power’s global ombuds leader and executive counsel. During his five years at GE, he held various roles of increasing responsibility in GE’s compliance program, serving as chief compliance officer for GE’s nuclear business and as GE’s corporate ombuds leader.

Mr. Fernández started his career at the United States Nuclear Regulatory Commission (NRC)’s Office of the General Counsel through its Honors Program. While at the NRC, he worked on a variety of issues relating to the licensing and operation of nuclear power plants. Mr. Fernández then served as nuclear counsel for Pacific Gas and Electric Company (PG&E), where he oversaw all legal matters related to PG&E’s nuclear power plants. After PG&E, he joined NextEra

Energy as senior attorney, where he counseled NextEra’s nuclear fleet on all matters, including licensing, acquisitions, security, NRC enforcement, employment, environmental and complex commercial transactions.

He earned a bachelor’s degree in political science from the University of Dayton; a Juris Doctor degree (Order of Barristers) from St. Mary’s University School of Law and a Master of Laws in international and comparative law from Georgetown University Law Center.

Executive Profile

Aaron T. Ford

Vice President – Corporate Security and Claims

PSEG Services Corporation



Aaron T. Ford was named vice president – corporate security and claims in November 2015. Mr. Ford is a part of PSEG General Counsel’s senior leadership team.

He is responsible for developing, and effectuating PSEG’s enterprise-wide strategies for homeland security; asset protection; business continuity and crisis management; “OPSEC” or Information Security, including electronics, forensics, and litigation support; physical security programs; security regulatory compliance; intelligence acquisition and analysis; law enforcement and intel agency liaison at the most senior levels and security policy-making. In addition, Mr. Ford has responsibility for PSEG’s uninsured claims program.

Mr. Ford has more than 30 years of experience with the FBI, where he had oversight of all investigative and administrative matters for most of New Jersey, including five satellite offices as the Special Agent in Charge at the Newark division. He worked closely with other law enforcement agencies in responding to priority threats, oversaw budgets and established strategic planning and crisis preparedness for the federal government during Super Bowl XLVIII in New Jersey. Previously, Mr. Ford had been the Special Agent in Charge, Memphis division, and served several stints at the FBI headquarters, where he oversaw field office and headquarters compliance inspections, and led shooting incident review teams.

He has a law degree from Rutgers School of Law and a Bachelor of Science-Criminology from Tennessee State University.

Executive Profile

Joseph A. Forline

Vice President, Gas Operations

Public Service Electric and Gas Company (PSE&G)



Joseph A. Forline was named vice president - gas operations, Public Service Electric and Gas Company in December 2015. He is responsible for gas distribution, field construction, and appliance service. This includes the PSE&G Gas System Replacement Programs as well as the PSE&G WorryFree Service Business.

Prior to his current role, Mr. Forline was vice president – customer solutions, with responsibility for energy services, including solar energy, energy efficiency, renewable energy programs and appliance service. In December 2006, he was elected as vice president - customer operations, and served as the company's overall lead for Customer Service and Meter to Cash operations.

Mr. Forline has worked for PSE&G for 30 years and has a broad background in electric and gas operations, customer operations, and beyond the meter services. His areas of expertise include customer satisfaction, business process improvement and best practice implementation. He has held leadership positions with the American Gas Association (AGA), Edison Electric Institute (EEI), Customer Service Week, and the Solar Electric Power Association (SEPA).

Mr. Forline is a long-time volunteer in New Jersey serving on Boards for the March of Dimes, the United Way, and Cooper Hospital in Camden. He also supports economic development with leadership roles at the South Jersey Chamber of Commerce, the Coopers Ferry Development Corporation, and the Rutgers-Camden School of Business.

Mr. Forline has a Bachelor of Science degree in engineering and an MBA from Rutgers University. He is also a graduate of the University of Michigan Executive Development Program. He earned his Certified Energy Manager (CEM) credential from the American Association of Energy Engineers in 2010. He earned his Project Management Professional (PMP) certification from the Project Management Institute in 2016.

Executive Profile

Kim C. Hanemann

Senior Vice President – Electric Transmission and Distribution

Public Service Electric and Gas Company (PSE&G)



Kim C. Hanemann is Senior Vice President, Electric Transmission and Distribution, at Public Service Electric and Gas Company (PSE&G). Headquartered in Newark, New Jersey, PSE&G is one of the largest combined electric and gas companies in the United States and is also New Jersey's oldest and largest publicly owned utility. PSE&G is the largest subsidiary of Public Service Enterprise Group Incorporated (PSEG).

At PSE&G, Ms. Hanemann is responsible for ensuring the on time, on scope and on budget execution of the company's large transmission and distribution construction projects, which includes overseeing project management, project controls, licensing and permitting, and commissioning. Her organization also includes a mobile construction workforce and an environmental projects and services organization. During the period 2013 through 2017, the portfolio under Ms. Hanemann's management represented an investment of approximately \$10.0 billion.

Ms. Hanemann is also responsible for all electric transmission and distribution field operations, including safety and emergency preparedness, and she also oversees LIPA's hazard mitigation program on facilities operated by PSEG Long Island funded by a FEMA grant. The electric system Ms. Hanemann oversees serves PSE&G's 2.2 million electric customers.

Ms. Hanemann joined PSE&G as an engineer in 1986 and has held numerous leadership positions in both electric and gas field operations and in utility support operations. She was named a director in 2007, promoted to vice president in 2010, and to senior vice president in 2014.

Ms. Hanemann is a member of the board of directors of Middlesex Water Company and the board of trustees of Children's Specialized Hospital.

A graduate of Lehigh University with a bachelor's in mechanical engineering, Ms. Hanemann also holds a Master of Business Administration from the Rutgers Graduate School of Management.

Executive Profile

Senior Vice President – Corporate Planning, Strategy and Utility Finance

Scott S. Jennings

Scott S. Jennings was named senior vice president for Corporate Planning, Strategy and Utility Finance in March 2019. He is responsible for PSEG's short- and long-term business plans, supporting the company's growth strategy, and oversees financial planning and analysis and rate functions. In addition, Mr. Jennings leads the financial aspects for PSE&G's investment program, including the company's various filings, such as the Gas System Modernization Program to replace aging cast-iron pipes, the Energy Strong program to harden and modernize the electric and gas systems, and the Clean Energy Future filings, which include proposed investments in energy efficiency, electric vehicle charging infrastructure, energy storage and advanced metering. He also was the lead financial witness for PSE&G's first base rate review in eight years.



Prior to this, he was vice president – Finance, PSE&G. In this capacity, he was the finance business partner to PSEG's utilities, responsible for PSE&G's financial planning and analysis and rates teams, as well as these functions and accounting for PSEG Long Island.

After five years as an auditor in Deloitte's financial services and public utilities practice, Mr. Jennings joined PSEG's corporate accounting group in 1998, serving in a variety of financial positions of increasing responsibility, culminating in his position as assistant controller. During this time, he addressed accounting matters related to deregulation, the separation and financing of power generation and support functions from PSE&G and various corporate development transactions.

He became controller, then vice president – Finance and later president of the subsidiaries of PSEG Energy Holdings, a portfolio of electric generation and distribution companies in Latin America, Europe, the Middle East and domestically, as well as investments in leveraged leases. In these capacities, he was responsible for the sale of more than 15 investments with proceeds exceeding \$3 billion. He also restructured several leveraged lease transactions, served on the creditors' committees during lessee bankruptcies, and served on the boards of directors of several project companies.

After winding down the Energy Holdings portfolio, Mr. Jennings became vice president – M&A and Business Development for PSEG, responsible for exploring strategic growth opportunities, evaluating

renewable energy investments and leading various business development activities, including the development and negotiation of the 12-year management services contract for the Long Island distribution utility. In 2013, he was appointed vice president - Corporate Strategy.

Mr. Jennings has a bachelor's in Business Administration and a Master of Business Administration degree in Accounting from Pace University. He is a Certified Public Accountant and has participated in various leadership courses, including the High Potential Leadership Program at Harvard University and Lead NJ. He served on accounting, financial and strategic committees of the Edison Electric Institute, American Gas Association and Electric Power Research Institute, and represented PSEG in its collaboration with Princeton University's Andlinger Center for Energy and the Environment. Mr. Jennings also has testified before the New Jersey Board of Public Utilities, legislative committees and presented in many other forums. He serves as a leader for several local religious and sports organizations.

Executive Profile

Peggy Keane

Managing Director and Vice President-Construction and Operations

PSEG Long Island



Peggy Keane was named Managing Director and Vice President-Construction and Operations Services in April 2019.

In this role, Ms. Keane coordinates shared Operation Services functions, acting as a primary point of contact internally and for the Long Island Power Authority.

She also oversees the planning and operations of PSEG Long Island's Projects and Construction functions, Materials and Logistics Management, Fleet / Transportation Management, Safety, Health and Wellness, Environmental Management and Compliance and Facilities Management.

Previously, Ms. Keane served PSEG Long Island as Director-Project, responsible for managing the \$729 million Public Assistance Grant from the Federal Emergency Management Authority (FEMA). In this role, she oversaw the important work of hardening priority mainline circuits, strengthening storm damaged transmission lines and upgrading the existing control and communication systems.

Ms. Keane joined PSE&G in 1999, holding a number of positions including Senior Project Manager-RTEP and Interconnection Process, Project Controls Manager-PMO and Contracting Manager. She holds a bachelor's degree in mechanical engineering from Rutgers University and an MBA from Excelsior College.

Executive Profile

David Lyons

Executive Director – Enterprise Business Intelligence

PSEG Services Corporation



David Lyons was named PSEG Services Corp. Executive Director - Enterprise Business Intelligence in January 2019. The position replaces the PSEG Long Island - Vice President of Construction and Operation Services role, which Lyons held since September 2017.

As the executive director - enterprise business intelligence, Lyons leads strategic initiatives across the corporation.

As the vice president of construction and operation services, Lyons coordinated shared operation services functions, acting as a primary point of contact internally and for the Long Island Power Authority.

He also oversaw the planning and operations of PSEG Long Island's projects and construction functions, materials and logistics management, fleet / transportation management, safety, health and wellness, environmental management and compliance, and facilities management.

Lyons previously served as director of corporate integration, responsible for managing the integration of PSEG Long Island's back-office operations into PSEG's corporate functions. Prior to joining PSEG Long Island, Lyons served as director of treasury operations at PSEG, with the responsibility for PSEG's headquarters facilities, corporate real estate, and survey and mapping.

Lyons has held a variety of senior level positions since joining PSEG in 1981, including director of medical services, director of workforce planning and development, director IT business solutions, director e-business strategy, and general manager of IT Operations and Client Services.

Lyons holds an Executive Master of Business Administration (EMBA) from New York University, Stern School of Business and is a graduate of New Jersey Institute of Technology, where he earned his Bachelor of Science degree in electrical engineering technology.

Executive Profile

Paul Napoli

Vice President, Power Markets

PSEG Long Island



Paul Napoli was named Vice President – Power Markets of PSEG Long Island in October 2014. In this position, he will manage the development of the Long Island Power Authority's electric resource plan; fuel and purchased-power forecasting and management, including contract negotiation and administration; power project development and management; and participation in the region's wholesale electricity markets.

PSEG was selected by the Long Island Power Authority (LIPA) in December 2011 to manage LIPA's electric transmission and distribution system beginning Jan. 1, 2014.

Mr. Napoli joined Newark-based Public Service Electric and Gas Company (PSE&G) as an engineer in 1979, handling a variety of transmission, gas, electric, wholesale and retail policy and regulatory matters involving both regulated and non-regulated sides of the company. After holding several other technical engineering positions in PSE&G, he was named General Manager of Transmission Plant and Engineering in 2001. In 2007, he was named Managing Director of Transmission Business Services and Strategy.

Mr. Napoli graduated from Stevens Institute of Technology with a bachelor's degree in engineering and holds an MBA in finance from Seton Hall University, along with certificates in Mergers and Acquisitions from UCLA, and Finance from Dartmouth College.

Executive Profile

John O'Connell

PSEG Long Island - Vice President, Transmission & Distribution



John O'Connell was named Vice President – Transmission & Distribution of PSEG Long Island in November 2013. In this position, he is responsible for electric transmission and distribution operations, safety and emergency preparedness.

PSEG was selected by the Long Island Power Authority (LIPA) in December 2013 to manage LIPA's electric transmission and distribution system beginning Jan. 1, 2014.

Mr. O'Connell joined Public Service Electric and Gas Company (PSE&G) in 1986 and most recently served as an electric division manager at PSE&G. In that position, he was responsible for overseeing electric distribution operations in Southern New Jersey.

Mr. O'Connell is an electric utility professional with three decades of experience in utility engineering, planning, management and operations.

He received a Bachelor of Science degree in Electrical Engineering from New York's Manhattan College and holds a Master of Business Administration degree from New Jersey's Centenary College.

Executive Profile

Karen Reif

Vice President - Renewables and Energy Solutions

Public Service Electric and Gas Company (PSE&G)



Karen Reif was elected vice president - renewables and energy solutions, effective July 2018. In this role, she oversees PSE&G's clean energy strategy. She is responsible for the operations and strategic growth of both PSE&G and PSEG Long Island's solar energy, energy efficiency, demand response and alternative fuel vehicle programs.

As of July 2018, PSE&G has made more than \$1.3 billion in solar investments in New Jersey and more than \$400 million in energy efficiency programs in the state. PSE&G's current Solar 4 All investment is concentrating on turning landfills and brownfields green by building solar farms on otherwise unusable sites. In addition, the company has announced plans to propose an additional \$2.5 billion in energy efficiency programs, \$300 million in electric car infrastructure investment and \$100 million in battery storage projects.

Previously, Ms. Reif was senior director of continuous improvement for the Shared Services Organization at PSEG. She established this function for PSEG, which is responsible for developing sustainable, repeatable and quantifiable business improvements based on industry best practices.

Ms. Reif has been with PSEG since 1995 and spent 14 of those years in the Information Technology Department. She worked in multiple areas of IT holding several leadership roles. Areas of focus included finance, strategy, business relationship, application implementation, quality assurance, process management and program management. Prior to joining PSEG, she was a consultant with Scott, Madden & Associates.

Ms. Reif holds a BA in Economics and International Studies from Emory University and an MBA (MSIA) from Carnegie Mellon University. She has the following certifications: Project Management Professional, Lean Six Sigma, and Information Technology Infrastructure Library (ITIL) Foundation.

Executive Profile

Joseph Santamaria

Senior Vice President - Chief Information and Digital Officer

PSEG Services Corporation



Joseph Santamaria is Chief Information and Digital Officer (CIDO) for PSEG Services Corporation, as of October 2012. He is responsible for setting and implementing PSEG's digital roadmap, ensuring its alignment and integration with the enterprise's strategic planning process, and for the reliable, effective and secure delivery of information technology to all areas of PSEG. Mr. Santamaria is accountable for overseeing the digital transformation of critical PSEG capabilities such as customer engagement, real-time optimization of distribution and generation assets, advanced analytics and process automation, with the goal of providing customers with relevant, contextual information, supporting product line growth, and enabling resource synergies and efficiencies. He is also responsible for the design and architecture of PSEG's Energy Cloud, a platform encompassing all Smart Grid, Energy Efficiency, Customer Digital Engagement and Digital Products and Services initiatives. The Energy Cloud enables PSEG's vision for an advanced, sustainable grid that provides tailored customer insights, advanced metering and energy services, smart grid automation, material operational efficiencies, and supports energy efficiency and distributed resources integration.

In his role, Mr. Santamaria sets the technology vision at the enterprise and drives organizational behavioral and cultural change to foster a product and outcome oriented culture, increased business agility and scalability, and adopt value-driving technologies such as public cloud, Internet of Things (IoT) and robotics.

Mr. Santamaria is also responsible for cyber security across the enterprise.

Mr. Santamaria previously served as CIO at UIL Holdings Corporation where he successfully integrated the IT activities of a major acquisition, merged operational technologies into IT, established a best-in-class cybersecurity framework and led the company to receive the 2011 SAP Best Run Utility Award.

Prior to his role at UIL, Mr. Santamaria worked at Pitney Bowes as global vice president-enterprise business applications. Before then, he was a principal consultant at PricewaterhouseCoopers, managing commercial and delivery aspects of large, global ERP transformation projects.

Mr. Santamaria serves on the board of trustees of the New Jersey Symphony Orchestra and on the customer advisory boards of Verizon, box.com, GE Digital and AT&T. Mr. Santamaria holds a Master of Business Administration degree from ESADE, in Barcelona, Spain, and a Master of Science in Applied and Industrial Physics from the University of Barcelona, Spain.

Executive Profile

Michael Schmid

Vice President – Asset Management & Centralized Services

Public Service Electric & Gas Company (PSE&G)



Michael A. Schmid was named Vice President - Asset Management and Centralized Services at PSE&G in September 2019. In this role, he is responsible for electric and gas asset strategy, asset reliability, electric delivery planning, gas system operations and technical services, utility business performance and improvement, utility operations services, utility finance support, basic generation services and basic gas supply services, and energy supplier services. Mr. Schmid also has responsibility for electric asset strategy and electric reliability for PSEG Long Island.

Mr. Schmid has worked for PSE&G for more than 29 years and has held a variety of leadership positions. In 2017, Mr. Schmid assumed a senior director role as division manager – Central Division. Prior to that, he held a number of managerial and leadership positions, including associate engineer, engineer, lead engineer, district engineer, supervising engineer, operations engineer, distribution system leader, division manager for gas construction, and senior director for gas field operations. These positions afforded him the opportunity to gain a deep understanding of the gas business. The range of leadership roles he has held over the years in Gas Operations, Appliance Service, Asset Management, Information Technology and most recently Electric Operations, has provided him a strong and uniquely broad utility experience.

Mr. Schmid is a Sustainable Jersey board member. Sustainable Jersey is a non-profit organization that provides tools, training and financial incentives to support communities as they pursue sustainability programs.

Executive Profile

Rick Walden

Vice President, Customer Services

PSEG Long Island



Rick Walden was named Vice President-Customer Services of PSEG Long Island in August 2017. In this role, Mr. Walden is responsible for customer satisfaction; marketing and marketing strategy; customer contact; meter-to-cash functions; and solar and energy efficiency programs.

Previously, Mr. Walden served as PSEG Long Island's Director of Meter Services, the position he attained when he joined the company in 2013. In this role, Mr. Walden led a team of 300 employees operating all meter-related functions, including Meter Data Management, Meter Reading, Collections, and Measurement Services. He was also responsible for the utility's Customer Services safety program and Building & Renovation Services.

Prior to joining PSEG Long Island, Mr. Walden served as a sales executive in the electric power industry, working in the smart grid space, but spent most of his career working in management roles for two leading utilities — Baltimore Gas & Electric Company and Dominion Virginia Power.

Mr. Walden holds a bachelor's degree in chemical engineering from the University of Maryland and a Master of Business Administration from Loyola College of Maryland. He also completed the University of Michigan Executive Program.

1.4.K PSEG Awards and Recognitions

Appendix 1.4.K – PSEG Awards and Recognition

2019
PSEG was named to the Dow Jones Sustainability North America Index for the 12th year in a row. The DJSI recognizes forward-thinking companies based on an appraisal of the company's strategy, management and performance in dealing with opportunities and risks deriving from environmental, social and governance factors. PSEG was one of seven American utility companies selected for the list
The PSEG Foundation received the STEM Corporate Champion of the Year Award from the New Jersey STEM Pathways Network for its demonstration and deep commitment to supporting New Jersey's STEM economy through education and/workforce initiatives
PSEG ranked third among privately/investor-owned power producers in the U.S. with the lowest carbon emissions rates, according to the report "Benchmarking Air Emissions of the 100 Largest Electric Power Producers in the United States," by M.J. Bradley & Associates, Bank of America, CERES, Entergy, Exelon and NRDC
PSEG Nuclear received a Nuclear Energy Institute (NEI) 2019 Top Innovative Practice (TIP) Award for the enterprising application of cutting-edge technology. The distinction recognizes the pursuit of continuous improvement and operational excellence demonstrated by PSEG Nuclear's Hope Creek Generating Station
PSE&G was named to CIO Magazine's CIO 100 list for 2019 in recognition of innovative use of technology to improve customer service. The company was honored for its release of an Amazon Alexa customer service app, or "skill," that allows customers to ask billing questions, make payments, and get tips for reducing their energy usage and lowering their bills
PSE&G received an Innovation Award from Smart Energy Decisions for the company's energy efficiency work at New Jersey hospitals. The Innovation Award recognizes the individual and collective efforts of large electric power users, their suppliers, and their utilities in support of the energy transformation currently taking place. The PSE&G Hospital Efficiency Program won in the utility partnership category for energy efficiency incentive programs
PSEG was named to Forbes 2019 list of America's Best Employers for Diversity for the second year in a row. Forbes worked with research firm Statista to compile the list. Statista surveyed 50,000 American workers about the approach to diversity at their workplace
2018
PSE&G has been recognized by PA Consulting as the recipient of the 2018 Outstanding Customer Reliability Experience Award. PSE&G also received the ReliabilityOne™ Award for Outstanding Reliability Performance in the Mid-Atlantic Region for the 17th consecutive year
PSEG was named to the Dow Jones Sustainability North America Index for the 11th year in a row. The Dow Jones Sustainability Indices (DJSI) recognize forward-thinking companies based on an appraisal of the company's strategy, management and performance in dealing with opportunities and risks deriving from environmental, social and governance factors. PSEG was one of six American utility companies selected for the list

Public Service Electric and Gas Company (PSE&G) becomes the first public utility in the United States to obtain SAFETY Act liability protections from the U.S. Department of Homeland Security for the deployment of physical security measures that are designed to detect, deter and recover from acts of terrorism
PSE&G named a 2018 Most Trusted Brand by business customers and 2018 Customer Champion among residential customers by Cogent Reports, the syndicated division of Market Strategies International
Public Service Electric and Gas Company (PSE&G) recognized as a Top 10 Utility in the U.S. for overall customer value and reliability by the Wired Group, which produces the Customer Value Ranking™
PSEG received a 100 percent score on the Corporate Equality Index and was designated a 'Best Place to Work for LGBTQ Equality' by Human Rights Campaign Foundation
PSEG was named to the America's Best Employers List by Forbes magazine for 2018. Forbes worked with research firm Statista to compile the definitive list of the best employers in America. Statista surveyed 30,000 American workers to gather their opinions of their employers
PSE&G's \$1.2 billion Bergen-Linden Corridor (BLC) project was among major infrastructure projects honored by the New Jersey Alliance for Action
PSEG was named a Military Friendly Employer by Victory Media, publisher of G.I. Jobs, STEM Jobs, and Military Spouse magazines. PSEG was recognized for its commitment to offering meaningful jobs for transitioning service members and veterans
PSE&G was awarded POWERGRID International and DistribuTECH Grid Optimization Project of the Year for its Energy Strong Advanced Technologies Program
PSEG was named to Forbes 2018 list of America's Best Employers for Diversity . Forbes worked with research firm Statista to compile the list. Statista surveyed 30,000 American workers to gather their opinions of their employers
PSE&G recognized by Edison Electric Institute with the "Emergency Assistance Award" for outstanding work assisting customers impacted by Hurricane Irma
2017
PSE&G was recognized as the most reliable utility in the Mid-Atlantic region for the 16th year in a row by PA Consulting, a national industry benchmarking group
PSEG was named to the Dow Jones Sustainability North America Index for the 10th year in a row. The Dow Jones Sustainability Indices (DJSI) recognize forward-thinking companies based on an appraisal of the company's strategy, management and performance in dealing with opportunities and risks deriving from environmental, social and governance factors . PSEG was one of seven American utility companies selected for the list
PSEG was named to the America's Best Employers List by Forbes magazine for 2017 . Forbes worked with research firm Statista to compile the definitive list of the best employers in America. Statista surveyed 30,000 American workers to gather their opinions of their employers
PSEG was named a 2017-18 STEM JobsSM Approved Employer by STEM Jobs, the leader in connecting young professionals with education and career opportunities, and creator of STEM JobsSM media and resources for students interested in science, technology, engineering and math
PSE&G was named 2017 Investor Owned Utility of the Year by SEPA (The Smart Electric Power Alliance) for its efforts that add solar power to New Jersey's energy mix. PSE&G was recognized for building solar farms on landfills and brownfields through its Solar 4 All® program

PSEG's human resources development programs, People Strong Development Curriculum and Leadership Academy, have been awarded a Leadership Excellence Award by HR.com. More information on the recognition can be found here
PSEG was named to the 2017 FORTUNE List of Most Admired Companies, ranking 8th among electric and gas companies in the United States
PSEG was recognized for its board diversity by 2020 Women on Boards, a national campaign to increase the percentage of women on U.S. company boards to 20 percent or greater by 2020. Twenty percent of the seats on PSEG's Board of Directors are held by women
2016
PSE&G recognized for outstanding customer satisfaction for the second year by Cogent Reports, a division of Market Strategies International, a leading nationwide research firm. PSE&G was named a 2016 Customer Champion and is one of 11 combined utilities nationwide ranked highest in brand trust, product experience and operational satisfaction
Forbes Magazine named Public Service Enterprise Group to its JUST 100 list – which celebrates America's best corporate citizens. PSEG's JUST 100 accolades was based on its success in creating jobs, conducting business in an ethical manner, the strength of its retirement and health benefits, and caring about the communities in which it operates
PSEG was named a Military Friendly Employer by Victory Media, publisher of G.I. Jobs, STEM Jobs, and Military Spouse magazines. PSEG was recognized for its commitment to offering meaningful jobs for transitioning service members and veterans
PSEG honored with New Jersey Monthly Great Oak Award. PSEG was recognized for its charitable giving programs and policies that support nonprofits in our state
PSEG ranked #1 in financial performance by Public Utilities Fortnightly Magazine
PSE&G recognized as the most reliable utility in the Mid-Atlantic region for the 15th year in a row by PA Consulting, a national industry benchmarking group
The Commerce and Industry Association of New Jersey (CIANJ) selected PSEG for the top “Extraordinary Good Works” award recognizing our commitment to veterans, forward thinking of the Foundation's STEM program, volunteer programs, and generosity of the PSEG crisis fund
PSEG Fossil's Linden Generating Station has been selected by POWER magazine to receive one of its 2016 “Top Plant” awards . Linden was named a POWER “Top Plant” winner for its embrace of advanced digital monitoring and analytics – via PSEG Fossil's new Monitoring and Diagnostics Center – used to stay competitive in the PJM market
PSE&G was one of 13 companies honored with an Award for Excellence from the New Jersey Business & Industry Association (NJBIA) for its Solar 4 All program. The utility received the Environmental Quality Award for utilizing rooftops, parking lots, utility poles and landfills/brownfields throughout New Jersey – tying them directly into the power grid for the benefit of all customers
PSEG was named to the Dow Jones Sustainability North America Index for the ninth consecutive year. The Dow Jones Sustainability Indices (DJSI) recognize forward thinking companies based on an appraisal of the company's strategy , management and its performance in dealing with opportunities and risks deriving from economic, environmental and social developments
IDG's CIO named PSEG to its 2016 CIO 100. The 29th annual award program recognizes organizations around the world that exemplify the highest level of operational and strategic excellence in information technology (IT)

PSEG was recognized for its innovative use of analytic software technologies that support the company's industry-leading PSEG Fossil Monitoring & Diagnostic (M&D) Center
The Association of Energy Service Professionals (AESP) named Public Service Electric and Gas Company's (PSE&G's) Residential Multifamily Housing Program as the winner of the 2016 Energy Award for Outstanding Achievement in Residential Program Design & Implementation
2015
The USA Council of the International Association of Emergency Managers (IAEM) awarded the PSEG Foundation and Sesame Workshop an IAEM-USA 2015 Award for public awareness. The award was given for the development of "Let's Get Ready: Planning Together for Emergencies" and "Here for Each Other: Helping Families after Emergencies." More information can be found at www.pseg.com/sesamestreet
PSE&G named Utility of the Year by Electric Light & Power for striking a resounding chord on multiple fronts, including investors, customers, grid experts and family demographics
PSEG ranked 19 in the nation on the Top 100 Military-Friendly Employers for 2016 by Victory Media, publisher of G.I. Jobs and Military Spouse. In addition, within the specific energy industry category, PSEG earned a second-place ranking on this year's list
PSE&G recognized as the most reliable utility in the Mid-Atlantic region for the 14th year in a row by PA Consulting, a national industry benchmarking group. The company also received the Outstanding Outage Response Time award for restoring customers 30 percent faster than any other large investor owned utility. In addition, PSE&G received the Outstanding Customer Engagement award for its proactive approach to communications -- using Twitter, Facebook, LinkedIn, customer emails, website and Energize! blog, among other channels -- to keep customers, regulators, government officials and the media informed during both blue-sky days and major events
PSEG received a Great Oak Award presented by NJ Monthly magazine in recognition of our community and volunteerism initiatives
PSEG was presented The Seven Seals Award by the Employer Support of the Guard and Reserve for its commitment to military professionals and veterans. The Seven Seals Award is the broadest and most inclusive award given by the Employer Support of the Guard and Reserve. The Seven Seals represent official gratitude from all seven branches of Guard and Reserve service components
PSE&G received the prestigious Star of Energy Efficiency Award, from the Alliance to Save Energy, for the utility's efforts to make New Jersey hospitals and apartment buildings more energy efficient
PSEG was named to the Dow Jones Sustainability North America Index for the eighth consecutive year. The Dow Jones Sustainability Indices (DJSI) recognize forward thinking companies based on an appraisal of the company's strategy, management and its performance in dealing with opportunities and risks deriving from economic, environmental and social developments
PSE&G ranks highest in customer satisfaction with business natural gas service and large business electric service in the east, according to J.D. Power. It is the first time in PSE&G's history to rank highest in business customer satisfaction for both electric and gas service
PSEG was named to the America's Best Employers List by Forbes magazine for 2015 . The employers on the list were chosen based on an independent survey of 20,000 American employees working for large U.S. companies and institutions of U.S. divisions of international firms
PSE&G is in the top ten in the nation for cumulative solar megawatts according to a 2014 Solar Electric Power Association (SEPA) survey

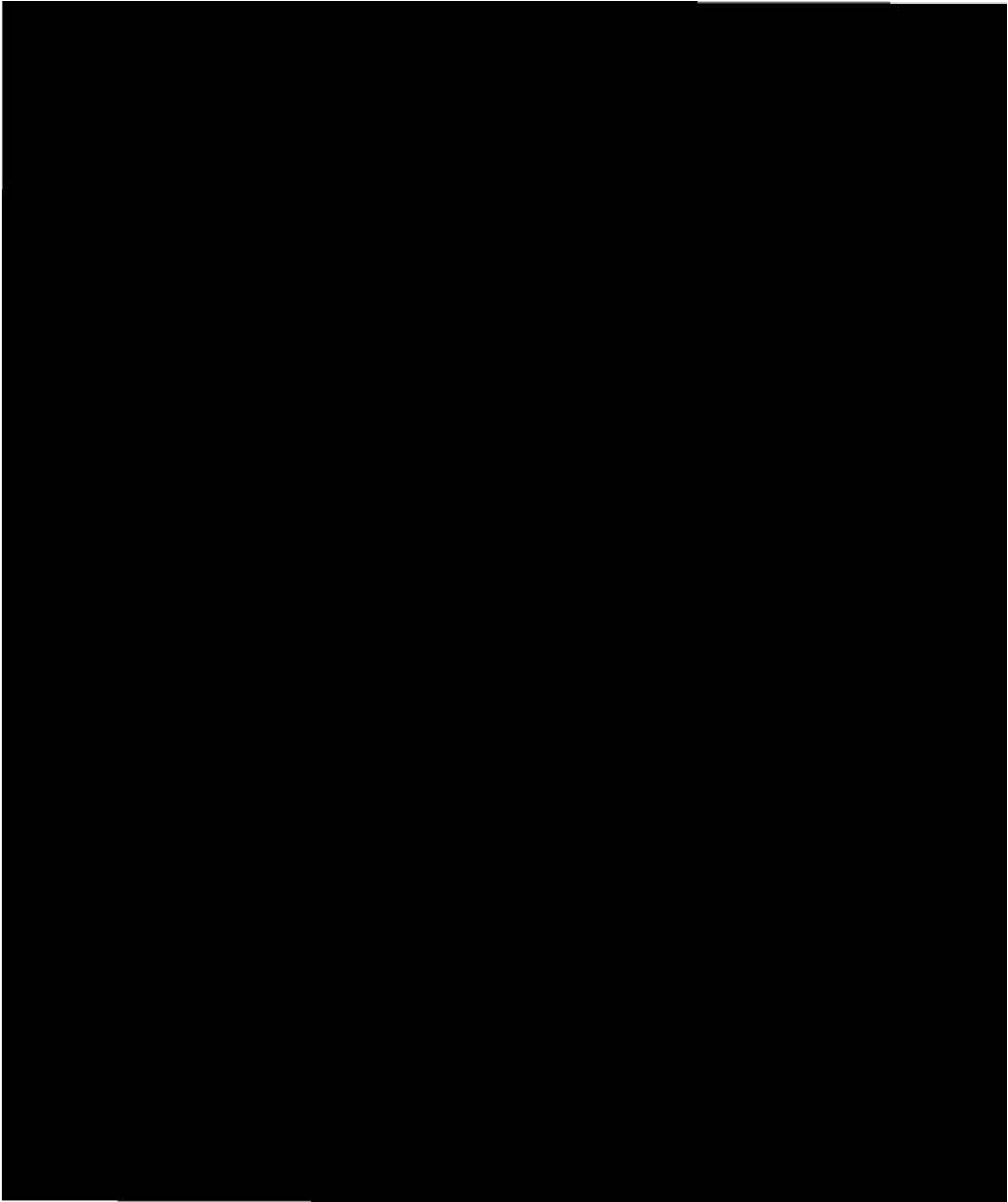
PSEG ranked number 40 on the 2015 “Top 50 Employers” in Equal Opportunity Magazine . The readers of Equal Opportunity magazine selected the top companies in the country for which they would most prefer to work or believe would provide a positive working environment for members of minority groups. This list is the result of an annual reader survey mailed each year to randomly selected readers of Equal Opportunity magazine
PSEG was named one of the 25 Champions of Good Works by The Commerce and Industry Association of N.J. for its volunteer work building playgrounds with KaBoom in Moonachie and Little Ferry, NJ
PSEG moved to number 23 on the 2015 top 100 list of military-friendly employers, by G.I. Jobs and Military Spouse magazines. The annual listing recognizes companies that have a strong commitment to hiring and supporting military veterans
2014
PSE&G received the prestigious ReliabilityOne Award for the Mid-Atlantic region 13 years in a row by PA Consulting, a national industry benchmarking group . PSE&G was also named America’s Most Reliable Electric Utility five out of the past ten years
PSEG received the Employer of the Year Award from the Joint Disability Issues Committee of the Newark and Essex County Workforce Investment Boards and the Newark Division of Vocational Rehabilitations Services (DVRS). The company was recognized for its efforts to improve employment opportunities for individuals with disabilities
PSEG was named to the Dow Jones Sustainability North America Index for the seventh consecutive year. The index is a guide for investors who want to consider dedication to sustainability when making investment decisions. It also is a benchmark for companies that want to adopt sustainable best practices. The Dow Jones Sustainability Indices (DJSI) recognize companies that are best in class among their peers in meeting certain economic, environmental and social criteria. PSEG's 2014 Sustainability Report highlights its accomplishments and outlines the challenges the company faces in its quest to be a leader in providing safe, reliable, economic and greener energy
PSEG Long Island is recipient of 2014 ENERGY STAR® Partner of the Year — Sustained Excellence Award from the U.S. Environmental Protection Agency (EPA), for its commitment and dedication to energy efficiency and the ENERGY STAR program
PSE&G was in the top 10 for solar capacity for the seventh consecutive year according to a Solar Electric Power Association (SEPA) industry ranking
PSEG was named to the 2014 FORTUNE List of Most Admired Companies, ranking fourth among electric and gas companies in the United States
PSEG ranked as number 29 on the top 100 list of military-friendly employers in 2014, by Victory Media, publisher of G.I. Jobs and Military Spouse. The annual listing recognizes companies that have a strong commitment to supporting military veterans
2013
PSE&G received the prestigious ReliabilityOne Award for the Mid-Atlantic region twelve years in a row by PA Consulting, a national industry benchmarking group . PSE&G was also named America’s Most Reliable Electric Utility five out of the past nine years
PSEG was named to the Dow Jones Sustainability North America Index for the sixth consecutive year. The index is a guide for investors who want to consider dedication to sustainability when making investment decisions. It also is a benchmark for companies that want to adopt sustainable best practices. The Dow Jones Sustainability Indices (DJSI) recognize companies that are best in class among their peers in meeting certain

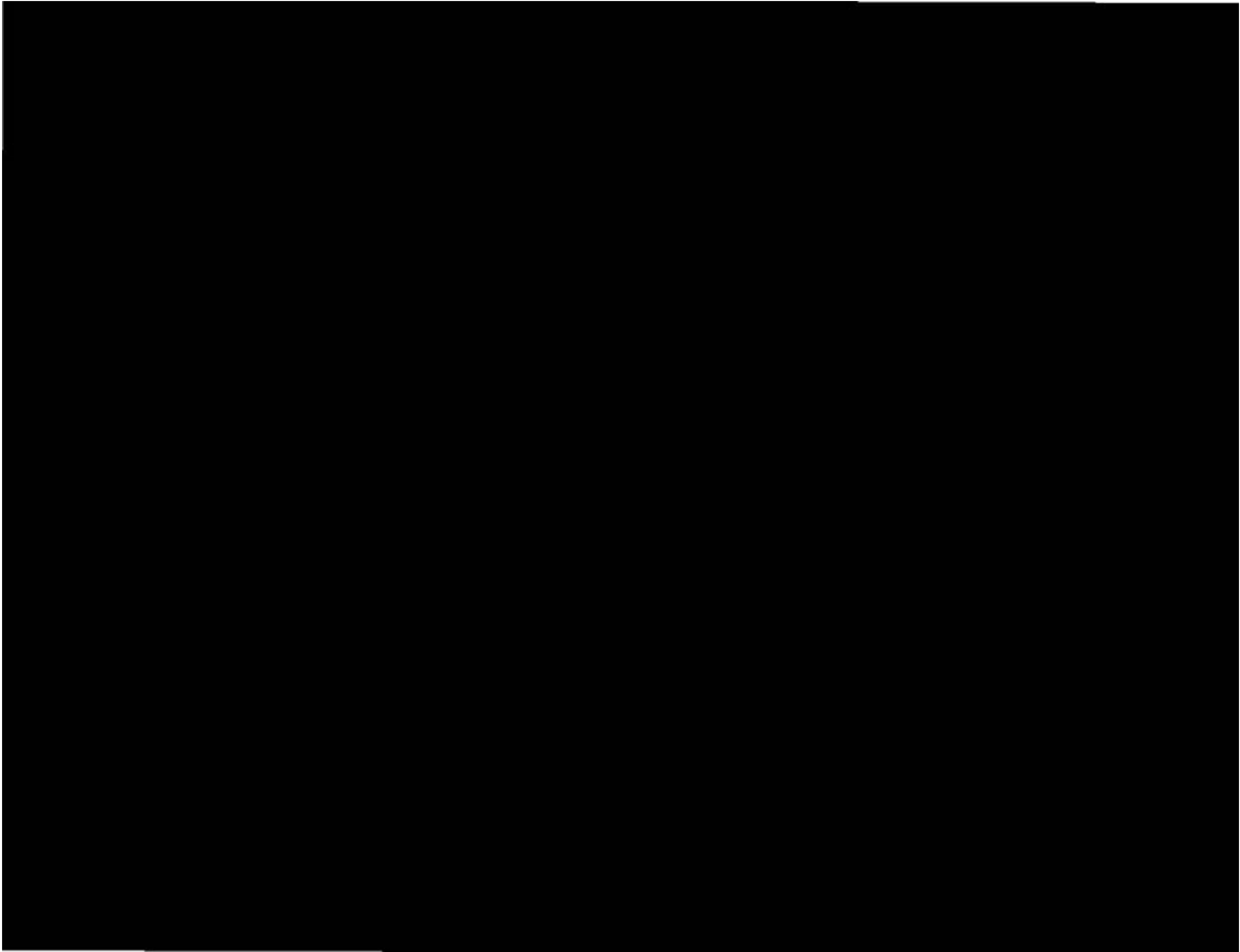
economic, environmental and social criteria. PSEG's 2013 Sustainability Report highlights its accomplishments and outlines the challenges the company faces in its quest to be a leader in providing safe, reliable, economic and greener energy
PSEG ranks third in solar capacity among American utilities according to the Solar Electric Power Association (SEPA)
PSEG received the "Innovation in Customer Service" Award from CS Week for use of Twitter during Superstorm Sandy to communicate with customers -- an effort that culminated in the company having more followers than any other utility in the United States. JD Power and Associates also identified PSEG's use of Twitter during Sandy as a best practice, citing in a recent report the utility's "industry-leading communications success" and writing "PSEG worked harder than other impacted utilities to get its message out to consumers...PSEG responded to its customers and other stakeholders and maintained a constant flow of information about power restoration progress
PSEG was named to the 2013 FORTUNE List of Most Admired Companies, ranking fourth among electric and gas companies in the United States
PSEG's Multifamily Housing Program and Hospital Efficiency Program were honored for outstanding effectiveness and innovation by the American Council for an Energy-Efficient Economy (ACEEE) as part of their Third National Review of Exemplary Energy Efficiency Programs. The Residential Multifamily Housing Program was honored as an "exemplary" program, while the PSEG Hospital Efficiency Program was lauded with an "honorable mention" in the national awards program. Programs selected for honors by ACEEE were judged especially noteworthy for their effectiveness and innovation in helping customers achieve greater levels of energy efficiency in their homes, businesses and industries
PSEG was awarded the 2012 Regional Corporation of the Year Award by the Certified Minority Business Enterprises of the New York & New Jersey Minority Supplier Development Council, Inc. Prior to winning this prestigious award, PSEG received outstanding recognition awards for the advancement of supplier diversity from The New Jersey Institute of Supply Chain Management and the New Jersey Board of Public Utilities Supplier Diversity Development Council
PSEG received the Extraordinary Employer Support Award from the Employer Support of Guard and Reserve (ESGR). The company was recognized for its sustained support of employees who are Guard and Service members in the military. PSEG is one of only two New Jersey-based companies to ever receive this award
PSEG Nuclear was honored by the Salem County Vocational Technical Schools (SCVTS) Foundation with its annual Leadership Award. PSEG was recognized for being a consistent dedicated partner in providing educational opportunities for many students throughout the county, especially for its support of SCVTS' student scholarships, Academy of Energy applications and the annual career Exploration Summer Program for sixth and seventh grade students
PSEG was recognized as an employer of choice by Equal Opportunity magazine, being named to its list of "Top 50 Employers" in the country. Featured in the publication's 2013 winter edition, this annual listing denotes employers identified by Equal Opportunity magazine readers as an organization they would most prefer to work for or that they believe would provide a positive working environment for members of minority groups. PSEG's ranking on this list celebrates its commitment to creating and sustaining an environment that promotes the principles of diversity and inclusion in all areas of the business
PSEG receives and award from the Edison Electric Institute for outstanding restoration efforts after Superstorm Sandy. The award acknowledges PSEG for restoring power to its nearly 1.9 million customers

impacted by Sandy, as well as for its outstanding storm management practices, such as communicating effectively with the public. This is the second year industry peers have honored PSE&G with this award; recognizing the utility each time for its efforts to restore service promptly after a storm or natural disaster. Previously, PSE&G received the award for its response efforts to Hurricane Irene and the subsequent flood that occurred in 2011

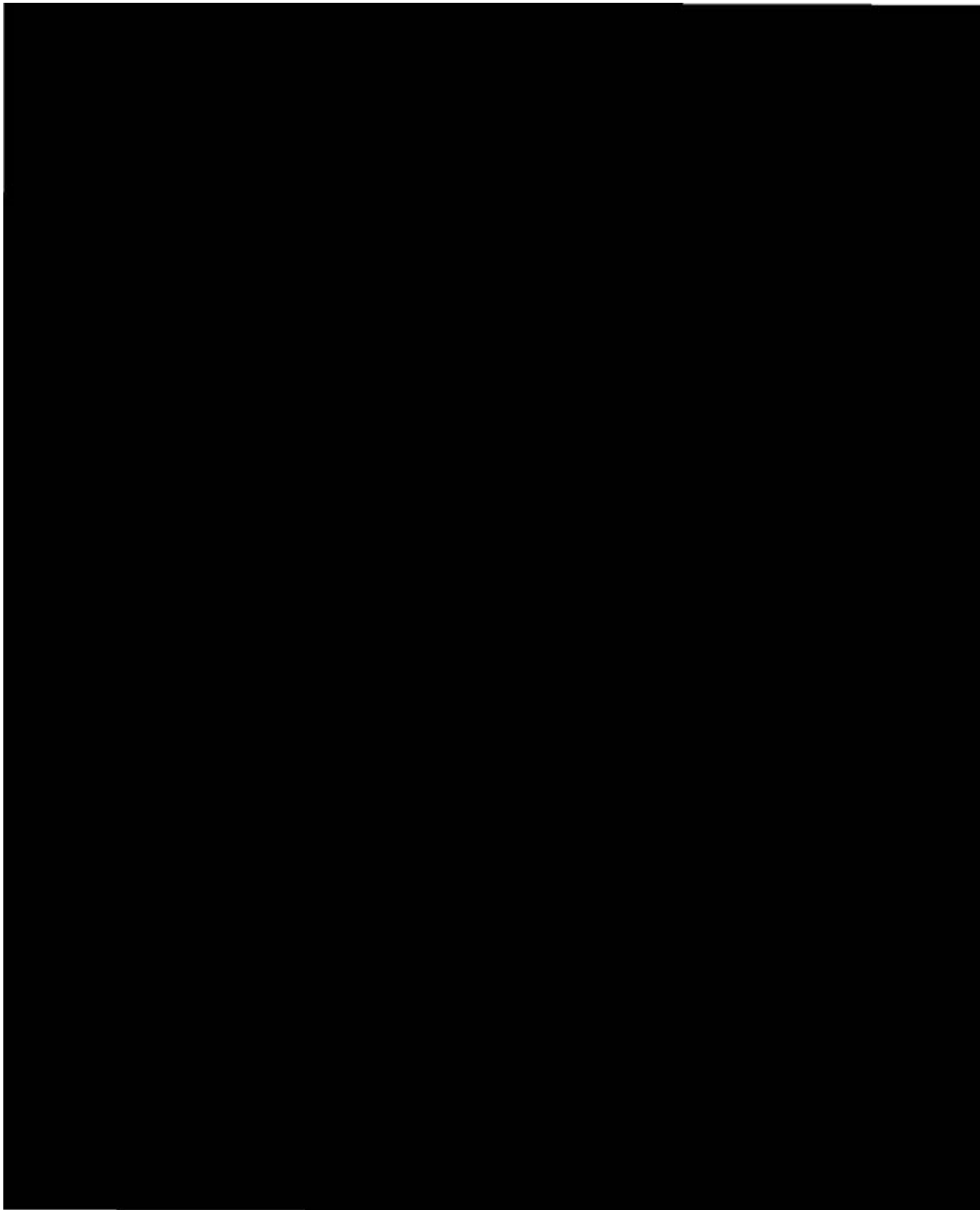
1.5 Front-End Transition Plan

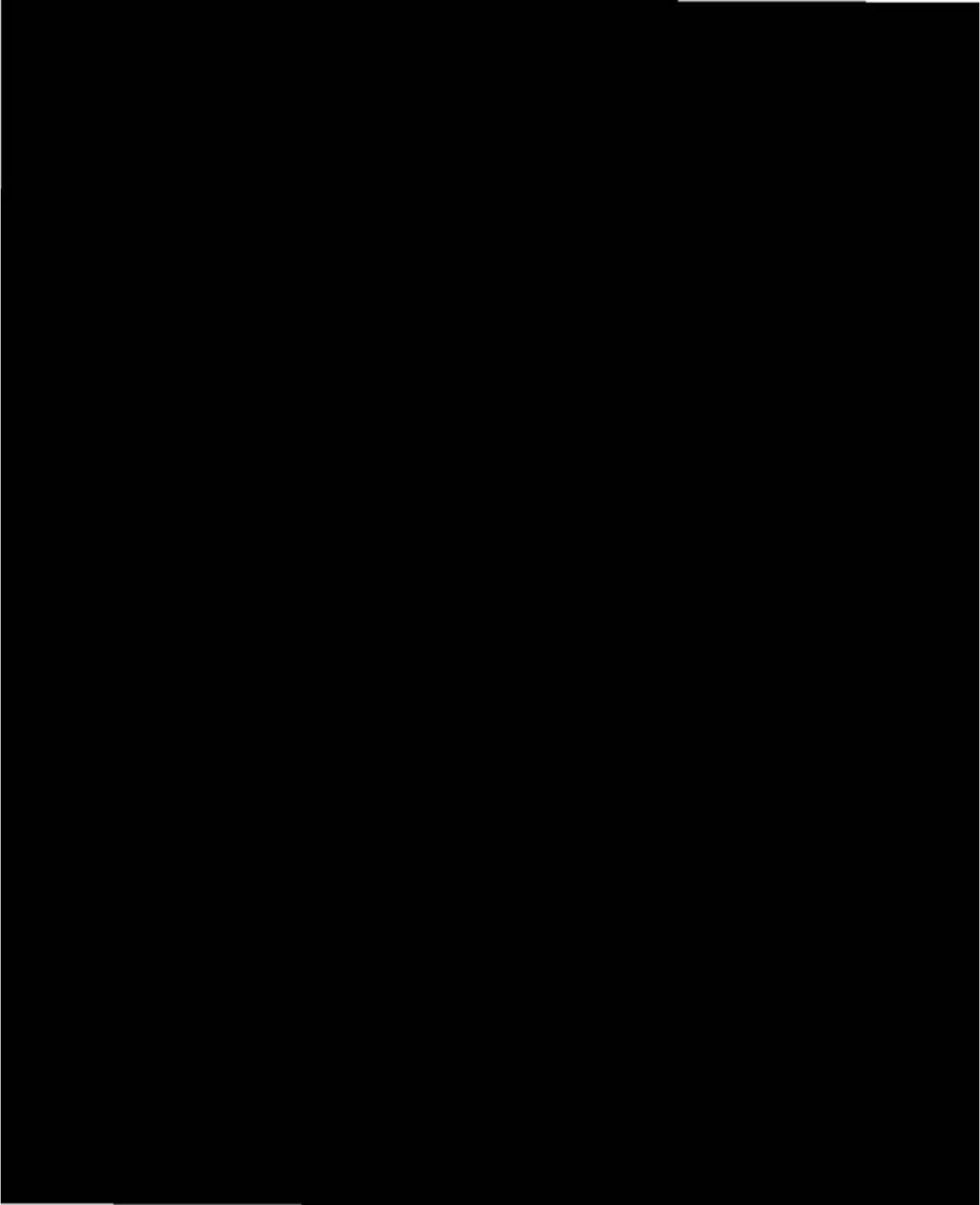
1.5.A Front-End Transition—Fully Allocated Cost Rates by Grade Level

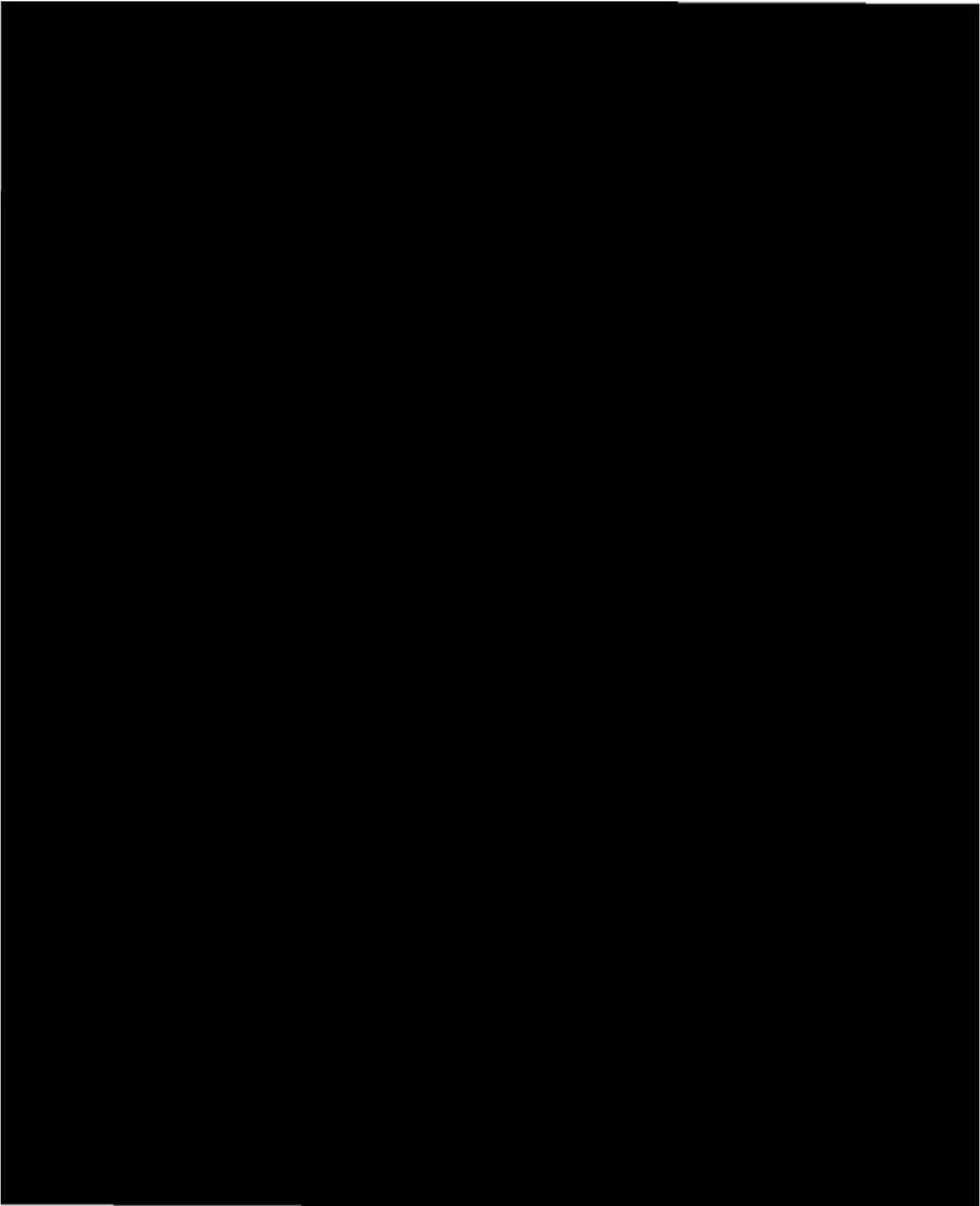


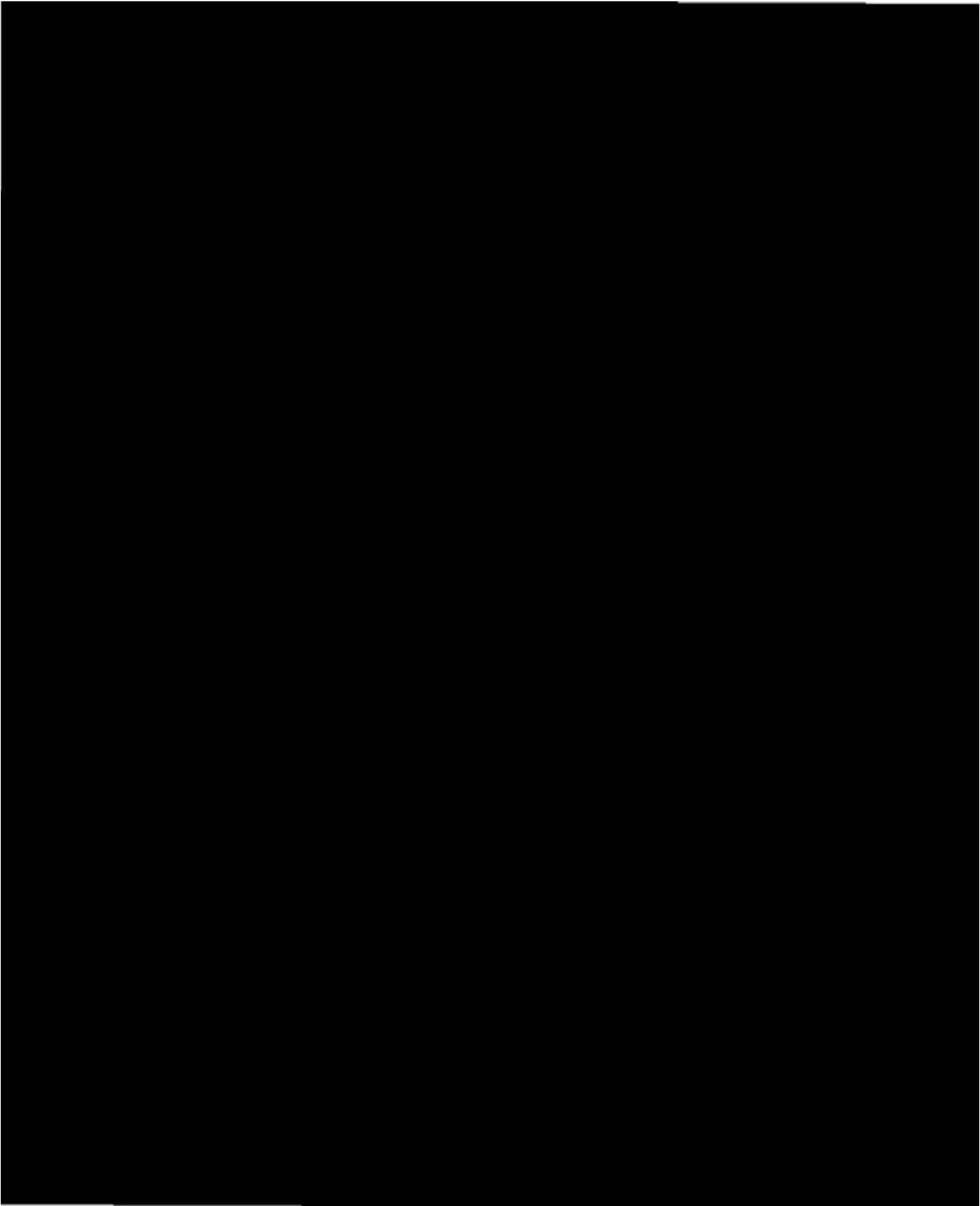


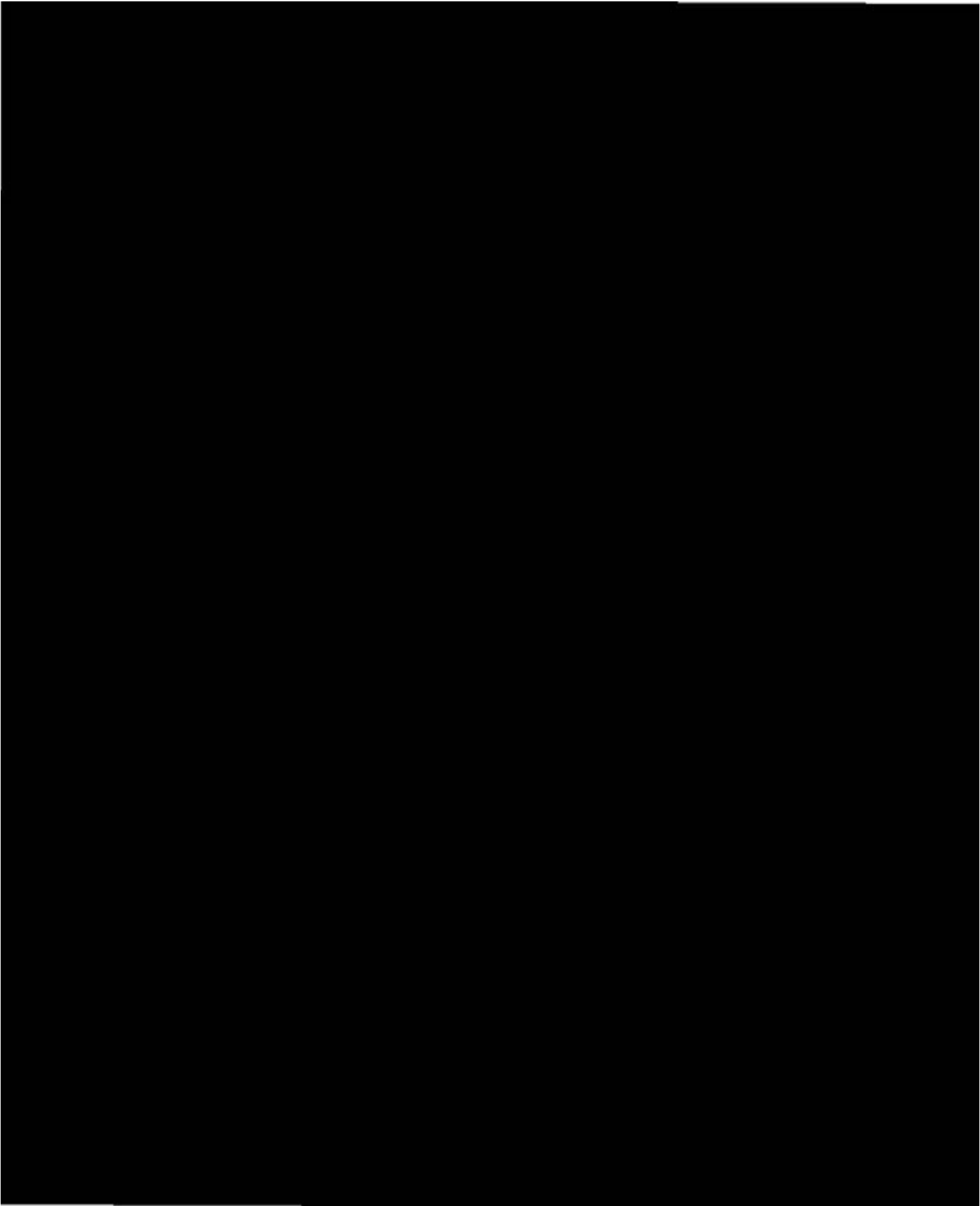
Billing Rates - Front-End Transition - 2020

