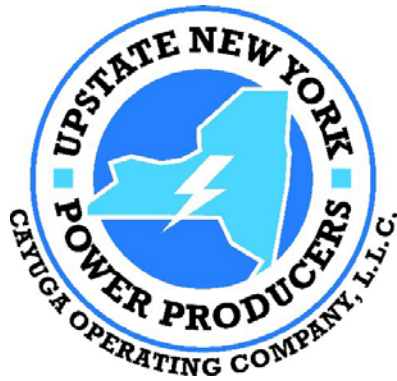


# Cayuga Repowering Proposal

• Increase Efficiency • Reduce Emissions • Create Jobs • Support the Local Economy • Assure System Reliability •

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## Repowering Proposal



**Cayuga Operating Company<sup>LLC</sup>**  
**Lansing, New York**

**March 26, 2013**

# Cayuga Repowering Proposal

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## A. Executive Summary

### 1. Proposal Abstract

The New York State Public Service Commission (“PSC”) pursuant to the vision set forth in The New York Energy Highway Blueprint has directed New York State Electric and Gas (“NYSEG”) to evaluate repowering the Cayuga Power Plant (“Cayuga”). The Cayuga Power Plant is a 300 MW Coal Fired Power Generating facility on Cayuga Lake, in Lansing New York, which began operations in 1955. This directive follows the recommendation by the New York Energy Highway Task Force that an analysis of repowering as an alternative to transmission system upgrades be performed.

The options presented in this proposal range from repowering the existing boilers with natural gas to installing combined cycle natural gas electric generating units. Repowering Cayuga will have significant positive benefits for the local community, the region and the State. Permanent, high tech jobs in the community will be retained, while several hundred construction jobs will be created. A key component of the property tax base will be sustained. Construction and operations of the project will result in hundreds of millions of dollars directly benefiting the local economy.

By leveraging prior infrastructure investments, a number of competitive options are available to meet the State’s needs and fulfill the focus of the New York Energy Highway Blueprint. Maintaining generation at this site will offer highly efficient, low cost energy to the grid while reducing the need of imports from less efficient higher emitting generation outside of New York.

Further, a generation solution such as repowering supports the expansion of renewable generation projects in the region in a manner that transmission upgrades do not. The intermittent nature of renewable generation, in particular wind generation, requires an enhanced ability to regulate load and voltage which only a generator can provide. To enable future renewable projects to succeed it is important that the current capabilities of New York’s electric infrastructure are not only maintained but enhanced.

### 2. Executive Summary

The Management and Shareholders of Cayuga welcome this opportunity to present the best possible options for repowering the Cayuga power generation station as an alternative to upgrades of the NYSEG electric transmission system.

Cayuga's consideration of alternatives throughout the option-screening process has been dedicated to achieving the following goals:

- Increasing Efficiency
- Reducing Emissions
- Creating good paying jobs both permanent and construction
- Maintaining the current tax base and generating new tax revenues
- Assuring Electric System Reliability and improving power quality

In arriving at the proposed options, Cayuga assessed proven, commercially available technologies and a wide range of fuel sources such as natural gas, wood, wind and solar. The four best alternatives from a reliability, efficiency, environmental, economic impact and cost perspective have emerged from this comprehensive process and are presented in this proposal.

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As demonstrated below, these four options satisfy NYSEG's long-term reliability needs and will result in better stakeholder outcomes than those produced by a transmission-only solution. In addition, these options meet the goals and objectives set forth by the PSC in the Repowering Order and in the New York Energy Highway Blueprint, specifically:

- Expands and Strengthens the Energy Highway
- Accelerates Construction and Repair by Modernizing an Existing New York Generator Asset
- Supports Clean Energy

Cayuga and its Partners look forward to the opportunity of working with NYSEG and the PSC in achieving the goals of the New York Energy Highway Blueprint. By investing in the local community, together we can create a solution that benefits the ratepayers, the region and the State.

### **3. Options Discussion**

In response to the February 19th, 2013 Cayuga Repowering Solicitation from NYSEG, Cayuga presents four repowering options:

Option 1: Repower the two existing coal-fired boilers with natural gas

Option 2: Construct three new gas-fired units, in a simple-cycle configuration

Option 3: Construct one new gas-fired unit, in a combined-cycle configuration, using one of the existing steam turbine generators and repower one of the existing coal-fired units with natural gas

Option 4: Construct two new gas-fired units, in a combined cycle configuration

In addition, in order to further the goal of encouraging the development of renewable energy set forth in the New York Energy Highway Blueprint, Cayuga proposes to construct a 2 MW array of solar photovoltaic panels to supplement the gas-fired capacity available from the re-configured plant site.

***The schedule for each of the options is aggressive, but achievable***

- The anticipated commercial operation date for the least construction intensive option (Option 1) is [REDACTED]
- The anticipated commercial operation date for each of the major new construction options (Options 2, 3 and 4) is [REDACTED]
- The solar photovoltaic array is anticipated to be operational by [REDACTED]

In general, the schedule for each option would be:

- 2013: [REDACTED]
- 2014: Continue regulatory proceedings and perform detailed engineering and procurement
- 2015 through completion: Finalize regulatory proceedings, construction, start-up and commissioning

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Pipeline construction would be required to begin by [REDACTED] for Option 1, and [REDACTED] for Options 2- 4.

Natural gas service is required to be at the plant site approximately one month for Option 1 and four months for Options 2-4 in advance of the anticipated commercial operation date.

The estimated construction period for the pipeline is [REDACTED], depending on the number of pipe-laying crews employed.

This schedule provides at least [REDACTED] for Option 1, and [REDACTED] for Options 2 – 4 for regulatory and permitting activities, rights-of-way acquisition, engineering and procurement.

The four options proposed all meet the requirements and goals set forth in the NYSEG solicitation. The repowered Cayuga Station would have at least two units of at least 150MW each and be capable of producing at least 300MW for a minimum of 600 hours per year.

Any one of Cayuga's options will provide reliable, affordable power to New York's homes and businesses for the next 20-30 years while promoting renewable energy, creating jobs, increasing efficiency, reducing emissions, generating tax revenues and assuring system reliability. The outcome of each of these proposals is consistent with the States goals set forth in the New York Energy Highway Blueprint. Further, these options meet the PSC's and the State's shared goals of protecting the public interest, the environment and the economy.

The following summarizes the options for consideration:

**Option Table**

	1	2	3	4	Add-on
Option	Natural Gas to Existing Boilers	Gas-Fired Peaking Units	Gas-Fired Hybrid Combined Cycle	Gas-Fired Combined Cycle	Solar
Configuration	[REDACTED]				
Maximum Plant Output	300 MW	294 MW	409 MW	326 MW	2 MW
Full Load Avg. Heat Rate	[REDACTED]				
Fuel	Natural gas	Natural gas	Natural gas	Natural gas	Solar
Capital Cost	[REDACTED]				
Installed \$/KW	[REDACTED]				
In-Service Date	[REDACTED]				

SCGT = simple cycle gas turbine

CCGT = combined cycle gas turbine

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The options range in size from 294 MW to 409 MW and include full-load average heat rates (on an individual unit basis, HHV) ranging from [REDACTED]

The options allow two different solutions to meet regional and state energy needs. Cayuga can remain as a resource that primarily meets peak summer demand and is on average idle during the Spring and Fall with Options 1 and 2 or it can be repurposed to construct a highly efficient combined cycle plant that is typically dispatched year round with Options 3 and 4.

## ***The Cayuga Repowering Team offers its full support in evaluating these options***

The Cayuga Repowering Team consists of three experienced and capable Partners: a) the existing Cayuga management and operations team, b) engineer/constructor AMEC and c) project development manager Federal Power Company, LLC.

AMEC is a focused supplier of high-value consulting, engineering, construction and project management services to the world's natural resources, nuclear, clean energy, water and environmental sectors. In the last 10 years alone, AMEC has provided services to the power industry throughout North America and the world on more than 1,000 power projects in nearly 60 countries.

The existing Cayuga management and operations team has been successfully operating and maintaining the Cayuga station and managing capital projects at the site for more than 30 years. EPC contractor AMEC has engineered and constructed more than 27,000 MW of natural gas-fired power plants. AMEC has 9 offices and over 2,000 personnel in its Northeast U.S. locations and over 10,000 personnel throughout the U.S. The Federal Power project personnel have developed owned and operated more than forty power plants with a nameplate capacity of 18,000 MW.

## ***Commercial Considerations***

Cayuga offers its full support to NYSEG and the PSC in evaluating these repowering alternatives and arriving at a singular, selected option. Cayuga envisions a process whereby NYSEG, supported by Cayuga, selects a repowering option that provides the best outcome and the lowest total cost to New York State ratepayers. [REDACTED]

Options 1 and 3 utilize more of the existing infrastructure which result in lowered construction costs but loses some efficiency in the process. Options 2 and 4 fully utilize the latest state of the art technology to provide the most efficient solution, albeit requiring a larger initial investment.

# Cayuga Repowering Proposal

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## **4. Economic and Non-Economic Benefits**

In addition to addressing NYSEG's long-term reliability needs, any of these options will significantly benefit the local economy, the State's ratepayer, and the environment. All of the options are designed for the current plant site and therefore meet the goal set forth in the New York Energy Highway Blueprint of modernizing our generation assets.

### ***Community Opportunities and Benefits:***

- Creates permanent, high-tech jobs in the community
- Creates up to 320 construction jobs for a 30 month period
- Creates up to 563 construction jobs and 90 permanent jobs once the indirect impact is considered
- Cayuga's contribution to the tax base will be retained or possibly increase. Current levels of support are:
  - 10.5% School District tax base
  - 6.9% Town tax base
  - 1.3% County tax base
- Continues to add millions of dollars to the local economy
  - Purchasing local goods and services
  - Performing maintenance work
  - Capital improvements

### ***Regional Opportunities and Benefits:***

- Improves regional and system reliability
- Increases the power quality of the grid allowing the area to attract today's High Tech manufacturing
- Addresses Climate Change issues through greenhouse gas reductions and higher efficiency energy production
- Promotes Sustainability with Brownfield development vs. Greenfield development
- Maintains energy production in New York reducing the reliance on imports from higher air emission and lower efficiency generation
- Makes highly efficient, low cost, clean energy available to the grid at a low cost for all rate payers.
- All options presented in this proposal generate dramatically cleaner energy and improve air quality in Central New York with reductions in all major emission categories:
  - Completely eliminates all Sulfur Dioxide emissions
  - Completely eliminates all Mercury emissions
  - Nitrogen Oxides reduced by 90-98%
  - Carbon Dioxide reduced by 50-90%
  - Particulate Matter reduced by 95-99%



# Cayuga Repowering Proposal

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## 5. Response to NYSEG's Evaluation of Offers (section IV)

Cayuga presents the following responses to NYSEG's Evaluation of Offers (section IV-NYSEG Solicitation)

### Reliability

- *All of the options presented in this proposal meet the requirements identified by NYSEG as to the reliability need. Each option has redundant units; all meet the MW limits identified, all are reliable, robust designs, and can contribute to the NYISO ancillary service market. The options offer very high efficiencies and can provide high capacity factors during system peak demand days.*

### Ratepayer cost

- *All of the options presented in this proposal were designed with ratepayer interests in mind. In fact, these options not only support the ratepayers, but benefit all stakeholders including local taxing jurisdictions and local vendors and contractors. The options provide a stable, reliable and economic source of MWs annually, but more importantly, during high need peak times identified by NYSEG during the summer and winter periods.*

### Environmental impacts

- *All options presented in this proposal will provide a tremendous environmental benefit through reduced air emissions, promoting renewable energy and will not require the need for any solid waste disposal. All options promote Sustainability with the use of a Brownfield Site. In contrast to the proposed transmission reinforcements none of the options negatively impact greenspace.*

### Economic impacts

- *The options presented in this proposal offer the opportunity to bring into the local area as much as \$100M in construction spending. The options will create High Tech jobs in the area and potentially increase the property taxes paid by the station, which today is the largest taxpayer in all three taxing jurisdictions.*

### Electric market competitiveness

- *All of the options presented in this proposal have the ability to compete in the NYISO energy, ICAP and ancillary services markets. In designing the options, Cayuga took into consideration capital costs, efficiencies of the units and the NYISO market parameters. Several of the options offer enhancements to the current operation including best in class ability to meet spinning reserve targets and regulation targets.*

### Other factors

- *Recently, Cayuga and NYSEG successfully negotiated a reliability support services agreement that was mutually beneficial to Cayuga, NYSEG and ratepayers. Cayuga is confident that similar success can be met obtaining an agreement to repower the facility. Cayuga can meet all the necessary financial obligations and performance criteria that NYSEG would need for a subsequent agreement.*



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## Cayuga Qualification

- *The Cayuga Repowering Team consists of three experienced and capable partners: a) the existing Cayuga management and operations team, b) engineer/constructor AMEC and c) project development manager Federal Power Company, LLC. The existing Cayuga management and operations team has been successfully operating and maintaining the Cayuga station and managing capital projects at the site for more than 30 years. EPC contractor AMEC has engineered and/constructed more than 27,000 MW of natural gas-fired power plants and has 9 offices and over 2,000 personnel in its Northeast U.S. offices and over 10,000 personnel throughout the U.S. The Federal Power project personnel have developed owned and operated more than 40 power plants with a nameplate capacity of 18,000 MW.*

## Project Viability

- *The Cayuga repowering team has a proven track record for working with all project stakeholders to meet schedules, expectations, and performance targets. The team consists of experts in their fields of design, engineering, procurement, permitting, financing, construction and local community outreach.*

## Technical Reliability

- *The technical configurations included in the proposal provide a high level of operational flexibility, with proven performance in applications ranging from combined cycle and cogeneration to simple cycle peaking. The gas turbines provide many flexibility options including faster starting, good partial-load efficiency, and best-in-class ramp rates that meet emissions requirements.*

## Environmental Leadership

- *Cayuga has demonstrated a positive outcome for achieving environmental compliance and negotiating current permits and is a recognized leader in community outreach. This is evident in the many capital projects successfully completed at the plant that required involvement with the local community. Cayuga has been an active participant in many town hall meetings and public hearings discussing these projects. Cayuga would continue this outreach for these proposals and is optimistic that the community will be supportive of the repowering options.*

## Conformance with NYSEG's non-price terms and conditions:

- *Cayuga and NYSEG have a proven track record of working collaboratively on time-sensitive, complex business transactions. To date, these efforts have resulted in positive outcomes for Cayuga, NYSEG, ratepayers, and other stakeholders. Cayuga looks forward to working with NYSEG in meeting all the aspects of this project, including non-price terms and conditions.*

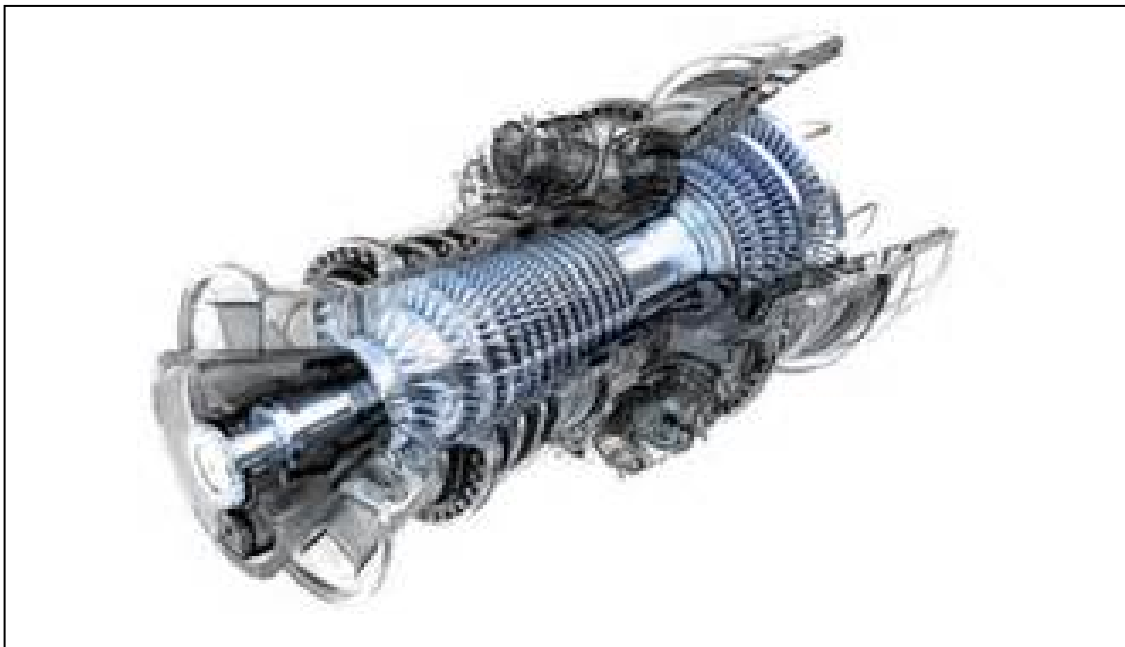
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## Technical Proposal



**Cayuga Operating Company LLC**  
**Lansing, New York**

# Cayuga Repowering Proposal

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## B. Technical Proposal

### 1. Introduction

In arriving at the proposed options, Cayuga assessed proven, commercially available technologies and a wide range of fuel sources such as natural gas, wood, wind and solar. The best alternatives from a reliability, efficiency, environmental, economic impact and cost perspective are presented below.

- Option 1: Repower the two existing coal-fired boilers with natural gas
- Option 2: Construct three new gas-fired units, in a simple-cycle configuration
- Option 3: Construct one new gas-fired unit, in a combined-cycle configuration, using one of the existing steam turbine generators and repower one of the existing coal-fired units with natural gas
- Option 4: Construct two new gas-fired units, in a combined cycle configuration

In addition, as an enhancement on each of the above options, Cayuga proposes to construct a 2 MW array of solar photovoltaic panels to supplement the gas-fired capacity available from the re-configured plant site.

The schedule considerations are as follows:

- The anticipated commercial operation date for the least construction intensive option (Option 1) is [REDACTED]
- The anticipated commercial operation date for each of the major new construction options (Options 2, 3 and 4) is [REDACTED]
- The solar photovoltaic array could be operational by [REDACTED].

In general, the schedule for each option would be as follows:

- 2013: [REDACTED]
- 2014: Continue regulatory proceedings and perform detailed engineering and procurement
- 2015 through completion: Finalize regulatory proceedings, construction, start-up and commissioning

Natural gas service is required to be at the plant site approximately one month for Option 1 and four months for Options 2-4 in advance of the anticipated commercial operation date.

The estimated construction period for the pipeline is [REDACTED], depending on the number of pipe-laying crews employed.

Pipeline construction would be required to begin by [REDACTED] for Option 1, and [REDACTED] for Options 2- 4.

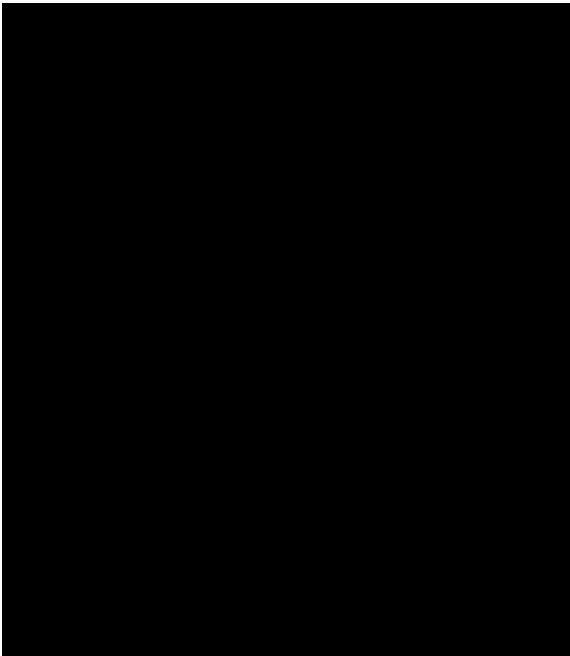
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This schedule provides at least [REDACTED] for Option 1 and [REDACTED] for Options 2 – 4 available for regulatory and permitting activities, rights-of-way acquisition, engineering and procurement.

## Options Presented

### Option 1-Fuel Switch to Natural Gas



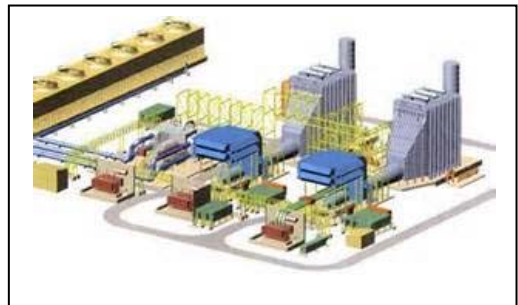
### Option 2-Simple Cycle Gas Turbines



### Option 3-Combined Cycle Gas Turbine Reusing Unit 2 Steam T/G *"The Hybrid"* plus Fuel Switch to Natural Gas on Existing Unit



### Option 4-Combined Cycle Gas Turbines



The four proposed options are summarized on the next page:

# Cayuga Repowering Proposal

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## 2. Configuration Table

	1	2	3	4	Add-on
Option	Natural Gas to Existing Boilers	Gas-Fired Peaking units	Gas-Fired Hybrid Combined Cycle	Gas-Fired Combined Cycle	Solar
Configuration					
Main Equipment	Existing Combustion Engineering Tangentially Fired Coal Boilers Repowered with natural gas firing equipment and existing GE and Westinghouse Reheat Steam T/G	GE LMS 100 Simple Cycle Units	Existing Combustion Engineering Tangentially Fired Coal Boiler Repowered with natural gas firing  GE PG7241FA Gas Turbine and an optimized HRSG with existing Unit 2 Steam T/G ( 1 x1 CCGT )	Alstom 11N2 Gas Turbine units with HRSG 1 x 1 CCGT x 2 trains	Field Mounted Solar Array
Maximum Plant Output	300 MW	294 MW	409 MW	326 MW	2 MW
Full Load Avg. Heat Rate					
Fuel	Natural gas	Natural gas	Natural gas	Natural gas	Solar
Development Time					
Construction time					
Natural gas line required	Yes	Yes	Yes	Yes	No
Natural gas pressure required	150+ psig	650+psig	650+ psig	650+ psig	NA
Construction man-hours (including pipeline)	280,000	1,300,000	970,000	1,650,000	25,000
Operations staff	30	5	30	30	Included
Capital Cost					
Installed \$/KW					
In-Service Date					

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## 3. Options

Cayuga is confident that each of the options presented will meet the specifications set forth in the solicitation. There may be significant opportunities to enhance the efficiency and/or reduce each option's capital cost presented. We look forward to having discussions with NYSEG to further enhance each option.

### a. Option 1- Fuel Switch to Natural Gas-Existing Boilers

Maximum Plant Output	Full Load Avg. Heat Rate	Fuel	Development Time	Construction time	Natural gas line required & pressure	Construction man-hours (including pipeline)	Plant Staff	Installed \$/KW	In-Service Date
300 MW		Natural gas			Yes 150+ psig	280,000	30		

#### Cost Summary-Option 1

Natural Gas Pipeline	EPC Costs	Owners & Development Cost	Total Estimated Project Cost

#### Background

The existing Cayuga facility is a nominal two unit 150 MW utility station with a total site output of 300 MW (net). Coal is the original and base fuel of the existing power plant. The plant entered commercial operation in 1955. The steam generators are Combustion Engineering manufactured, tangentially fired with pulverized coal. The design superheat outlet conditions are 1900 Psig, 1005°F. Unit One steam turbine is a triple pressure/temperature, reheat unit supplied by Westinghouse. Unit Two steam turbine is a triple pressure/temperature, reheat unit supplied by General Electric. The station cycle is two separate nominal 150 MW power trains. Each cycle is equipped with six closed feedwater heaters and one deaerator.

The purpose of Option 1 is to fuel switch both of the existing Cayuga units (Units 1 and 2) from pulverized coal to natural gas.

A screening analysis study undertaken by the Cayuga team including AMEC identified and quantified options that could be considered for repowering the existing units. The current design operating conditions were used.

To establish a benchmark of the existing coal operation, AMEC set up a combustion performance model of the steam generators using a typical analysis for a Pittsburgh seam coal.

AMEC also took the most current steam and electric power balances and prepared a similar thermodynamic calculated steam and electric power balance in the Gate Cycle. Gate Cycle's original development was sponsored by EPRI. The rights to the Gate Cycle are now owned by General Electric in Bentley, Nevada.

# Cayuga Repowering Proposal

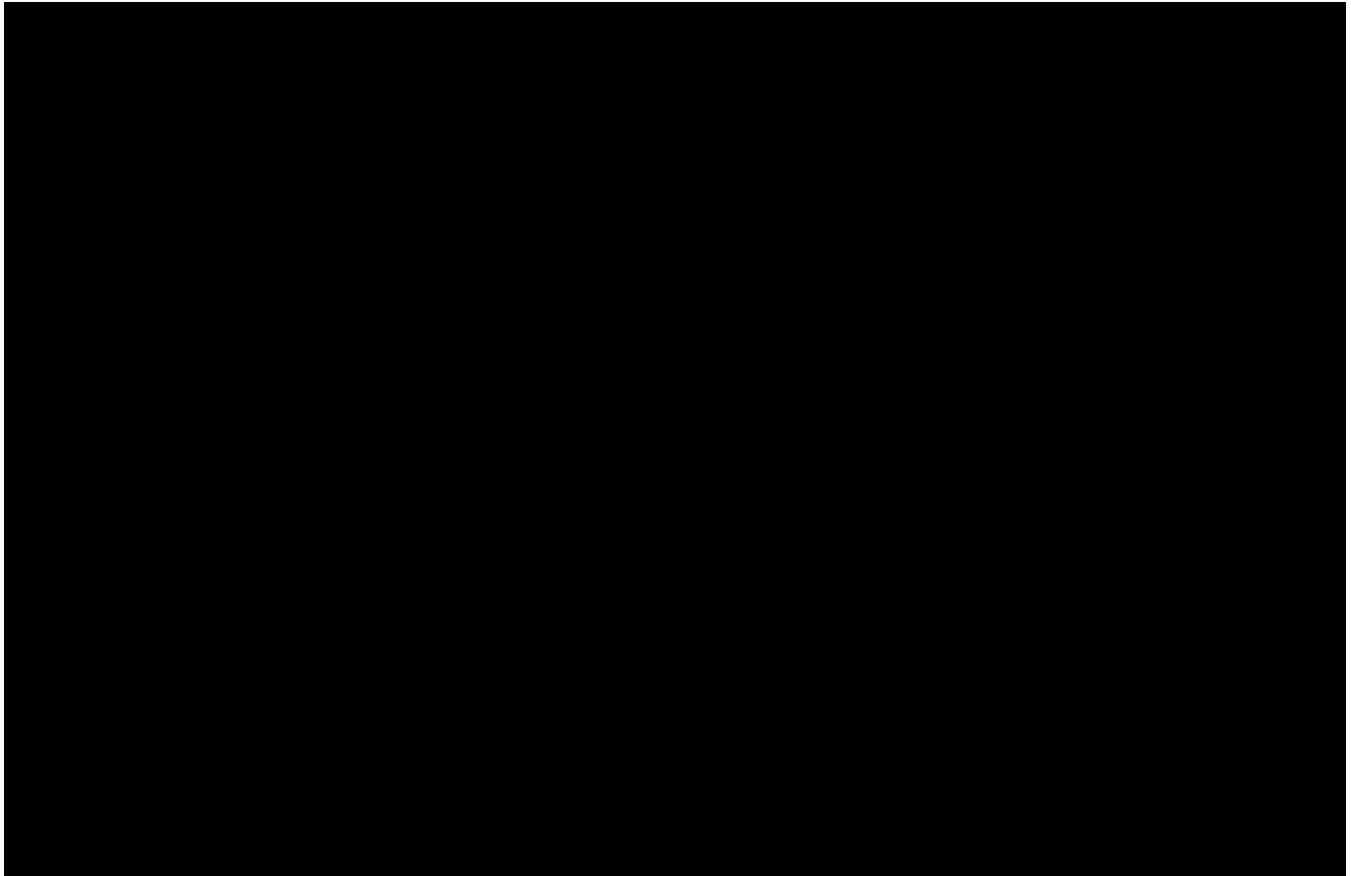
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The original design data, current operating data and heat balances provide the basis for benchmarking the current operation of the steam cycle while powered by coal. This benchmarking was used as a starting point for estimating the performance of the installed equipment, modified to burn all natural gas. Modifications include the removal of the fuel oil ignition equipment and replacing them with load carrying natural gas burners.

Results of the performance analysis show that the maximum plant output still remains at 300 MW, with average heat rates of [REDACTED]

***A typical detailed boiler performance calculated for natural gas is shown below:***



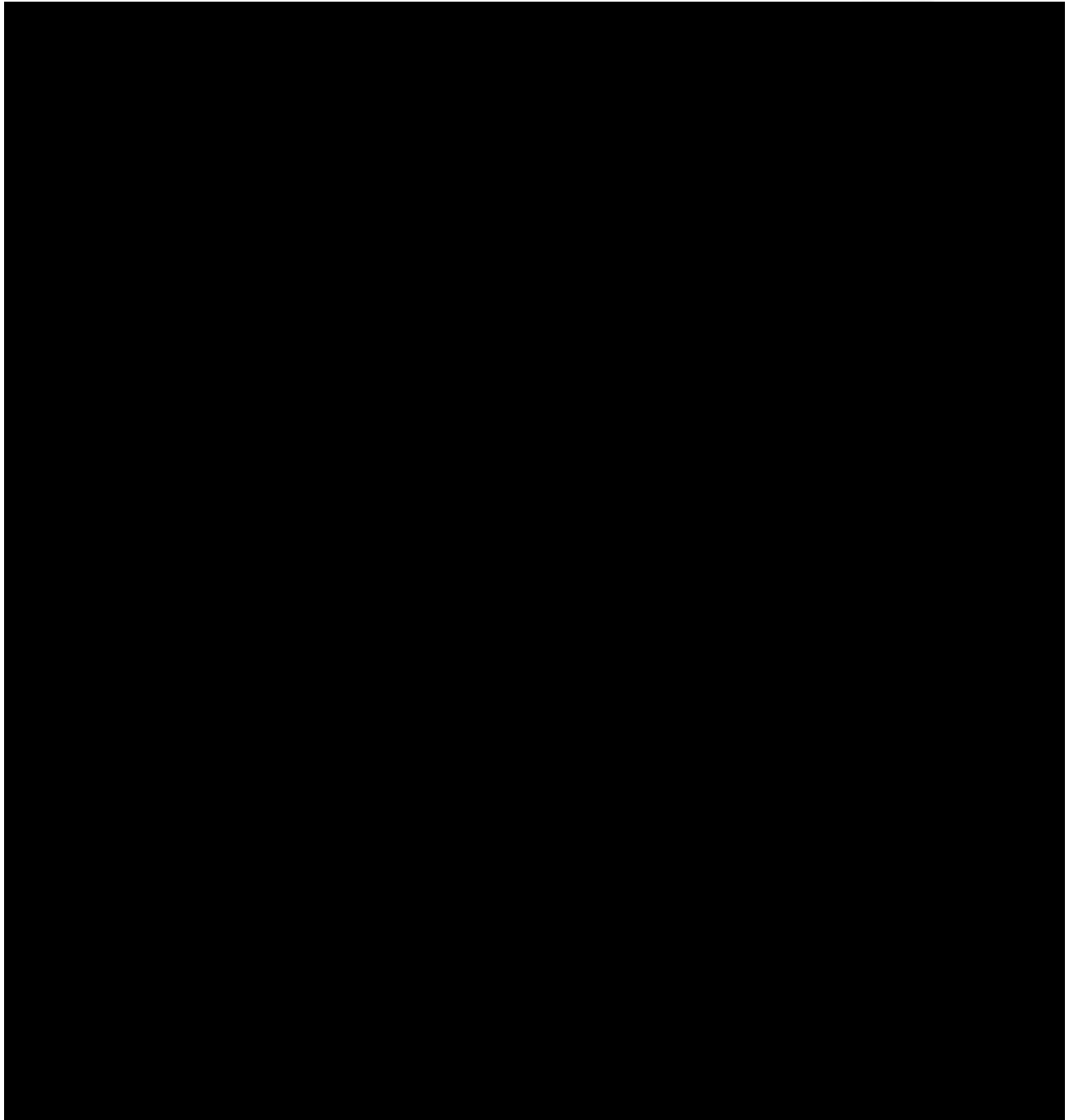


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## Side Elevation of Steam Generators



*Cayuga Steam Generator*

The side elevation shows the steam generator in pulverized coal configuration, with tilting, tangential burner assemblies. The repowering with natural gas consists of removing the fuel oil ignition equipment and replacing them with natural gas load burners in all four corners. Also, the appropriate burner management system, burner valve train and natural gas control station, all in accordance with NFPA and FM standards, would be installed.

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## b. Option 2- Simple Cycle Gas Turbines

Maximum Plant Output	Full Load Avg. Heat Rate	Fuel	Development Time	Construction time	Natural gas line required & pressure	Construction man-hours (including pipeline)	Plant Staff	Installed \$/KW	In-Service Date
294 MW		Natural gas			Yes 650 psig	1,300,000	5		

### *Cost Summary-Option 2*

Natural Gas Pipeline	EPC Costs	Owners & Development Cost	Total Estimated Project Cost

### *Performance Discussion*

The purpose of Option 2 is to repower the station with simple cycle combustion turbine generators firing only natural gas. The objective is to continue a reliable supply of approximately 300 MW of electricity to the grid while considering the thermal limitation of the transmission lines out of the plant at 475 MW.

Two different alternatives were considered under Option 2. The first alternative considered was using the General Electric LMS100 combustion turbine generator, three units, in simple cycle configuration. The second alternative considered was using the General Electric PG7241FA combustion turbine generator, two units, in simple cycle configuration. Even though this option had a nominal higher electrical output, its efficiency was lower and thus was discarded.

### **GE LMS100**

NYSEG has indicated their need for generation in the region is limited to certain hours and times of the year. Simple cycle gas turbines offer a reliable solution for this need. The GE LMS100 unit offers efficient, low emissions service for cyclic operating needs. The GE LMS100 has 10 minute start up times, load following capability and cycling duty capability.

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## GE LMS100



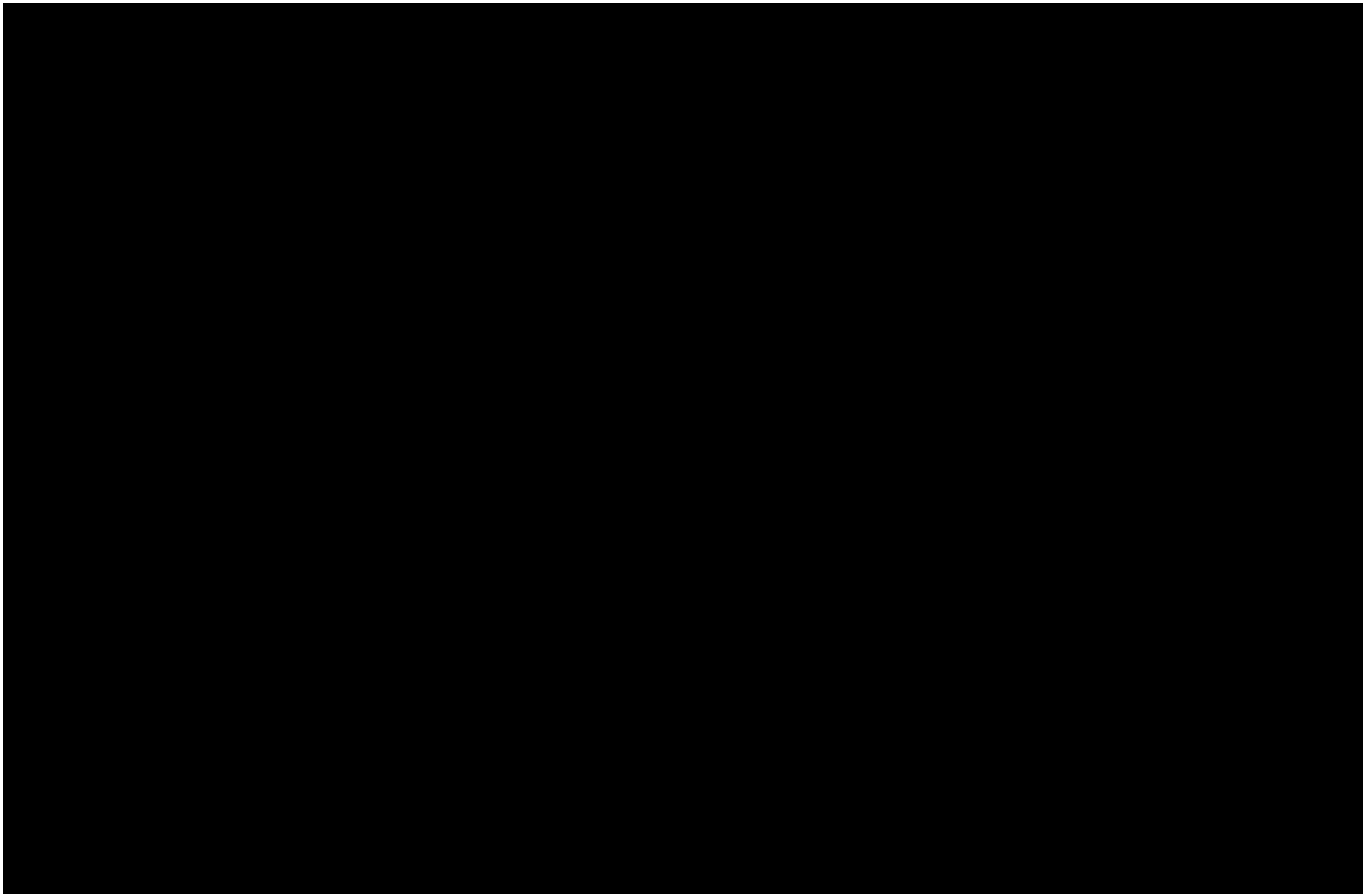
The LMS100 is an up rate and outgrowth of the experienced GE LM6000 engine generators, aero derivative combustion turbines. The LM6000 engine has been equipped with a larger than normal compressor section. Mid-way thru the compression stage, hot compressed air is taken out of the compressor to a compressor inter-stage cooling unit mounted alongside to cool the compressed air and re-insert the compressed air back into the final stages of compression before entering the combustion turbine. Being aero derivative, the LMS100 has a low flue gas exhaust temperature, signifying efficiency of the compression and combustion process.

In a DLE 2.0 configuration, the LMS100 produces 99 to 100 MW, at [REDACTED] cycle efficiency, uncontrolled NOx level of 25 ppm, has an [REDACTED] heat rate (HHV), with an exhaust flow of 475 lbs/sec at 789°F exhaust gas temperature. Using the LMS100 would improve current station efficiency by [REDACTED]

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## LMS100 Performance Summary



## LMS100 Estimated Cost Summary

Project Cost Summary	Estimated Cost
Specialized equipment	
Other equipment	
Civil	
Mechanical	
Electrical Assembly & Wiring	
Buildings & Structures	
Engineering & Plant Start-Up	
<b>Subtotal-Contractors Internal Cost</b>	
Contractor Soft and Miscellaneous	
<b>Total Contractors Cost</b>	
Owners Development Cost	
<b>Total Cost</b>	

# Cayuga Repowering Proposal

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## c. Option 3 - Combined Cycle Gas Turbine - Reusing Unit 2 Steam T/G and Fuel Switch to Natural Gas on Unit 1

### “The Hybrid”

Maximum Unit Output	Full Load Avg. Heat Rate	Fuel	Development Time	Construction time	Natural gas line required & pressure	Construction man-hours (including pipeline)	Plant Staff	Installed \$/KW	In-Service Date
Unit 1 150 MW		Natural gas			Yes 150+ psig				
Unit 2 234 MW  Ductfiring 25MW		Natural gas			Yes 650+ psig	970,000*	30*		

\* This is for the total option

### **Cost Summary-Option 3**

Natural Gas Pipeline	EPC Costs	Owners & Development Cost	Total Estimated Project Cost

### **Performance Discussion**

The purpose of Option 3 is to repower the station with a combined cycle combustion turbine generator, HRSG and a condensing cycle steam turbine generator. The objective is to supply a nominal 300 MW of electricity to the grid on a high-reliability basis while considering the thermal limitation of the transmission lines out of the plant at 475 MW. This option also includes a fuel switch to natural gas on the existing Cayuga Unit 1.

Three alternatives were considered under Option 3. The first alternative considered 300 MW electrical output by using the General Electric STAG 107FA configuration. The second alternative considered a potential higher electrical output by using the General Electric STAG 207FA configuration. The third alternative considered was a GE PG7241FA with a 3P HRSG using at least a portion of the existing Unit 2 GE-manufactured steam turbine. The third alternative will continue to utilize the Unit 2 steam turbine and once through cooling from the existing infrastructure.

The first and second alternatives were discarded as being suboptimal relative to efficiency and cost to the third alternative - the repowering of the Unit 2 steam turbine generator and converting Unit 1 from coal-firing to natural gas-firing.

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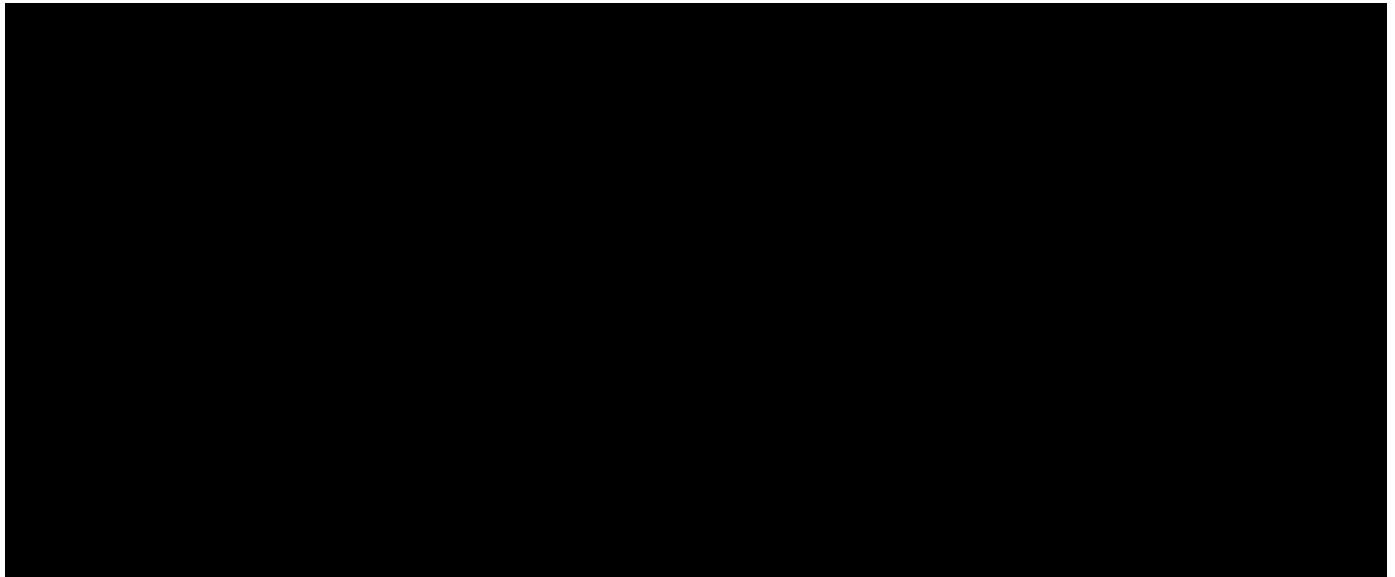
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## ***Repower Unit 2 Steam Turbine Generator***

A repowering option that utilizes Unit 2 steam turbine generator enables a large portion of the plant's existing equipment and infrastructure to be reused. Option 3 would retain the Unit 2 steam turbine generator and major support systems such as once through cooling from Cayuga Lake, lube oil systems, service air and water systems, the turbine building and infrastructure, main transformer, switchgear, and high voltage electrical systems.

There are cost savings realized by reusing Unit 2 and its infrastructure. However, one GE PG7241FA will only produce enough steam to produce approximately 65 MW of the rated 150 MW from Unit 2 steam turbine. Supplemental duct firing of the HRSG would boost the output of this configuration. The GE PG7241FA would produce about 169 MW. Therefore, the nominal output of this configuration, prior to any supplemental duct firing, would be 234 MW. Supplemental duct firing could boost the station output by a minimum of 25 MW to as much as 40 MW for a total output of between 259-274 MW.

***The performance heat balance for repowered Unit 2 steam turbine generator is below:***



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## Option 3 Estimated Cost Summary

Project Cost Summary	Estimated Cost-CCGT/Hybrid	Estimated Cost Unit 1 Fuel Switch	Estimated Cost Duct firing
Specialized equipment			
Other equipment			
Civil			
Mechanical			
Electrical Assembly & Wiring			
Buildings & Structures			
Engineering & Plant Start-Up			
<b>Subtotal-Contractors Internal Cost</b>			
Contractor Soft and Miscellaneous			
<b>Total Contractors Cost</b>			
Owners Development Cost			
<b>Total Unit Costs</b>			
<b>Total Project Cost</b>			

## d. Option 4-Combined Cycle Gas Turbines

Maximum Plant Output	Full Load Avg. Heat Rate	Fuel	Development Time	Construction time	Natural gas line required & pressure	Construction man-hours (including pipeline)	Plant Staff	Installed \$/KW	In-Service Date
326 MW		Natural gas			Yes 650 + psig	1,650,000	30		

## Cost Summary-Option 4

Natural Gas Pipeline	EPC Costs	Owners & Development Cost	Total Estimated Project Cost



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## ***Performance Discussion***

The purpose of Option 4 is to repower the station with a combined cycle combustion turbine generator, HRSG and a condensing cycle steam turbine generator. The objective is to supply a nominal 300 MW of electricity to the grid on a high-reliability basis while considering the thermal limitation of the transmission lines out of the plant at 475 MW.

A representative CCGT is the Alstom 11N2 Combined Cycle

The equipment which best matches an independent, two power train configuration sporting two combustion turbines, two HRSGs and two steam turbines for reliability, are Alstom 11N2 units. Two separate power trains, i.e., 1 x 1 CC x 2 trains, would provide maximum redundancy and reliability.

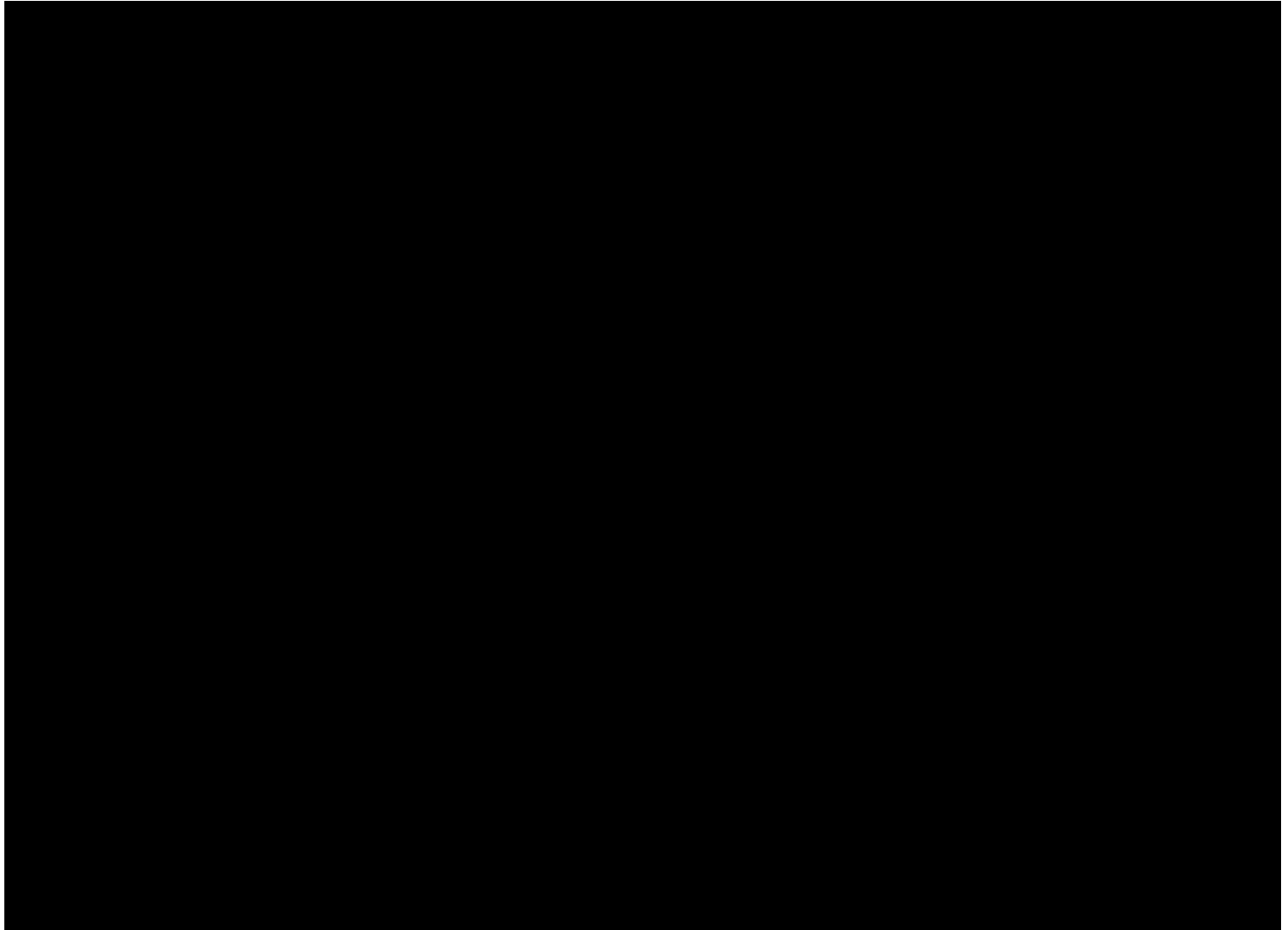
*Two trains of 1 x 1 CC separate plants are similar to the existing coal fired configuration. It provides the most flexibility and reliability but at an added cost.*

Pictured below is an example of 4 comparable CCGT installations.



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## Option 4 Estimated Cost Summary

Project Cost Summary	Estimated Cost-2- 1x1 CCGT's
Specialized equipment	
Other equipment	
Civil	
Mechanical	
Electrical Assembly & Wiring	
Buildings & Structures	
Engineering & Plant Start-Up	
<b>Subtotal-Contractors Internal Cost</b>	
Contractor Soft and Miscellaneous	
<b>Total Contractors Cost</b>	
Owners Development Cost	
<b>Total Cost</b>	

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## 4. Response to NYSEG's Eligibility Requirements ( section - III)

1. Cayuga must demonstrate the ability to obtain natural gas service (commodity supply and transportation) to the facility.

- *Cayuga has contacted a number of owners and operators of inter- and intra-state natural gas pipeline networks who could be potential transporters of the natural gas fuel required for the repowered Cayuga Facility. The to-be-constructed lateral serving the Cayuga Facility (the "Lateral") will interconnect with the interstate "big inch" interstate pipeline network in one of two possible locations: [REDACTED] Title to the natural gas commodity will transfer from the commodity shipper to Cayuga either at the metering station located at the interconnection point between the interstate pipeline network and the Lateral, or at the metering station located at the Cayuga Facility itself. [REDACTED]*

*The prices for each of these elements of fuel supply and fuel transportation are shown in the Attachment 4.*

2. Cayuga must demonstrate compliance, or detail plans to comply, with the NYISO Large Generator Interconnection Procedures.

- *Cayuga will comply with the NYISO Large Generator Interconnection Procedures.*

3. Cayuga must agree to: (i) provide reliability support to NYSEG; (ii) operate and maintain the facility in accordance with Good Utility Practice and NYISO Tariffs; and (iii) interface and Comply with NYISO scheduling deadlines and requirements for maintaining the facility as eligible energy and capacity providers, as well as comply with NYSEG or NYISO dispatch instructions.

- *Cayuga agrees to this requirement.*

4. Cayuga must describe any Article X and Article VII filings that may be required for both the facility repowering and the associated natural gas supply.

- *An Article X filing will be required for Options 2, 3, & 4 for siting the new electric generating unit(s), but would not be required for Option 1 which is utilization of the existing infrastructure for a conversion from coal to natural gas. An Article VII filing will be required for all options as a natural gas pipeline will need to be constructed to the Cayuga site. See also Attachment 3: Permits Required.*

5. Cayuga must provide the annual environmental impacts, including air (NOx, SOx, CO, Carbon Dioxide and particulates), water (thermal) and soil (ash storage), associated with each Offer.

- *The environmental impacts associated with each Option are shown in tabular and graphical format in Attachment 3.*

6. Cayuga must explain any market power impacts associated with each Offer.

- *Cayuga does not reasonably anticipate any market power issues associated with any of the options. Only Options 3 (450 MW) and 4 (350 MW) provide a maximum plant output in excess of*

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*the current plant output of 300 MW.*

7. Cayuga must provide total and monthly capital construction costs associated with each Offer, temporary (construction) and permanent jobs created with each Offer, and expected property tax payments associated with each Offer.
  - *Estimated construction costs, permanent and construction jobs and property taxes are shown in Attachment 4 and in the configuration table.*
8. Cayuga must provide the monthly amount, in dollars, of out-of-market support Cayuga would require to finance a repowering of the Cayuga generating facility. This “out of market support” must be a price not to exceed that NYSEG can use to evaluate Cayuga’s Offers. Cayuga must provide the components used to calculate such payment including, but not limited to, the following:
  - a. monthly forecast of energy, capacity and ancillary service production and revenues including monthly market prices used for each revenue stream.
  - b. monthly forecast of fuel, variable O&M, fixed O&M and environmental costs associated with the production listed above.
  - c. monthly forecast of any other costs Cayuga may incur such as taxes, insurance, licensing, fees, overhead and corporate expenses.
  - d. monthly forecast of any other revenues Cayuga may receive.

9. Entity Information: NYSEG will evaluate the corporate structure which Cayuga proposes for this project. Regardless of Cayuga’s form, Cayuga shall provide any applicable information requested below as part of its Offer.

a. *The legal name of the applicant is Cayuga Operating Company LLC. Cayuga is a limited liability company. Cayuga's corporate information is attached.*

b. *The State of Incorporation is Delaware.*

c.

d. *Cayuga's Principal business is to sell generated electricity, capacity and ancillary services.*

e. *The parent corporation for Cayuga is USNYPP which was formed in the State of Delaware as a corporation. Cayuga is 100% owned by USNYPP and USNYPP is the controlling member. USNYPP is also the parent corporation of Somerset Operating Company, LLC as well as Somerset Railroad Corporation, Inc. The By-Laws of Cayuga Operating Company LLC, and in particular, Section 7 thereof, establish that USNYPP manages the business and affairs of Cayuga Operating Company LLC and that there is no separate board of directors managing its affairs.*

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- f. Cayuga is not proposing to provide a guarantee at the time this Solicitation proposal is submitted. Cayuga will discuss guarantees and credit at a later date in the process.*
  - g. Cayuga is providing an organizational chart showing each level of ownership including the ultimate parent USNYPP. The chart is in Appendix 1.*
  - h. Neither Cayuga nor its parent company USNYPP is a public corporation. Therefore a Form 10-K or Form 10-Q is not applicable. Audited financial statements for Cayuga are not prepared, however unaudited financials can be provided.*
  - i. Cayuga and USNYPP do not have a Moody's or S&P senior unsecured debt rating, credit rating or a long term issuer rating.*
- 10. Cayuga's Experience Information:** Cayuga shall provide a description of any applicable experience in developing projects such as the Offer, particularly in New York. Cayuga shall list its references by name, address and contact number.
- The Cayuga project team includes professionals with extensive experience in power project ownership, development, engineering, permitting, financing and operations, including in the State of New York. The team's experience includes more than 15,000 MW of natural gas plants.*
  - Our experienced Cayuga Repowering Team consists of three capable Partners: a) the existing Cayuga management and operations team b) engineer/constructor AMEC and c) project development manager Federal Power Company, LLC. The existing Cayuga management and operations team has been successfully operating and maintain the Cayuga station and managing capital projects at the site for more than 20 years. EPC contractor AMEC has engineered and constructed more than 27,000 MW of natural gas-fired power plants and has 9 offices and over 2,000 personnel in its Northeast U.S. offices and over 10,000 personnel throughout the U.S. Federal Power project personnel have developed, owned and operated more than forty power plants with a nameplate capacity of 18,000 MW.*
- 11. Market Based Rate Authority:** Cayuga shall indicate whether it plans to seek Market Based Rate Authority, and the timetable for receiving such authority.
- Docket No. ER 12-1563 for Cayuga Operating Company LLC was accepted and became effective May 18, 2012. Based on representations made in the filing, Cayuga Operating Company LLC satisfied the FERC's requirement for horizontal and vertical market power.*
- 12. Project Financial Information:** Cayuga must provide the following Project finance information:
- a. Amount and type of financing for the Project (sources and amount of debt and equity);
  - b. A description of construction and operating period financing for the Project including expected debt to equity ratios, debt coverage ratios, liens, and restricted covenants;
  - c. Any report of an independent engineer or other consultant regarding the Project prepared for, or as part of, the Project financing; and
  - d. The identification and description of other transactions by Seller that have been leveraged,

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either prior or subsequent to the construction or Commercial Operation Date, including, without limitation, all financing arrangements for such transactions, loan to equity ratios, coverage ratios, liens, and restrictive covenants agreed to by the Seller.

- *The form and type of financing required will be determined after the selected Option is decided upon. For illustrative purposes Cayuga has analyzed the financial outlook of the options using a range of returns on the project costs. Further detail can be found in Section C and Attachment 4. Cayuga views these ranges as providing a reasonable means to evaluate the project.*

13. A description (quantity, size, manufacturer etc) of the main mechanical and electrical pieces of equipment used for the project including turbine, generator and main auxiliary equipment.

***What follows are equipment descriptions of the major components and systems for each option:***

## **Option No. 1 Fuel Switch Units 1 and 2 from Coal to Natural Gas**

*This option considers that certain plant equipment is in 'good utility condition'. The conversion of these coal boilers to gas firing requires removal of asbestos insulation and refurbishment of the boiler casings. At the final design stage, Unit 2 might require a Selective Non-Catalytic Reaction System (SNCR) to control nitrogen oxide emissions. All major electrical equipment remains the same.*

- *16 natural gas load carrying burners*
- *16 sets of burner piping, valves and fittings*
- *Natural gas fuel feed system, Factory Mutual and NFPA compliant*
- *Modify all four tilting tangential burner assemblies for natural gas*
- *Deactivate coal handling equipment and feed systems*
- *Deactivate bottom ash and fly ash handling equipment and removal systems*
- *DCS modifications to remove coal firing and add natural gas firing*
- *Station instrumentation modifications*
- *GE STG blade path study and performance upgrade study*
- *Siemens STG blade path study and performance upgrade study*

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## **Option No. 2 - LMS100 Simple Cycle Units**

*GE's MS100 provides a single, economical solution for the dispatch needs of nearly every condition. It consists of equipment with high efficiency, 10-minute start times, good peak performance, load following and cycling capabilities.*

- *High simple cycle base load efficiency [REDACTED]*
- *Fast start capability delivers 100 MW in 10 min*
- *Reliable peak day performance*
- *Load following and cycling capabilities*
- *Excellent part-load performance*
- *No maintenance penalties for cycling*
- *Aeroderivative design allows for high reliability and availability*
- *Three aero derivative gas turbines*
- *Three gas turbine exhaust systems*
- *Fuel gas compressor*
- *CEMs system*
- *DCS*
- *Transmission voltage equipment*
- *Generating voltage equipment*
- *Station pumps and drives*
- *Station tanks*
- *Auxiliary heat exchangers*
- *Bridge crane*
- *Station air compressors*
- *General station instrumentation*
- *Medium voltage equipment*
- *Low voltage equipment*
- *Miscellaneous equipment*



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## **Option No. 3 Repower Unit 2 STG**

*The Gas Turbine Generator would be a General Electric 7FA gas turbine with its associated electrical generator. A HRSG candidate would be a VOGT fast start two pressure reheat unit.*

*In this Option, maximum use of existing equipment is made. The existing Unit 2 General Electric steam turbine-generator is re-optimized to produce a nominal 100MW. Its auxiliaries including the Foster Wheeler steam condenser are reused.*

*GE's 7FA gas turbine for 60Hz power generation regions provides a high level of operational flexibility, with proven performance in applications ranging from combined cycle and cogeneration to simple cycle peaking.*

- *Advanced Compressor for improved performance, enhanced operability, and improved maintainability.*
- *Industry-leading DLN 2.6 Combustor for improved performance, enhanced operability, and lower emissions.*
- *Advanced Hot Gas Path (HGP), field proven for improved performance and enhanced durability.*
- *Fast start for increased revenue, lower starting emissions, and higher dispatchability.*
- *Extended turndown for increased spinning reserve capability and lower fuel costs.*
- *Fast ramp rate for enhanced revenue capture through Automatic Generation Control (AGC).*
- *State-of-the-art test facility that can validate all frequency conditions and flexibility features.*
- *Increased fuel flexibility with self-calibrating combustion system to handle current as well as unconventional natural gas and hydrogen.*

*The 7FA gas turbine provides many flexibility options including faster starting, good part-load efficiency, and best-in-class ramp rates that meet emissions requirements.*

### *Advanced Compressor*

- *An advanced Aviation-style, high-efficiency compressor increases airflow and compression ratio.*
- *Inlet guide vanes include three variable stator vane stages with additional variable geometry stages that enhance operability and flexibility.*
- *Improved reliability, availability and maintainability through increased prognostic tools and field removable airfoils.*

### *Combustion*

- *DLN (Dry Low NOx) 2.6 combustion system and model-based control system with more than 15 million hours of service and 425,000 starts.*
- *Auto-tune capability accommodating wider fuel variation.*
- *GE's DLN combustion system allows for higher loading and unloading rates and lower turndown capability while maintaining 9PPM emission levels.*

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## *Turbine Design:*

- *Advanced Hot Gas Path (HGP) builds upon F-fleet experience of more than 1,000 operating F-class units to provide improved output and efficiency.*
- *Greater availability and low life cycle costs with improved inspection intervals.*
- *One gas turbine*
- *One 3P HRSG*
- *Reuse Unit 2 steam turbine generator*
- *Reuse Unit 2 water cooled condenser*
- *Reuse once through cooling water system*
- *Fuel gas compressor*
- *CEMs monitoring system*
- *DCS*
- *Transmission voltage equipment*
- *Generating voltage equipment*
- *Station pumps and drives*
- *Station tanks*
- *Auxiliary heat exchangers*
- *Reuse bridge crane*
- *Air compressor*
- *Plant instrumentation and controls*
- *Medium voltage equipment*
- *Low voltage equipment*
- *Miscellaneous equipment*

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## **Option 4 - Two 1 x 1 CCGT's**

### **Alstom 11N2 1X1 CC**

Alstom developed the GT11N2 to satisfy a market need for a 60 Hz/50 Hz, 115 MW unit

The GT11N2 fleet has 60 units worldwide in operation in various industrial co-generations, simple or combined-cycle applications. The fleet has a proven record of high reliability and availability with more than one million fired hours. The GT11N2 has achieved an average of 99% start reliability in peaking units and over 99% reliability in continuous operating units.

### ***Maintainability***

The combustor only requires visual inspections between hot gas path inspections. The welded rotor technology eliminates the need for major overhauls (where the rotor needs to be returned to the factory for refurbishment).

### ***Compressor***

The 14-stage compressor with a pressure ratio of 16:1 benefits from a high combined-cycle part-load efficiency based on compressor turn-down capability. The compressor variable guide vanes (VGVs) provide a high compressor flow turn-down capability, allowing process steam conditions to be maintained from 100% gas turbine output all the way to 40% gas turbine output. The single, top-mounted, silo combustor allows for easy access from the top of the engine for direct visual inspection of the combustor and hot gas path, as well as the first row of turbine vanes and blades.

### ***Turbine***

The four-stage turbine is made of materials that are easy to recondition. The turbine blade losses are minimized due to 3-D designed and air-cooled blades and vanes for the first two stages.

### ***Summary***

- Two gas turbines
- Two steam turbines
- Two 2P HRSGs
- Two water cooled condensers
- Fuel gas compressor
- Two CEMS systems
- DCS
- Switchyard equipment
- Pumps and drives
- Tanks
- Cooling tower

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## 5. Response to NYSEG's Gas Supply and Interconnection (section VIII)

Gas Supply and Interconnection: Cayuga will be responsible for obtaining all required information from the gas service provider, and will include all related documents and studies with the Offer.

- Cayuga has contacted a number of owners and operators of inter- and intra-state natural gas pipeline networks who could be potential transporters of the natural gas fuel required for the repowered Cayuga Facility. The to-be-constructed lateral serving the Cayuga Facility (the "Lateral") will interconnect with the interstate "big inch" interstate pipeline network in one of two possible locations:*

1.

2.

- Title to the natural gas commodity will transfer from the commodity shipper to Cayuga either at the metering station located at the interconnection point between the interstate pipeline network and the Lateral, or at the metering station located at the Cayuga Facility.*

- The prices for each of these elements of fuel supply and fuel transportation are shown in Attachment 4.*

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## C. Commercial Proposal

### 1. Economic Model Overview

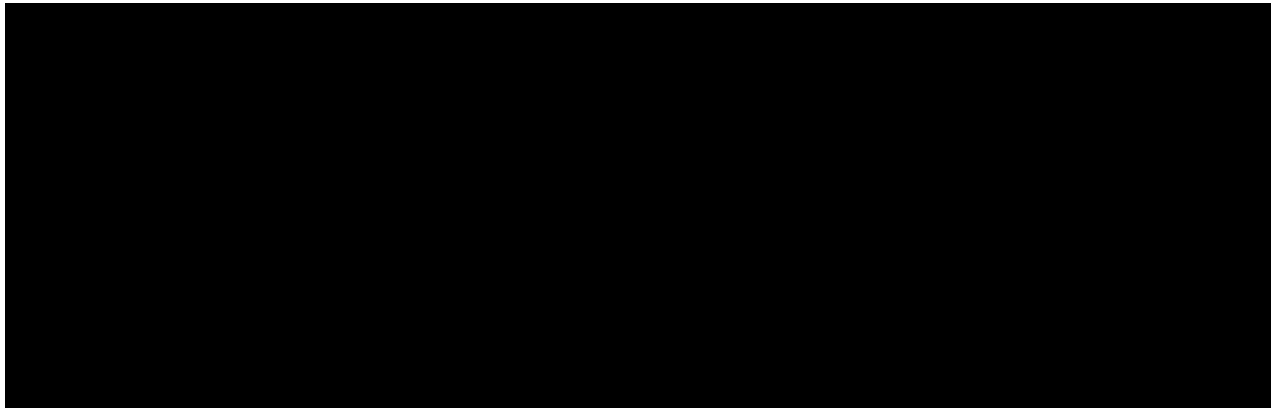
Cayuga developed dispatch models to evaluate the economic performance of merchant operation of the proposed options. The resulting after-tax unlevered cash flows were compared against the construction cost of the project to determine what cash flows were needed for a viable project. This evaluation was performed based on an [REDACTED] The results are summarized herein and provided in detail in Attachment 4.

Market prices are based on the third party provider, [REDACTED] provides a 25 year outlook on all key market inputs such as power prices, local natural gas prices, capacity prices, and emissions costs. Fixed costs and capital expenditures were based on Cayuga's current cost structure and adjusted to meet the operating parameters of each option.

In order to determine the after-tax unlevered cash flows a 20 year Modified Accelerated Cost Recovery System ("MACRS") schedule was used and any Net Operating Losses were assumed to benefit the plant.

### 2. Construction Costs

An illustrative construction schedule has been provided (Appendix 5) and will be further enhanced if the project were to move forward. The construction schedule is composed of three main categories of costs, 1) pipeline costs, 2) direct project construction costs and 3) owner development costs. Costs are assumed to be incurred as follows:



Attachment 1 provides a monthly schedule of the costs described above.

### 3. Economic Summary

As summarized below the options allow two different solutions to meet the local and state energy needs. Cayuga can remain as a resource that primarily meets peak summer demand and is on average idle during the Spring and Fall (Options 1 and 2) or it can be repurposed to construct a highly efficient combined cycle plant that is typically dispatched year round (Options 3 and 4). Options 1 and 3 utilize more of the existing infrastructure resulting in lower construction costs but sacrificing some efficiency in the process. Options 2 and 4 fully utilize the latest state of the art technology to provide the most efficient solution, albeit requiring a larger initial investment.

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## 4. Table of Cayuga Repower Options – Project NPV's:

	1	2	3	4
Option ( <i>\$'s in millions</i> )	Natural Gas to Existing Boilers	Gas-Fired Peaking Units	Gas-Fired Hybrid Combined Cycle	Gas-Fired Combined Cycle

Cayuga offers whatever support NYSEG and the New York State Public Service Commission (the “PSC”) desire in evaluating these alternatives and arriving at a singular, selected option. Cayuga envisions a process whereby NYSEG and the PSC select a repowering option, supported by Cayuga, which provides the best outcome and the lowest total cost to New York State ratepayers.

## 5. Response to NYSEG’s Credit and Deposit (section - IX)

Credit and Deposit:

In its evaluation of an Offer, NYSEG will consider Cayuga’s capability to perform all of its financial and other obligations including, without limitation, Cayuga’s ability to provide Performance Assurance that the resource would be available and operate as required under the executed Agreement. This assurance is to support performance during plant operations and the ability of Cayuga to construct the generation facility by the expected In-Service Date. This assurance includes the ability of Cayuga to fund the construction of the generation facility and cause it to be constructed

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by the expected In-Service Date. Cayuga is required to provide the credit and finance information as requested in this Solicitation.

Cayuga will be required to post collateral to support its ability to construct the generation facility by the expected In-Service Date and, depending on its credit standing, may need to post collateral acceptable to NYSEG to support performance of other obligations under the contract. As set forth in Section VII, Cayuga will be required to provide funding for any network upgrade costs.

Should one of Cayuga's Offers provide NYSEG with a least cost alternative to meet its reliability needs, within 30 days of PSC approval of a Cayuga proposal, Cayuga will be required to submit an Offer Deposit in accordance with the terms as detailed below. Cayuga's Offer Deposit must be in the form of a Letter of Credit or cash in the amount of the greater of (a) \$500,000 or (b) the product of \$5,000 per MW and the Project's Contract Capacity in MW. The Letter of Credit must be an irrevocable standby letter of credit, expiring in not less than 20 Local Business Days, issued by a bank in a major financial center which is a major U.S. or Canadian commercial bank or foreign bank with a U.S. or Canadian branch office possessing no less than an A- rating by S&P or A3 by Moody's acceptable to the Secured Party.

- *Cayuga agrees to post collateral (the "Offer Deposit") to support its ability to construct the chosen repowering option by the expected in-service date. Cayuga agrees that a provision outlining the amount and date required for funding the Offer Deposit, as defined and specified in NYSEG's Solicitation is an acceptable provision to include in any subsequent Agreement between NYSEG and Cayuga. Furthermore, Cayuga agrees to provide funding for any necessary network upgrade costs, if any.*

## **6. Response to NYSEG's Representations, Warranties and Binding Offer (section - X)**

Cayuga has copied Section X from NYSEG's Solicitation and provides its response, below, to the fifteen representations and warranties, binding offer posed by NYSEG in Section X.

1. Cayuga has read, understands and agrees to be bound by all terms, conditions and other provisions of the Solicitation Documents.
  - *Cayuga agrees that there can be no binding agreement between Cayuga and NYSEG (together, the "Parties") unless and until a mutually agreed Definitive Agreement (the "Agreement") has been negotiated and executed between the Parties. Cayuga agrees to use commercially reasonable efforts and negotiate in good faith in order to reach a mutually acceptable Agreement. The understandings and proposals set out in this proposal are subject to a number of assumptions and conditions. Furthermore, the provisions and information set out in this proposal are intended only as an expression of intent on behalf of Cayuga, are not intended to be legally binding on Cayuga and are expressly subject to the execution of the Agreement. Moreover, except for the Confidentiality Agreement between the parties dated September 12, 2012 ("the Confidentiality Agreement"), which shall remain in full force and effect in accordance with its terms (or except as expressly provided in any Agreement that the parties may enter into in the future) no past or future action, course of conduct or failure to act relating to a possible transaction or relating to the negotiation of the terms of a possible transaction or Agreement will give rise to or serve as a basis for any obligation or other liability on the part of the Cayuga.*



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2. Cayuga has had the opportunity to seek independent legal and financial advice of its own choosing with respect to the Solicitation, the Solicitation Documents, including any appendices.
  - *Cayuga has had the opportunity to avail itself of independent legal and financial advice.*
3. Cayuga acknowledges and agrees that, in NYSEG's evaluation of Offers pursuant to this Solicitation, NYSEG reserves the right to disqualify Cayuga if it is unwilling or unable to meet NYSEG's credit requirements.
  - *Cayuga agrees to this requirement.*
4. Cayuga has obtained all necessary authorizations, approvals and waivers, if any, required by Cayuga as a condition of submitting its Offer and, if Cayuga's Offer is selected and a Final Offer is submitted, executing an Agreement with NYSEG.
  - *Cayuga has obtained all necessary authorizations, approvals and waivers required by Cayuga for the submittal of this Offer to NYSEG. Cayuga cannot seek any necessary internal approvals relating to the Agreement, as no Agreement currently exists. Cayuga will negotiate with NYSEG in good faith in order to attempt to reach a mutually acceptable Agreement. For many and varied reasons, it may not be possible for the Parties to reach common ground on an Agreement. If and when the Parties do reach a mutual agreement, Cayuga will diligently pursue all necessary internal approvals.*
5. Cayuga is submitting its Offer subject to all applicable laws and regulations.
  - *Cayuga is submitting this Offer subject to all applicable laws and regulations.*
6. Cayuga has not engaged, and covenants that it will not engage, in any communications with any other actual or potential participant in the Solicitation concerning this solicitation, price terms in Cayuga's Offer, or related matters and has not engaged in collusion or other unlawful or unfair business practices in connection with this Solicitation.
  - *Cayuga has not engaged in collusion or other unlawful or unfair business practices in connection with this solicitation.*
7. The information submitted by Cayuga to NYSEG in connection with this Solicitation, and all information submitted as part of the Offer Submittal Package as described in the Transmittal Letter, is true and accurate as of the date submitted by Cayuga. Cayuga covenants that any information requested herein and such Attachments, but not provided to NYSEG as part of the Offer Submittal Package, will be provided to NYSEG on or before the date that Cayuga specified for provision of the information in the timeline provided. Cayuga also covenants that it will promptly update such information upon any material change thereto.
  - *All information submitted by Cayuga as part of its Offer is true and accurate, to the best of Cayuga's knowledge, as of March 26, 2013. Cayuga will use commercially reasonable efforts to work with NYSEG to meet NYSEG's reasonable information needs.*
8. In addition, Cayuga's submission of an Offer Submittal Package is Cayuga's acknowledgement and agreement that:
  - a. NYSEG will rely upon all representations, warranties, and covenants in the Offer Submittal Package; and

# Cayuga Repowering Proposal

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- b. NYSEG may disclose information as set forth in the Confidentiality Agreement.
- *Except as otherwise set forth herein, Cayuga acknowledges and agrees with the assertions set forth in paragraphs a. and b. above.*
9. Cayuga represents and warrants that each Project that is the subject of Cayuga's Offer meets the design-life requirements of this Solicitation.
- *Cayuga represents and warrants that each Option proffered as part of Cayuga's Offer herewith meets the design-life requirements of the NYSEG Solicitation.*
10. Cayuga covenants that it will provide information requested not longer than two weeks following Cayuga's receipt of NYSEG's request for such information.
- *Cayuga will use commercially reasonable efforts to work with NYSEG to meet NYSEG's reasonable information needs within this requested time period.*
11. Cayuga covenants that it will update the schedule provided to NYSEG by the first Business Day of every month between the date of the Offer Submittal Package and the execution of any Agreement and will promptly provide NYSEG with copies of any changes or updates to this construction schedule.
- *Cayuga will work with NYSEG to produce a common schedule document, if NYSEG requires.*
12. Cayuga covenants that it will provide NYSEG with a completed progress report by the first Business Day of every month between the date of the Offer Submittal Package and the execution of any Agreement.
- *Upon acceptance of one or more of the options set forth in this proposal and the later execution and delivery of an Agreement or an EPC contract. Cayuga will provide monthly progress reports as part of the schedule noted in paragraph 11, above.*
13. Cayuga agrees and acknowledges that NYSEG reserves the right at any time, in its sole discretion, to abandon this Solicitation, to change any dates specified in this Solicitation, to change the basis for the evaluation of Offers, to terminate further participation in this process by any party, to accept any Offer or to enter into any Agreement, to evaluate the qualifications of Cayuga and/or the terms and conditions of any Offer, to reject any or all proposals or Offers, to prohibit or limit mutually exclusive Offers, to consider additional products, to change any form, document, term or condition used in this Solicitation at any time during the Solicitation process, or waive any irregularities, all without notice and without assigning any reasons and without incurring liability of NYSEG, or any of their respective subsidiaries, affiliates, or representatives to Cayuga or any other party. NYSEG shall have no obligation to consider any Offer submitted. NYSEG will not reimburse Cayuga for its expenses related to this Solicitation under any circumstances, regardless of whether the bidding process proceeds to a successful conclusion or is abandoned. NYSEG shall not be deemed to have accepted any Offer, and shall not be bound by any term thereof, unless and until an authorized representative of NYSEG executes an Agreement with Cayuga.
- *Cayuga agrees that NYSEG retains the right to cancel, abandon, or make changes to the Solicitation, in NYSEG's sole discretion, at any time for any reason, or no reason. Cayuga acknowledges that NYSEG will not compensate Cayuga for its expenses related to the NYSEG*

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*Solicitation or this proposal, except for damages to Cayuga caused by NYSEG's gross negligence or intentional wrongdoing. Cayuga reserves the right to cancel, abandon or make changes to its proposal at any time, for any reason or no reason. In the event Cayuga exercises this right, it will provide reasonable notice to NYSEG. If requested, Cayuga agrees to commence negotiations with NYSEG, regarding Cayuga's decision to cancel, or make changes to the terms of this proposal for a period of at least ten (10) days following NYSEG's receipt of notice of Cayuga's intent to cancel, abandon or make changes to this proposal. By acceptance of this response, NYSEG acknowledges that Cayuga will not compensate NYSEG for its expenses related to the Solicitation of this offer.*

**14.** Cayuga agrees and acknowledges that information provided by it to NYSEG pursuant to this Solicitation will be subject to the disclosure requirements of the New York State Public Service Commission or other applicable law or regulation.

- Cayuga agrees that the contents of Cayuga's proposal may be shared with the PSC, subject to the provisions of the Confidentiality Agreement. By acceptance of an option presented in this proposal, NYSEG agrees that it will allow Cayuga to redact, in its sole discretion, certain the information presented in the proposal that it determines is outside of the public disclosure requirements or would be harmful to Cayuga if released to the general public, prior to sharing the contents of this proposal with the PSC. By acceptance of this response, NYSEG further agrees that it will redact the same information in the report and recommendation it subsequently submits to the PSC via the Records Access Officer.*

**15.** Cayuga represents that it has obtained a current (up to date) Interconnection System Impact Study, and has obtained or will obtain a current (up to date) Interconnection Facilities Study from the NYISO. Furthermore, Cayuga represents that these studies meet all of the Interconnection Study Requirements that are required by the NYISO. Finally, Cayuga covenants that if requested by NYSEG it will, within five Business Days of a request, request the electronic power-flow file of the base case study from the NYISO, or third party consultant for Cayuga responsible for the Interconnection Studies and provide this data in electronic form to NYSEG within five Business Days of Cayuga's receipt of the data.

- Cayuga has not obtained any Interconnection System Impact Study from the NYISO for any of the options that Cayuga proposes in this proposal. Likewise, Cayuga has not obtained any Interconnection Facilities Study from the NYISO for any of the options Cayuga proposes in this proposal. To the extent required, Cayuga will obtain an Interconnection System Impact Study and/or an Interconnection Facilities Study for the selected option.*

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## D. Economic and Non-Economic Benefits

The Cayuga team has taken careful consideration in designing the four options offered in this proposal. The team researched the New York State Energy Highway Blue Print, investigated several different turbine manufactures, considered several different fuel options, and studied the environmental effects of the options. All of the options were designed with the rate payer's interest in mind, and all the options offer a wide variety of benefits to the local economy, to the taxing jurisdictions and to the electric energy system in New York State.

### 1. Direct and Indirect Economic Benefits

The proposal will repurpose the existing plant site with a range of options from repowering the existing boilers using clean natural gas to installing state of the art combined cycle natural gas fueled electric generating units. By leveraging prior infrastructure investments, a number of competitive options are available to meet the State's needs and fulfill the focus of the New York Energy Highway Blueprint. Maintaining generation at this site will offer high efficient, low cost energy to the grid while reducing the need of imports from less efficient higher emitting generation outside of New York. A fast starting gas turbine is an excellent complement to up-state wind turbines during periods of low wind velocity, and will enhance system stability.

Roughly one-third of the project cost for each option is labor (i.e. field construction, equipment fabrication, engineering and project management). The vast majority of these labor dollars will be spent in the State of New York. In addition to jobs resulting from the construction activity, the community will also benefit from additional direct non-payroll expenditures. Local expenditures are expected to generate tens of millions of dollars in additional secondary economic activity in the area.

The local economy will see this benefit as soon as the contract is approved and benefits will continue throughout the life cycle of the installed equipment. In the short-term, the benefits of project construction will include additional employment and income from jobs in the various construction trades and supporting service trades that will be required to build the technical configuration chosen. In the long-term, the project will provide an array of direct and indirect economic benefits.

Currently, the plant facility pays taxes under a Payment in Lieu of Taxes ("PILOT") agreement with the Tompkins County Industrial Development Agency. The agreement runs through the year 2028, and all of the options in the proposal take into consideration the length of the PILOT agreement and the payment structure. In short, tax revenue for the local jurisdictions will be steady and consistent. At a time when school districts are facing tremendous fiscal pressure, loss of tax dollars or constantly fluctuating tax dollars from the facility would have devastating impacts on the school district. There are no other private sector investments planned in this area that can come close to replacing the property tax revenues generated by the plant.

Cayuga has strong relationships with its local taxing jurisdictions and has successfully worked to secure a long term PILOT for the existing site. Cayuga will work with these jurisdictions to identify similar opportunities to provide stable, certain tax payments to all parties. Any resulting savings relative to the projected performance of the repowering project ("project") would reduce the payment received by Cayuga and directly benefit the ratepayer.

A summary of the significant impact that this project would have on both the local and state economy can be found on the following page.

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## 2. Table of Economic and Non-Economic Benefits:

	1	2	3	4	Add-on
Option	Natural Gas to Existing Boilers	Gas-Fired Peaking Units	Gas-Fired Hybrid Combined Cycle	Gas-Fired Combined Cycle	Solar
Construction jobs created	67	312	233	397	24
Regional and State jobs created due to construction*	51	238	178	303	18
<b>Total Project construction jobs created</b>	<b>118</b>	<b>550</b>	<b>411</b>	<b>700</b>	<b>42</b>
Construction man-hours	280,000	1,300,000	970,000	1,650,000	25,000
Regional and State added man-hours*	210,000	990,000	740,000	1,260,000	15,000
<b>Total Project man-hours</b>	<b>490,000</b>	<b>2,290,000</b>	<b>1,710,000</b>	<b>2,910,000</b>	<b>40,000</b>
Construction payroll	\$21,000,000	\$97,000,000	\$73,000,000	\$123,000,000	\$1,700,000
Regional and State added payroll*	\$16,100,000	\$74,300,000	\$55,900,000	\$94,200,000	\$1,300,000
<b>Total Project payroll</b>	<b>\$37,100,000</b>	<b>\$171,300,000</b>	<b>\$128,900,000</b>	<b>\$217,200,000</b>	<b>\$3,000,000</b>
Plant Operations Permanent Staff	30	5	30	30	Included
Regional and State permanent jobs added	60	10	60	60	
<b>Total Permanent jobs</b>	<b>90</b>	<b>15</b>	<b>90</b>	<b>90</b>	
Annual Plant payroll (20 yrs)	\$135,800,000	\$23,900,000	\$143,000,000	\$143,000,000	Included
Regional and State Payroll impacts*	\$116,300,000	\$20,500,000	\$122,500,000	\$122,500,000	
<b>Total Project payroll Impacts</b>	<b>\$252,100,000</b>	<b>\$44,400,000</b>	<b>\$265,500,000</b>	<b>\$265,500,000</b>	
Local real estate taxes (20 yrs)	\$76,600,000	\$172,500,000	\$142,400,000	\$228,000,000	\$2,000,000

\* Based upon impact assessment by Tompkins County Area Development (TCAD) which reviewed the indirect and induced effects of the economic impact directly attributable to the contemplated projects, based upon 2009 IMPLAN multipliers for New York State

## 3. Non-Economic Considerations

The Cayuga Facility is ideally suited for an enhanced repowered generation solution to meet the current and future needs of both NYSEG, ratepayers, the local area and the State in a cost effective and environmentally responsible manner. The ability to leverage existing infrastructure investment allows for a cost effective solution that makes best use of the developed site. These advantages include:

- An existing utility switchyard for electric interconnection,
- Available and properly zoned land,
- No impact to other property as the plant is already an isolated site,
- The site has an existing municipal water supply, and
- Preexisting wastewater and industrial sanitary treatment plants on the site.

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The use of these existing features also minimizes the environmental impact of construction and operation of the new facility. Further, it reduces ancillary construction as many components are currently in service.

The Cayuga Facility would remain an important part of the electric grid and offers an advantage to other sites in that there are existing power lines already active at the facility (three 115 kV power lines and one 34.5kv power line). As a result, there is no environmental risk associated with disturbing land to add high voltage power lines and there is no risk to the project schedule for adding lines.

The established work force is well trained in the operations and maintenance of power plant equipment and will take minimal time to learn how to maintain the new equipment. All of these considerations limit the scope of required construction and result in savings to the project thereby reducing price and execution risk by limiting the impact of new construction on the local community.

All of the options presented in this proposal dramatically generate cleaner energy and improve air quality in Central New York by significantly reducing all major emissions including:

- Eliminates Sulfur Dioxide emissions
- Eliminates Mercury emissions
- Nitrogen Oxides reduced by 90-98%
- Carbon Dioxide Gases reduced by 50-90%
- Particulate Matter reduced by 95-99%

Further, repowering the facility eliminates the need for solid waste disposal.