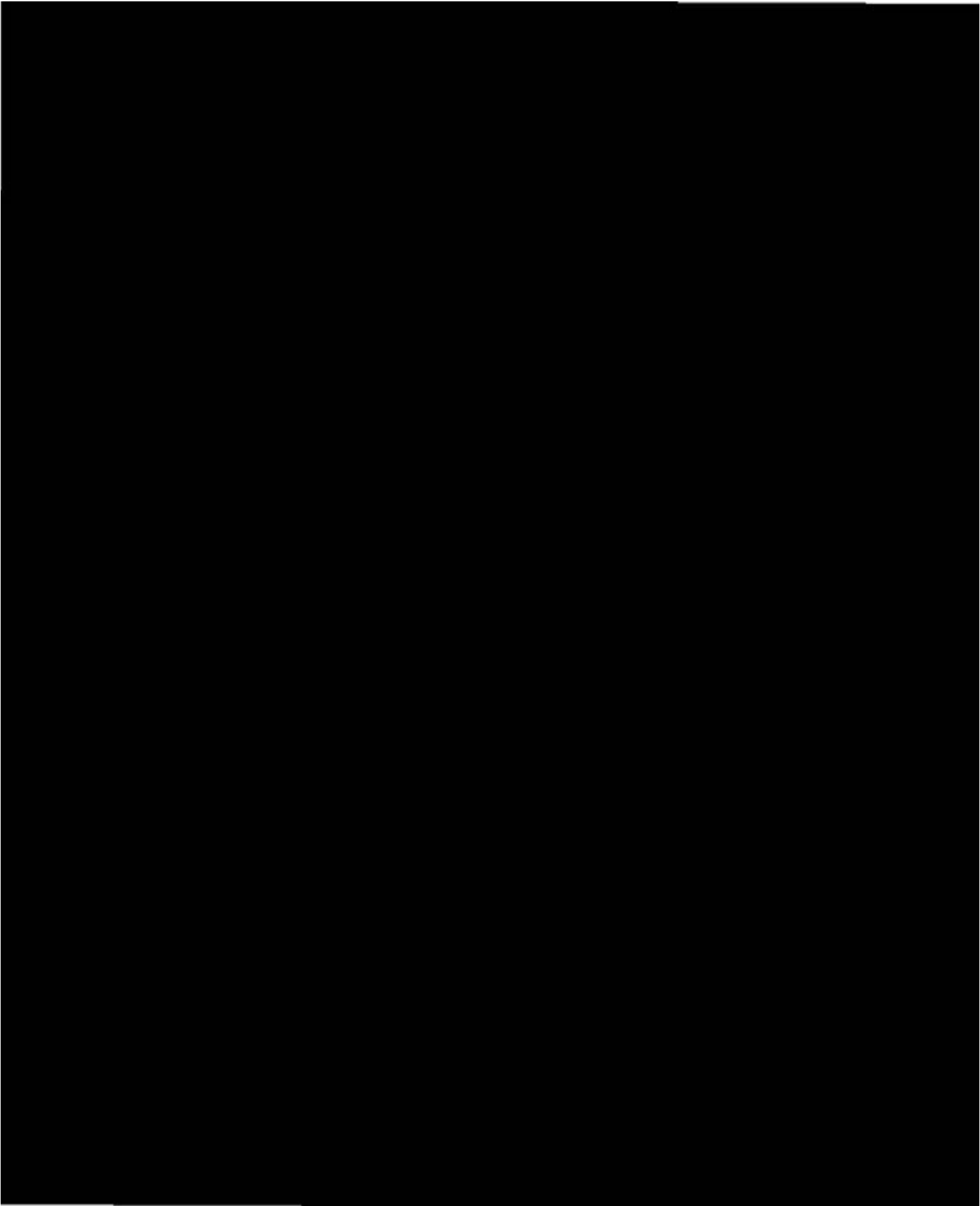


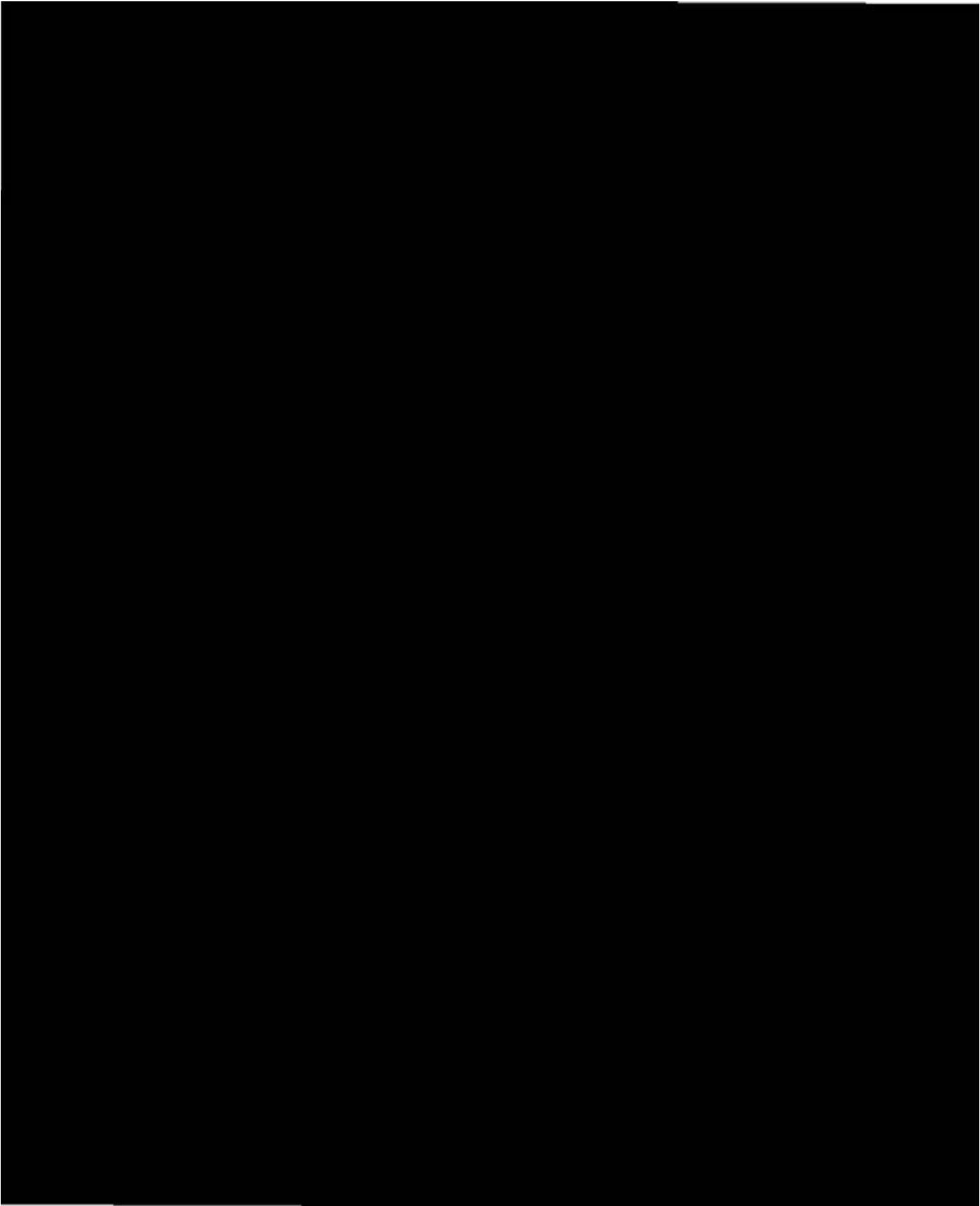


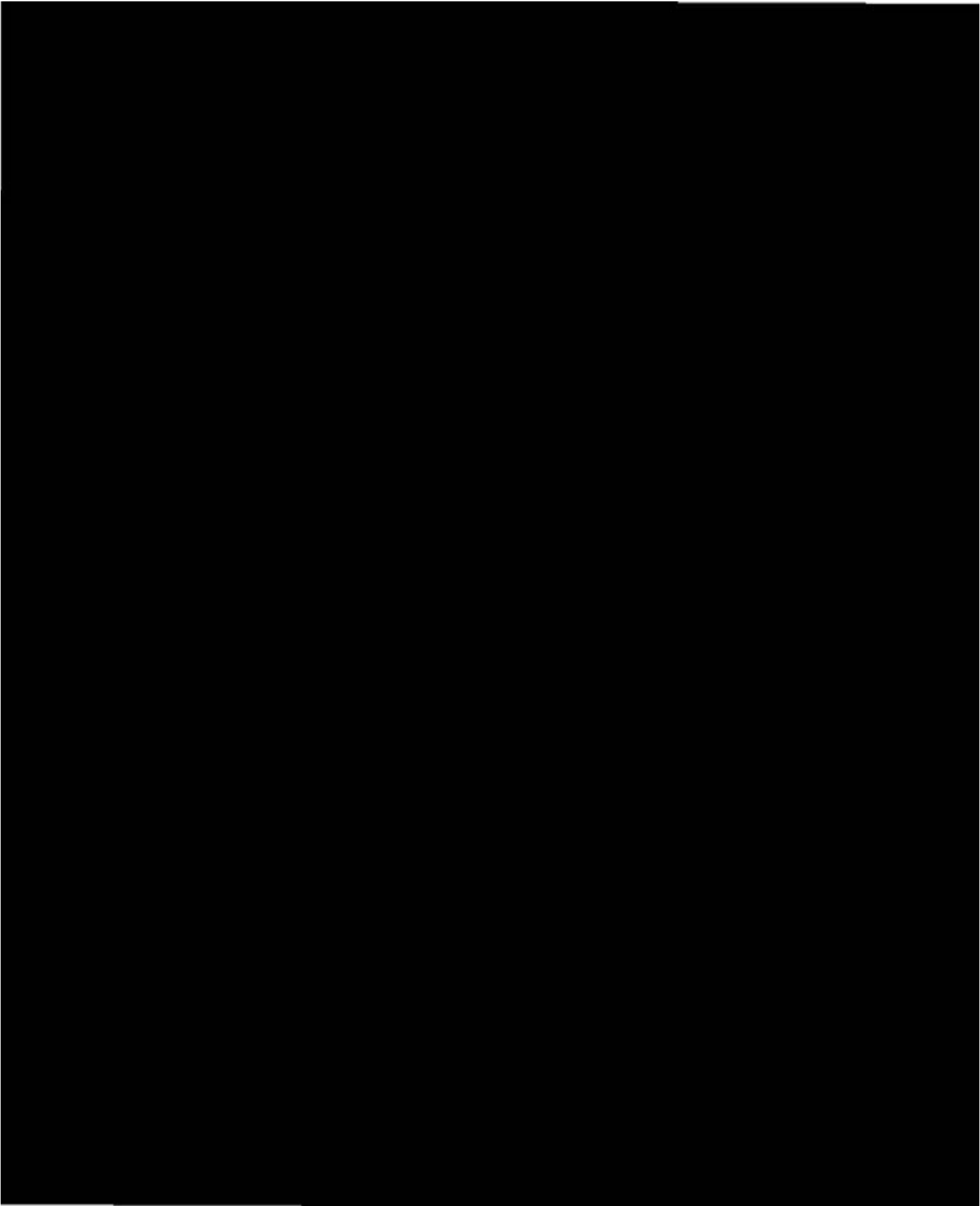


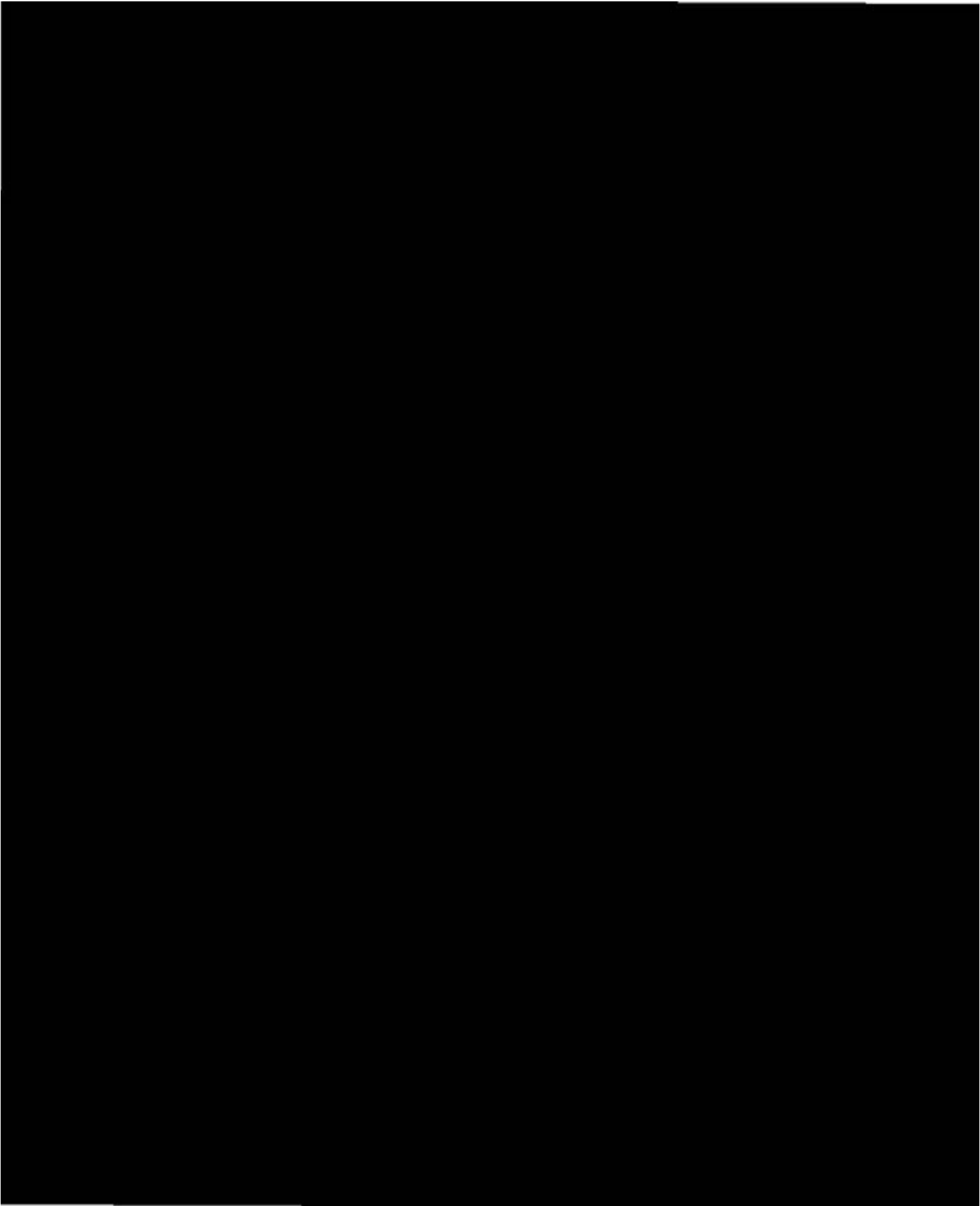


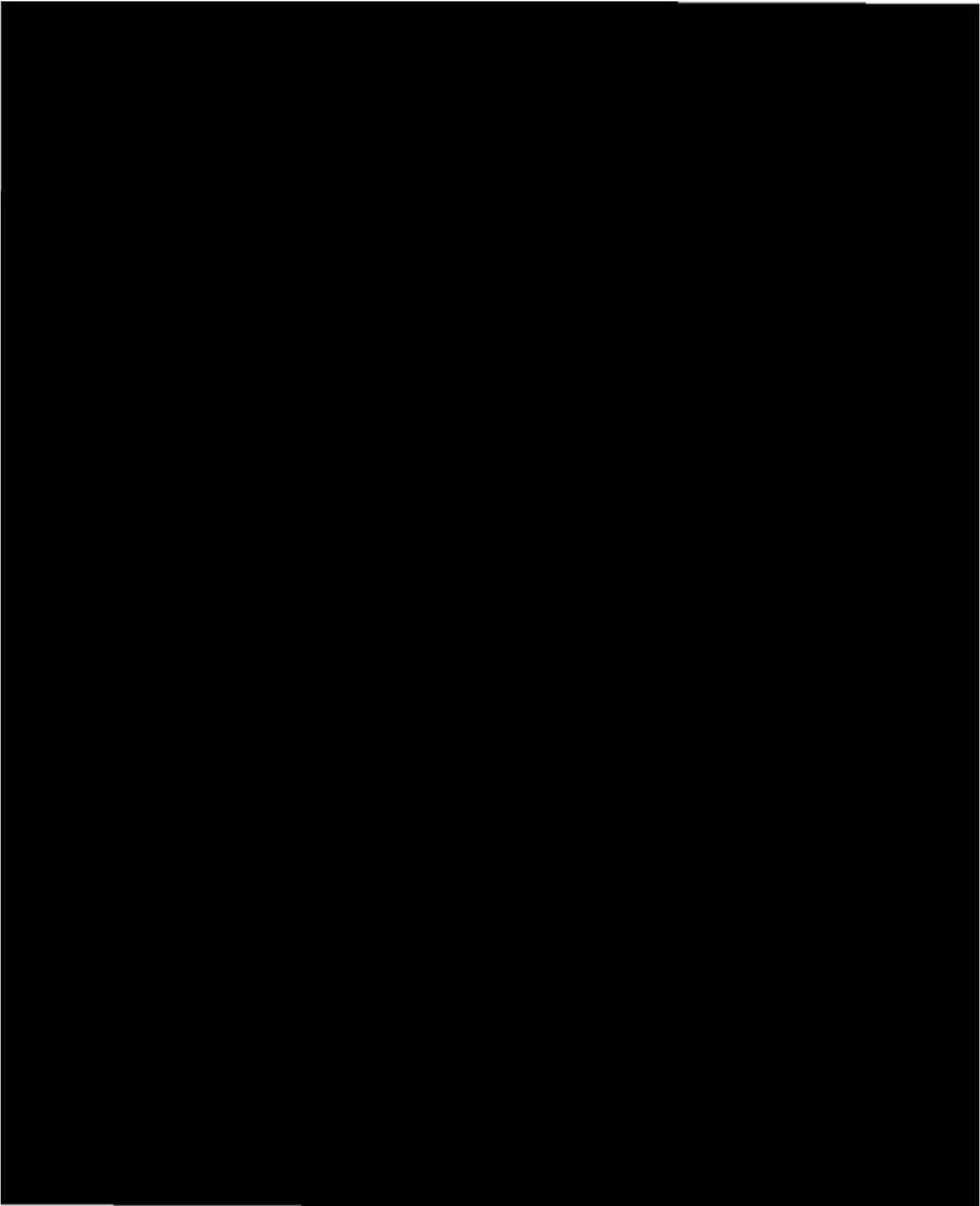


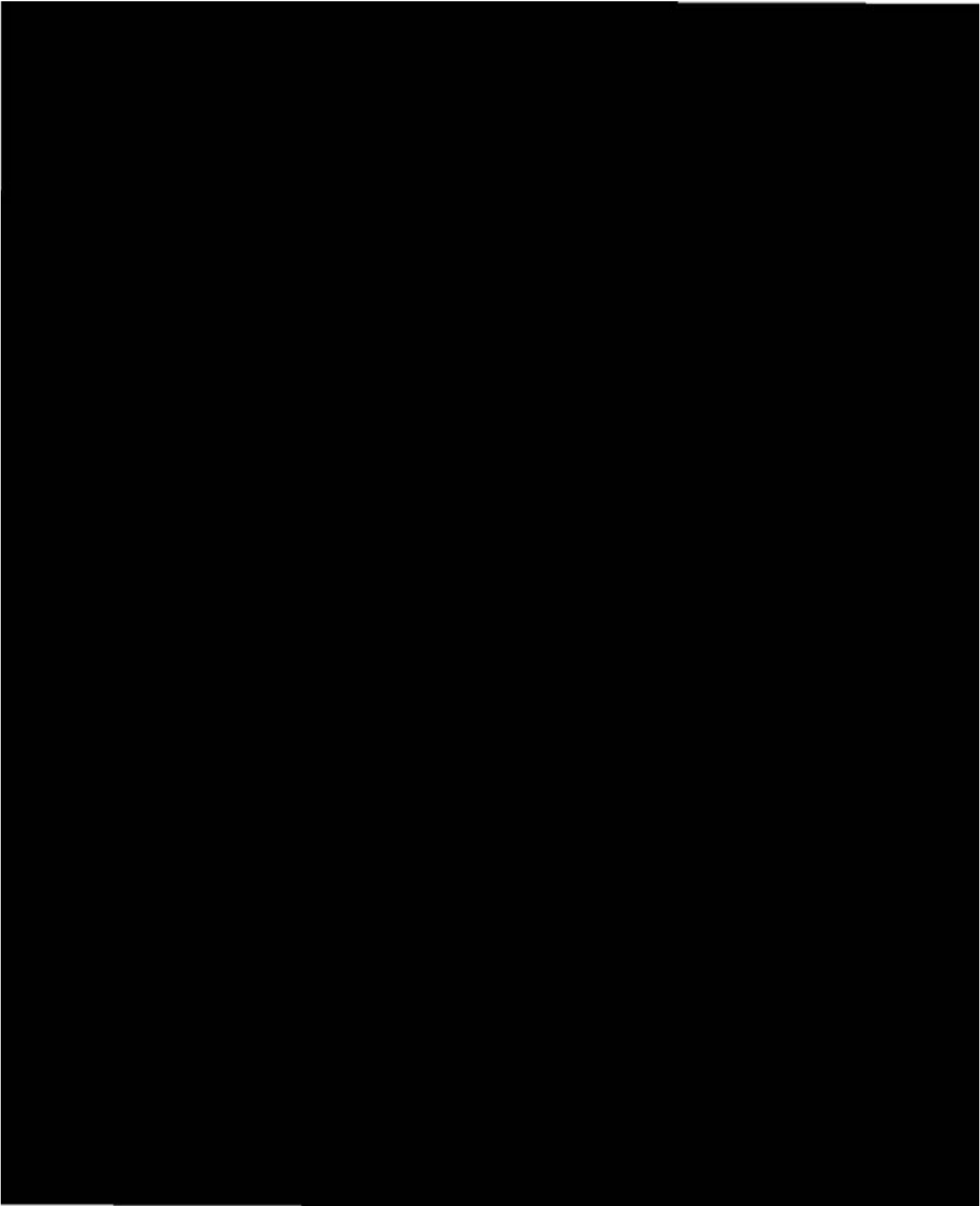


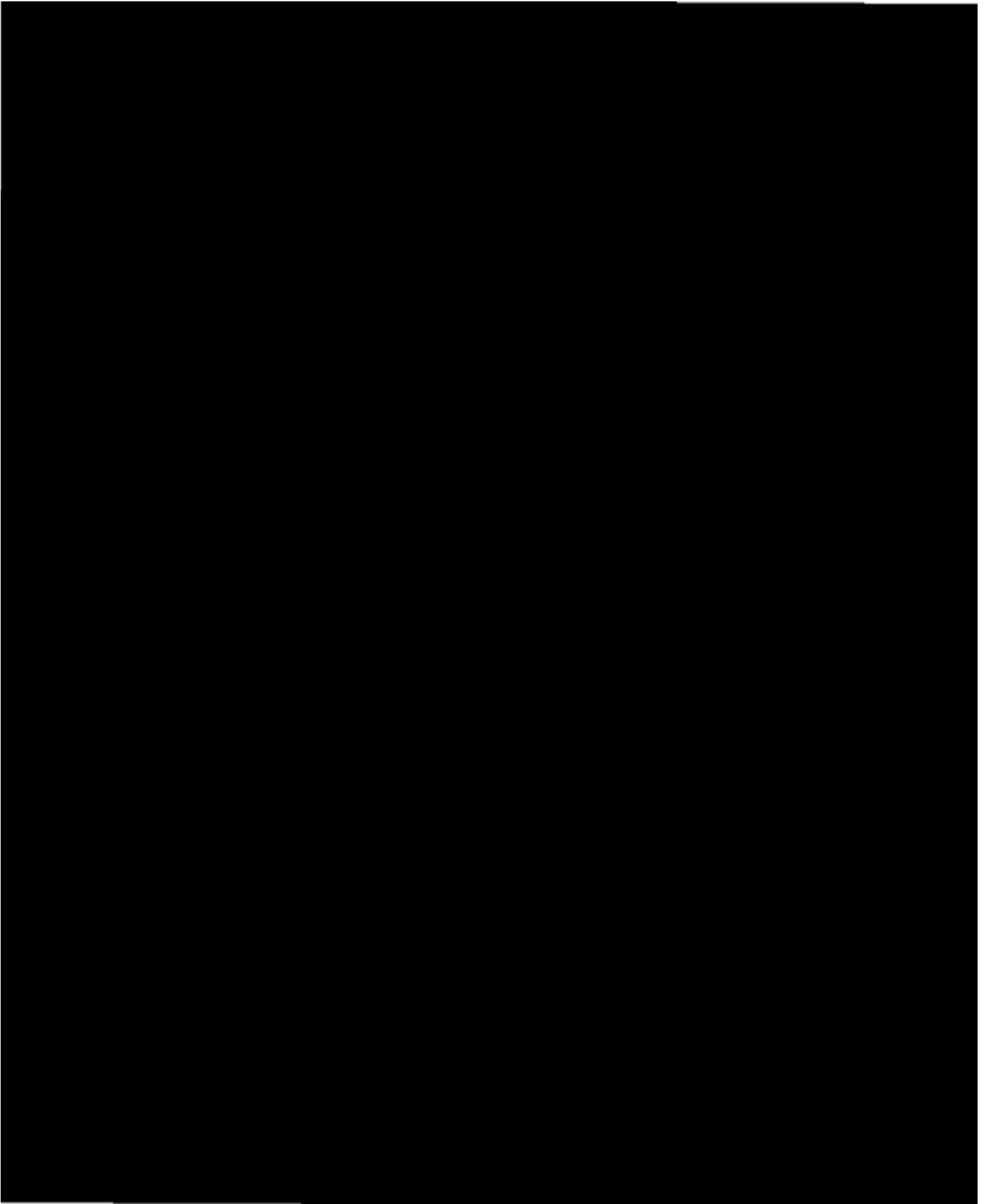


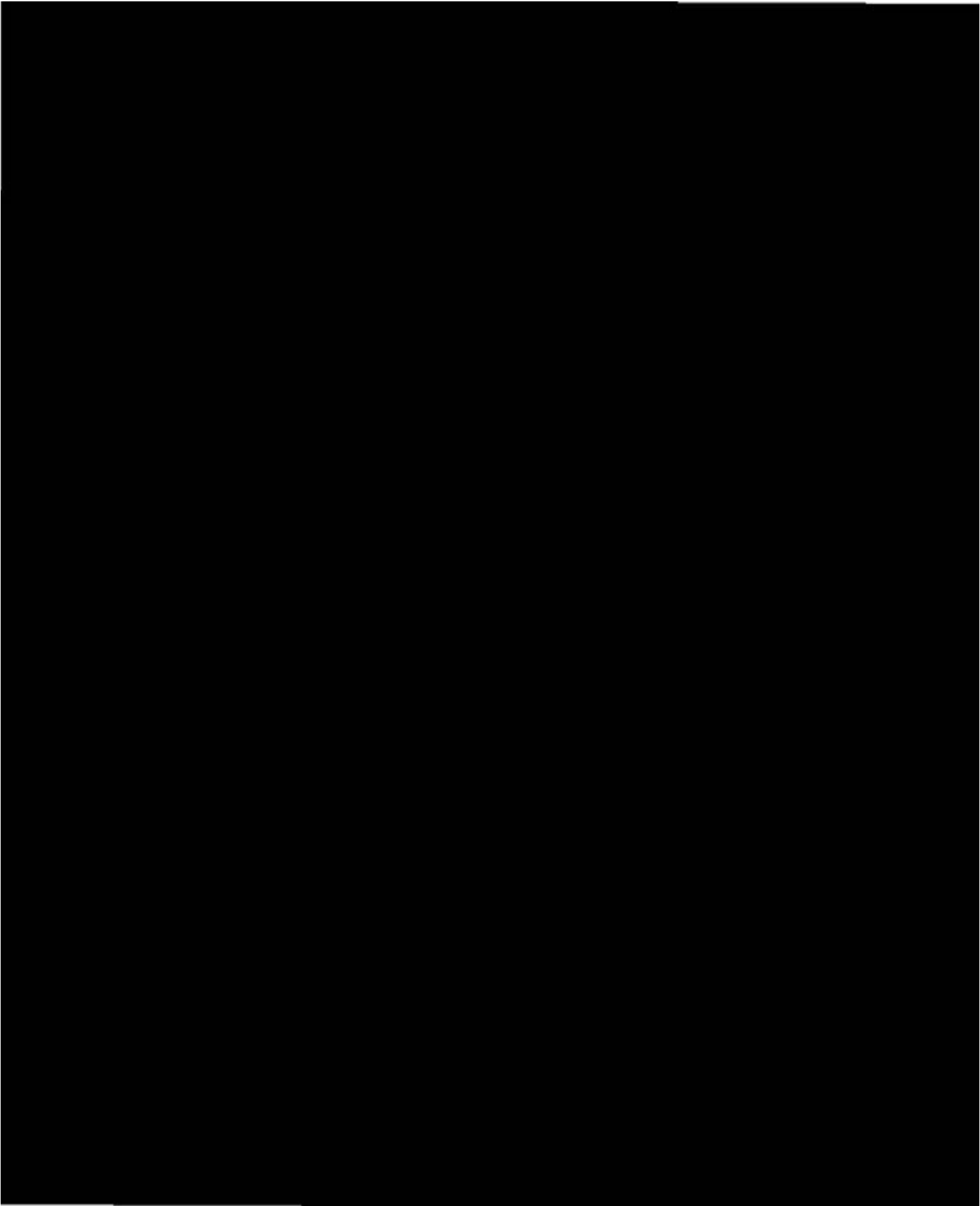


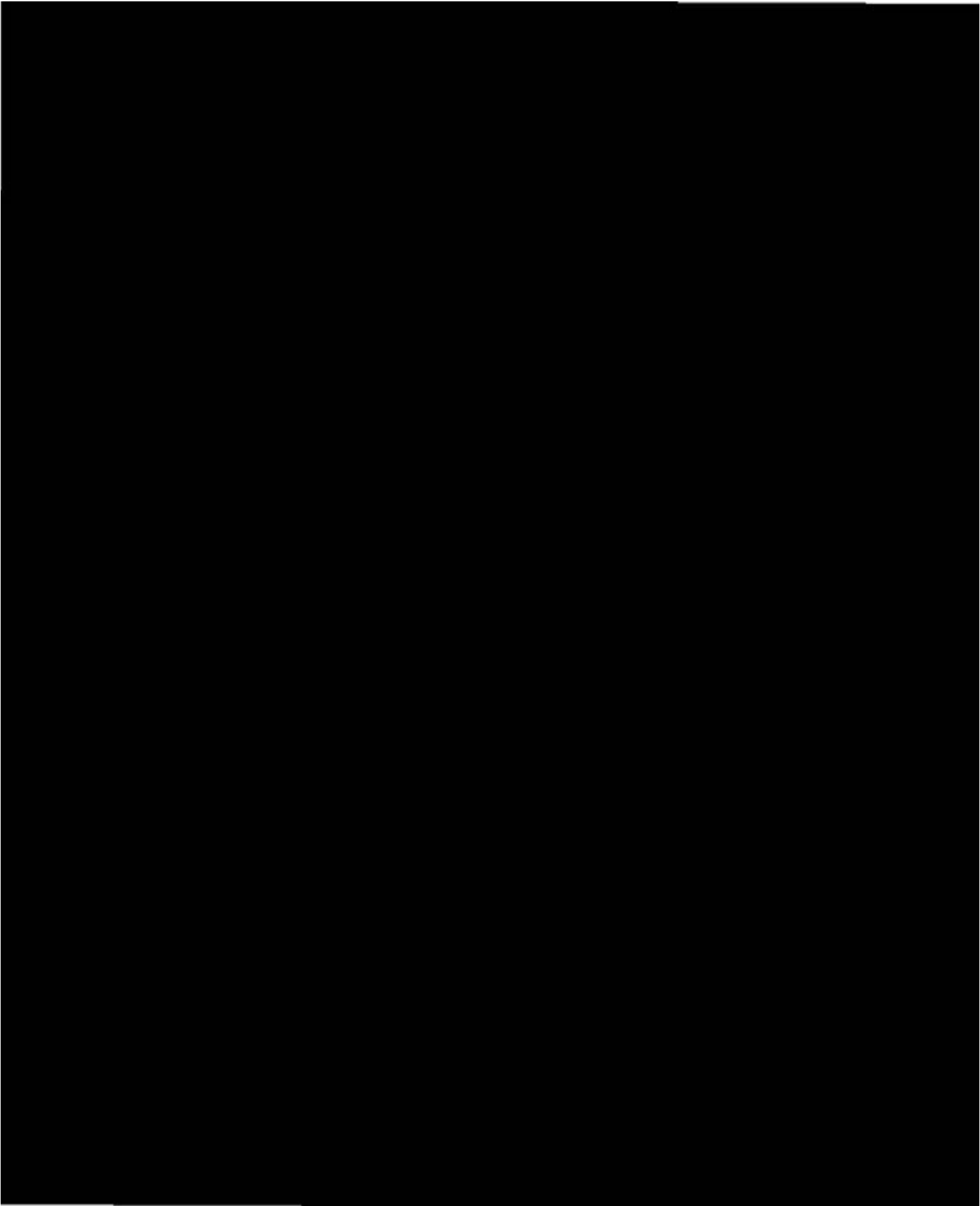


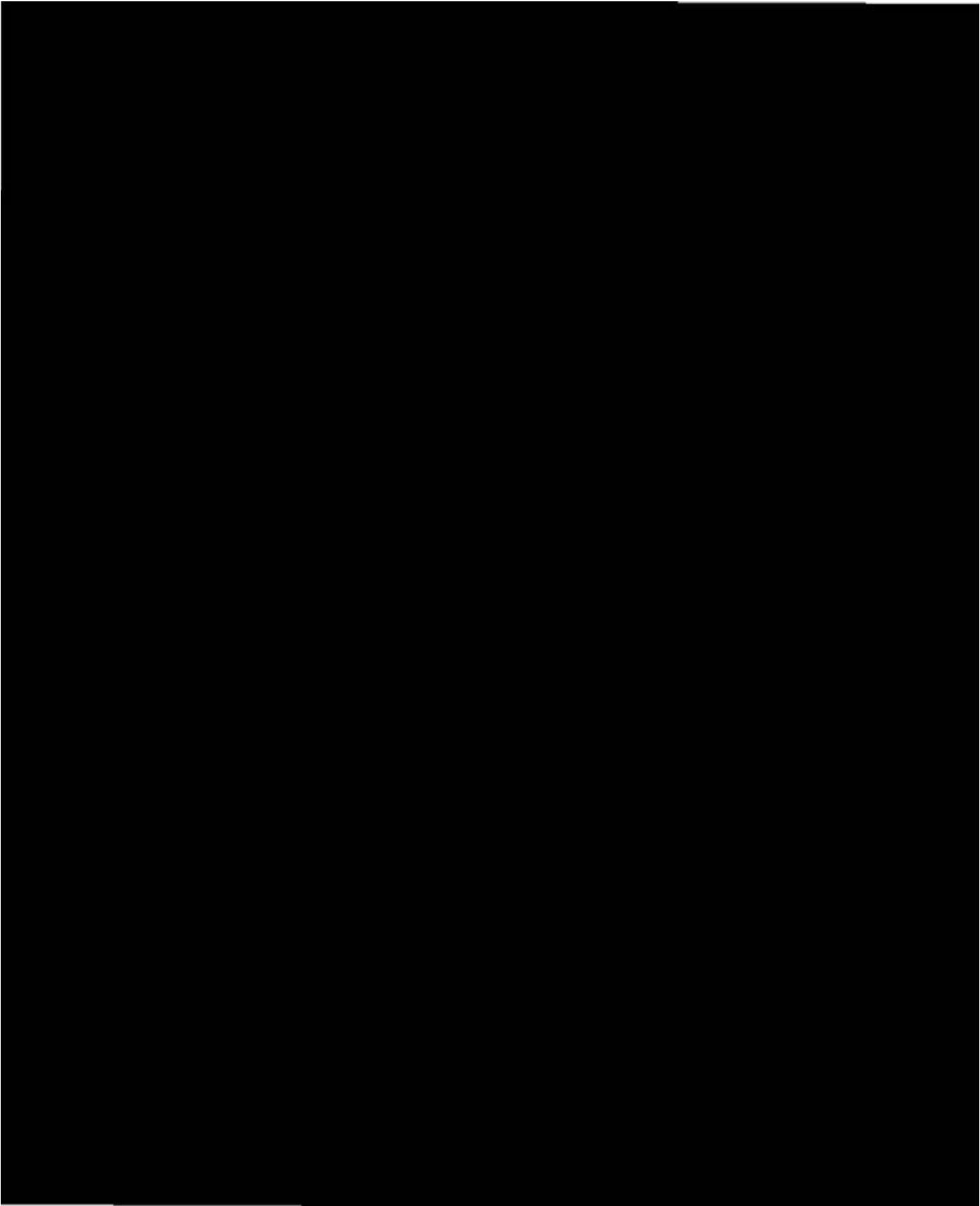


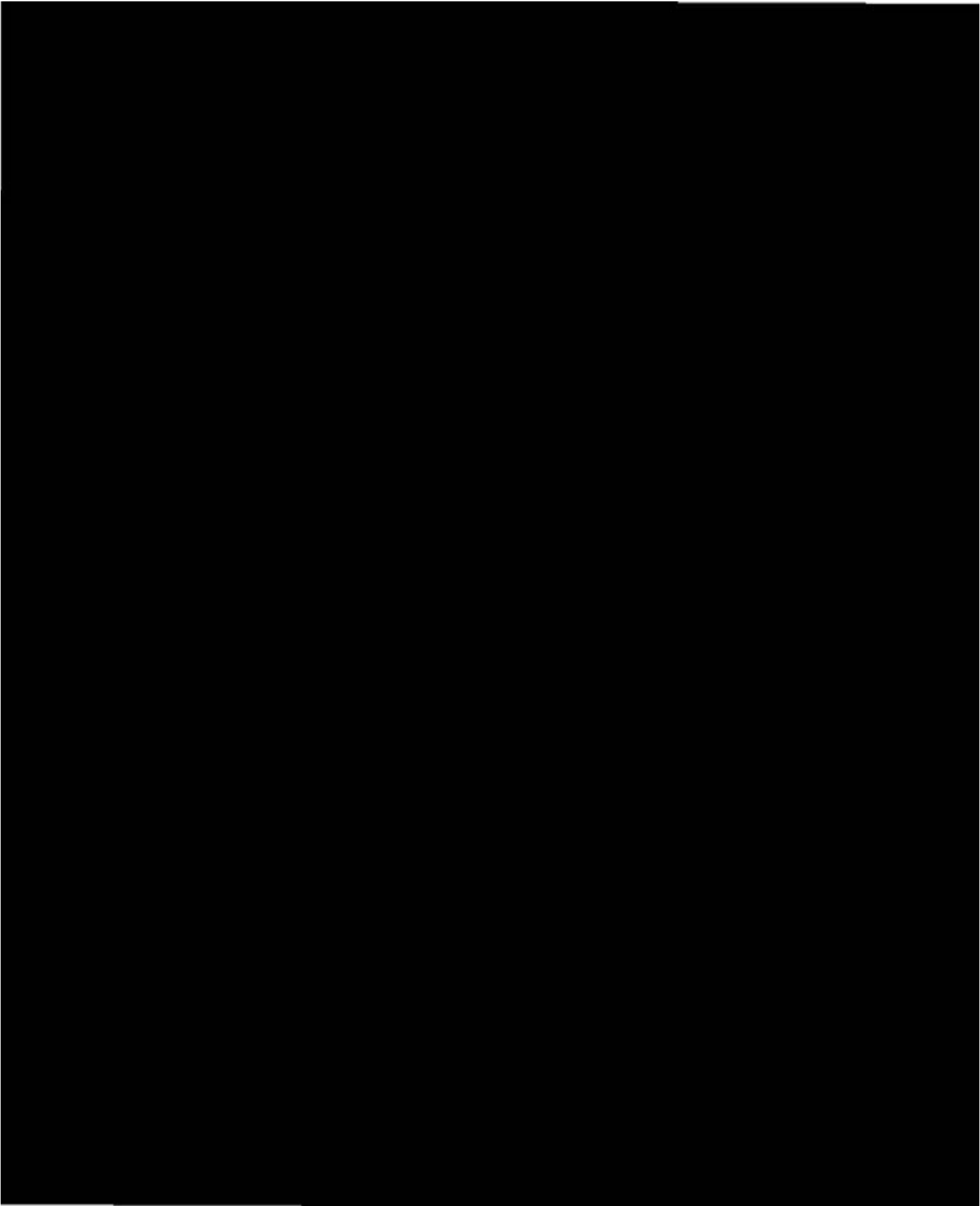


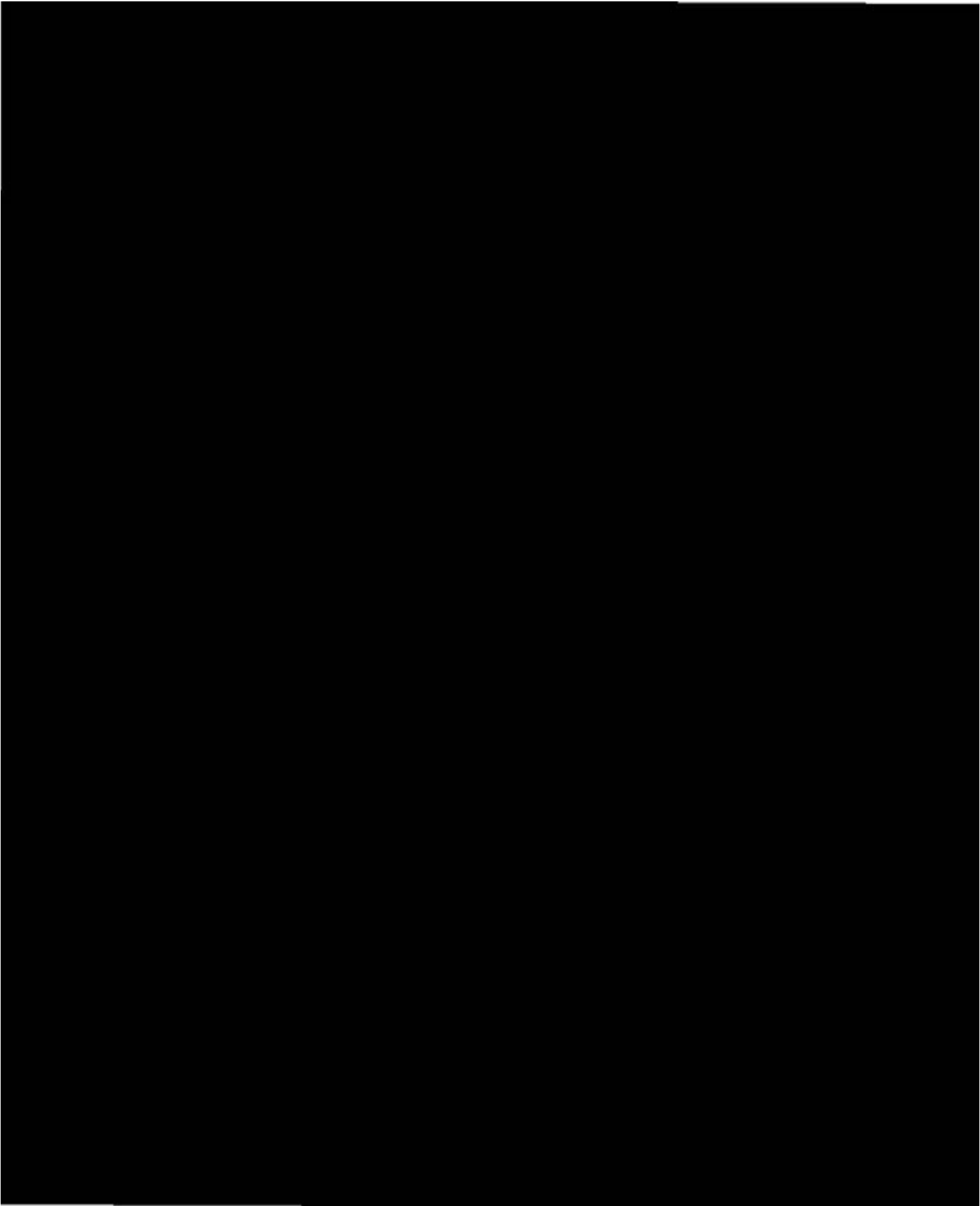


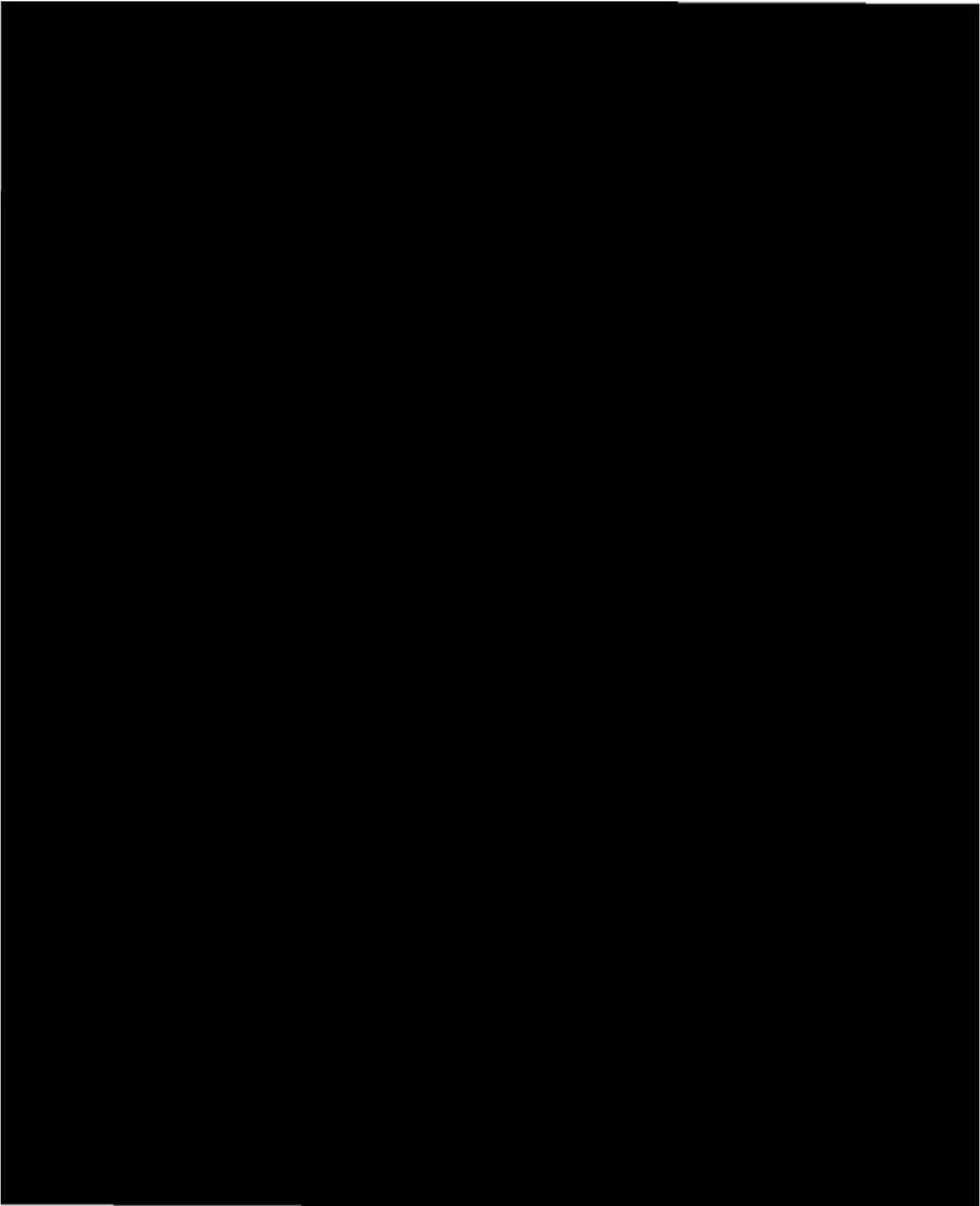


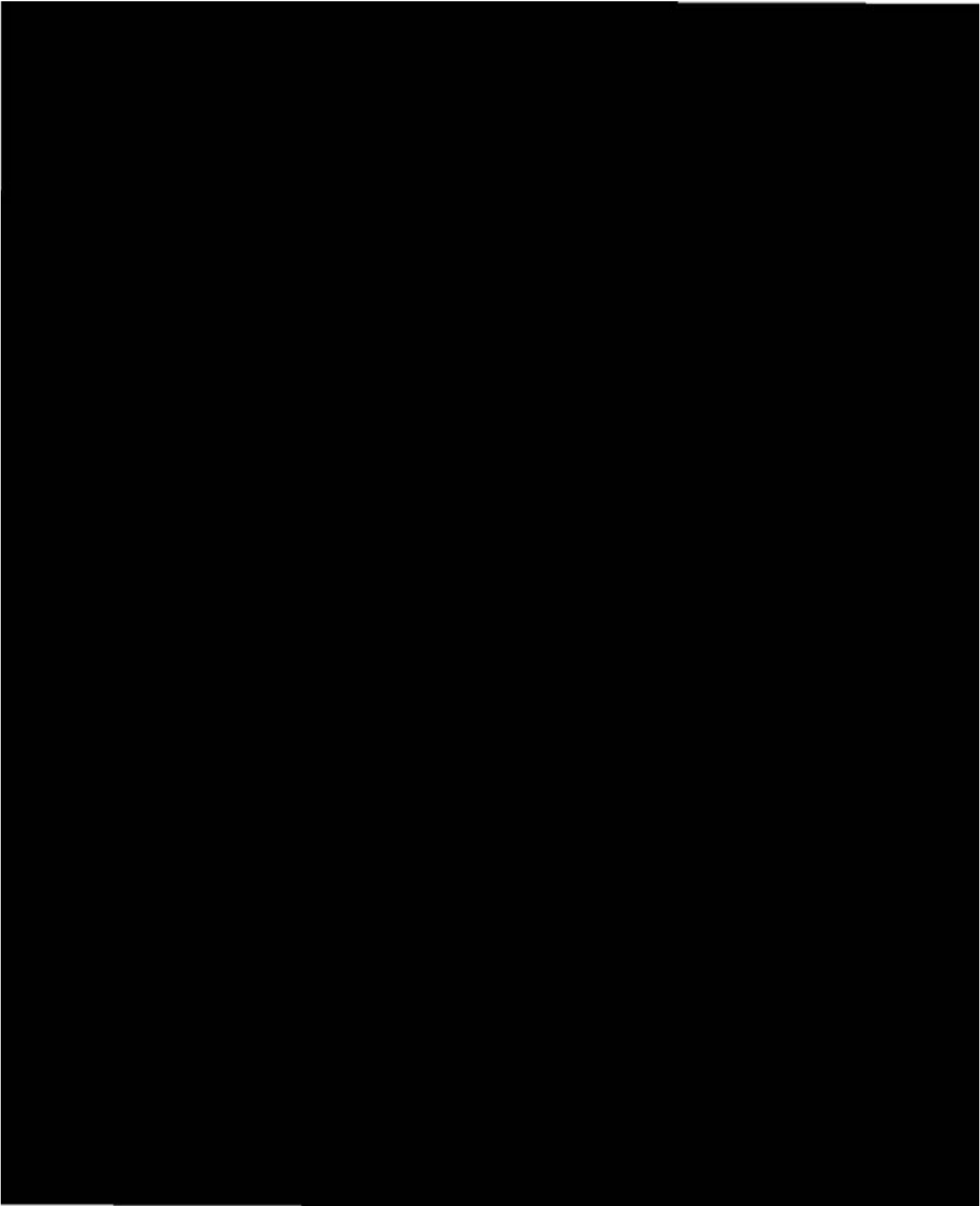


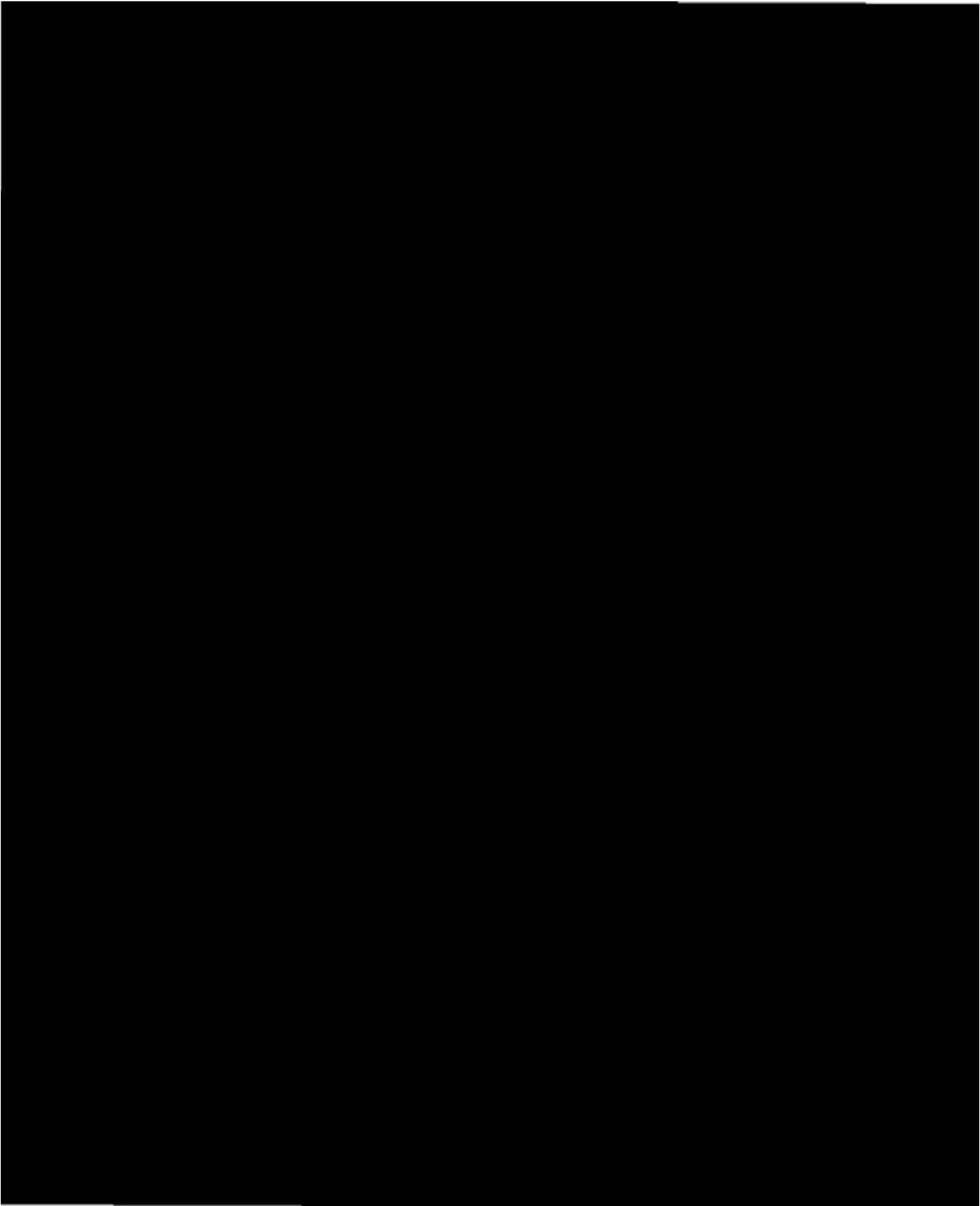


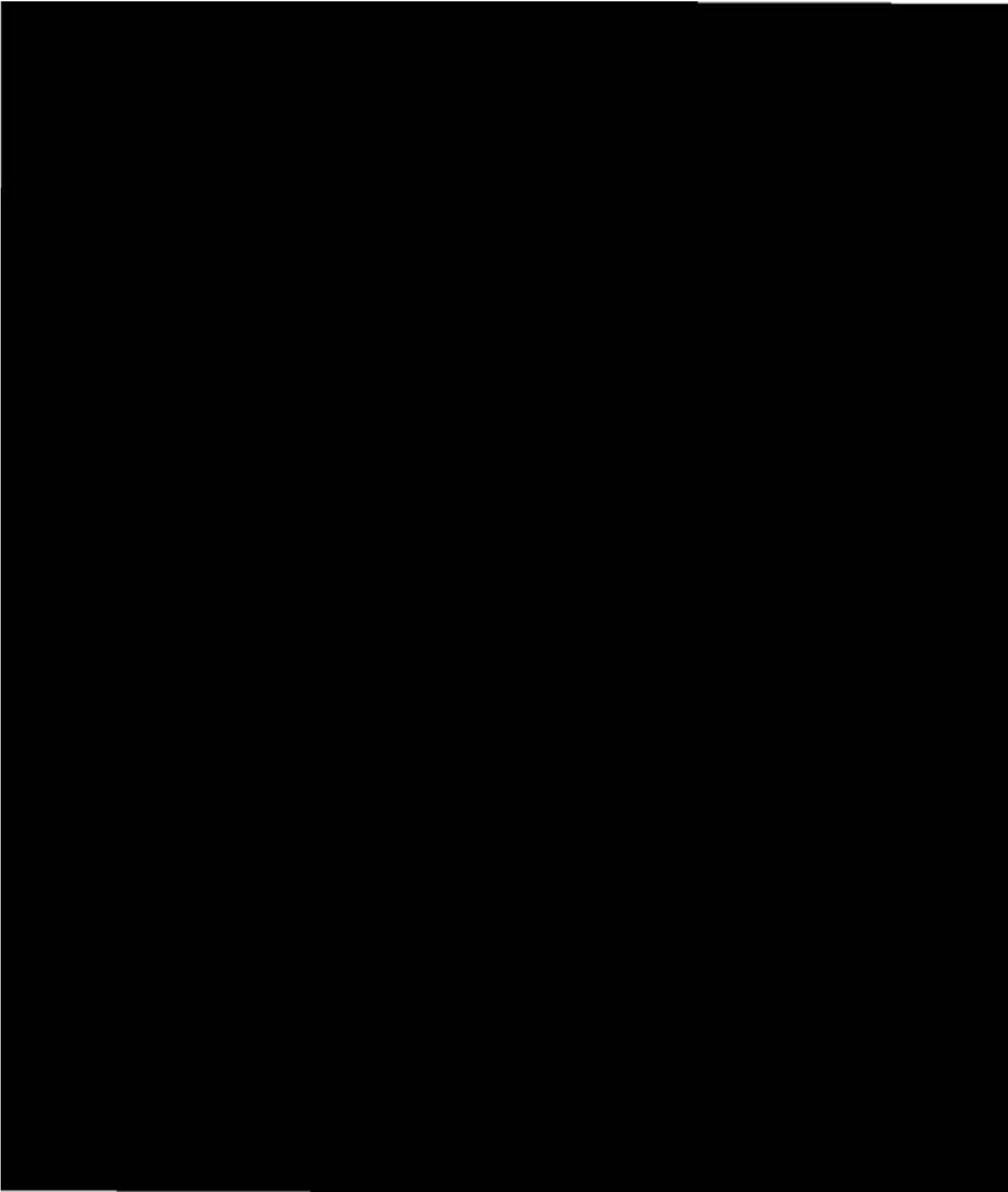


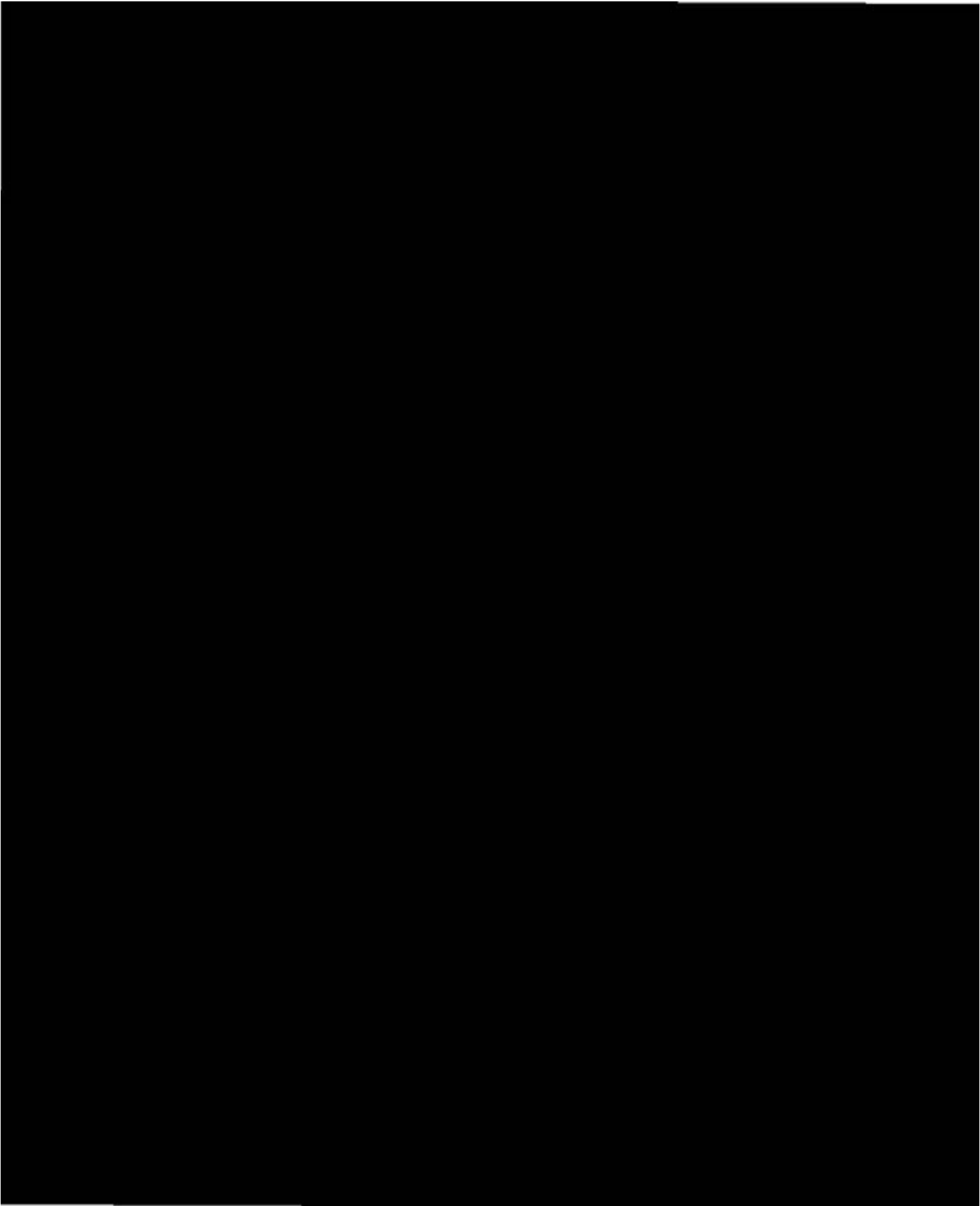


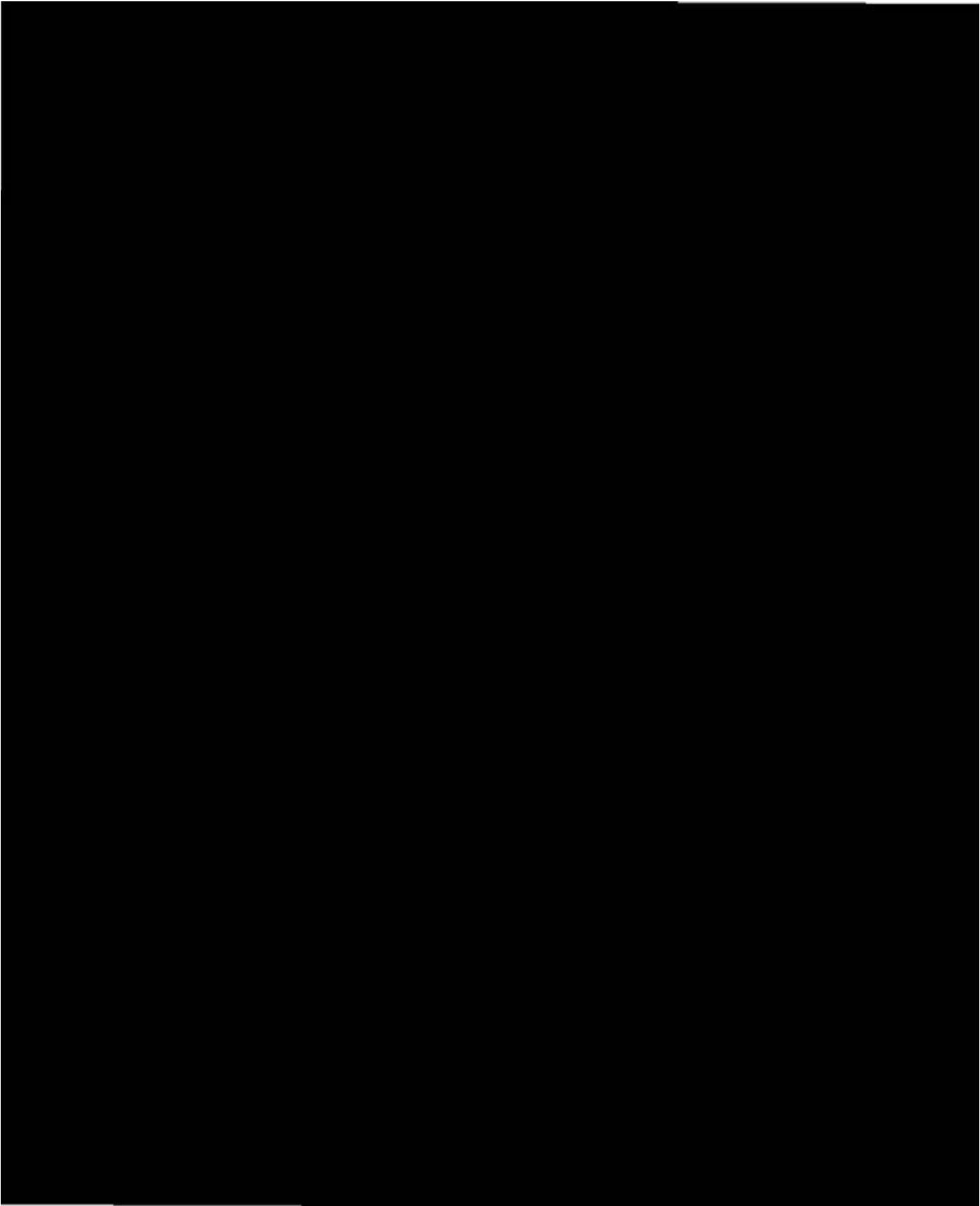


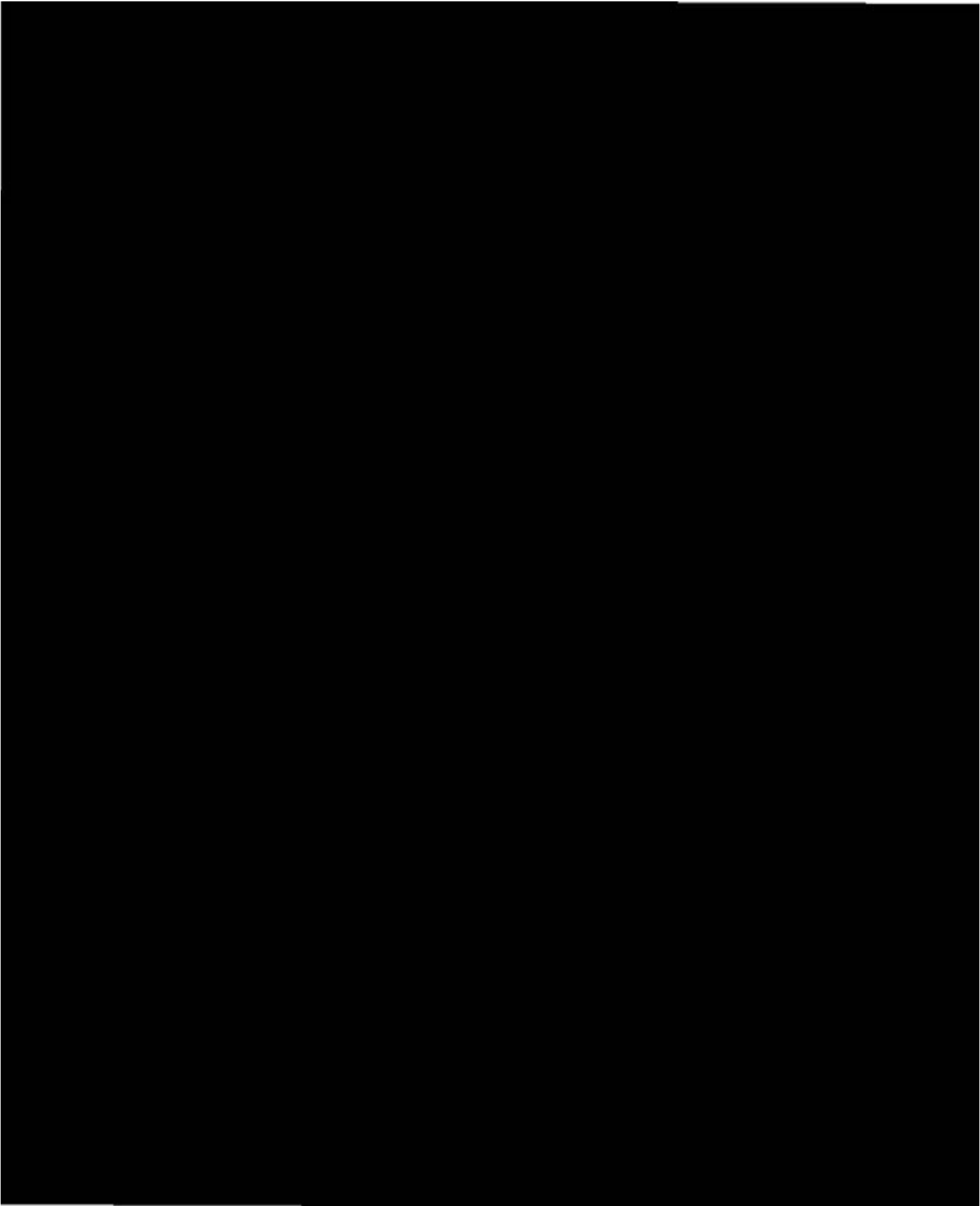


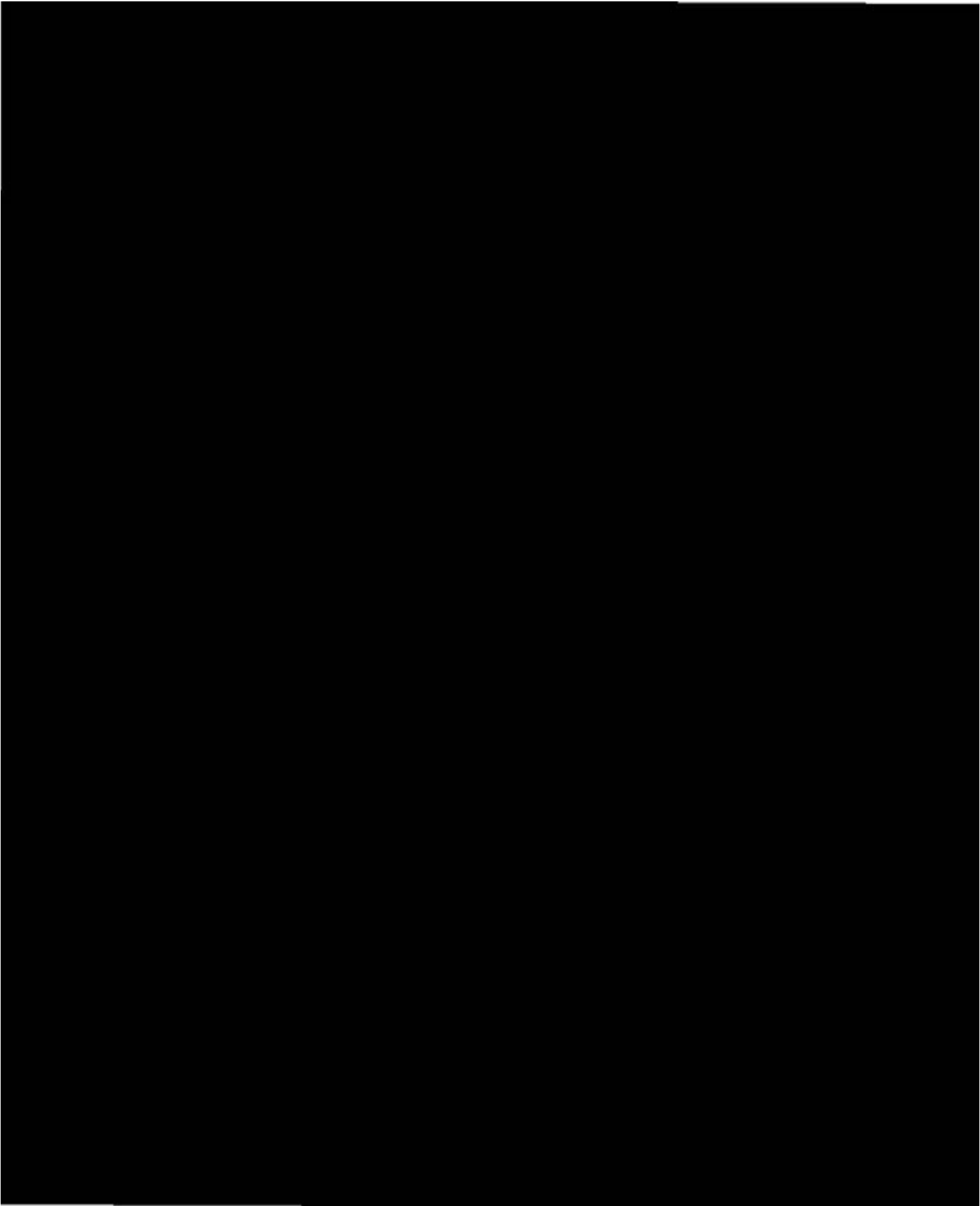


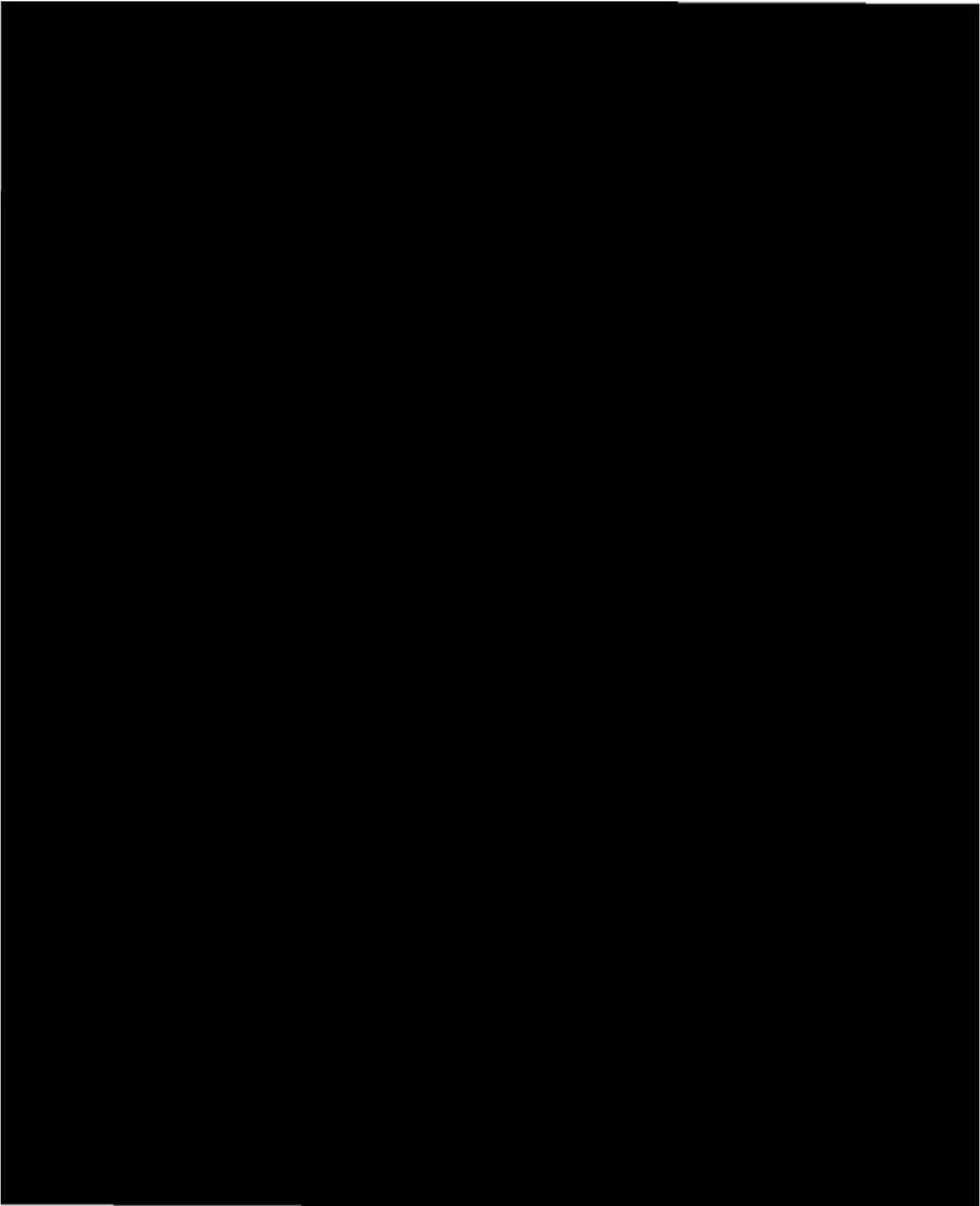


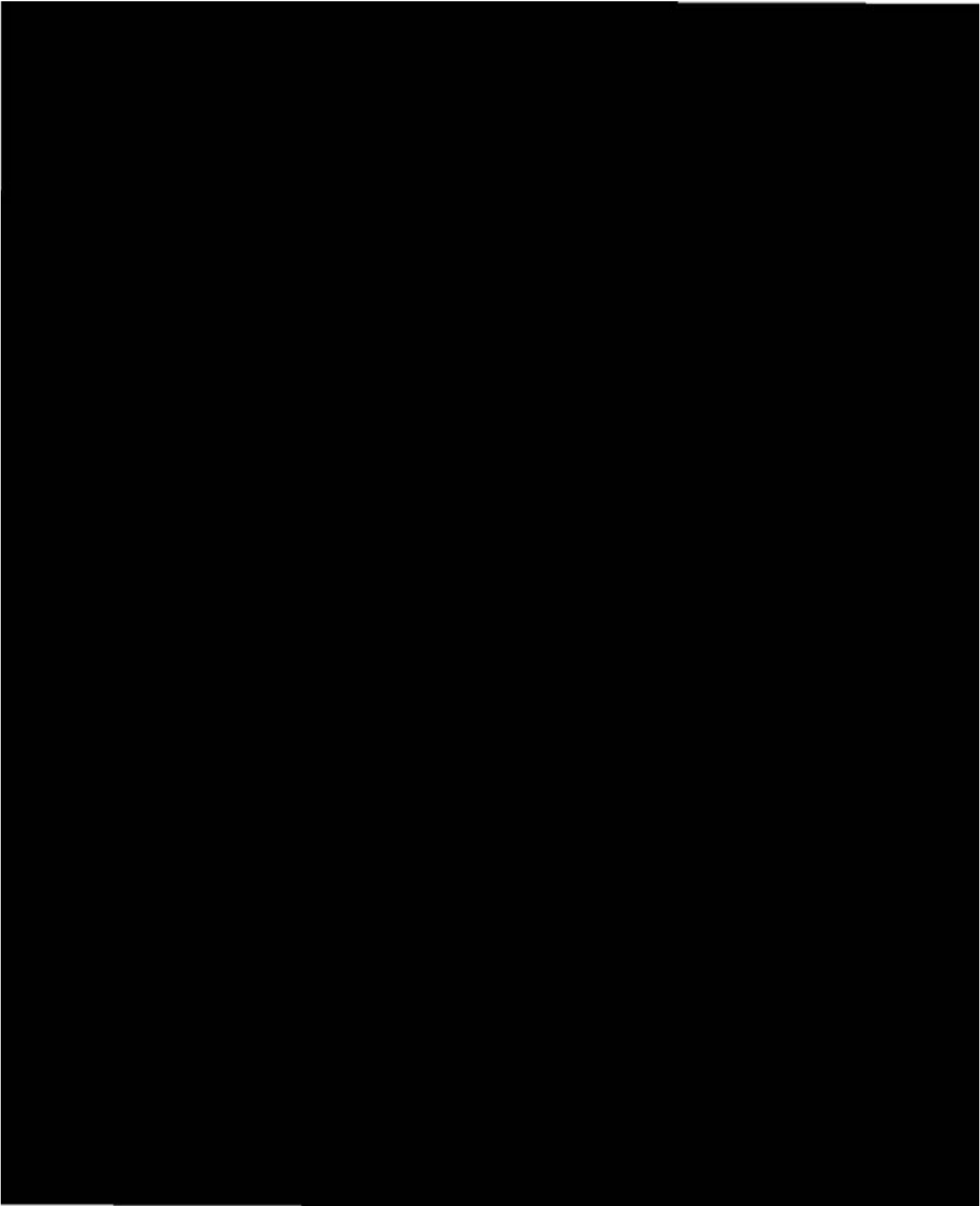


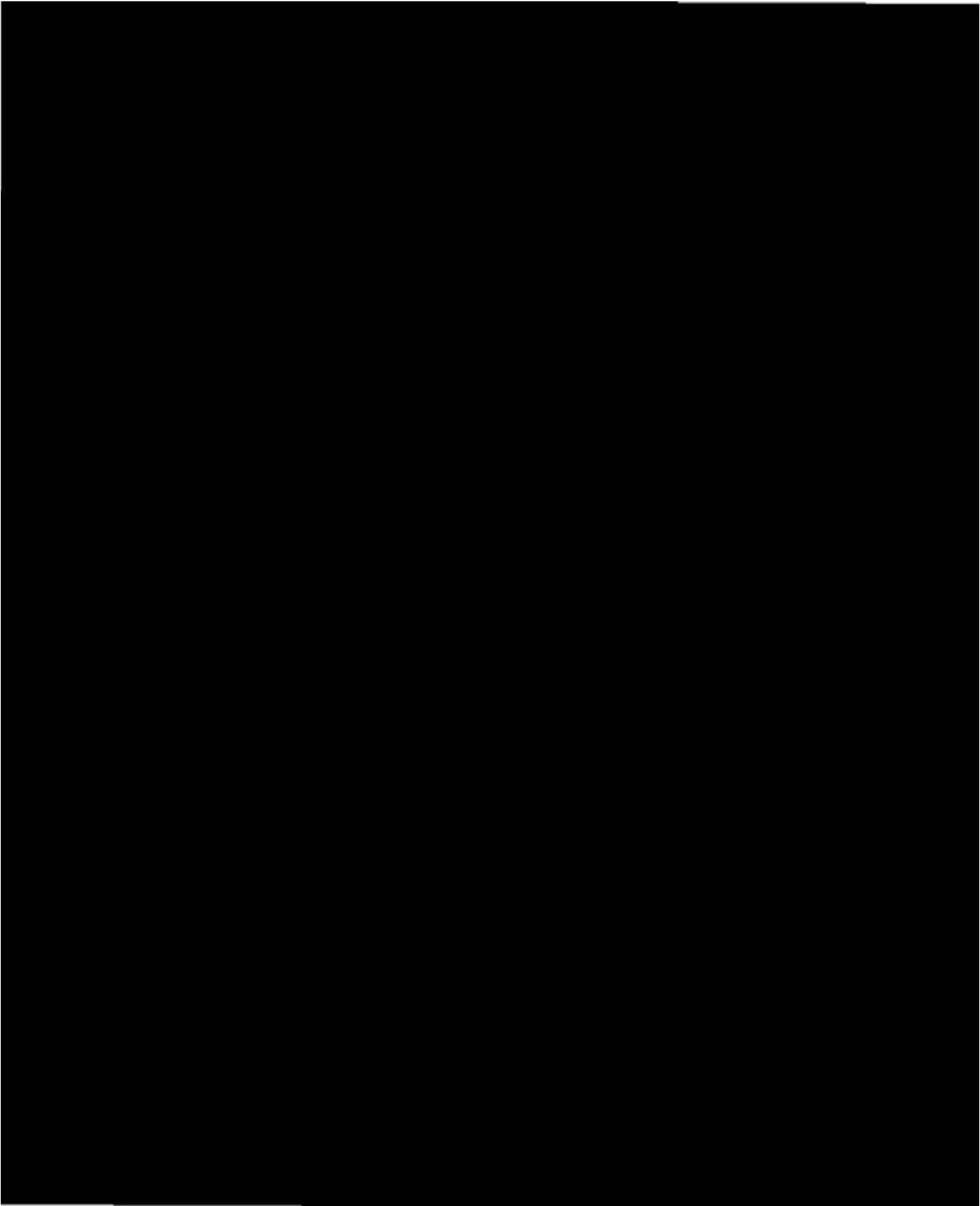


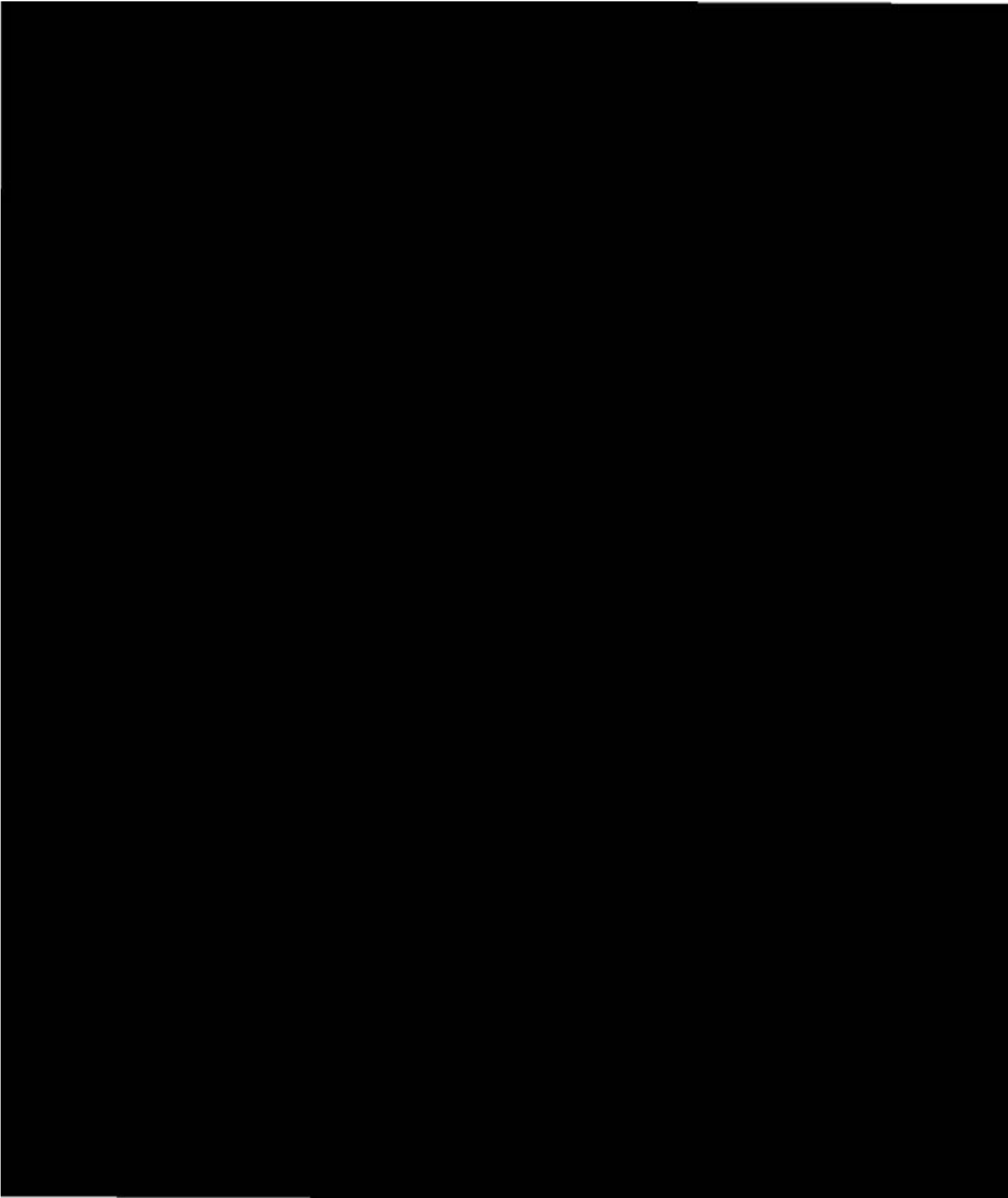


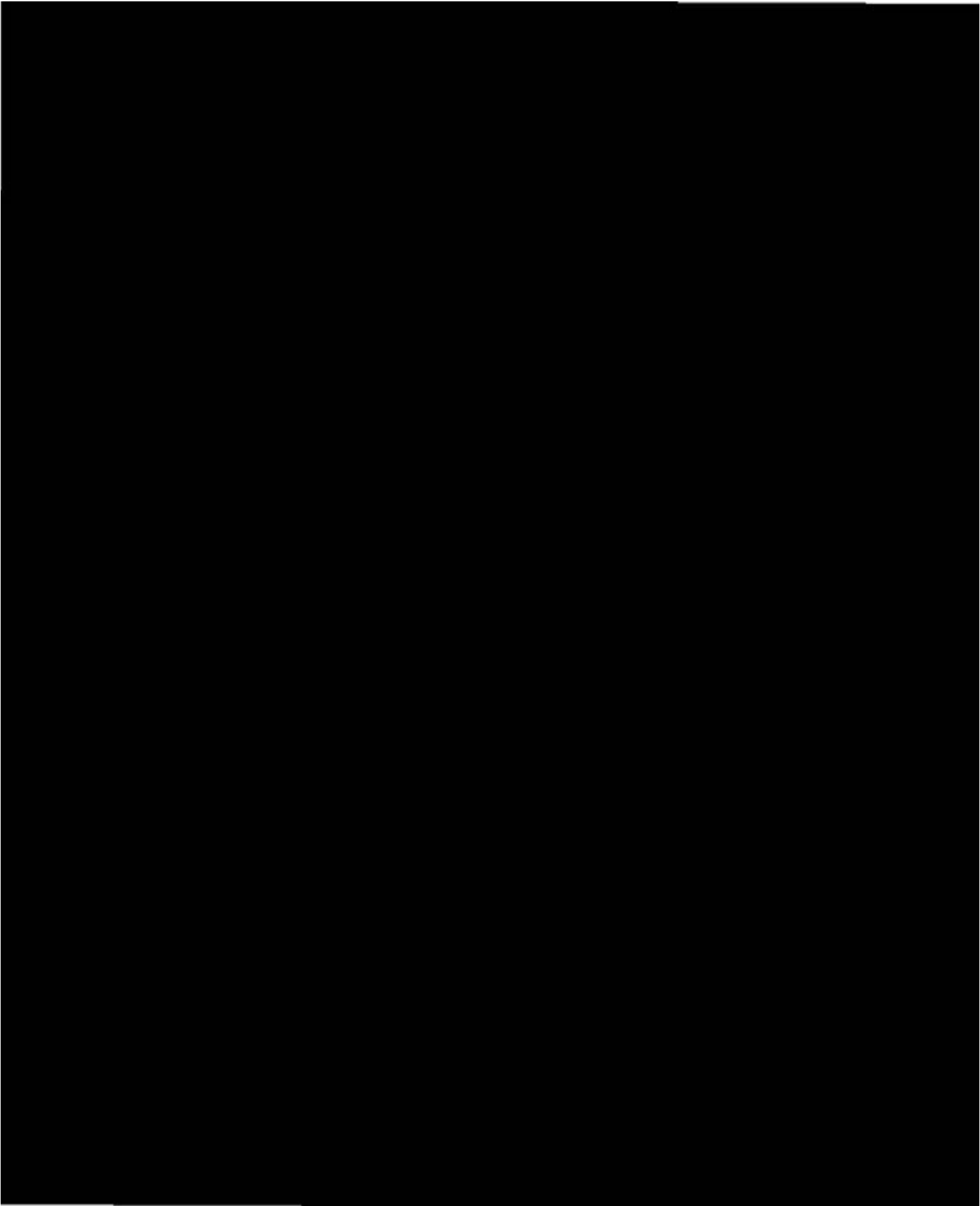


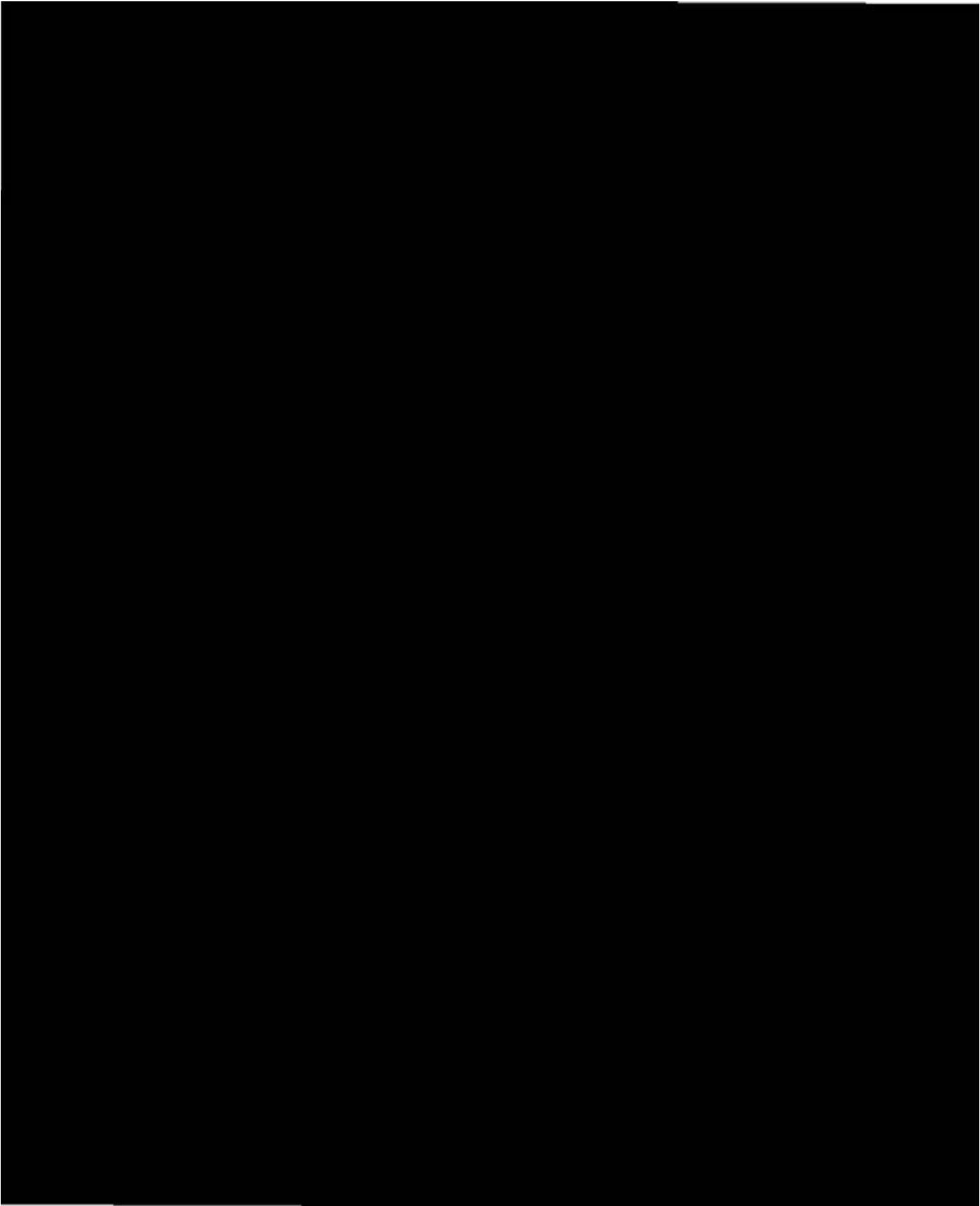


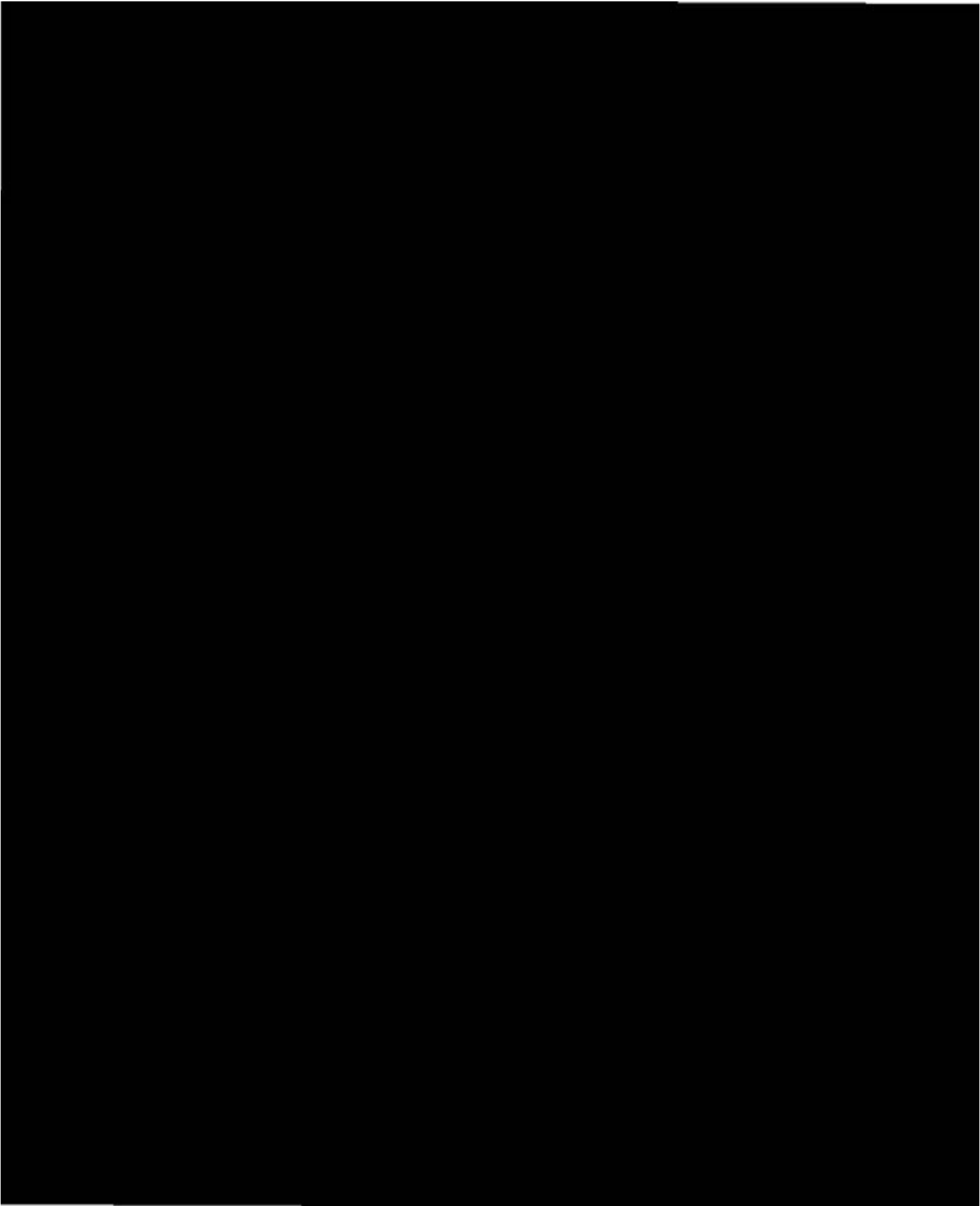


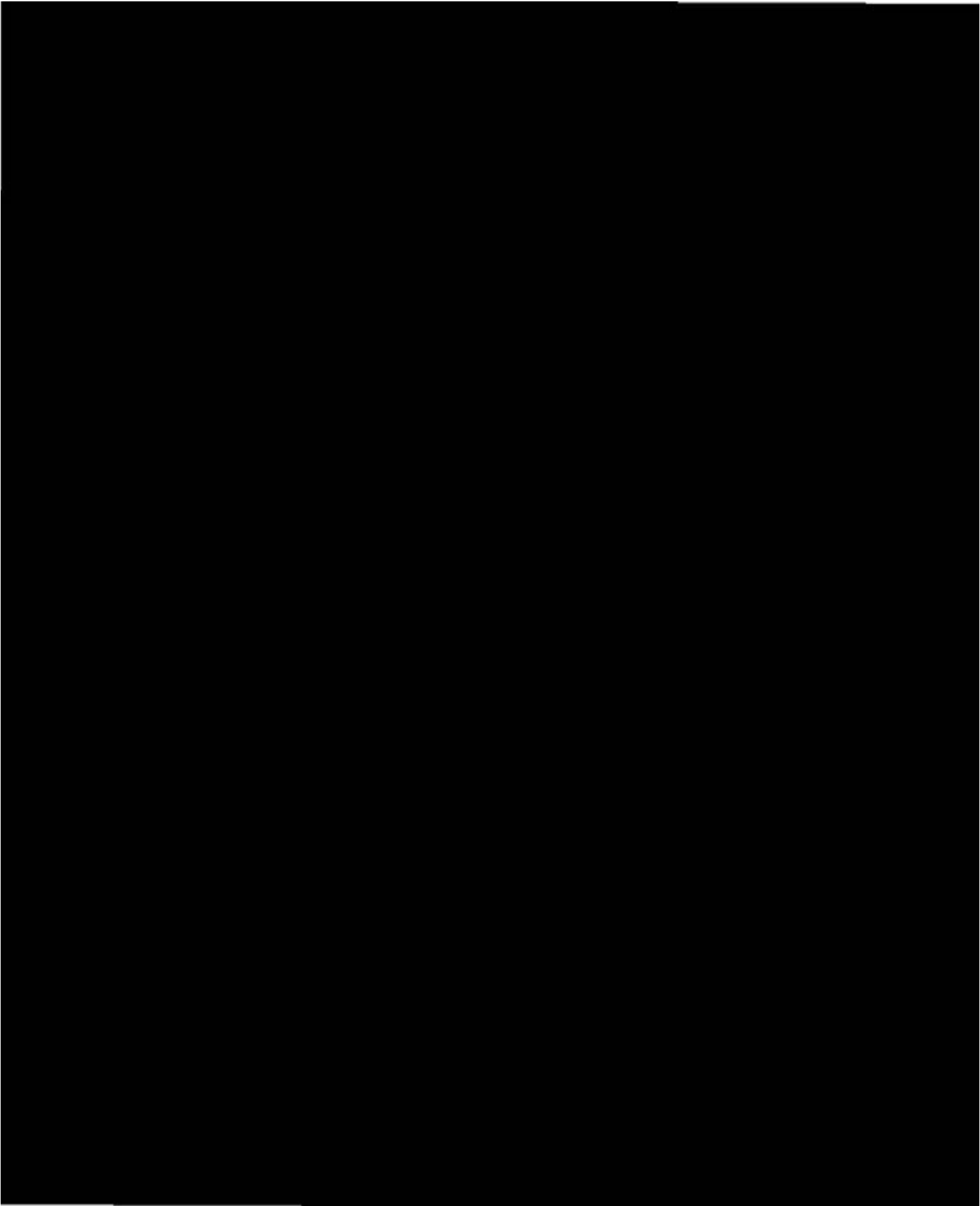


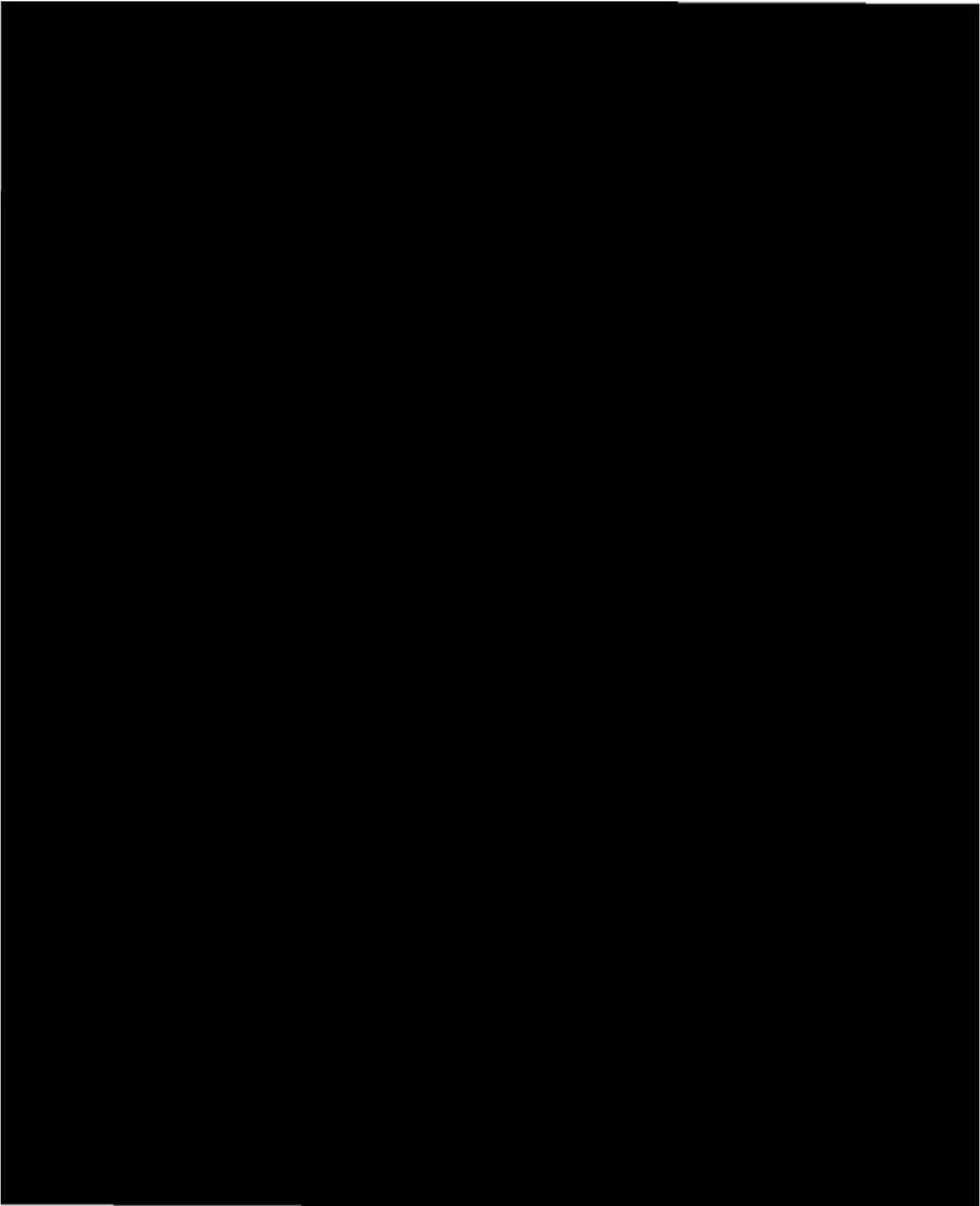


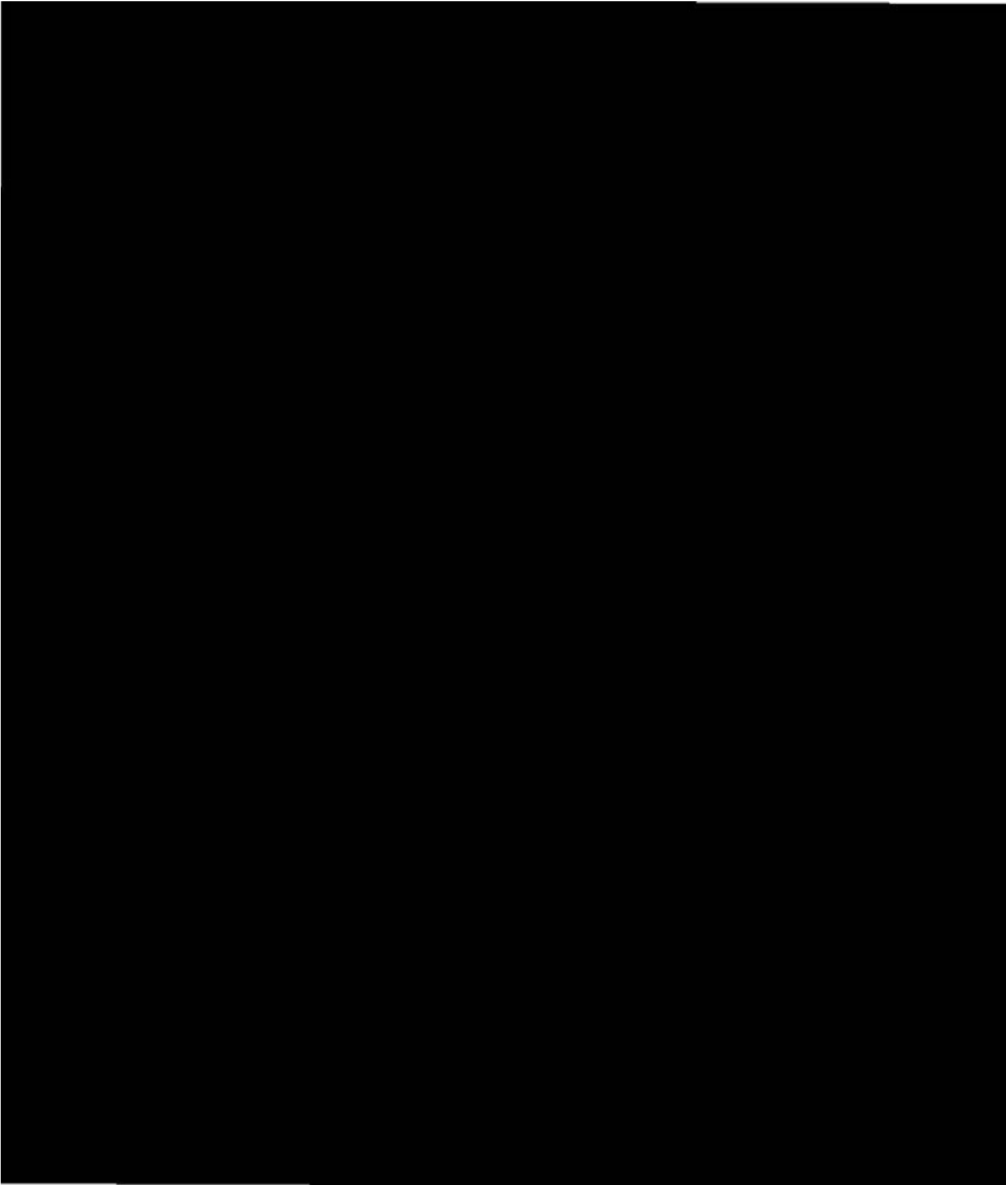


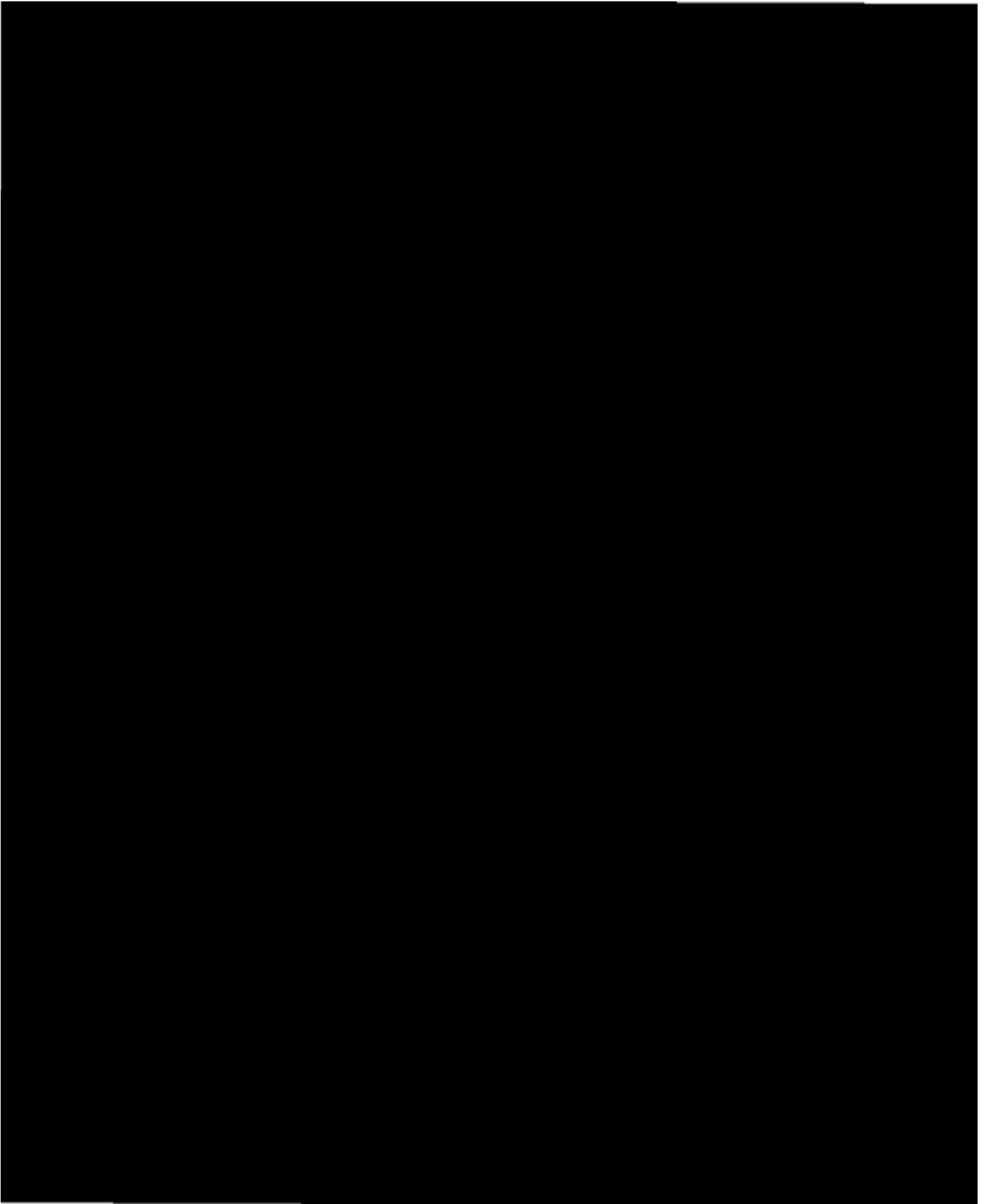


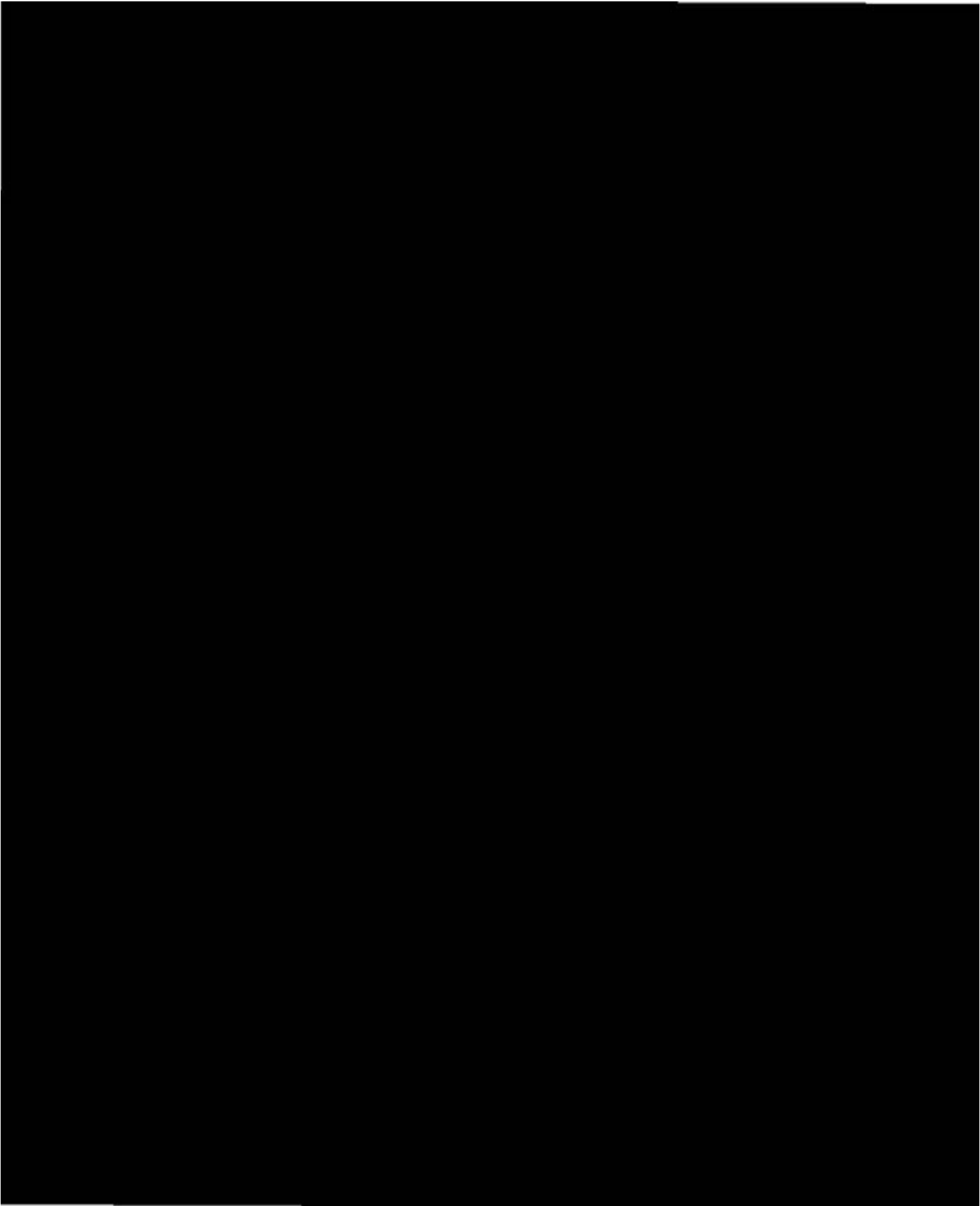


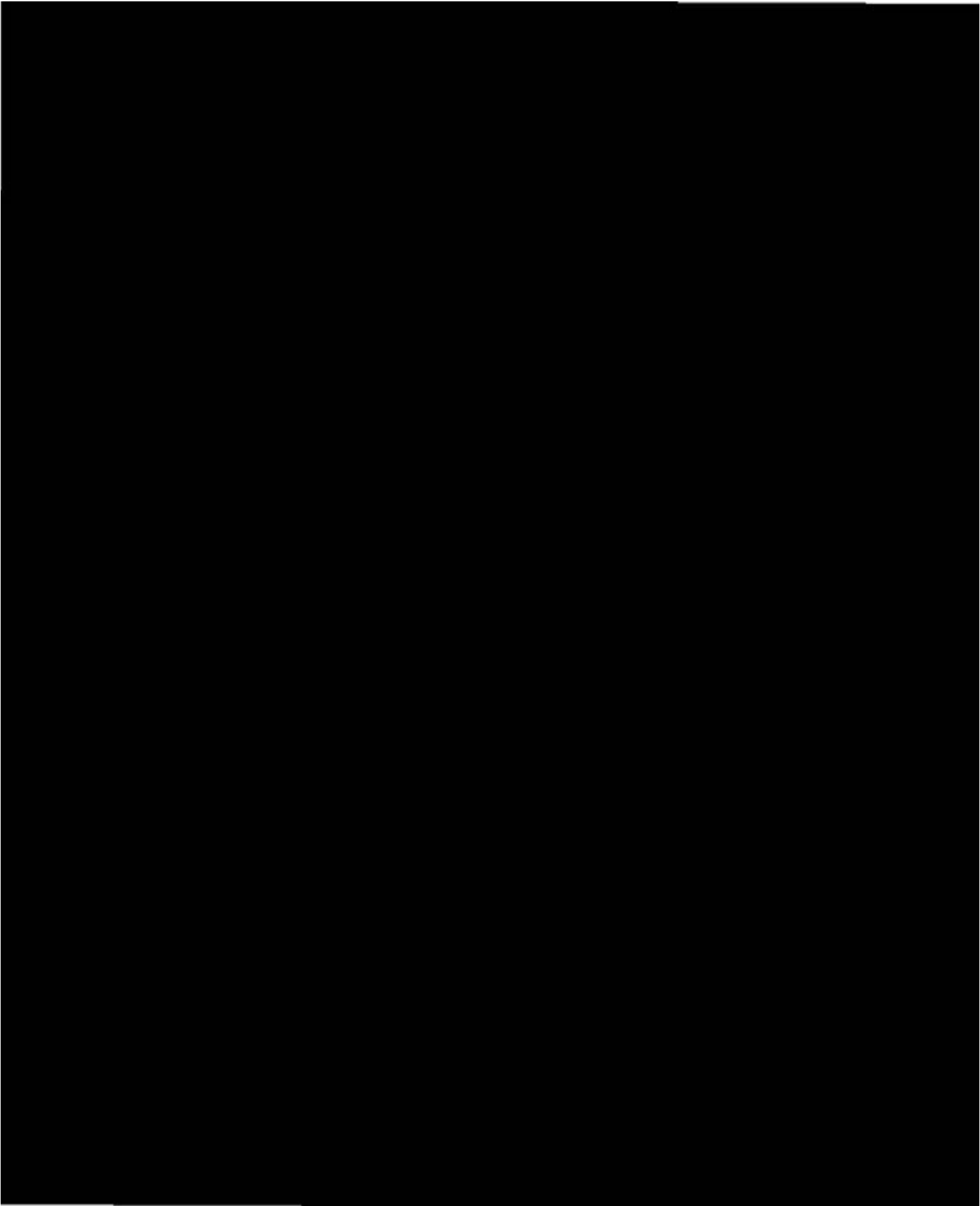


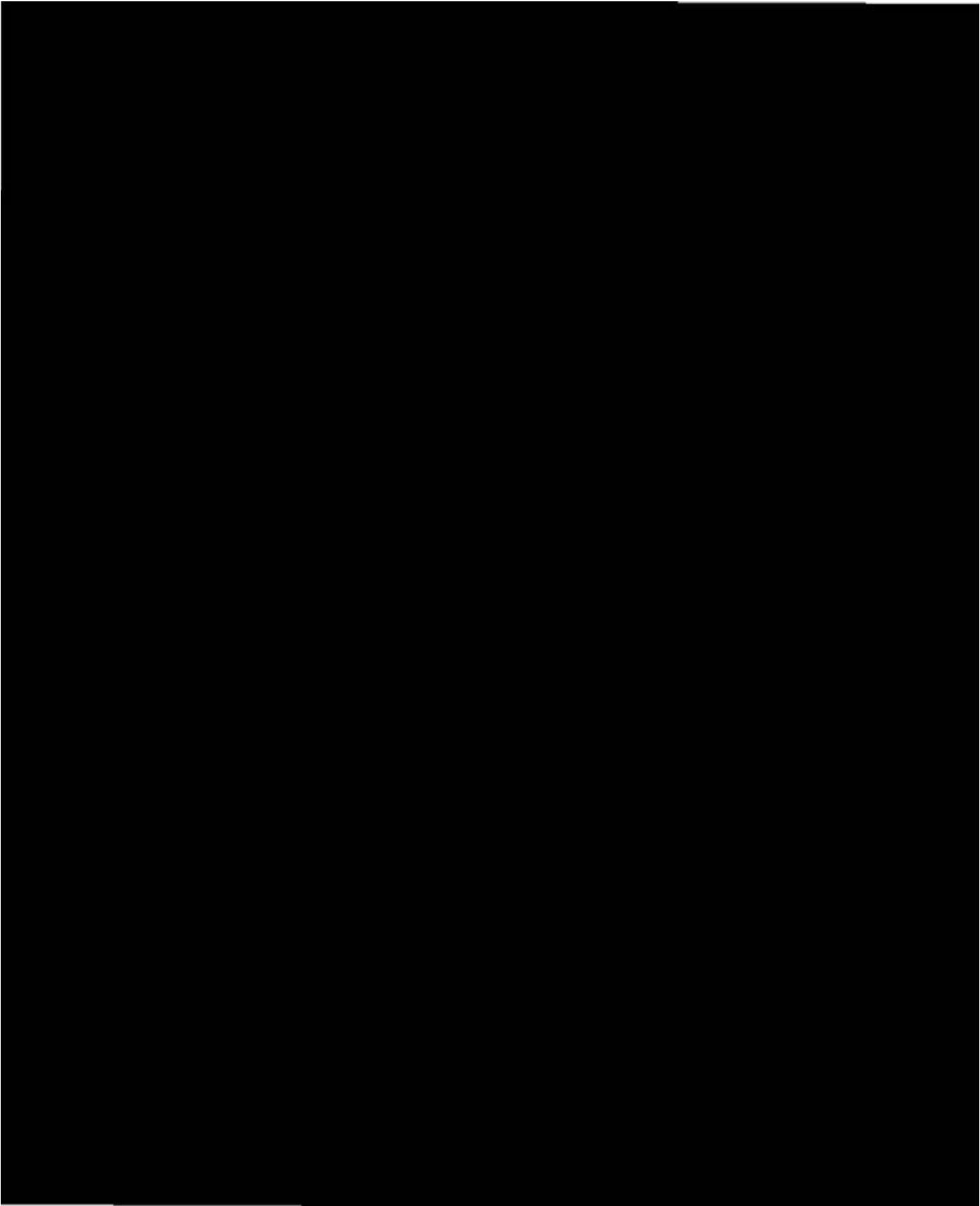


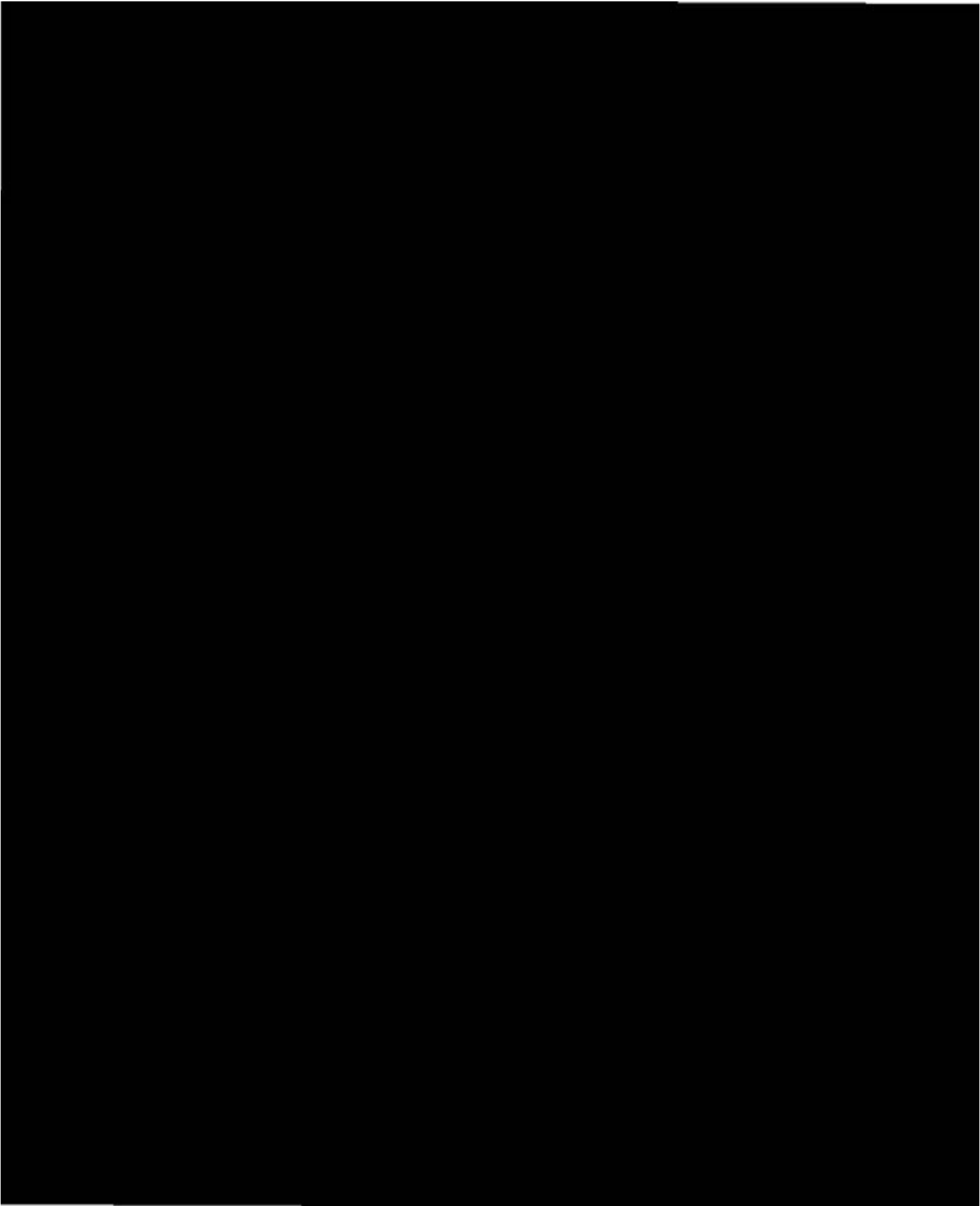


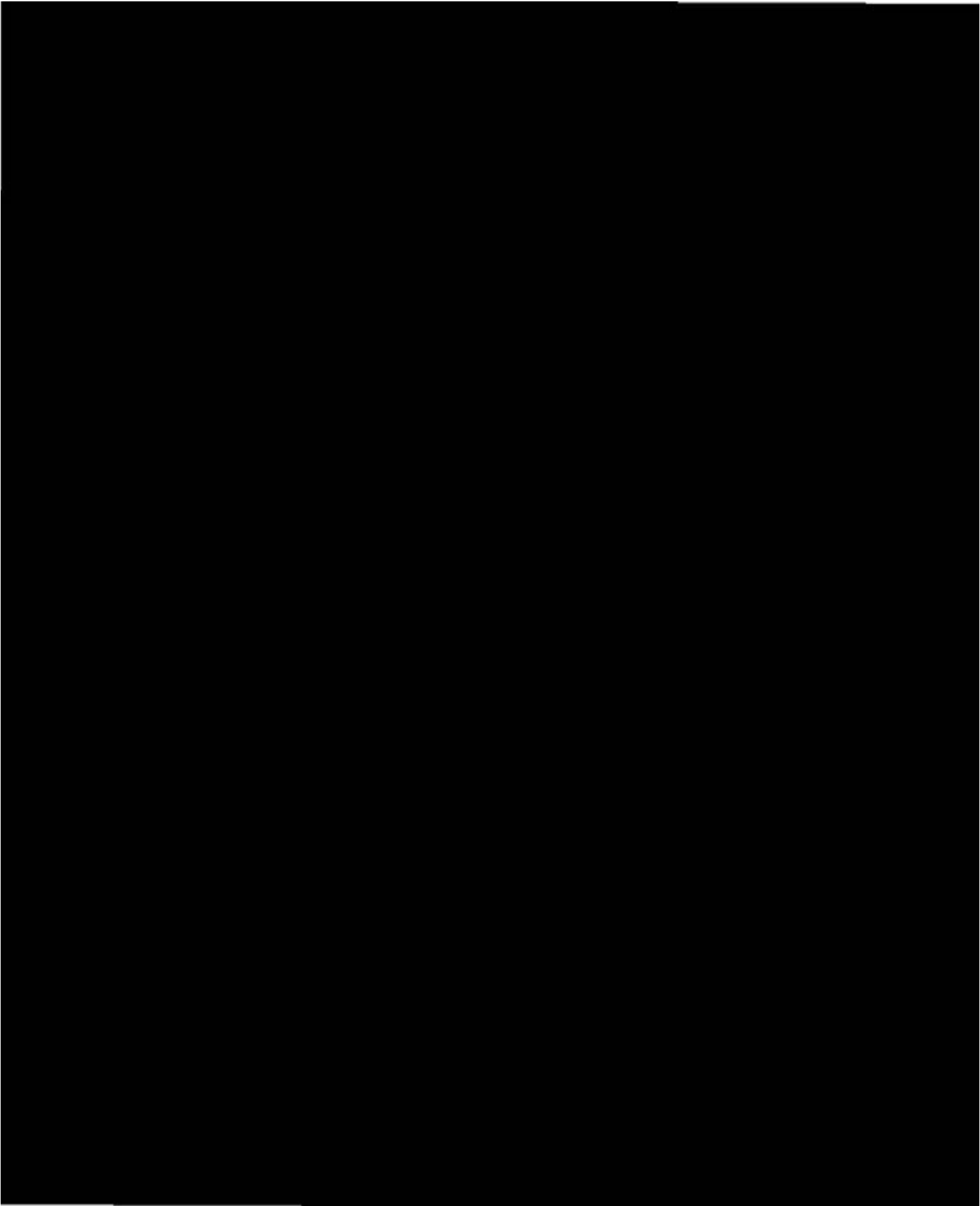


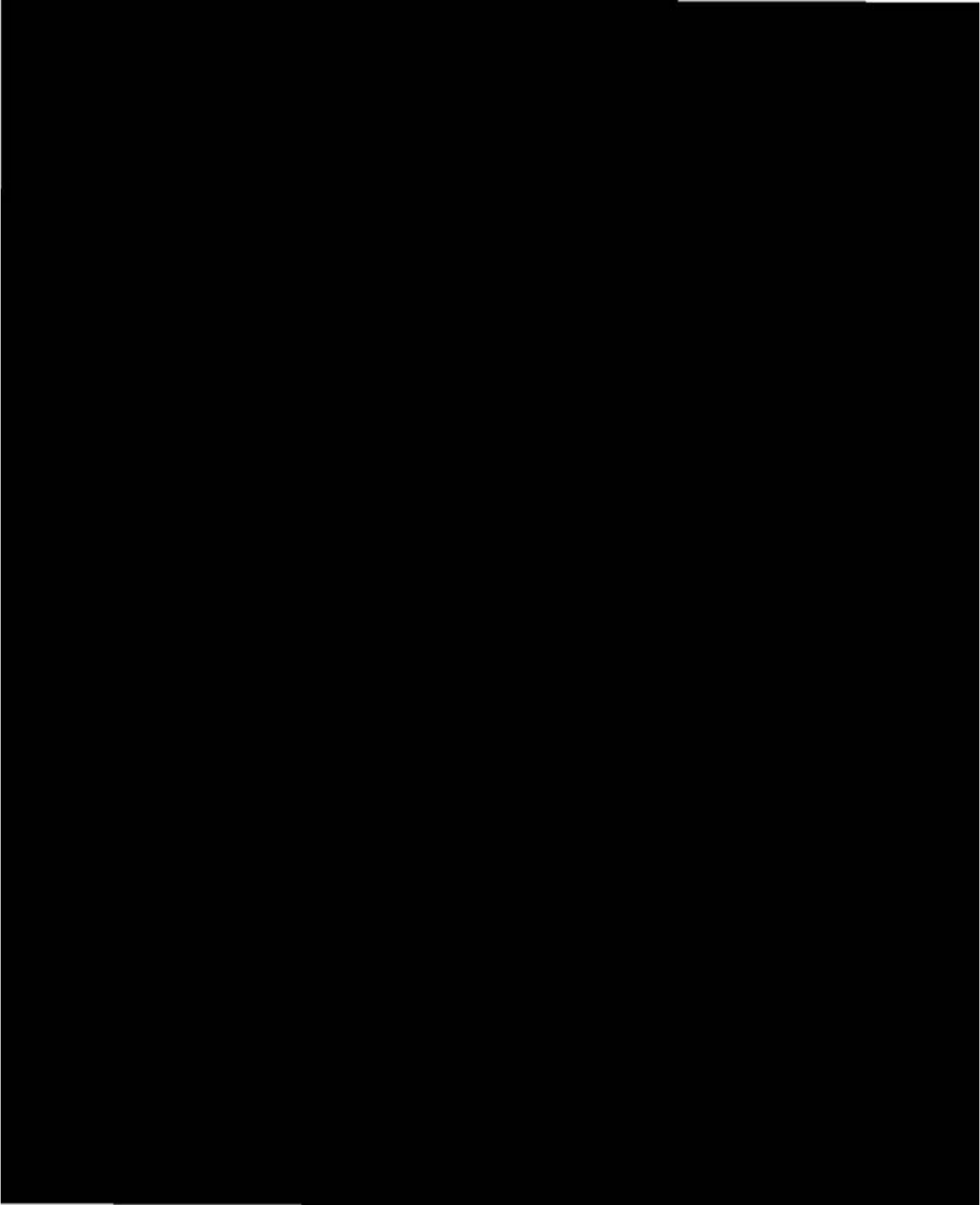


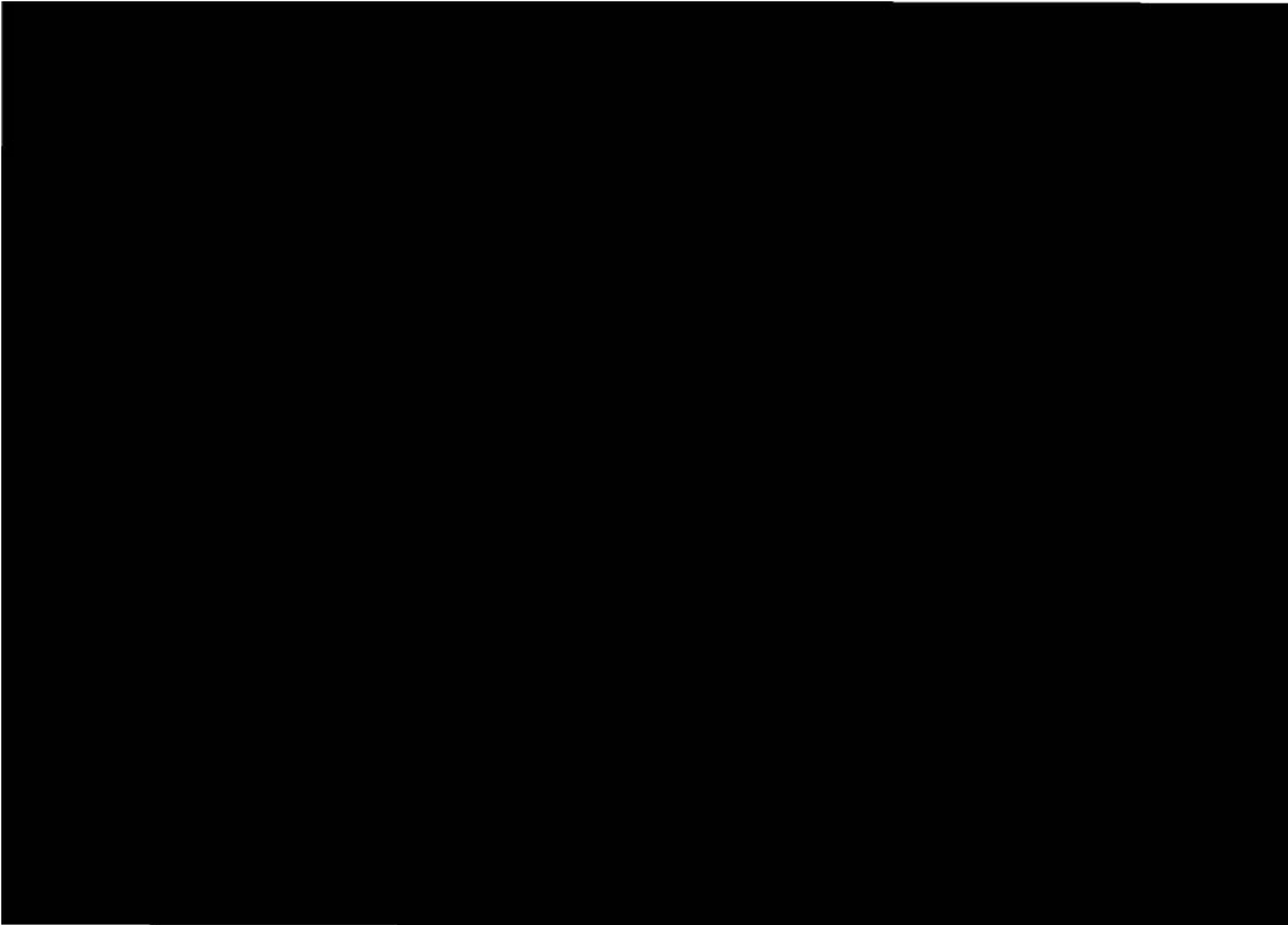


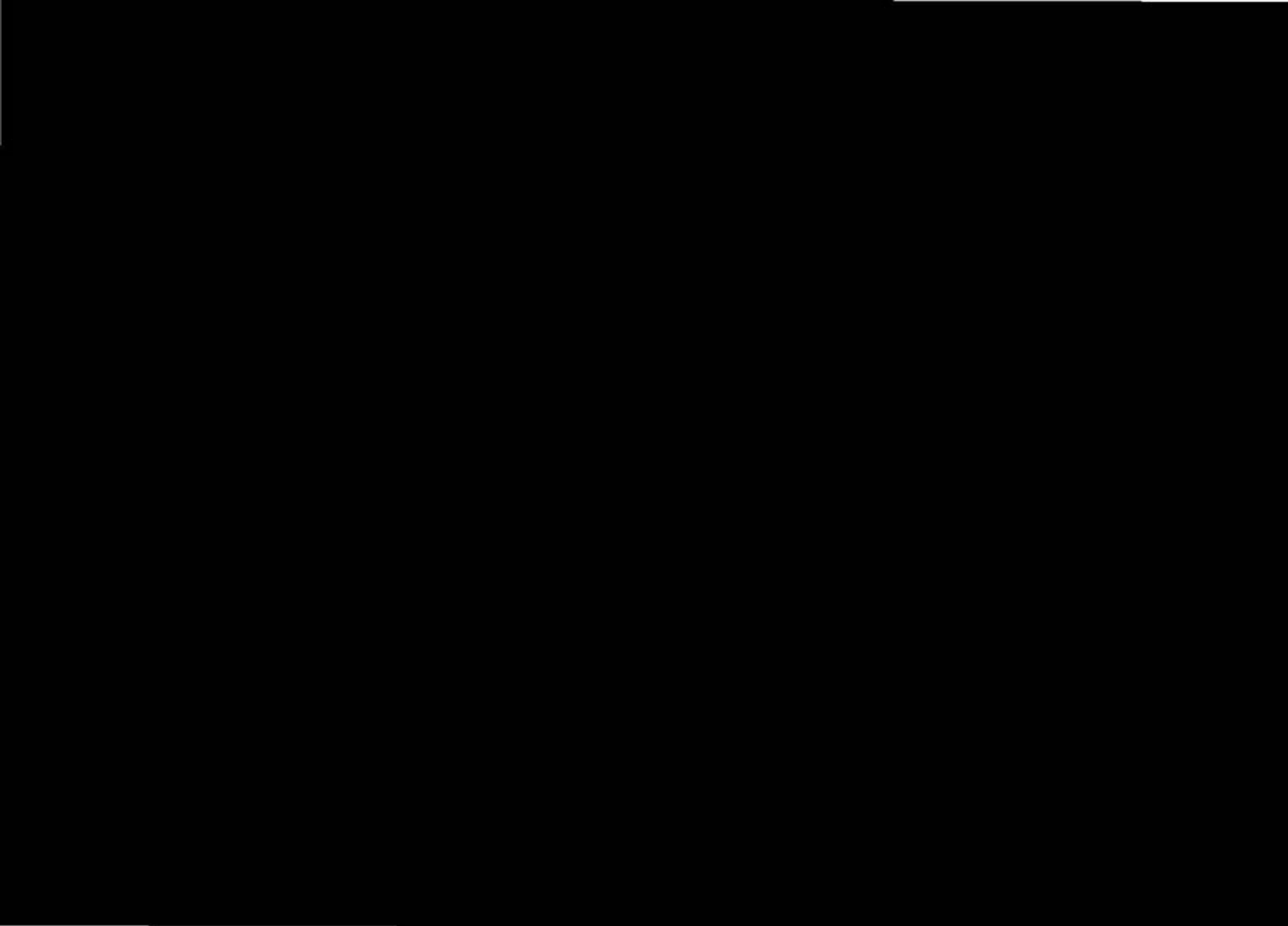


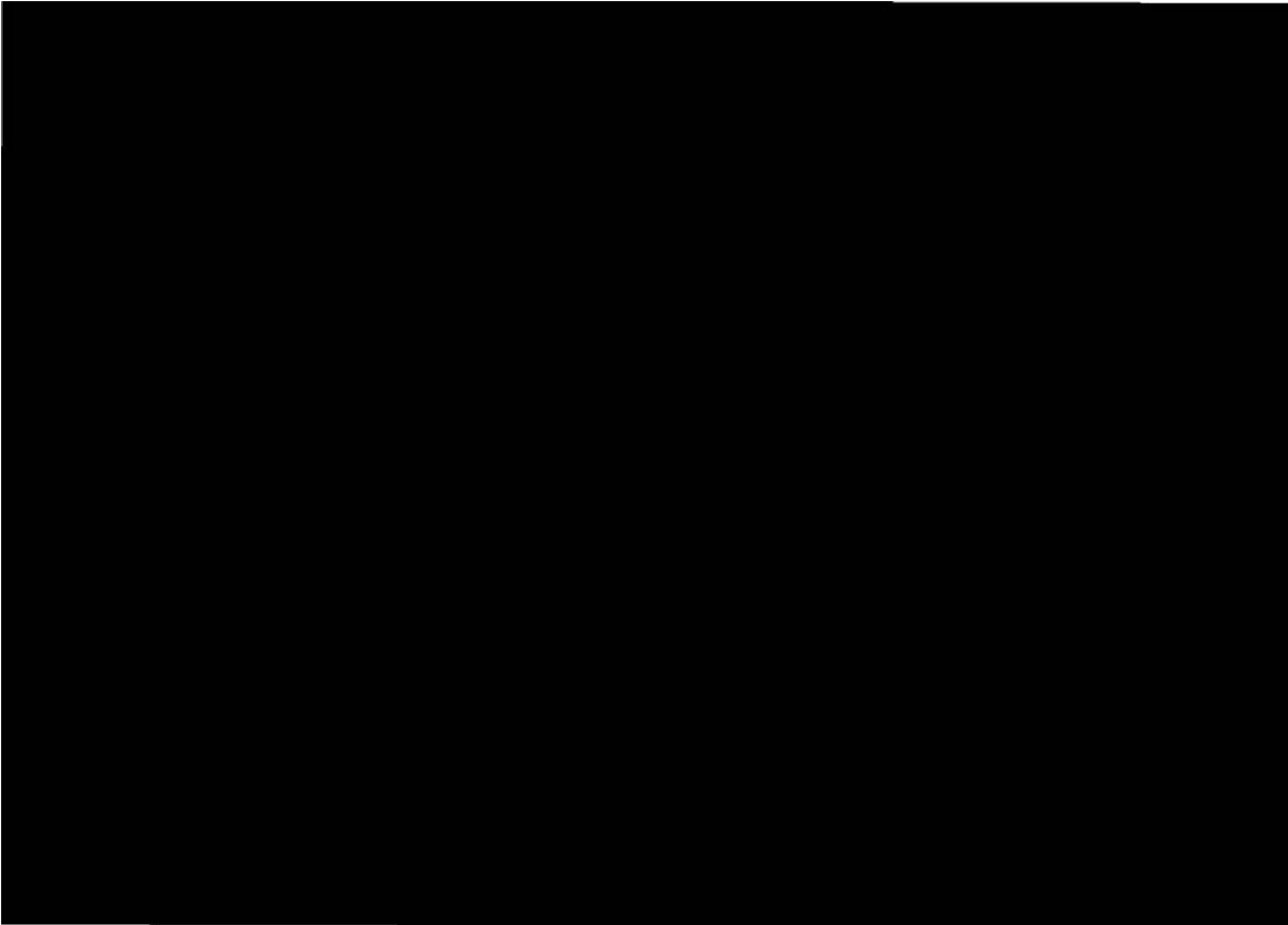


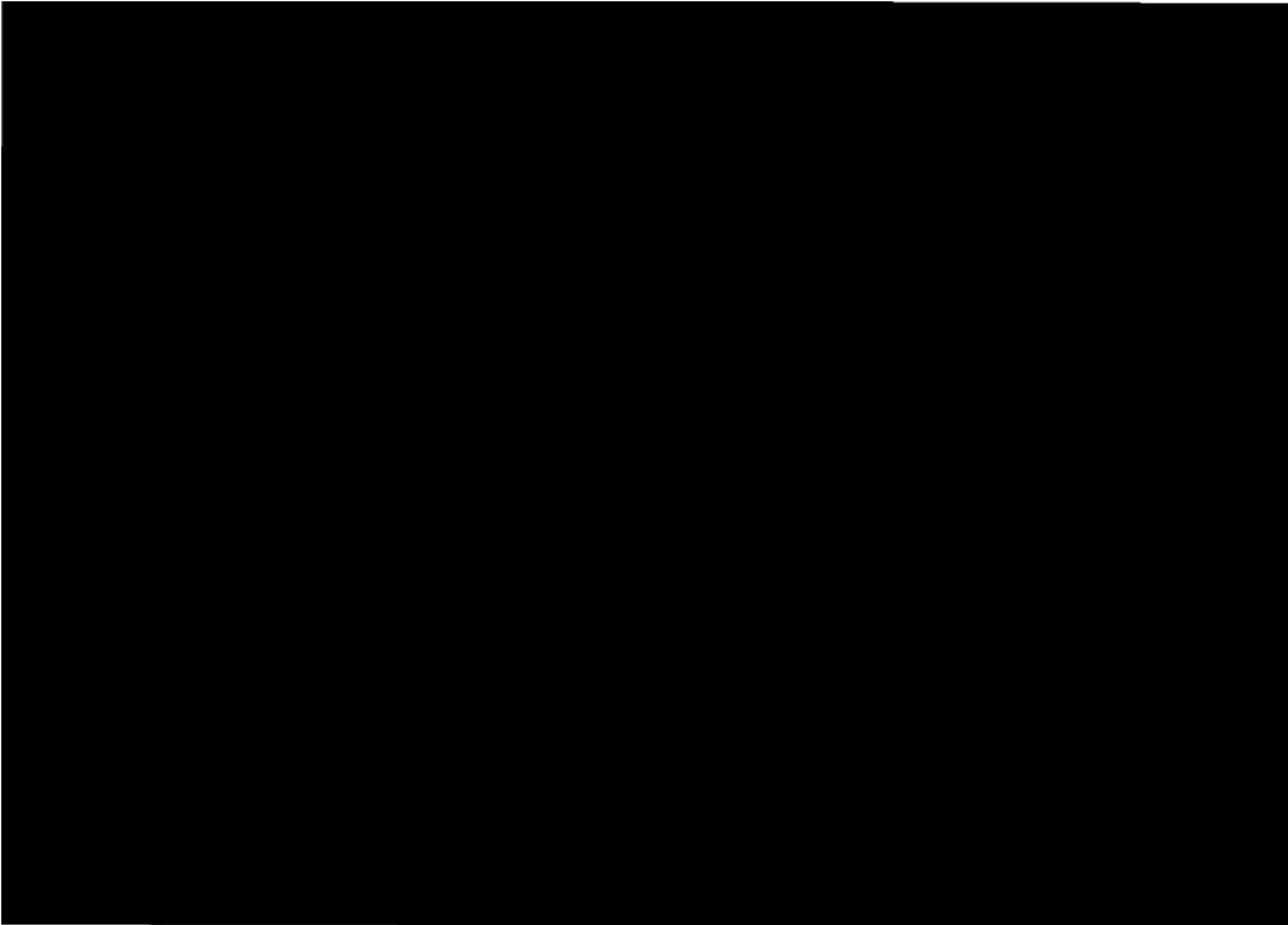






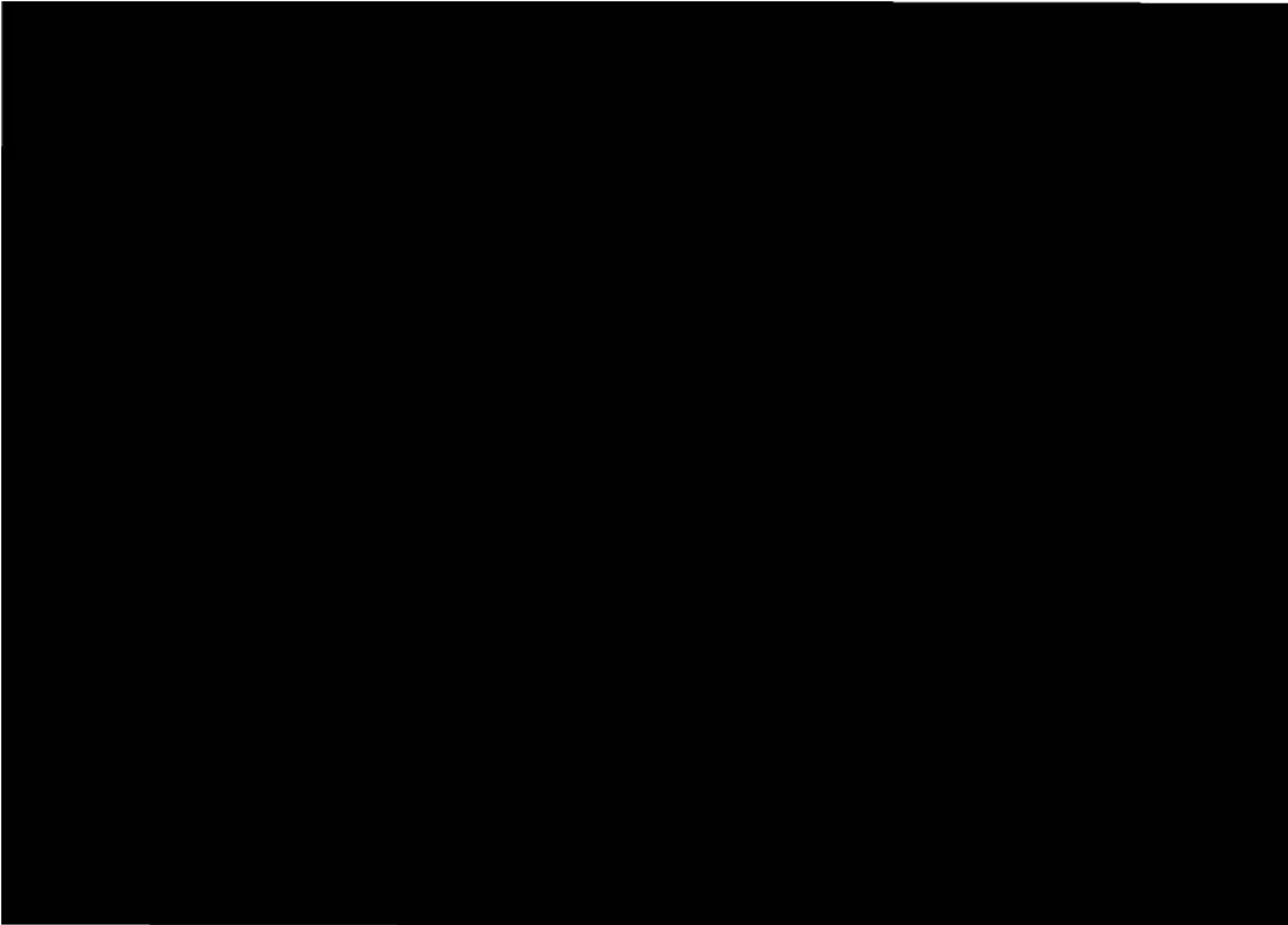


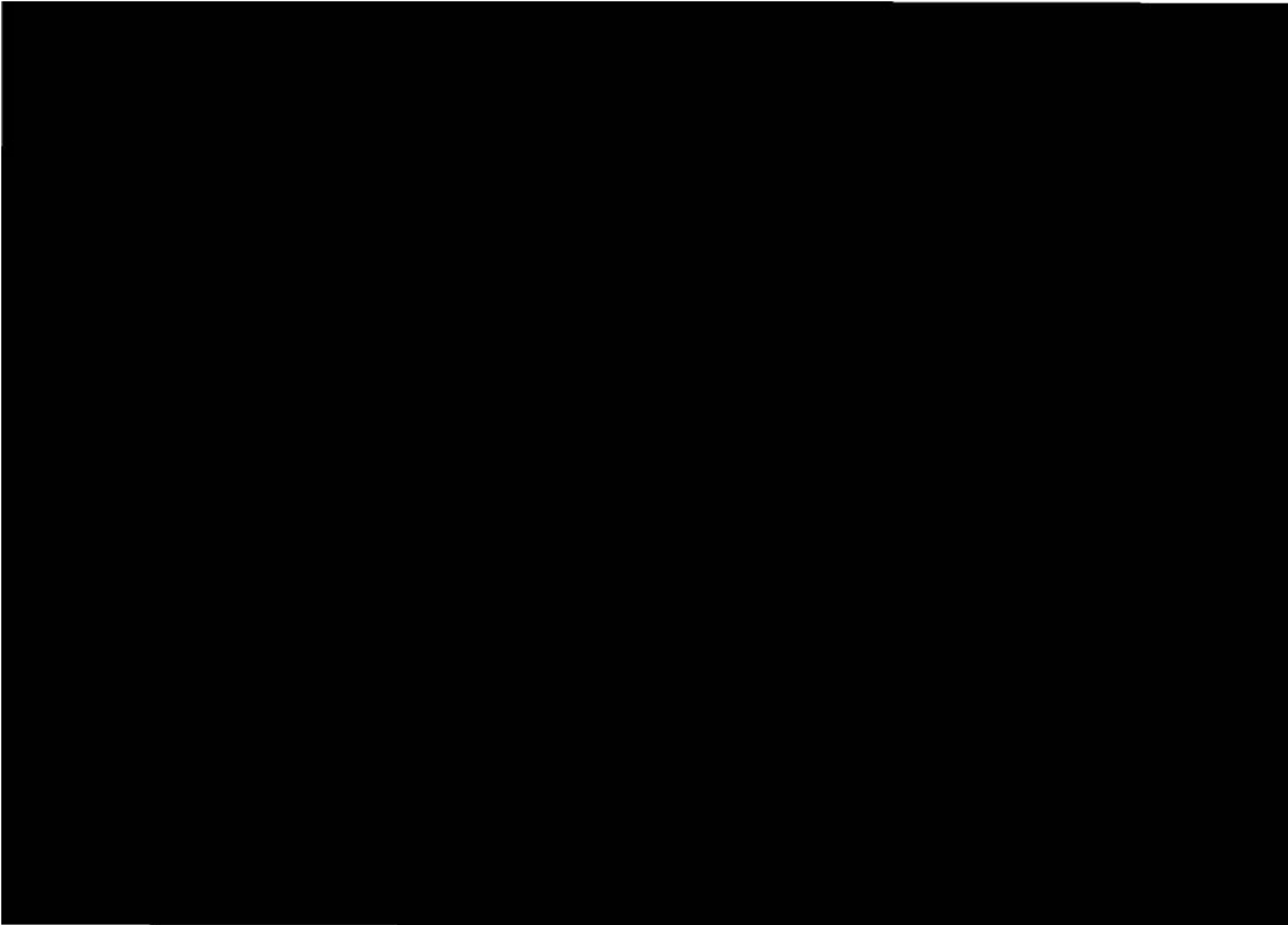


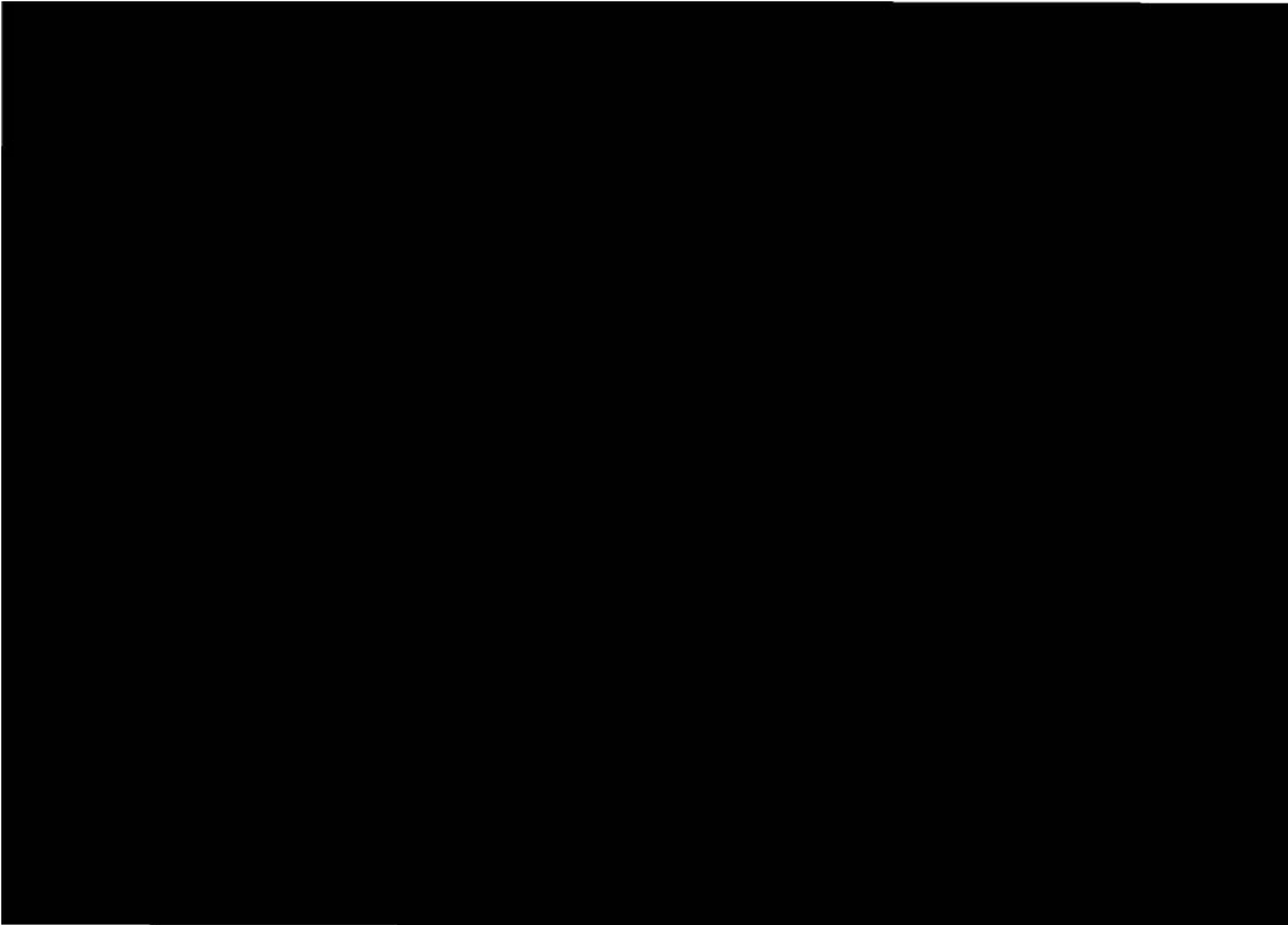




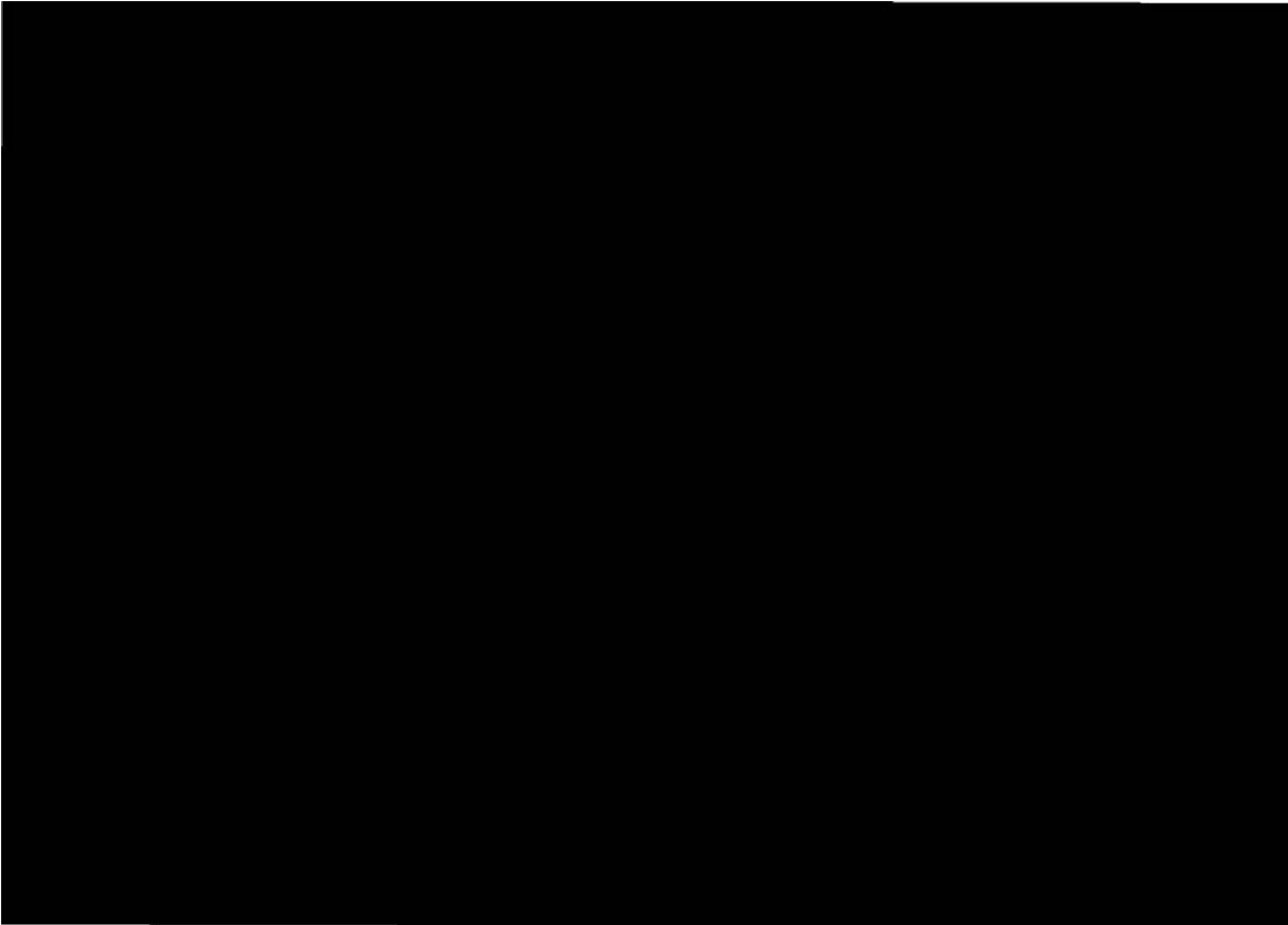


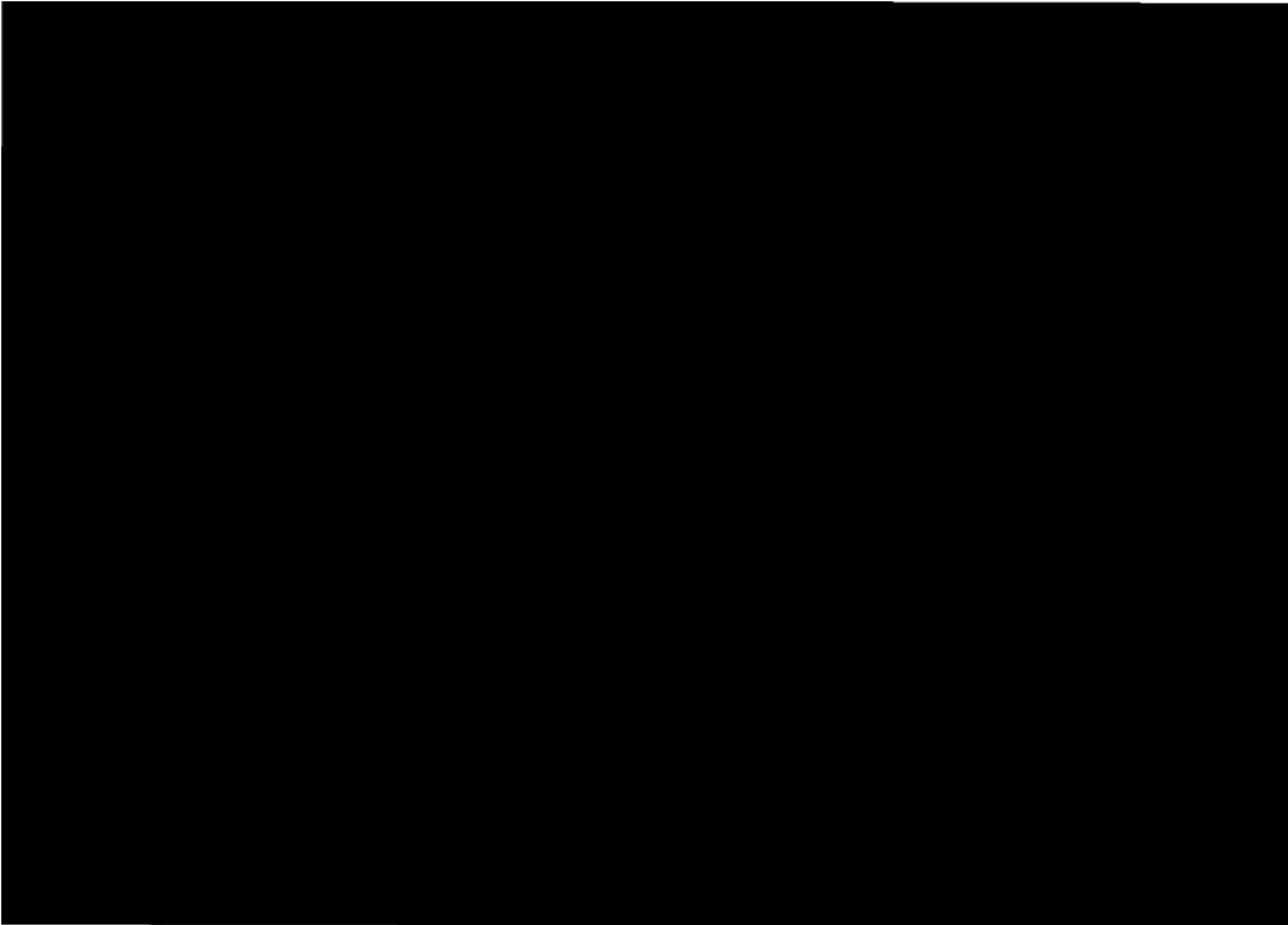






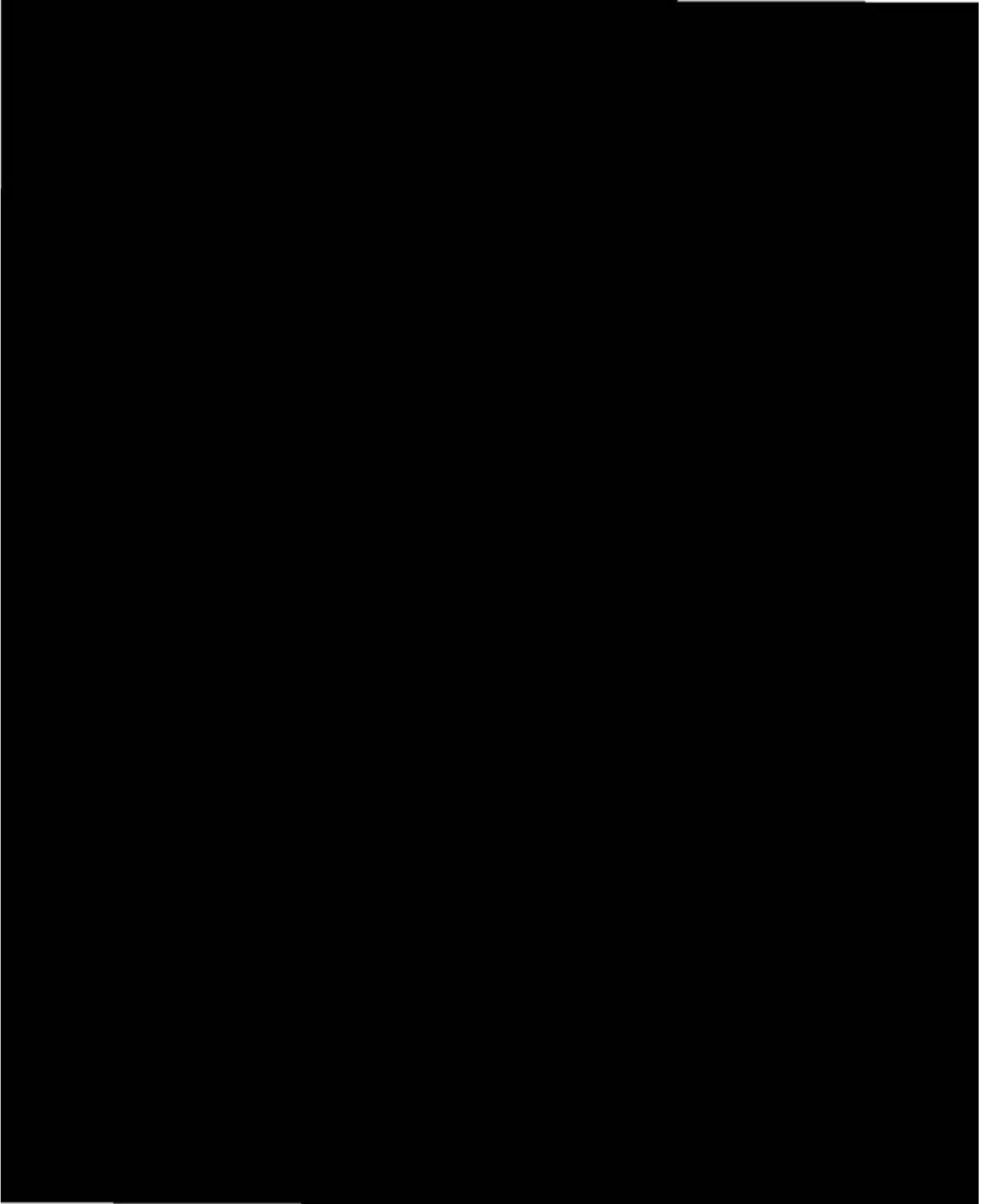


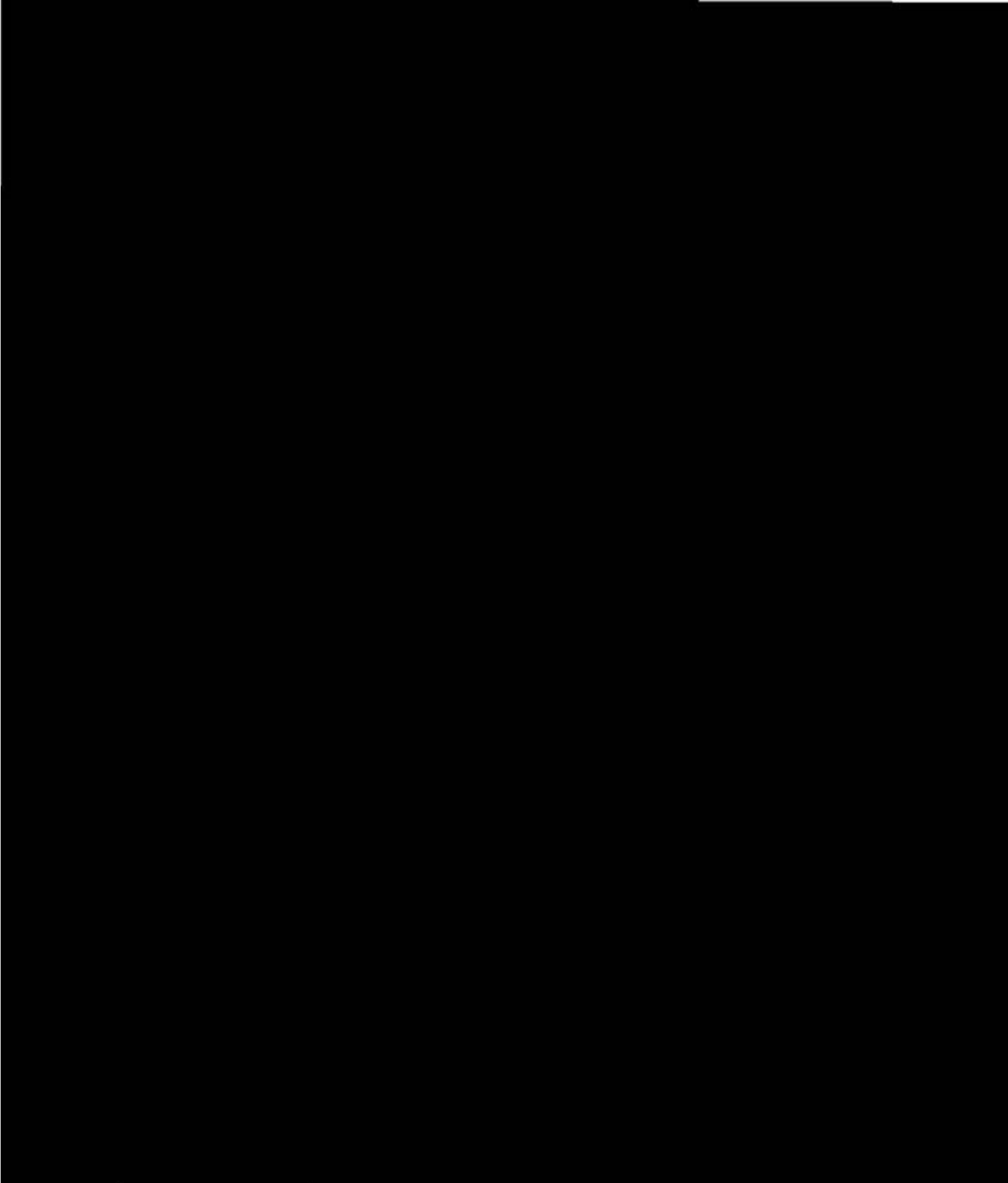


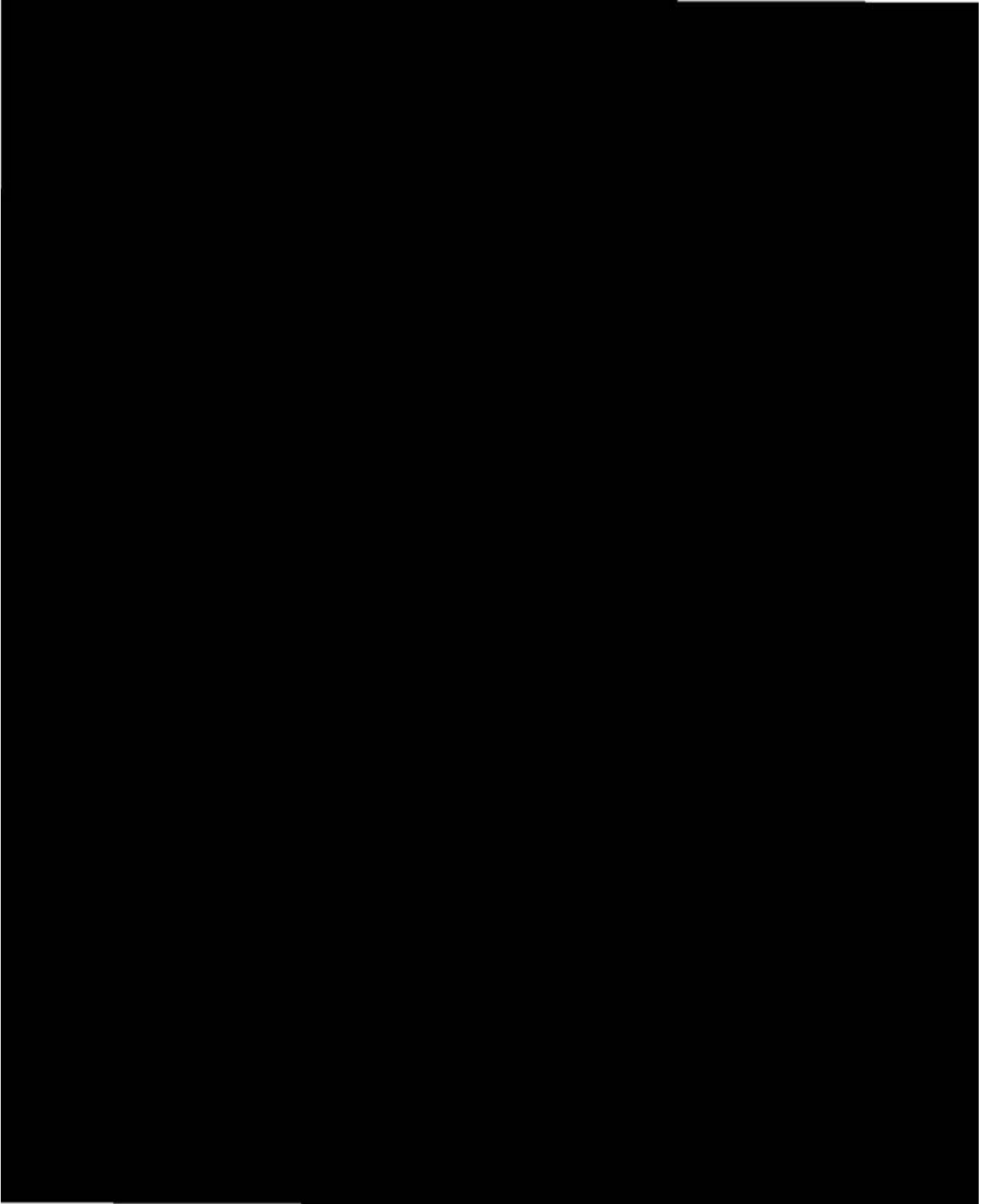


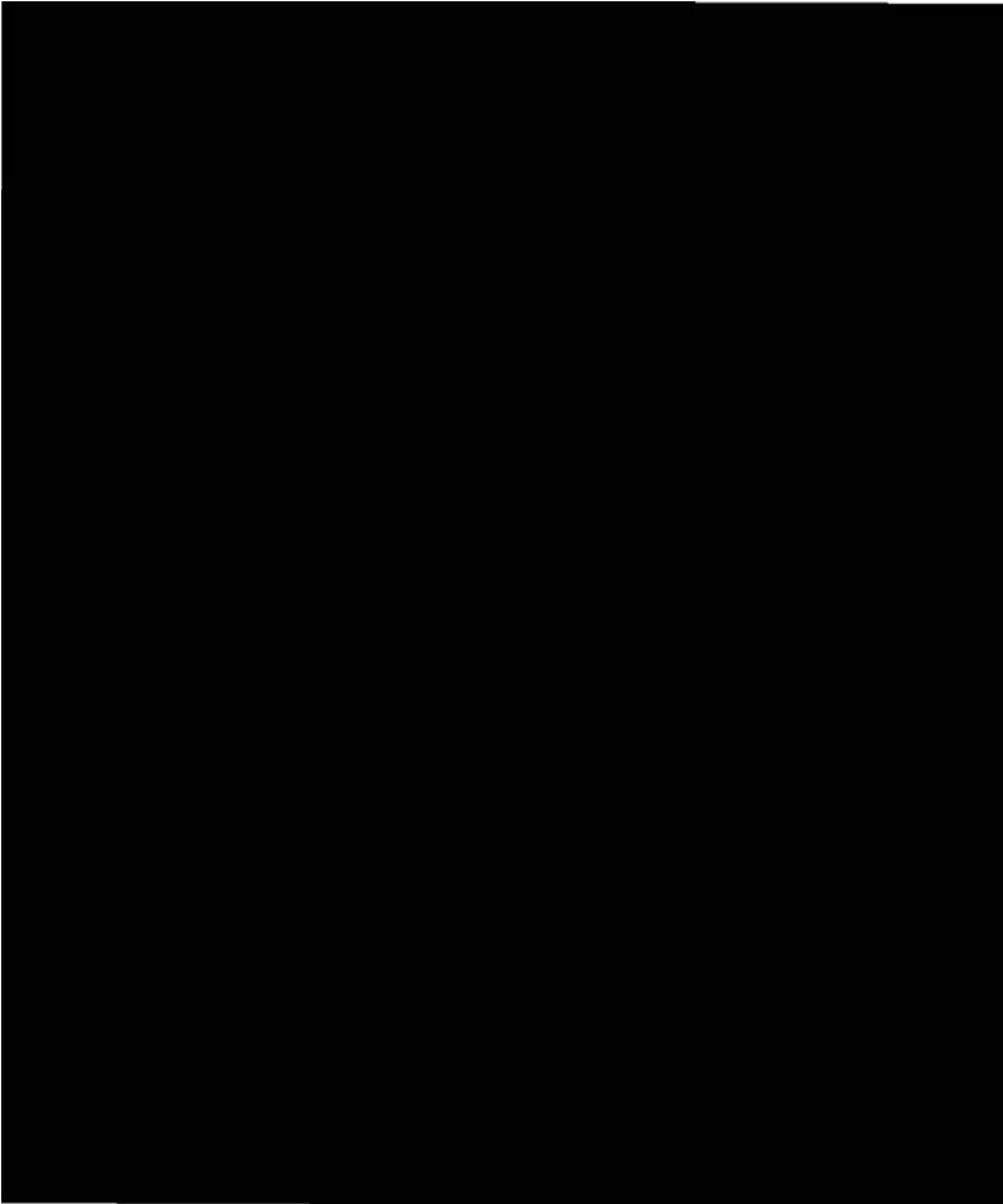


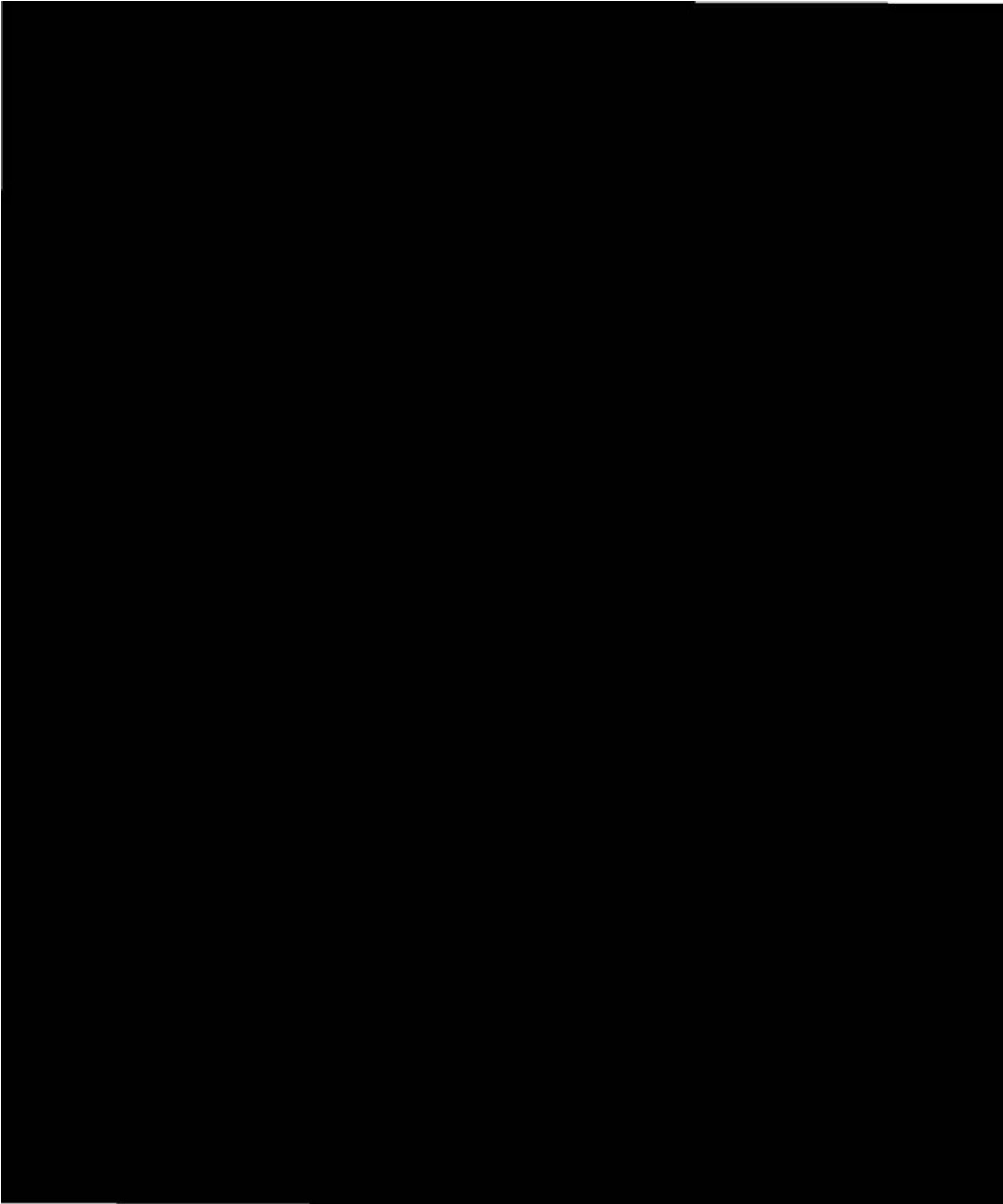


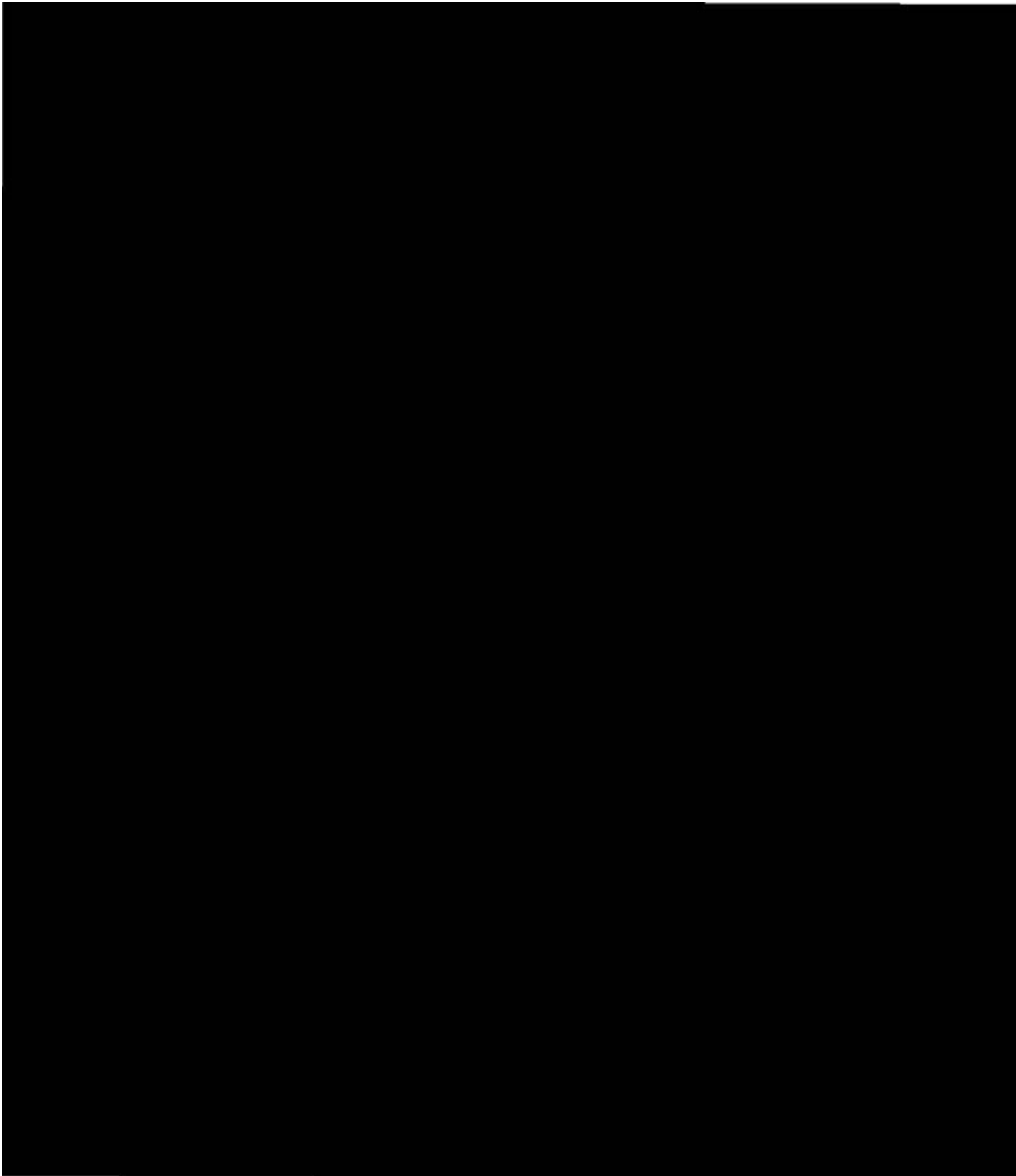


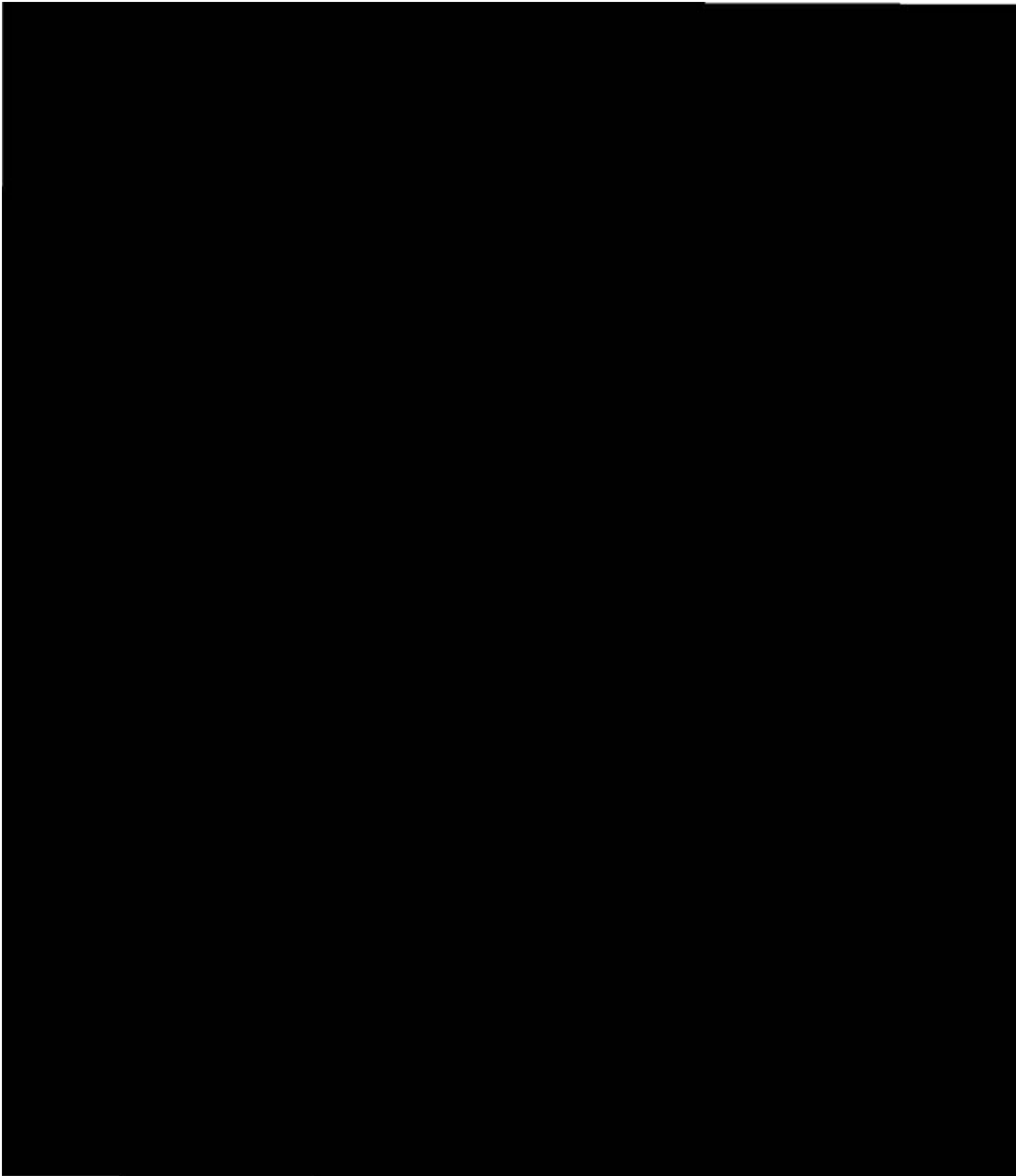


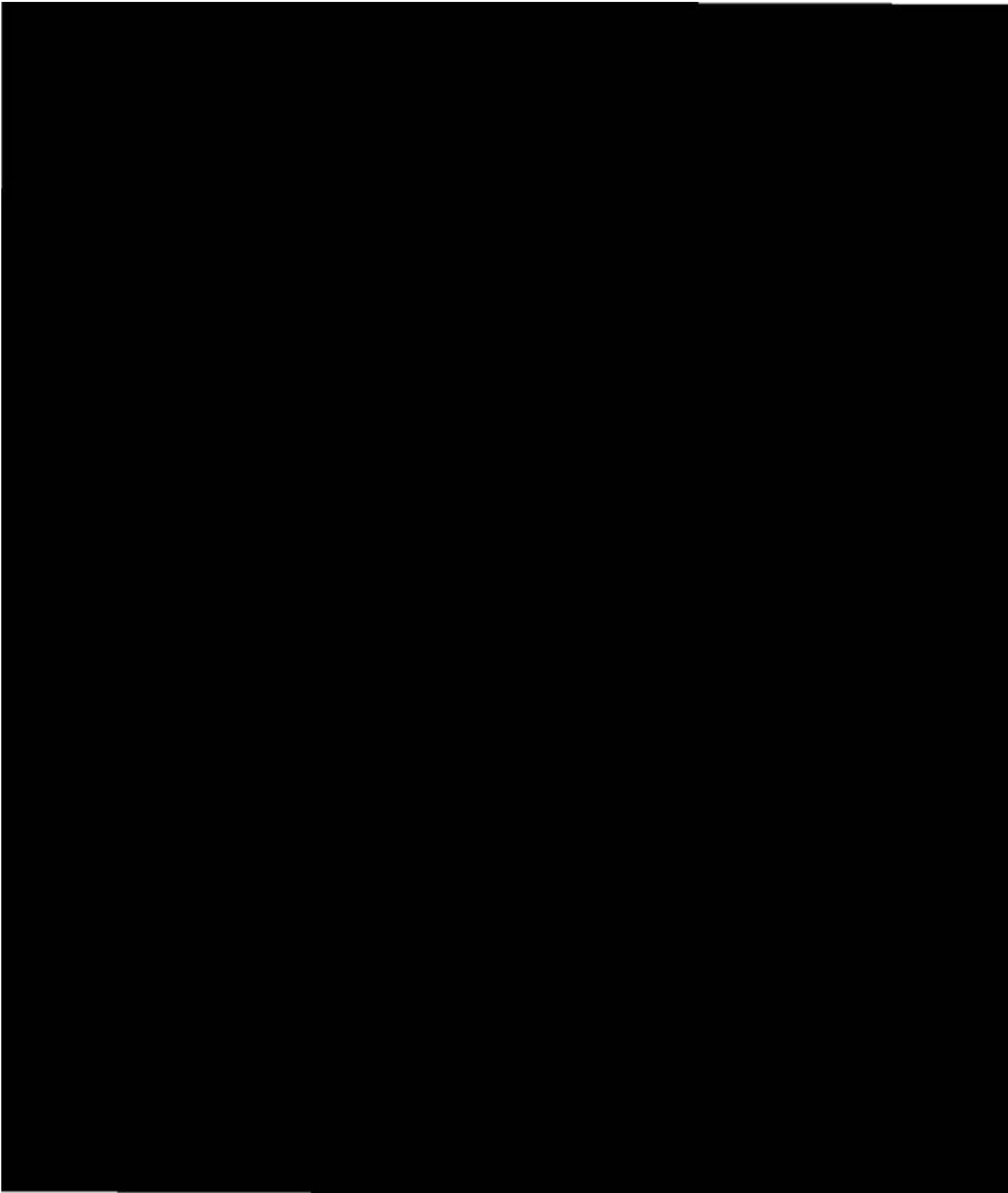


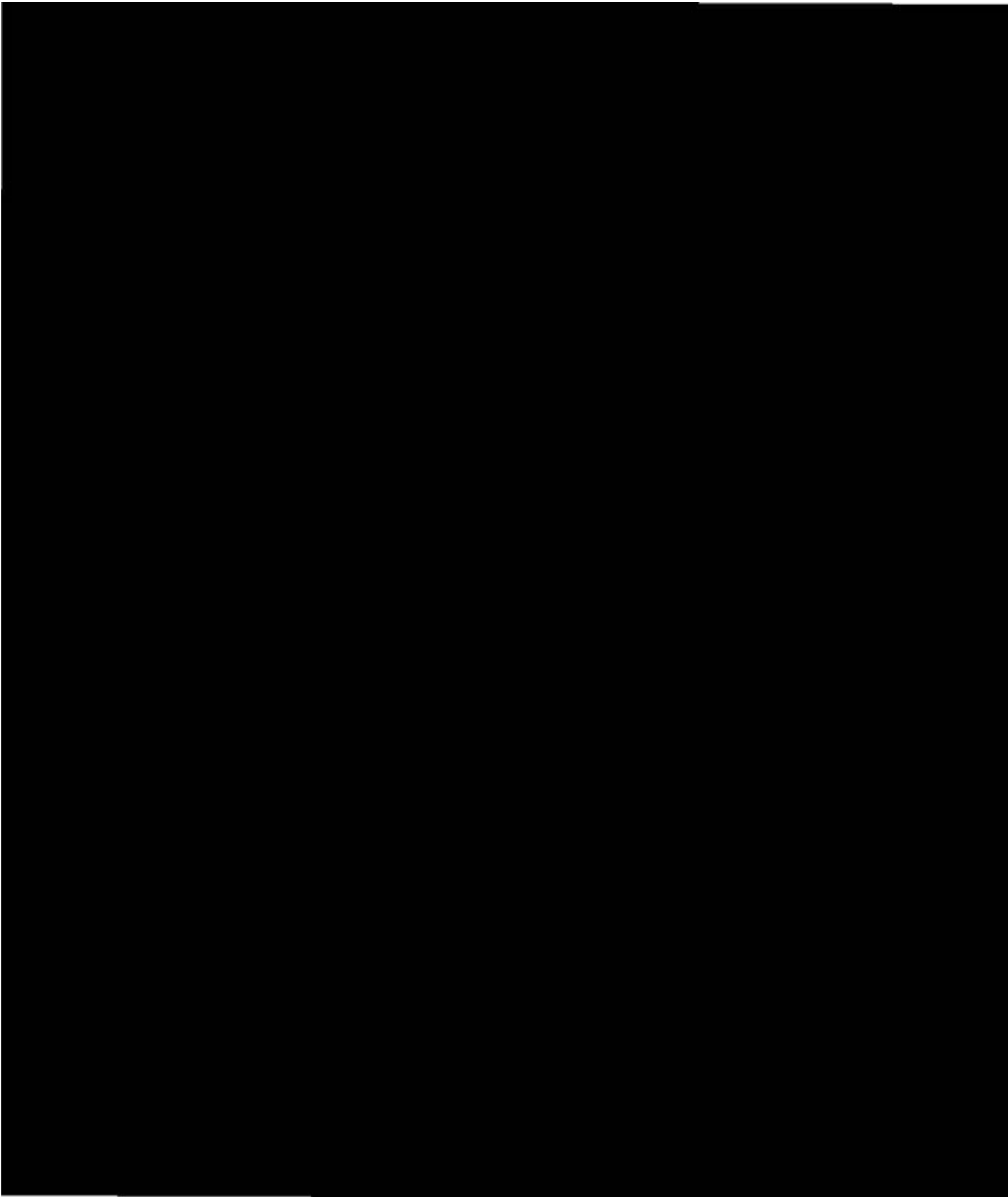


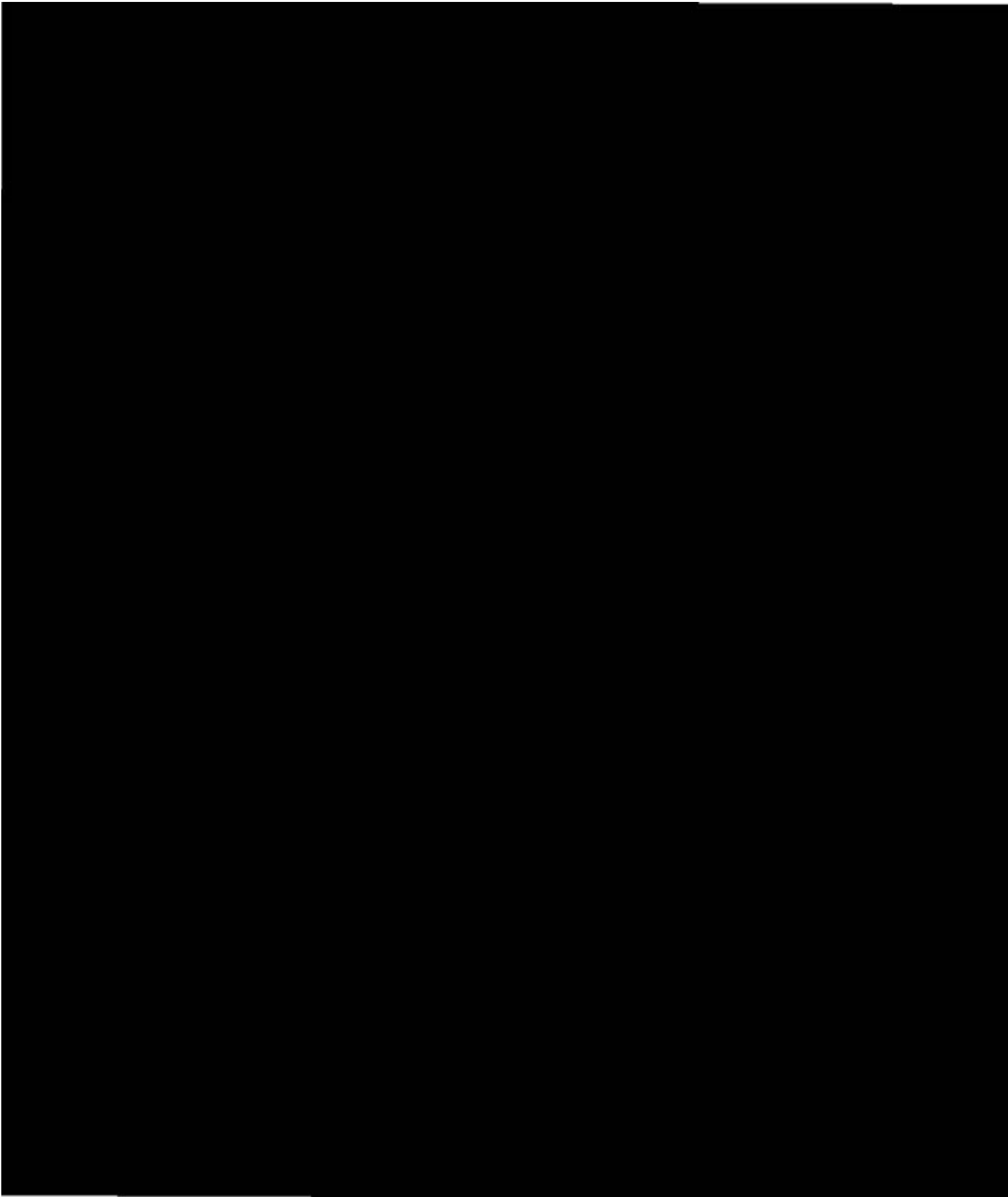


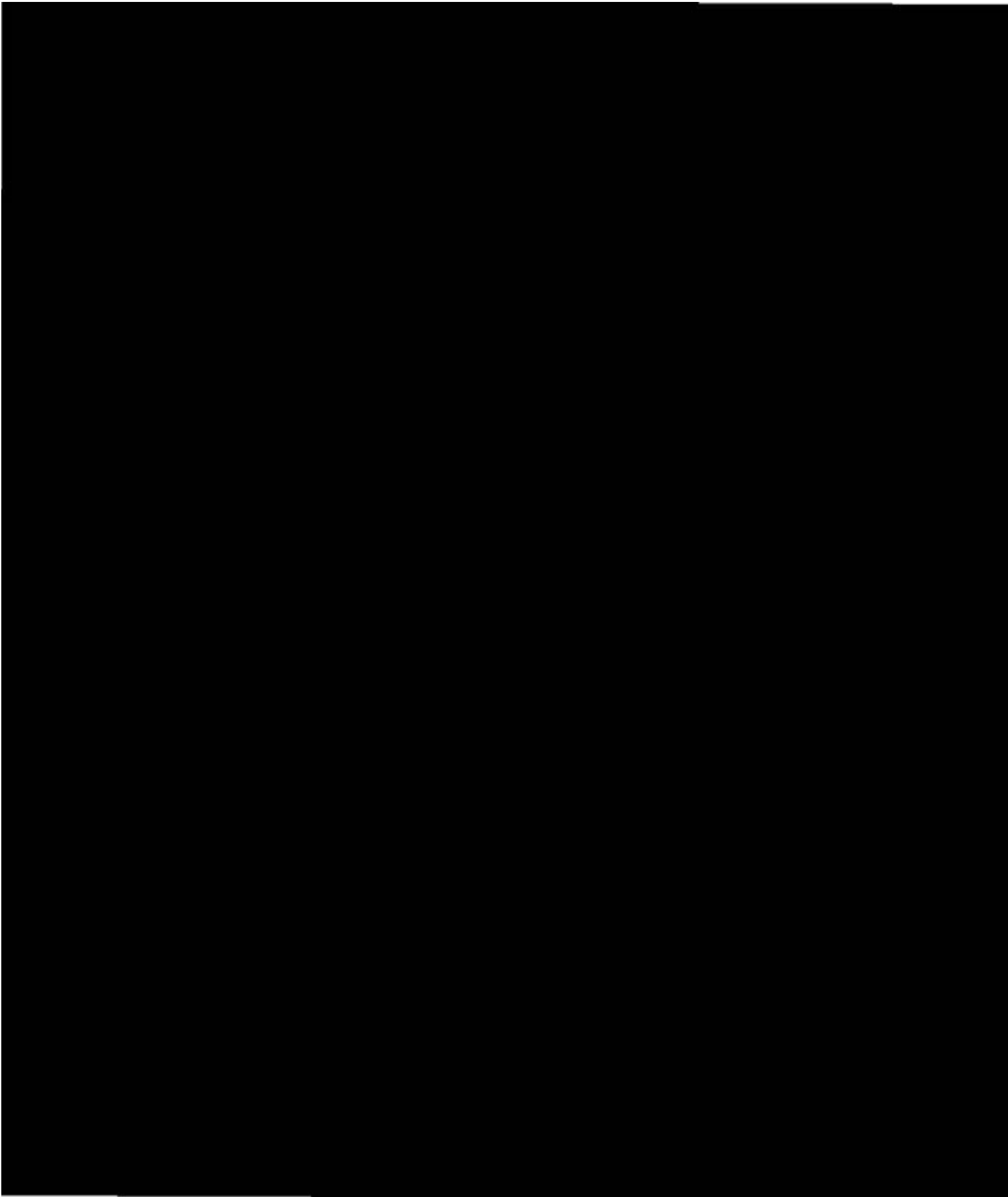


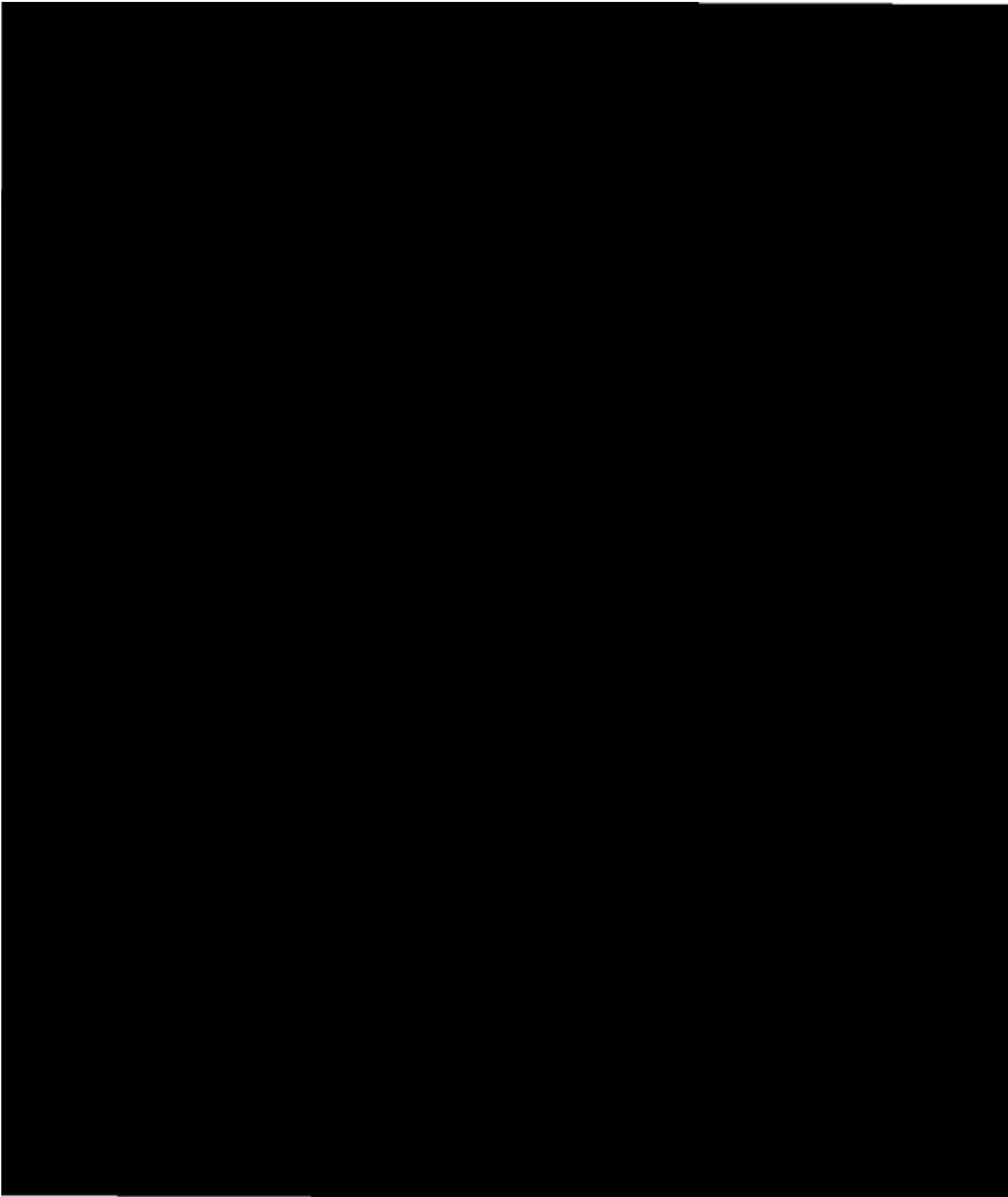


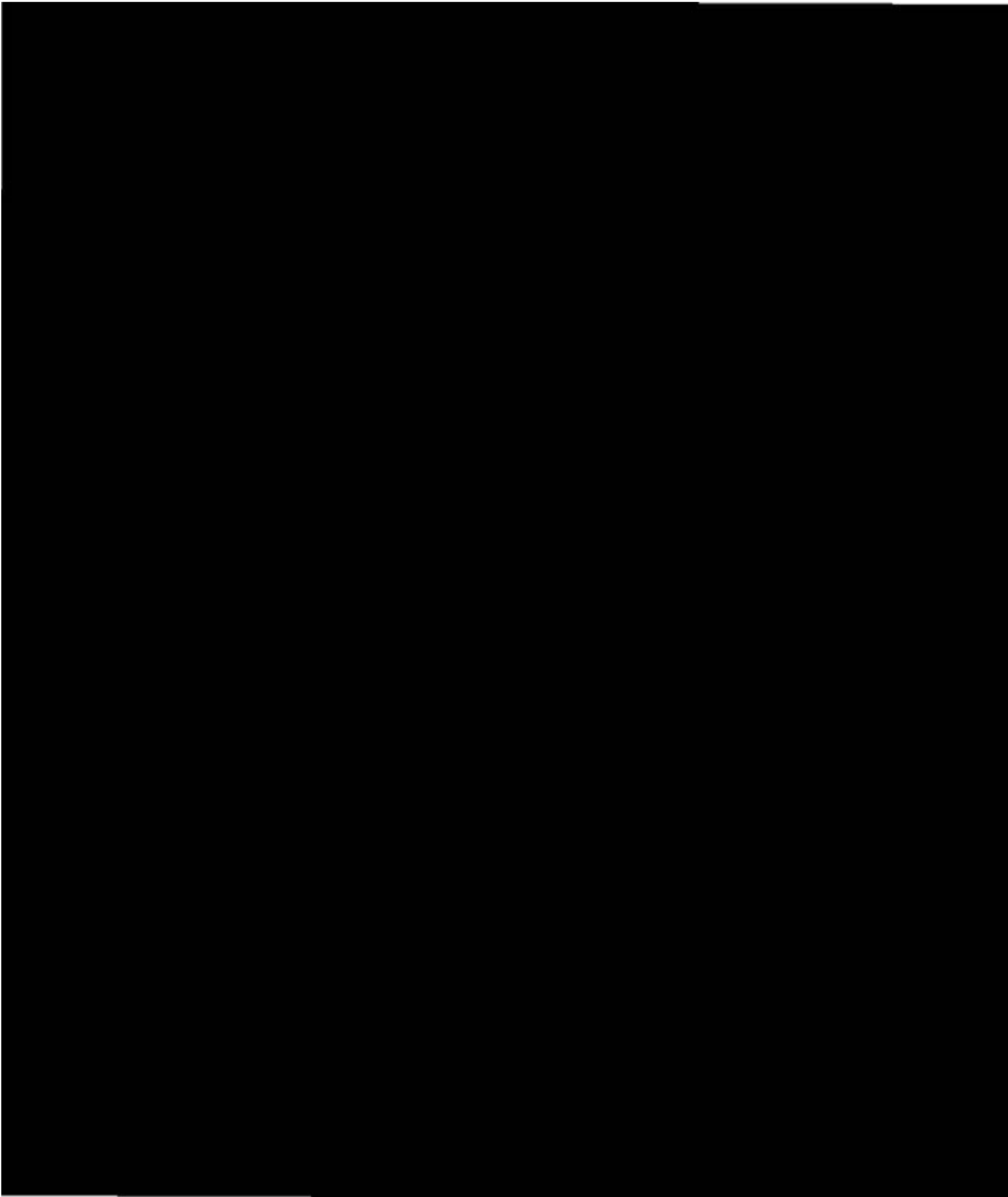


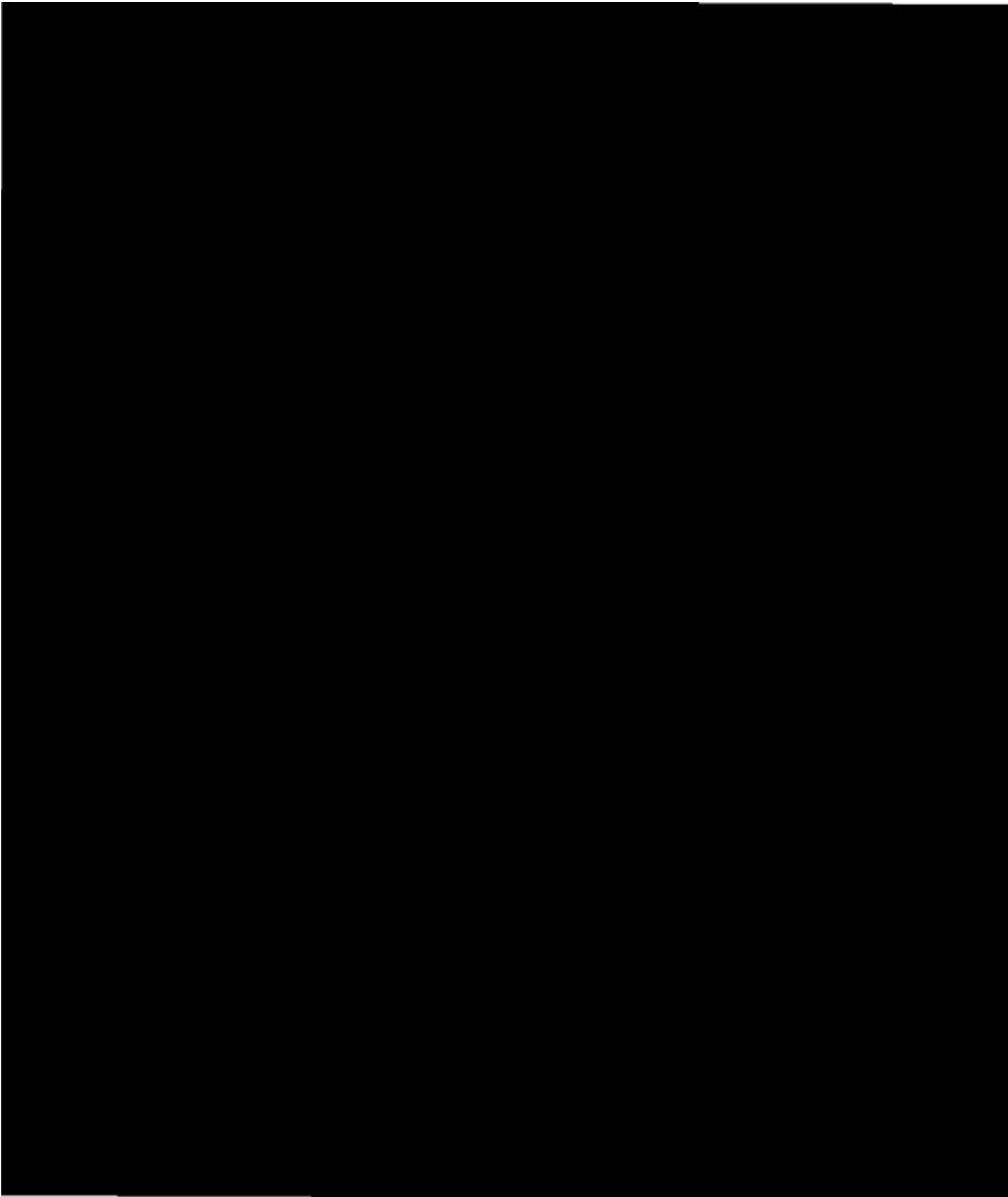


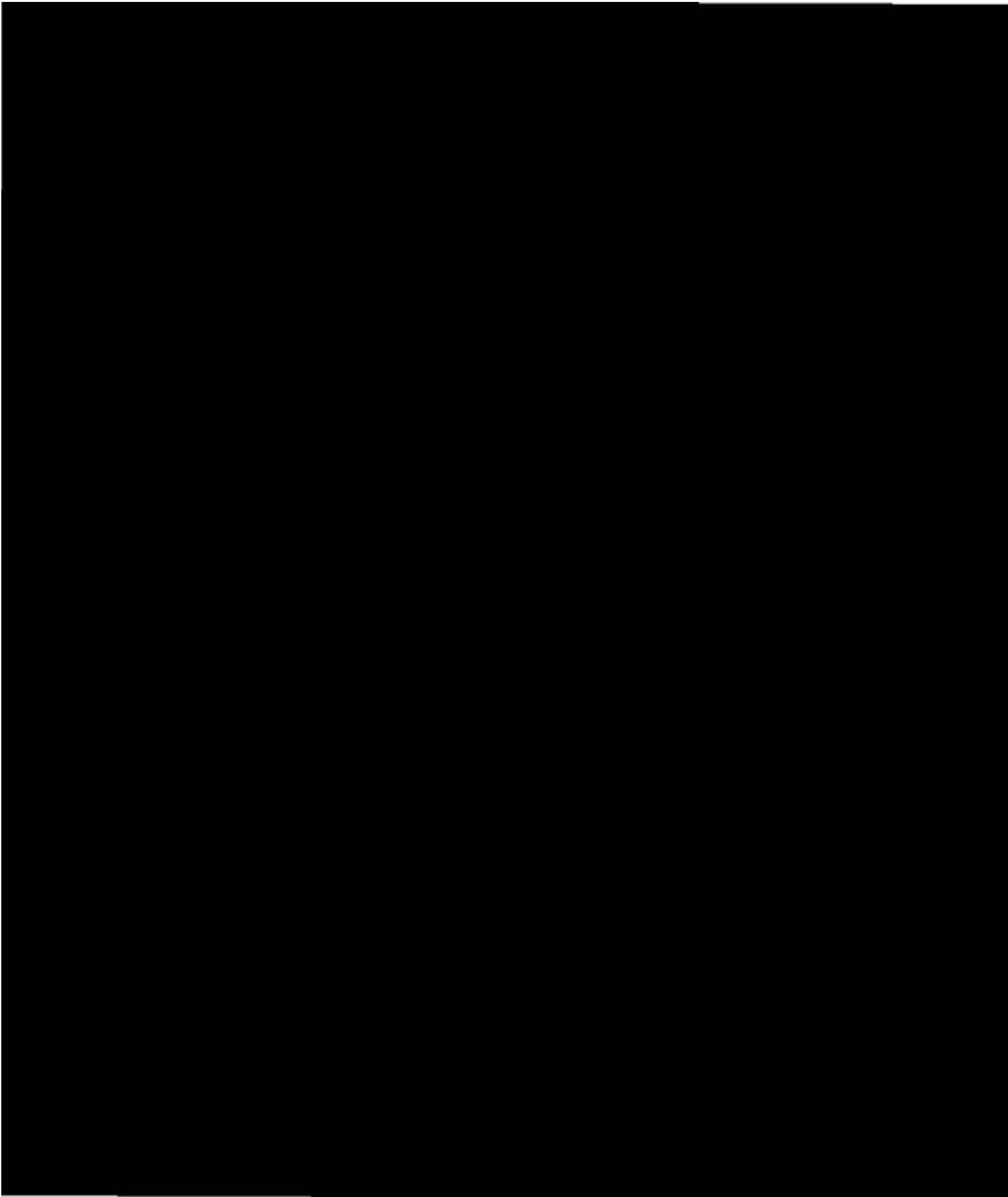


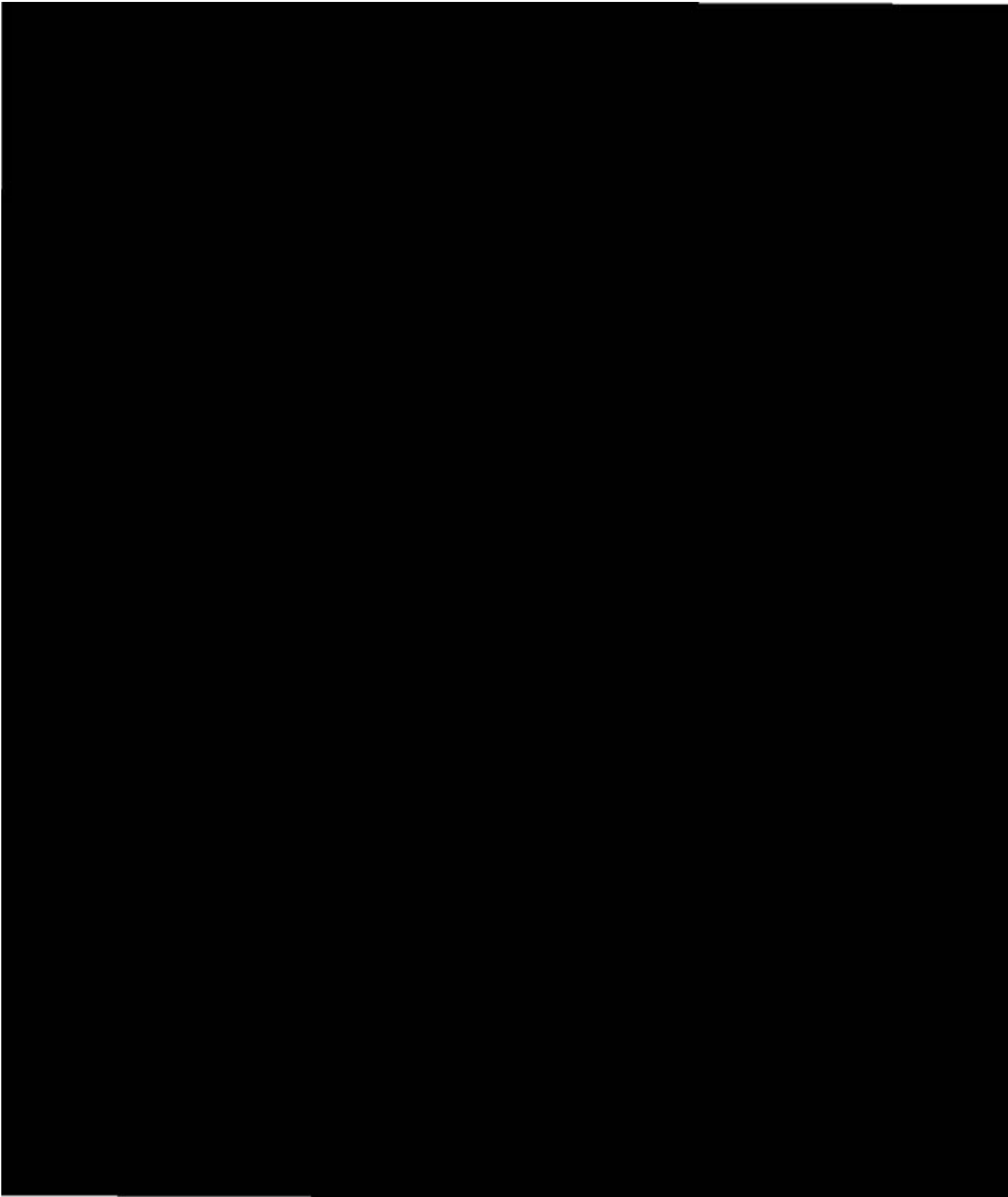


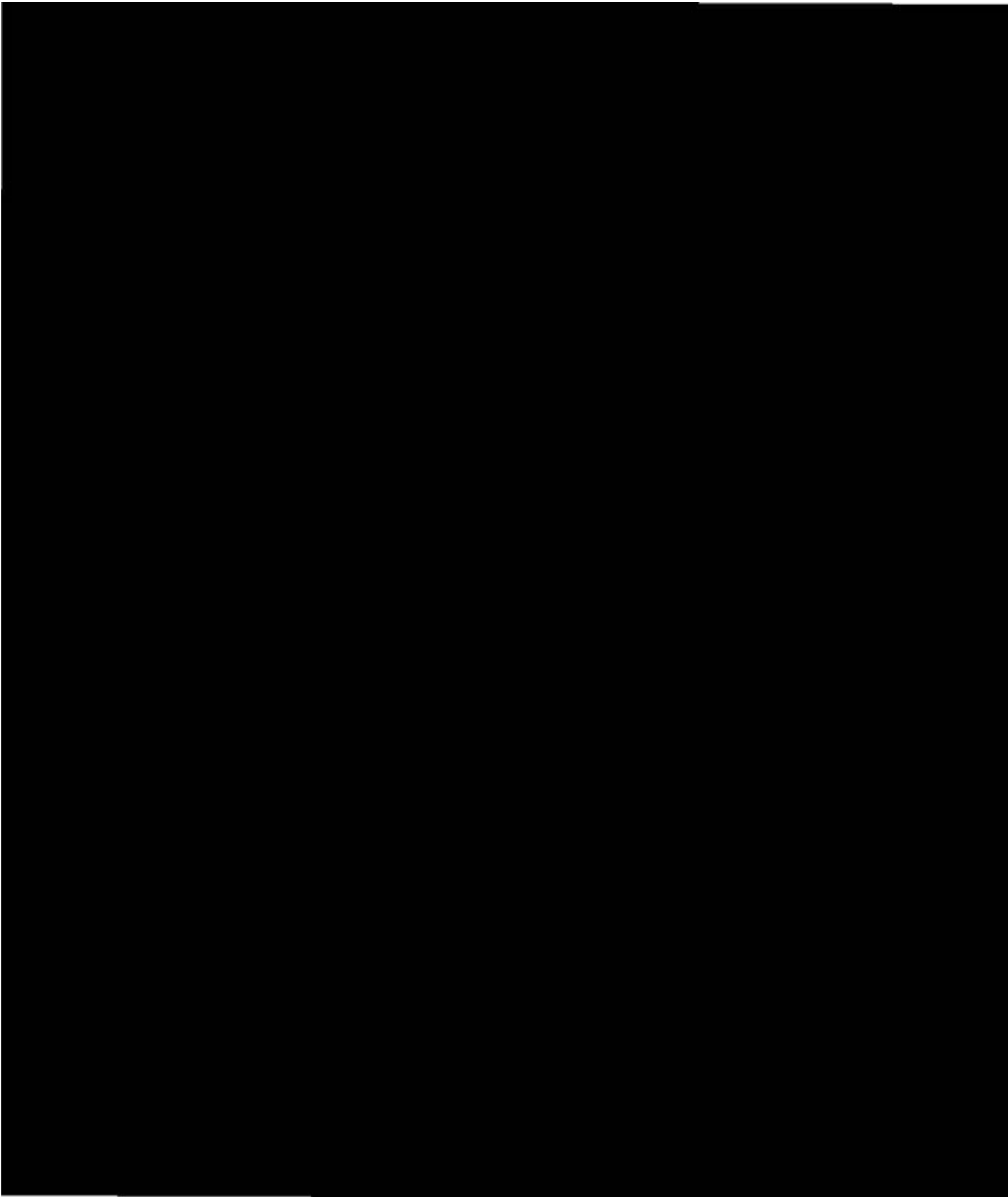


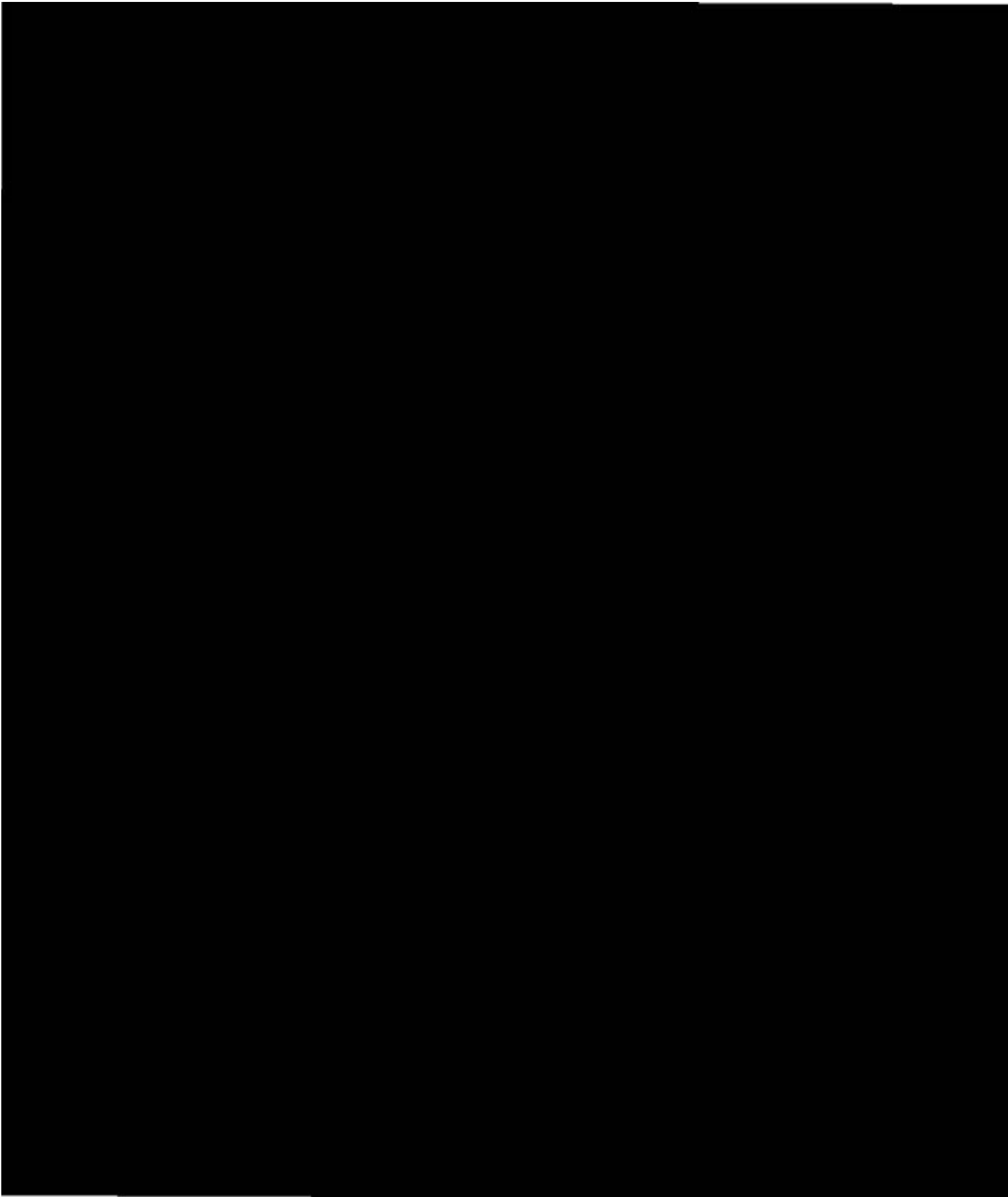


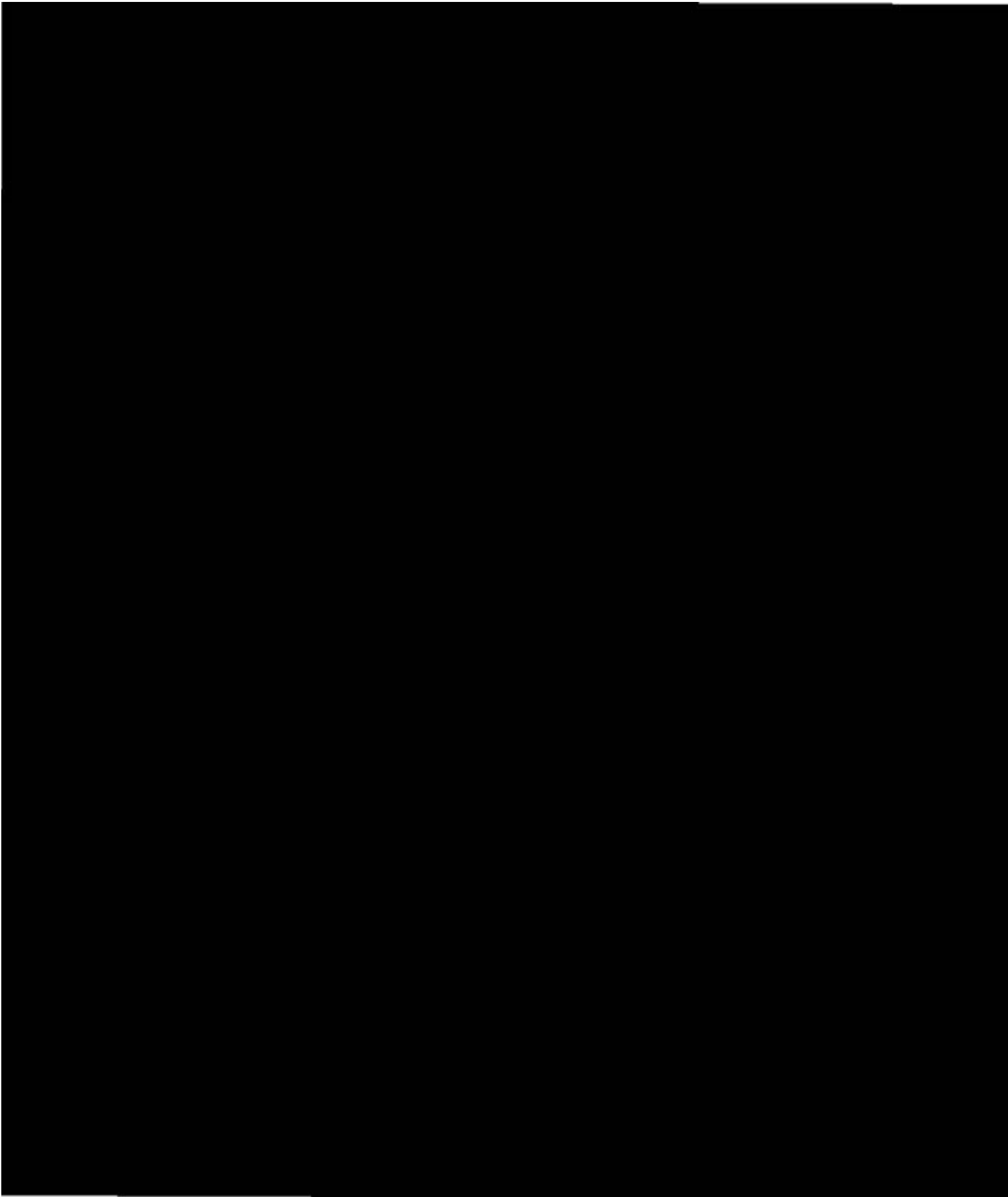


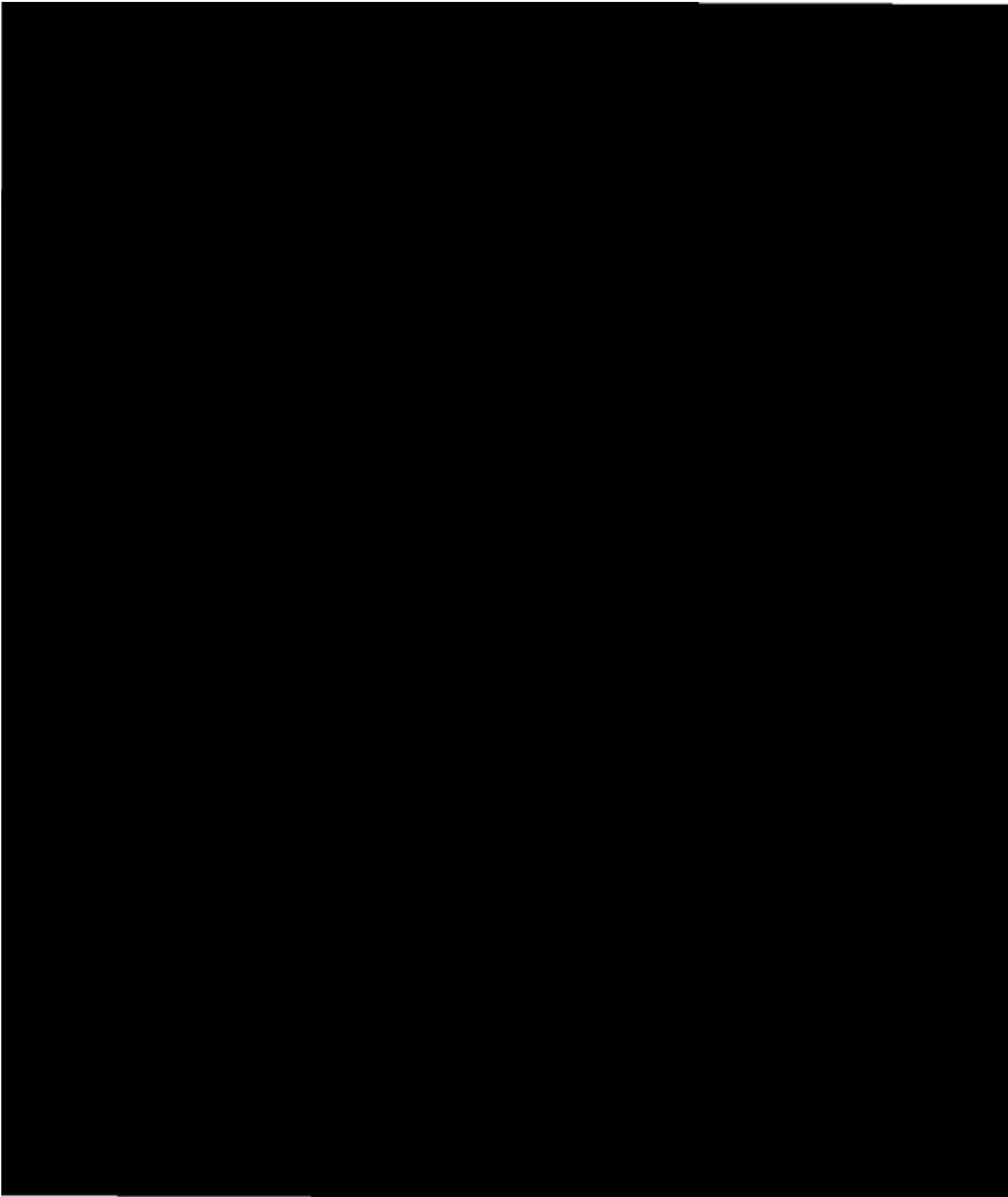


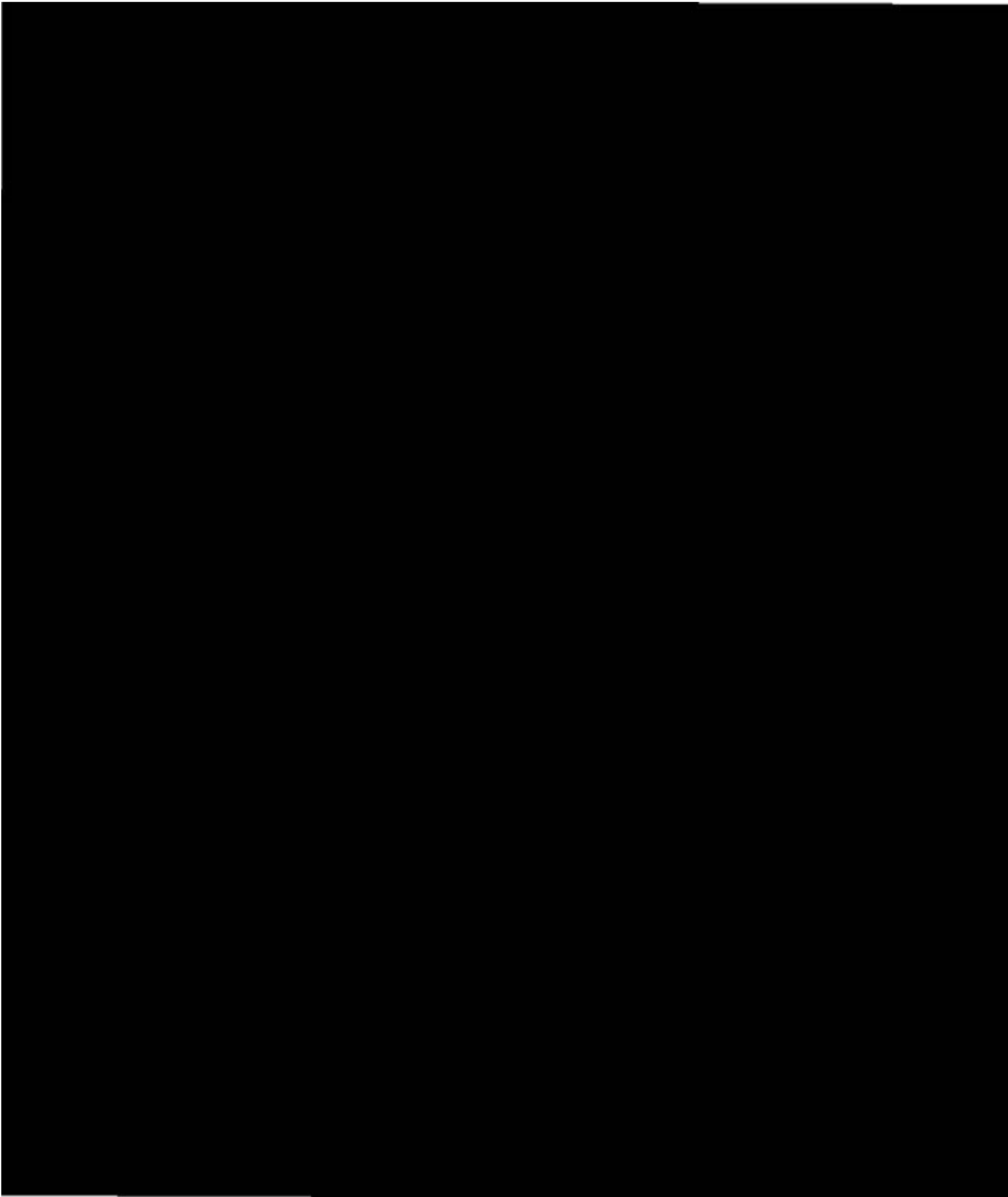


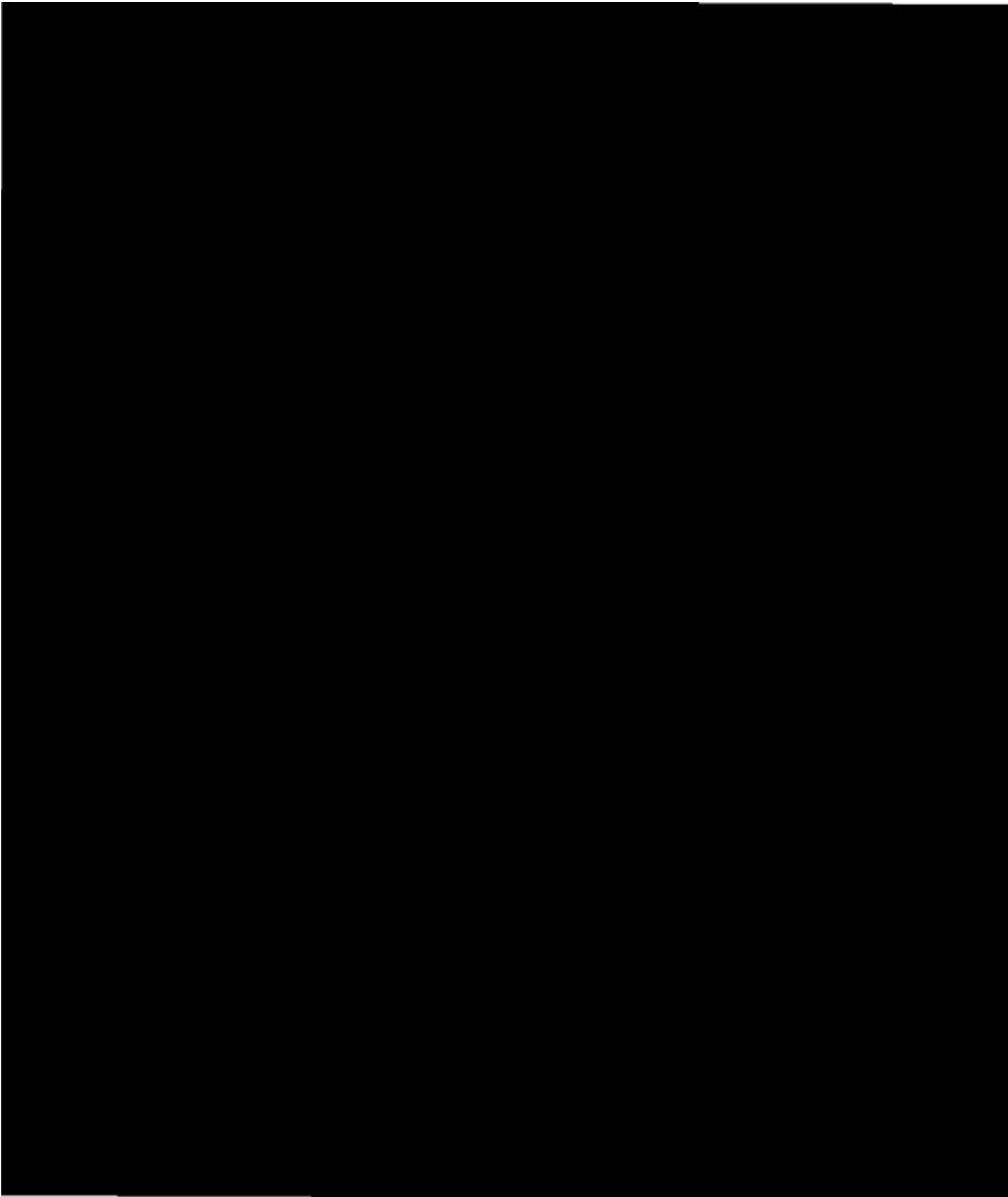


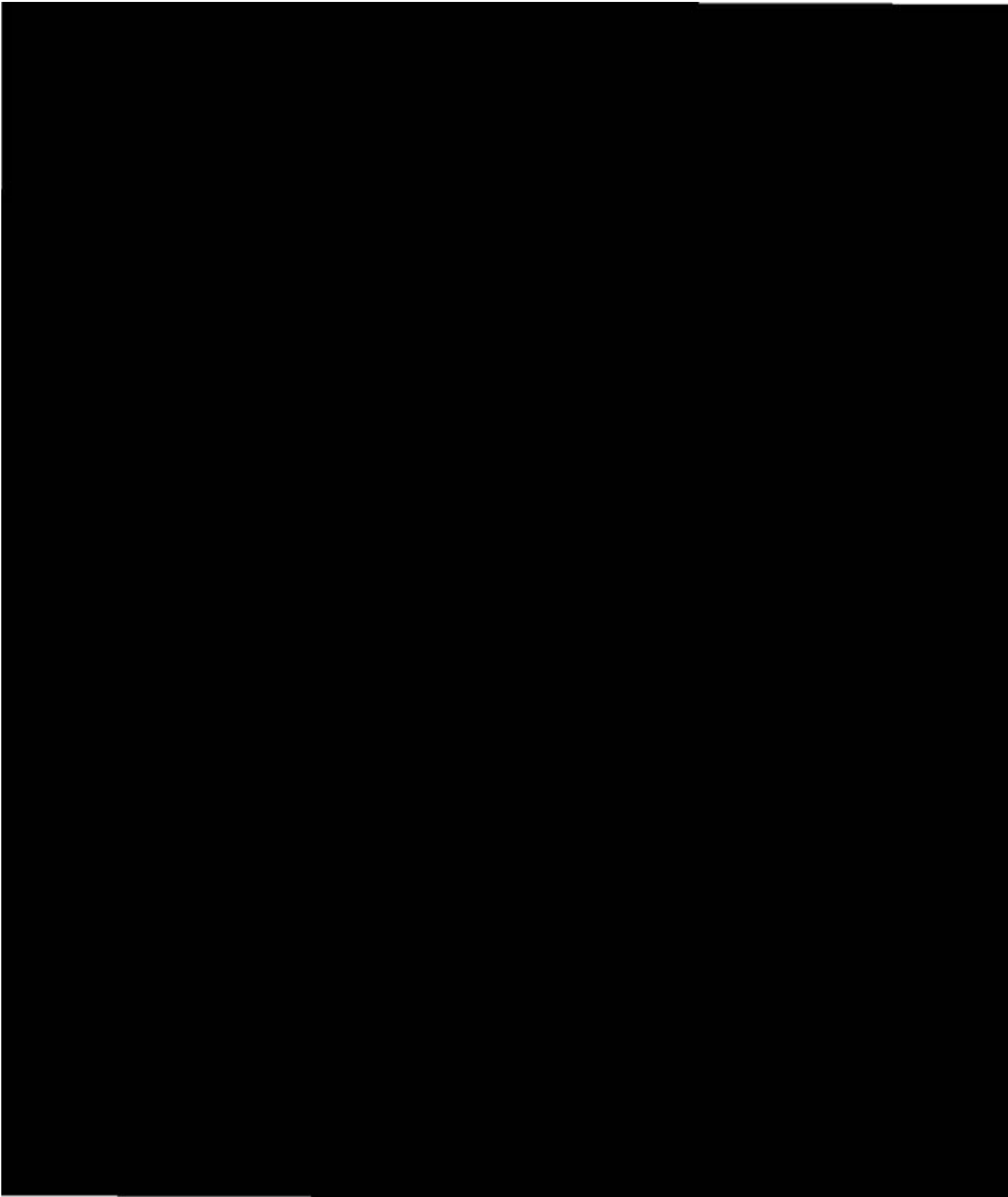


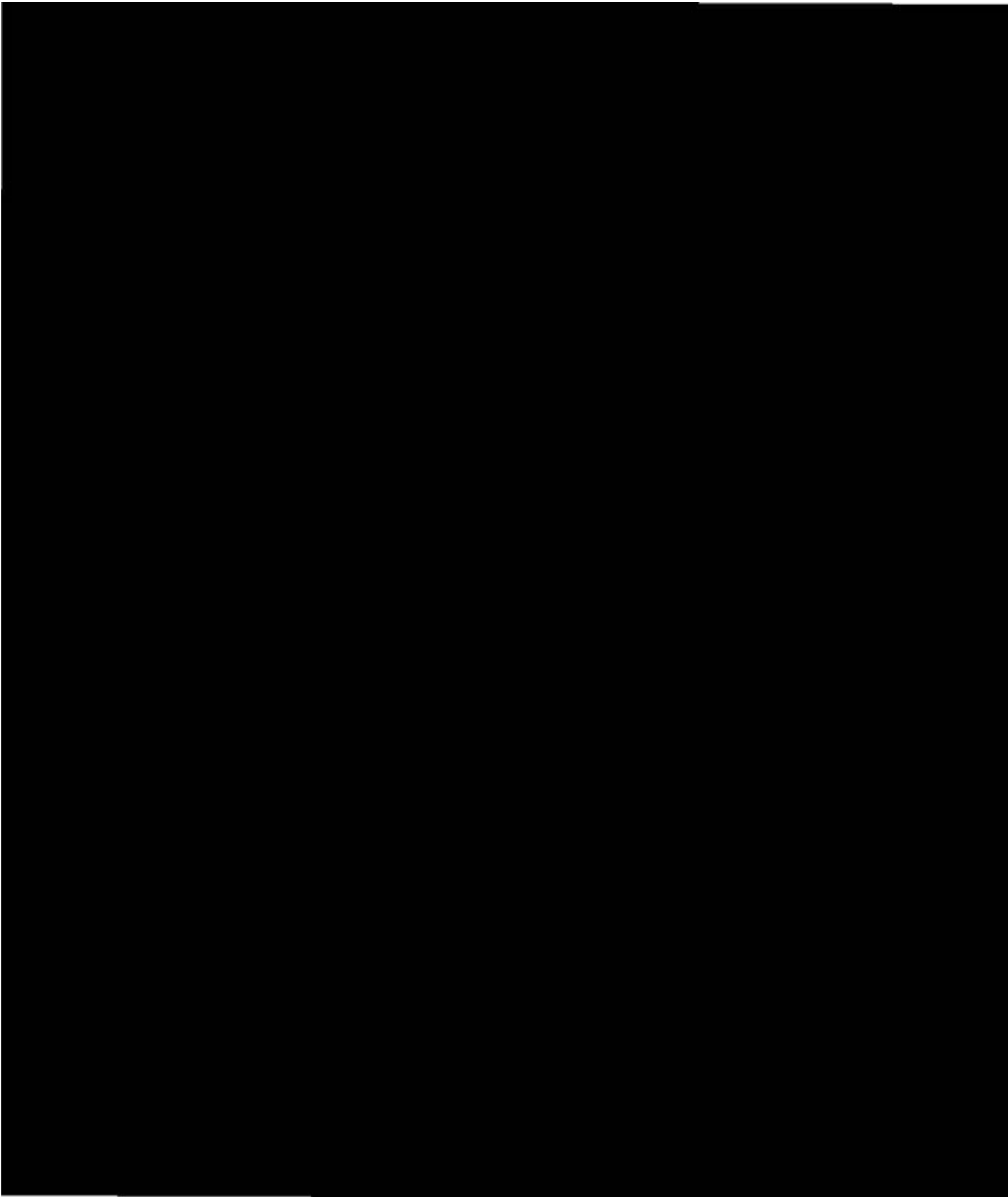


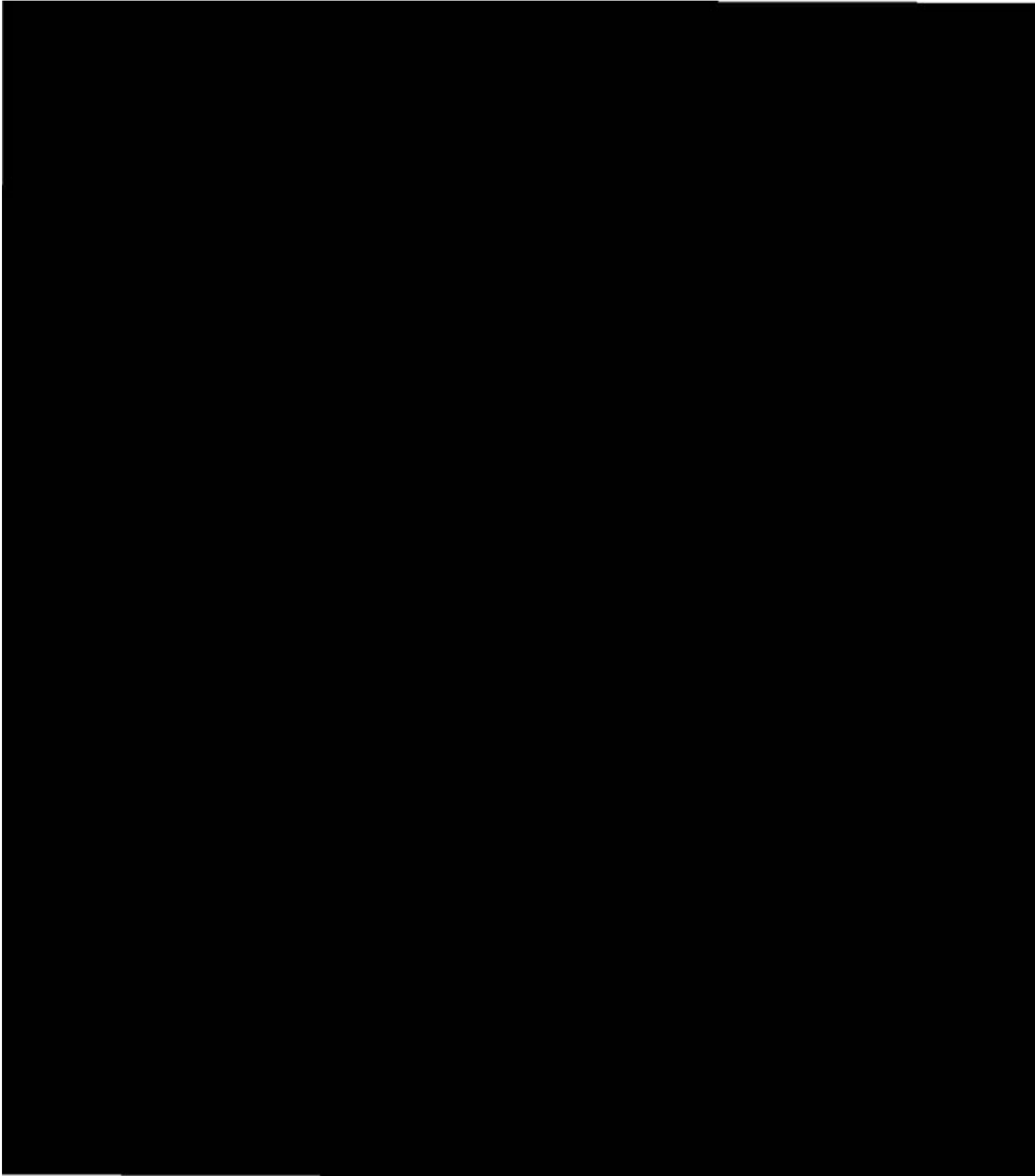


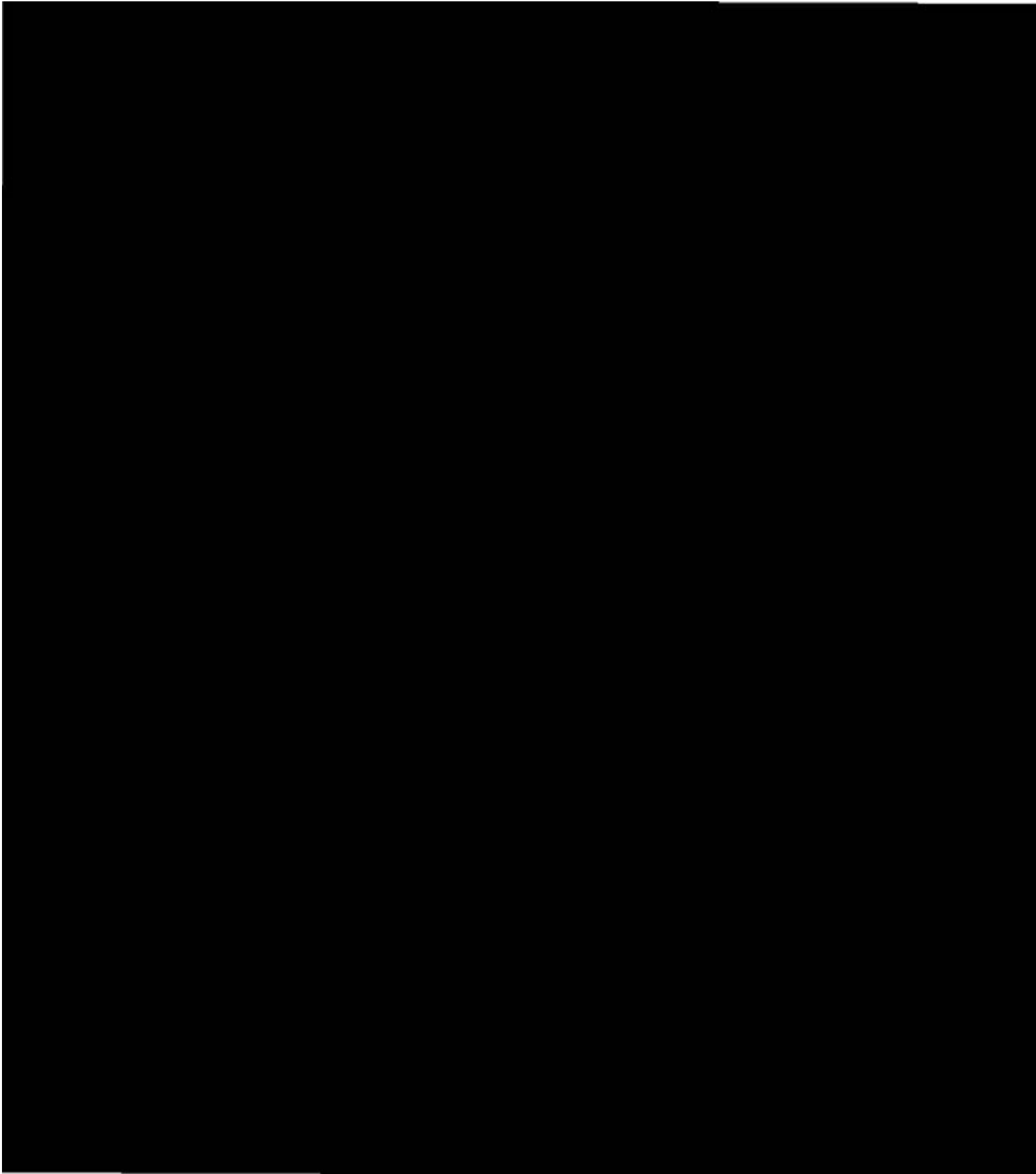


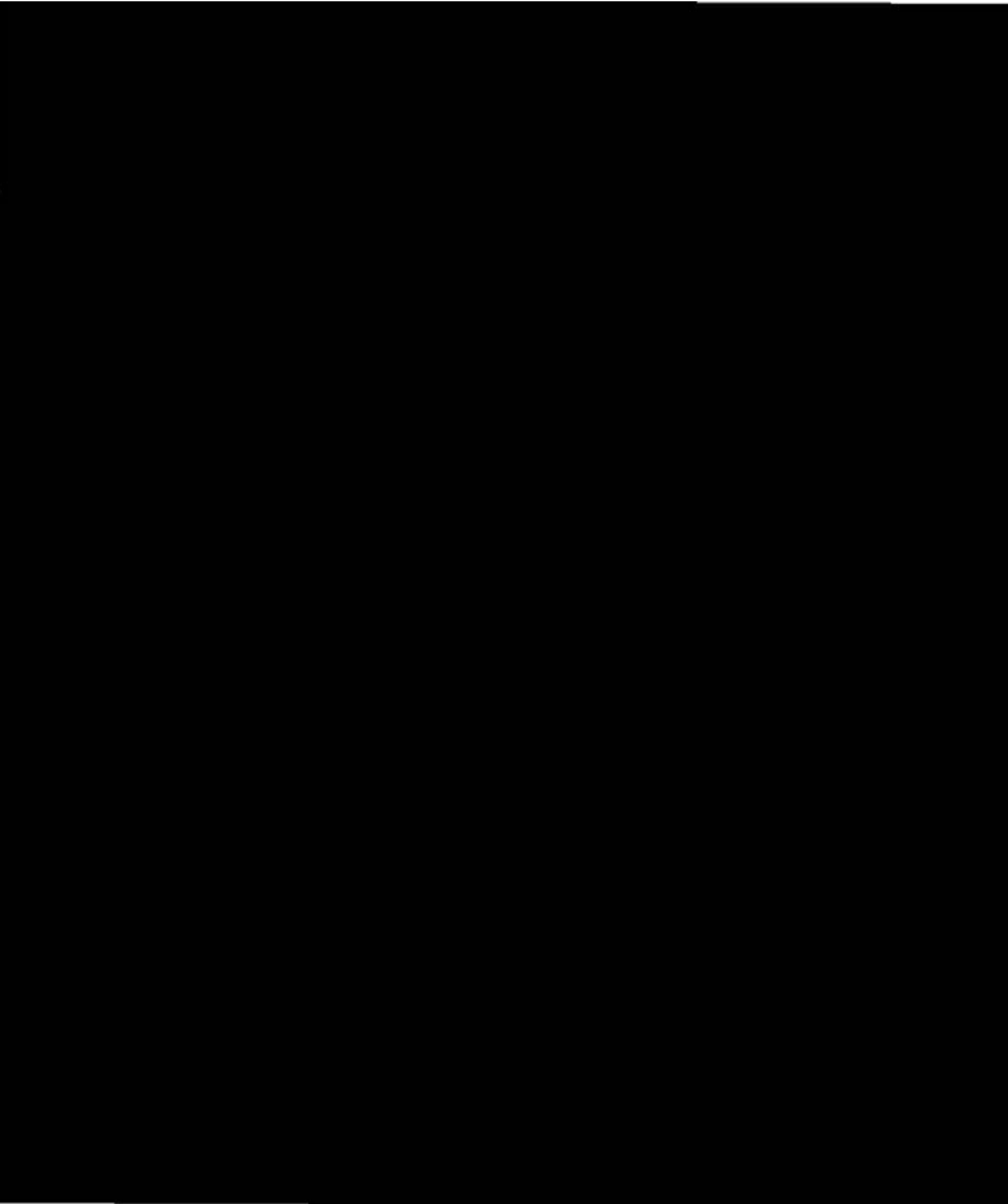


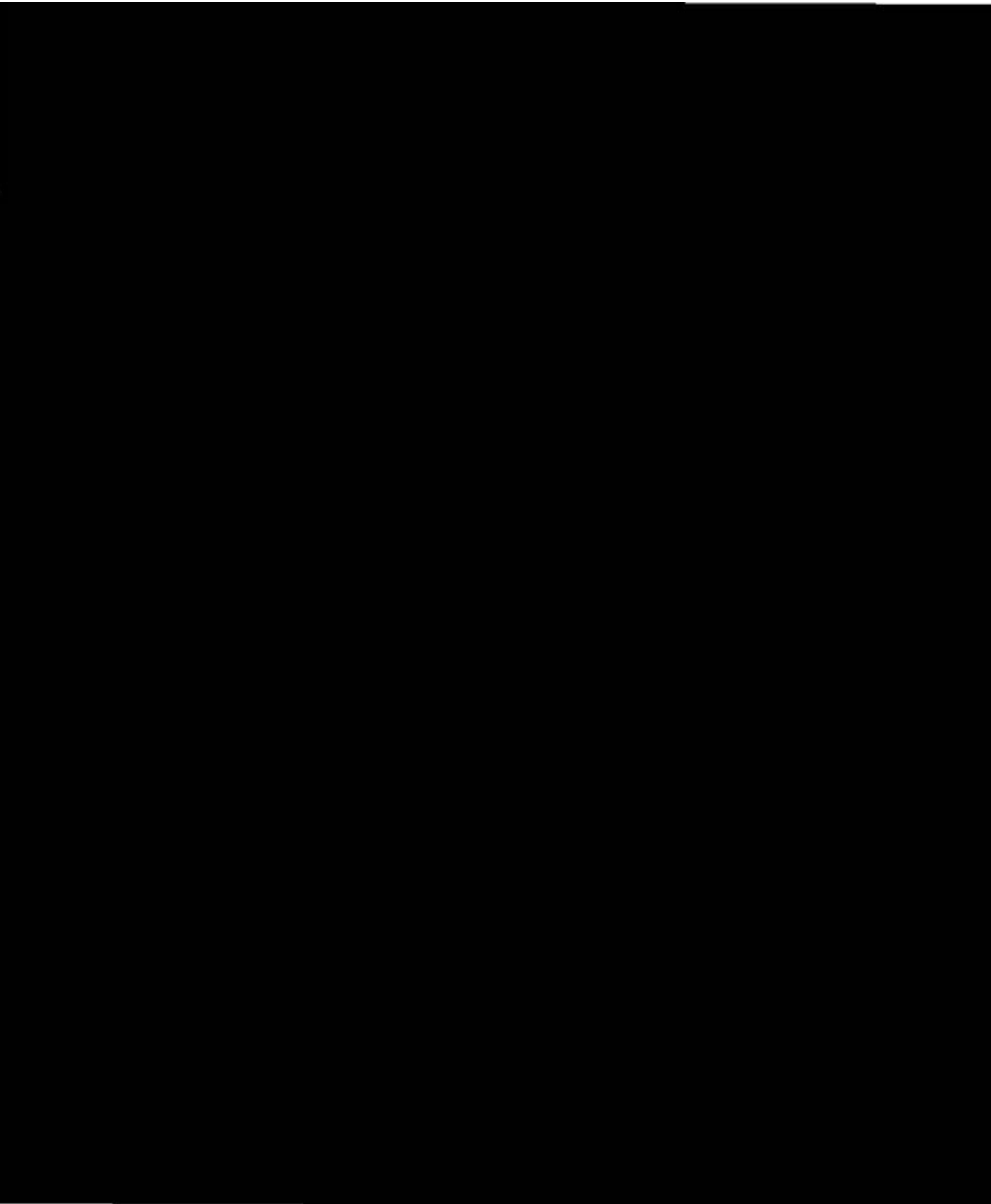


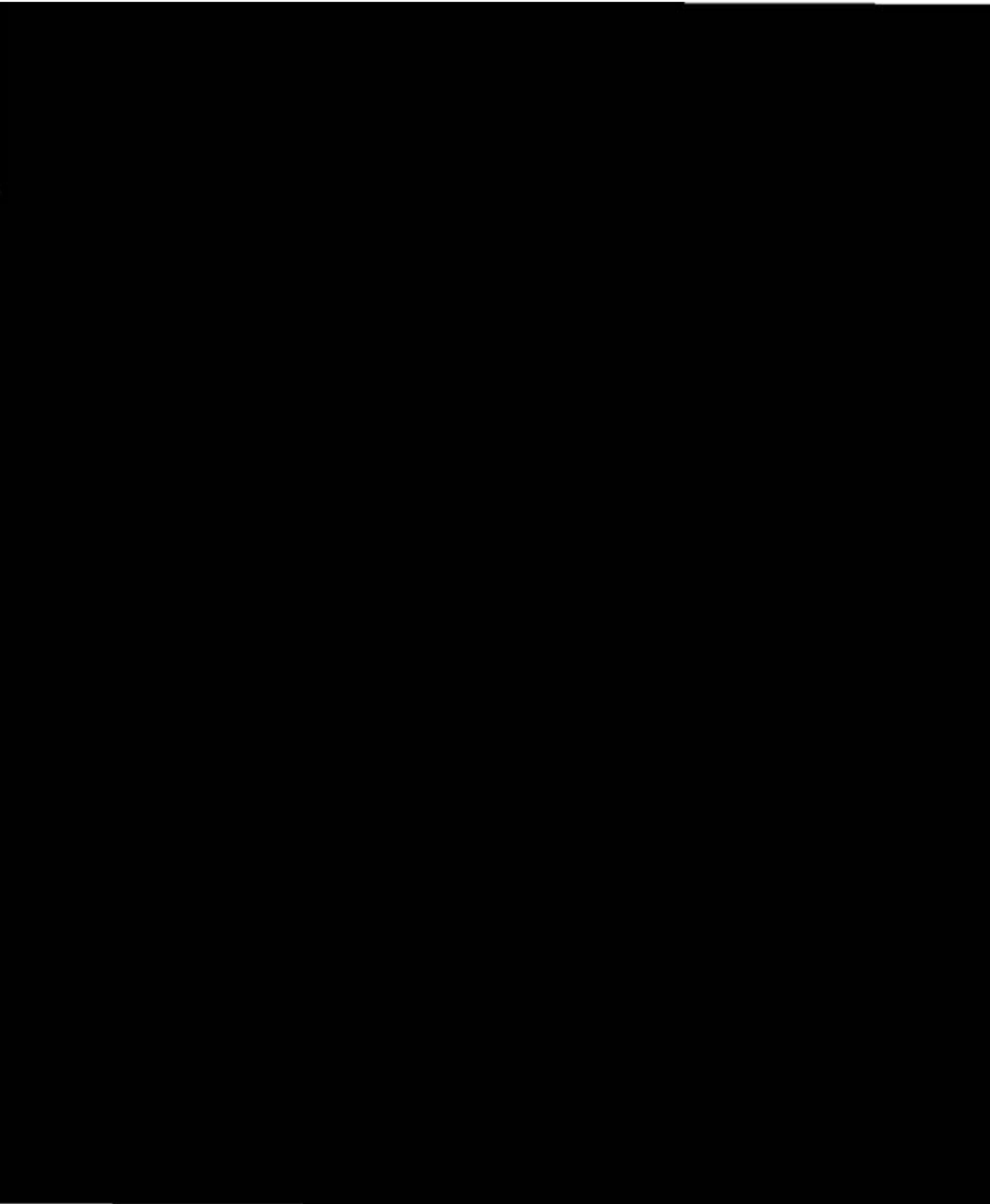


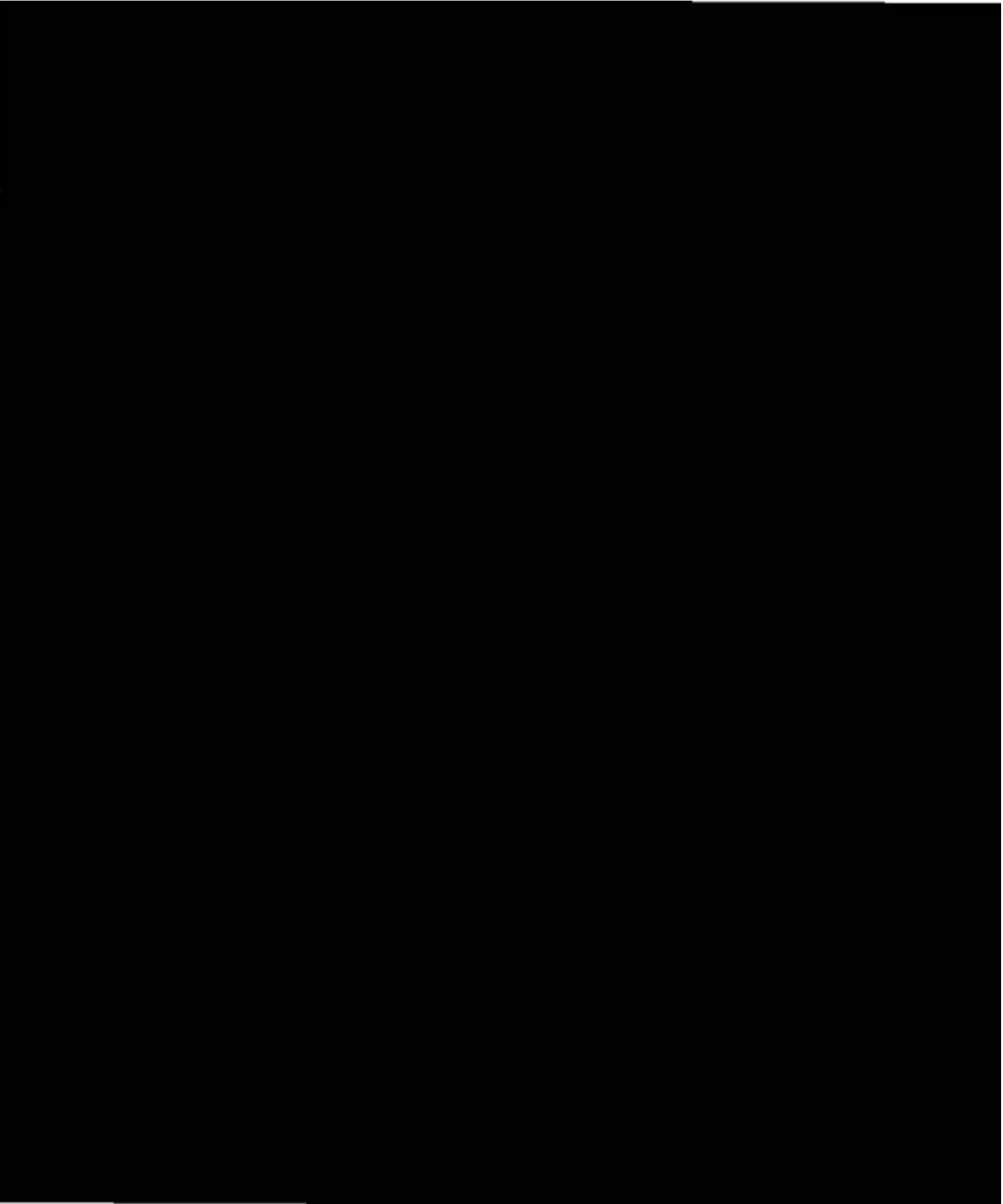


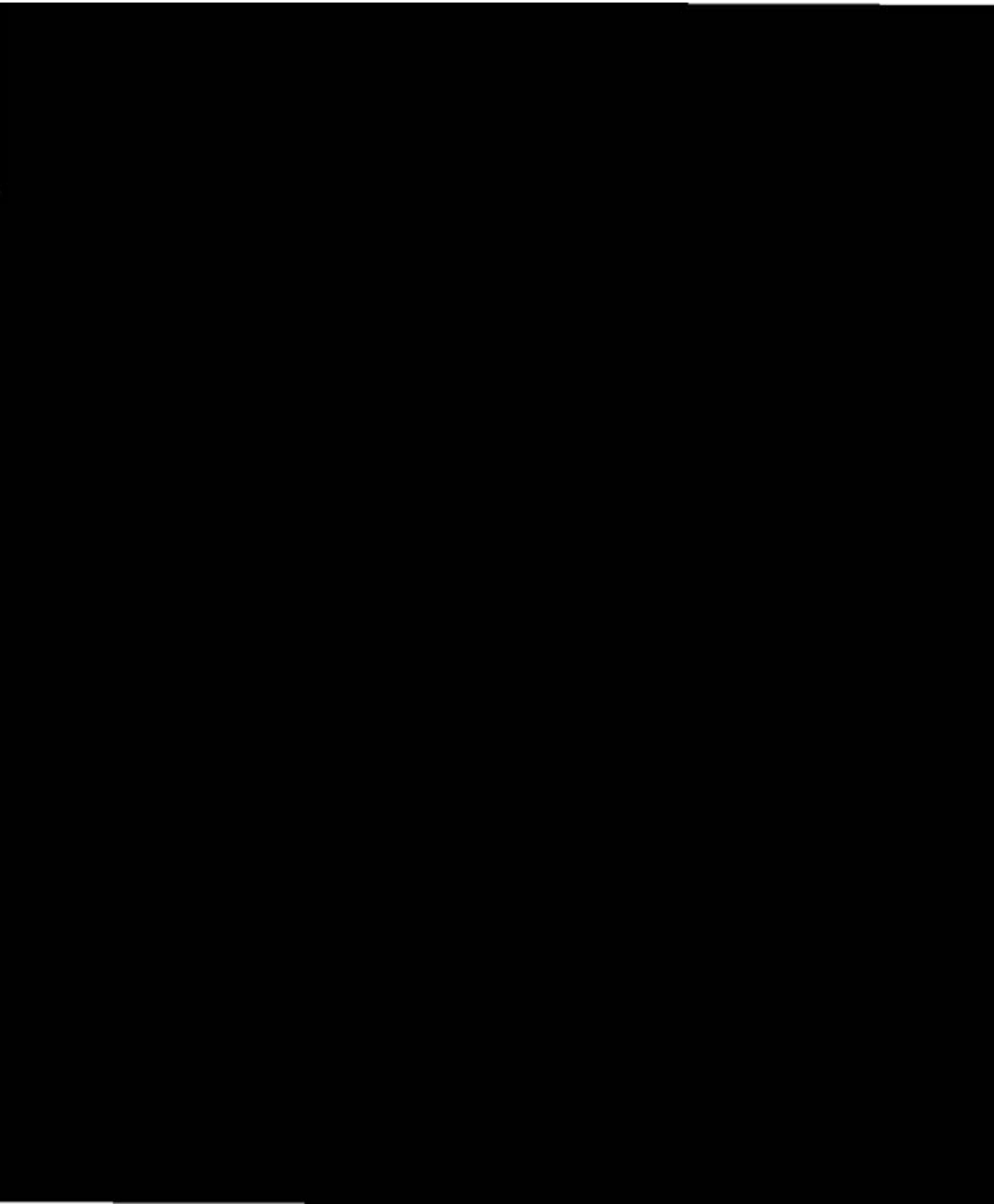


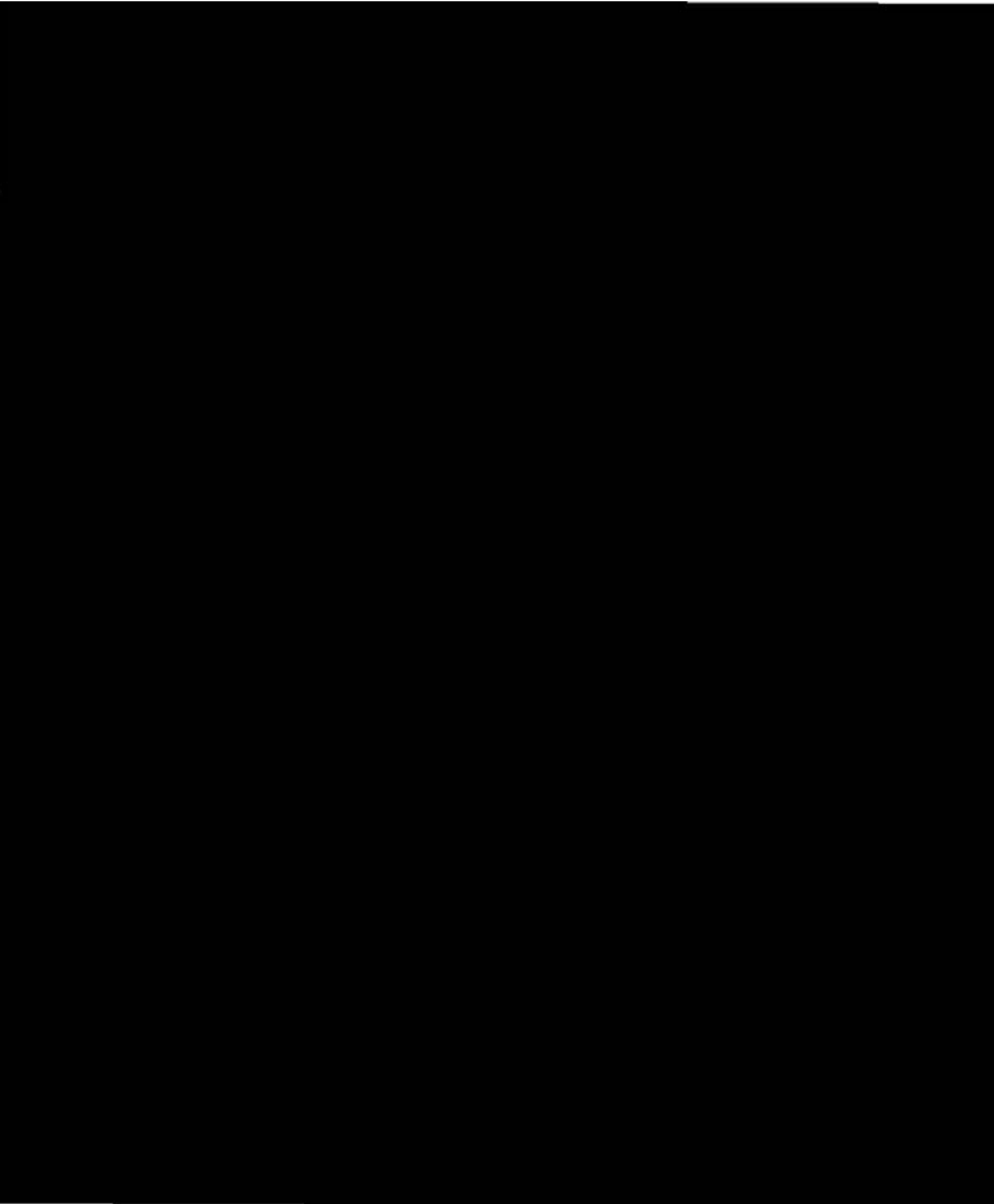


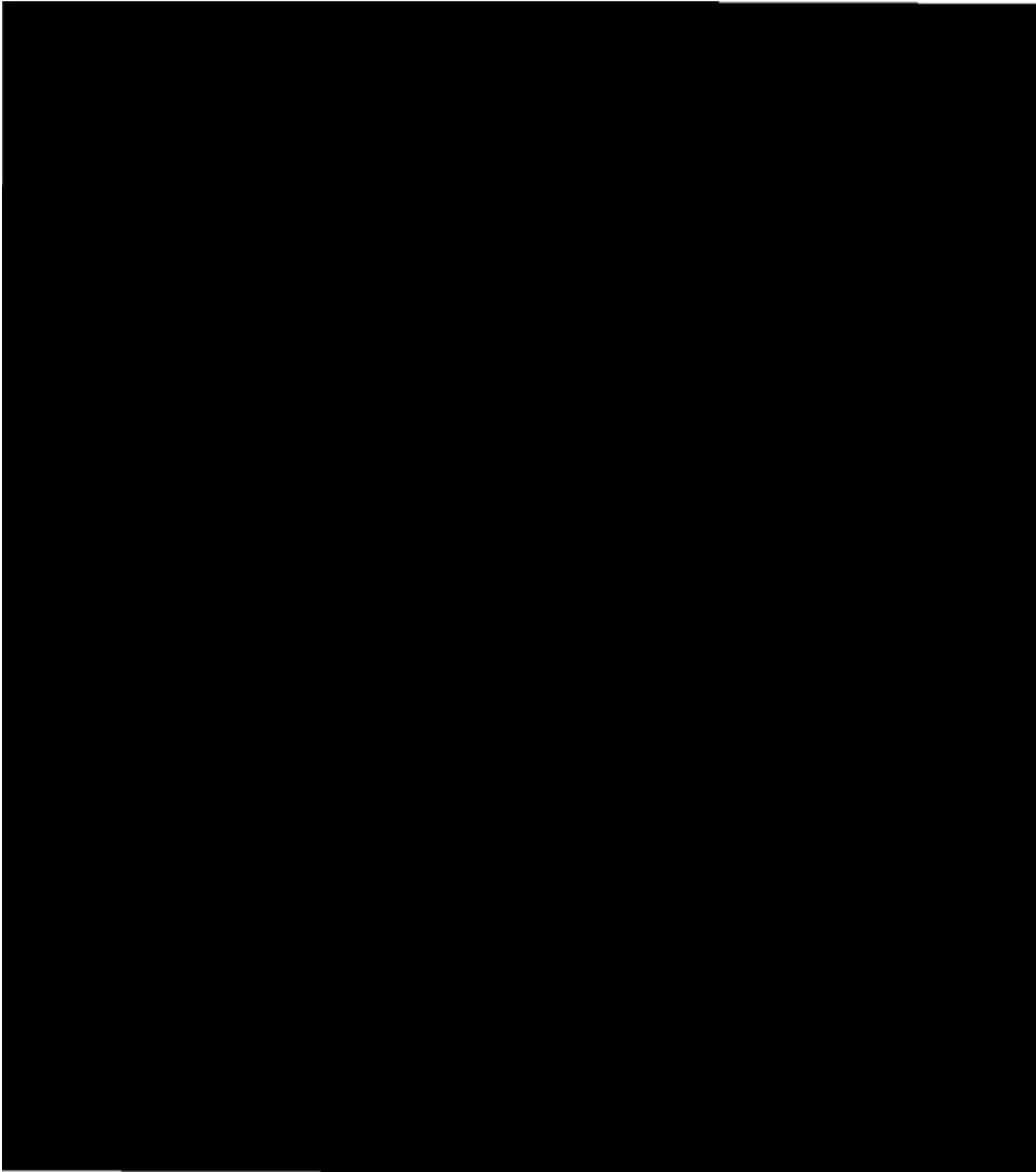


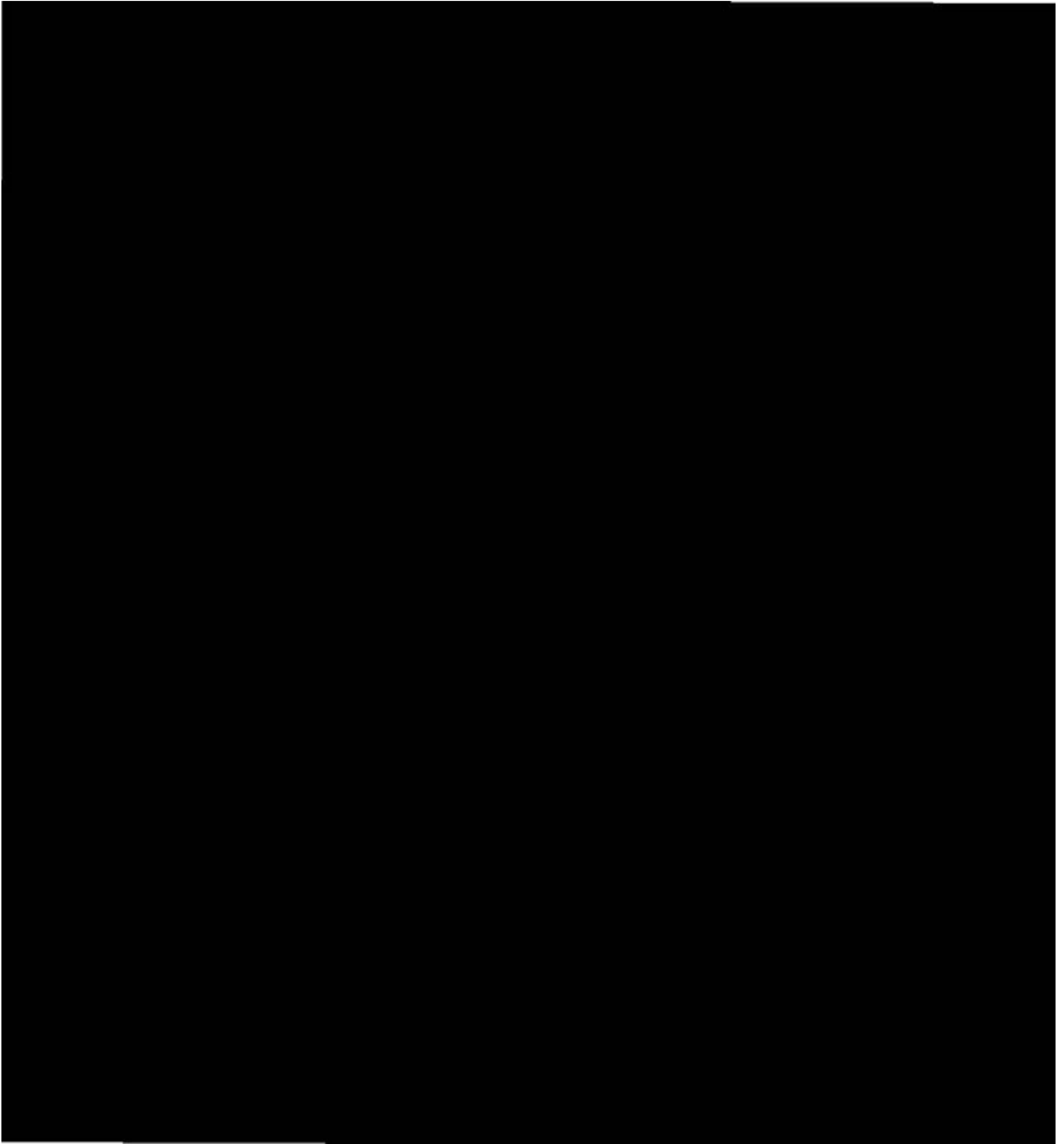


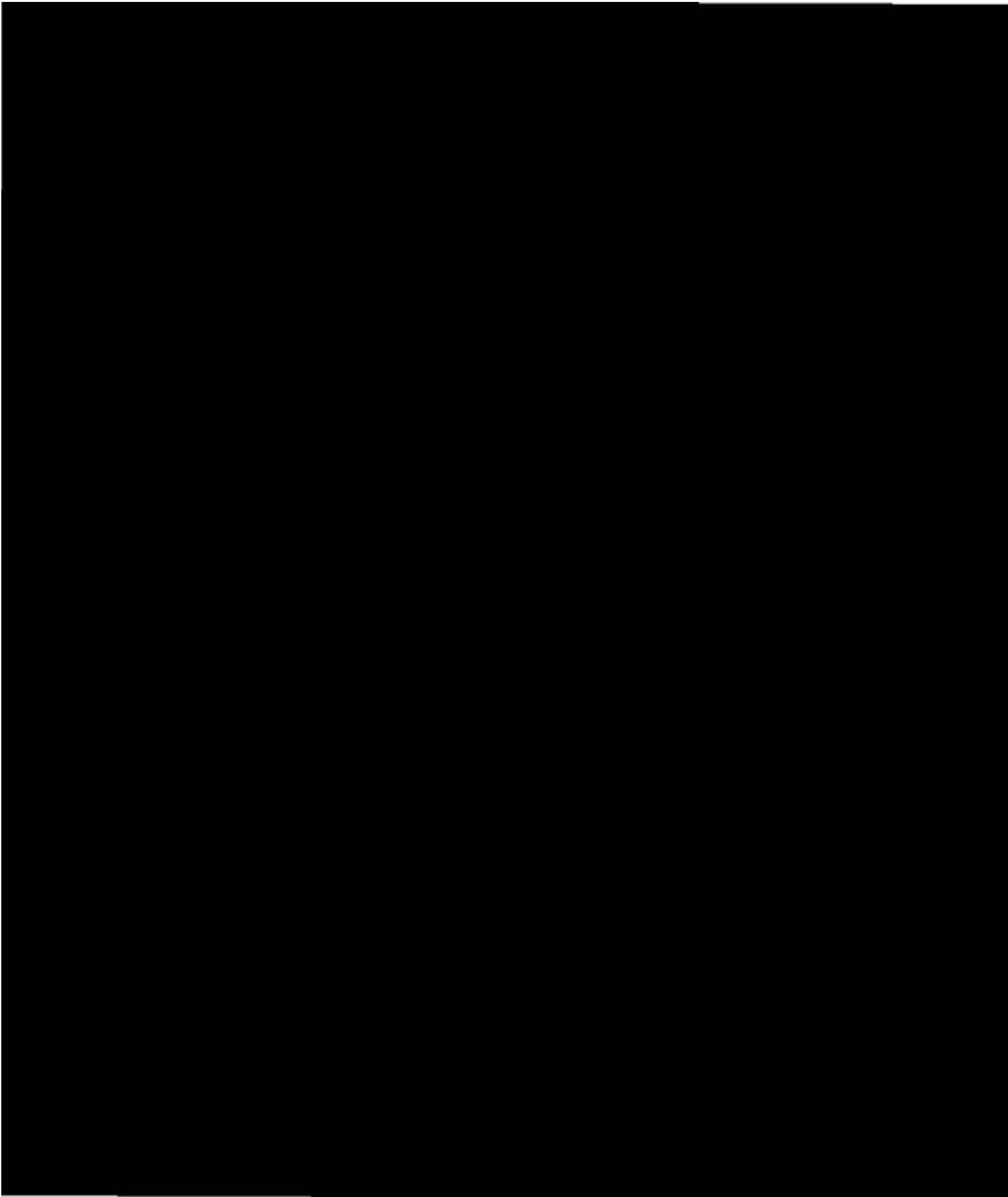












1.6 Operator Recruitment and Staffing Plan

1.6.A PSEG Puerto Rico, LLC Board of Directors Profiles

Appendix 1.6.A – PSEG Puerto Rico, LLC Board of Directors

Name	Title
<i>Mr. David M. Daly</i>	President and Chief Operating Officer, PSE&G
<i>Mr. Daniel Eichhorn</i>	President and Chief Operating Officer, PSEG Long Island President, PSEG Puerto Rico
<i>Mr. Derek M. Di Risio</i>	President, PSEG Services Corporation
<i>Mr. Daniel J. Cregg</i>	Executive Vice President and Chief Financial Officer
<i>Mr. Scott Jennings</i>	Senior Vice President Corporate Planning, Strategy and Utility Finance
<i>Ms. Shelia Rostiac</i>	Senior Vice President Human Resources and Chief Human Resources Officer

President and Chief Operating Officer, PSE&G

David M. Daly

David M. Daly has been president and chief operating officer of Public Service Electric and Gas Company (PSE&G) since October 2017.

PSE&G is New Jersey's oldest and largest regulated gas and electric delivery utility, serving approximately 2.4 million customers, nearly three-quarters of the state's population.



In addition, Mr. Daly is Chairman of the Board of PSEG Long Island, a New York subsidiary of Public Service Enterprise Group Incorporated (PSEG), which has been managing the electric transmission and distribution systems on Long Island and in the Rockaways since January 2014. PSEG Long Island serves 1.1 million customers. Prior to his current position, Mr. Daly served as president and chief operating officer of PSEG Long Island. He is a member of PSEG's Executive Officer Group.

Before his appointment to PSEG Long Island, Mr. Daly served as vice president - asset management and centralized services at PSE&G. Since joining PSE&G in 1983, Mr. Daly has held a variety of positions in utility operations and support services, including vice president of energy acquisition and technology, division manager - merger integration, director of utility operations services, director of corporate strategy, and general manager of transmission planning.

Earlier in his career, Mr. Daly held various first and second line supervisory positions in fossil generation plant operations, and served as a senior consultant at several industry consulting firms. He received his electrical engineering degree from the State University of New York Maritime College, and a Master of Business Administration degree from Rutgers University.

Mr. Daly serves on the boards of the American Gas Association, the New Jersey Utilities Association, Liberty Science Center and St. Vincent Academy.

President and Chief Operating Officer, PSEG Long Island

President, PSEG Puerto Rico

Daniel Eichhorn

In November 2019, Dan Eichhorn was named President of PSEG Puerto Rico pending execution of the contract with Puerto Rico Power Authority.



In addition, Dan Eichhorn was named President and Chief Operating Officer of PSEG Long Island in October 2017. PSEG Long Island operates the Long Island Power Authority's transmission and distribution system under a 12-year contract. PSEG Long Island is a subsidiary of Public Service Enterprise Group Incorporated, a publicly traded diversified energy company with annual revenues of \$9.1 billion.