The NYISO uses economic dispatch to schedule generation resources for operation in the state. The Cayuga repowering options are more efficient and these proposed lower cost units will be dispatched more often and will provide a significant environmental benefit in reduced air emissions. In addition the cost of production of electricity would be reduced and ultimately benefit the electrical customer.

Finally, the Cayuga Facility is currently an active electric generating facility, with Health and Safety Plans in effect. The plant has maintained an excellent safety record in its current operation, and has been an excellent steward of the natural resources surrounding the property. By repurposing the existing facility NYSEG will continue its relationship with a responsible and accountable business partner with a stellar safety and environmental track record.

For all of these reasons, NYSEG should recommend one or more of these options in its ensuing report and recommendation to the PSC.

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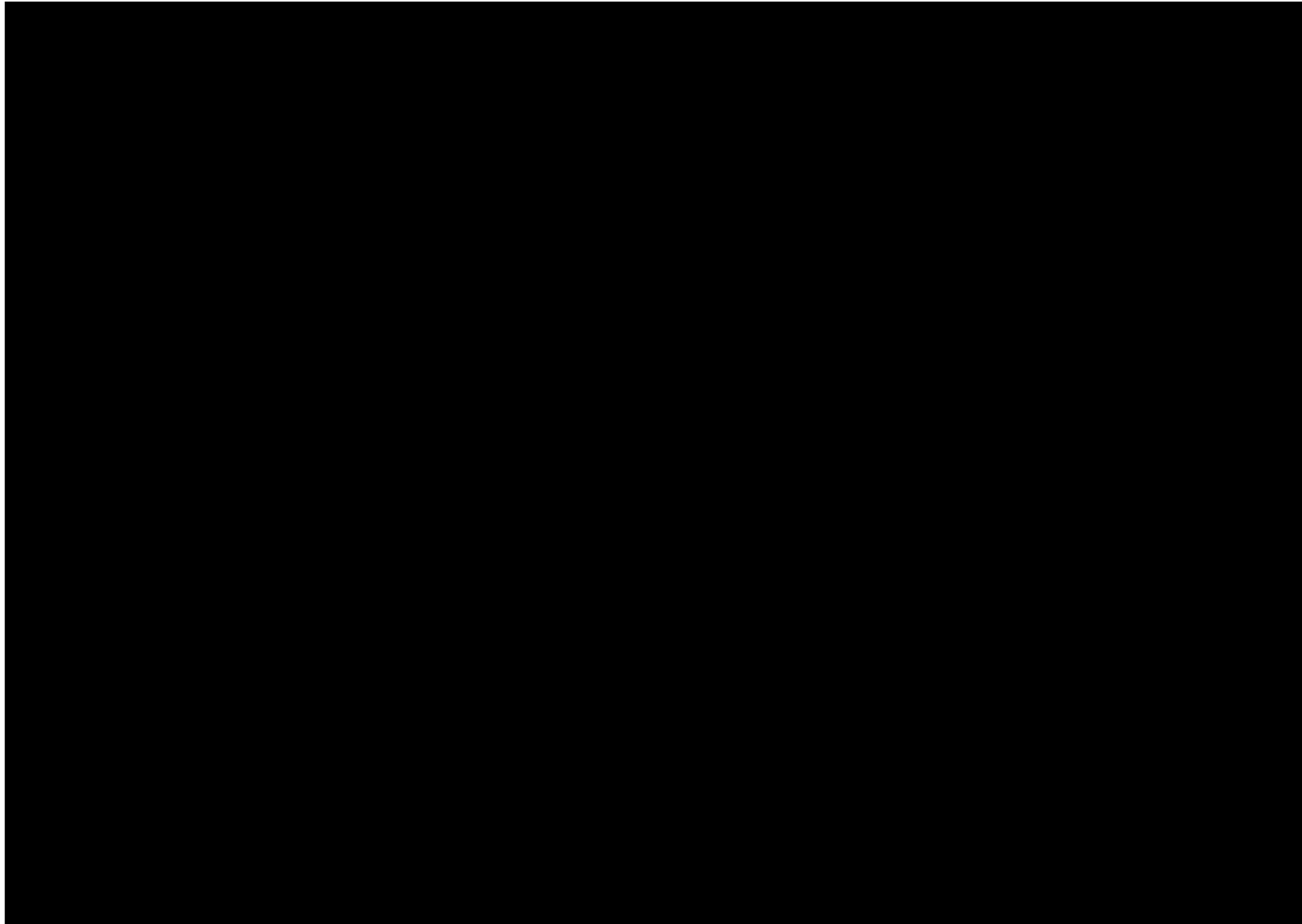
## Representations

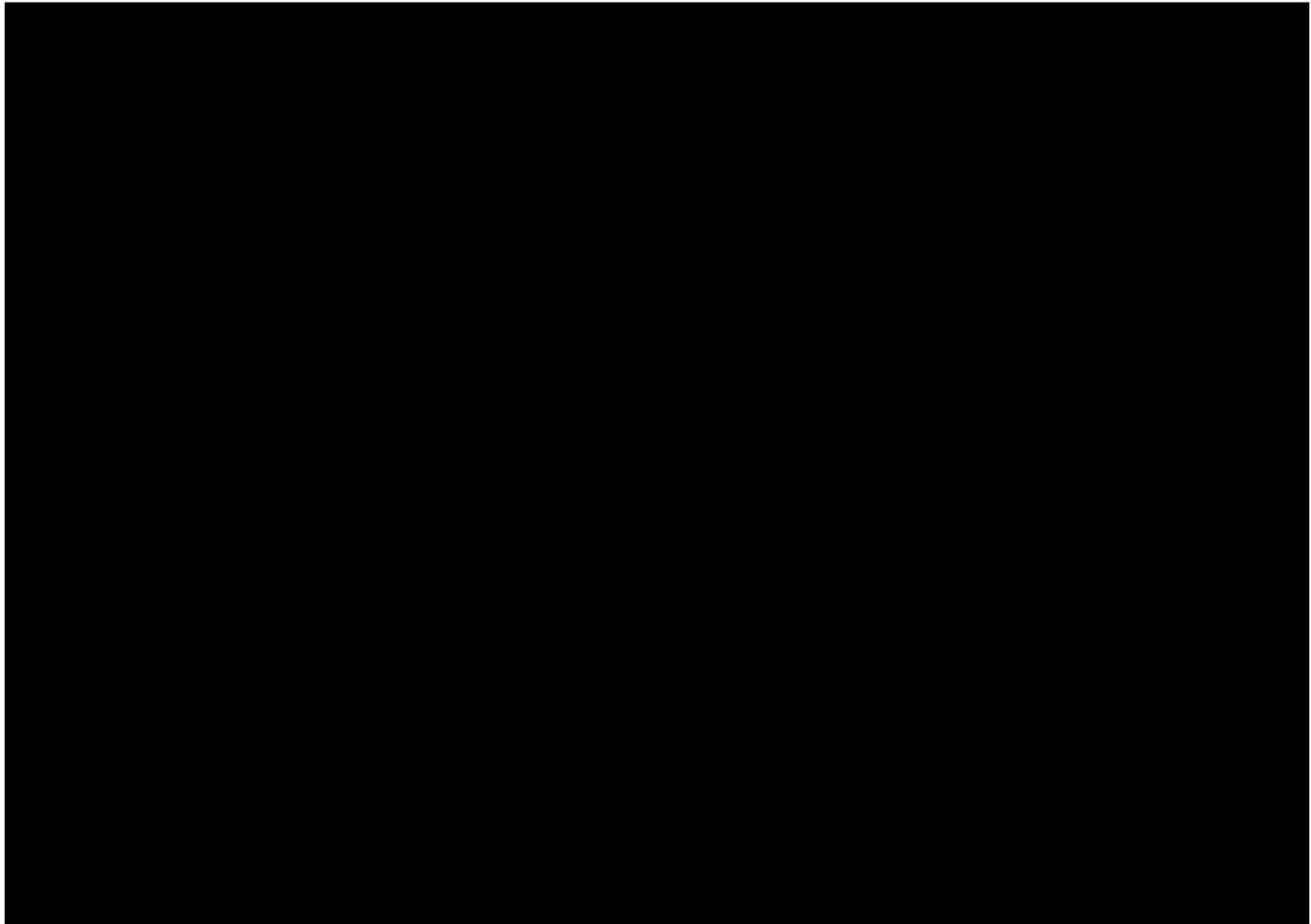
Cayuga agrees that there can be no binding agreement between Cayuga and NYSEG (together, the “Parties”) unless and until a mutually-agreed Definitive Agreement (the “Agreement”) has been negotiated and executed between the Parties. Cayuga agrees to use commercially-reasonable efforts and negotiate in good faith in order to reach a mutually-acceptable Agreement. The understandings and proposals set out in this response are subject to a number of assumptions and conditions. Furthermore, the provisions and information set out in this response are intended only as an expression of intent on behalf of Cayuga, are not intended to be legally binding on Cayuga and are expressly subject to the execution of the Agreement. Moreover, except for the Confidentiality Agreement between the Parties dated September 12, 2012 (the “Confidentiality Agreement”), which shall remain in full force and effect in accordance with its terms (or except as expressly provided in any Agreement that the Parties may enter into in the future) no past or future action, course of conduct or failure to act relating to a possible transaction or relating to the negotiation of the terms of a possible transaction or Agreement will give rise to or serve as a basis for any obligation or other liability on the part of Cayuga.

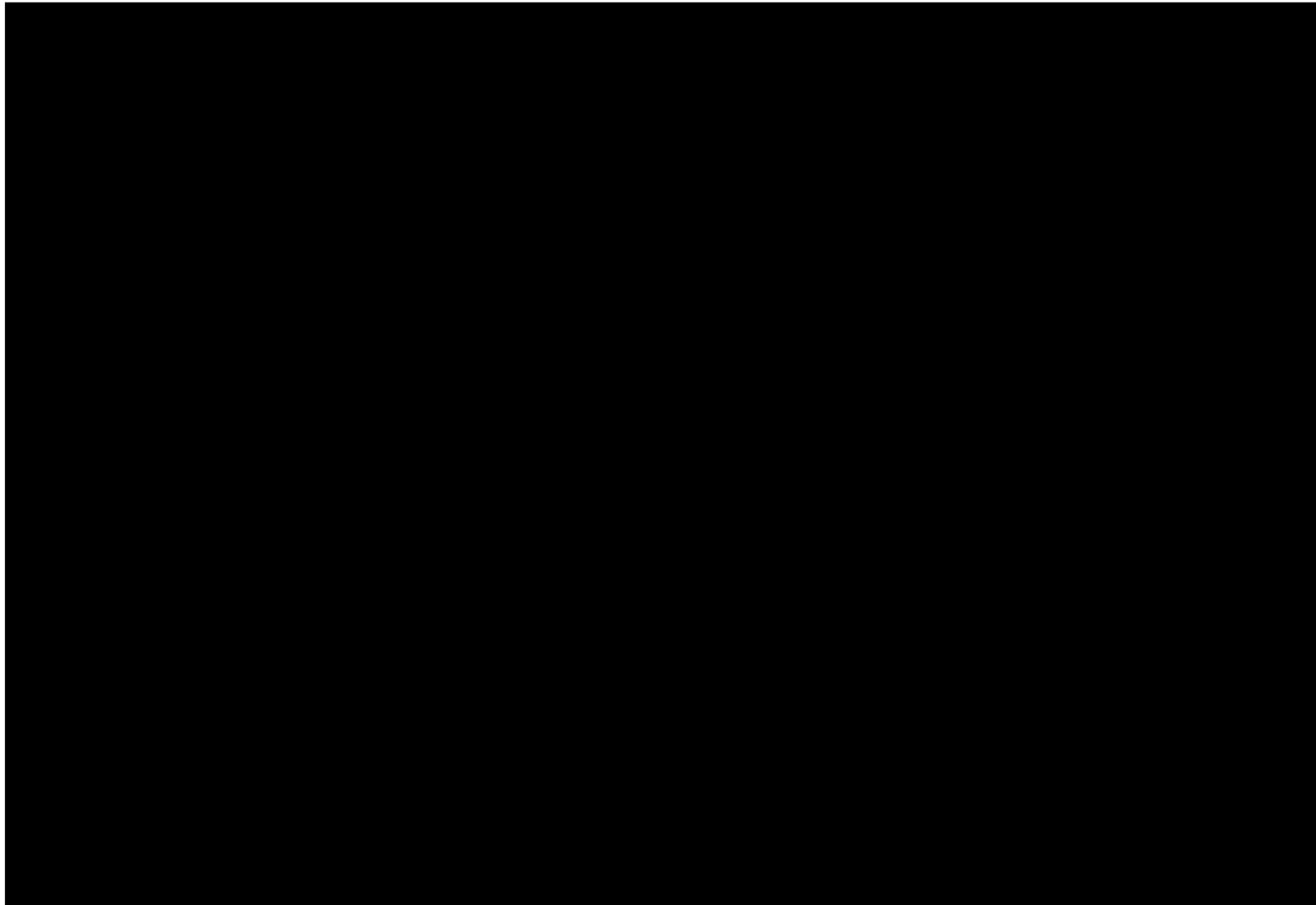
Pursuant to Article XI of the NYSEG Solicitation, all information contained herein is deemed to be Confidential Information (as such term is defined in the Confidentiality Agreement) and the use and disclosure of any information contained herein is governed by the terms of the Confidentiality Agreement. Further, as set forth in the NYSEG Solicitation, all information provided to either Party in connection with the negotiations regarding the NYSEG Solicitation, whether provided in written or oral form, shall be deemed Confidential Information and subject to the terms of the Confidentiality Agreement.

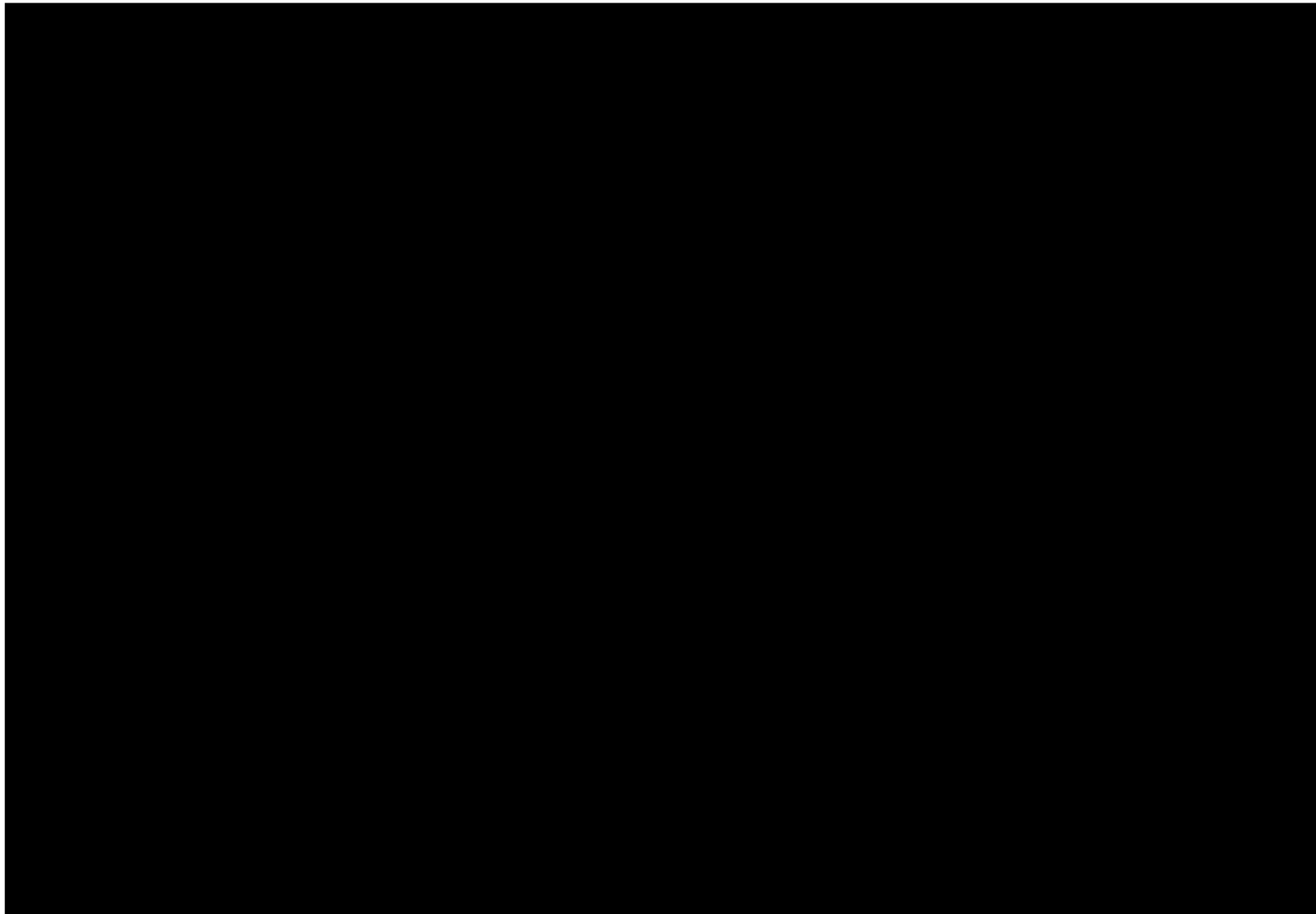
# Attachment 1











# Attachment 2

# Cayuga Repowering Solicitation

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## ***Attachment 2:***

### **Project Management Plan**

1. Seller must provide a detailed Project Management Plan and supporting documentation, including the following specific deliverables:
  - a. Project organization chart showing key individuals and areas of responsibility
  - ***See attached project organization chart.***
  - b. Resumes of key individuals
  - ***See attached resumes.***
  - c. Identification of major equipment and service providers, including engineering, licensing, and legal support
  - ***See technical proposal section.***
  - d. Project QA/QC and safety plan
  - ***See attached project management plan***
  - e. Detailed description of project commercial plan and business relationships (i.e., EPC, EPCM, other?) including copies of contracts with business partners
  - ***To be determined.***
  - f. Detailed description of any Project Labor Agreements associated with the project
  - ***A Project Labor Agreement will be considered.***
  - g. Description of procurement plan for major equipment
  - ***See attached project management plan***
  - h. Description of plant staffing plan, including organization charts, timeline for initial staffing
  - ***Staffing will be drawn from the current staff at the facility.***
  - i. Training plan for plant staff
  - ***See attached typical training plan.***
  - j. Spare parts inventory plans and continuing plant maintenance plan including the use of outside contractors and service agreements

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- ***These will be formulated with the OEM, EPC contractor and Plant Staff.***
  - k. Project cost and schedule management plan
- ***See attached project management plan and attached project schedules.***
  - l. Detailed project cost estimate and supporting methodology used to develop the estimate (detailed below)
- ***See technical proposal section.***
  - m. Detailed project schedule (detailed below)
- ***See attached project management plan and attached project schedules.***
  - n. Detailed construction and operational management plan including compliance organization
- ***See attached project management plan and attached project schedules.***
  - o. Detailed description of plant siting and licensing plan including description of the licensing process, list of permits and licenses required, plan emissions and performance requirements (water use, noise, dust, etc) that will be required to license and operate the plant
- ***See attachment 3 and the attached project milestone schedule.***
  - p. Detailed description of the NYISO Interconnection process and schedule as it applies to this project
- ***See the attached project milestone schedule.***
  - q. Detailed description of any PSC Article VII licensing process that will be required for electrical or natural gas interconnections
- ***See the commercial proposal section***
  - r. Fuel (natural gas only, natural gas and distillate back-up, other)
- ***Natural gas***

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2. Seller will provide the substance, status, and term of any labor agreement(s) covering or otherwise applicable to the Project.

- ***A Project Labor Agreement will be considered.***

3. Provide a detailed project schedule in Gantt chart format using MS Project. Summary level tasks should generally be as noted below, and the detail level tasks should be adequate for NYSEG to objectively assess the quality of the project plan and the likelihood of success. The critical path must be illustrated.

- a. Front end engineering design
- b. Permit application process
- c. Electric interconnection plan
- d. Fuel supply plan
- e. Development and implementation of project financing plan
- f. Final engineering design
- g. Major equipment procurement, manufacture, and delivery
- h. Development of any Project Labor Agreements
- i. Solicitation, contract negotiation, and bid award for project construction
- j. Initial site mobilization
- k. Site preparation
- l. Plant physical construction including civil, mechanical, electrical tasks
- m. Electrical interconnection including engineering, licensing, materials/equipment procurement, construction
- n. Natural gas interconnection (if required) including engineering, licensing, materials/equipment procurement, construction
- o. Start-up and commissioning plan
- p. Commercial in-service date

- ***See attached project milestone schedule***



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## **Project Management Plan**

### **Overview:**

*A detailed project management plan will be developed for this project. This plan will document how the project is to be done and how it is to be controlled. The project plan will summarize all of the key activities of the project, crucial requirements to be followed by everyone involved in the project, and essential personnel. It will need to be approved by the plant manager, as well as the project manager and the team. The project plan will establish the key phases of the project and essential milestones in order to determine critical paths and status of the project. The entire project team will be involved in the overall plan development. The plan will be made part of any EPC contract where it is expected that the EPC contractor will have complete and robust project management plans that meet all of the requirements of the overall project management plan.*

### **Charter:**

*The Charter records the commitment of all stakeholders to the project plan. It will define the project objectives, team members, deadlines, and budget for finances and resources. The charter will contain a brief statement of the justification for the project and the problem it is intended to solve.*

### **Scope:**

*The scope of work will clearly be defined in this section of the plan and agreed upon by all team members. The scope will set the boundaries of the project, so that it is also clear what is included in the scope of work and who is responsible.*

### **Schedule Management:**

*The Project plan will contain a schedule showing the key tasks (commercial and technical), due dates, resources and responsible party. The schedule will be in the form of a detailed Gantt chart. (See attached example of a typical major milestone project schedule for a CCGT). A project management software tool such as Microsoft Project or Primavera Planner will be used to integrate the schedule, resources and costs.*

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*The schedule will show the order in which tasks must be completed. There will be a need to determine the "critical path," or how long it takes to complete a series of key tasks. Using the critical path, the earliest possible completion date can be determined. In addition changes to the schedule/scope etc. can be made and affects on the critical path can be determined quickly. This will allow for corrective actions to be analyzed/taken to minimize the impacts on cost and schedule.*

## **Cost Management:**

*The full details of project costs and a cash spending timeline will be included in this part of the plan. This will include, for example, dates/completion percentages etc. when progress payments are due to suppliers and contractors. A "Project Milestone Payment Schedule" will be established and agreed upon for each of the major suppliers/contractors such that meaningful milestones have to be achieved prior to payments being made. This cost management section of the plan will also include details of how the project spending will be tracked and reported, and how the project will be financed. Cash flow management will also be included.*

## **Quality Management:**

*The Quality Management Plan will include how the project will ensure that the final product/equipment/systems meet expectations, and whether the product should be accepted as complete. QA/QC engineers will conduct inspections at different stages of construction/fabrication/testing to ensure design specifications are followed, and to make sure the final product is safe for use and fit for purpose. Factory witness testing for major components of the systems will be done as necessary.*

## **Purchasing Plan:**

*The Procurement or Purchasing plan will include determining what needs to be purchased, who and where it should be bought from, engineering and design specifications needed and negotiation of contracts and pricing. A detailed procurement schedule will be developed by the EPC contractor detailing milestone bid preparation and bid award dates to meet the overall construction schedule. This will tie back into the design and engineering schedules to ensure specifications are prepared on a timely basis. Procurement will also include monitoring performance of suppliers to ensure that quality and delivery specifications are upheld as per the Quality management section of the Plan.*

## **Typical training requirements:**

- *The training program would consist of formal classroom training for operations and maintenance personnel, supplemented by hands on exposure to the systems and equipment at the OEM facilities as well as first hand training during start-up, shakedown and final commissioning.*

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Typical formal classroom training content would include:

## 1. Major Components, Design and Construction

The objective is to present the main construction and design features of gas turbines as used for power generation. Basic cycles would be discussed, and different sizes and machine layouts presented.

## 2. Gas Turbine Support Systems

The objective is to present and discuss features of the various support systems and auxiliaries that are necessary for operation of the gas turbine.

## 3. Operation of Gas Turbines

The objective is to present the factors involved in operation of the gas turbine generating unit, including typical procedures for start-up and shut-down of the unit. On-load operation is discussed with particular emphasis on operating hazards and limitation.

## 4. Gas Turbine Control and Protection Systems

The objective is to present the features of control and protection systems as used on gas turbine installations. Routine Maintenance

## 5. Major Maintenance

The objective is to present the nature and purpose of different modes of maintenance, i.e. running, predictive, and preventive maintenance.

The objective is to present inspection requirements, which are similar for most types of gas turbines although mechanical details may be different.

## 6. Combined Cycle Operation

The objective is to present the main features of the Gas Turbine Combined Cycle.

## 7. The HRSG (Heat Recovery Steam Generator)

The objective is to review combined cycle installations with particular focus upon the HRSG, and associated condensate and feed systems.

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## 8. The Generator and Electrical Systems

The objective is to present important operating parameters of the Generator and the electrical systems.

### *Project Management Plan ( cont.)*

#### **Safety Plan:**

*Throughout the duration of this project each individual Contractor/Subcontractor shall be responsible for administering their own Contractor Safety Plan. This plan shall adhere to all requirements of the most currently issued Cayuga Operating Company Safety Plan. The Contractor will be required to develop a site specific Contractor Safety Plan, which identifies specific site safety requirements, potential exposures associated with the project, and the means and methods to be employed to address these exposures. All Subcontractors will be required to either develop their own Safety Plan or adopt the Contractor's Safety Plan for the duration of their work and involvement with the project. All Contractor Safety Plans must be submitted for review and acceptance prior to the start of any construction activities.*

#### **Environmental Management Plan (EMP):**

*Throughout the duration of this project each individual Contractor/Subcontractor shall be responsible for administering their own Contractor Environmental Management Plan. This plan shall adhere to all requirements of the most currently issued Cayuga Operating Company EMP. The Contractor will be required to develop a site specific Contractor EMP which identifies specific site environmental management requirements, potential exposures associated with the project, and the means and methods to be employed to address these exposures. All Subcontractors will be required to either develop their own EMP or adopt the Contractor's EMP for the duration of their work and involvement with the project. All Contractor EMP's must be submitted for review and acceptance prior to the start of any construction activities.*

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## **Communication Plan:**

*A comprehensive communications plan will be formulated which will include frequency and format for meetings, status updates, performance reviews, and information provided to stakeholders. It is essential that good communication occurs throughout the duration of the project with all stakeholders to ensure a successful completion.*

## **EPC Project Execution Plan:**

*This part of the plan will be formulated with the EPC contractor and detail the processes and procedures to be followed to successfully execute the project. This would include but not be limited to: document control procedures, design and equipment specifications, drawing control procedures, design freeze requirements, drawing release and approval procedures, interface with the Construction management organization etc.*

## **Construction Management Plan (CMP):**

*A comprehensive Construction Management Plan to be approved by the Cayuga Operating Co., will be formulated by the EPC contractor which will include the construction management organization, a definition of work tasks, the number and type of required resources and durations for individual tasks, and the identification of any interactions among the different work tasks. The CMP will include a detailed schedule in Microsoft Project or Primavera Planner which will describe all major work tasks and be resource loaded. Specifics concerning any environmental permits required, manpower loadings, Project Agreements, Contingency plans etc. shall all be included. The Contractors Safety Plan and EMP shall all be made part of the plan. The plan will also include the management of the work.*

## **Start-Up and Commissioning Plan:**

*A comprehensive Start-Up and Commissioning Plan to be approved by the Cayuga Operating Co., will be formulated by the EPC contractor which will include the start-up management organization, a definition of work tasks, the number and type of required resources and durations for individual tasks, and the identification of any interactions among the different work tasks. The plan will include a detailed schedule in Microsoft Project or Primavera Planner which will describe all major work tasks and be resource loaded. Specifics concerning manpower loadings, Project Agreements, Contingency plans etc. shall all be included. The Contractors Safety Plan and EMP shall all be made part of the plan.*

## **Closeout Plan:**

*A detailed closeout plan shall be included in the Project Management Plan. This plan would include all the major work tasks and requirements to successfully close out the project. Items like as-built drawings, as installed specifications, O&M instruction manuals, Spare Parts listings, etc. It should describe in detail a "close-out package" that will be issued to Cayuga upon completion.*

# Attachment 3

# Cayuga Repowering Proposal

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## Cayuga Repowering Solicitation

### Attachment #3

#### Option 1

#### Licenses, Permits, and Notifications Required

Branch of Government	Agencies Involved	Name of Permit	Required for Repowering Project Construction/Operation	Information Requirements
<b>Federal</b>				
	US Army Corps of Engineers	Section 404 Permit [Dredge and Fill Permit]	Construction of Gas Pipeline	Design drawings for facility. Description of overall project. Description and amount of material to be dredged or filled. Delineation of wetland areas
	US Fish and Wildlife Service	Endangered Species Consultation	Construction of Gas Pipeline	Detailed biological assessment of potential impacts
	Railroad	RR Crossing and Sidetrack Occupancy Agreement	Construction of Gas Pipeline	Engineering Plans. Reports and Specifications.
<b>State</b>				
	NY State Public Service Commission	Article VII Proceeding for Natural Gas Line to Serve Facility	Construction of Gas Pipeline	Address need justification, site and route alternatives, geology, pipeline equipment, financial, and socioeconomic analysis to obtain Certificate of Environmental Compatibility and Public Need
	NY State Department of Transportation	State Highway Permit	Construction of Gas Pipeline	Road/driveway constructions drawing conforming to DOT design requirements. Transportation study of delivery frequencies, truck sizes, traffic patterns (Mobile emissions data and fugitive dust from truck transportation will be required to support air contamination source permit to construct.
	NY State Department of Environmental Conservation	6 NYCRR Part 617 State Environmental Quality Review	Construction of Gas Pipeline and Construction of Pipeline on Facility Site	Determination of environmental significance for proposed action.

# Cayuga Repowering Proposal

• Increase Efficiency • Reduce Emissions • Create Jobs • Support the Local Economy • Assure System Reliability •

Branch of Government	Agencies Involved	Name of Permit	Required for Repowering Project Construction/Operation	Information Requirements
	NY State Department of Environmental Conservation	Title V Air Permit/ Construction Permit ("PSD")/ New Source Review ("NSR")	Modification of Existing Facility Air Operating Permit	Description of Source(s). Emission rates during normal operation and during start up and shutdown with supporting documentation. Preliminary design data (e.g., fuel type, operating scenarios, stack parameters). If applicable, air quality dispersion modeling study. Stack gas velocity and temperature. Maximum hourly and annual emission rates for all pollutants for each stack. Methods used to demonstrate compliance (if applicable); Best available control technology ("BACT") analysis, compliance assurance monitoring ("CAM"), continuous emission monitoring system ("CEMS") plans; and potential PSD and NSR analyses.
	NY State Department of Environmental Conservation	Section 401 Water Quality Certification (Stream Crossing)	Construction of Gas Pipeline	Design drawings. Description of Overall project. Delineation of any wetland areas
	NY State Department of Environmental Conservation	SPDES Wastewater Discharge Permit	Modification of Existing Facility Water Operating Permit	Identify and describe any new process and uses to be made of the water for the facility. (Quantities of each use should be expressed in terms of daily average and daily maximum amounts, including thermal discharge characteristics). Identify any new additives introduced into source water. CWA §§ 316(a) and 316(b) studies.
	NY State Department of Environmental Conservation	SPDES General Permit for Stormwater Discharges from Construction Activity - GP-0-10-001	Construction of Gas Pipeline and Construction of Pipeline on Facility Site	Notice of Intent Form. SWPPP. Design of sedimentation basin and ditching with drawings. Runoff calculations.
	NY State Department of Environmental Conservation	SPDES Multi Sector General Permit for Stormwater Discharges from Industrial Activity (GP-0-12-001)	Construction of Gas Pipeline and Construction of Pipeline on Facility Site	Notice of Intent Form. SWPPP.
	NY State Department of Environmental Conservation	Article 24 Wetland Permit	Construction of Gas Pipeline	Project description and location. Delineation of wetlands.



# Cayuga Repowering Proposal

• Increase Efficiency • Reduce Emissions • Create Jobs • Support the Local Economy • Assure System Reliability •

Branch of Government	Agencies Involved	Name of Permit	Required for Repowering Project Construction/Operation	Information Requirements
	NY State Department of Environmental Conservation (DEC)	Petroleum and Chemical Storage Tank Registrations	Modification of Existing Tank Registrations	Potential decommissioning of tanks. Engineering Plans. Reports and Specifications. Plan of operations and maintenance and contingency plans for waste control: size, material stored, method of delivery.
	NY Office of Parks, Recreation and Historic Preservation	Section 106 of the National Historic Preservation Act	Construction of Gas Pipeline	Project description. Photographs. USGS Map. SHPO Project Cover Form.
<b>Local</b>				
	Tompkins County and Town of Lansing (Cayuga County, Auburn)	Planning Board Special Permit (otherwise applicable but should be preempted by PSL Article VII)	Construction of Gas Pipeline and Construction of Pipeline on Facility Site	Projects Plans and Maps. Description of proposed activity, associated facilities, and their planning and use effects
	Tompkins County and Town of Lansing (Cayuga County, Auburn)	Planning Board Special permit Site Plan Review (otherwise applicable but should be preempted by PSL Article VII)	Construction of Gas Pipeline and Construction of Pipeline on Facility Site	Projects Plans and Maps. Description of proposed activity, associated facilities, and their planning and side effects. Design drawings and facility description as required to support local permitting process.
	Tompkins County and Town of Lansing (Cayuga County, Auburn)	Building Permit (otherwise applicable but should be preempted by PSL Article VII)	Construction of Gas Pipeline and Construction of Pipeline on Facility Site	Engineering Plans. Reports and Specification. Design drawings and facility description as required to support local permitting process.

# Cayuga Repowering Proposal

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## Attachment #3

### Cayuga Repowering Solicitation

#### Option 2

#### Licenses, Permits, and Notifications Required

Branch of Government	Agencies Involved	Name of Permit	Required for Repowering Project Construction/Operation	Information Requirements
<b>Federal</b>				
	US Army Corps of Engineers	Section 404 Permit [Dredge and Fill Permit]	Construction of Gas Pipeline	Design drawings for facility. Description of overall project. Description and amount of material to be dredged or filled. Delineation of wetland areas
	US Fish and Wildlife Service	Endangered Species Consultation	Construction of Gas Pipeline	Detailed biological assessment of potential impacts
	Railroad	RR Crossing and Sidetrack Occupancy Agreement	Construction of Gas Pipeline	Engineering Plans. Reports and Specifications.
	National Telecommunications and Information Administration of the US Department of Commerce	Notification Requirement	Construction/Installation of Simple Cycle Units	Description of potential impacts to federal radar frequencies
	Federal Aviation Administration	Flight Obstruction Review Only	Construction/Installation of Simple Cycle Units	FAA Form 7460-1. Location, height, and obstruction markings/lighting used.
<b>State</b>				
	NY State Board on Electric Generating Siting and the Environment	Article X	Construction/Installation of Simple Cycle Units	Detailed project information data to obtain Certificate of Environmental Compatibility and Public Need
	NY State Public Service Commission	Article VII Proceeding for Natural Gas Line to Serve Facility	Construction of Gas Pipeline	Address need justification, site and route alternatives, geology, pipeline equipment, financial, and socioeconomic analysis to obtain Certificate of Environmental Compatibility and Public Need

# Cayuga Repowering Proposal

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Branch of Government	Agencies Involved	Name of Permit	Required for Repowering Project Construction/Operation	Information Requirements
	NY State Department of Transportation	State Highway Permit	Construction of Gas Pipeline	Road/driveway constructions drawing conforming to DOT design requirements. Transportation study of delivery frequencies, truck sizes, traffic patterns (Mobile emissions data and fugitive dust from truck transportation will be required to support air contamination source permit to construct).
	NY State Department of Environmental Conservation	Title V Air Permit/ Construction Permit ("PSD")/ New Source Review ("NSR")	Modification of Existing Facility Air Operating Permit	Description of Source(s). A plot plan showing: Location of all structures and emissions points. Property and Fence Line. Orientation to true North. Latitude and Longitude of Benchmark. Emission rates during normal operation and during start up and shutdown with supporting documentation. Preliminary design data (e.g., fuel type, operating scenarios, stack parameters). If applicable, air quality dispersion modeling study. Dimensions of all structures more than 40% of stack height. Stack gas velocity and temperature. Maximum hourly and annual emission rates for all pollutants for each stack. A 1:24,000 scale USGS map with the location of the plant indicated. Methods used to demonstrate compliance (if applicable): Best available control technology ("BACT") analysis, compliance assurance monitoring ("CAM"), continuous emission monitoring system ("CEMS") plans; and PSD and NSR analyses.
	NY State Department of Environmental Conservation	Section 401 Water Quality Certification (Stream Crossing)	Construction of Gas Pipeline	Design drawings. Description of Overall project. Delineation of wetland areas
	NY State Department of Environmental Conservation	SPDES Wastewater Discharge Permit	Modification of Existing Facility Water Operating Permit	Identify and describe all new process and uses to be made of the water for the facility. (Quantities of each use should be expressed in terms of daily average and daily maximum amounts, including thermal discharge characteristics). Identify any new additives introduced into source water. CWA §§ 316(a) and 316(b) studies.
	NY State Department of Environmental Conservation	SPDES General Permit for Stormwater Discharges from Construction Activity - GP-0-10-001	Construction of Gas Pipeline and Construction of Pipeline and Simple Cycle Units on Facility Site	Notice of Intent Form. SWPPP. Design of sedimentation basin and ditching with drawings. Runoff calculations.

# Cayuga Repowering Proposal

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Branch of Government	Agencies Involved	Name of Permit	Required for Repowering Project Construction/Operation	Information Requirements
	NY State Department of Environmental Conservation	SPDES Multi Sector General Permit for Stormwater Discharges from Industrial Activity (GP-0-12-001)	Construction of Gas Pipeline and Construction of Pipeline and Simple Cycle Units on Facility Site	Notice of Intent Form. SWPPP.
	NY State Department of Environmental Conservation	Article 24 Wetland Permit	Construction of Gas Pipeline	Project description and location. Delineation of wetlands.
	NY State Department of Environmental Conservation	Petroleum and Chemical Storage Tank Registrations	Modification of Existing Tank Registrations	Potential decommissioning of tanks. Engineering Plans. Reports and Specifications. Plan of operations and maintenance and contingency plans for waste control: size, material stored, method of delivery.
	NY Office of Parks, Recreation and Historic Preservation	Section 106 of the National Historic Preservation Act	Construction of Gas Pipeline	Project description. Photographs. USGS Map. SHPO Project Cover Form.
<b>Local</b>				
	Tompkins County and Town of Lansing (Cayuga County, Auburn)	Planning Board Special Permit(otherwise applicable but should be preempted by PSL Articles X and VII)	Construction of Gas Pipeline and Construction of Pipeline and Simple Cycle Units on Facility Site	Projects Plans and Maps. Description of proposed activity, associated facilities, and their planning and use effects
	Tompkins County and Town of Lansing (Cayuga County, Auburn)	Planning Board Special permit Site Plan Review(otherwise applicable but should be preempted by PSL Articles X and VII)	Construction of Gas Pipeline and Construction of Pipeline and Simple Cycle Units on Facility Site	Projects Plans and Maps. Description of proposed activity, associated facilities, and their planning and side effects. Design drawings and facility description as required to support local permitting process.
	Tompkins County and Town of Lansing (Cayuga County, Auburn)	Building Permit(otherwise applicable but should be preempted by PSL Articles X and VII)	Construction of Gas Pipeline and Construction of Pipeline and Simple Cycle Units on Facility Site	Engineering Plans. Reports and Specification. Design drawings and facility description as required to support local permitting process.

# Cayuga Repowering Proposal

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## Attachment #3

### Cayuga Repowering Solicitation

#### Option 3

#### March 2013 Licenses, Permits, and Notifications

Branch of Government	Agencies Involved	Name of Permit	Required for Repowering Project Construction/Operation	Information Requirements
<b>Federal</b>				
	US Army Corps of Engineers	Section 404 Permit [Dredge and Fill Permit]	Construction of Gas Pipeline	Design drawings for facility. Description of overall project. Description and amount of material to be dredged or filled. Delineation of wetland areas
	US Fish and Wildlife Service	Endangered Species Consultation	Construction of Gas Pipeline	Detailed biological assessment of potential impacts
	Railroad	RR Crossing and Sidetrack Occupancy Agreement	Construction of Gas Pipeline	Engineering Plans. Reports and Specifications.
	National Telecommunications and Information Administration (NTIA) of the US Department of Commerce	Notification Requirement	Construction/Installation of CCGT Unit	Description of potential impacts to federal radar frequencies
	Federal Aviation Administration	Flight Obstruction Review Only	Construction/Installation of CCGT Unit	FAA Form 7460-1. Location, height, and obstruction markings/lighting used.
<b>State</b>				
	NY State Board on Electric Generation Siting and the Environment	Article X	Construction/Installation of CCGT Unit	Detailed project information data to obtain Certificate of Environmental Compatibility and Public Need
	NY State Public Service Commission	Article VII Proceeding for Natural Gas Line to Serve Facility	Construction of Gas Pipeline	Address need justification, site and route alternatives, geology, pipeline equipment, financial, and socioeconomic analysis to obtain Certificate of Environmental Compatibility and Public Need

# Cayuga Repowering Proposal

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Branch of Government	Agencies Involved	Name of Permit	Required for Repowering Project Construction/Operation	Information Requirements
	NY State Department of Transportation	State Highway Permit	Construction of Gas Pipeline	Road/driveway constructions drawing conforming to DOT design requirements. Transportation study of delivery frequencies, truck sizes, traffic patterns (Mobile emissions data and fugitive dust from truck transportation will be required to support air contamination source permit to construct.
	NY State Department of Environmental Conservation	Title V Air Permit/ Construction Permit ("PSD")/ New Source Review ("NSR")	Modification of Existing Facility Air Operating Permit	Description of Source(s). A plot plan showing: Location of all structures and emissions points. Property and Fence Line. Orientation to true North. Latitude and Longitude of Benchmark. Emission rates during normal operation and during start up and shutdown with supporting documentation. Preliminary design data (e.g., fuel type, operating scenarios, stack parameters). If applicable, air quality dispersion modeling study. Dimensions of all structures more than 40% of stack height. Stack gas velocity and temperature. Maximum hourly and annual emission rates for all pollutants for each stack. A 1:24,000 scale USGS map with the location of the plant indicated. Methods used to demonstrate compliance (if applicable); Best available control technology ("BACT") analysis, compliance assurance monitoring ("CAM"), continuous emission monitoring system ("CEMS") plans; and PSD and NSR analyses.
	NY State Department of Environmental Conservation	Section 401 Water Quality Certification (Stream Crossing)	Construction of Gas Pipeline	Design drawings. Description of Overall project. Delineation of wetland areas
	NY State Department of Environmental Conservation	SPDES Wastewater Discharge Permit	Modification of Existing Facility Water Operating Permit	Identify and describe all new process and uses to be made of the water for the facility. (Quantities of each use should be expressed in terms of daily average and daily maximum amounts, including thermal discharge characteristics). Identify any new additives introduced into source water. CWA §§ 316(a) and 316(b) studies.
	NY State Department of Environmental Conservation	SPDES General Permit for Stormwater Discharges from Construction Activity - GP-0-10-001	Construction of Gas Pipeline and Construction of Pipeline and CCGT Unit on Facility Site	Notice of Intent Form. SWPPP. Design of sedimentation basin and ditching with drawings. Runoff calculations.