Previously, Mr. Eichhorn served as PSEG Long Island's Vice President – Customer Services, an organization that he developed when PSEG Long Island was selected by the Long Island Power Authority (LIPA) to manage LIPA's electric transmission and distribution system. As Vice President, Mr. Eichhorn was responsible for customer satisfaction, marketing and marketing strategy, customer contact, meter-to-cash functions, and solar and energy efficiency programs.

Prior to this role, Mr. Eichhorn served as Director – Customer Contact and Technology for Public Service Electric and Gas Company (PSE&G), where he was responsible for assessing and implementing new customer technology, oversight of all call center operations, and oversight of the company's 16 customer service centers.

A veteran of PSE&G for 25 years, Mr. Eichhorn led the implementation of the company's new SAP-based customer information system. He has a broad background in electric and gas operations, customer operations and the appliance service business.

Mr. Eichhorn earned a Bachelor of Science in electrical engineering and a Master of Business Administration in finance from Drexel University. He attended numerous leadership development programs, including The Center for Creative Leadership, Darden School of Business and the Balanced Scorecard Management System

President, PSEG Services Corporation

Derek M. Di Risio

Derek M. Di Risio was named president, PSEG Services Corporation, in July 2014. He is responsible for the coordination and delivery of several centralized services currently residing within PSEG Services Corporation including corporate communications, continuous improvement, corporate real estate, information technology, procurement, payroll and other transactional services.



Prior to his current role, Mr. Di Risio was vice president and controller of Public Service Enterprise Group (PSEG), Public Service Electric and Gas Company (PSE&G), PSEG Services Corporation, PSEG Energy Holdings (Holdings) and PSEG Power, a position he assumed in December 2006. He was previously vice president and assistant controller, since July 2004.

Mr. Di Risio had been vice president – planning and analysis of Holdings since March 2004, and vice president – controller for Holdings since July 1998. Prior to that he was director – accounting services and responsible for several accounting and planning functions for Holdings, including overall coordination of the business planning process, accounting research and policy development, financial forecasts and analysis. Mr. Di Risio was also responsible for the budgeting, analysis and reporting process for PSE&G. Mr. Di Risio joined PSE&G in September 1991 and has held a variety of positions, including assignments with the internal auditing, electric business, and corporate planning departments. He was instrumental in reengineering the Enterprise business planning process and advancing the use of performance metrics and balanced scorecard measures to improve business results. Prior to joining PSE&G he worked for several firms, including Chase Manhattan Bank.

Mr. Di Risio graduated from Rutgers University with a degree in accounting/computer science and received a Master of Business Administration degree from the same university. He is a certified public accountant (inactive). Mr. Di Risio also completed the Program for Management Development at the Graduate School of Business Administration of Harvard University. He serves on the Drumthwacket Foundation Board of Trustees, The Board of the Military Park Partnership, the All Stars Project National Board, and is currently chairman of the Board of Directors of the New Jersey All Stars Project Inc. In addition, Mr. Di Risio previously served on the Drew University Board of Trustees.

Executive Vice President and Chief Financial Officer

Daniel J. Cregg

Daniel J. Cregg has been executive vice president and chief financial officer for Public Service Enterprise Group Incorporated (PSEG) and its subsidiaries since October 2015.

Mr. Cregg is responsible for all financial functions, including Internal Audit Services, Investor Relations and Corporate Development. Given the array of financial instruments which serve as the primary means of selling wholesale energy to customers, Mr. Cregg also has responsibility for the Risk Management function, which provides independent oversight of the PSEG Power trading organization. In addition to finance, Mr. Cregg is responsible for the Strategy and Planning function. He is a member of PSEG's Executive Officer Group.



Prior to his current position, Mr. Cregg was vice president – finance for Public Service Electric and Gas Company (PSE&G), a role he assumed in June 2013. In 2006, Mr. Cregg was named vice president – finance for PSEG Power. In that capacity and in previous financial roles for PSEG Power, Mr. Cregg held leadership positions related to financial reporting and forecasting, investor communications, financings, rating agency interactions, external reporting, cash forecasting, financial valuations, competitive intelligence, and fundamental market modeling, with critical responsibilities in PSEG Power's development and strategic planning activities.

Previously, Mr. Cregg was director of PSEG corporate development. He joined PSEG in 1991 with overall responsibility for tax planning, strategy and compliance for PSEG Energy Holdings, including domestic and international tax structuring work for PSEG Global and PSEG Resources.

Before joining PSEG, Mr. Cregg spent five years with the accounting and consulting firm of Deloitte and Touche, providing consulting services to a wide range of clients with an emphasis on the energy industry.

Mr. Cregg received his Master of Business Administration degree from the Wharton School of the University of Pennsylvania and his bachelor's degree in accounting from Lehigh University.

Mr. Cregg is co-chair of the Edison Electric Institute Finance Executive Advisory Board.

NJBIZ named Mr. Cregg 2018 CFO of the Year for public companies.

Senior Vice President – Corporate Planning, Strategy and Utility Finance

Scott S. Jennings

Scott S. Jennings was named senior vice president for Corporate Planning, Strategy and Utility Finance in March 2019. He is responsible for PSEG's short- and long-term business plans, supporting the company's growth strategy, and oversees financial planning and analysis and rate functions. In addition, Mr. Jennings leads the financial aspects for PSE&G's investment program, including the company's various filings, such as the Gas System Modernization Program to replace aging cast-iron pipes, the Energy Strong program to harden and modernize the electric and gas systems, and the Clean Energy Future filings, which include proposed investments in energy efficiency, electric vehicle charging infrastructure, energy storage and advanced metering. He also was the lead financial witness for PSE&G's first base rate review in eight years.