# Cayuga Repowering Proposal

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Branch of Government	Agencies Involved	Name of Permit	Required for Repowering Project Construction/Operation	Information Requirements
	NY State Department of Environmental Conservation	SPDES Multi Sector General Permit for Stormwater Discharges from Industrial Activity (GP-0-12-001)	Construction of Gas Pipeline and Construction of Pipeline and CCGT Unit on Facility Site	Notice of Intent Form. SWPPP.
	NY State Department of Environmental Conservation	Article 24 Wetland Permit	Construction of Gas Pipeline	Project description and location. Delineation of wetlands.
	NY State Department of Environmental Conservation	Petroleum and Chemical Storage Tank Registrations	Modification of Existing Tank Registrations	Potential decommissioning of tanks. Engineering Plans. Reports and Specifications. Plan of operations and maintenance and contingency plans for waste control: size, material stored method of delivery.
	NY Office of Parks, Recreation and Historic Preservation	Section 106 of the National Historic Preservation Act	Construction of Gas Pipeline	Project description. Photographs. USGS Map. SHPO Project Cover Form.
<b>Local</b>				
	Tompkins County and Town of Lansing (Cayuga County, Auburn)	Planning Board Special Permit (otherwise applicable but should be preempted by PSL Articles X and VII)	Construction of Gas Pipeline and Construction of Pipeline and CCGT Unit on Facility Site	Projects Plans and Maps. Description of proposed activity, associated facilities, and their planning and use effects
	Tompkins County and Town of Lansing (Cayuga County, Auburn)	Planning Board Special permit Site Plan Review (otherwise applicable but should be preempted by PSL Articles X and VII)	Construction of Gas Pipeline and Construction of Pipeline and CCGT Unit on Facility Site	Projects Plans and Maps. Description of proposed activity, associated facilities, and their planning and side effects. Design drawings and facility description as required to support local permitting process.
	Tompkins County and Town of Lansing (Cayuga County, Auburn)	Building Permit (otherwise applicable but should be preempted by PSL Articles X and VII)	Construction of Gas Pipeline and Construction of Pipeline and CCGT Unit on Facility Site	Engineering Plans. Reports and Specification. Design drawings and facility description as required to support local permitting process.

# Cayuga Repowering Proposal

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## Attachment #3

### Cayuga Repowering Solicitation

#### Option 4

#### March 2013 Licenses, Permits, and Notifications

Branch of Government	Agencies Involved	Name of Permit	Required for Repowering Project Construction/Operation	Information Requirements
<b>Federal</b>				
	US Army Corps of Engineers	Section 404 Permit [Dredge and Fill Permit]	Construction of Gas Pipeline	Design drawings for facility. Description of overall project. Description and amount of material to be dredged or filled. Delineation of wetland areas
	US Fish and Wildlife Service	Endangered Species Consultation	Construction of Gas Pipeline	Detailed biological assessment of potential impacts
	Railroad	RR Crossing and Sidetrack Occupancy Agreement	Construction of Gas Pipeline	Engineering Plans. Reports and Specifications.
	National Telecommunications and Information Administration (NTIA) of the US Department of Commerce	Notification Requirement	Construction/Installation of CCGT Units	Description of potential impacts to federal radar frequencies
	Federal Aviation Administration	Flight Obstruction Review Only	Construction/Installation of CCGT Units	FAA Form 7460-1. Location, height, and obstruction markings/lighting used.
<b>State</b>				
	NY State Board on Electric Generation Siting and the Environment	Article X	Construction/Installation of CCGT Units	Detailed project information data to obtain Certificate of Environmental Compatibility and Public Need
	NY State Public Service Commission	Article VII Proceeding for Natural Gas Line to Serve Facility	Construction of Gas Pipeline	Address need justification, site and route alternatives, geology, pipeline equipment, financial, and socioeconomic analysis to obtain Certificate of Environmental Compatibility and Public Need



# Cayuga Repowering Proposal

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Branch of Government	Agencies Involved	Name of Permit	Required for Repowering Project Construction/Operation	Information Requirements
	NY State Department of Transportation	State Highway Permit	Construction of Gas Pipeline	Road/driveway constructions drawing conforming to DOT design requirements. Transportation study of delivery frequencies, truck sizes, traffic patterns (Mobile emissions data and fugitive dust from truck transportation will be required to support air contamination source permit to construct.
	NY State Department of Environmental Conservation	Title V Air Permit/ Construction Permit ("PSD")/ New Source Review ("NSR")	Modification of Existing Facility Air Operating Permit	Description of Source(s). A plot plan showing: Location of all structures and emissions points. Property and Fence Line. Orientation to true North. Latitude and Longitude of Benchmark. Emission rates during normal operation and during start up and shutdown with supporting documentation. Preliminary design data (e.g., fuel type, operating scenarios, stack parameters). If applicable, air quality dispersion modeling study. Dimensions of all structures more than 40% of stack height. Stack gas velocity and temperature. Maximum hourly and annual emission rates for all pollutants for each stack. A 1:24,000 scale USGS map with the location of the plant indicated. Methods used to demonstrate compliance (if applicable); Best available control technology ("BACT") analysis, compliance assurance monitoring ("CAM"), continuous emission monitoring system ("CEMS") plans; and PSD and NSR analyses.
	NY State Department of Environmental Conservation	Section 401 Water Quality Certification (Stream Crossing)	Construction of Gas Pipeline	Design drawings. Description of Overall project. Delineation of Wetland Areas
	NY State Department of Environmental Conservation	SPDES Wastewater Discharge Permit	Modification of Existing Facility Water Operating Permit	Identify and describe all new process and uses to be made of the water for the facility. (Quantities of each use should be expressed in terms of daily average and daily maximum amounts, including thermal discharge characteristics). Identify any new additives introduced into source water. CWA §§ 316(a) and 316(b) studies.

# Cayuga Repowering Proposal

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Branch of Government	Agencies Involved	Name of Permit	Required for Repowering Project Construction/Operation	Information Requirements
	NY State Department of Environmental Conservation	SPDES General Permit for Stormwater Discharges from Construction Activity - GP-0-10-001	Construction of Gas Pipeline and Construction of Pipeline and CCGT Units on Facility Site	Notice of Intent Form. SWPPP. Design of sedimentation basin and ditching with drawings. Runoff calculations.
	NY State Department of Environmental Conservation	SPDES Multi Sector General Permit for Stormwater Discharges from Industrial Activity (GP-0-12-001)	Construction of Gas Pipeline and Construction of Pipeline and CCGT Units on Facility Site	Notice of Intent Form. SWPPP.
	NY State Department of Environmental Conservation	Article 24 Wetland Permit	Construction of Gas Pipeline	Project description and location. Delineation of wetlands.
	NY State Department of Environmental Conservation	Petroleum and Chemical Storage Tank Registrations	Modification of Existing Tank Registrations	Potential decommissioning of tanks. Engineering Plans. Reports and Specifications. Plan of operations and maintenance and contingency plans for waste control: size, material stored, method of delivery.
	NY Office of Parks, Recreation and Historic Preservation	Section 106 of the National Historic Preservation Act	Construction of Gas Pipeline	Project description. Photographs. USGS Map. SHPO Project Cover Form.
<b>Local</b>				
	Tompkins County and Town of Lansing (Cayuga County, Auburn)	Planning Board Special Permit (otherwise applicable but should be preempted by PSL Articles X and VII)	Construction of Gas Pipeline and Construction of Pipeline and CCGT Units on Facility Site	Projects Plans and Maps. Description of proposed activity, associated facilities, and their planning and use effects
	Tompkins County and Town of Lansing (Cayuga County, Auburn)	Planning Board Special permit Site Plan Review (otherwise applicable but should be preempted by PSL Articles X and VII)	Construction of Gas Pipeline and Construction of Pipeline and CCGT Units on Facility Site	Projects Plans and Maps. Description of proposed activity, associated facilities, and their planning and side effects. Design drawings and facility description as required to support local permitting process.
	Tompkins County and Town of Lansing (Cayuga County, Auburn)	Building Permit (otherwise applicable but should be preempted by PSL Articles X and VII)	Construction of Gas Pipeline and Construction of Pipeline and CCGT Units on Facility Site	Engineering Plans. Reports and Specification. Design drawings and facility description as required to support local permitting process.

# Cayuga Repowering Proposal

• Increase Efficiency • Reduce Emissions • Create Jobs • Support the Local Economy • Assure System Reliability •

## Attachment 3

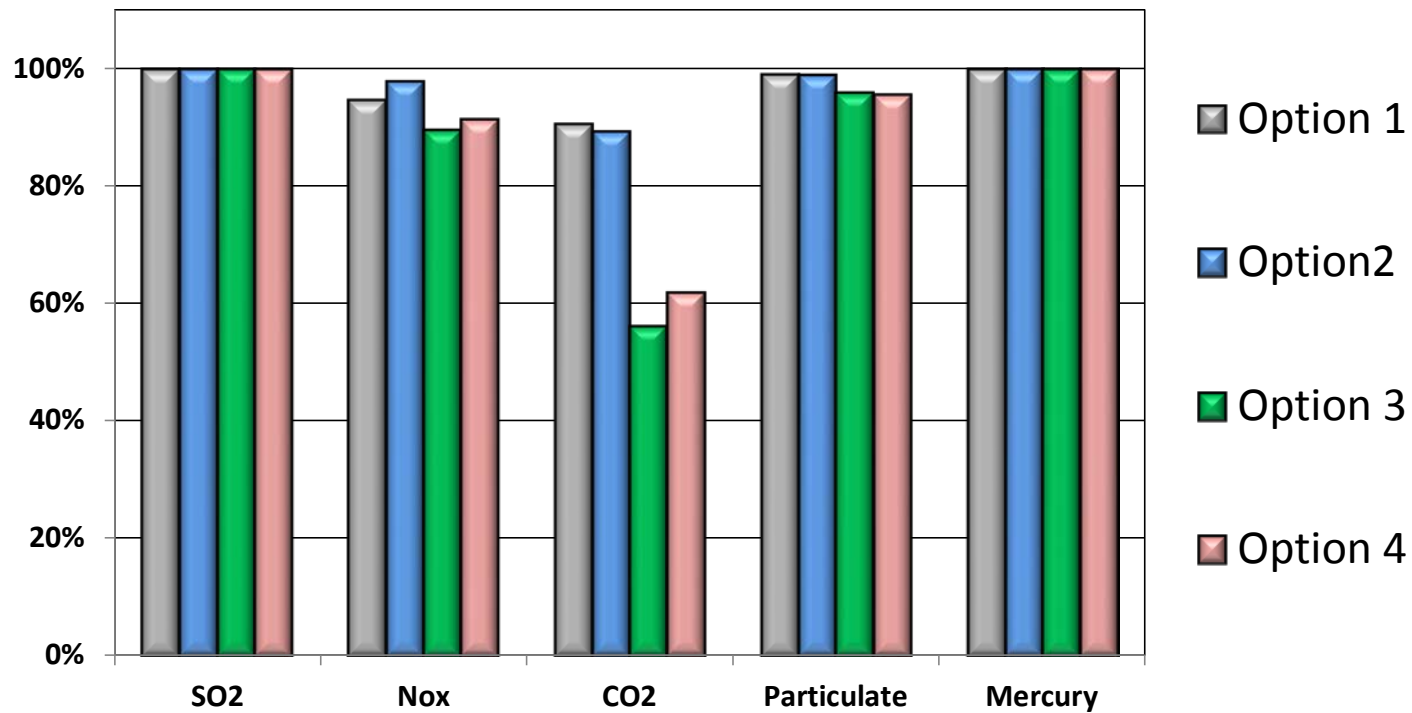
**Cayuga Air Emission Impacts for each Option. Comparison of the last five years of operation, total air emissions verses the first five years of operation at forecasted capacity factors.**

	Total Emissions 2008-2012 (Tons, Hg-lbs)	Option 1		Option 2		Option 3		Option 4	
		First Five Years of Operation (Tons, Hg-lbs)	% Emissions Reduction	First Five Years of Operation (Tons, Hg-lbs)	% Emissions Reduction	First Five Years of Operation (Tons, Hg-lbs)	% Emissions Reduction	First Five Years of Operation (Tons, Hg-lbs)	% Emissions Reduction
Emission Parameters									
SO2-Tons									
NOx-Tons									
CO2-Tons									
Particulate-Tons									
Mercury-lbs									

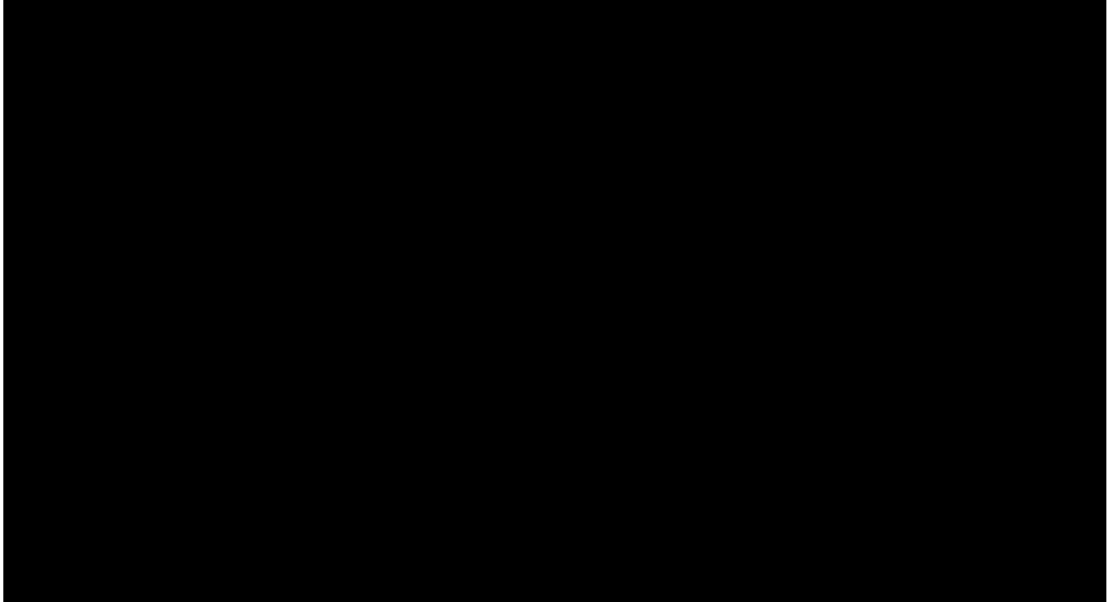
# Cayuga Repowering Proposal

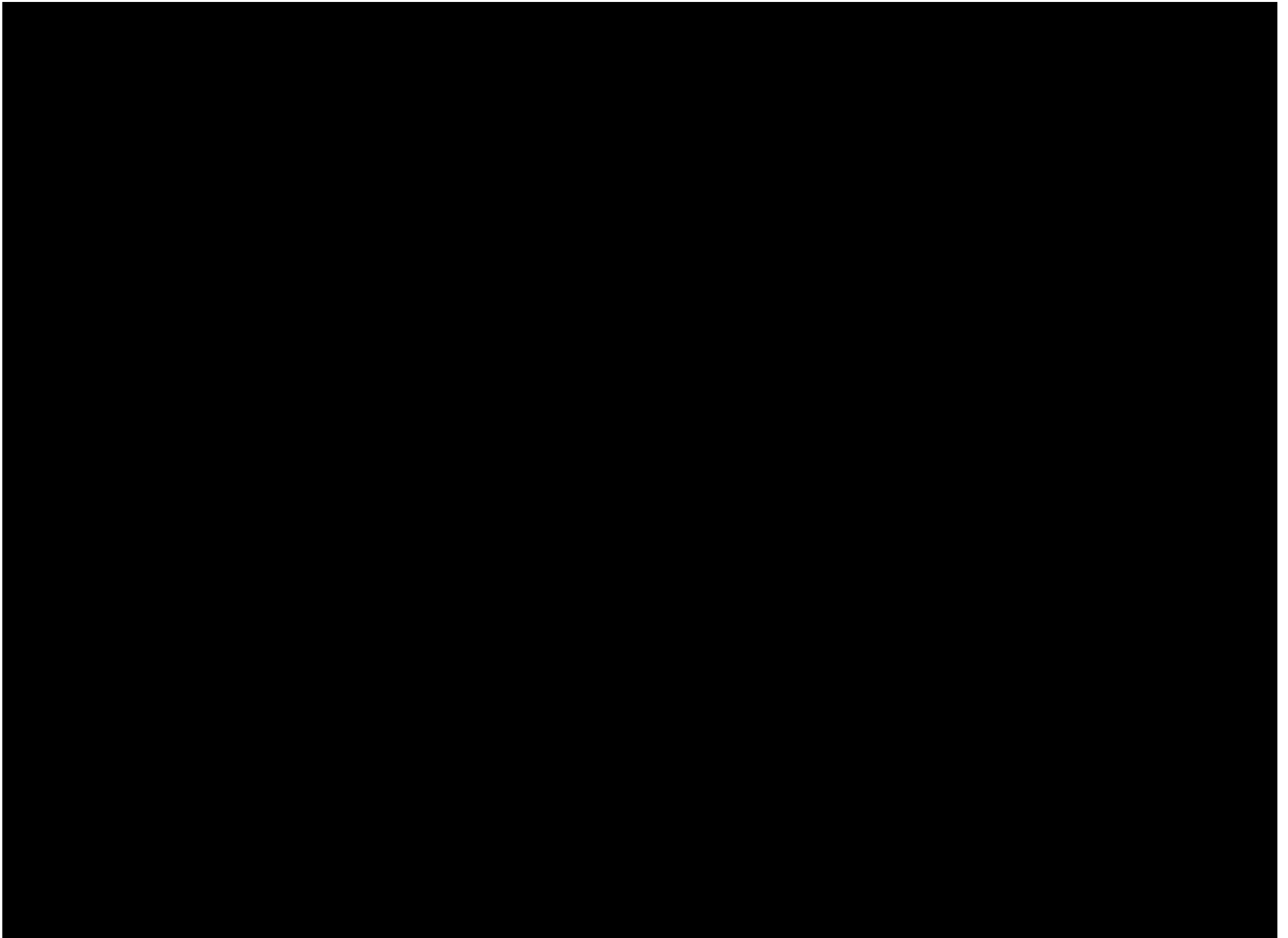
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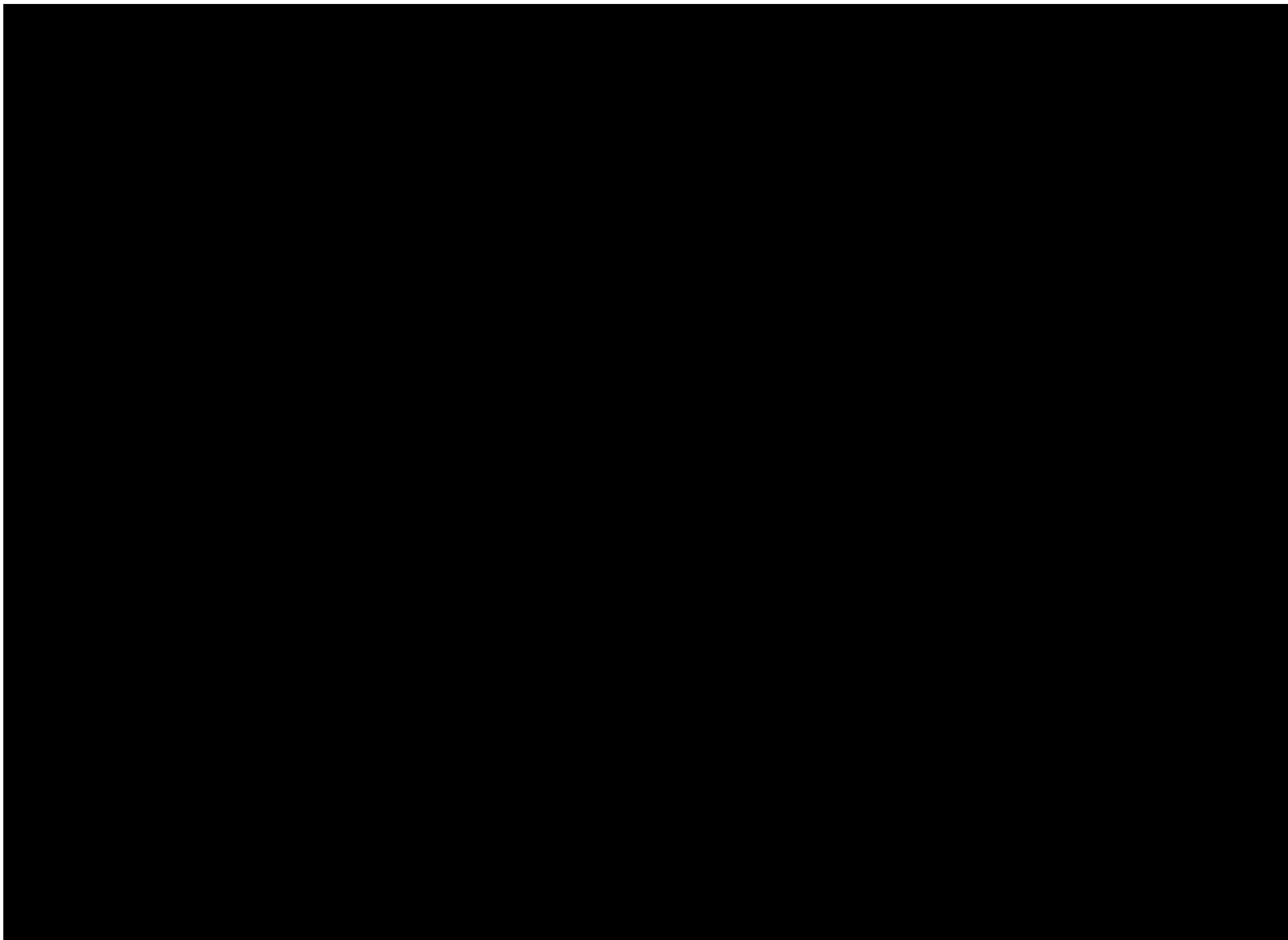
## Major Constituent Percent Emission Reductions for Each Option

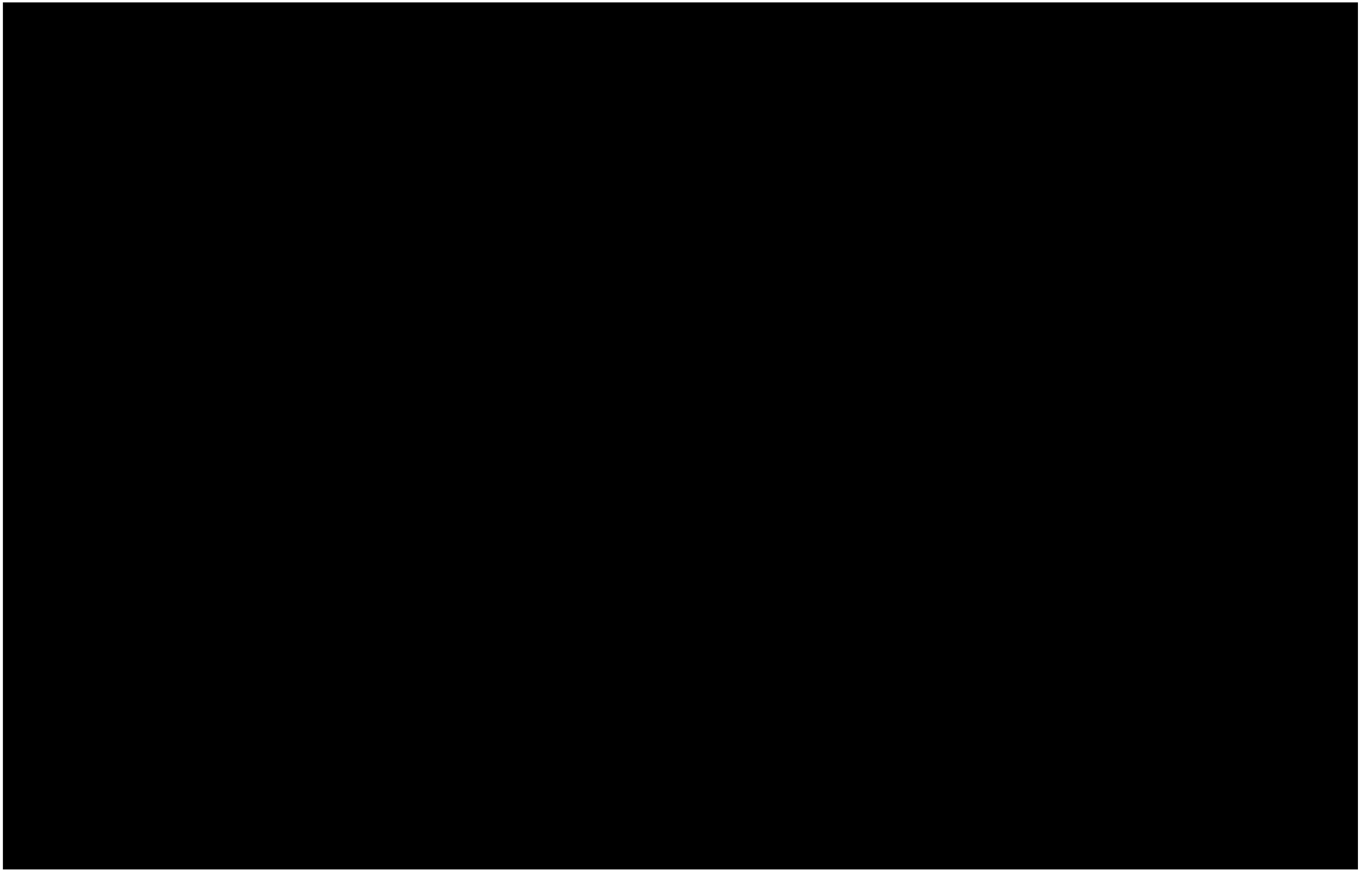


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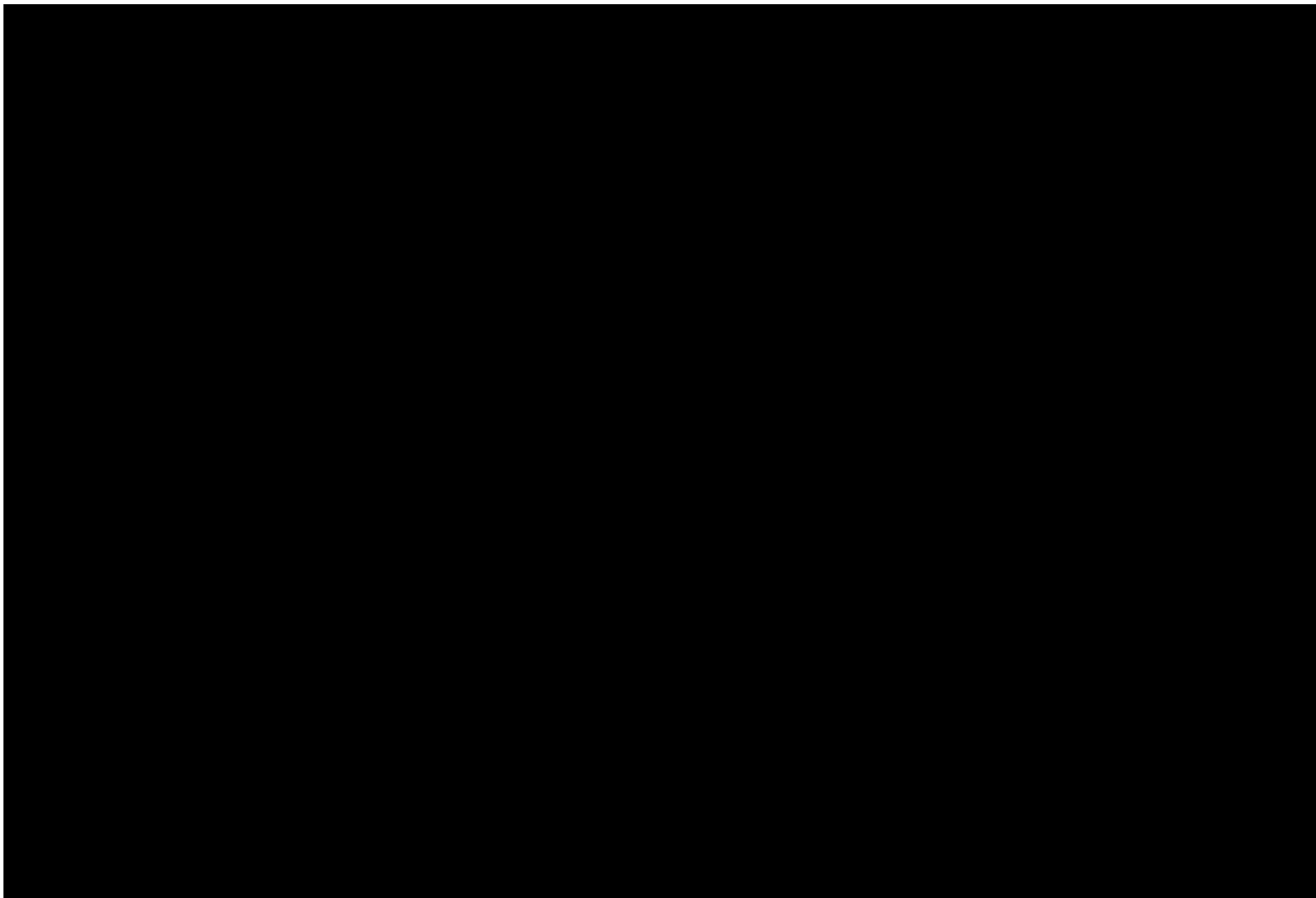