Prior to this, he was vice president – Finance, PSE&G. In this capacity, he was the finance business partner to PSEG's utilities, responsible for PSE&G's financial planning and analysis and rates teams, as well as these functions and accounting for PSEG Long Island.

After five years as an auditor in Deloitte's financial services and public utilities practice, Mr. Jennings joined PSEG's corporate accounting group in 1998, serving in a variety of financial positions of increasing responsibility, culminating in his position as assistant controller. During this time, he addressed accounting matters related to deregulation, the separation and financing of power generation and support functions from PSE&G and various corporate development transactions.

He became controller, then vice president – Finance and later president of the subsidiaries of PSEG Energy Holdings, a portfolio of electric generation and distribution companies in Latin America, Europe, the Middle East and domestically, as well as investments in leveraged leases. In these capacities, he was responsible for the sale of more than 15 investments with proceeds exceeding \$3 billion. He also restructured several leveraged lease transactions, served on the creditors' committees during lessee bankruptcies, and served on the boards of directors of several project companies.

After winding down the Energy Holdings portfolio, Mr. Jennings became vice president – M&A and Business Development for PSEG, responsible for exploring strategic growth opportunities, evaluating renewable energy investments and leading various business development activities, including the

development and negotiation of the 12-year management services contract for the Long Island distribution utility. In 2013, he was appointed vice president - Corporate Strategy.

Mr. Jennings has a bachelor's in Business Administration and a Master of Business Administration degree in Accounting from Pace University. He is a Certified Public Accountant and has participated in various leadership courses, including the High Potential Leadership Program at Harvard University and Lead NJ. He served on accounting, financial and strategic committees of the Edison Electric Institute, American Gas Association and Electric Power Research Institute, and represented PSEG in its collaboration with Princeton University's Andlinger Center for Energy and the Environment. Mr. Jennings also has testified before the New Jersey Board of Public Utilities, legislative committees and presented in many other forums. He serves as a leader for several local religious and sports organizations.

Senior Vice President Human Resources and Chief Human Resources Officer

Sheila Rostiac

Sheila Rostiac was named senior vice president Human Resources and Chief Human Resources Officer effective September 2019. Ms. Rostiac leads the Human Resources team in delivering a rewarding employee experience that meets the evolving needs of a diverse workforce. She also serves as a strategic partner to the business in developing a talent pipeline to drive organizational success. Ms. Rostiac is a member of the Executive Officer Group.

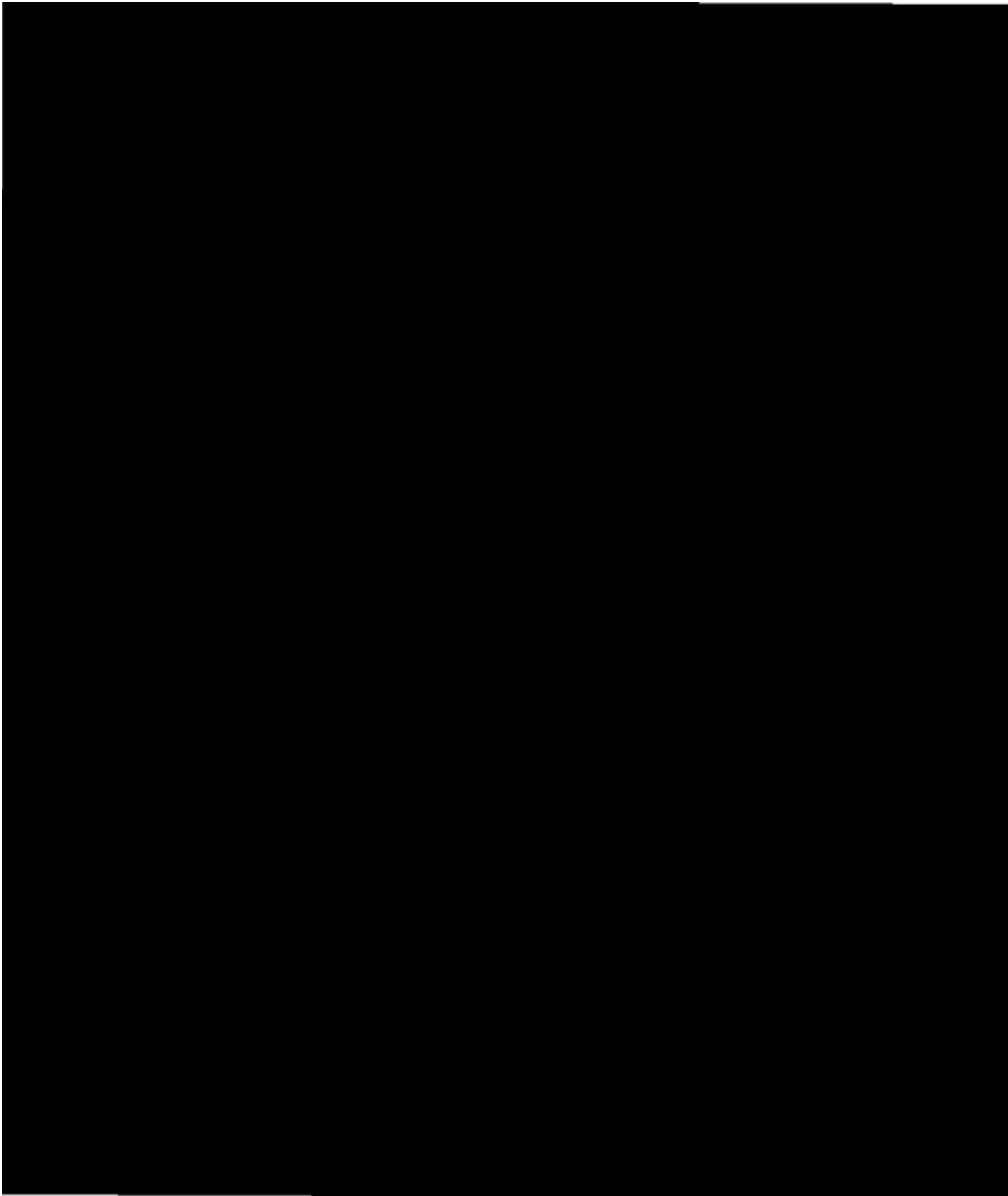


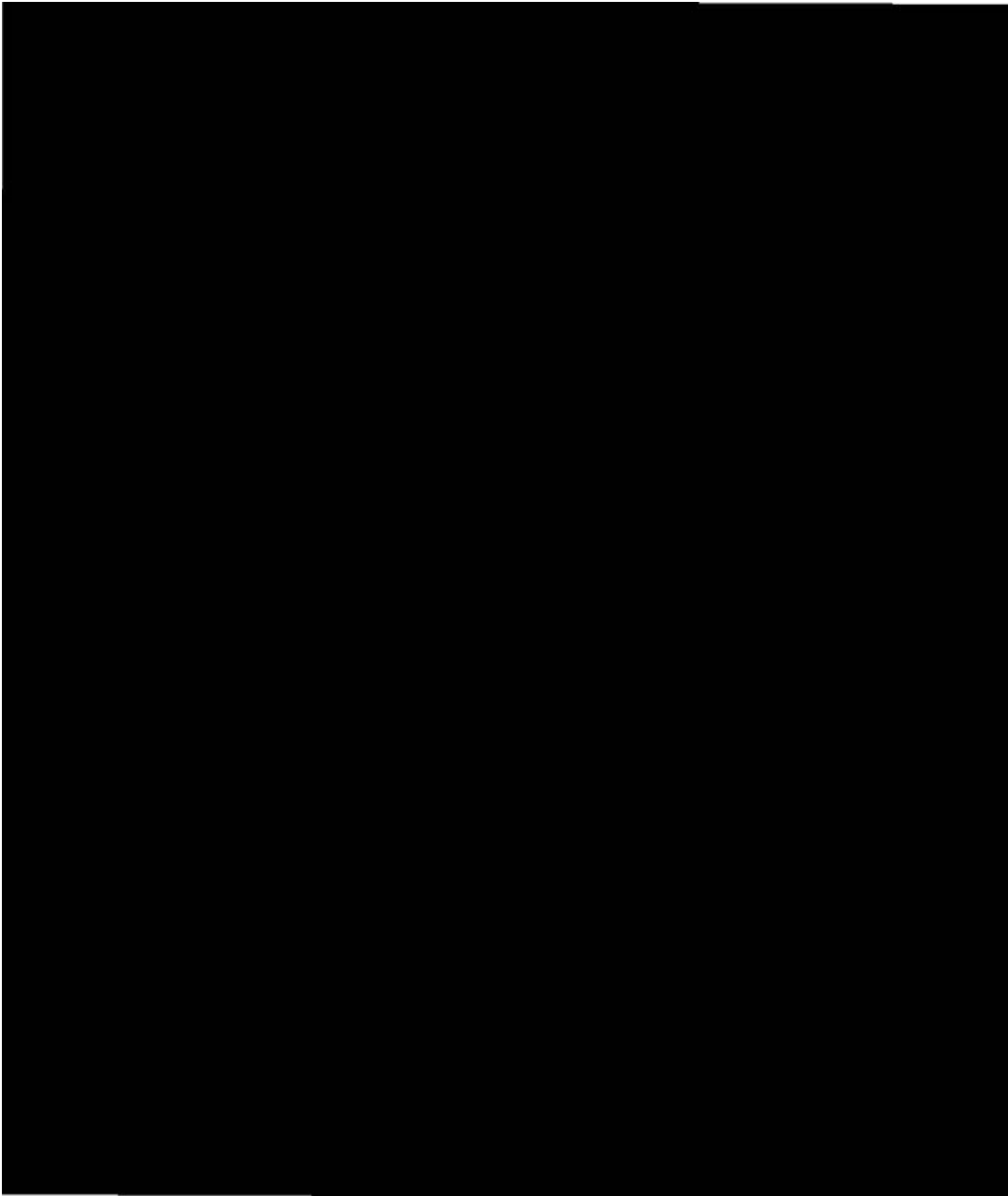
Previously, Ms. Rostiac was vice president - Total Rewards and Talent Management. Ms. Rostiac joined PSEG in 1997 and has held a variety of management positions across finance and human resources. She also served as director - Corporate Responsibility and president of the PSEG Foundation.

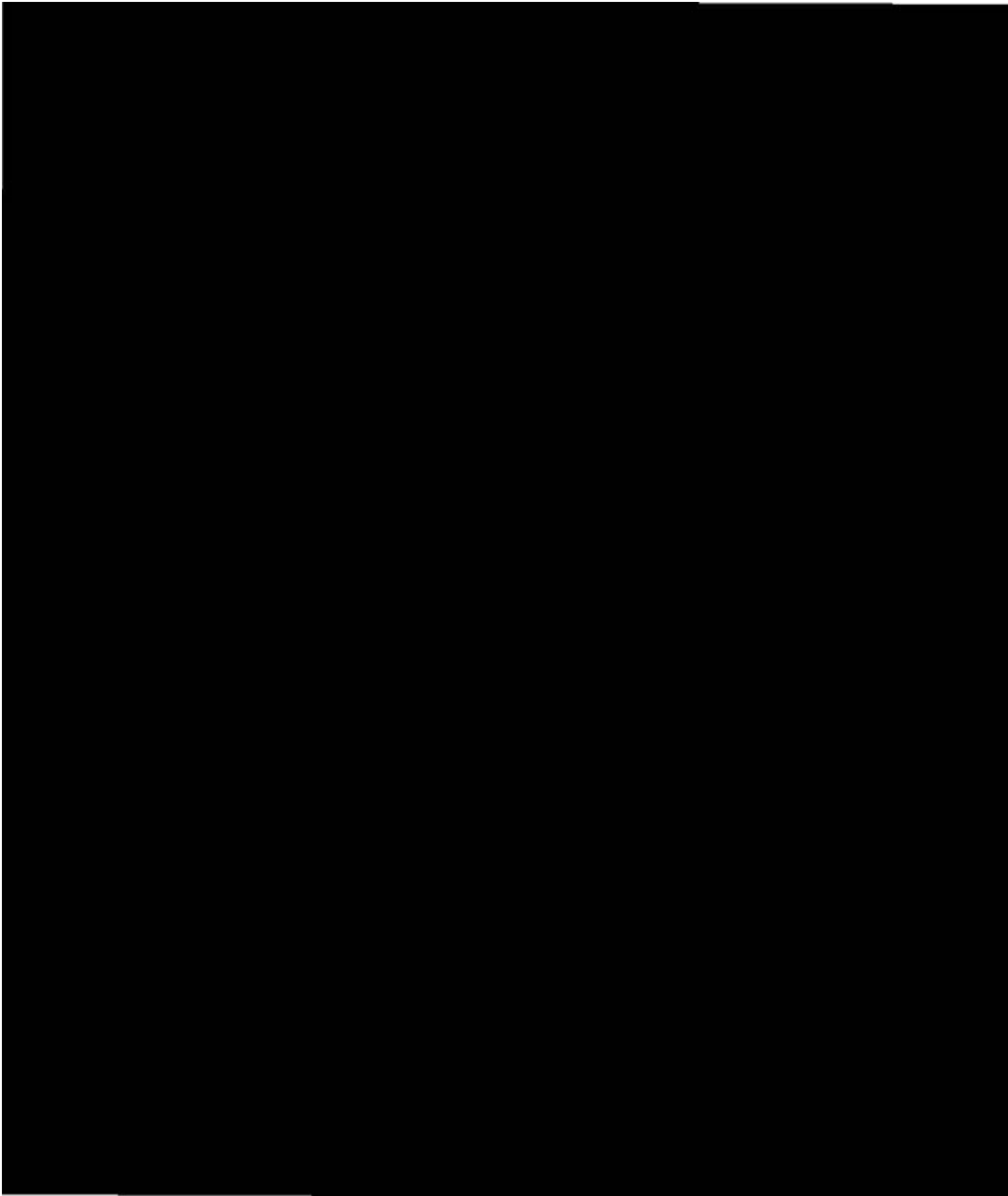
Ms. Rostiac also held key roles in global human resource management at Schering Plough and financial roles with Jersey Central Power & Light and Arthur Andersen & Co.

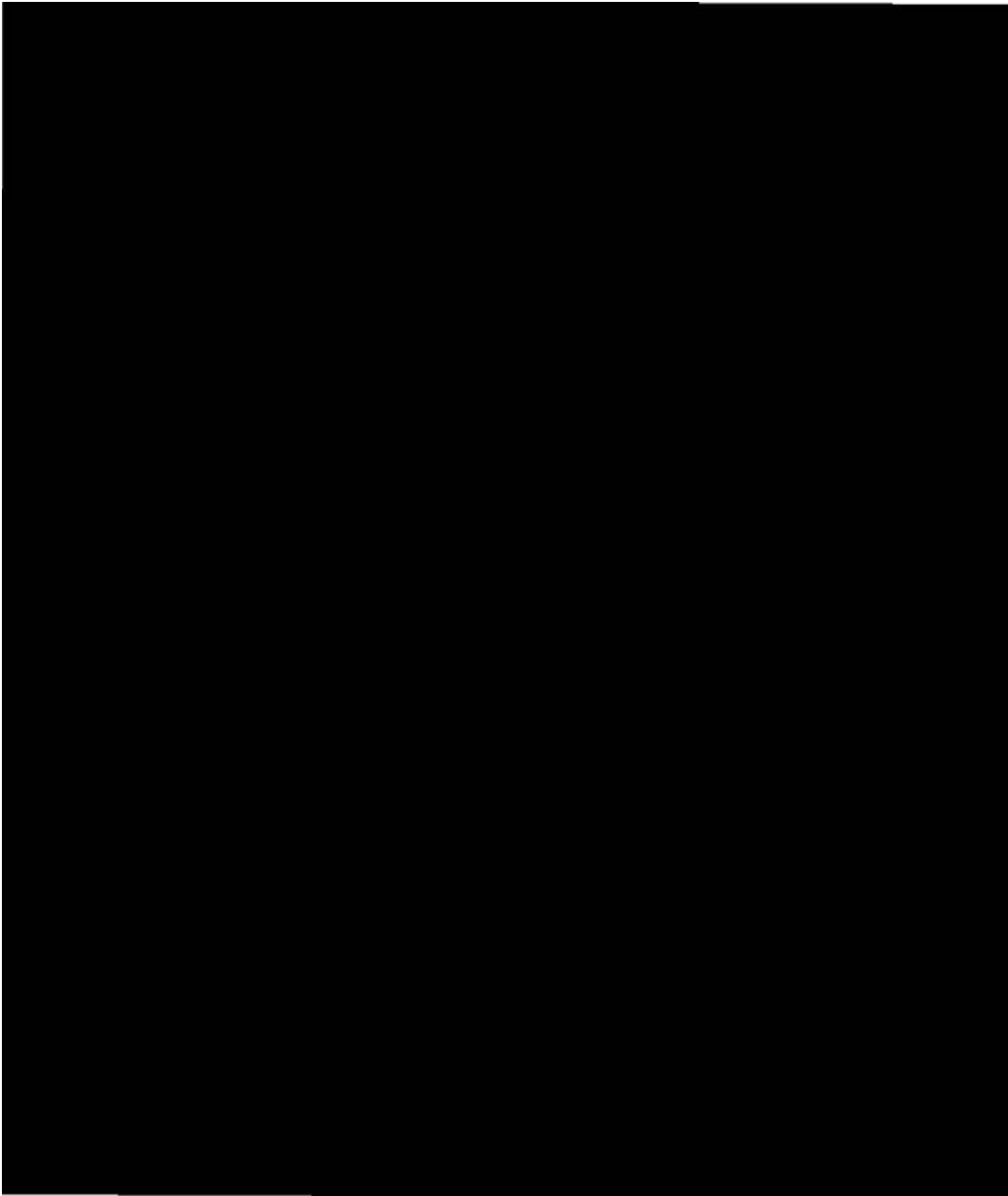
Ms. Rostiac holds a Bachelor of Science in Accounting from Lehigh University and a Master of Business Administration from Centenary College.

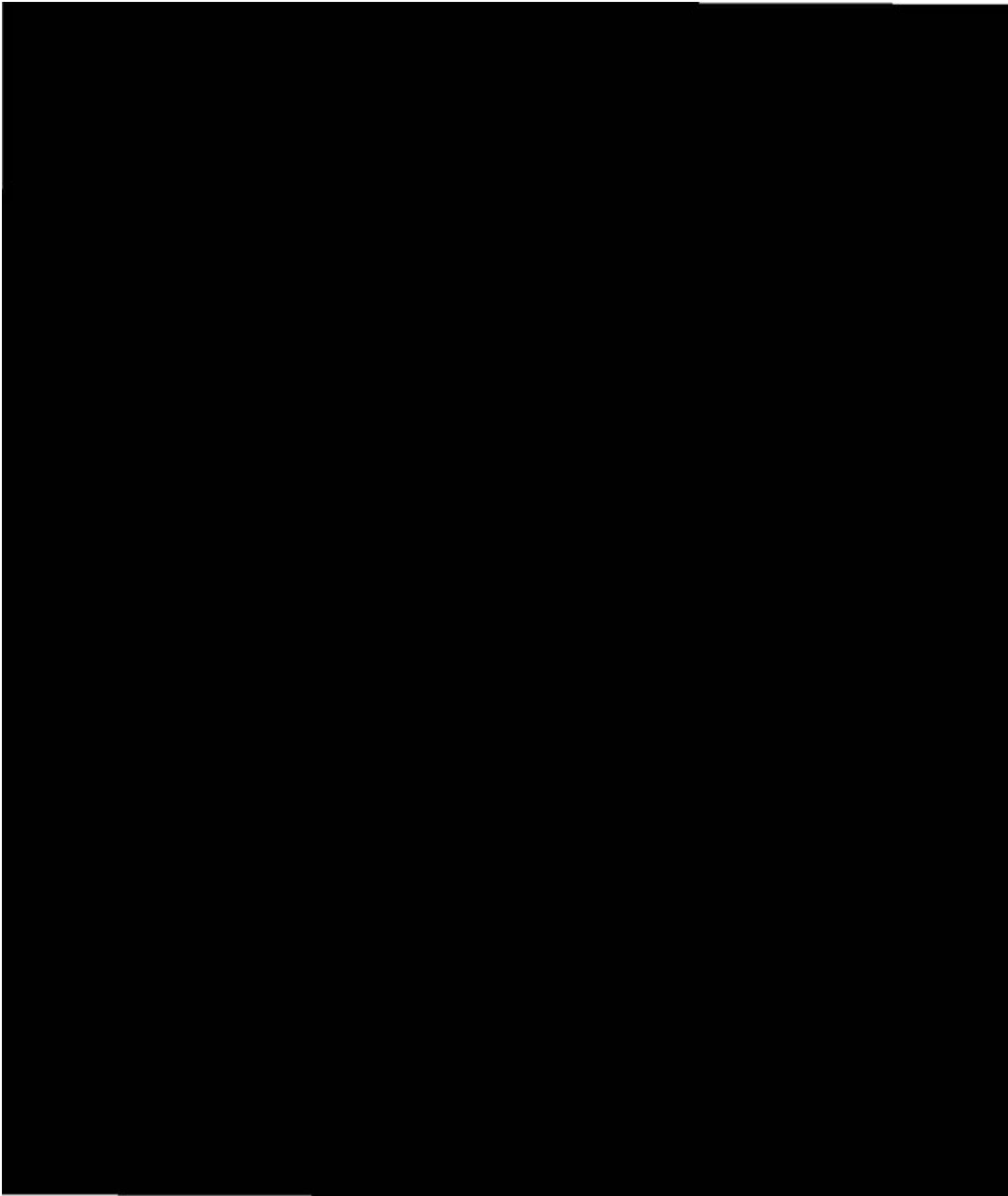
Ms. Rostiac was formerly a Certified Public Accountant and is a SHRM-certified senior professional in human resources. She sits on the Executive Council of the Center for Energy Workforce Development. Active in the local community, Ms. Rostiac is treasurer for Lead New Jersey, corporate executive sponsor for the Leukemia and Lymphoma Society and serves on the Trustee Emeritus Council for Imagine, a grief support center. Ms. Rostiac was a NJ Biz Best 50 Women in Business Honoree and is a Lead New Jersey fellow.

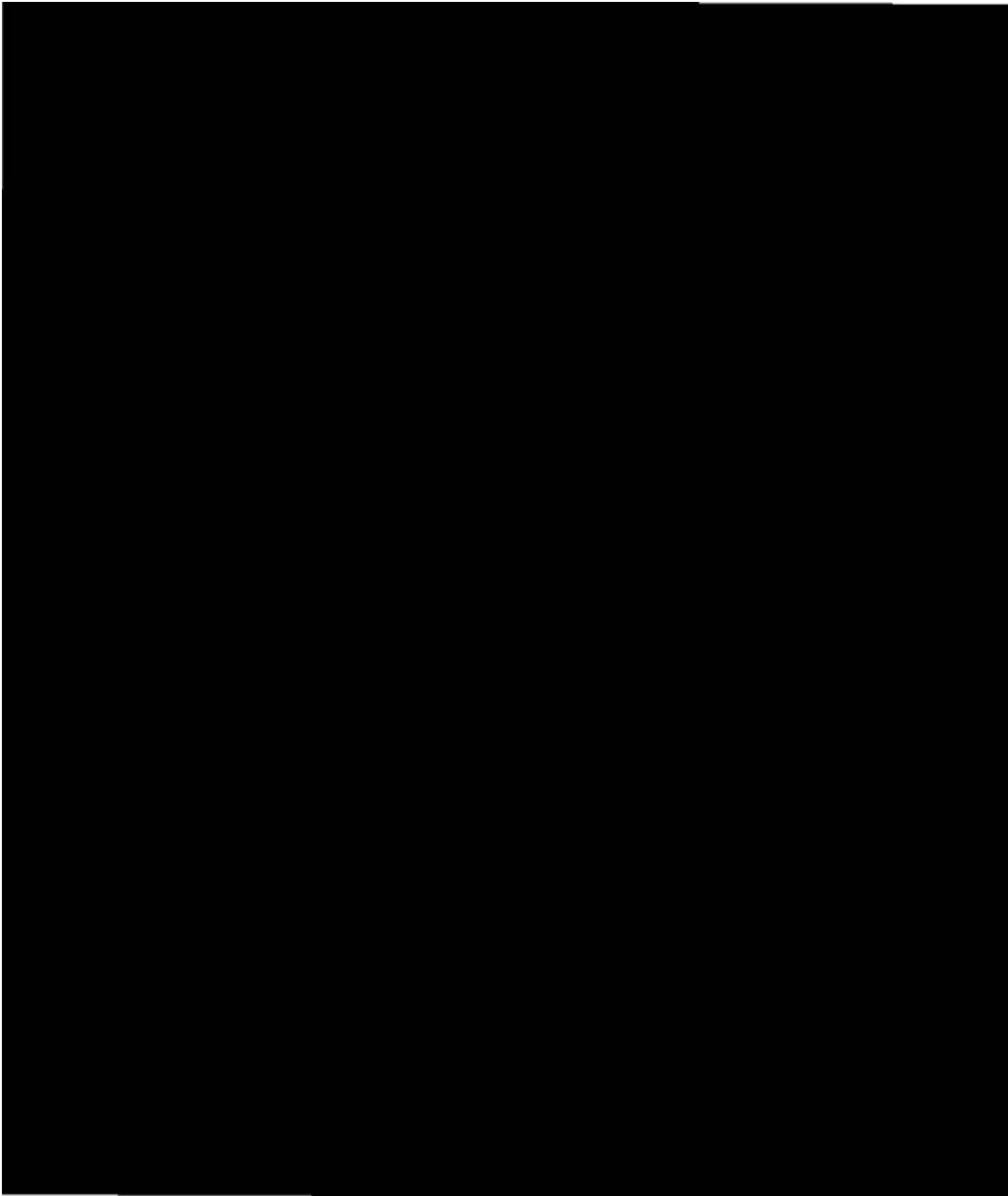


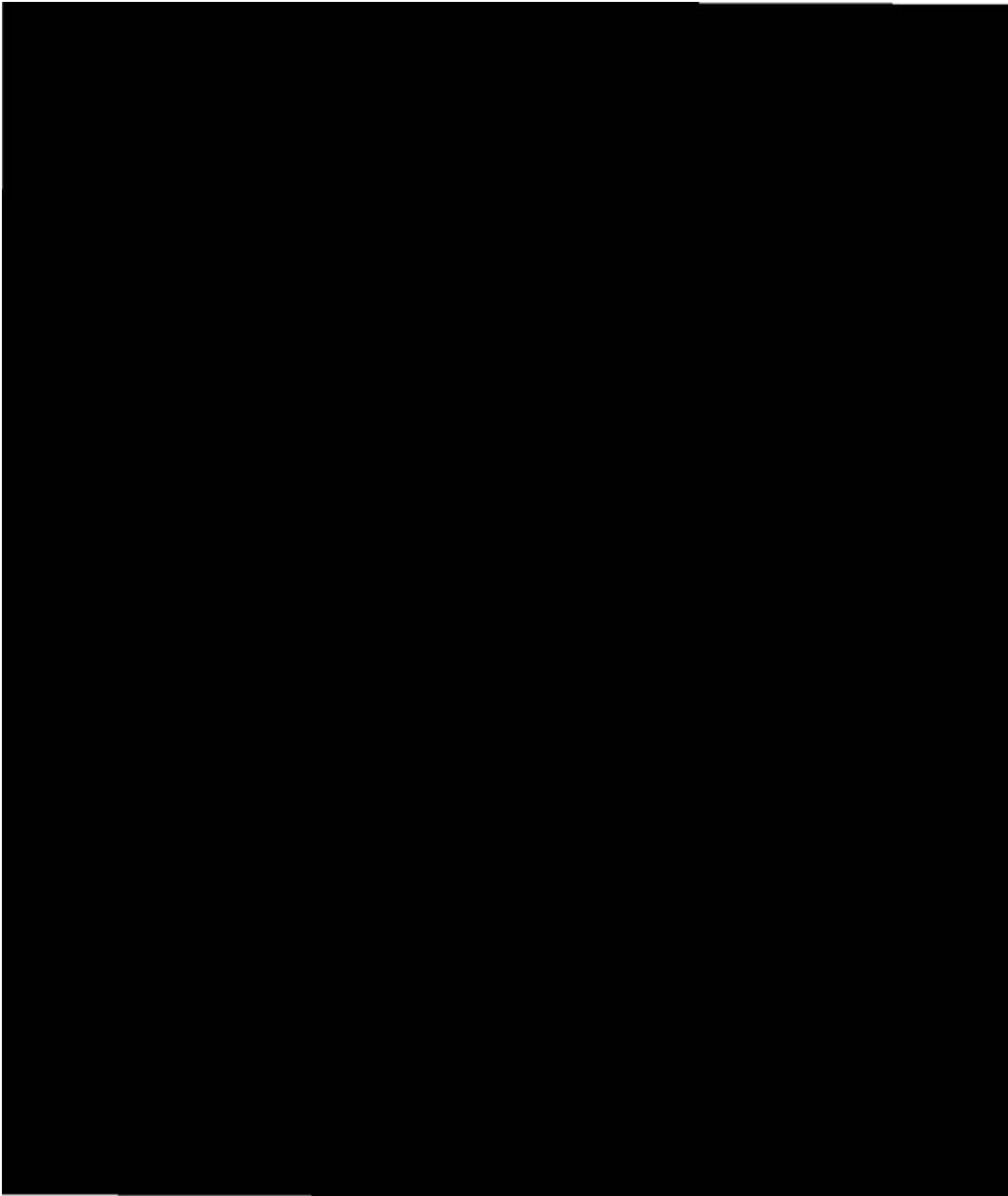


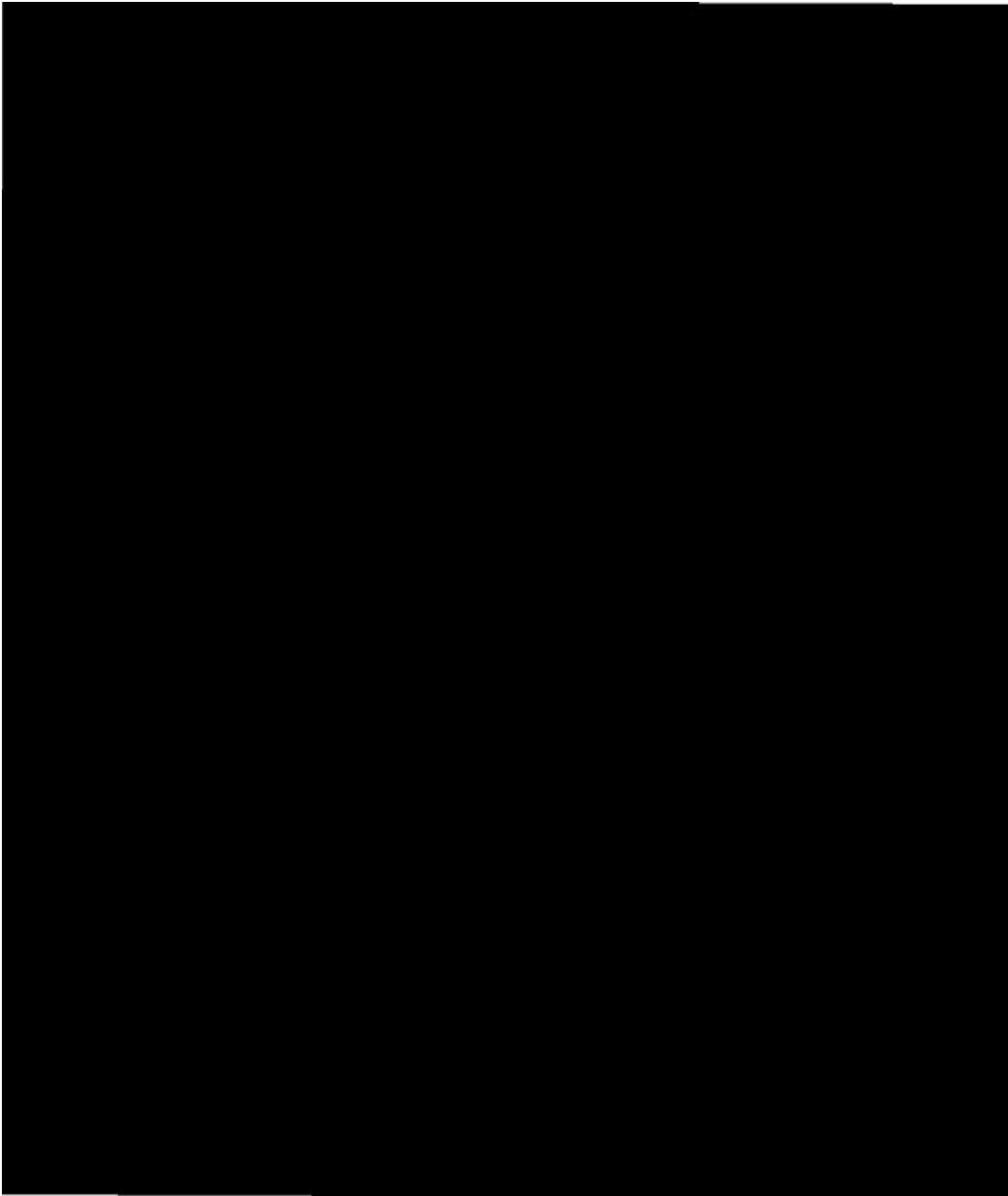


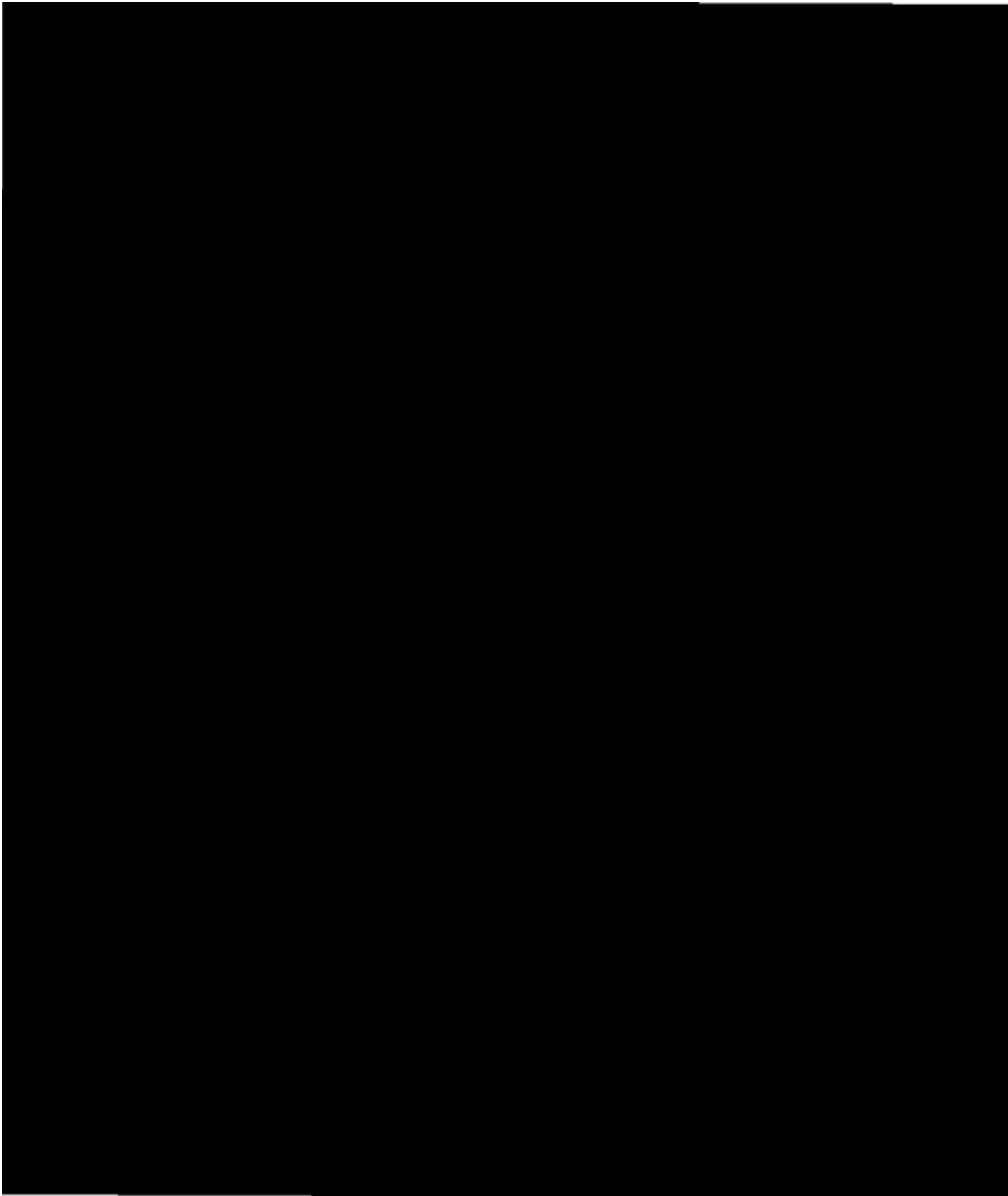


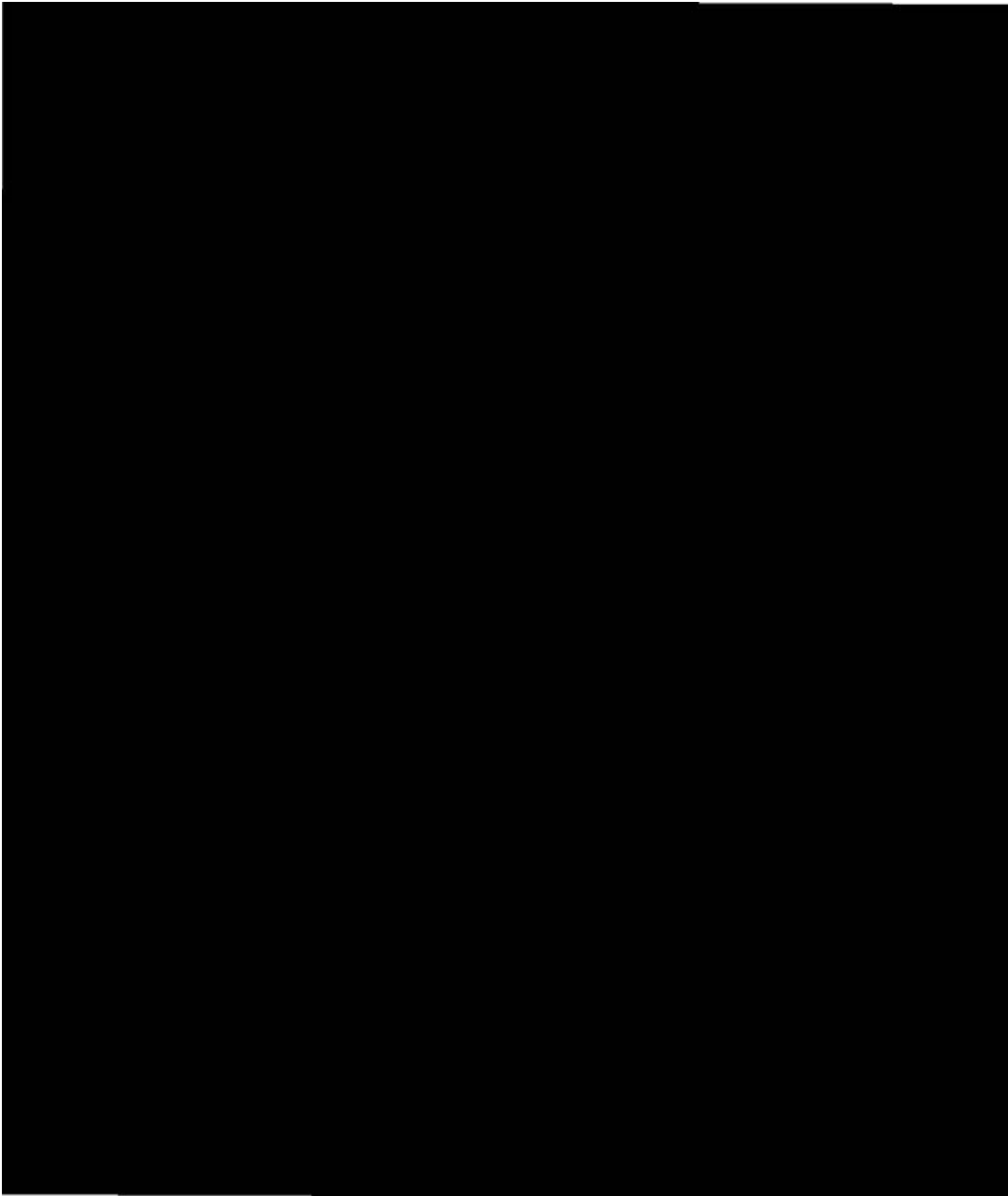












1.6.C Union Job Descriptions

Appendix 1.6.C – Union Job Descriptions

Job Description 1: Customer Rep

Classification: Customer Representative

Duties: Communicate with customers, whether in person, by telephone, or by written correspondence concerning accounts for processing, cut-ons, change meters, etc. Analyze machine output relative to accounts and take necessary action as required. Make arrangements with customers concerning method of payment of delinquent bills, either by routine collection, telephone calls or by direct customer contact. Secure the necessary information to answer telephone questions or arrange for others to furnish data to customers. Authorize field investigations and/or special meter readings, if necessary, to properly answer inquiries, operate ordinary office machines. Instruct other similar or lower grade employees in the proper performance of the Customer Representative job duties and conduct work flow.

Qualifications

Knowledge & Training: The ability to maintain files, perform simple arithmetical computations involving addition, subtraction, multiplication, and division of whole numbers, fractions, decimals and percentages. Successful completion of the Customer Representative training program. Knowledge of keyboard.

Experience: One year experience in related work, which includes a thorough knowledge of all clerical functions associated with Customer Office operations. Have the ability and personal characteristics necessary to handle responsible customer contacts.

Note: All candidates will be required to successfully complete Customer Representative testing and will be required to have successfully completed Customer Relations Training Program.

In addition to possessing the qualifications for this vacancy, employees selected will be expected to work overtime in accordance with departmental requirements and to participate in the Company's Emergency Restoration Program as may be required.

Employees selected for this classification will be required to participate in federally mandated drug testing programs prior to selection, randomly on a year-round basis, after an accident and for reasonable cause.

Job Description 2: Lineman/Linewoman First Cl.

Transmission and Distribution, Overhead Lines Department

Duties:

Employees will normally enter this classification and progress to Lineman 1st Class as shown below:

As an Apprentice Lineman work under the supervision of a foreman or Lineman, climb poles and towers and perform Overhead Line work in connection with installing, inspecting, testing, operating, repairing or maintaining electric transmission and distribution lines and equipment as follows:

- During the first 3 months as an Apprentice perform work on de-energized lines only.
- After 3 months as an Apprentice work on lines and equipment energized at secondary voltage (below 600 volts).
- As a 4th and 5th step Apprentice after completion of rubber glove training, work under close supervision of Foreman or Lineman as a second man on energized primary, transmission or street circuits. Perform basic hot stick functions.

Maintain a Driver's License as required by law. Drive and operate all trucks, tools and equipment associated with this work.

Have knowledge of Company tools, equipment and standards, rules, practices, electric lines and equipment and their functions.

May perform work on underground systems consistent with training and establish underground procedures.

May work independently on less skill work.

Lay out and carry through his work in the absence of a Foreman or Sr. Lineman.

Assist in preparation of reports and sketches associated with the job.

Upon progression to Lineman, in addition to above, perform all types of work on live distribution and transmission lines, including the use of all types of live line tools and equipment, in accordance with training and qualifications.

Making all standard transformer connections, phasing out, paralleling circuits, and making necessary voltage tests.

Reading and interpreting line construction prints, wiring diagrams, transformer connection diagrams, and circuit maps.

Instructing and training lower grade personnel in work methods and safe work practices.

Perform similar or less skill work as may be assigned.

Job Description 3: Customer Rep 6

Customer Relations Department

Duties:

Communicate with customers either in person, by telephone or by written correspondence concerning account or other information relative to the Customer Relations Department and/or the Company in general.

Perform all functions necessary to establish and/or terminate gas and/or electric service for all rate classifications. Prepare original source documents for computer data entry. Enter completed information into the computer system. Analyze all computer output, including all error messages, and take necessary action as required. Have thorough knowledge of all billing, applicable electric and gas rates. Perform manual calculations associated with the resolution of customer inquiries and complaints such as, but not limited to, heating and cooling degree day factors, annual estimated operating costs and the resolution of gas and electric residential and commercial billing investigations including switched meters and diversion of service cases. On occasion will perform field visits, except for the actual locking and unlocking of meters for non-payment, but, including participation in customer sensitivity programs and outreach efforts. Actively promote and participate in achievement of company programs such as, but not limited to, energy conservation and minimization of complaints to the P.S.C. Perform duties of position as required while out-stationed in municipal customer assistance oriented agencies.

Communicate with customers either in person, by telephone or by written correspondence concerning the payment of delinquent bills, surcharges, securing deposits, advance payment, etc.

Secure the necessary information to answer consumer inquiries and complaints or arrange for others to furnish such data to consumers. Initiate field investigations and/or special readings, if necessary, to properly answer inquiries or resolve complaints.

Be knowledgeable of and apply all P.S.C. and/or other regulatory agency requirements in the performance of the above.

Operate ordinary office machines, inclusive of CRT's, personal computers and others as required.

Instruct other similar or lower grade employees in the proper performance of all District Office duties.

Perform similar or less skilled work.

Job Description 4: Emergency Service Specialist

Duties:

Normally work alone and make initial response to all types of electric or gas emergency conditions.

Performing all types of line work on energized overhead and underground distribution and transmission lines in all voltage classifications. Investigating, locating and repairing faults on distribution and transmission lines in all voltage classifications. Making all types of standard connections, phasing out, paralleling circuits and taking electrical tests on overhead and underground distribution and transmission circuits in all voltage classifications. Investigating, locating and repairing faults on overhead and underground multiple and series street light circuits. Changing all types of lasps on line or dead multiple or review circuits and taking patrols as required. Make safe and provide temporary electric service on customer premises.

Performing all types of switching on distribution and transmission circuits. Operating circuit breakers and other equipment in substations as required.

Operate various types of line vehicles and equipment such as bucket truck, ladder truck, jib-boom and portable transformer truck. Responsible for truck stock and additional material or equipment required to perform the work.

Investigating gas emergencies and taking proper action to avoid danger and inconvenience to the public. Replacing blown governor stals, locating leaks, shutting off and making safe and turning and relighting appliances. Operating and being responsible for the care and use of motor vehicles, pumps, blowers, motor generators, tent equipment, tools and material associated with the work. Being responsible for the avoidance of danger to the public and the preparation of daily reports.

Reading and interpreting overhead and underground work order prints, construction standards, wiring diagrams, circuit maps, transformer connection and distribution equipment wiring diagrams and being familiar with the various types of service and meter connections as they apply to his work. Analyze, maintain and repair all types of distribution equipment such as automatic reclosures, vacuum switches, capacitor controls, load treak switches, etc.

Occasionally perform the duties of Special operator requiring familiarity with primary circuit maps, secondary facilities map, dispatching procedures, etc. Prepare daily reports.

Meeting customers and the public in a pleasant, tactful manner and performing his duties in such a manner as to ensure good public relations. Being thoroughly familiar with the Company's general rules for the operation of the electric and gas systems as they apply to his work.

Performing similar or less skilled work as may be assigned.

Job Description 5: Electric Technician

Construction, Substation Maintenance and Shops Department

Substation Maintenance Section

Job Rating:

	Degree	Points	
Education	4	56	Complete two years college or equivalent.
Experience	5-1/3	117	More than six and one-half years.
Initiative and Ingenuity	4	56	Plan and perform a sequence of difficult or unusual operations. Frequent use of judgment, Directive or general supervision.
Physical Demand	3	30	Frequent or almost continual medium physical effort.
Mental or Visual Demand	4	20	Concentrated mental and visual attention on work closely.
Responsible for Equip. or Process	3	15	Seldom over \$250.00.
Responsibility for Mat. or Product	3	15	Seldom over \$250.00.
Responsibility for Safety of Others	3	15	Compliance with standard safety precautions necessary. Responsible for observance of safety rules by not more than four helpers.
Responsibility for Work of Others	2	10	Responsible for the work of a group of not more than four employees, less than ten.
Working Conditions	3	30	Work having not more than two disagreeable factors that are frequent and simultaneous.
Hazards	4	20	Involves occasional and irregular exposure to health or accident hazards incapacitating in nature.

Duties: Performing the highest type of independent or cooperative work in accordance with established guidelines associated with all types of construction; application, theory of operation, maintenance and repair of all electrical and mechanical equipment, circuits, and associated facilities found in substations, electric and gas production plants, operating headquarters, peaking units, consumer owned equipment, networks, radial system equipment and other similar equipment and areas of responsibility.

- Must satisfactorily complete all prescribed education and training courses and meet all standards and qualifications.
- Reading, interpreting and applying prints, drawings and specifications.
- Setting up, performing, analyzing and interpreting test results.

- Installing, inspecting, testing, adjusting, maintaining, repairing, etc., all types of electrical and mechanical equipment and associated facilities.
- Apply manufacturers and Company instructions for installing, testing, adjusting, maintaining, and repairing equipment and associated facilities.
- Diagnose and correct difficulties and faults.
- Working on or near energized circuits or equipment.
- Lay out and carry through job assignments. Plan, coordinate, and perform work with other department or divisions.
- Responsible for and direct work of one subordinate.
- Prepare written reports, drawings and sketches.
- Perform such other comparable or less skilled work or special tests as may be assigned.
- Instruct and train lower grade personnel.

Additional Duties: Perform job duties as outlined in the systemwide Electric Technician B Job Description. Work independently or cooperatively in the construction, operation, maintenance and repair of electric and mechanical equipment; circuits and associated facilities found in substations electric and gas production plants, operating headquarters field distribution equipment and other equipment and areas of responsibility. Work on or near energized circuits or equipment. Prepare written reports, drawings, and sketches. Perform such other comparable or less skilled work or special tests as may be assigned.

Education: Apply principals of rational systems to solve practical problems. Perform ordinary arithmetic and algebraic procedures in standard practical applications. Must satisfactorily complete all prescribed education, all training courses in accordance with the progression series and meet all standards of qualifications. Must have ability to read, interpret and apply prints, drawings and specifications and diagnose and correct difficulties.

Experience: 3 ½ years' experience with electrical technical courses or related work.

Note: All candidates will be required to pass written tests, a structural steel climbing test and have a valid Driver's Licenses. In addition to possessing the qualifications for this vacancy, employs selected will be expected to work overtime in accordance with departmental requirements and to participate in the company's Emergency Restoration Program as may be required.

Job Description 6: Meter Service Representative

Duties: Read all types of gas and electric meters in the field. Leave missed reading cards in accordance with established procedure. May be assigned to perform all customer order work as required including change name & special reads and verify meter information. Report all incorrect or unusual conditions observed in the field including stopped meters, incorrect constants, transformer inspection, and gas meter piping for atmospheric corrosion. Install and replace automated meter reading devices. Perform physical locks on gas meters in emergency situations such as outages. May be assigned as a helper to assist a Technician or Working Leader as required. May be assigned to post company notices as needed, excluding collections. Prepare all necessary reports and participate in required surveys.

Knowledge & Training: Maintain files and logs, plot graphs, type, perform simple arithmetical computations involving addition, subtraction, multiplication and division of whole numbers, fractions, decimals and percentages.

Experience: Two years' experience in this or related work.

Note: Applicants must possess a valid Driver's License and be capable of passing a Company driving test.

In addition to possessing the qualifications for this vacancy, employees selected will be expected to work overtime in accordance with departmental requirements and to participate in the Company's Emergency Restoration Program as may be required.

Employees selected for this classification will be required to participate in federally mandated drug testing programs prior to selection, randomly on a year-round basis, after an accident and for reasonable cause.

Job Description 7: Working Line Foreman

Overhead Lines Department

Job Rating:

	Degree	Points	
Education	3	42	Complete four years high school or equivalent
Experience	5-2/3	125	More than eight years
Initiative and Ingenuity	4	56	Plan and perform a sequence of difficult or unusual operations. Frequent use of judgment, Directive or general supervision
Physical Demand	4	40	Sustained physical effort occasionally working with heavy material, or in a difficult work position
Mental or Visual Demand	4	20	Concentrated mental and visual attention on work closely
Responsible for Equip. or Process	4	20	Seldom over \$1,000.00
Responsibility for Mat. or Product	2	10	Seldom over \$100.00
Responsibility for Safety of Others	4	20	Responsible for enforcement of safety rules in a crew of not more than nine men
Responsibility for Work of Others	3	15	Ordinarily responsible for three or four helpers or assistance and instructs same
Working Conditions	3	30	Work having not more than two disagreeable factors that are frequent and simultaneous
Hazards	5	25	Involves frequent and regular exposure to health or accident hazards incapacitating in nature or resulting in death

Duties: Usually performing all types of work on overhead or underground live distribution lines in a neat and accurate manner and may be requires working on live transmission lines.

Supervising and coordinating the work of a light duty line crew, generally consisting of three men and himself. Being responsible for the conduct of men, avoidance of danger to public, care of material, equipment and tools associated with the work, and compliance with the Company's safety rules, both general and special.

Preparing daily reports.

Making all standard types of transformer connections, phasing out paralleling circuits and making necessary voltage tests.

Reading and interpreting line construction prints, wiring diagrams, circuit maps and transformer connection diagrams.

Being thoroughly familiar with various types of work order, allocation of time, store orders and stores return order forms and procedure applying to his work.

Operate motor vehicles which are necessary to his work.

Job Description 8: Meter Technician

Duties: Perform simple work associated with installation, test, use, repair and maintenance of all types of instruments and meters. Perform simple tests to obtain the collection and graphing of required data. These functions usually involve simple instrument and meter functions. Test, repair, and process such items as single-phase meters, current transformers and associated electric metering equipment. Load, unload trucks and maintain proper inventory levels. Prepare necessary reports associated with customer metering equipment and log data into the appropriate work tracking system. Perform the job safely, accurately and economically. Assist in the maintenance and repair of the equipment necessary to perform the functions of the job.

Perform electric collection activity including collection of arrears according to collection policies. Lock or terminate electric service as required, reestablish electric service upon receipt of proper payment. Understand and apply HEFPA rules associated to the Field Collection process.

Keep vehicle and work site in a clean, orderly, and safe condition. Assist higher classified personnel in all phases of their work. Applicants will be required to work overtime in accordance with the CBA. Applicants are required to perform work on ladders and aerial lifts as part of two person restoration team. Perform above noted functions in the field, Company property and consumer premises as required. Perform similar or less skilled work as may be required.

Qualifications

Apply principles of basic electricity, wiring, systems, and construction to solve practical problems. Perform ordinary arithmetic and algebraic procedures in standard practical applications. Applicant must possess a valid Driver's License.

A written entrance exam on basic electric principles and exam on physical working skills is also required as part of the requirements for acceptance into this position.

Two years' experience in this or related work.

Note: In addition to possessing the qualifications for this vacancy, employees selected will be expected to work overtime in accordance with departmental requirements and to participate in the Company's Emergency Restoration Program as may be required.

Job Description 9: Cable Splicer A

Job Rating:

	Degree	Points	
Education	2-1/2	35	Complete two years high school or equivalent required
Experience	5	110	More than five years
Initiative and Ingenuity	4	56	Plan and perform a sequence of difficult or unusual operations. Frequent use of judgment, Directive or general supervision
Physical Demand	4	40	Sustained physical effort, occasionally working with heavy material or in a difficult work position
Mental or Visual Demand	4	20	Concentrated mental and visual attention on work closely
Responsible for Equip. or Process	3	15	Seldom over \$250.00
Responsibility for Mat. or Product	2	10	Seldom over \$100.00
Responsibility for Safety of Others	3	15	Responsible for observance of safety rules by not more than four helpers
Responsibility for Work of Others	2	10	May be responsible for work of one or two helpers and may instruct same
Working Conditions	3	30	Work having not more than two disagreeable factors that are frequent and simultaneous
Hazards	5	25	Involves frequent and regular exposure to health or accident hazards incapacitating in nature or resulting in death

Duties: Making all voltage classes and types of transmission, distribution and street lighting splices and joints, pothead and terminals.

Perform switching on all voltage's classes of equipment.

Be familiar with and carry out acts of connecting, handling, and installing all types of underground equipment, transformer banks, switches, etc.

Be familiar with conduit and cable installation, reading and interpreting work order prints, wiring diagrams, standards specifications etc., and work on line cables in compliance with safe operating rules and working rules.

Be familiar with and use instruments and equipment normally required in underground work such as voltmeters, megger, phase sequence indicator, portable pumps and generators, blowers, gas detectors, etc.

Having a working knowledge of metals used elementary electricity and electric circuits. Be familiar with the company's general rules for operation of electric system, safe working rules both general and special and underground standards.

Performing similar or less skilled work as may be assigned.

Job Description 10: Customer Service Associate Post 2001

Classification: Customer Service Associate Post 2001

Duties: Maintain records and files pertaining to District/Collection office routines; i.e., processing customer correspondence, meter records, billing and collection records, etc. Key punch material relating to accounts. Handle relief operations of telephone switchboard and may act as cashier or receptionist. Assist in other office duties as required, including answering customer inquiries. Verify source and punched material for accuracy and completeness. Operate normal office machines. Knowledge of keyboard.

Qualifications

Knowledge & Training: Maintain files and logs, plot graphs, perform simple arithmetical computations involving addition, subtraction, multiplication and division of whole numbers, fractions, decimals and percentages.

Experience: Three months in this or related work.

Note: All candidates will be required to successfully complete Customer Representative testing and screening procedures.

All candidates will be required to have successfully completed Customer Relations Training Program.

In addition to possessing the qualifications for this vacancy, employees selected will be expected to work overtime in accordance with departmental requirements and to participate in the Company's Emergency Restoration Program as may be required.

Employees selected for this classification will be required to participate in federally mandated drug testing programs prior to selection, randomly on a year-round basis, after an accident and for reasonable cause.

1.6.D Golden Rules Agreement Letter

August 5, 2016

Mr. Kenneth Thoman, President
Local Union 94 IBEW
219 Franklin Street
Hightstown, New Jersey 08520

GOLDEN RULE VIOLATIONS

Dear Mr. Thoman,

The following reflects the agreement between the Company and IBEW Local 94 regarding, a willful act by employee that results in a violation of established safety "Golden Rules". These rules apply to all IBEW Local 94 represented employees who have completed their probationary period.

1. The parties have agreed that when an employee commits a willful act of any of the following four safety-related violations (i.e., the "Golden Rules") will result in enhanced disciplinary penalties as set forth in this letter:
 - a. FALL PROTECTION / WORKING AT HEIGHTS: Failure to wear the required fall protection where required such as but not limited to:
 - Fall protection shall be worn as required by regulation.
 - Aerial Lift Fall Protection Device shall be "engaged" cradle-to-cradle when ascending, descending, changing position and when in the working position.
 - Wood Pole Fall Restriction Device shall be "engaged" ground-to-ground when ascending, descending, changing position and when in the working position.
 - o When climbing wood poles that have pole steps or other obstructions, the hitch hike climbing method, utilizing the Fall Protection Equipment, may be used to ascend or descend when rigged such that an employee cannot fall more than two feet.
 - When in the working position, Fall Protection Equipment shall be used when rigged such that an employee cannot fall more than two feet.
 - While on steel structures with 100% attachment.
 - There are certain exemptions on the use of fall protection recognized by OSHA such as, but not limited, to the use of fall protection while using a scissor lift; these exemptions do not constitute a violation of the fall protection rule.

- b. **PPE ELECTRICAL/GAS SAFETY:** Failure to wear required Personal Protective Equipment (PPE) in the following situations:
- Electric Utility - Failure to wear required PPE when working in proximity to the potential of an electric arc, as specified in the Company's Safety Standards and Procedures Manual, Chapter 3 - Personnel Protective Equipment (PPE) (current requirements are specified by Tracking/Bulletin Number 15-101 which may be superseded by future revisions). The required PPE, i.e., Level 1 or Level 2 FRC, is dictated by the arc hazard analysis conducted and the exposure to energized or potentially energized equipment or conductors;
 - Gas Utility - Failure to wear required PPE when working in proximity to the potential of an electric arc, as specified in the Service Instruction Manual (SIM), Chapter 11 - Safety (current requirements are specified in Sec. 11-31 Electrical A&I's which may be superseded by future revisions). Failure to wear required PPE in a Gaseous Environment (uncontrolled natural gas), requirements are specified in the Gas Distribution Manual, Chapter 2 - Safety (current requirements are specified in Sec. 4.1 which may be superseded by future revisions).
 - PSEG Power- Failure to wear required PPE when working in proximity to the potential of an electric arc, as specified in the Company's Safety Manuals and Procedures (current requirements are specified by SA-FOS-700 and SS-AA-129 which may be superseded by future revisions) The required PPE, i.e., Level 1 or Level 2 FRC, is dictated by the arc hazard analysis conducted and the exposure to energized or potentially energized equipment or conductors;
- c. **TESTING FOR ATMOSPHERE:** Failure to utilize a Gas Analyzer where required as specified in the Company's applicable Safety Manuals and procedures;
- d. **SAFETY TAGGING:** Willful or recklessly operates equipment that has a red blocking tag on it or performs work without receiving the assignment from a tagging authority/person in charge (PIC).
2. Employees who willfully violate any of the designated "Golden Rules" as a first offense will be issued the following:
- a. One month (i.e., four work weeks) suspension without pay.

- b. Upon completion of the one month (4 work weeks) suspension, demotion in their occupational group to the "E" pay step for six months. They will perform the duties of the occupational group commensurate with that pay rate. Historical "Helper" job specifications of the occupational group will be instructive as to the duties that can be performed while at this pay step. After the six month demotion period, if they have no other safety violations, they will be returned to their former classification, wage rate and seniority (except as provided in section d below) without back pay for time spent suspended or demoted.
 - c. A Final Written Warning under the Positive Discipline Program will be issued from the date of suspension.
 - d. Employees in "Chief" classifications or their equivalent, will be prohibited from bidding on a Chief or equivalent classification for 24 months from the date of suspension. Upon completion of the six month demotion referred to in section (b) above, such employees will be restored to the next classification below Chief or its equivalent without back pay for time spent suspended or demoted.
- 3. Notwithstanding the above, where the Golden Rules violation is accompanied by other employee misconduct or violation of policy (for example, drug/alcohol use, serious violation of other work practices), the Company reserves the right to discharge the employee.
 - 4. This agreement may not be applicable to employees who are on active discipline of a First Level Written Reminder, or higher, at the time of the Golden Rules violation; in such cases the penalty may be subject to discharge.

If an employee commits a second Golden Rule violation the Company may consider and reference the prior violation in determining whether to discharge or take some other action

Sincerely,



Frank Romano
Sr. Director Labor and Employee Relations
PSEG Services Corporation



Accepted: Kenneth Thoman
President, Local Union 94 - IBEW

1.6.E Electric T&D and Customer Services Training Classes

Edison Training and Development Center
Course Catalog

EDISON TRAINING AND DEVELOPMENT CENTER
ELECTRIC DELIVERY – APPRENTICE PROGRAMS

Edison Training and Development Center Apprentice Programs provide training to meet contract, corporate policy, and regulatory compliance requirements. Associates must successfully complete each required course in order to advance in an Apprentice Program.

-----**Course Offerings:**

Apprentice Linemen/Linewoman Program

- Apprentice Line School
- Mobile Equipment Operations (Aerial Lifts)
- Hot Secondary
- Primary Assist 4/13KV
- Mobile Equipment Operations – Tensioners
- Line Final Review
- Earth Boring

Apprentice Division Mechanic Program

- Fundamentals of Electricity – Direct Current
- Fundamentals of Electricity – Alternating Current
- Basic Cable Splicing - Lead
- Basic Cable Splicing - Composition
- Underground Mechanical
- Advanced Cable Splicing
- Network Protectors
- Fault Locating & Special Splicing
- Underground Mobile Equipment
- Underground Final

Apprentice Equipment Operator Program

- Equipment Operator Fundamentals - Part I
- Backhoe and Trenching Operations
- Equipment Operator Fundamentals – Part II
- Equipment Operations Final Review

Apprentice Service Dispatcher Program

- Fundamentals of Electricity – Direct Current
- Fundamentals of Electricity – Alternating Current
- System Orientation
- Basic Service Dispatching
- 4/13KV Switching
- Distribution Supply & Transmission Switching
- Electric Distribution Fundamentals-Operations
- Advanced Operations
- Service Dispatcher Final

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Course Catalog

Apprentice Substation Operator Program

- Fundamentals of Electricity – Direct Current
- Fundamentals of Electricity – Alternating Current
- System Orientation
- Basic Operations
- 4/13KV Switching
- Distribution Supply & Transmission Switching
- Advanced Operations
- Operator Final

Apprentice Substation Mechanic Program

- Fundamentals of Electricity – Direct Current
- Fundamentals of Electricity – Alternating Current
- Substation Mechanical Operations
- 4 KV Breakers & Disconnects
- 13 KV Breakers & Disconnects
- Advanced Substation Mechanics
- 26 KV Switching
- 13 KV Switching
- 4 KV Switching
- Substation Mechanical Final

Apprentice Relay Technician Program

- Fundamentals of Electricity – Direct Current
- Fundamentals of Electricity – Alternating Current
- Relay Operations
- 4 KV Basic Relaying
- 13 KV Basic Relaying
- Distribution Supply Line Relaying
- Differential Relaying
- Generator Relaying
- Fundamentals of Electronic Test Equipment
- Transmission Relaying
- 26 KV Switching
- 13 KV Switching
- 4 KV Switching
- Relay Technician Final

Apprentice Meter Technician Program

- Fundamentals of Electricity – Direct Current
- Fundamentals of Electricity – Alternating Current
- Watthour Meter
- Polyphase Meter
- Transformer Meter
- Wiring Inspection
- Advanced Meter
- Meter Final Review

Apprentice Engineering Technician Program

- Fundamentals of Electricity – Direct Current
- Fundamentals of Electricity – Alternating Current
- Electric Distribution Fundamentals Technical – Basics
- Computer Aided Design and Drafting (CADD)
- Electric Distribution Fundamentals Technical - Advanced

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Course Catalog*

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Course Catalog

Automotive Mechanic/Technician – ‘New Hire’ Journeyman Training Program

- Air Brakes
- Oxyacetylene Burning & Brazing
- Backhoe & Trencher Maintenance
- Basic Hydraulics (IBEW)
- Basic Hydraulics (855)

Apprentice Automotive Mechanic Program (Local 855)

Part I:

- Basic Electric
- Basic Engine
- Basic Brakes
- Electronics
- Ignition Systems
- Fuel & Air Systems
- Exhaust & Emission Systems
- Drivability
- Steering & Suspension

Part II:

- Anti-Lock Brake Systems
- Drive Axles & Differentials
- Supplemental Restraint Systems
- Electronic Transmission
- Air Brakes
- Basic Hydraulics

Part III:

- Backhoe/Trencher
- Heating & Air Conditioning
- Air Compressor PT1
- Oxyacetylene Burning & Brazing

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Course Catalog

LINEMAN/LINEWOMAN
APPRENTICE TRAINING PROGRAM

OBJECTIVE: To prepare the employee to fulfill the duties of Apprentice Lineman/Linewoman in accordance with job specifications and contractual obligations.