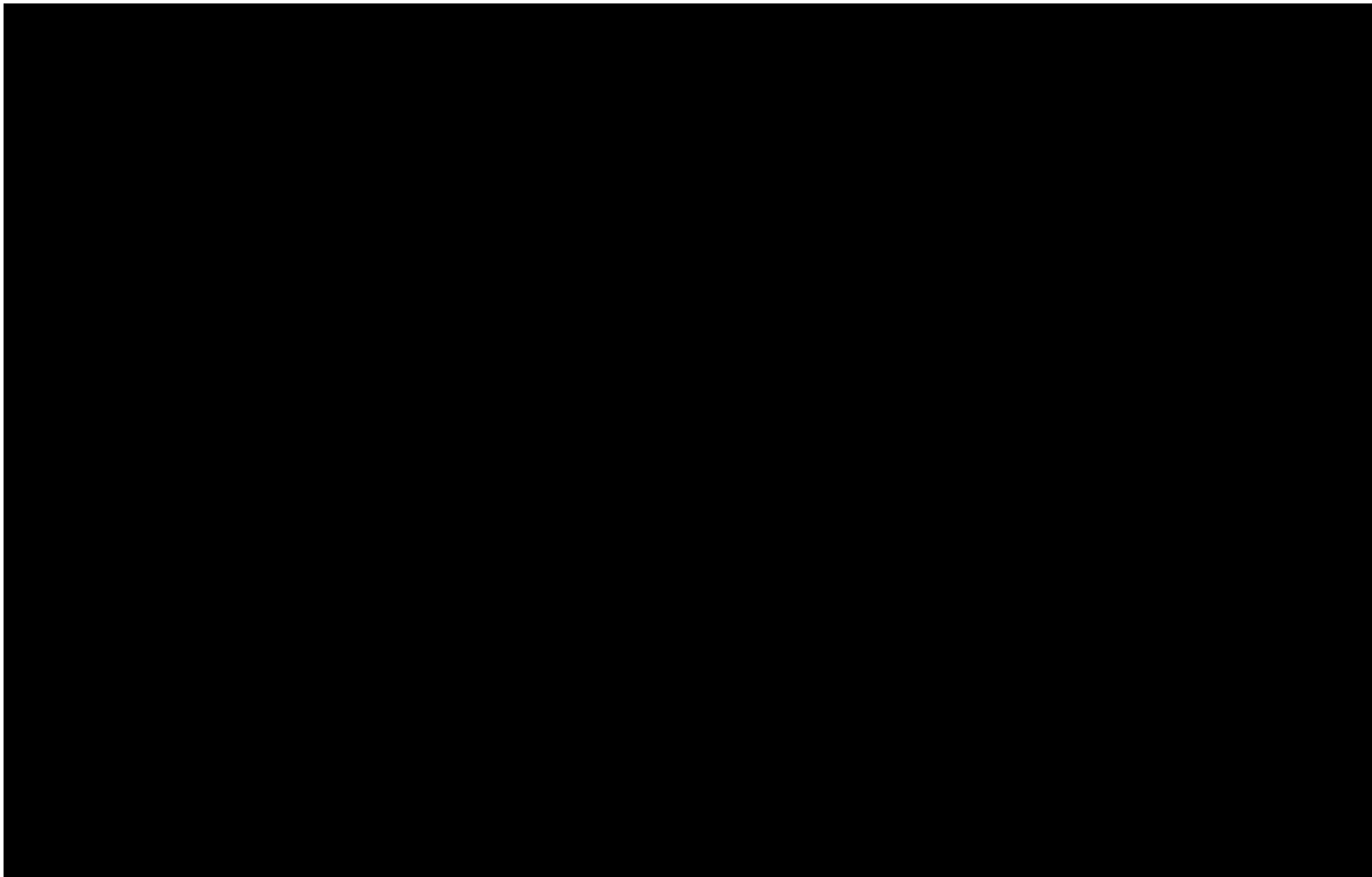


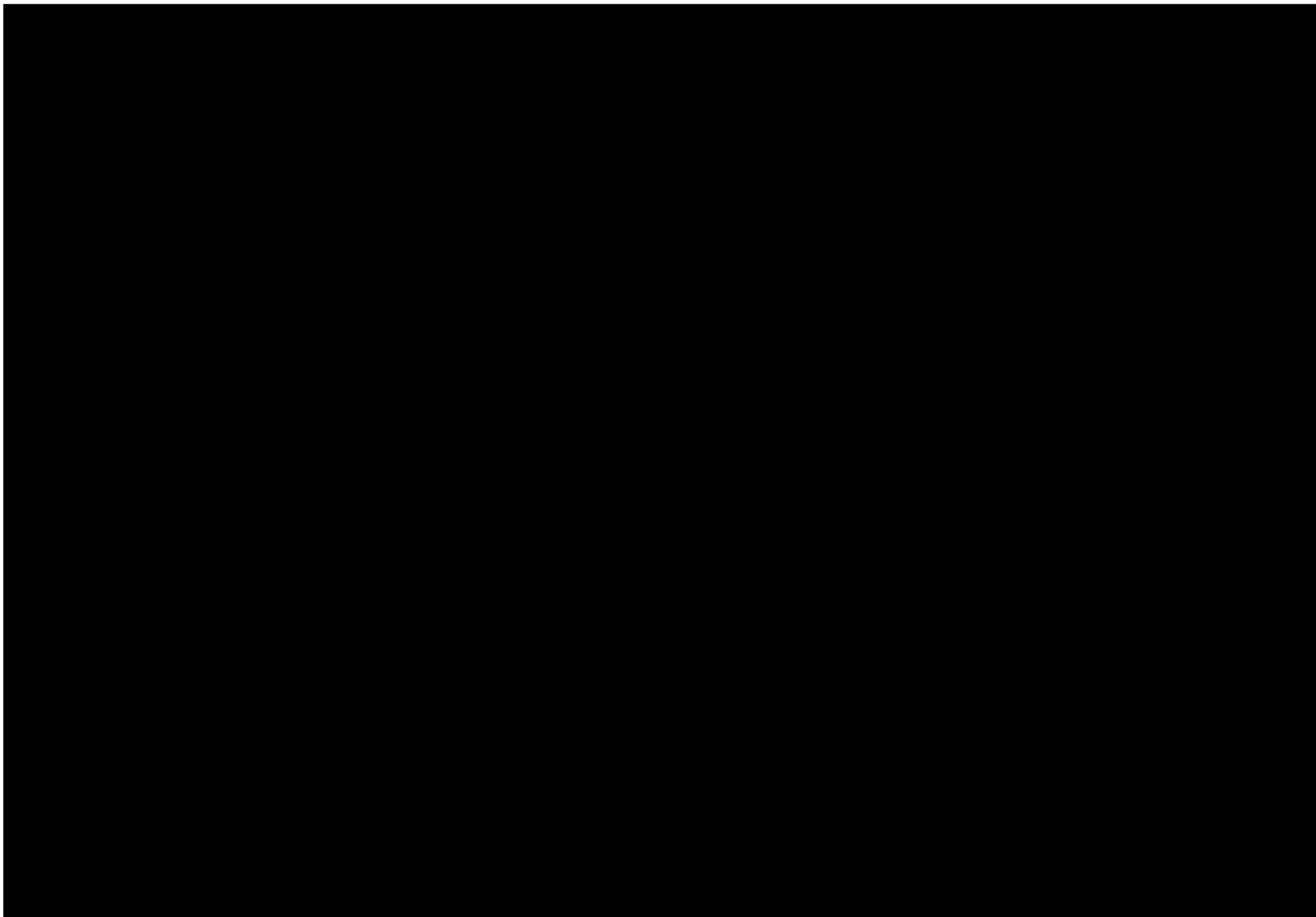


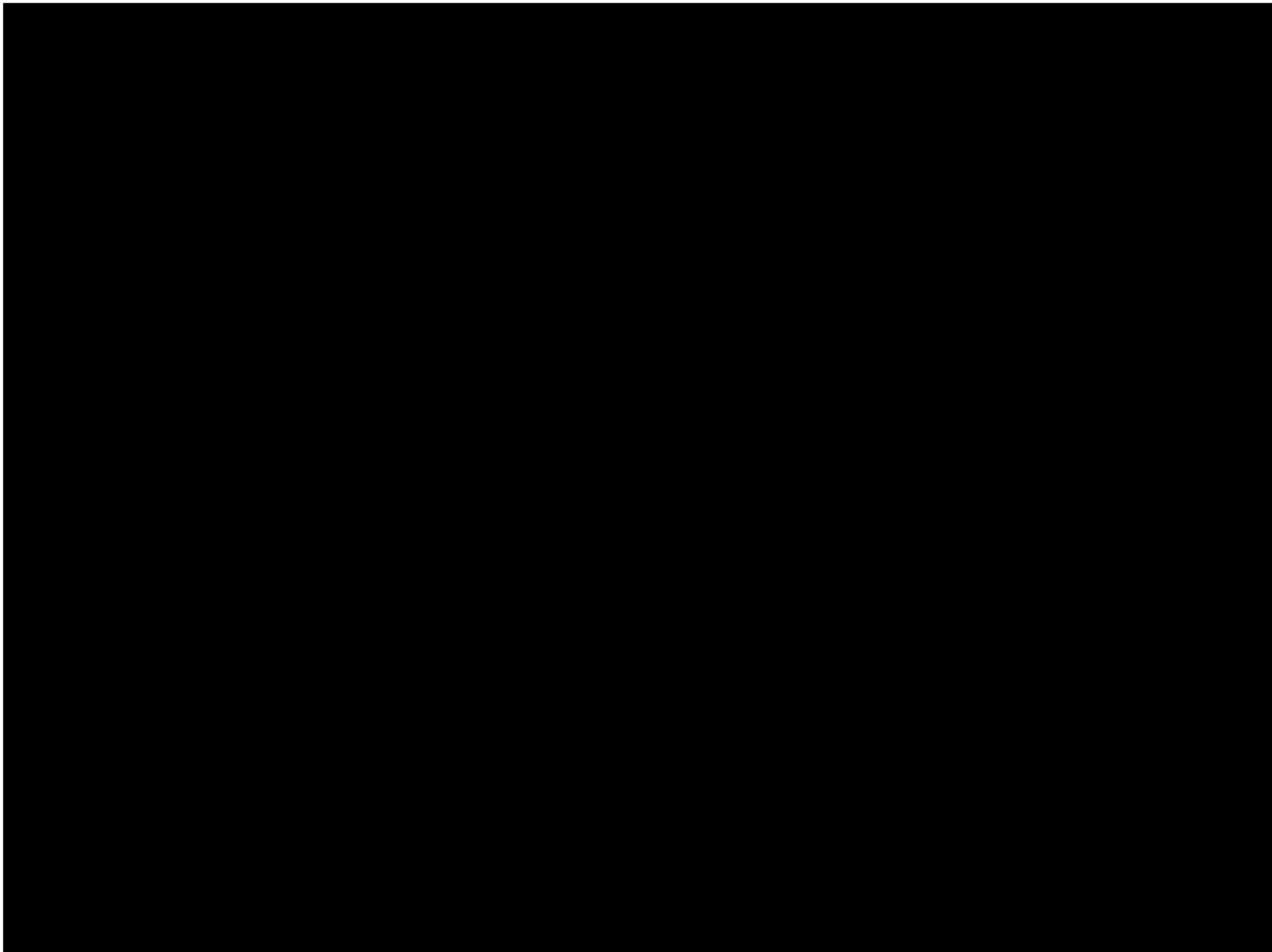


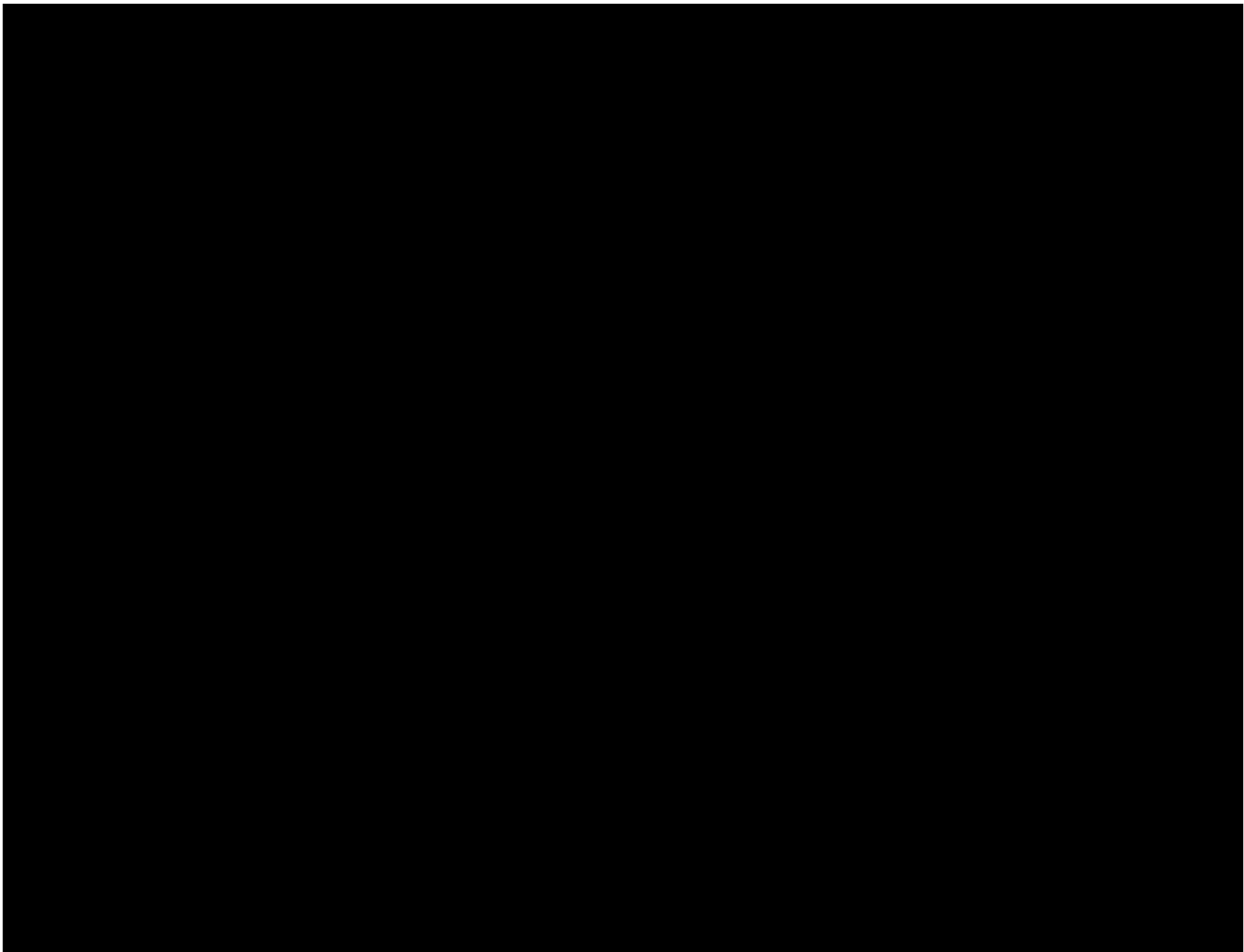


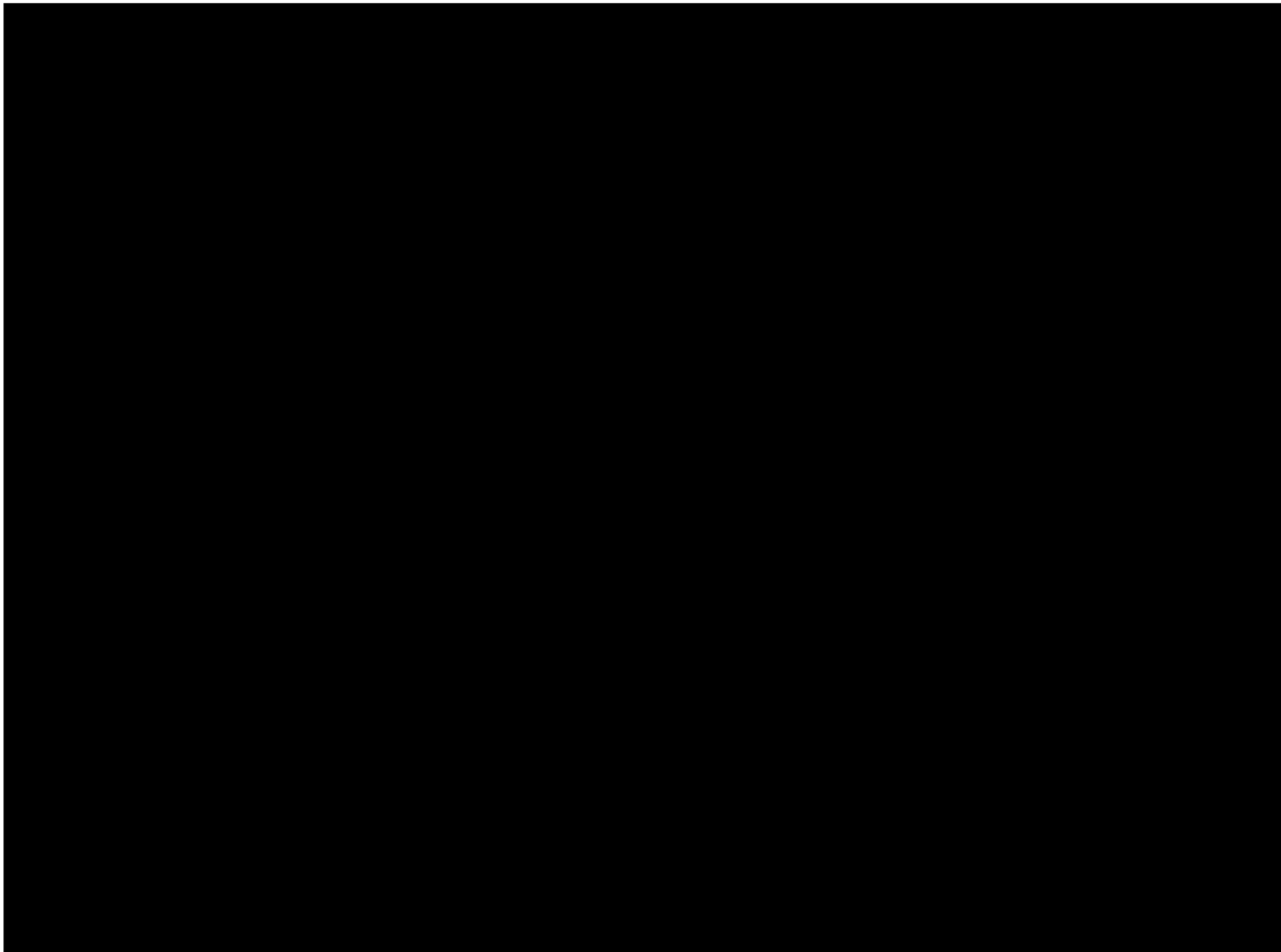


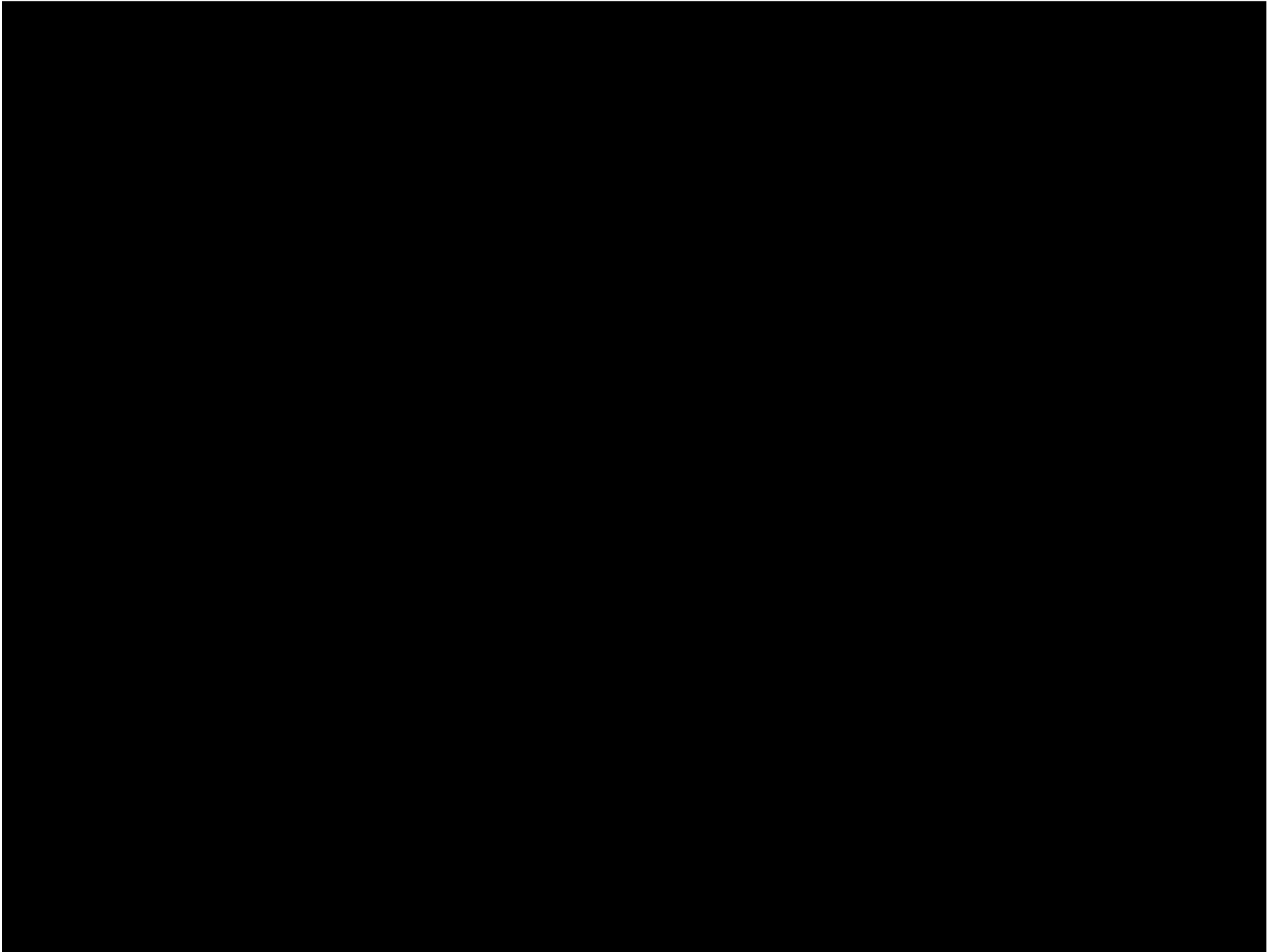


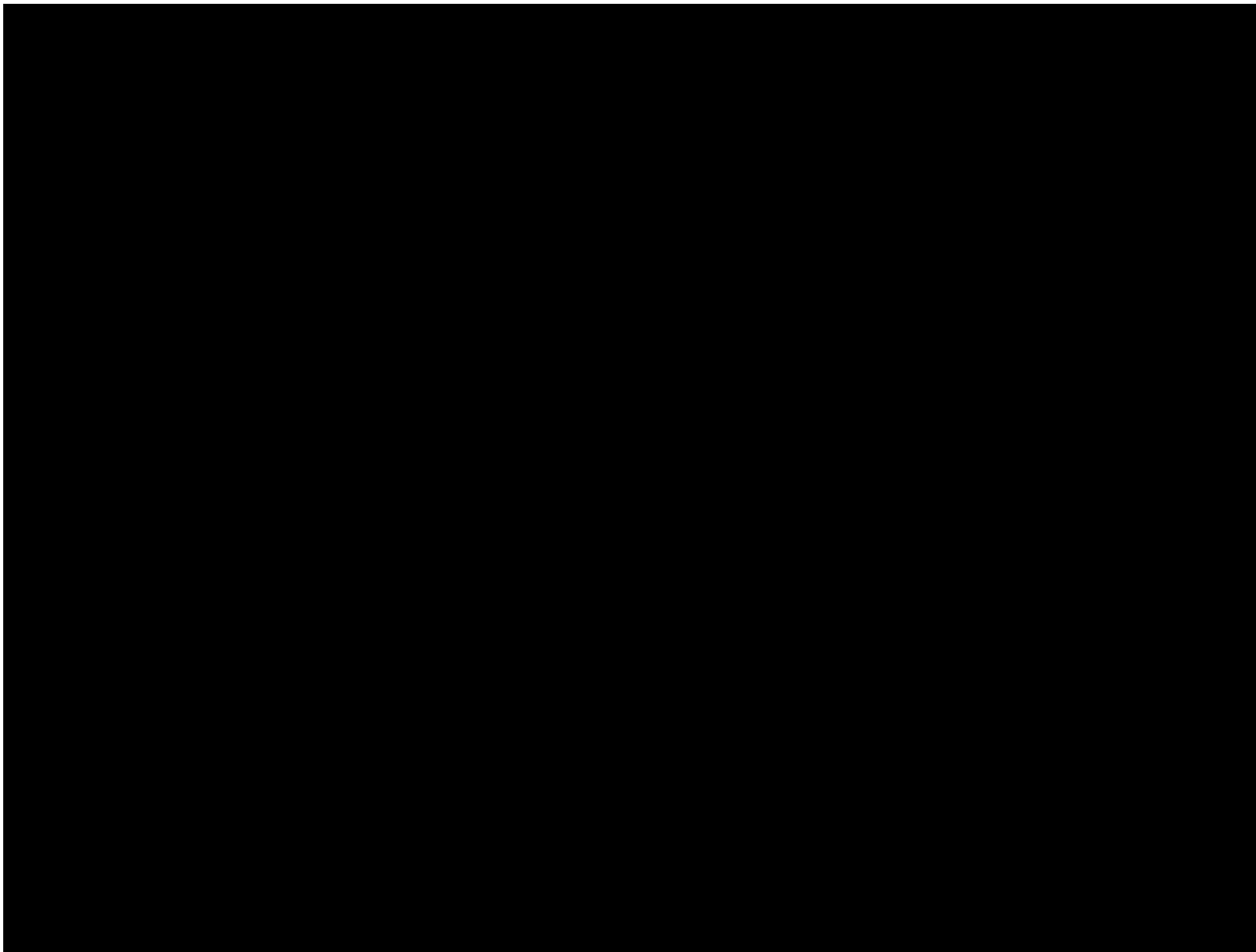




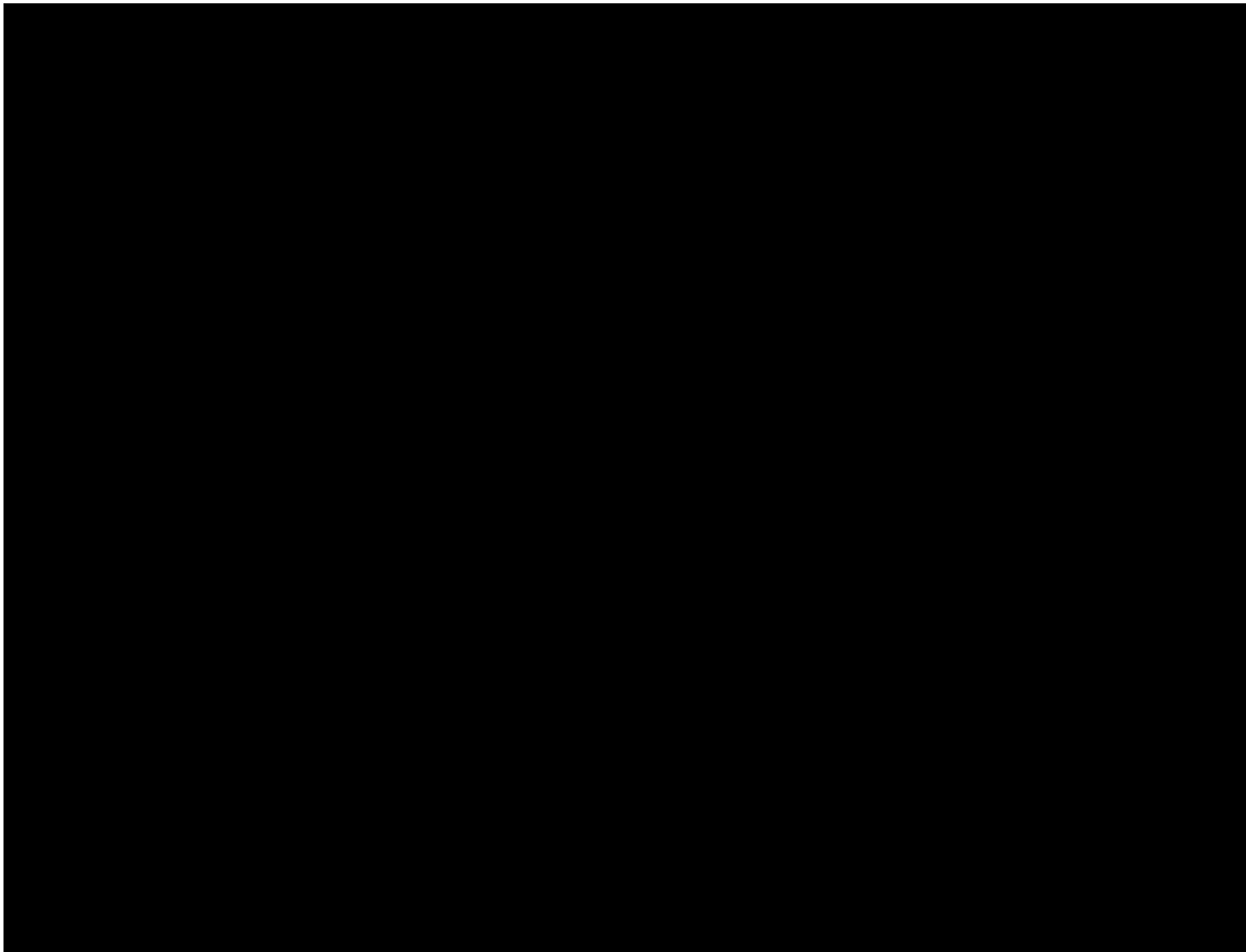


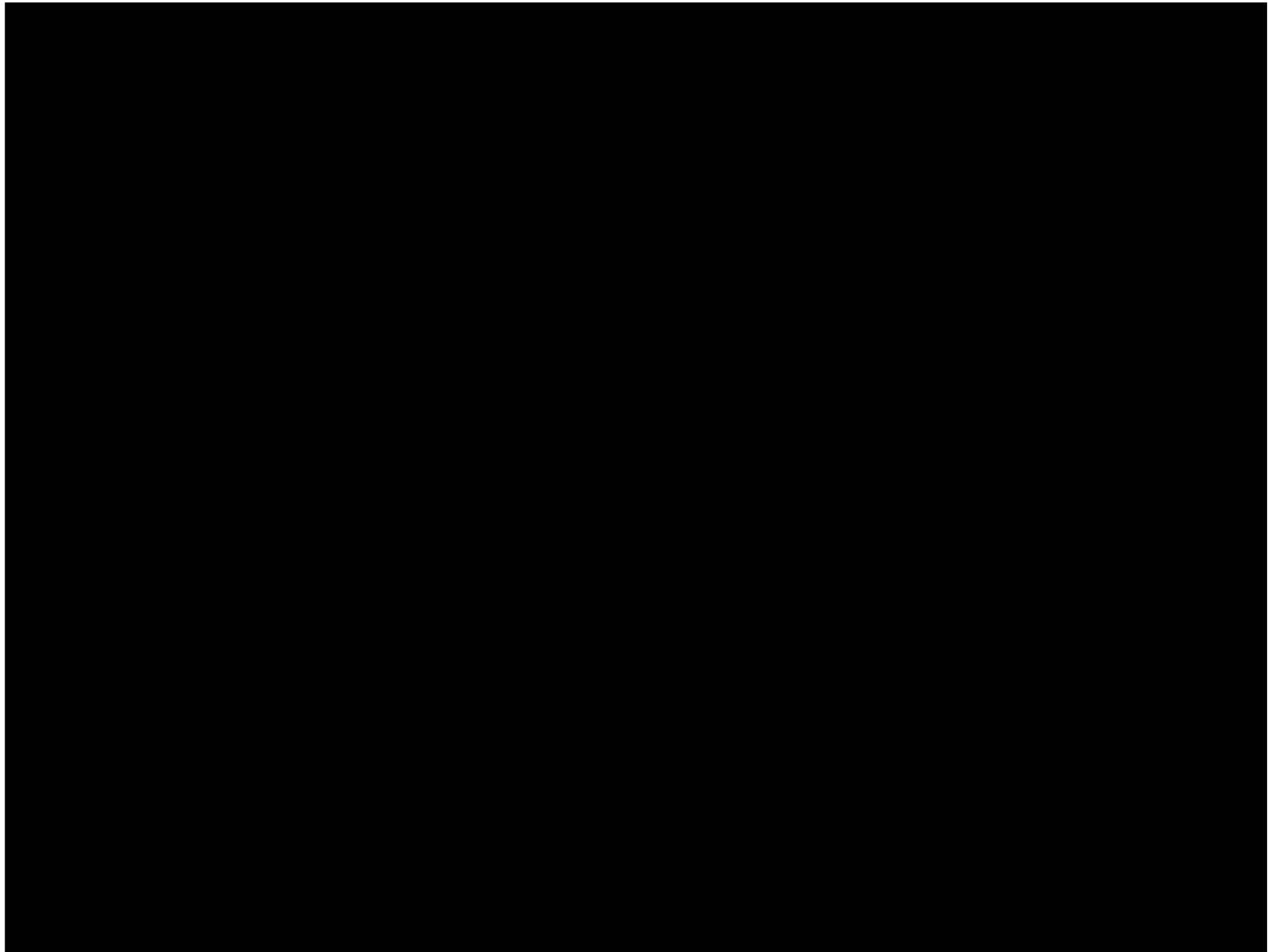


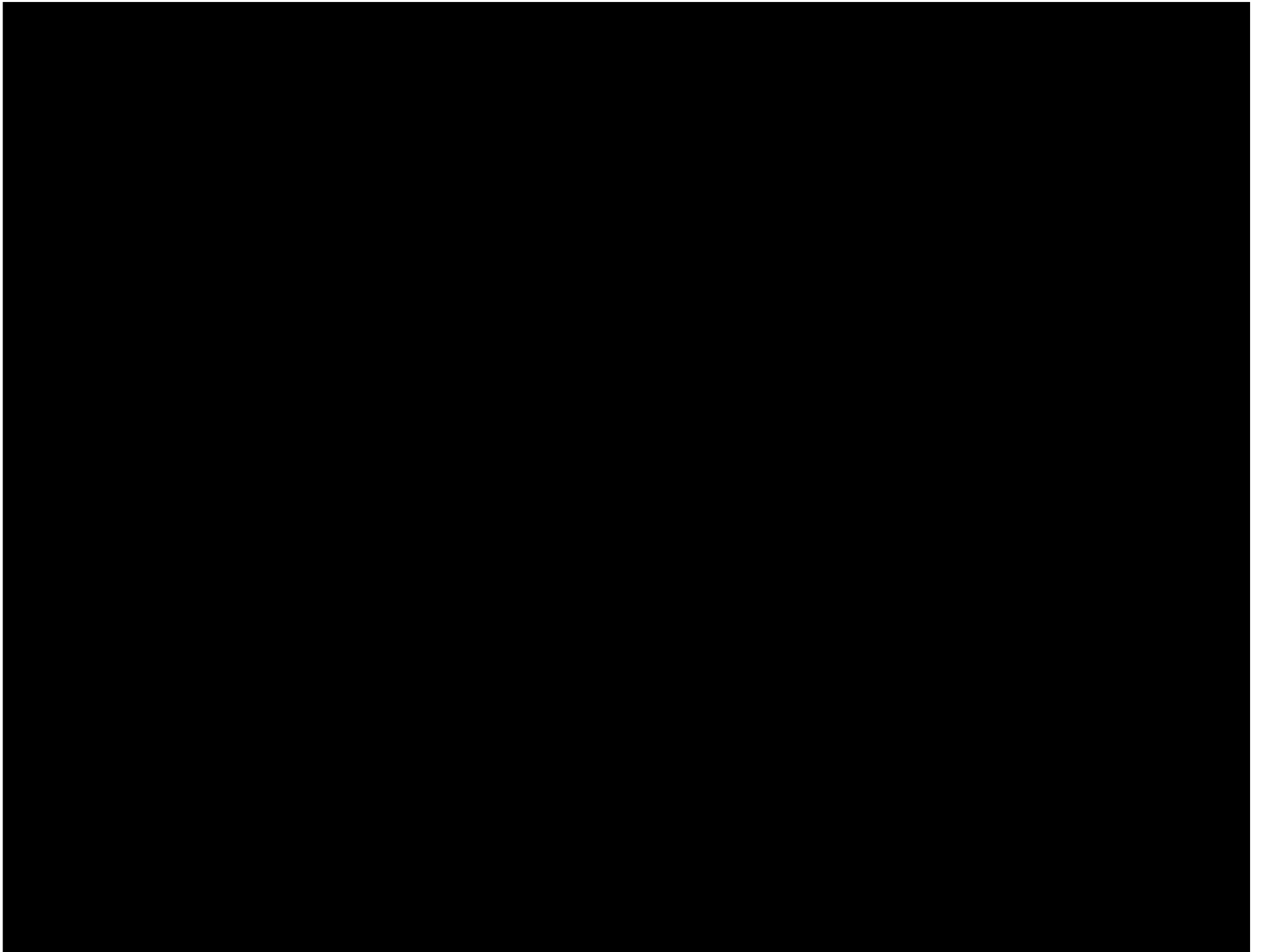


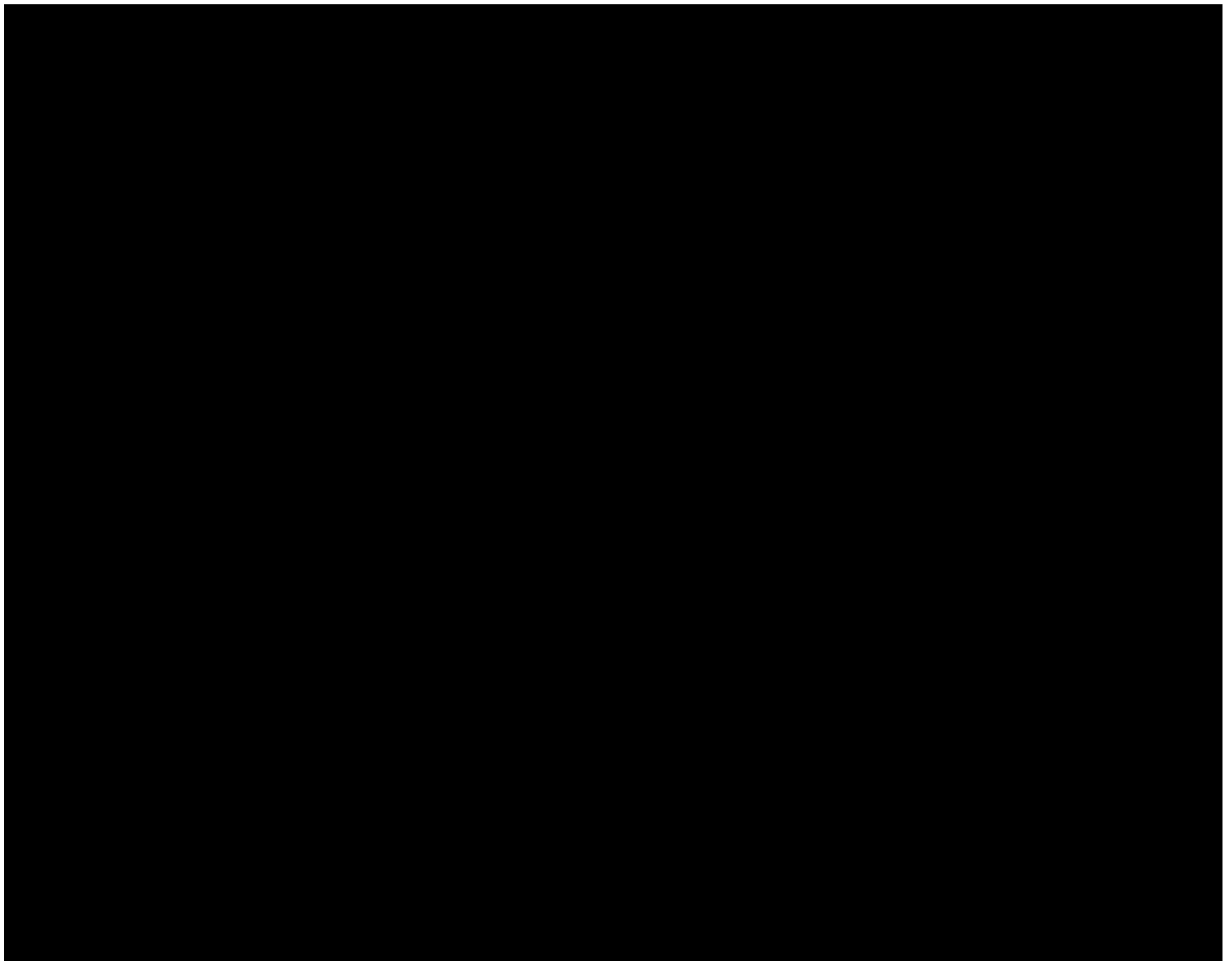


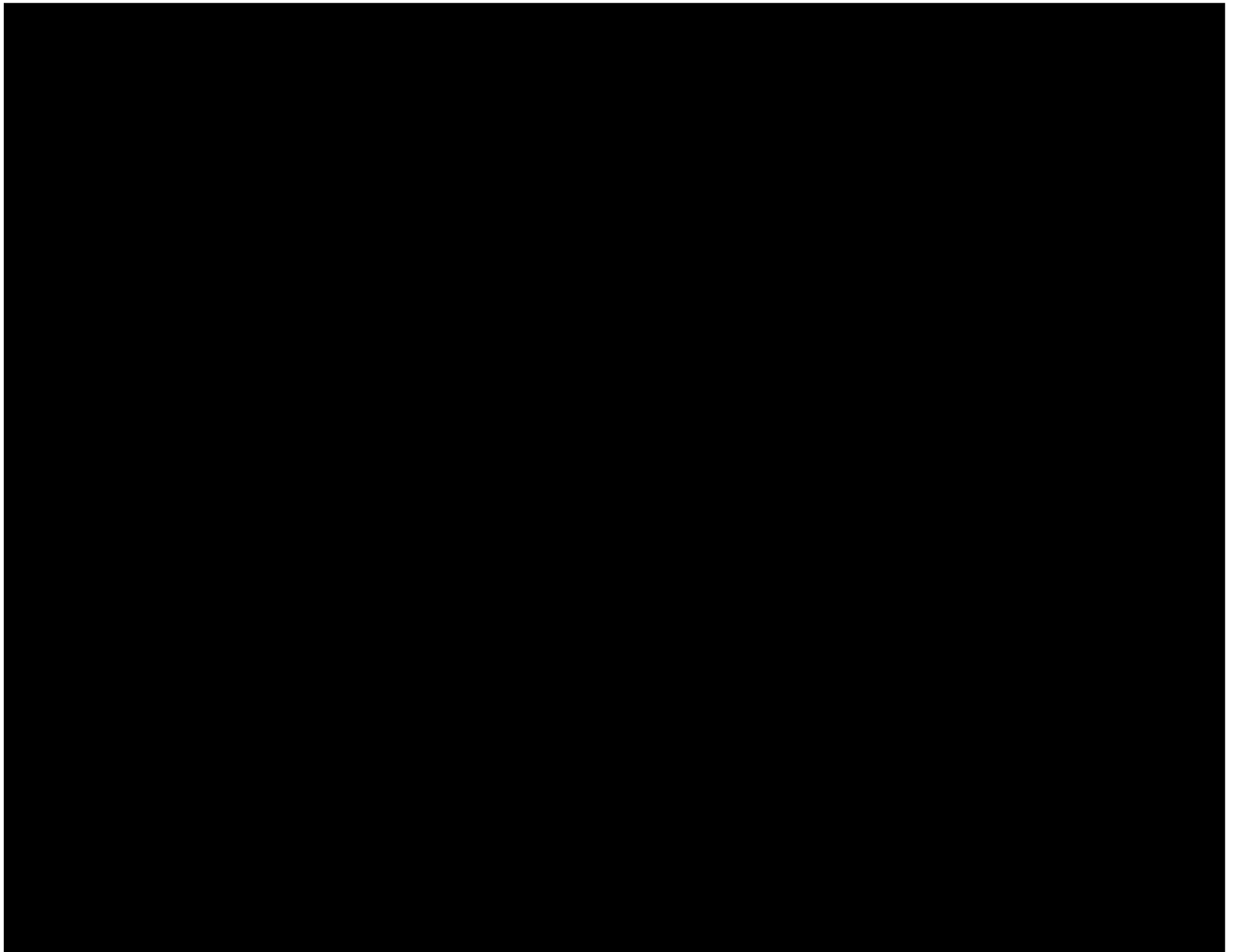




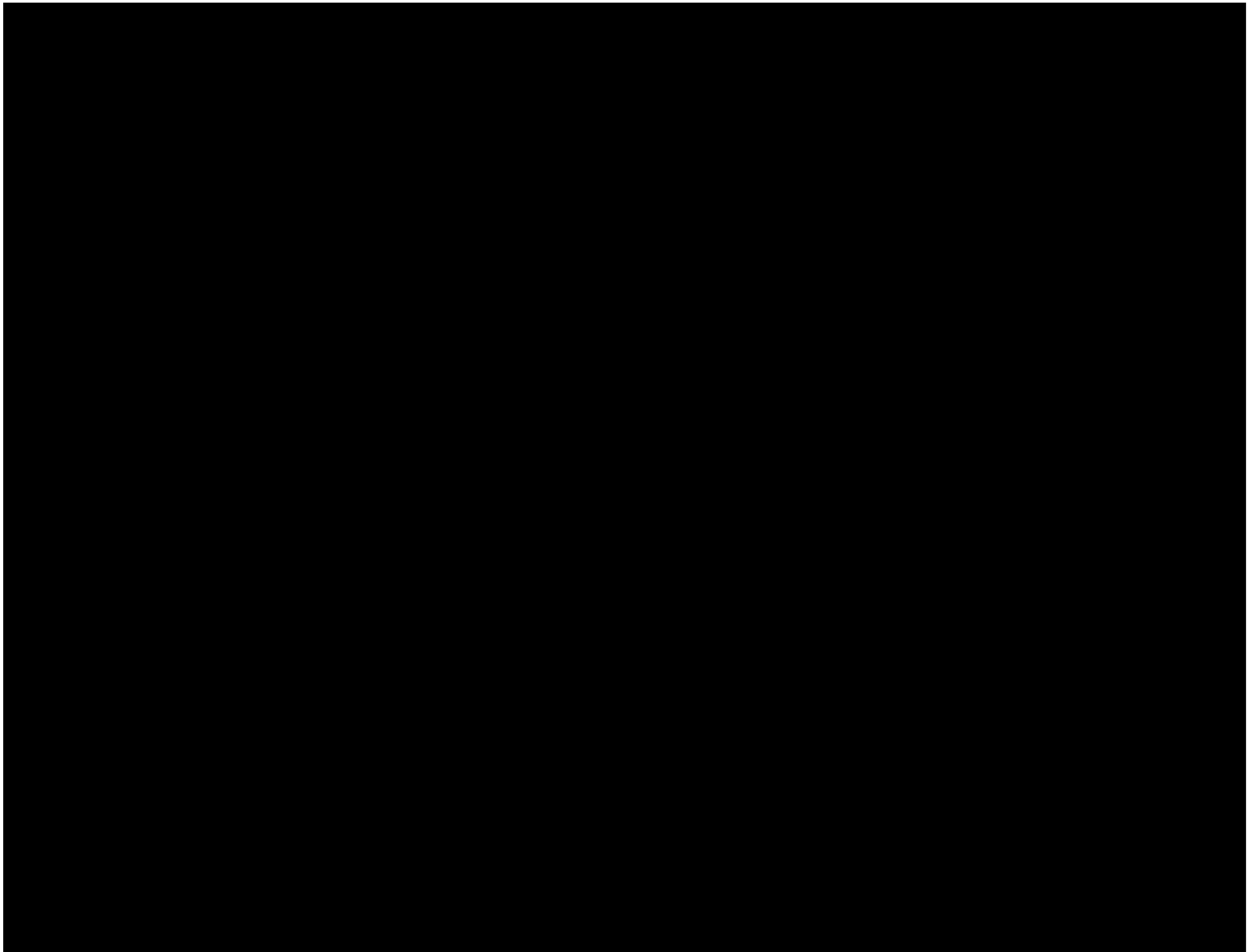


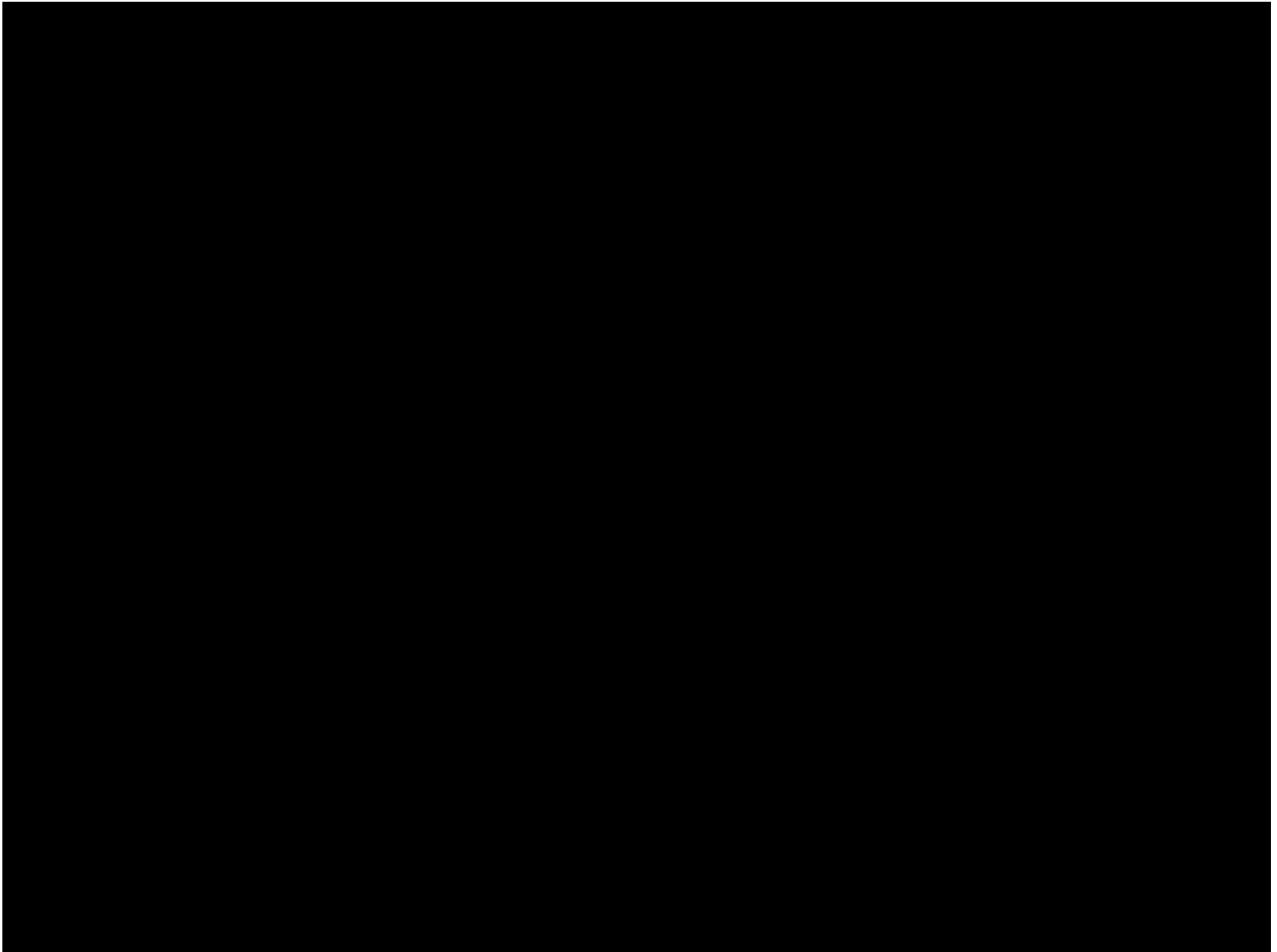




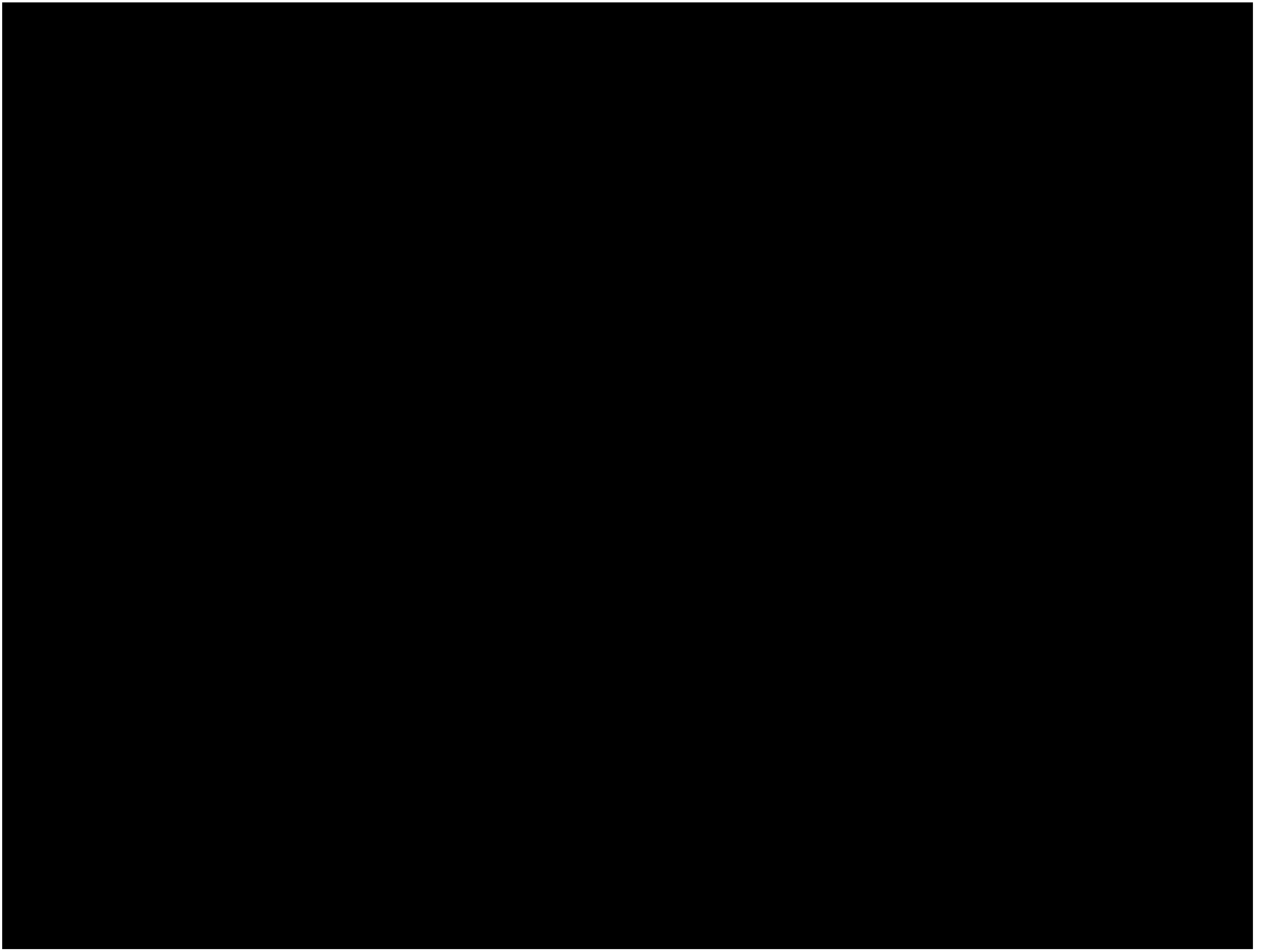


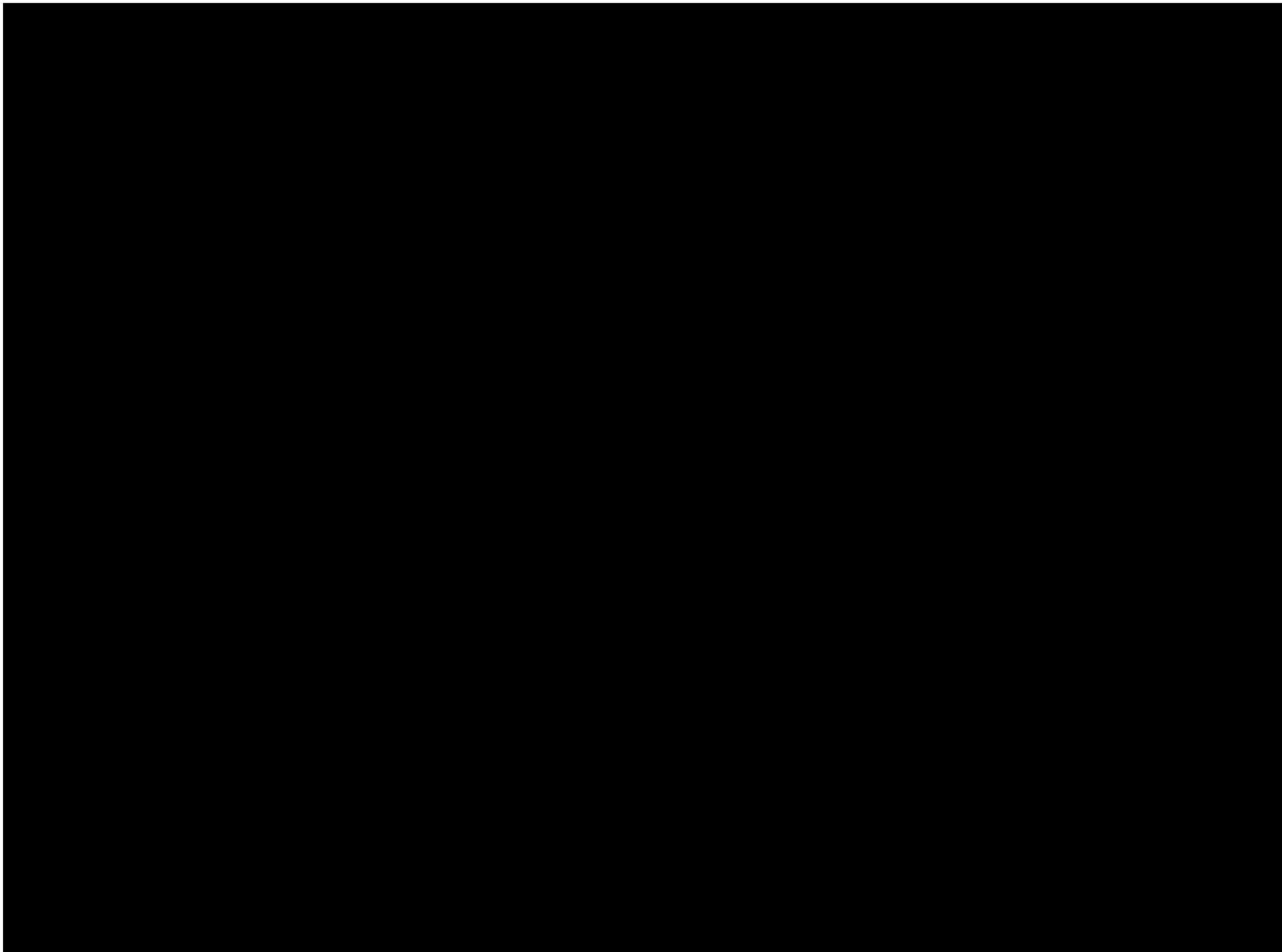




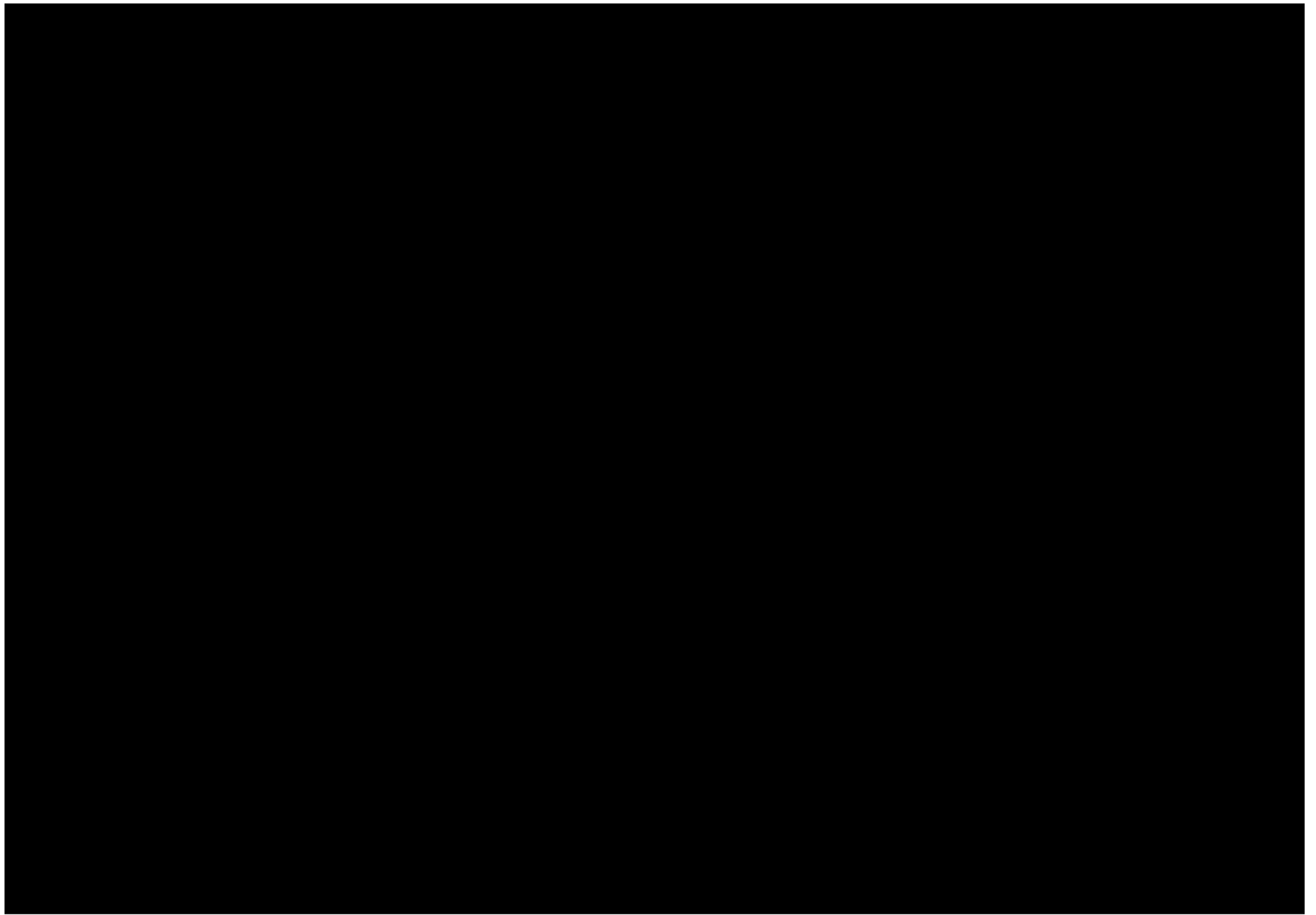


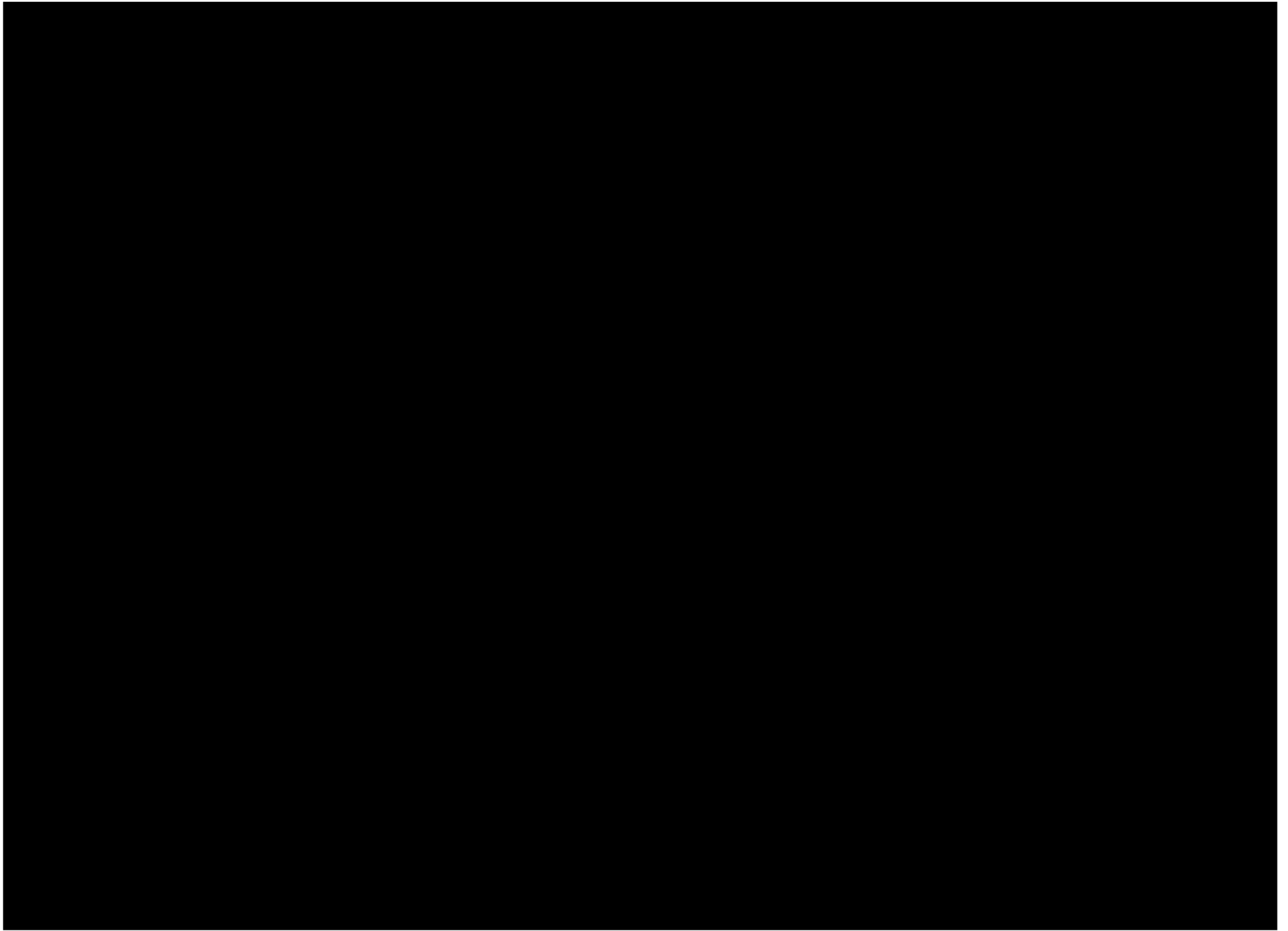


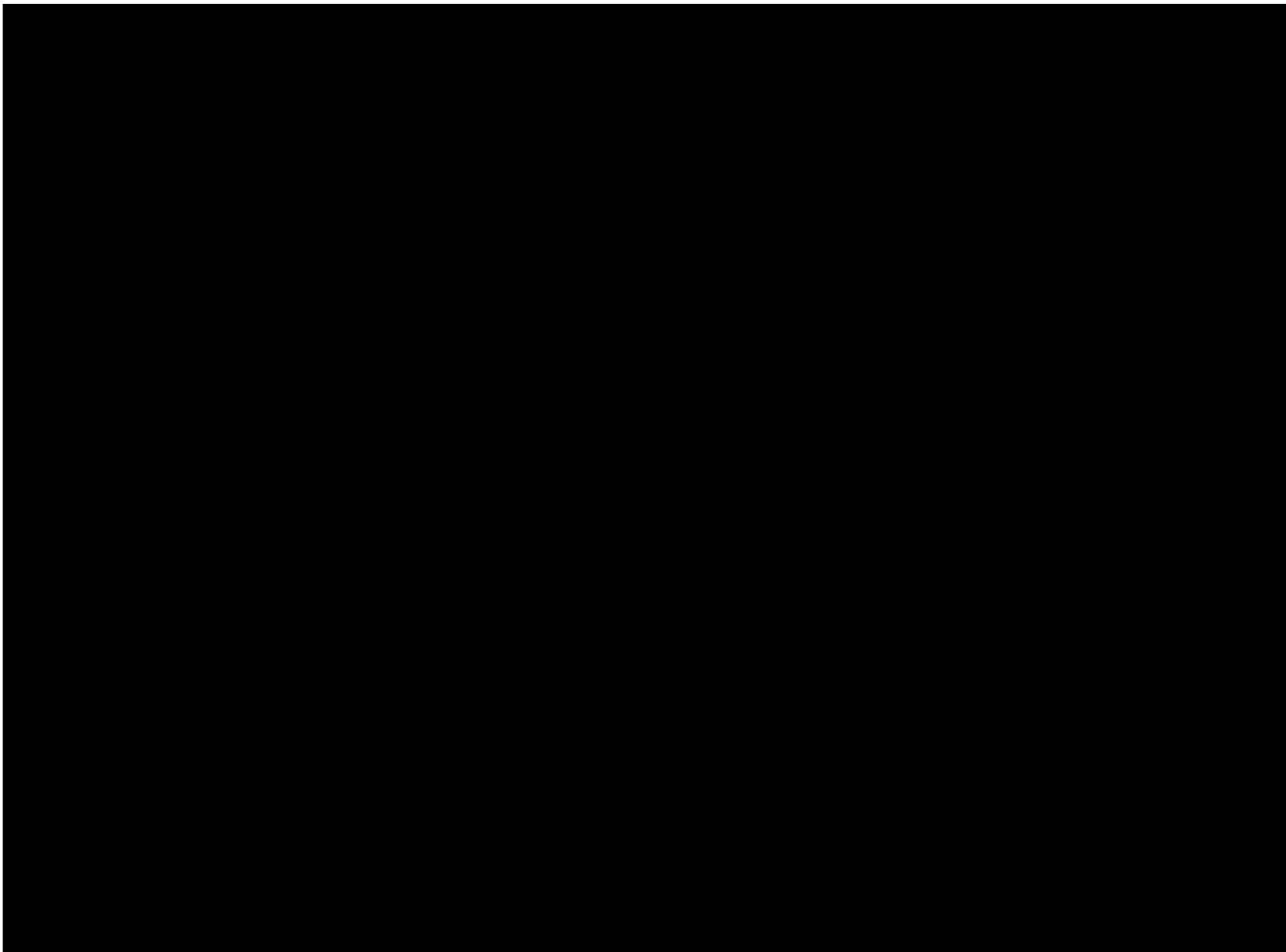




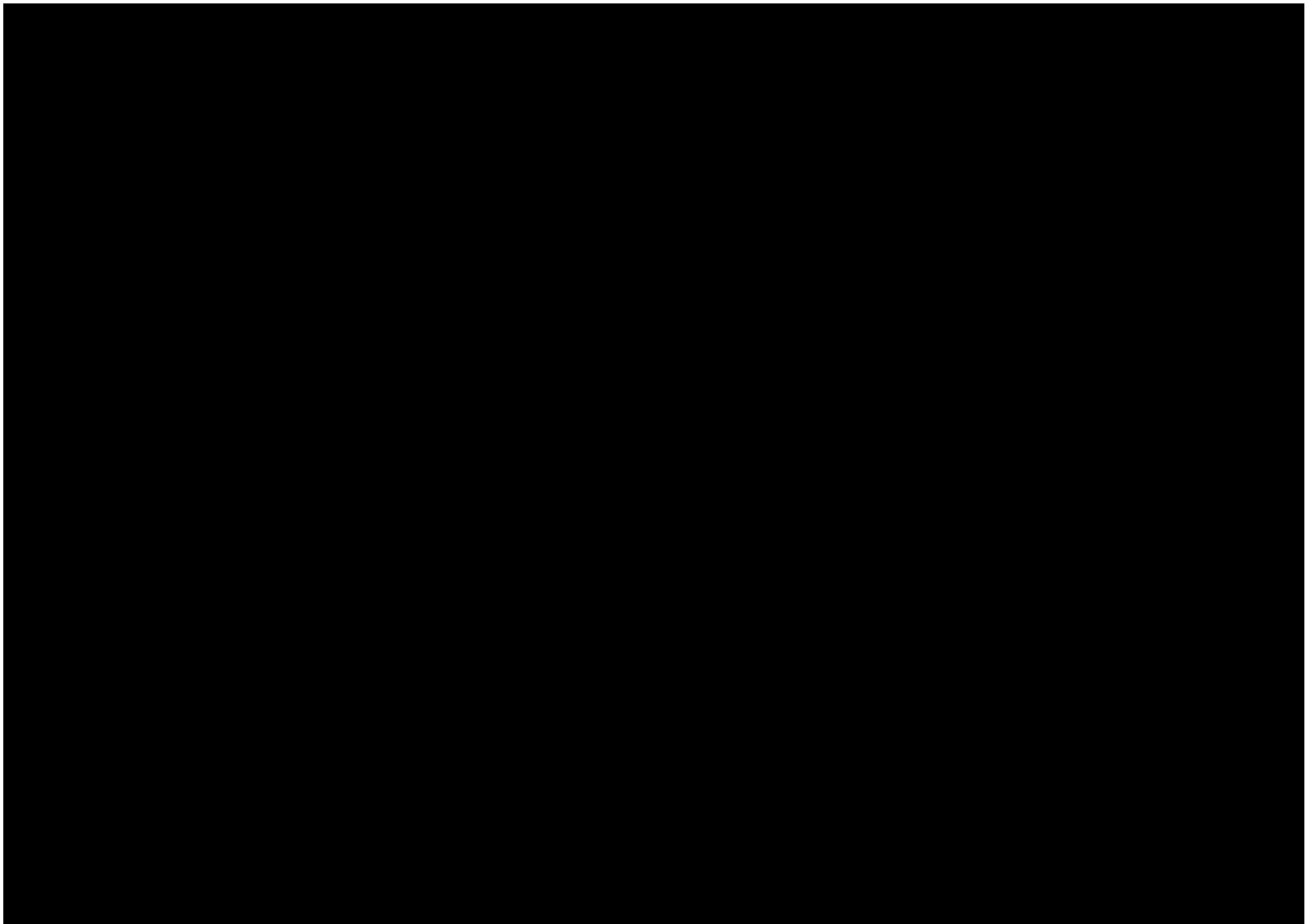




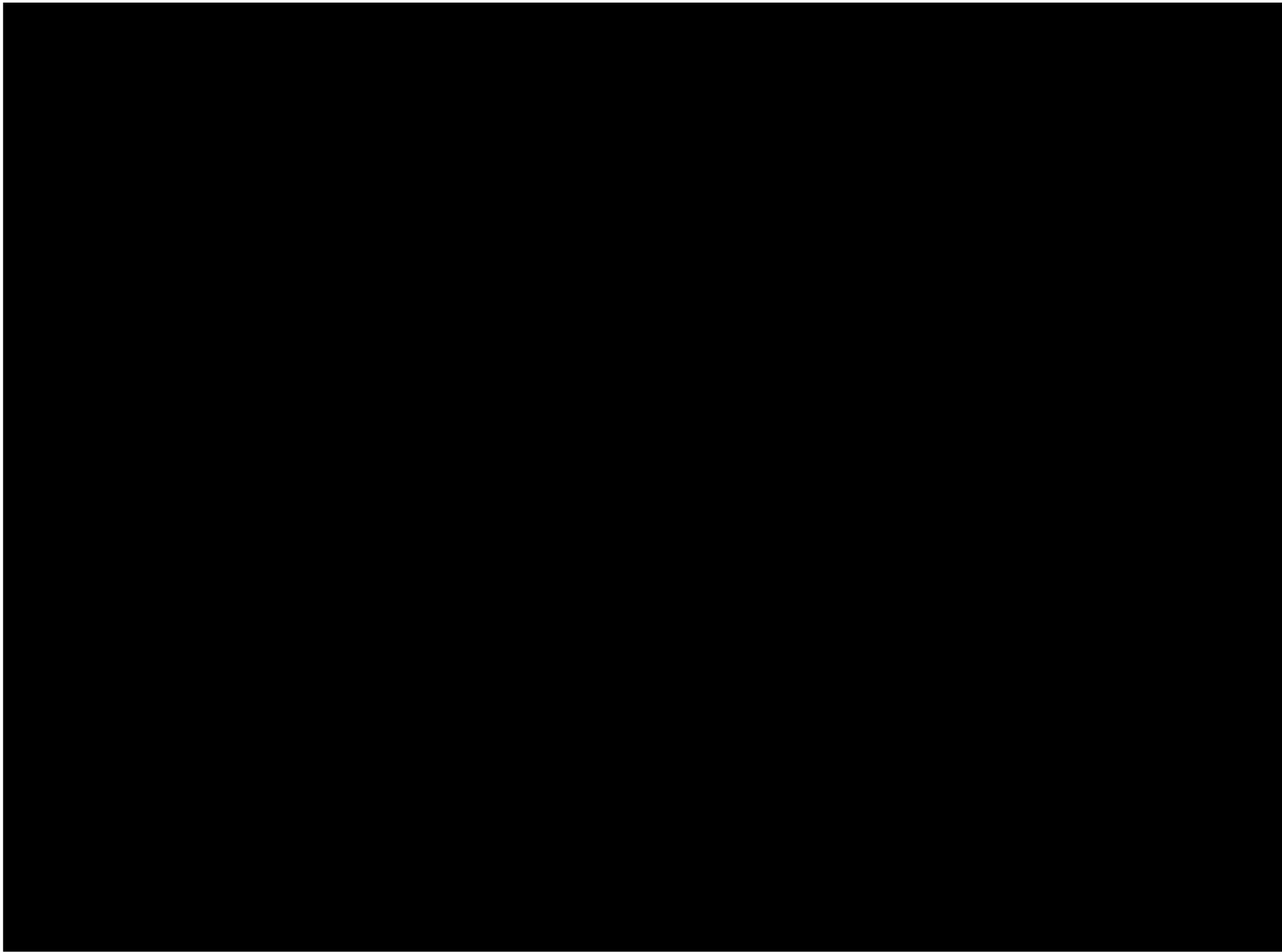


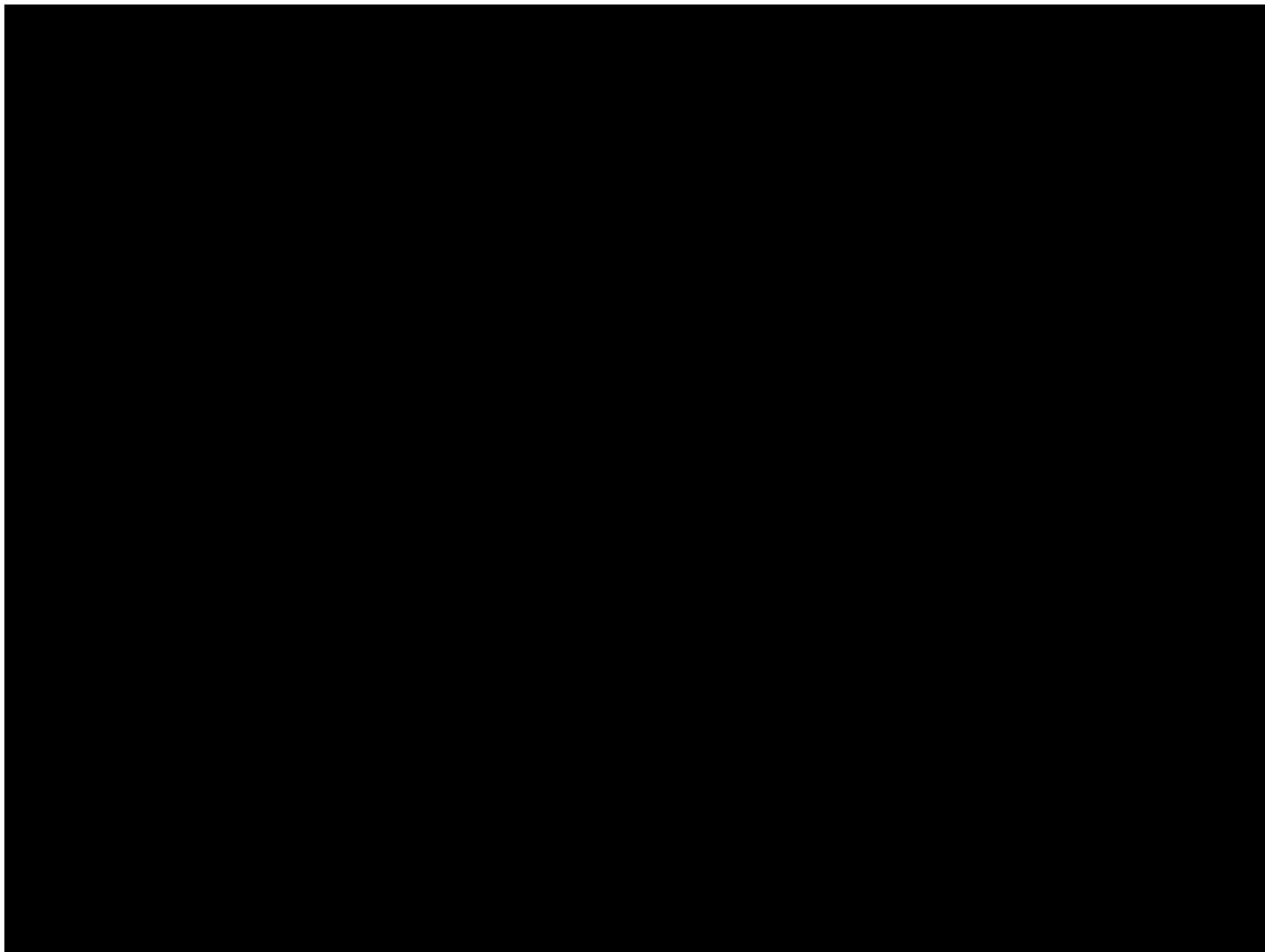


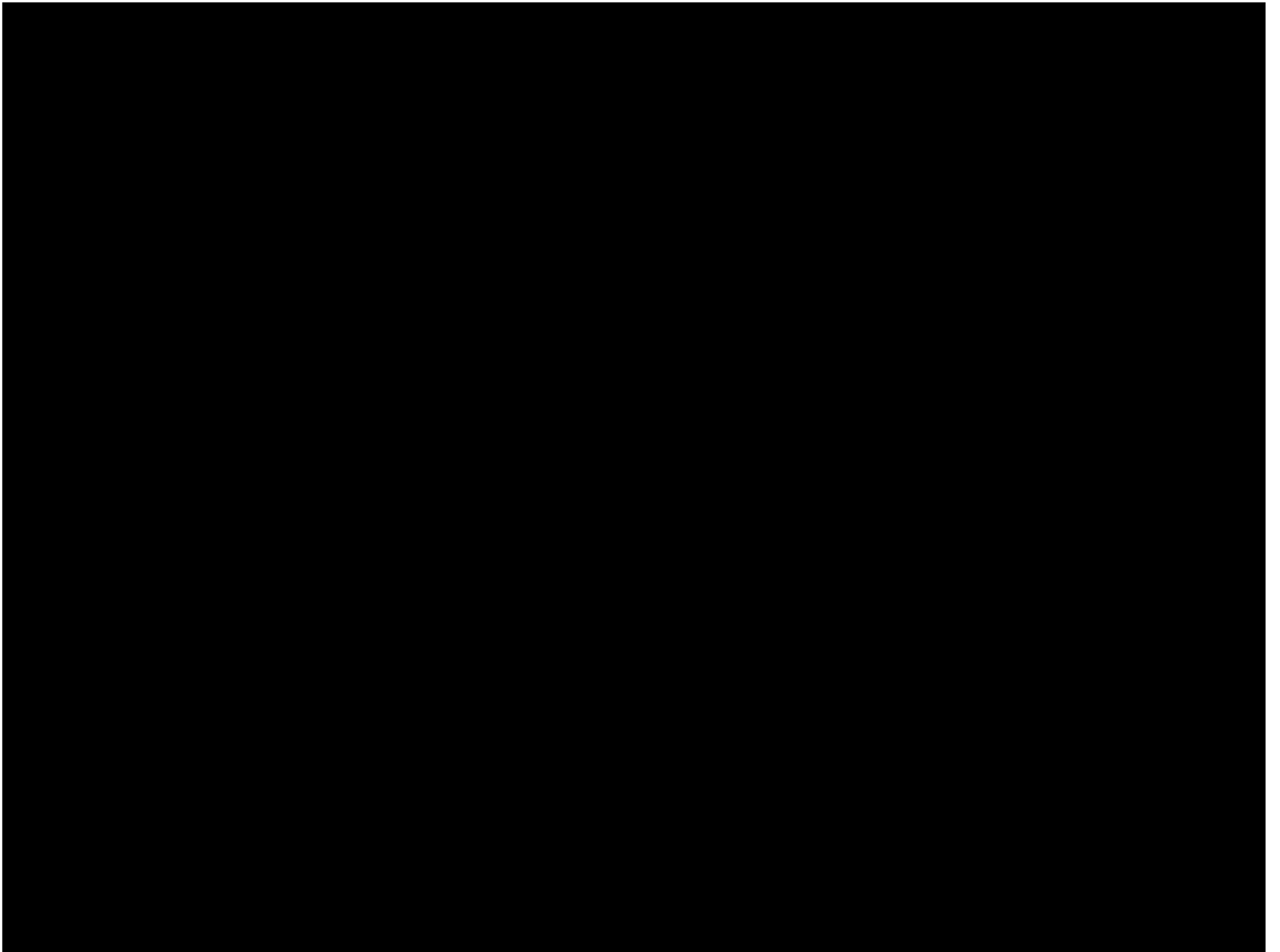


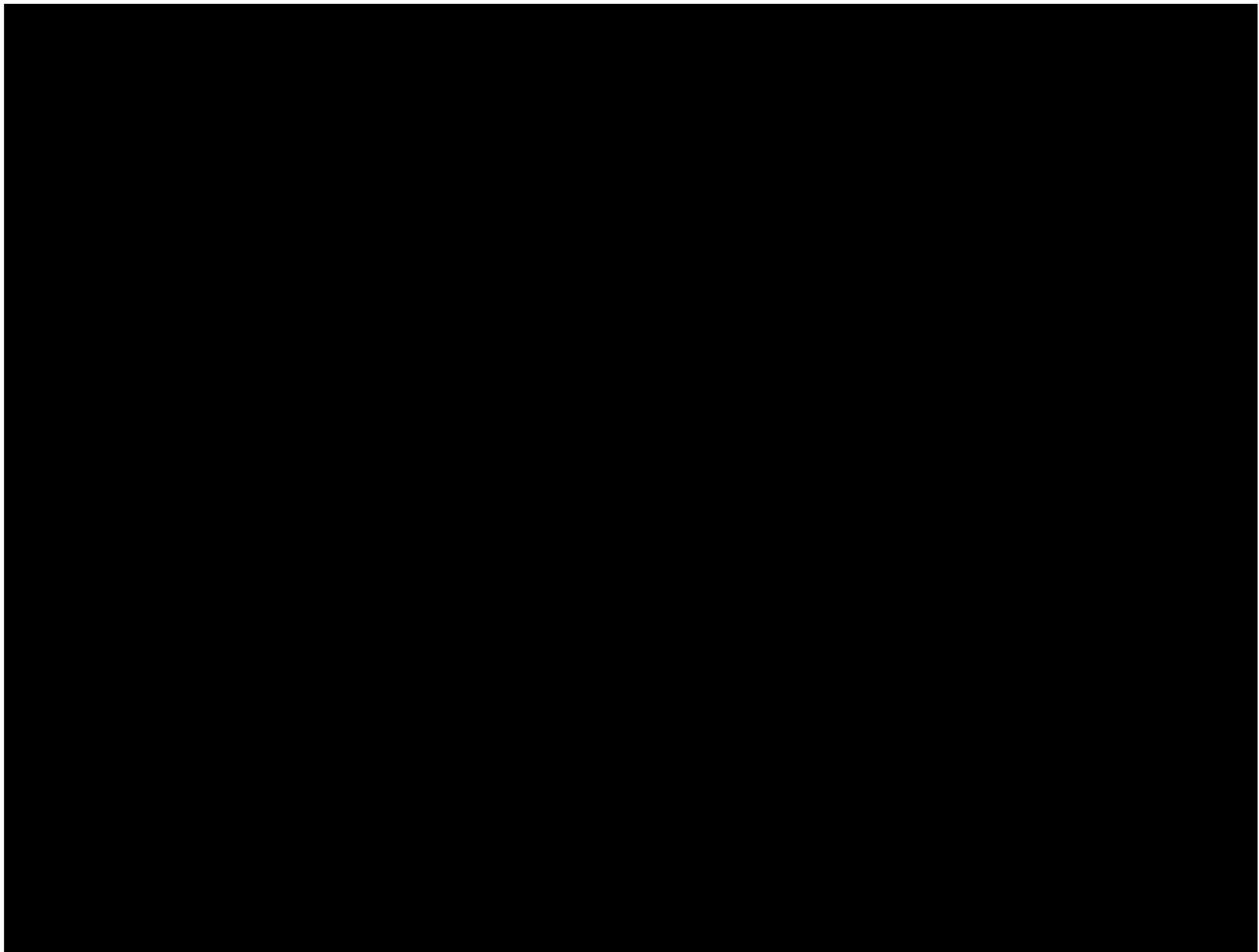


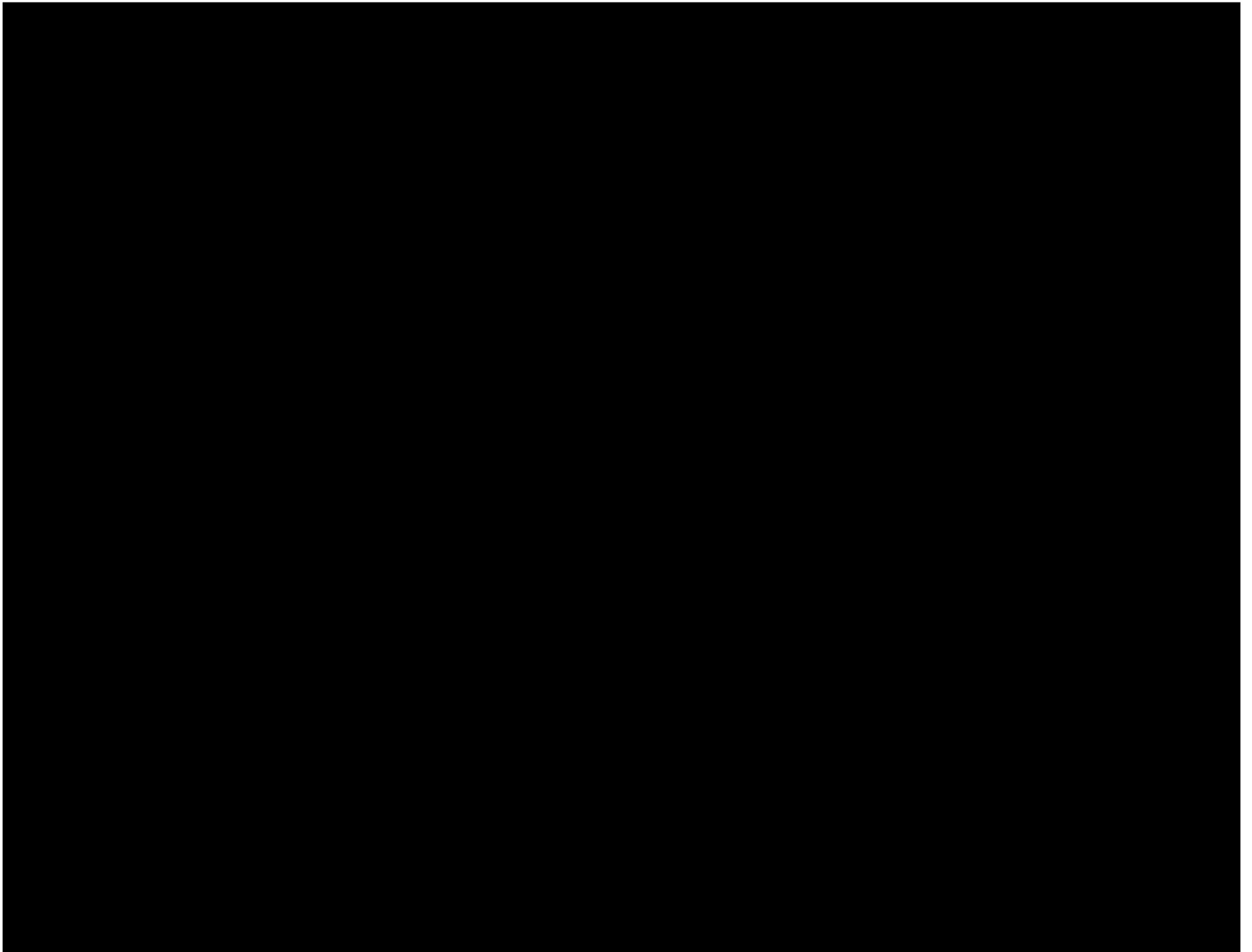