<u>TITLE</u>	<u>WEEKS</u>
Division Orientation	4
Apprentice Line School	5
Mobile Equipment Operations – Aerial Lifts	2 (Days)
Division – Field Work	15
Hot Secondary	2
Division – Field Work	49
Primary Assist 4/13kv Line School	3
Division – Field Work	76
Mobile Equipment Operations – Aerial Lifts	3 (Days)
Line Final Review	1
Earth Boring Equipement	<u>3 (Days)</u>
TOTAL WEEKS	156 weeks 3 Days
Total Weeks in Formal School Training	12 weeks 3 days
Total Weeks in Field – On the Job Training	144 weeks

Edison Training and Development Center
Course Catalog

Apprentice Line School

SAP# EEDALM-01--C

Pre-Requisite: Qualified Climber

Audience: Apprentice Lineman/Linewoman

Class Size: 8

Duration: 25 Days

Course Objective:

To provide Apprentice Lineman/Linewoman with working knowledge of safe work practices and procedures, including climbing skills, safe applications of tools/equipment for the installation of de-energized sub-transmission and distribution overhead construction.

Mobile Equipment Operations-Aerial Lifts

SAP# EEDALM-02--C

Pre-Requisite: Apprentice Line School (EEDALM-01-C)

Audience: Apprentice Lineman/Linewoman

Class Size: 8

Duration: 2 Days

Course Objective:

To provide Apprentice Lineman & Linewoman with the knowledge & skills to inspect, setup and operate aerial lift devices in accordance with equipment manufacturer, and safe work practices & procedures.

Edison Training and Development Center
Course Catalog

Hot Secondary Line School

SAP# EEDALM-03--C

Pre-Requisite: Mobile Equipment Operations(Aerial Lift)(EEDALM-02--C)

Audience: Apprentice Lineman/Linewoman

Class Size: 8

Duration: 10 Days

Course Objective:

Provide the Apprentice Lineman/Linewoman with practical knowledge and experience in safe work practices associated with the construction, installation, maintenance, testing and repair of single & polyphase secondaries/services.

Primary Assist 4/13kv Line School

SAP# EEDALM-04--C

Pre-Requisite: Hot Secondary Line School (EEDALM-03--C)

Audience: Apprentice Lineman/Linewoman

Class Size: 8

Duration: 15 Days

Course Objective:

To prepare Apprentice Lineman/Linewoman to perform as primary learners, during their next 18 months of on-the-job training.
To make them aware of the hazards involved while working on and around live primary conductors and equipment.

Edison Training and Development Center
Course Catalog

Mobile Equipment Operations-Tensioners

SAP# EEDALM-05--C

Pre-Requisite: Primary Assist (EEDALM-04--C)

Audience: Apprentice Lineman/Linewoman

Class Size: 8

Duration: 3 Days

Course Objective:

To provide Apprentice Lineman/Linewoman with basic skills & knowledge required for the inspection, setup, and operation of basic tensioning equipment used for distribution supply & distribution conductors.

Line Final

SAP# EEDALM-06--C

Pre-Requisite: Mobile Equipment Operations(Tensioners)(EEDALM-05--C)

Audience: Apprentice Lineman/Linewoman

Class Size: 8

Duration: 5 Days

Course Objective:

To review & reinforce the Apprentice Lineman's/Linewoman's knowledge, skills, & abilities to effectively perform the work required in the construction, operation, maintenance, and installation of the Distribution Outside Plant.

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Course Catalog

Earth Boring Equipment

SAP# EEDALM-07--C

Pre-Requisite: Line Final (EEDALM-06--C)

Audience: Apprentice Lineman/Linewoman

Class Size: 4

Duration: 3 Days

Course Objective:

To provide Lineman/Linewoman with basic skills and knowledge required to operate earth boring equipment, including loading, setting & removing poles, installing anchors and maneuvering truck with pole trailer.

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Course Catalog

DIVISION MECHANIC
APPRENTICE TRAINING PROGRAM

OBJECTIVE: To prepare the employee to fulfill the duties of Apprentice Division Mechanic in accordance with job specifications and contractual obligations.

<u>TITLE</u>	<u>WEEKS</u>
Division Orientation	4
Fundamentals of Electricity – DC/AC	2
Division – Field Work	1
Basic Cable Splicing - Lead	2
Division – Field Work	2
Basic Cable Splicing - Composition	2
Division – Field Work	2
Mechanical Underground/Competent Person (Excavating/Shoring)	1
Division – Field Work	15
Advanced Cable Splicing	2
Division – Field Work	11
Network School	2
Division – Field Work	19
Fault Locating and Special Splicing	1
Division – Field Work	28
Underground Mobile Equipment	3 (days)
Underground Final Review	1
Division – Field Work	<u>8</u>
TOTAL WEEKS	104
Total Weeks in Formal Training	13 weeks & 3days
Total Weeks in the Field-On the Job Training	90 weeks & 2 days

Edison Training and Development Center
Course Catalog

Fundamentals of Electricity-DC

SAP# EEDFEDC----C

Pre-Requisite: None

Audience: Apprentice Division Mechanics

Class Size: 10

Duration: 5 Days

Course Objective:

Instruction in Fundamentals of Electricity-direct current including; theory and practical Laboratory work. Course presents an overview of the electric utility industry and an introduction to Electric T&D.

Fundamentals of Electricity-AC

SAP# EEDFEAC----C

Pre-Requisite: Fundamentals of Electricity DC (EEDFEDC----C)

Audience: Apprentice Division Mechanics

Class Size: 10

Duration: 5 Days

Course Objective:

Instruction in Fundamentals of Electricity-alternating current, Electrical theory including ; R-L-C, single phase, polyphase, wye and delta circuits are presented. The transmission and distribution system is examined.

Edison Training and Development Center
Course Catalog

Basic Cable Splicing-Lead

SAP# EEDADM-01--C

Pre-Requisite: Fundamentals of Electricity - Alternating Current (EEDFAC----C)

Audience: Apprentice Division Mechanics

Class Size: 10

Duration: 10 Days

Course Objective:

To provide Apprentice Division Mechanics with the working knowledge and the basic skills to perform cable splicing of paper and lead, XLPE, and EPR cable conductors, including switching, tagging and phasing of all (metal clad) manual and automatic primary switch gear.

Basic Cable Splicing-Composition

SAP# EEDADM-01A-C

Pre-Requisite: Basic Cable Splicing – Lead (EEDADM-01--C)

Audience: Apprentice Division Mechanics

Class Size: 8

Duration: 10 Days

Course Objective:

To provide Apprentice Division Mechanic with the working knowledge and basic skills to perform composition type cable splicing, including XLPE and EPR cable conductors; switching, tagging, and phasing of all (metal-clad) manual and automatic primary switchgear.

Edison Training and Development Center
Course Catalog

Underground Mechanical

SAP# EEDADM-03--C

Pre-Requisite: Underground Mobile Equipment (EEDADM-02--C)

Audience: Apprentice Division Mechanics

Class Size: 8

Duration: 4 Days

Course Objective:

To provide Apprentice Division Mechanics with methods and procedures used in all phases of Underground Construction including: Hazardous Materials Handling, and direct buried / conventional systems layouts.

Competent Person - Excavating & Trench Operations (OSHA)

SAP# HSECTRENCHIC

Pre-Requisite: Underground Mobile Equipment (EEDADM-02--C)

Audience: Apprentice Division Mechanics

Class Size: 8

Duration: 1 Day

Course Objective:

Given the Competent Person Manual and a sample set of pictures with verbal explanations of excavations sites; soil identification, determine the sites meet OSHA and PSE&G requirements.

Edison Training and Development Center
Course Catalog

Advanced Cable Splicing

SAP# EEDAM-05--C

Pre-Requisite: Underground Mechanic (EEDADM-03--C)

Audience: Apprentice Division Mechanics

Class Size: 8

Duration: 10 Days

Course Objective:

To provide the Apprentice Division Mechanics with working knowledge and advanced skills to perform cable splicing of paper/lead, XLPE and EPR cable conductors; including all multi-phase branch & high voltage splices, switching, tagging, phasing, and grounding of network equipment.

Network Protector School

SAP# EEDADM-04--C

Pre-Requisite: Advanced Cable Splicing (EEDADM-05--C)

Audience: Apprentice Division Mechanics

Class Size: 8

Duration: 5 Days

Course Objective:

To provide Apprentice Division Mechanics with basic skills and knowledge required to operate, test, maintain and troubleshoot network protectors.

Edison Training and Development Center
Course Catalog

Fault Locating & Special Splicing

SAP# EEDADM-06--C

Pre-Requisite- Cable Splicing (EEDADM-05--C)

Audience: Apprentice Division Mechanics

Class Size: 8

Duration: 5 Days

Course Objective:

To provide Apprentice Division Mechanics with a working background and basic skills to perform fault locating of conventional & direct buried cables and provide technical updates on specialized splicing techniques.

Underground Mobile Equipment

SAP# EEDADM-02--C

Pre-Requisite: Basic Cable Splicing - Lead (EEDADM-01--C)

Audience: Apprentice Division Mechanics

Class Size: 8

Duration: 3 Days

Course Objective:

To provide Apprentice Division Mechanics with basic skills and knowledge required to inspect, setup, and operate mobile equipment, including line lift trucks, truck mounted pullers/tensioners, and winch trucks.

Edison Training and Development Center
Course Catalog

Underground Final

SAP# EEDADM-07--C

Pre-Requisite: Fault Locating & Special Splicing (EEDADM-06--C)

Audience: Apprentice Division Mechanics

Class Size: 8

Duration: 5 Days

Course Objective:

To provide Apprentice Division Mechanics with reinforcement and final performance assessment of knowledge and mechanical skills necessary to consistently perform at field standards.

Edison Training and Development Center
Course Catalog

EQUIPMENT OPERATOR
APPRENTICE TRAINING PROGRAM

OBJECTIVE: To prepare the employee to fulfill the duties of Apprentice Equipment Operator in accordance with job specifications and contractual obligations.

<u>TITLE</u>	<u>WEEKS</u>
Division Orientation	4
Equipment Operator Fundamentals – Part 1	2
Backhoe * Trenching Equipment Operations	*1
Division – Field Work	16
Equipment Operator Fundamentals – Part 2	2
Division – Field Work	66
Final Review	1
Division – Field Work	<u>12</u>
TOTAL WEEKS	104
Total Weeks in Formal Training	6 weeks
Total Weeks in Field – On the Job Training	98 weeks

* Backhoe & Trenching Equipment Operations to be scheduled during the annual schedule of available dates.

Equipment Operator Fundamentals – Part I

SAP# EEDEOFUNDPT1

Pre-Requisite: Commercial Driver's License (CDL) – Class A

Audience: Apprentice Equipment Operators

Class Size: 4

Duration: 10 days

Course Objective:

To provide the Apprentice Equipment Operator with the skills and knowledge required to safely operate earth boring equipment including: loading/limits of trailers, setting & removing poles, installing anchors and maneuvering truck and pole trailer. Also provide a working knowledge of the use and care of the equipment and associated tools, and Marking of Underground Facilities (Markouts) and Excavating & Trenching Operations (Competent Person – course, SAP# HSECTRENCHIC).

Backhoe & Trenching Equipment Operations

SAP# EEDEOFUNDPT1

Pre-Requisite: Equipment Operator Fundamentals – Part 1

Audience: Apprentice Equipment Operators

Class Size: 4

Duration: 5 days

Course Objective:

To provide the participants with the Basic Skills & Knowledge to operate Backhoe/Loader and Trenching Equipment.

Equipment Operator Fundamentals – Part II

SAP# EEDEOFUNDPT1

Pre-Requisite: Equipment Operator Fundamentals – Part I

Audience: Apprentice Equipment Operators

Class Size: 4

Duration: 10 days

Course Objective:

To provide the Apprentice Equipment Operators with the basic skills and knowledge required to safely operate special lifting equipment, winch trucks & cable pulling equipment, and tensioning mobile equipment.

Final Review

SAP# EEDEOFNLREVC

Pre-Requisite: Equipment Operator Fundamentals – Part II

Audience: Apprentice Equipment Operators

Class Size: 4

Duration: 5 days

Course Objective:

To review & reinforce the Apprentice Equipment Operator's knowledge, skills, & abilities to effectively & safely operate and maintain mobile equipment, e.g. backhoe, earth boring equipment, trucks/trailers, etc. used to support the work required in the construction, operation, maintenance, and installation of the Distribution Outside Overhead & Underground Plant.

Edison Training and Development Center
Course Catalog

SERVICE DISPATCHER
APPRENTICE TRAINING PROGRAM

OBJECTIVE: To prepare the employee to fulfill the duties of Apprentice Service Dispatcher in accordance with job specifications and contractual obligations.

<u>TITLE</u>	<u>WEEKS</u>
Division Orientation	4
Fundamentals of Electricity – DC/AC	2
Division – Field Work	2
System Orientation	1
Basic Service Dispatching	2
Division – Field Work	4
4/13KV Switching	4
Division – Field Work	12
Dist. Supply and Transmission Switching	3
Division – Field Work	10
Electric Distribution Fundamentals – Operations	2
Division – Field Work	10
Advanced Operations	2
Division – Field Work	25
Final Review	1
Division – Field Work	<u>20</u>
TOTAL WEEKS	104
Total Weeks in Formal School Training	17 weeks
Total Weeks in the Field-On the Job Training	87 weeks

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Course Catalog

Fundamentals of Electricity-DC

SAP# EEDFEDC----C

Pre-Requisite: None

Audience: Apprentice Relay Technicians

Class Size: 10

Duration: 5 Days

Course Objective:

Instruction in Fundamentals of Electricity-direct current including; theory and practical Laboratory work. Course presents an overview of the electric utility industry and an introduction to Electric T&D.

Fundamentals of Electricity-AC

SAP# EEDFEAC----C

Pre-Requisite: None

Audience: Apprentice Relay Technicians

Class Size: 10

Duration: 5 Days

Course Objective:

Instruction in Fundamentals of Electricity-alternating current, Electrical theory including ; R-L-C, single phase, polyphase, wye and delta circuits are presented. The transmission and distribution system is examined.

Edison Training and Development Center
Course Catalog

System Orientation

SAP# EEDAOP-01--C

Pre-Requisite: Fundamentals of Electricity - Alternating Current (EEDFFAC----C)

Audience: Apprentice Service Dispatchers

Class Size: 6

Duration: 5 days

Course Objective:

To introduce Apprentice Substation Operators and Apprentice Service Dispatchers to the safety practices/procedures, substation terms, one-line diagrams, symbols and basic communication techniques.

Basic Service Dispatching

SAP# EEDASD-01--C

Pre-Requisite: System Orientation (EEDAOP-01--C)

Audience: Apprentice Service Dispatchers

Class Size: 6

Duration: 10 Days

Course Objective:

To familiarize the Apprentice Service Dispatcher with the safe, efficient operation of Inside and Outside Plant circuits/equipment at the Distribution level.

Edison Training and Development Center
Course Catalog

4/13kv Switching

SAP# EEDAOP-02--C

Pre-Requisite: Basic Service Dispatching (EEDASD-01--C)

Audience: Apprentice Service Dispatchers

Class Size: 6

Duration: 20 Days

Course Objective:

To provide Apprentice Substation Operators & Apprentice Service Dispatchers with standardized technical background and hands-on experiences in the safe operation/switching of 4/13kv distribution equipment.

Distribution Supply & Transmission Switching

SAP# EEDAOP-03--C

Pre-Requisite: 4/13kv Switching (EEDAOP-02--C)

Audience: Apprentice Service Dispatchers

Class Size: 6

Duration: 15 Days

Course Objective:

To provide Apprentice Substation Operators & Apprentice Service Dispatchers with standardized technical background and hands-on experiences in the safe operation/switching of distribution supplies & transmission system lines/equipment.

Edison Training and Development Center
Course Catalog

Electric Distribution Fundamentals - Operations

SAP# EEDASD-02--C

Pre-Requisite: Basic Service Dispatching (EEDASD-01--C)

Audience: Apprentice Service Dispatchers

Duration: 10 Days

Course Objective:

To familiarize the Apprentice Service Dispatcher with the operation of Inside and Outside Plant circuits/equipment at the Distribution and Subtransmission level.

Advanced Operations

SAP# EEDAOP-04--C

Pre-Requisite: Distribution Supply & Transmission Switching (EEDAOP-03--C)

Audience: Apprentice Service Dispatchers

Class Size: 6

Duration: 10 Days

Course Objective:

At the conclusion of this course, students will be able to demonstrate the ability to apply emergency practices and procedures in a manner consistent with the safe, efficient operation of the Distribution Systems' facilities. Using the Substation Operating Manual and handouts, students will demonstrate the application of this knowledge by completing practical exercises, quizzes and a final exam. Specific topics to be covered are as follows:

Edison Training and Development Center
Course Catalog

Final Review of Formal Training-Service Dispatcher

SAP# EEDASD-03--C

Pre-Requisite: Advanced Operations (EEDAOP-04- -C)

Audience: Apprentice Service Dispatchers

Duration: 5 Days

Course Objective:

To review with the Apprentice Service Dispatcher the safe operation and control of the distribution and subtransmission system.

Edison Training and Development Center
Course Catalog

SUBSTATION OPERATOR
APPRENTICE TRAINING PROGRAM

OBJECTIVE: To prepare the employee to fulfill the duties of Apprentice Substation Operator in accordance with job specifications and contractual obligations.

<u>TITLE</u>	<u>WEEKS</u>
Division Orientation	4
Fundamentals of Electricity – DC/AC	2
Division – Field Work	2
System Orientation	1
Division – Field Work	2
Basic Operations	2
Division – Field Work	2
4/13KV Switching	4
Division – Field Work	12
Dist. Supply and Transmission Switching	3
Division – Field Work	22
Advanced Operations	2
Division – Field Work	25
Final Review	1
Division – Field Work	<u>20</u>
TOTAL WEEKS	104
Total Weeks in Formal School Training	15 weeks
Total Weeks in the Field-On the Job Training	89 weeks

Edison Training and Development Center
Course Catalog

Fundamentals of Electricity-DC

SAP# EEDFEDC----C

Pre-Requisite: None

Audience: Apprentice Relay Technicians

Class Size: 10

Duration: 5 Days

Course Objective:

Instruction in Fundamentals of Electricity-direct current including; theory and practical Laboratory work. Course presents an overview of the electric utility industry and an introduction to Electric T&D.

Fundamentals of Electricity-AC

SAP# EEDFEAC----C

Pre-Requisite: None

Audience: Apprentice Relay Technicians

Class Size: 10

Duration: 5 Days

Course Objective:

Instruction in Fundamentals of Electricity-alternating current, Electrical theory including ; R-L-C, single phase, polyphase, wye and delta circuits are presented. The transmission and distribution system is examined.

Edison Training and Development Center
Course Catalog

System Orientation

SAP# EEDAOP-01--C

Pre-Requisite: Fundamentals of Electricity - Alternating Current (EEDFFAC----C)

Audience: Apprentice Service Dispatchers

Class Size: 6

Duration: 5 days

Course Objective:

To introduce Apprentice Substation Operators and Apprentice Service Dispatchers to the safety practices/procedures, substation terms, one-line diagrams, symbols and basic communication techniques.

Basic Operations

SAP# EEDASO-01--C

Pre-Requisite: System Orientation (EEDAOP-01--C)

Audience: Apprentice Substation Operators

Class Size: 6

Duration: 10 Days

Course Objective:

To provide Apprentice Substation Operators with basic knowledge & skills in the interpretation of station one line diagrams, application of safety tags/rope/tape, conducting potential testing, and conducting station inspections using all appropriate personal protective equipment.

Edison Training and Development Center
Course Catalog

4/13kv Switching

SAP# EEDAOP-02--C

Pre-Requisite: Basic Service Dispatching (EEDASD-01--C)

Audience: Apprentice Service Dispatchers

Class Size: 6

Duration: 20 Days

Course Objective:

To provide Apprentice Substation Operators & Apprentice Service Dispatchers with standardized technical background and hands-on experiences in the safe operation/switching of 4/13kv distribution equipment.

Distribution Supply & Transmission Switching

SAP# EEDAOP-03--C

Pre-Requisite: 4/13kv Switching (EEDAOP-02--C)

Audience: Apprentice Service Dispatchers

Class Size: 6

Duration: 15 Days

Course Objective:

To provide Apprentice Substation Operators & Apprentice Service Dispatchers with standardized technical background and hands-on experiences in the safe operation/switching of distribution supplies & transmission system lines/equipment.

Edison Training and Development Center
Course Catalog

Advanced Operations

SAP# EEDAOP-04--C

Pre-Requisite: Distribution Supply & Transmission Switching (EEDAOP-03--C)

Audience: Apprentice Service Dispatchers

Class Size: 6

Duration: 10 Days

Course Objective:

At the conclusion of this course, students will be able to demonstrate the ability to apply emergency practices and procedures in a manner consistent with the safe, efficient operation of the Distribution Systems' facilities. Using the Substation Operating Manual and handouts, students will demonstrate the application of this knowledge by completing practical exercises, quizzes and a final exam. Specific topics to be covered are as follows:

Operator Final Review

SAP# EEDASO-02--C

Pre-Requisite: Abnormal Operations (EEDAOP-04--C)

Audience: Apprentice Substation Operators

Class Size: 6

Duration: 5 Days

Course Objective:

To provide apprentice substation operators with the knowledge needed to complete their training.

Edison Training and Development Center
Course Catalog

SUBSTATION MECHANIC
APPRENTICE TRAINING PROGRAM

OBJECTIVE: To prepare the employee to fulfill the duties of Apprentice Substation Mechanic in accordance with job specifications and contractual obligations.

<u>TITLE</u>	<u>WEEKS</u>
Division Orientation	4
Fundamentals of Electricity – DC/AC	2
Division – Field Work	4
Substation Mechanic Operations	3
Division – Field Work	6
Mechanical Fundamentals	3
Division – Field Work	12
4KV Breakers/Disconnects	2
Division – Field Work	14
13KV Breakers/Disconnects	2
Division – Field Work	16
Advanced Substation Mechanic Systems (Wks 1/2)	2
Division – Field Work	6
Advanced Substation Mechanic Systems (Wks 3/4)	2
Division – Field Work	6
26KV Switching	1
13KV Switching	1
4KV Switching	1
Division – Field Work	6
Substation Mechanic Final Review	1
Division – Field Work	<u>10</u>
TOTAL WEEKS	104
Total Weeks in Formal School Training	21 weeks
Total Weeks in Field – On the Job Training	83 weeks

Edison Training and Development Center
Course Catalog

Fundamentals of Electricity-DC

SAP# EEDFEDC----C

Pre-Requisite: None

Audience: Apprentice Relay Technicians

Class Size: 10

Duration: 5 Days

Course Objective:

Instruction in Fundamentals of Electricity-direct current including; theory and practical Laboratory work. Course presents an overview of the electric utility industry and an introduction to Electric T&D.

Fundamentals of Electricity-AC

SAP# EEDFEAC----C

Pre-Requisite: None

Audience: Apprentice Relay Technicians

Class Size: 10

Duration: 5 Days

Course Objective:

Instruction in Fundamentals of Electricity-alternating current, Electrical theory including ; R-L-C, single phase, polyphase, wye and delta circuits are presented. The transmission and distribution system is examined.

Edison Training and Development Center
Course Catalog

Substation Mechanical Operations

SAP# EEDASM-01--C

Pre-Requisite: Fundamentals of Electricity-Alternating Current (EEDFEAC----C)

Audience: Substation Mechanics/Relay Technicians

Class Size: 6

Duration: 15 Days

Course Objective:

To introduce Apprentice Substation Mechanics/Relay Technicians to safe work practices and procedures, substation terms, one-line diagrams, types of stations, hand tools, control prints, basic test equipment and communications.

Mechanical Fundamentals

SAP# EEDASM-02--C

Pre-Requisite: Substation Mechanic Operations (EEDASM-01- -C)

Audience: Apprentice Substation Mechanics

Class Size: 6

Durations: 15 Days

Course Objective:

To provide Apprentice Substation Mechanics with basic knowledge & skills in the interpretation of electrical prints/wiring diagrams, application of safety tags/rope/tape, equipment operations, and rigging fundamentals using all appropriate personal protective equipment.

Edison Training and Development Center
Course Catalog

4kv Breakers/Disconnects

SAP# EEDASM-03--C

Pre-Requisite: Mechanical Fundamentals (EEDASM-02--C)

Audience: Apprentice Substation Mechanics

Class Size: 6

Duration: 10 Days

Course Objective:

To provide Apprentice Substation Mechanics with working knowledge & skills in the maintenance, troubleshooting and repair of 4 KV breakers & disconnects, including OCBs and ACBs.

13kv Breakers/Disconnects

SAP# EEDASM-04--C

Pre-Requisite: 4kv Breakers & Disconnects (EEDASM-03--C)

Audience: Apprentice Substation Mechanics

Class Size: 6

Duration: 10 Days

Course Objective:

To provide Apprentice Substation Mechanics with working knowledge & skills in the maintenance, troubleshooting and repair of 13kv breakers & disconnects, including unit substations.

Edison Training and Development Center
Course Catalog

Advanced Substation Mechanic Weeks 1 & 2

SAP# EEDASM-05a-C

Pre-Requisite: 13kv Breakers & Disconnects (EEDASM-04--C)

Audience: Apprentice Substation Mechanics

Class Size: 6

Duration: 10 Days

Course Objective:

To provide Apprentice Substation Mechanics with knowledge and skills necessary to operate, maintain, troubleshoot high voltage equipment and control circuits for transformers, tap changers, circuit switchers, circuit breakers, compressors, and sectionalizing/transfer schemes.

Advanced Substation Mechanic Weeks 3 & 4

SAP# EEDASM-05b-C

Pre-Requisite: 13kv Breakers & Disconnects (EEDASM-04--C)

Audience: Apprentice Substation Mechanics

Duration: 10 Days

Course Objective:

To continue to provide Apprentice Substation Mechanics with knowledge and skills necessary to operate, maintain, troubleshoot high voltage equipment and control circuits for transformers, tap changers, circuit switchers, circuit breakers, compressors, and sectionalizing/transfer schemes.

Edison Training and Development Center
Course Catalog

26kv Switching

SAP# EEDASW-01--C

Pre-Requisite: Advanced Substation Mechanic Weeks 3 & 4

Audience: Apprentice Substation Mechanics

Class Size: 6

Duration: 5 Days

Course Objective:

To provide Apprentice Relay Technicians & Substation Mechanics with skills and knowledge necessary to safely switch 26 KV circuits & equipment.

13kv Switching

SAP# EEDASW-02--C

Pre-Requisite: 26kv Switching (EEDASW-01--C)

Audience: Apprentice Substation Mechanics

Class Size: 6

Duration: 5 Days

Course Objective:

To provide Apprentice Relay Technicians & Substation Mechanics with skills and knowledge necessary to safely switch 13kv circuits & equipment.

*Edison Training and Development Center
Course Catalog*

4kv Switching

SAP# EEDASW-03--C

Pre-Requisite: 13kv Switching (EEDASW-02--C)

Audience: Apprentice Substation Mechanics

Class Size: 6

Duration: 10 Days

Course Objective:

To provide Apprentice Relay Technicians & Substation Mechanics with skills and knowledge necessary to safely switch 4kv circuits & equipment within various classifications of substations.

Substation Mechanic Final Review

SAP# EEDASM-06--C

Pre-Requisite: Advanced Substation Mechanic Systems (EEDASM-05--C)

Audience: Apprentice Substation Mechanics

Duration: 5 Days

Course Objective:

To provide Apprentice Substation Mechanics with basic knowledge & skills in the interruption of electrical prints/wiring diagrams, application of safety tags/rope/tape, troubleshoot equipment operations, and perform necessary maintenance using all appropriate personal protective equipment.

Edison Training and Development Center
Course Catalog

RELAY TECHNICIAN
APPRENTICE TRAINING PROGRAM

OBJECTIVE: To prepare the employee to fulfill the duties of Apprentice Relay Technician in accordance with job specifications and contractual obligations.

<u>TITLE</u>	<u>WEEKS</u>
Division Orientation	4
Fundamentals of Electricity – DC/AC	2
Division – Field Work	4
Relay Operations	3
Division – Field Work	6
4KV Basic Relaying	3
Division – Field Work	11
13KV Basic Relaying	3
Division – Field Work	28
Advanced Relaying	
Distribution Supply (26KV) – Line Relaying	1
Differential Relaying	1
Generator Relaying	1
Division – Field Work	6
Advanced Relaying	
Fundamentals of Electronics	1
Transmission Relaying	1
Division – Field Work	8
26KV Switching	1
13KV Switching	1
4KV Switching	2
Division – Field Work	6
Relay Technician Final Review	1
Division – Field Work	<u>10</u>
TOTAL WEEKS	104
Total Weeks in Formal School Training	21 weeks
Total Weeks in Field – On the Job Training	83 weeks

Edison Training and Development Center
Course Catalog

Fundamentals of Electricity-DC

SAP# EEDFEDC----C

Pre-Requisite: None

Audience: Apprentice Relay Technicians

Class Size: 10

Duration: 5 Days

Course Objective:

Instruction in Fundamentals of Electricity-direct current including; theory and practical Laboratory work. Course presents an overview of the electric utility industry and an introduction to Electric T&D.

Fundamentals of Electricity-AC

SAP# EEDFEAC----C

Pre-Requisite: None

Audience: Apprentice Relay Technicians

Class Size: 10

Duration: 5 Days

Course Objective:

Instruction in Fundamentals of Electricity-alternating current, Electrical theory including ; R-L-C, single phase, polyphase, wye and delta circuits are presented. The transmission and distribution system is examined.

Edison Training and Development Center
Course Catalog

Relay Operations

SAP# EEDART-01--C

Pre-Requisite: Fundamentals of Electricity - Alternating Current (EEDFEAC---C)

Audience: Apprentice Relay Technicians

Class Size: 6

Duration: 15 days

Course Objective:

To introduce Apprentice Relay Technicians to safe work practices and procedures, substation terms, one-line diagrams, types of stations, hand tools, control prints, basic test equipment and communications.

4kv Basic Relaying

SAP# (EEDART-02--C)

Pre-Requisite: Relay Operations (EEDART-01--C)

Audience: Apprentice Relay Technicians

Class Size: 6

Duration: 15 Days

Course Objective:

To provide Apprentice Relay Technicians with the skills & knowledge necessary to perform 4kv relay maintenance, alignment/calibration and troubleshooting.

Edison Training and Development Center
Course Catalog

13kv Basic Relaying

SAP# EEDART-03--C

Pre-Requisite: 4kv Basic Relaying (EEDART-02--C)

Audience: Apprentice Relay Technicians

Class Size: 6

Duration: 15 Days

Course Objective:

To provide Apprentice Relay Technicians with the skills & knowledge necessary to perform 13kv relay maintenance, alignment/calibration and troubleshooting.

Distribution Supply Line Relaying

SAP# EEDART-04--C

Pre-Requisite: 13kv Basic Relaying (EEDART-03--C)

Audience: Apprentice Relay Technicians

Class Size: 6

Duration: 5 Days

Course Objective:

To provide Apprentice Relay Technicians with the skills & knowledge necessary to perform 26 kv relay maintenance, alignment/calibration and troubleshooting.

Edison Training and Development Center
Course Catalog

Differential Relaying

SAP# EEDART-05--C

Pre-Requisite: Distribution Supply Line Relaying (EEDART-4--C)

Audience: Apprentice Relay Technicians

Class Size: 6

Duration: 5 Days

Course Objective:

To provide Apprentice Relay Technicians with the skills & knowledge necessary to perform transformer & bus differential relay maintenance, alignment/calibration and troubleshooting.

Generator Relaying

SAP# EEDART-06--C

Pre-Requisite: Differential Relaying (EEDART-05--C)

Audience: Apprentice Relay Technicians

Class Size: 6

Duration: 5 Days

Course Objective:

To provide Apprentice Relay Technicians with the skills & knowledge necessary to perform generator relay maintenance, alignment/calibration and troubleshooting.

Edison Training and Development Center
Course Catalog

Fundamentals of Electronics

SAP# EEDART-07--C

Pre-Requisite: Generator Relaying (EEDART-06--C)

Audience: Apprentice Relay Technicians

Class Size: 6

Duration: 5 Days

Course Objective:

To provide Apprentice Relay Technicians with the skills & knowledge necessary to perform relay maintenance, alignment/calibration and troubleshooting on power line carrier equipment, including line tuners, line traps, transfer trip transmitters & receivers and carrier blocking sets.

Transmission Relaying

SAP# EEDART-08--C

Pre-Requisite: Fundamentals of Electronics (EEDART-07--C)

Audience: Apprentice Engineering Technicians

Class Size: 6

Duration: 5 days

Course Objective:

To provide Apprentice Relay Technicians with the skills & knowledge necessary to perform transmission line relay maintenance, alignment/calibration and troubleshooting.

Edison Training and Development Center
Course Catalog

26kv Switching

SAP# EEDASW-01--C

Pre-Requisite: Transmission Relaying (EEDART-08--C) or

Audience: Apprentice Relay Technicians

Class Size: 6

Duration: 5 Days

Course Objective:

To provide Apprentice Relay Technicians & Substation Mechanics with skills and knowledge necessary to safely switch 26 KV circuits & equipment.

13kv Switching

SAP# EEDASW-02--C

Pre-Requisite: 26kv Switching (EEDASW-01--C)

Audience: Apprentice Relay Technicians

Duration: 5 Days

Course Objective:

To provide Apprentice Relay Technicians & Substation Mechanics with skills and knowledge necessary to safely switch 13kv circuits & equipment.

Edison Training and Development Center
Course Catalog

4kv Switching

SAP# EEDASW-03--C

Pre-Requisite: 13kv Switching (EEDASW-02--C)

Audience: Apprentice Relay Technicians

Duration: 10 Days

Course Objective:

To provide Apprentice Relay Technicians & Substation Mechanics with skills and knowledge necessary to safely switch 4kv circuits & equipment within various classifications of substations.

Final Review of Formal Training-Relay Technician

SAP# EEDART-09--C

Pre-Requisite: None

Audience: Apprentice Relay Technicians

Class Size: 6

Duration: 5 Days

Course Objective:

To provide Apprentice Relay Technicians with a final review of concepts testing methodology for all areas of system protection, including distribution, distribution supply, differential, transmission, generation and power line carrier.

Edison Training and Development Center
Course Catalog

METER TECHNICIAN
APPRENTICE TRAINING PROGRAM

OBJECTIVE: To prepare the employee to fulfill the duties of Apprentice Meter Technician in accordance with job specifications and contractual obligations.

<u>TITLE</u>	<u>WEEKS</u>
Division Orientation	4
Fundamentals of Electricity – DC/AC	2
Division – Field Work	5
Watthour Metering	2
Division – Field Work	11
Polyphase Metering	2
Division – Field Work	25
Transformer Rated Metering	2
Division – Field Work	11
Wiring Inspection	1
Division – Field Work	14
Advanced Metering	2
Division – Field Work	12
Final Review	1
Division – Field Work	<u>10</u>
TOTAL WEEKS	104
Total Weeks in Formal School Training	12 weeks
Total Weeks in Field – On the Job Training	92 weeks

Edison Training and Development Center
Course Catalog

Fundamentals of Electricity-DC

SAP# EEDFEDC----C

Pre-Requisite: None

Audience: Apprentice Meter Technicians

Class Size: 10

Duration: 5 Days

Course Objective:

Instruction in Fundamentals of Electricity-direct current including; theory and practical Laboratory work. Course presents an overview of the electric utility industry and an introduction to Electric T&D.

Fundamentals of Electricity-AC

SAP# EEDFEAC----C

Pre-Requisite: None

Audience: Apprentice Meter Technicians

Class Size: 10

Duration: 5 Days

Course Objective:

Instruction in Fundamentals of Electricity-alternating current, Electrical theory including ; R-L-C, single phase, polyphase, wye and delta circuits are presented. The transmission and distribution system is examined.

Edison Training and Development Center
Course Catalog

Watthour Metering

SAP# EEDAMT-01--C

Pre-Requisite: Fundamentals of Electricity - Alternating Current (EEDFEAC-01--C)

Audience: Apprentice Meter Technicians

Class Size: 6

Duration: 10 Days

Course Objective:

To provide Apprentice Meter Technicians with skills and knowledge necessary to safely perform watthour meter installations, maintenance, field testing, and detection of energy diversion.

Polyphase Metering

SAP# EEDAMT-02--C

Pre-Requisite: Watthour Metering (EEDAMT-01--C)

Audience: Apprentice Meter Technicians

Class Size: 6

Duration: 10 Days

Course Objective:

To provide Apprentice Meter Technicians with skills and knowledge necessary to safely perform self-contained polyphase meter installations, maintenance, field testing, and detection of energy diversion.

Edison Training and Development Center
Course Catalog

Transformer Rated Metering

SAP# EEDAMT-03--C

Pre.Requisite: Polyphase Metering (EEDAMT-02--C)

Audience: Apprentice Meter Technicians

Class Size: 6

Duration: 10 Days

Course Objective:

To provide Apprentice Meter Technicians with skills and knowledge necessary to safely perform transformer rated meter installations, maintenance, field testing, and detection of energy diversion.

Wiring Inspection

SAP# EEDAMT-04--C

Pre-Requisite: Transformer Rated Metering (EEDAMT-03--C)

Audience: Apprentice Meter Technicians

Class Size: 6

Duration: 5 Days

Course Objective:

To provide Apprentice Meter Technicians with skills and knowledge necessary to safely perform wiring inspection of all single & polyphase customer services prior to installation or modification including detection of energy diversion.

Edison Training and Development Center
Course Catalog

Advanced Metering

SAP# EEDAMT-05--C

Pre-Requisite: Wiring Inspection (EEDAMT-04--C)

Audience: Apprentice Meter Technicians

Class Size: 6

Duration: 10 Days

Course Objective:

To provide Apprentice Meter Technicians with skills and knowledge necessary to safely perform demand meter installations, maintenance, field testing, and detection of energy diversion, including remote pulse devices, & recorders.

Meter Final Review

SAP# EEDAMT-06--C

Pre-Requisite: Advanced Metering (EEDAMT-05--C)

Audience: Apprentice Meter Technicians

Class Size: 6

Duration: 5 Days

Course Objective:

To provide Apprentice Meter Technicians a comprehensive review of essential skills & knowledge of kilowatt-hour meter operations, practices and procedure throughout the apprentice program.

Edison Training and Development Center
Course Catalog

ENGINEERING TECHNICIAN
APPRENTICE TRAINING PROGRAM

OBJECTIVE: To prepare the employee to fulfill the duties of Apprentice Engineering Technician in accordance with job specifications and contractual obligations.

<u>TITLE</u>	<u>WEEKS</u>
Division Orientation	4
Fundamentals of Electricity – DC/AC	2
Electric Distribution Fundamental - Technical Basics	2
Electric Distribution Fundamental Technical – Advanced	2
CADD (Drafting)	2 (Days)
TOTAL WEEKS	182
Total Weeks in Formal School Training	6wks-2days
Division – Field Work	173 wks-3days

* Formal training must be completed within 18 months of date of employment.

Edison Training and Development Center
Course Catalog

Fundamentals of Electricity-DC

SAP# EEDFEDC----C

Pre-Requisite: None

Audience: Apprentice Meter Technicians

Class Size: 10

Duration: 5 Days

Course Objective:

Instruction in Fundamentals of Electricity-direct current including; theory and practical Laboratory work. Course presents an overview of the electric utility industry and an introduction to Electric T&D.

Fundamentals of Electricity-AC

SAP# EEDFEAC----C

Pre-Requisite: None

Audience: Apprentice Meter Technicians

Class Size: 10

Duration: 5 Days

Course Objective:

Instruction in Fundamentals of Electricity-alternating current, Electrical theory including ; R-L-C, single phase, polyphase, wye and delta circuits are presented. The transmission and distribution system is examined.

Edison Training and Development Center
Course Catalog

Electric Distribution Fundamental - Technical Basics

SAP# EEDAET-01--C

Pre-Requisite: Fundamentals of Electricity - Alternating Current (EEDFEAC----C)

Audience: Apprentice Engineering Technicians

Class Size: 10

Duration: 5 Days

Course Objective:

To provide Apprentice Engineering Technicians with the basic knowledge, skills and technical background in the construction, equipment, practices/procedures, design/layout and typical problems of distribution engineering.

CADD-(Drafting)

SAP# EEDAET-02--C

Pre-Requisite: None

Audience: Apprentice Engineering Technicians

Class Size: 10

Duration: 2 Days

Course Objective:

Interpret and draw record maps and construction sketches from field notes and surveys utilizing micostation "J" CADE drafting/drawing system.

Edison Training and Development Center
Course Catalog

Electric Distribution Fundamental Technical – Advanced

SAP# EEDAET-02--C

Pre-Requisites: Electric Distribution Fundamental Technical Basics (EEDAET-01--C)

Audience: Apprentice Engineering Technicians

Class Size: 10

Duration: 5 Days

Course Objective:

To provide Apprentice Engineering Technicians with the application skills and technical background in the construction, equipment, practices/procedures, design/layout and typical problems of distribution engineering.

Edison Training and Development Center
Course Catalog

AUTOMOTIVE MECHANIC/TECHNICIAN
‘NEW HIRE’ JOURNEYMAN TRAINING PROGRAM

OBJECTIVE: To prepare the employee to fulfill the duties of Automotive Mechanic/Technician in accordance with job specifications and contractual obligations.

Pre-Requisite: ASE Certification and/or 5 Years of Verifiable Automotive Experience

<u>TITLE</u>	<u>Duration (IBEW)</u>	<u>Duration (855)</u>
Division/District Orientation	4 weeks	4 days
Air Brakes	3 days	3 days
Oxyacetylene Burning & Brazing	2 days	2 days
Backhoe & Trencher Maintenance	3 days	3 days
* Basic Hydraulics (IBEW)	7 days	-----
* Basic Hydraulics (855)	-----	4 days

Edison Training and Development Center
Course Catalog

Air Brakes

SAP# XSW948AIRBRC

Pre-Requisites: N/A

Audience: Automotive Journeyman Mechanic

Class Size: 6

Duration: 3 Days

Course Objective:

To provide automotive mechanics with the skills & knowledge necessary for the maintenance, adjustment, troubleshooting, repair, and verification of all work on Air Brake systems associated with trucks and mobile equipment.

Oxyacetylene Burning & Brazing

SAP# XSW955OXYBBC

Pre-Requisites: N/A

Audience: Automotive Journeyman Mechanic

Class Size: 6

Duration: 2 Days

Course Objective:

To provide automotive mechanics with the skills and knowledge necessary for the safe use of oxyacetylene burning & brazing equipment applied in the maintenance and repair of automotive and associated equipment.

Edison Training and Development Center

Course Catalog

Backhoe & Trencher Maintenance

SAP# XSW951BTMAIC

Pre-Requisites: N/A

Audience: Automotive Journeyman Mechanic

Class Size: 6

Duration: 3 Days

Course Objective:

To provide automotive mechanics with the skills and knowledge necessary for the maintenance, troubleshooting, repair, and verification of all work on backhoe & trencher equipment.

Basic Hydraulics (IBEW)

SAP# XSW957HYDRAC

Pre-Requisites: N/A

Audience: Automotive Journeyman Mechanic

Class Size: 6

Duration: 7 Days

Course Objective:

To provide automotive mechanics with the skills and knowledge necessary for the maintenance, troubleshooting, repair, and verification of all work on basic hydraulic systems in cars, vans, trucks, and mobile equipment.

Edison Training and Development Center
Course Catalog

Basic Hydraulics (855)

SAP# XSW950BHYDRC

Pre-Requisites: N/A

Audience: Automotive Journeyman Mechanic

Class Size: 6

Duration: 4 Days

Course Objective:

To provide automotive mechanics with the skills and knowledge necessary for the maintenance, troubleshooting, repair, and verification of all work on basic hydraulic systems in cars, vans, trucks, and mobile equipment. (Exclusive of aerial lifts)

Edison Training and Development Center
Course Catalog
AUTOMOTIVE MECHANIC
APPRENTICE TRAINING PROGRAM (Local 855)

OBJECTIVE: To prepare the employee to fulfill the duties of Apprentice Automotive Mechanic in accordance with job specifications and contractual obligations.

***NOTE: This is the Full Apprentice Program and is specifically for employees who do not have the Pre-Requisite: ASE Certification and/or 5 Years of Verifiable Automotive Experience; have little or no automotive experience; but who have passed the CAST test (e.g. internal transfers or individuals hired 'off the street' in absence of more qualified candidates).**

<u>TITLE</u>	<u>Days</u>
Part I:	
Basic Electric	4
Basic Engine	6
Basic Brakes	3
Electronics	3
Ignition Systems	2
Fuel & Air Systems	2
Exhaust & Emission Systems	2
Drivability	2
Steering & Suspension	<u>2</u>
Total Days	26
Part II:	
Anti-Lock Brake Systems	1
Drive Axles & Differentials	3
Supplemental Restraint Systems	1
Electronic Transmission	5
Air Brakes	3
Basic Hydraulics	<u>4</u>
Total Days	17
Part III:	
Backhoe/Trencher	3
Heating & Air Conditioning	2
Air Compressor PT1	2
Oxyacetylene Burning & Brazing	<u>2</u>
Total Days	9
Total Days in Formal School Training	52 days

Edison Training and Development Center
Course Catalog

AUTOMOTIVE MECHANIC
APPRENTICE TRAINING PROGRAM

Part I:

Basic Electric

SAP# XSW930BELECC

Pre-Requisite: None

Audience: Apprentice Automotive Mechanic

Class Size: 6

Duration: 4 Days

Course Objective:

To provide Apprentice Automotive Mechanics with skills & knowledge necessary for the maintenance, troubleshooting, repair, and verification of all work on electrical system within in cars, vans, medium duty trucks, trailer, & associated mobile equipment.

Basic Engine

SAP# XSW931BENIGC

Pre-Requisite: None

Audience: Apprentice Automotive Mechanic

Class Size: 6

Duration: 6 Days

Course Objective:

To provide Apprentice Automotive Mechanics with skills & knowledge necessary for the maintenance, tune-up, troubleshooting, repair, and verification of all work on internal combustion engines utilized in cars, vans & mediumduty trucks.

Basic Brakes

SAP# XSW932BRAKEC

Pre-Requisite: None

Audience: Apprentice Automotive Mechanic

Class Size: 6

Duration: 3 Days

Course Objective:

To provide Apprentice Automotive Mechanics with skills & knowledge necessary for the maintenance, adjust, troubleshooting, repair, and verification of all work on brake systems within in cars, vans, & associated mobile equipment.

Edison Training and Development Center
Course Catalog
AUTOMOTIVE MECHANIC
APPRENTICE TRAINING PROGRAM

Part I:

Electronics

SAP# XSW933BELECTC

Pre-Requisite: Basic Electric (SAP# XSW930BELECC)

Audience: Apprentice Automotive Mechanic

Class Size: 6

Duration: 3 Days

Course Objective:

To provide Apprentice Automotive Mechanics with skills & knowledge necessary for the maintenance, troubleshooting, repair, and verification of all work on basic electronic systems within in cars, vans, medium duty trucks, trailer, & associated mobile equipment.

Ignition Systems

SAP# XSW934INGSYC

Pre-Requisite: None

Audience: Apprentice Automotive Mechanic

Class Size: 6

Duration: 2 Days

Course Objective:

To provide Apprentice Automotive Mechanics with skills & knowledge necessary for the maintenance, troubleshooting, repair, and verification of all work on Ignition Systems within in cars, vans, medium duty trucks, trailer, & associated mobile equipment.

Fuel & Air Systems

SAP# XSW935FADELIC

Pre-Requisite: None

Audience: Apprentice Automotive Mechanic

Class Size: 6

Duration: 2 Days

Course Objective:

To provide Apprentice Automotive Mechanics with skills & knowledge necessary for the maintenance, troubleshooting, repair, and verification of all work on Fuel & Air Delivery Systems within in cars, vans, medium duty trucks, trailer, & associated mobile equipment.

Edison Training and Development Center
Course Catalog

AUTOMOTIVE MECHANIC
APPRENTICE TRAINING PROGRAM

Part I:

Exhaust & Emission Systems

SAP# XSW936EEMISC

Pre-Requisite: None

Audience: Apprentice Automotive Mechanic

Class Size: 6

Duration: 2 Days

Course Objective:

To provide Apprentice Automotive Mechanics with skills & knowledge necessary for the maintenance, troubleshooting, repair, and verification of all work on Exhaust & Emission Systems within in cars, vans, medium duty trucks, trailer, & associated mobile equipment.

Drivability

SAP# XSW937DRIVEC

Pre-Requisite: None

Audience: Apprentice Automotive Mechanic

Class Size: 6

Duration: 2 Days

Course Objective:

To provide Apprentice Automotive Mechanics with skills & knowledge necessary for the maintenance, troubleshooting, repair, and verification of all work on computer control systems within in cars, vans, and medium duty trucks.

Steering & Suspension

SAP# XSW932BRAKEC

Pre-Requisite: None

Audience: Apprentice Automotive Mechanic

Class Size: 6

Duration: 3 Days

Course Objective:

To provide Apprentice Automotive Mechanics with skills & knowledge necessary for the maintenance, troubleshooting, repair, and verification of all work on Steering & Suspension Systems within in cars, vans, medium duty trucks, trailer, & associated mobile equipment.

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Course Catalog

AUTOMOTIVE MECHANIC
APPRENTICE TRAINING PROGRAM

Part II:

Pre-Requisite: Successful Completion of Part I

Anti-Lock Brake Systems

SAP# XSW939ABSYSC

Pre-Requisite: None

Audience: Apprentice Automotive Mechanic

Class Size: 6

Duration: 1 Day

Course Objective:

To provide Apprentice Automotive Mechanics with skills & knowledge necessary for the maintenance, adjust, troubleshooting, repair, and verification of all work on Antilock Brake System within in cars, vans, & associated mobile equipment.

Drive Axles & Differentials

SAP# XSW940AXDIFC

Pre-Requisite: None

Audience: Apprentice Automotive Mechanic

Class Size: 6

Duration: 3 Days

Course Objective:

To provide Apprentice Automotive Mechanics with skills & knowledge necessary for the maintenance, troubleshooting, repair, and verification of all work on drive axles & differentials within in cars, vans, medium duty trucks, & associated mobile equipment.

Supplemental Restraint Systems

SAP# XSW945SRSYSC

Pre-Requisite: None

Audience: Apprentice Automotive Mechanic

Class Size: 6

Duration: Day

Course Objective:

To provide Apprentice Automotive Mechanics with skills & knowledge necessary for the maintenance, troubleshooting, repair, and verification of all work on supplemental restraint systems within in cars and vans.

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Course Catalog
AUTOMOTIVE MECHANIC
APPRENTICE TRAINING PROGRAM

Part II:

Pre-Requisite: Successful Completion of Part I

Electronic Transmission

SAP# XSW946TATRAC

Pre-Requisite: None

Audience: Apprentice Automotive Mechanic

Class Size: 6

Duration: 5 Days

Course Objective:

To provide Apprentice Automotive Mechanics with skills & knowledge necessary for the maintenance, troubleshooting, simple repair, and verification of all work on truck automatic transmissions.

Air Brakes

SAP# XSW948AIRBRC

Pre-Requisite: None

Audience: Apprentice Automotive Mechanic

Class Size: 6

Duration: 3 Days

Course Objective:

To provide Apprentice Automotive Mechanics with skills & knowledge necessary for the maintenance, adjust, troubleshooting, repair, and verification of all work on Air Brake systems within trucks & associated mobile equipment.

Basic Hydraulics

SAP# XSW950BHYDRC

Pre-Requisite: None

Audience: Apprentice Automotive Mechanic

Class Size: 6

Duration: 4 Days

Course Objective:

To provide Apprentice Automotive Mechanics with skills & knowledge necessary for the maintenance, troubleshooting, repair, and verification of all work on basic hydraulic systems within in cars, vans, trucks, and mobile equipment. {Exclusive of aerials lifts}

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Course Catalog
AUTOMOTIVE MECHANIC
APPRENTICE TRAINING PROGRAM

Part III:

Pre-Requisite: Successful Completion of Part II

Backhoe/Trencher

SAP# XSW951BTMAIC

Pre-Requisite: None

Audience: Apprentice Automotive Mechanic

Class Size: 6

Duration: 3 Days

Course Objective:

To provide Apprentice Automotive Mechanics with skills & knowledge necessary for the maintenance, troubleshooting, repair, and verification of all work on backhoe & trencher maintenance.

Heating & Air Conditioning

SAP# XSW952HAIRCC

Pre-Requisite: None

Audience: Apprentice Automotive Mechanic

Class Size: 6

Duration: 2 Days

Course Objective:

To provide Apprentice Automotive Mechanics with skills & knowledge necessary for the maintenance, troubleshooting, repair, and verification of all work on heating & air conditioning systems.

Air Compressor PT1

SAP# XSW953ACOMPC

Pre-Requisite: None

Audience: Apprentice Automotive Mechanic

Class Size: 6

Duration: 2 Days

Course Objective:

To provide Apprentice Automotive Mechanics with skills & knowledge necessary for the maintenance, troubleshooting, repair, and verification of all work on air compressors systems.

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Course Catalog
AUTOMOTIVE MECHANIC
APPRENTICE TRAINING PROGRAM

Part III:

Oxyacetylene Burning & Brazing

SAP# XSW951BTMAIC

Pre-Requisite: None

Audience: Apprentice Automotive Mechanic

Class Size: 6

Duration: 2 Days

Course Objective:

To provide Apprentice Automotive Mechanics with skills & knowledge necessary for safe use of oxyacetylene burning & brazing equipment applied in the maintenance and repair of equipment.

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Course Catalog

CUSTOMER SERVICES REPRESENTATIVE
APPRENTICE TRAINING PROGRAM

Target Audience - New Customer Service Representatives

<u>TITLE</u>	<u>DAYS</u>
Module 2 – General Topics	10
Module 3 – Natural Gas	10
Module 4 – Electric	5
Module 5 – Active & Inactive’s (A&I’s)	5
Inquiry Center (Cranford- OJT)	10
Module 6 Accounting	10
Module 7 - Collections	2
TOTAL DAYS	52
Total Days in Formal School Training	42
Total Days at the Call Center - On the Job Training	10

NOTE:

Module 1- Introduction is a two-day orientation given at NICC

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Course Catalog

IR Module 2 - General Topics

SAP# SINQYMOD2C

Pre-Requisites: Module 1

Duration: 10 Days

Class Size: 8

Course Objectives:

Upon completion of this course, participants will be able to: recognize and use the general transactions ID's used with the Customer Information System, read meters, access the Customer and Marketing Information System (CAMS) , and learn proper call handling techniques.

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Course Catalog

IR Module 3 - Natural Gas

SAP# SINQYMOD3C

Pre-Requisites: Modules 1 - 2

Duration: 10 Days

Class Size: 8

Course Objectives:

Upon completion of this course, the participants will be able to: Issue emergency mark – outs, gas investigation orders, gas meter orders, cancel contracts and identify information on the gas premise history display.

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IR Module 4 - Electric

SAP# SINQYMOD4C

Pre-Requisites: Modules 1- 3

Duration: 5 Days

Class Size: 8

Course Objectives:

Upon completion of this course, participants will be able to: Issue emergency mark - outs, electric emergency / trouble orders and meter orders.

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Course Catalog

IR Module 5 - A & I's

SAP# SINQYMOD5C

Pre-Requisites: Modules 1 - 4

Duration: 5 days

Class Size: 8

Course Objectives:

Upon completion of this course, participants will be able to: Issue active and inactive orders, complete a credit screen, and handle accounts that are finaled in error.

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Course Catalog

IR Module 6 - Accounting

SAP# SINQYMOD6C

Pre-Requisites: Modules 1 - 5

Duration: 10 days

Class Size: 8

Course Objectives:

Upon completion of this course participants will be able to: Review a customer's bill, issue petty cash refunds, transfer debits and credits, handle high bill inquiries, calculate basic billing and create sales adjustments.

Edison Training and Development Center Course Catalog

IR Module 7 - Collection

SAP# SINQYMOD7C

Pre-Requisites: Modules 1 - 6

Duration: 3 Days

Class Size: 8

Course Objectives:

Upon completion of this course participants will be able to: Recognize and process collection related calls, and establish a Z type deferred payment arrangement.

Edison Training and Development Center
Course Catalog

INBOUND COLLECTION REPRESENTATIVE
APPRENTICE TRAINING PROGRAM

Target Audience – New Inbound Collection Representatives

<u>TITLE</u>	<u>DAYS</u>
Module 2 CIS	10
Module 5 – Inbound Collection	10
O.J.T. – CCC	10

	TOTAL DAYS	30
Total Days in Formal School Training		20
Total Days in the Field-On the Job Training		10

NOTE:

Module 1- Introduction is a one-day orientation given at the CCC

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Course Catalog

Credit & Collection Module 2 – Customer Information System (CIS)

SAP# SCLMOD2CIS

Pre-Requisites: None

Duration: 10 Days

Class Size: 8

Course Objectives:

Upon completion of this course participants will be able to: Sign into/off of the system, access customer accounts using the name, address, account number, telephone number, and meter number. Utilize various function keys to navigate in the system. Identify residential and commercial accounts by the billing rate, access account information using various transaction id codes. Generate various work orders and create memo's and messages

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Course Catalog

Credit and Collection Module 5 – Inbound Collection Calls

SAP# SCLINBCOLLOC

Pre-Requisites: Customer Information System (CIS) training

Duration: 20 Days (Includes 10 day OJT at Call Center)

Class Size: 8

Course Objectives:

Upon completion of this course, participants will be able to: Apply the knowledge, skills, and behaviors required for handling incoming collection related calls from customers. Participants learn to utilize the Customer Information System (CIS), the Collection Data Management System (KOAU), Company and BPU Collection and Credit Guidelines, apply interpersonal communication skills to effectively handle incoming calls regarding delinquent account situations; provide appropriate solutions that will reduce outstanding uncollectable revenue for the company, and resolve delinquency problems for customers.

Edison Training and Development Center
Course Catalog

OUTBOUND COLLECTION REPRESENTATIVE
APPRENTICE TRAINING PROGRAM

Target Audience – New Outbound (Residential) Collection Representatives

<u>TITLE</u>	<u>DAYS</u>
Module 3 – Outbound Collection	5
O.J.T. – CCC	10

	TOTAL DAYS	15
Total Days in Formal School Training		5
Total Days in the Field-On the Job Training		10

NOTE:

Module 1- Introduction is a one-day orientation given at the CCC

Edison Training and Development Center
Course Catalog

Credit and Collection Module 3 – Outbound Collection Calls

SAP# SCLOUTBCOLLC

Pre-Requisites – None

Duration: 15 Days

Class Size: 8

Course Objectives:

Upon completion of this course, participants will be able to apply the knowledge skills, and behaviors required for initiating collection related calls to customers. Participants learn to utilize the Customer Information System, Collection Data Management System, the Davox Dialing System and the Aspect Telephone System; apply company and BPU Collection and Credit Guidelines; apply communication skills to effectively interact with customers; effectively handle delinquent accounts such as delinquent accounts prior to the notice due date, broken arrangements, and return check telephone call campaigns.

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Course Catalog

FIELD COLLECTION REPRESENTATIVE
APPRENTICE TRAINING PROGRAM

Target Audience – New Field Collection Representatives

TITLE

DAYS

Field Collection Training – New Field Collectors

8

TOTAL DAYS

8

Total Days in Formal School Training

8

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Course Catalog

Field Collection – New Field Collector

SAP# SCLNEWFLDCOLL

Pre-Requisites – None

Duration: 8 Days

Class Size: 6

Course Objectives:

Upon completion of this course, participants will be able to apply the knowledge, skills and behaviors required to effectively perform collection related field visits to customers. Participants will learn to utilize the Collection Hand-held Unit; discuss Company Collection and Credit Guidelines with customers for delinquent account situations; negotiate with customers to achieve the desired collection results for energy, sundry and deposit charges; enter the proper meter readings and shut-off codes into the Hand-Held Unit and Mainframe; apply safety practices and procedures when visiting customers' premises and handling metering equipment. Participants will be able to safely and securely disconnect approved types of single-phase meters, identify methods of energy diversion, and potential hazards to employees.

Participants will learn to: accurately interpret meter nameplate data to identify single-phased, self contained, A and S meters that are approved for disconnect by collectors; identify and inventory approved meter disconnect tools, security locks, keys, seals, and devices; effectively perform disconnects on all types of single-phase meters permitted; inspect meter installations for energy diversion and electrical and mechanical hazards; effectively lock and/or seal meters using appropriate security devices.

Edison Training and Development Center
Course Catalog

CASHIER / TELLER
TRAINING PROGRAM

Target Audience – New / Temporary or Associates Filling In

<u>TITLE</u>	<u>DAYS</u>
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Cashier/Teller Training – New, temporary or Associates who fill in	2
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TOTAL DAYS	2
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Total Days in Formal School Training	2
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Course Catalog

Cashier – Teller Training

SAP# SCACASHTELRC

Pre Requisites: None

Duration: 2 Days

Course Objectives:

Class Size: 6

Course Objectives:

Upon completion of this course, participants will be able to perform the tasks required for the Cashier/Teller position. Participants will learn to apply Company Guidelines and procedures for cashiering; apply communication skills required to effectively interact with customers; setting up the cashier window for the day; programming the Sharp Receipting Machine; accurately receiving and recording cash, check and money order payments, full and partial payments; handling Energy, Sundry and Deposit payments, Reconnect Non-Payments; making corrections on the Sharp Receipting Machine balancing procedures; preparing the end-of-the day reports; setting up for the next day.

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Course Catalog

METER READING
APPRENTICE METER READER TRAINING PROGRAM

Target Audience – New Meter Readers

<u>TITLE</u>	<u>DAYS</u>
Meter Reading Training – New Meter Readers	5

	TOTAL DAYS	5
Total Days in Formal School Training		5

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Course Catalog

Meter Reading Training

SAP# SCACASHTELRC

Pre Requisites: None

Duration: 2 Days

Course Objectives:

Class Size: 10

Course Objectives:

Upon completion of the course, participant's will be able: Sign-on to the handheld correctly, record and enter dial card and customer reads into the handheld, operate all functions of the handheld, identify safety hazards located out in the field, explain the correct procedure for handling a gas leak, identify and record potential types of energy diversion on the handheld, identify all types of meters located out in the field, read all meters with a high degree a accuracy and explain the consequences associated with inaccurate reads, and demonstrate excellent standards of conduct, customer relations through the proper greeting, good-bye and use of keys