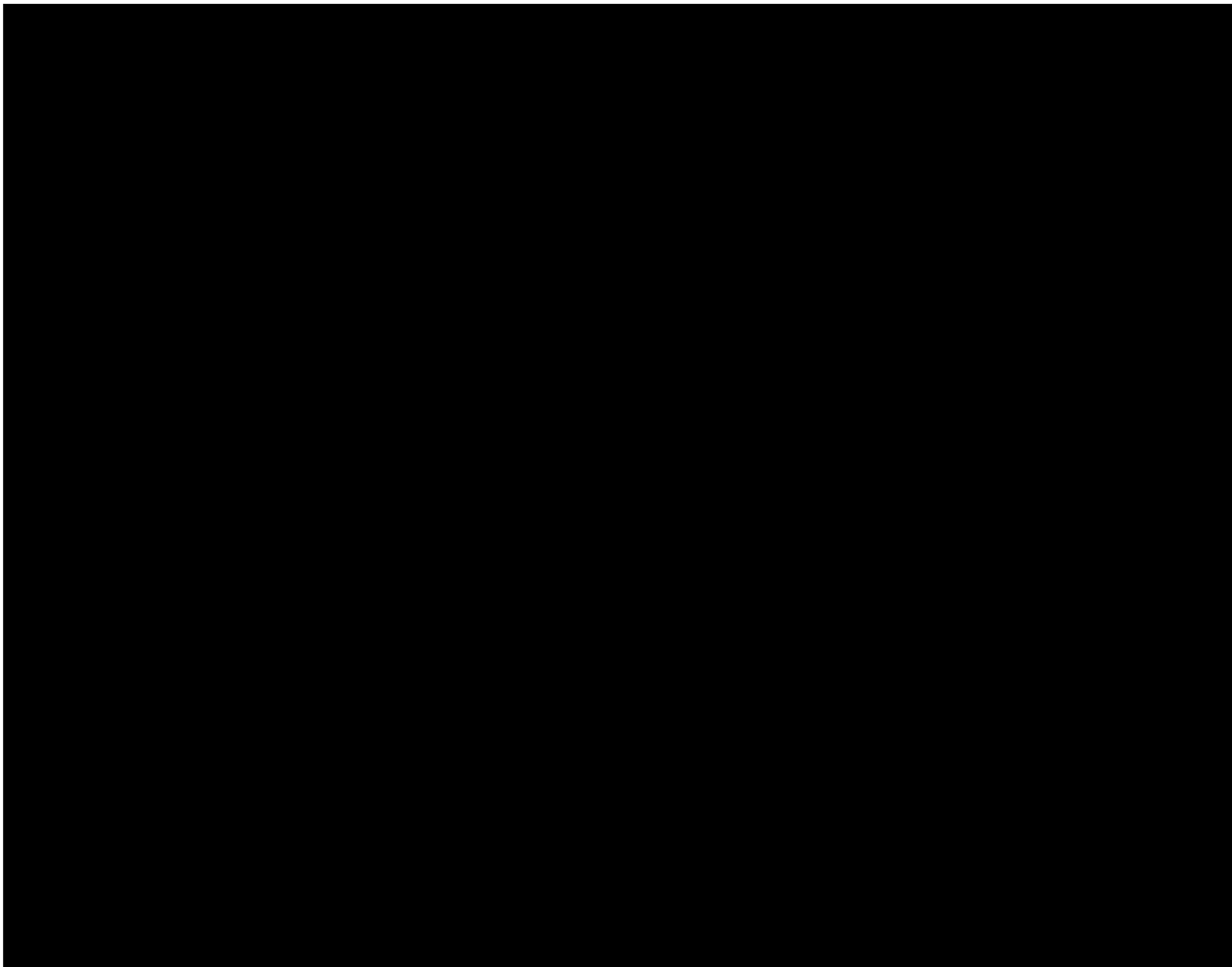


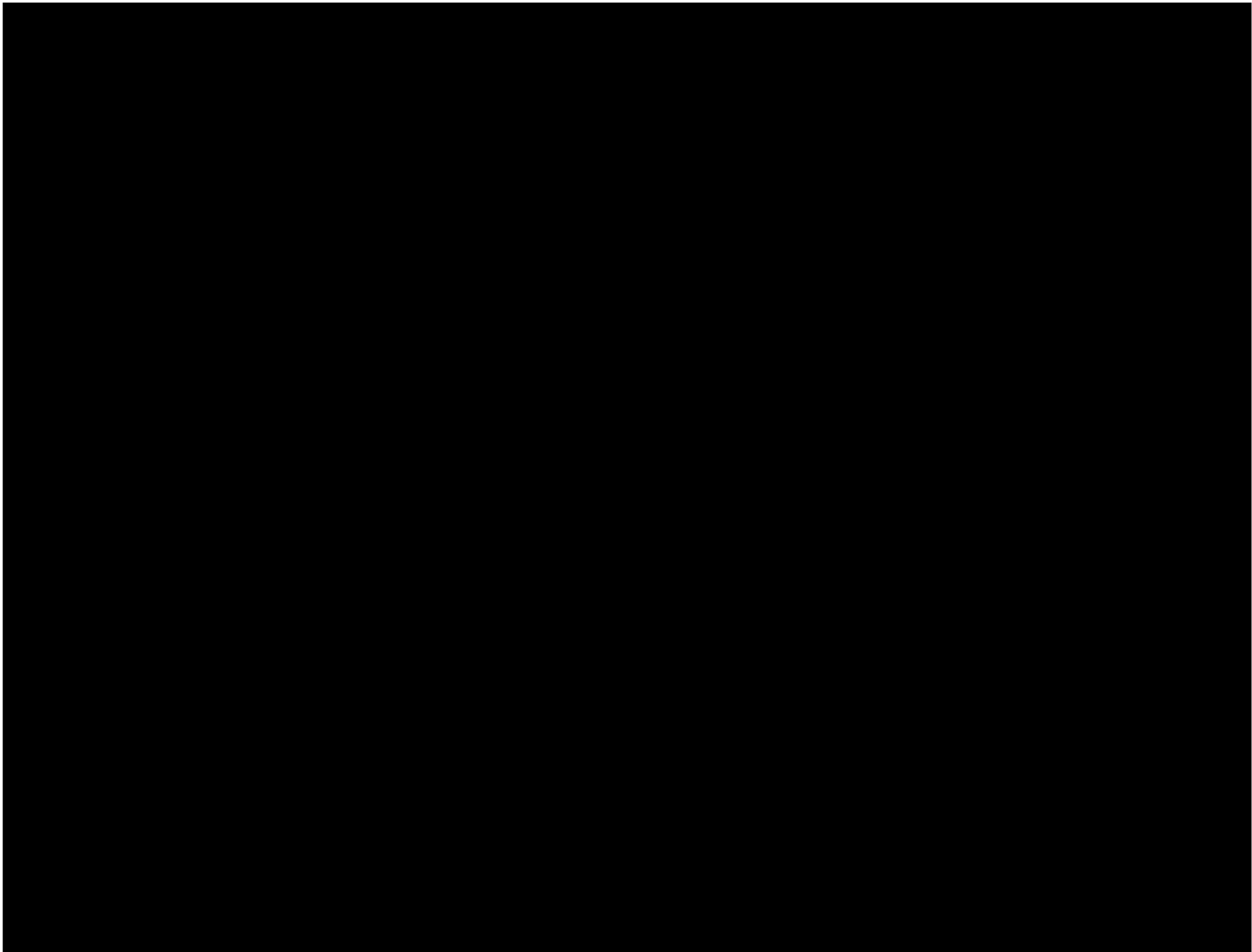


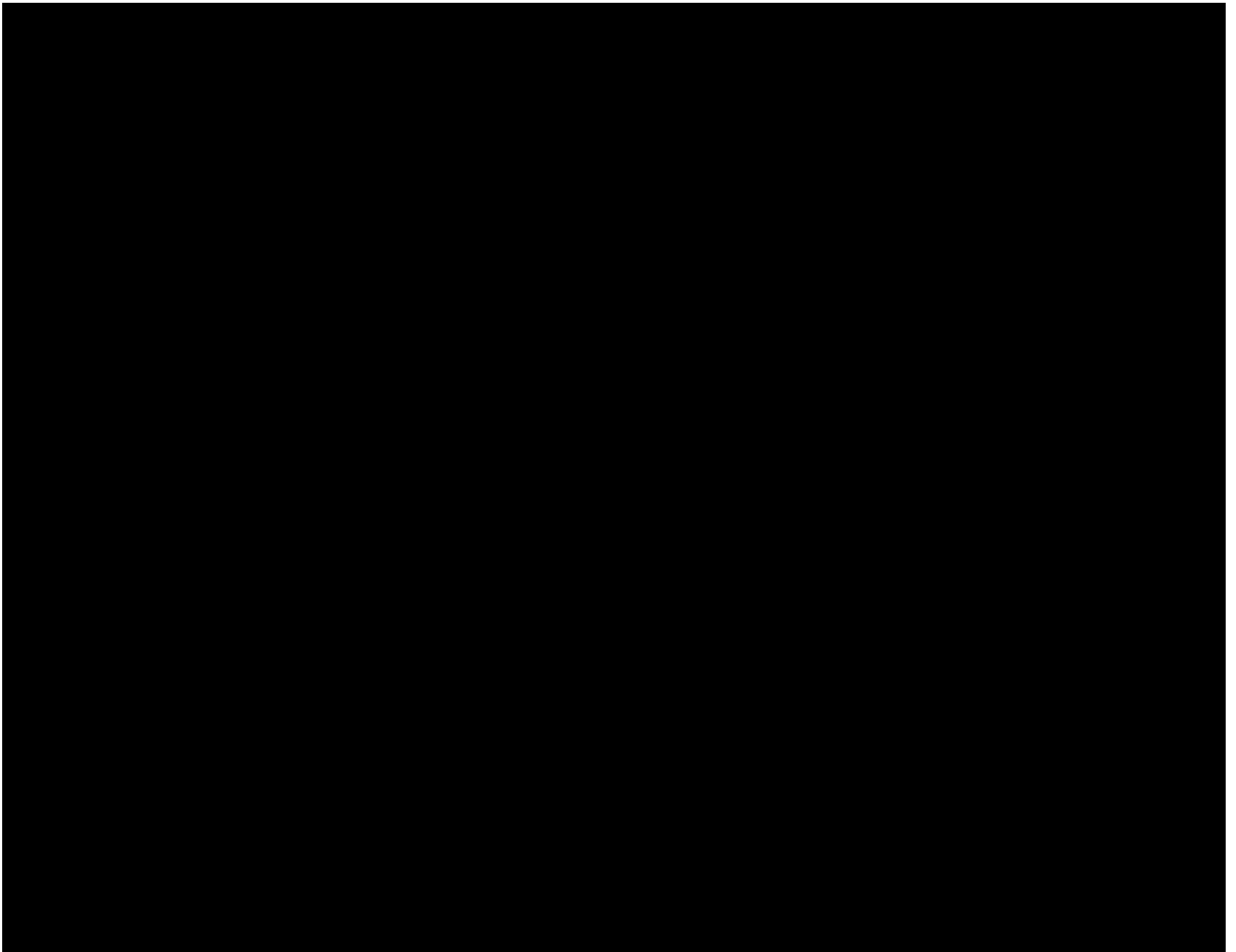




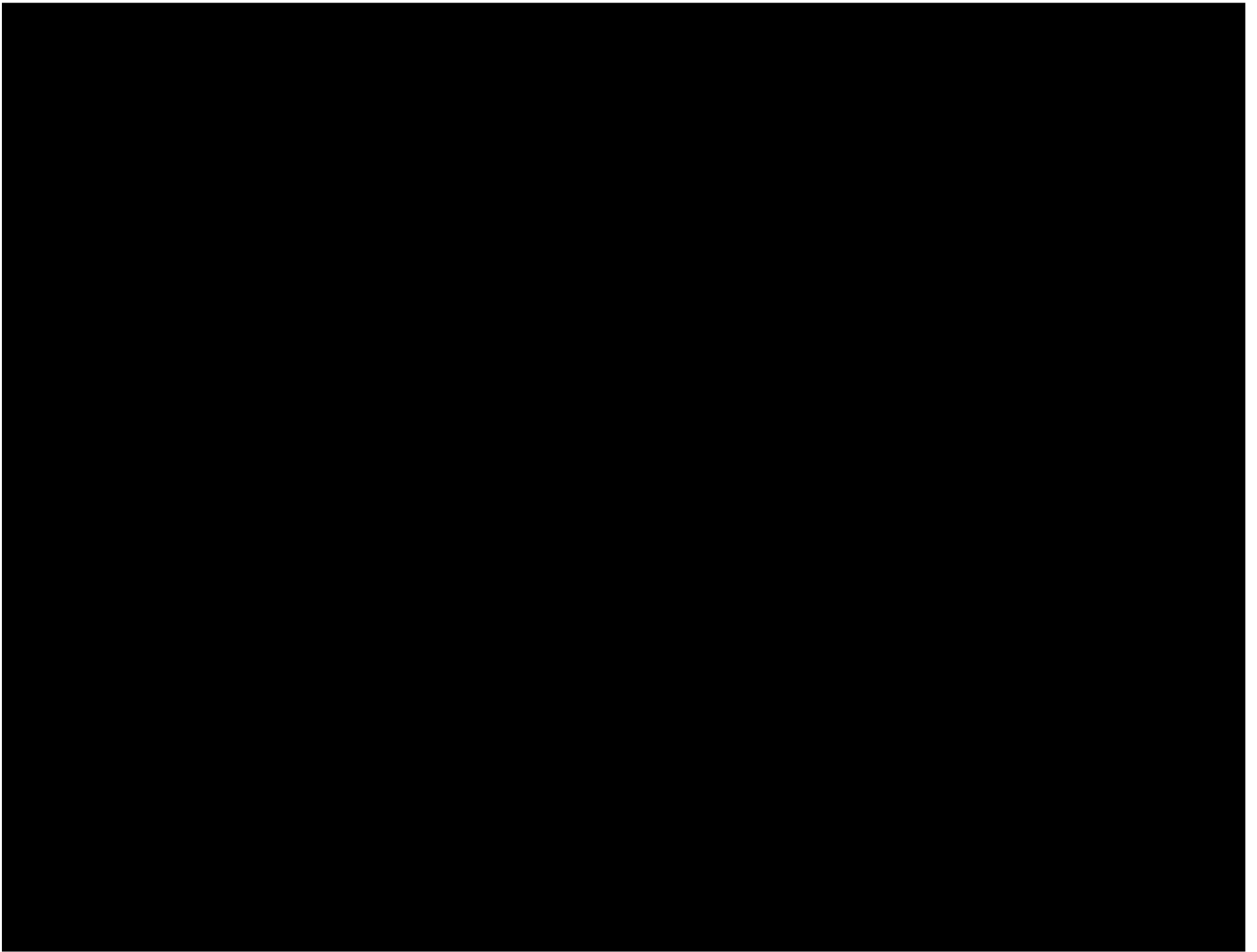


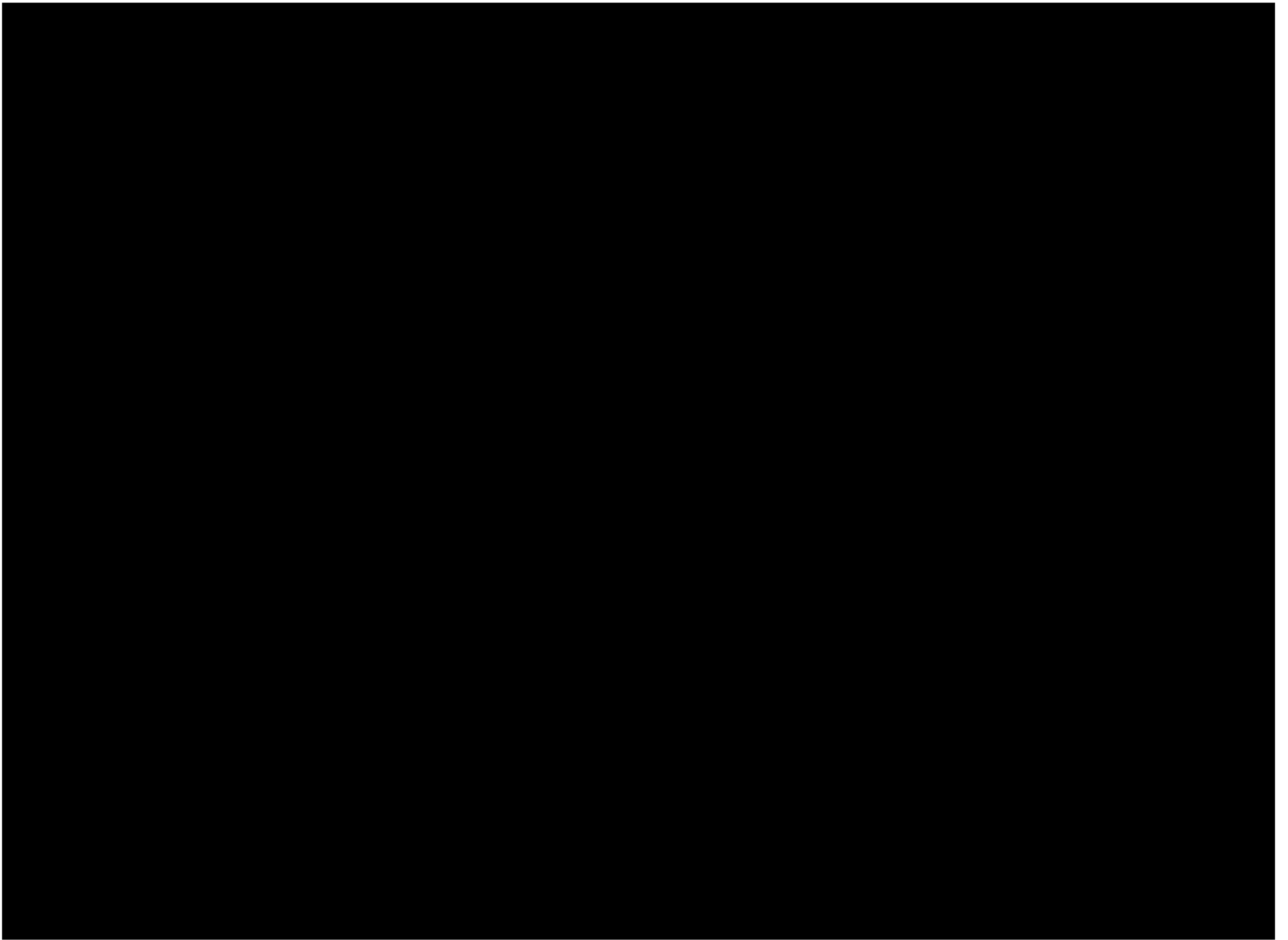


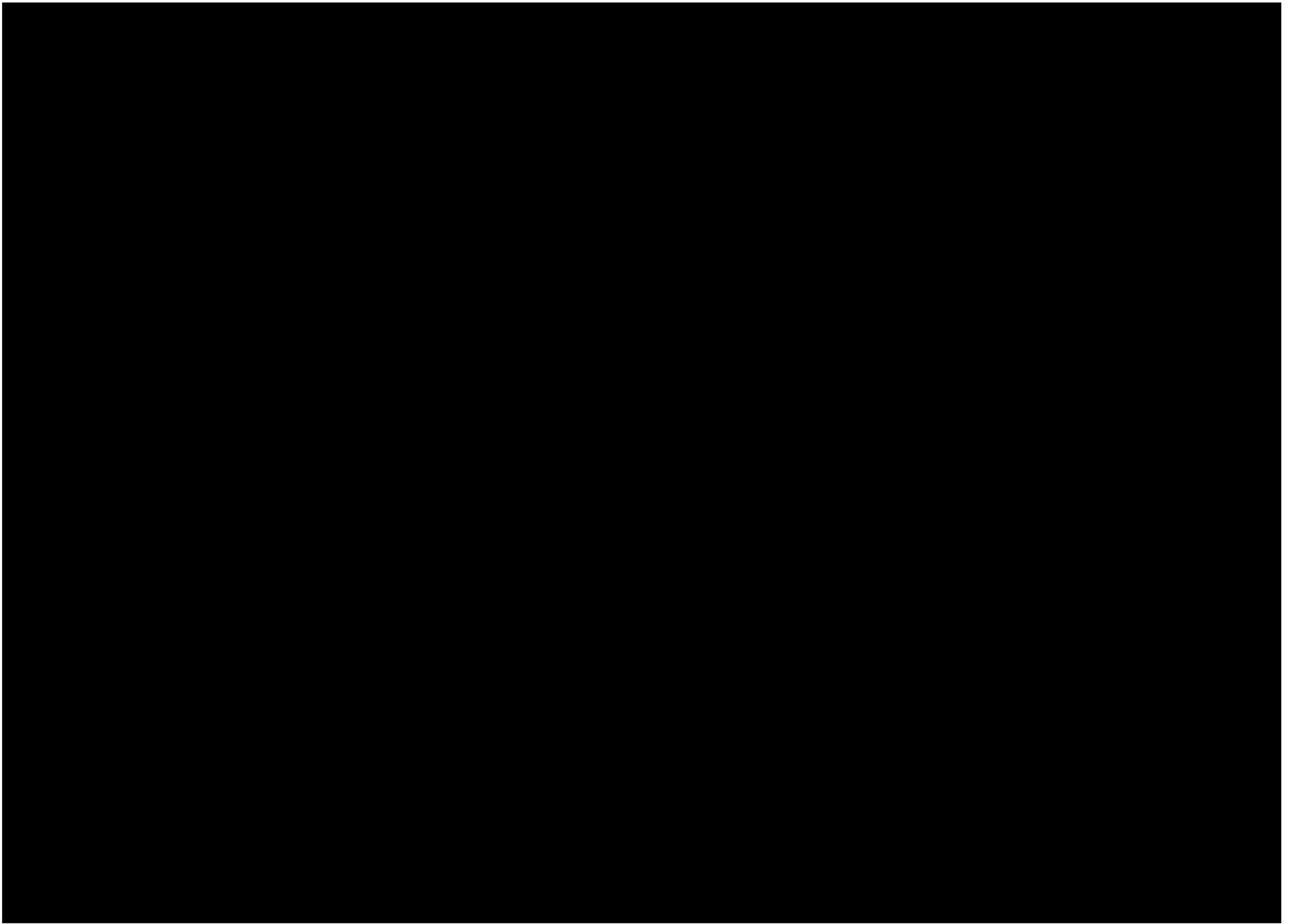


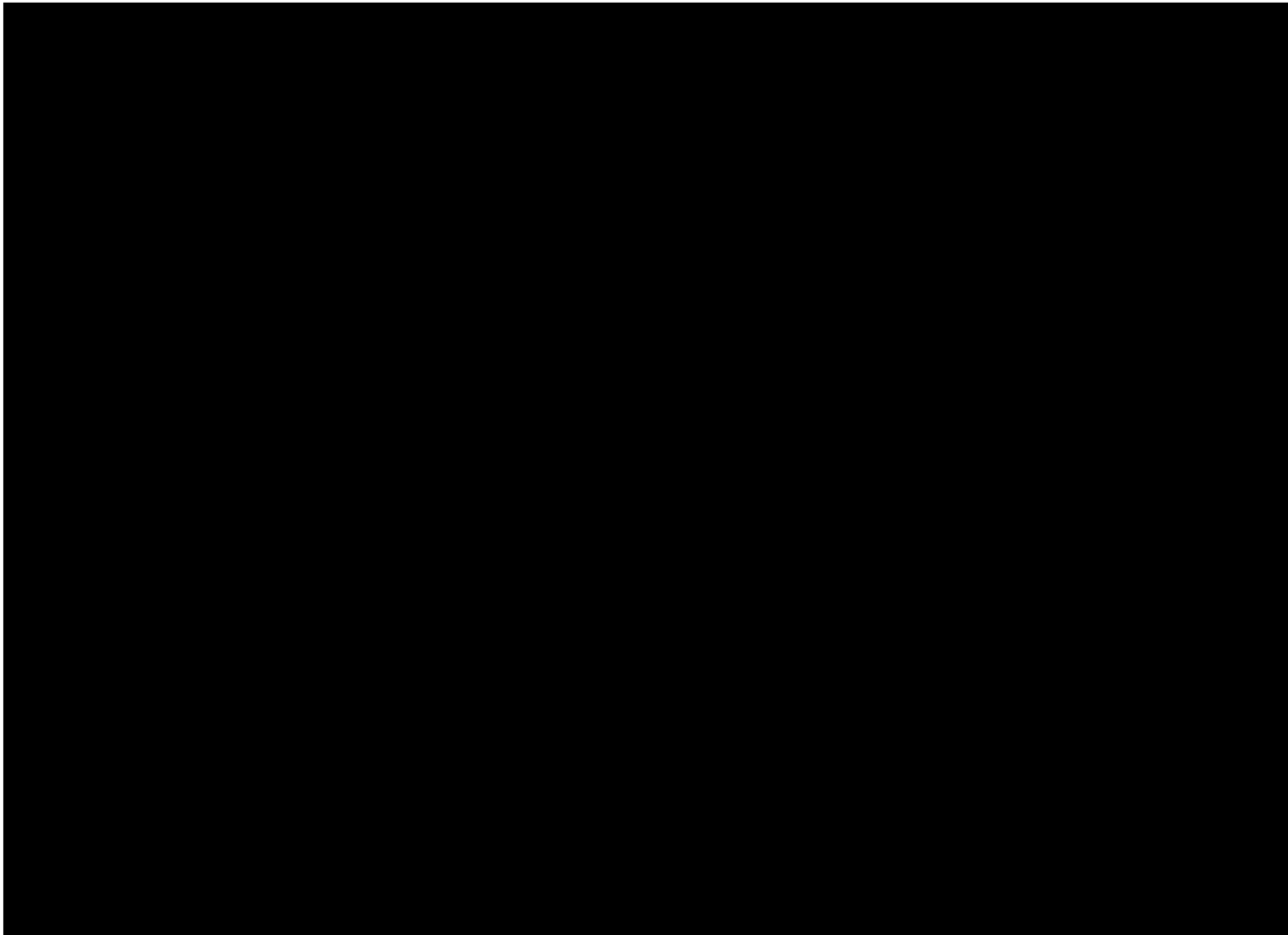


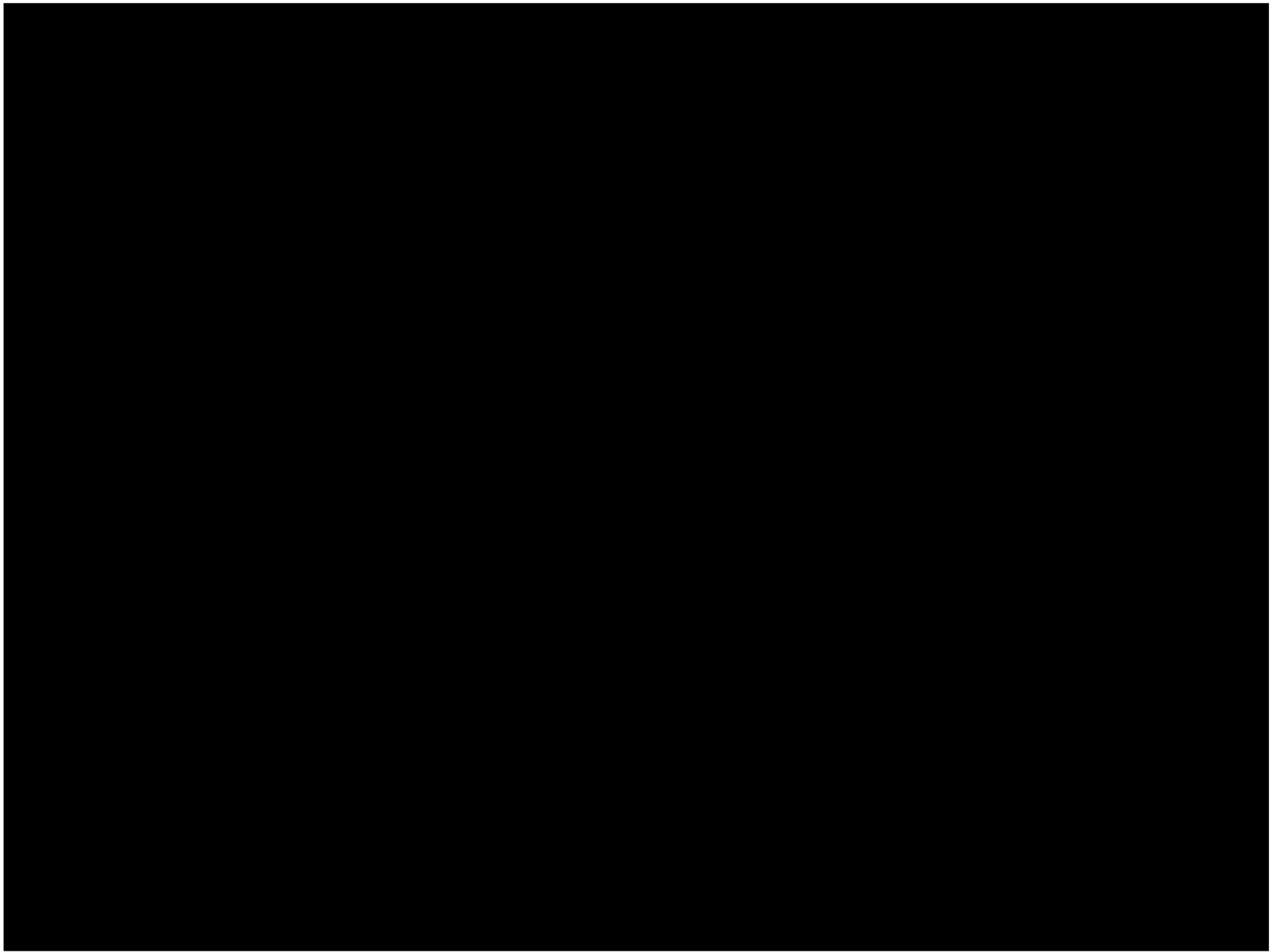


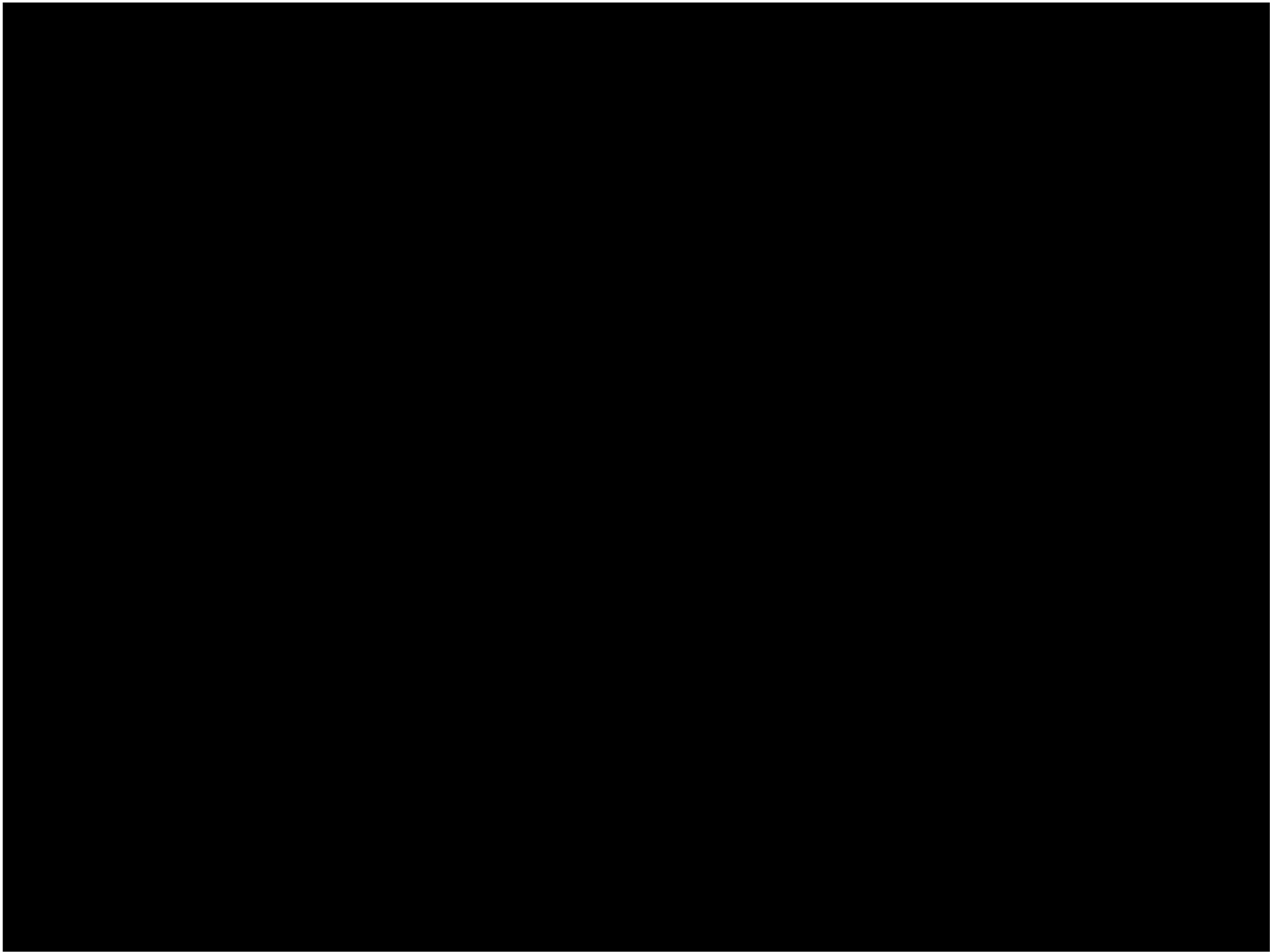


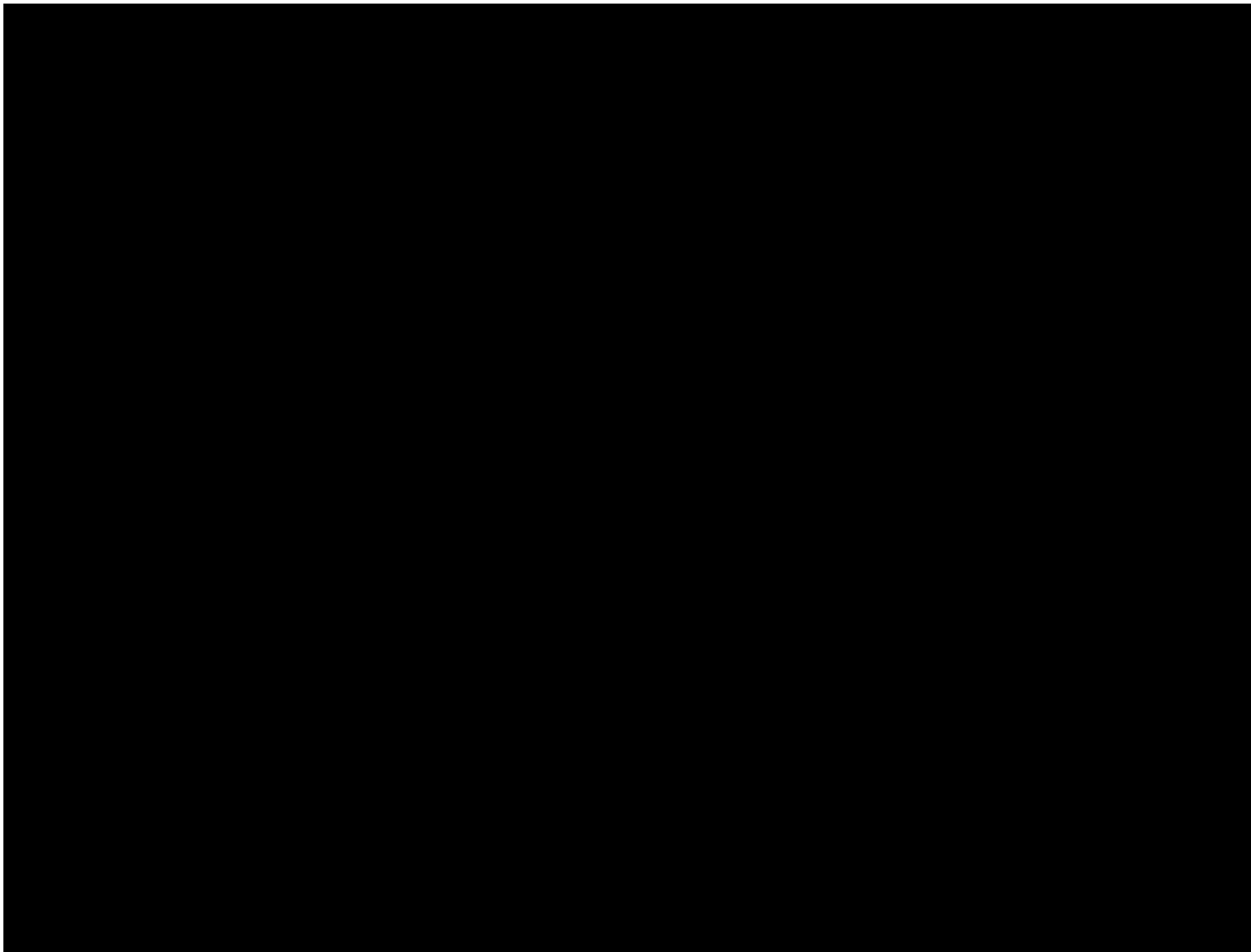


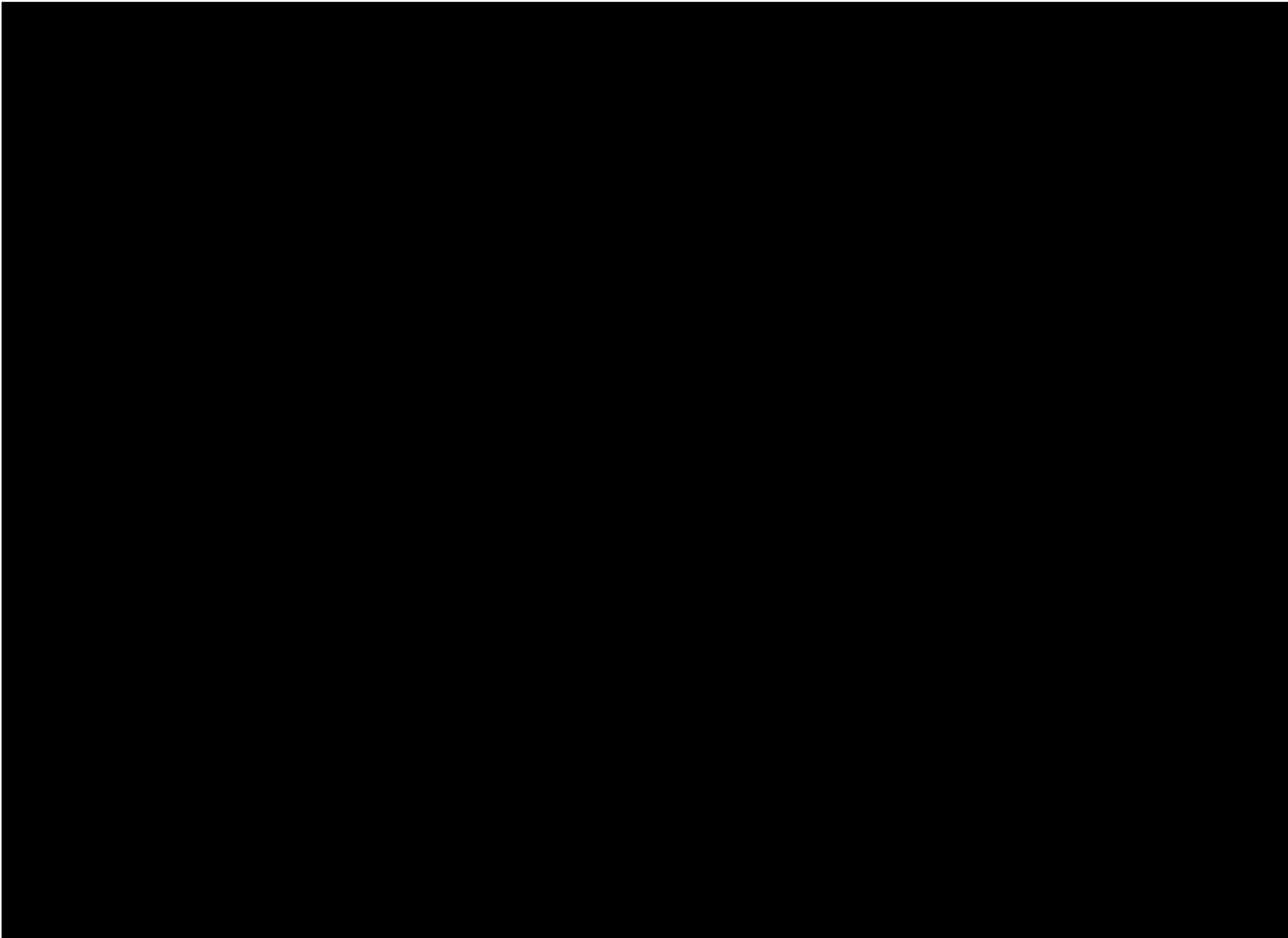




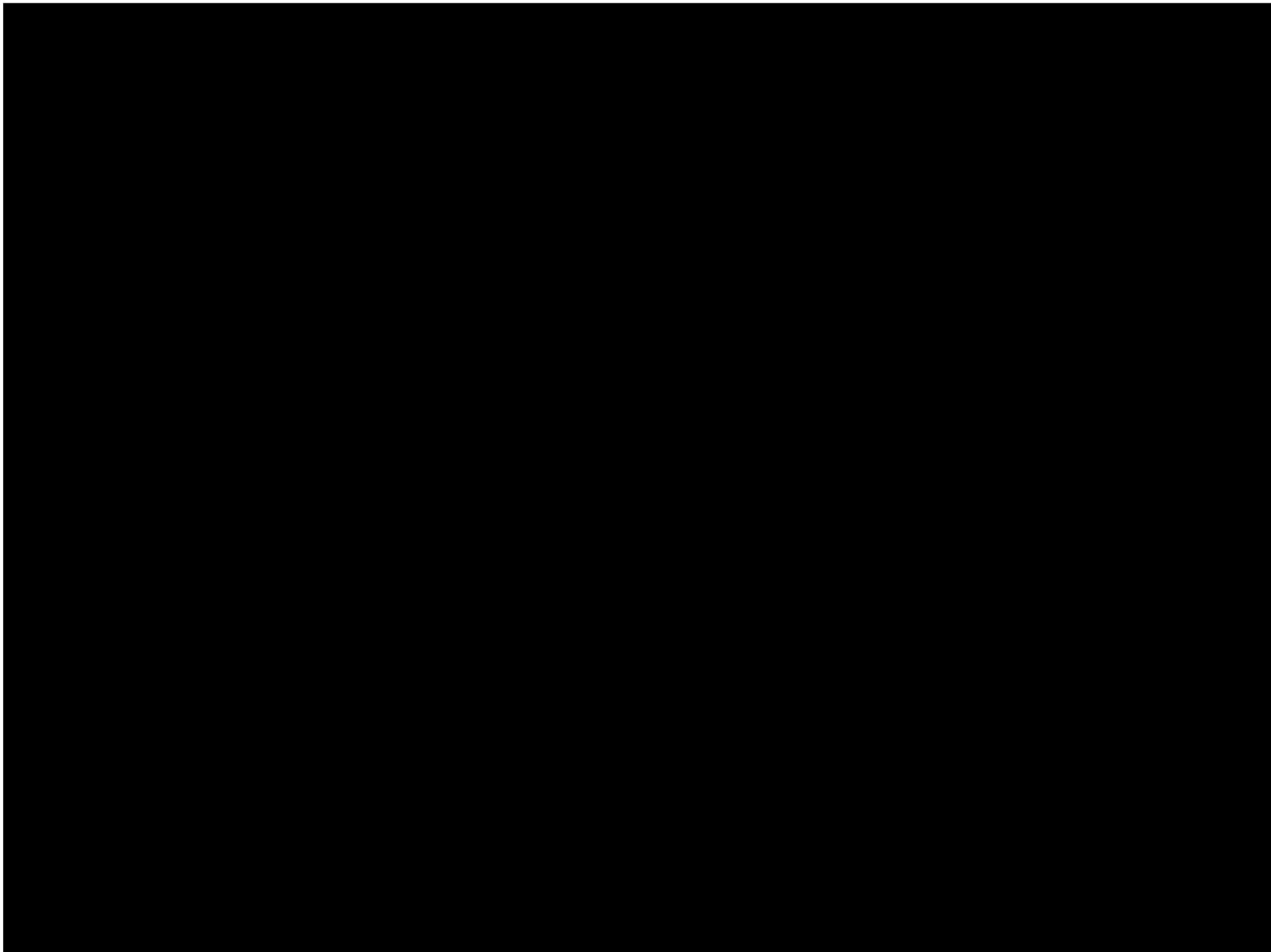


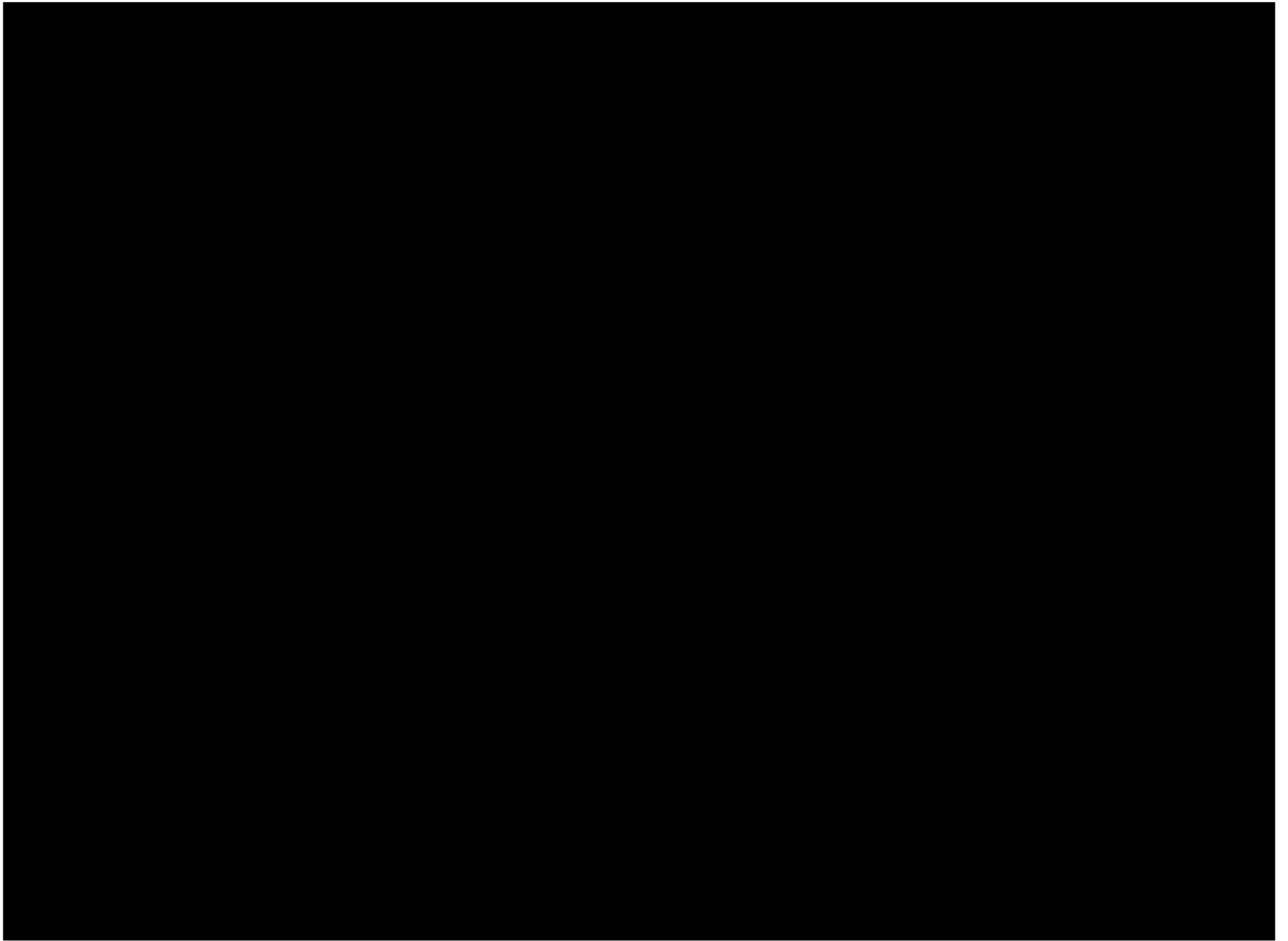


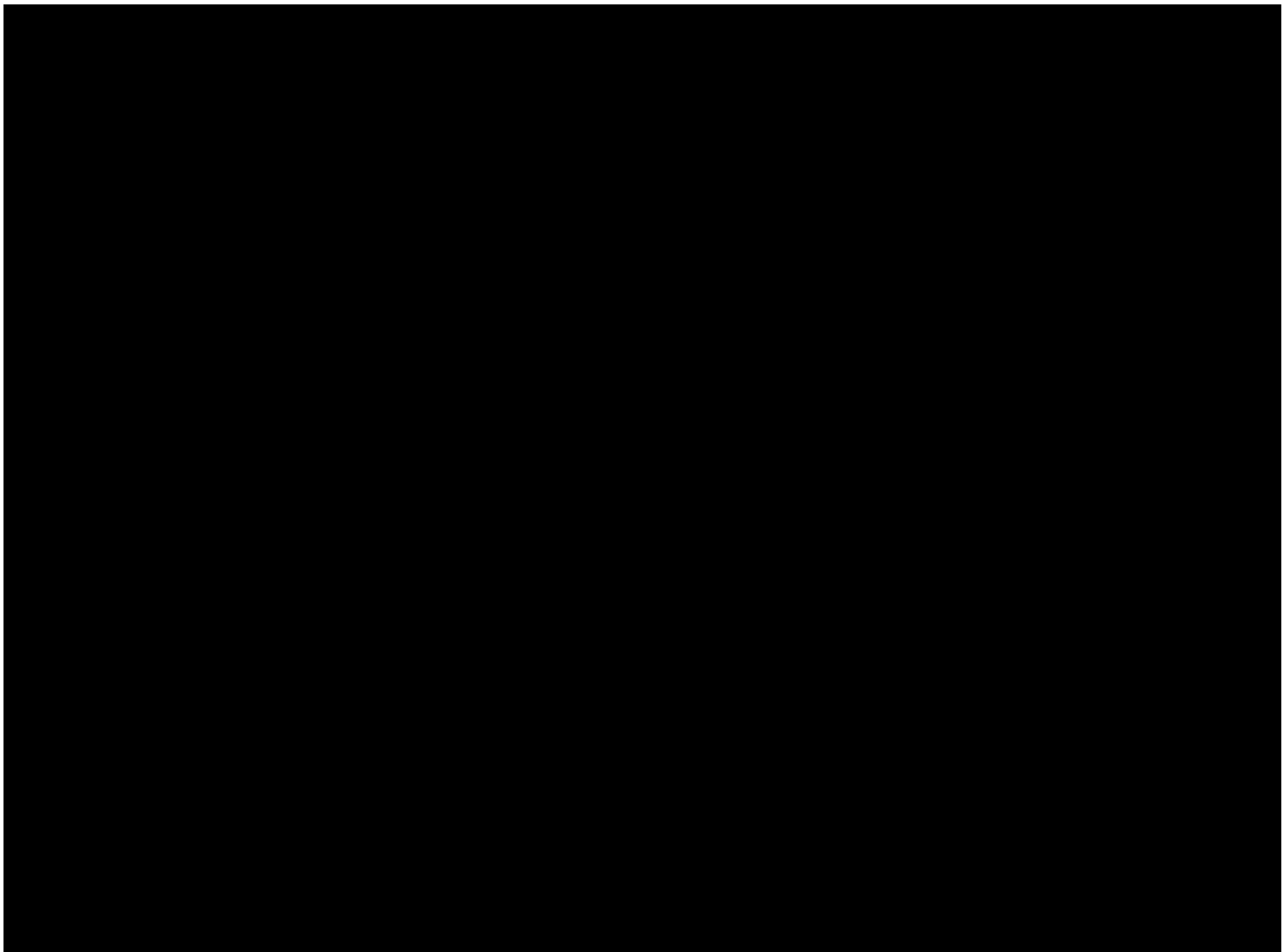


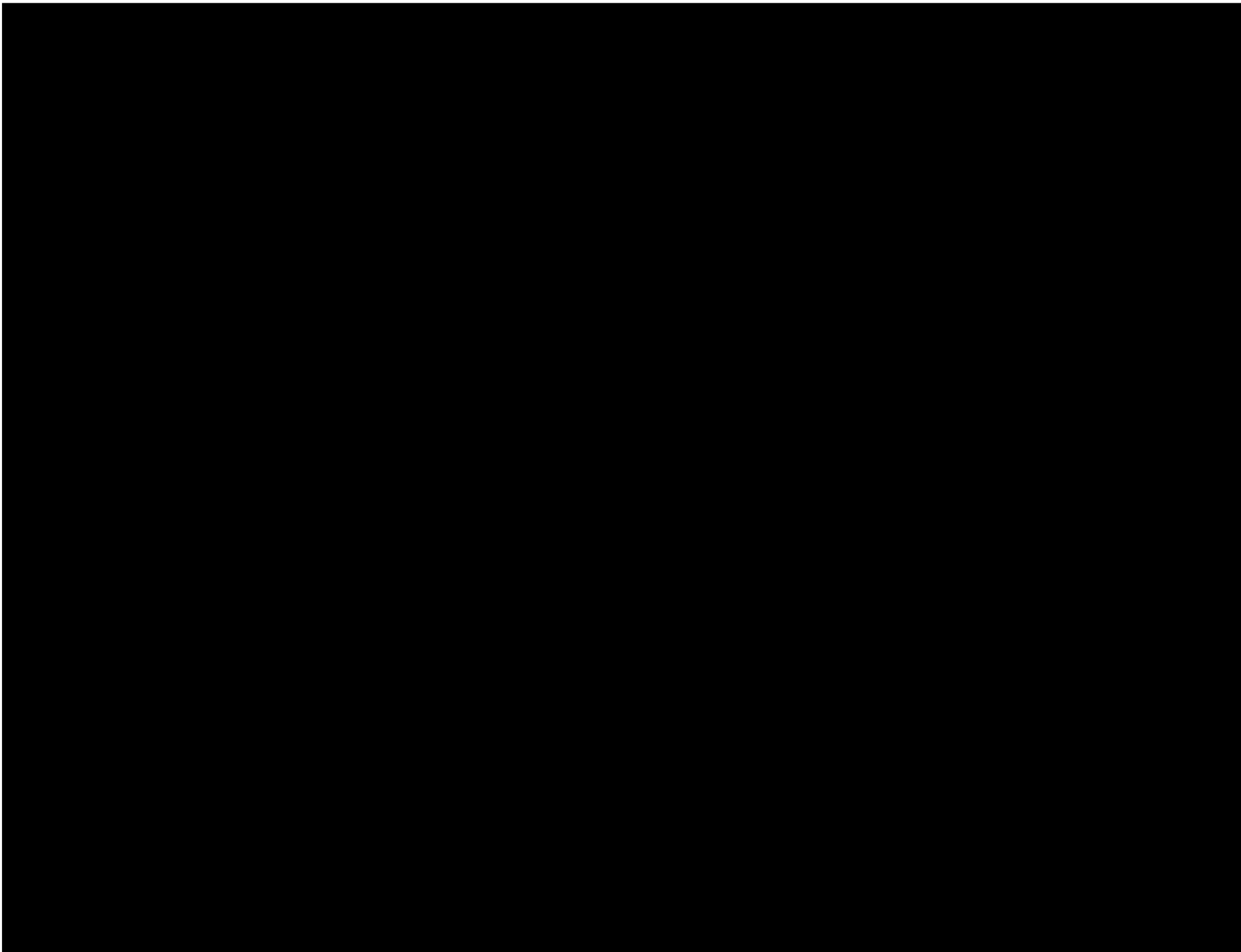


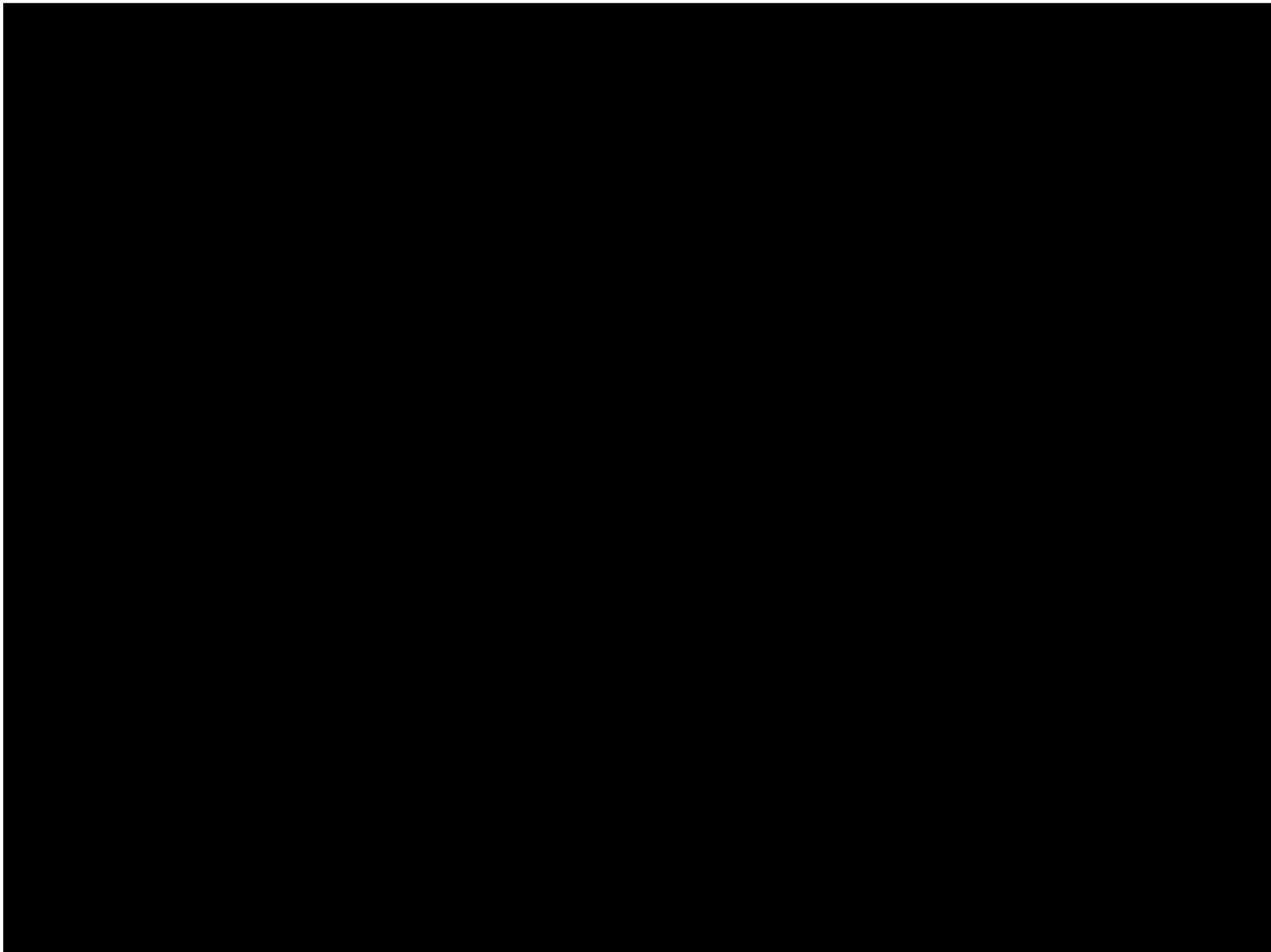


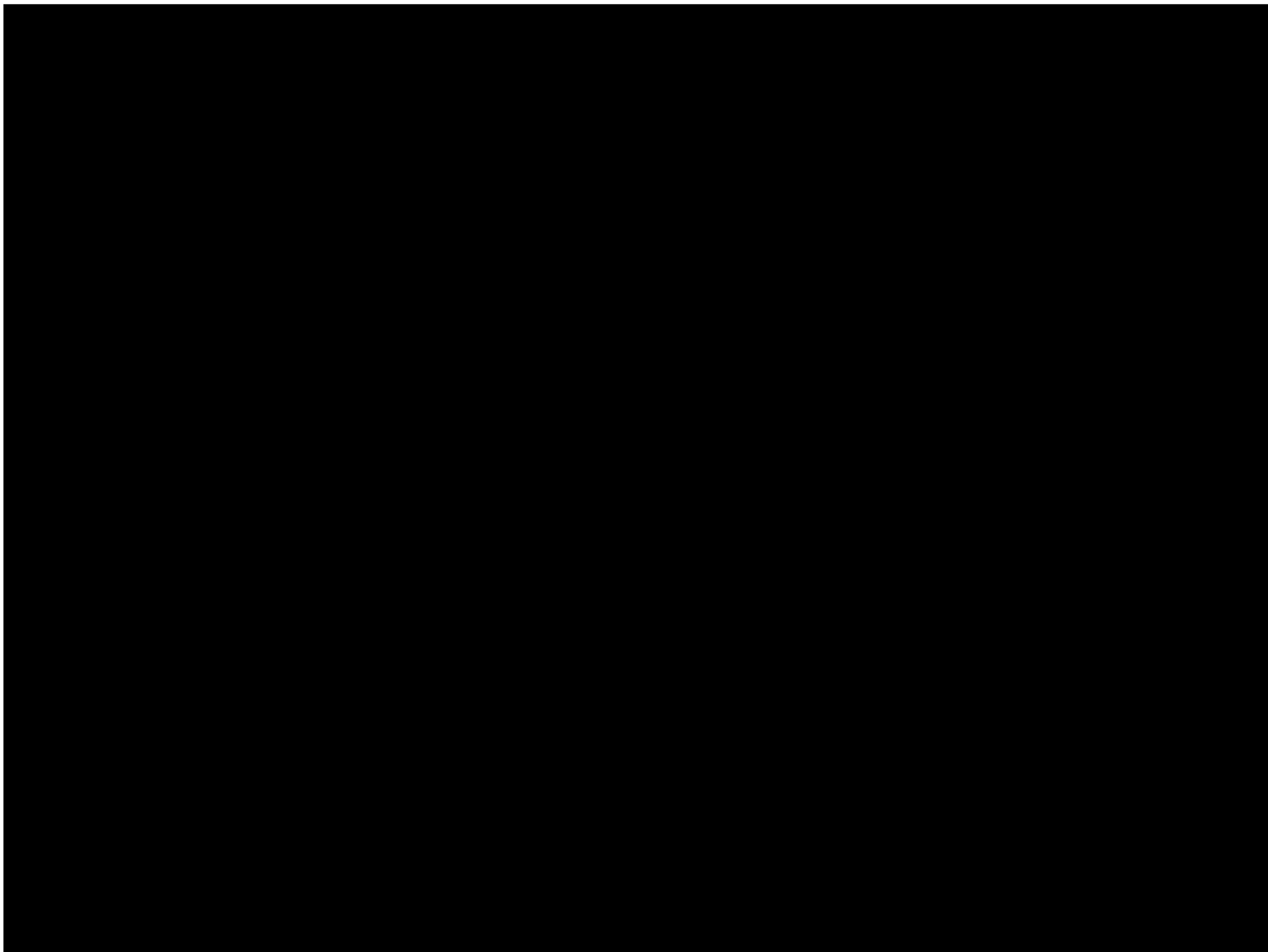


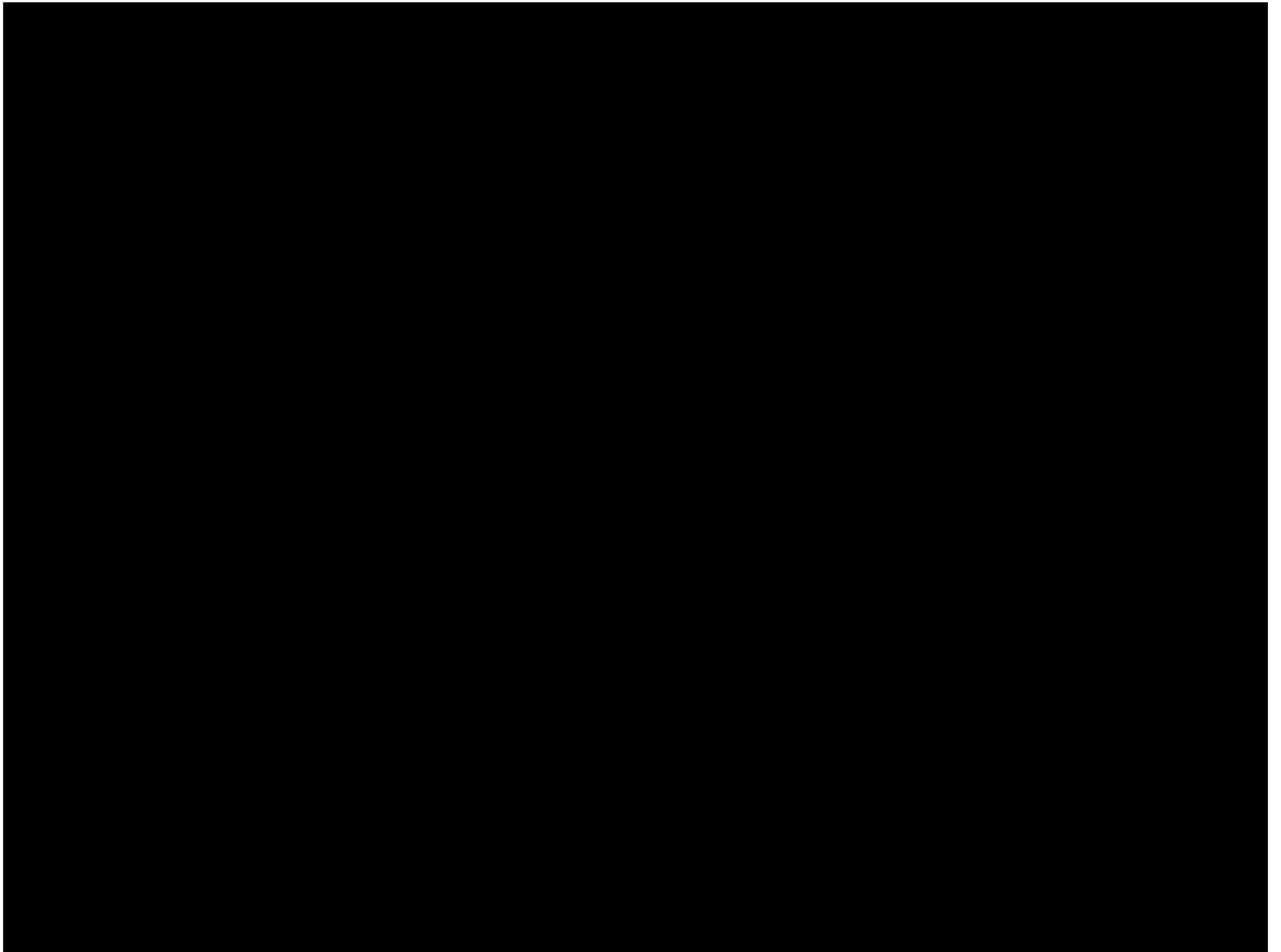


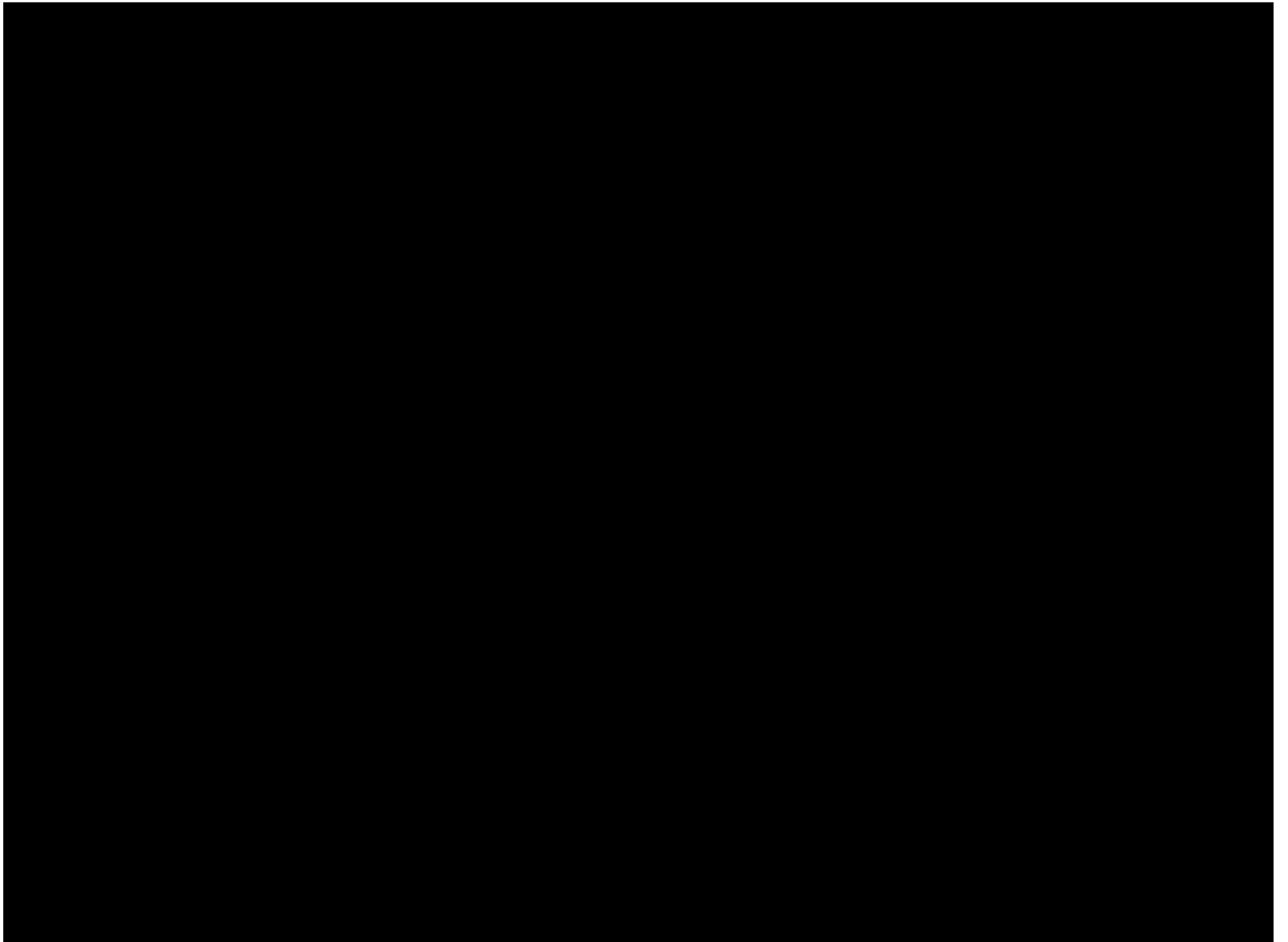




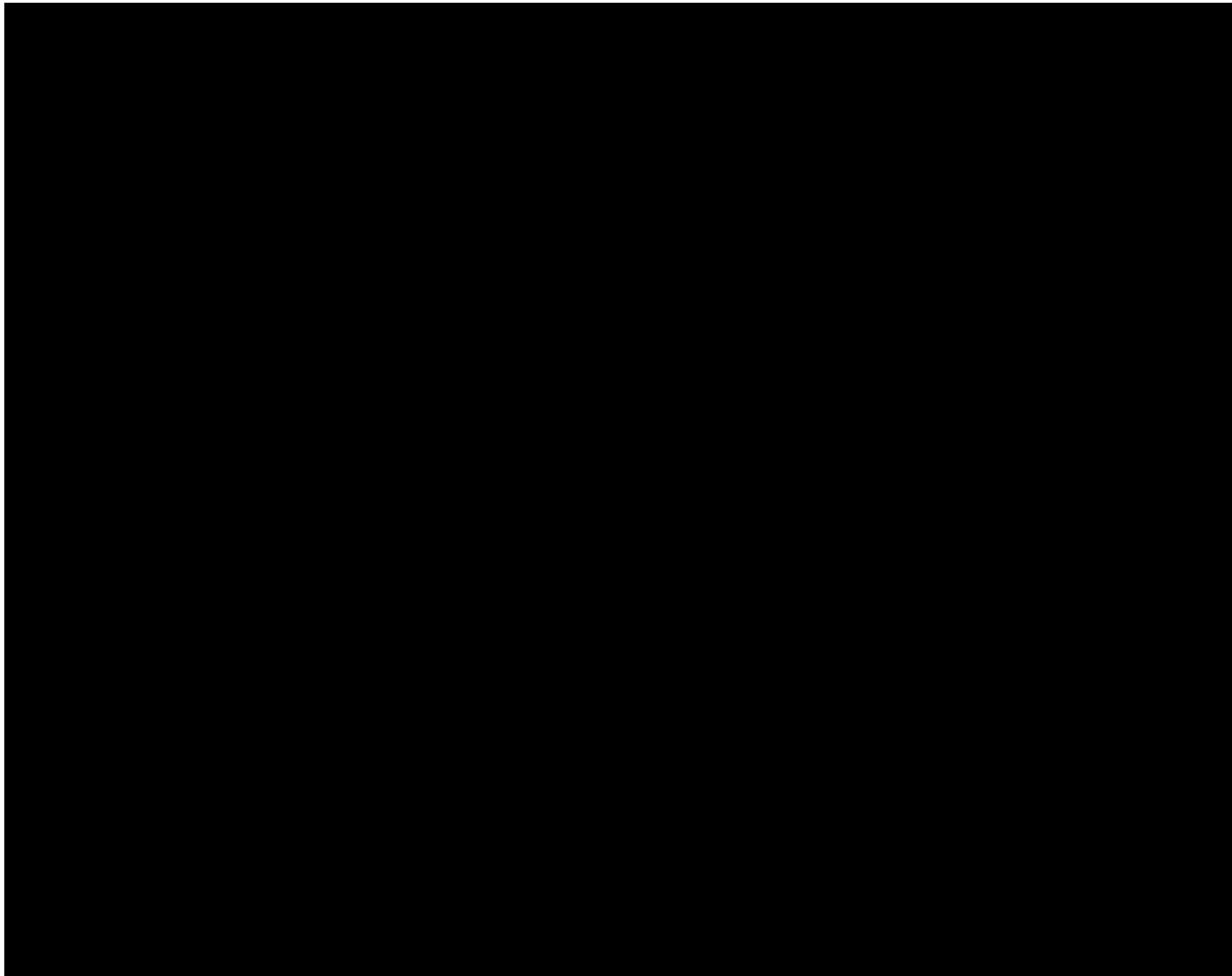


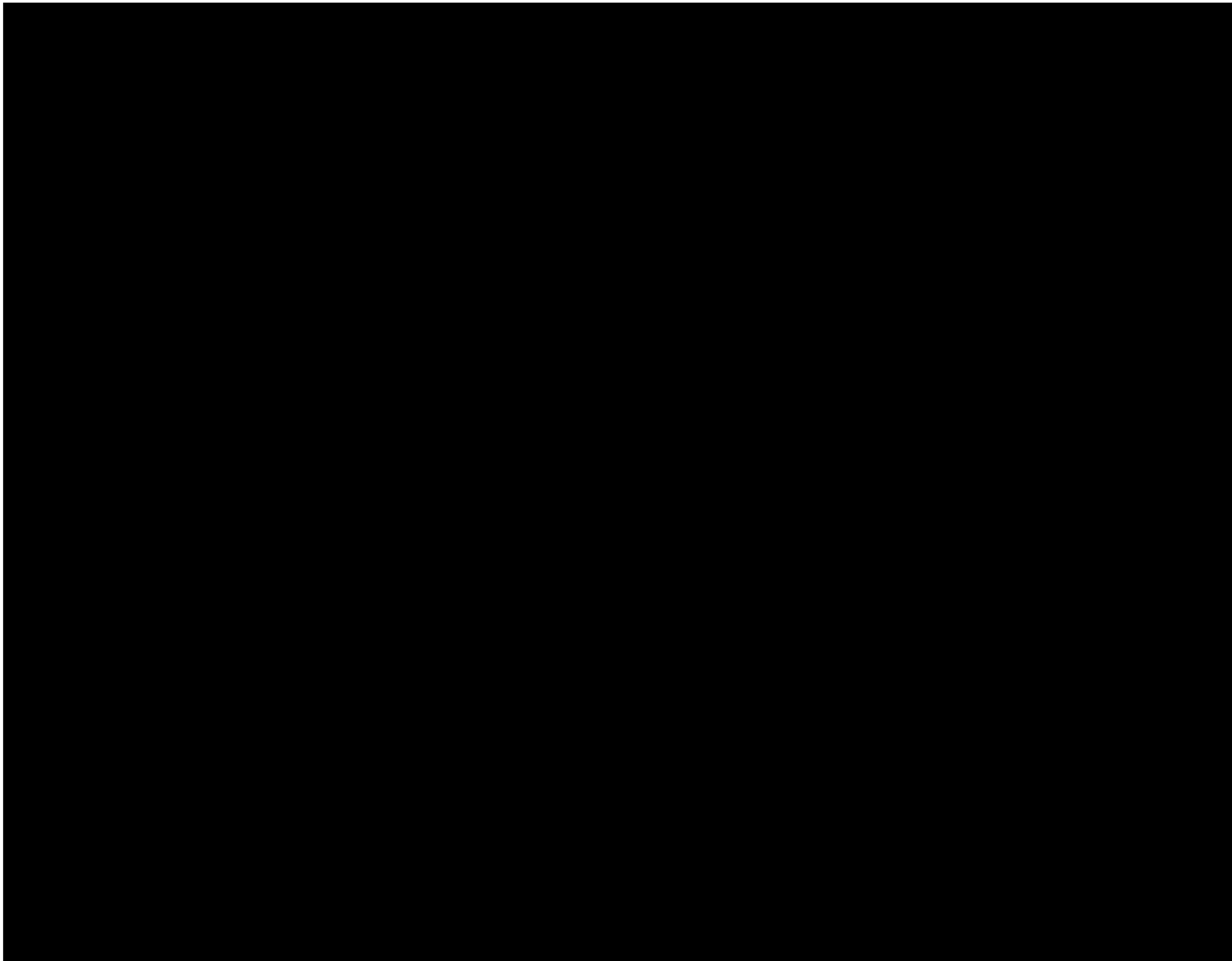


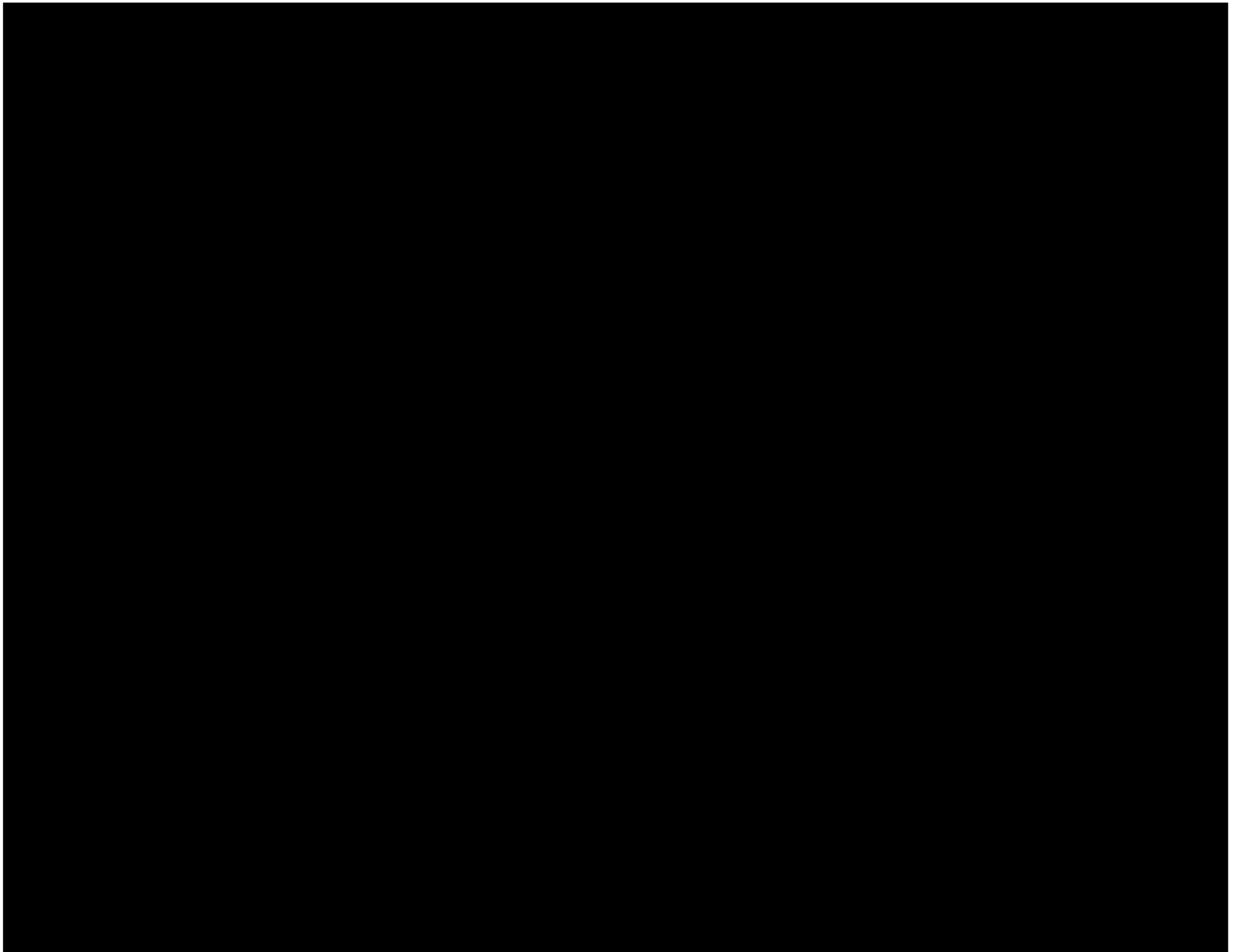


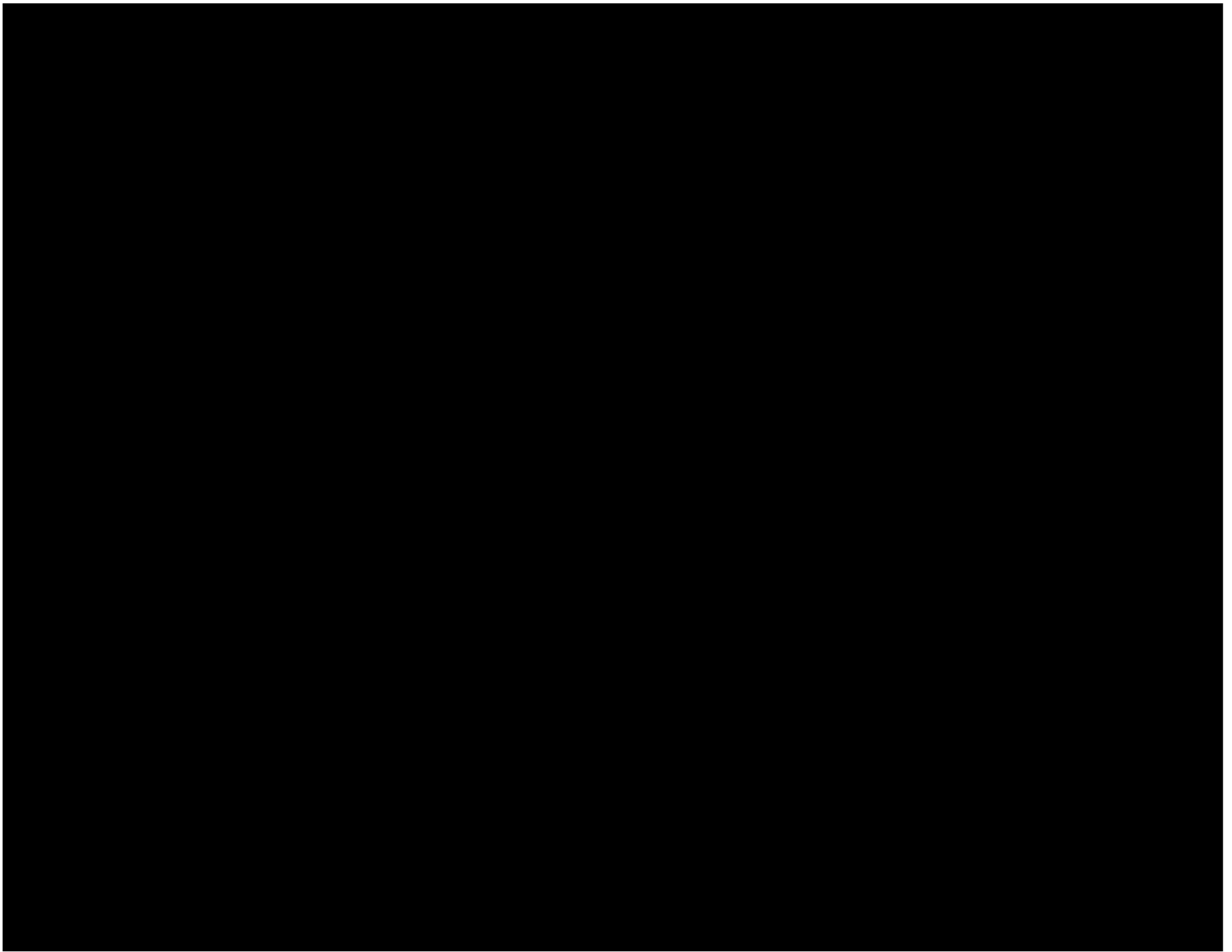


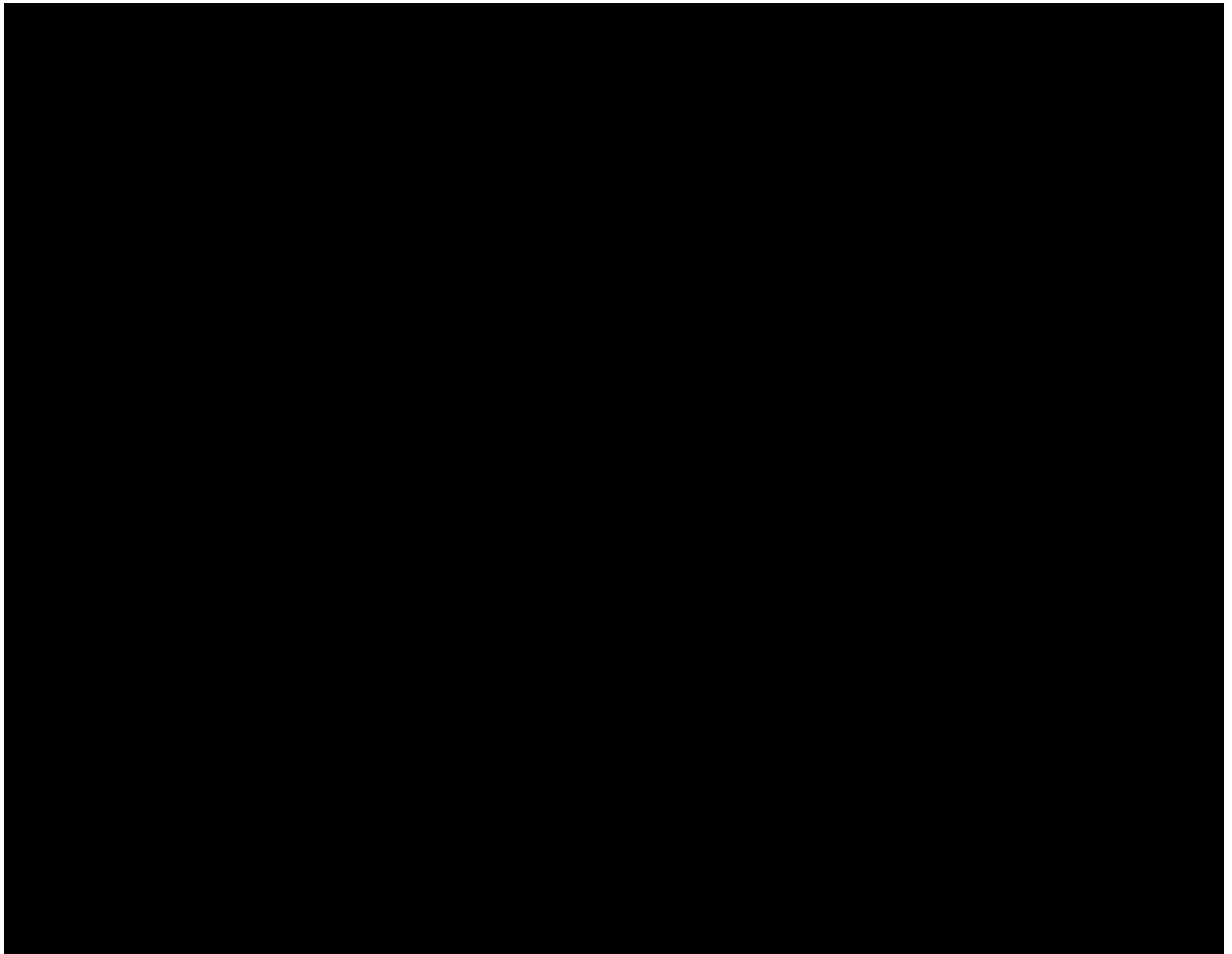




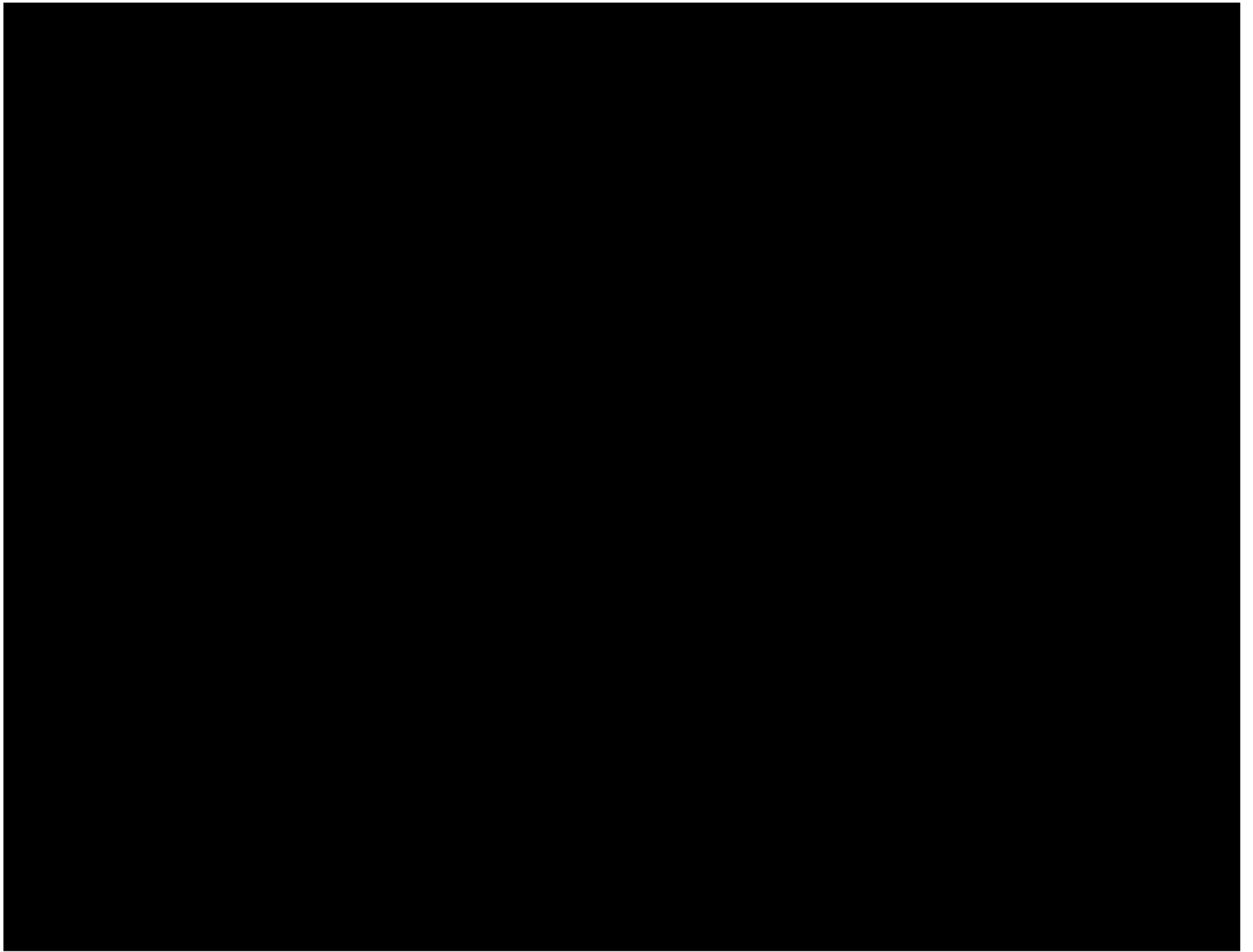


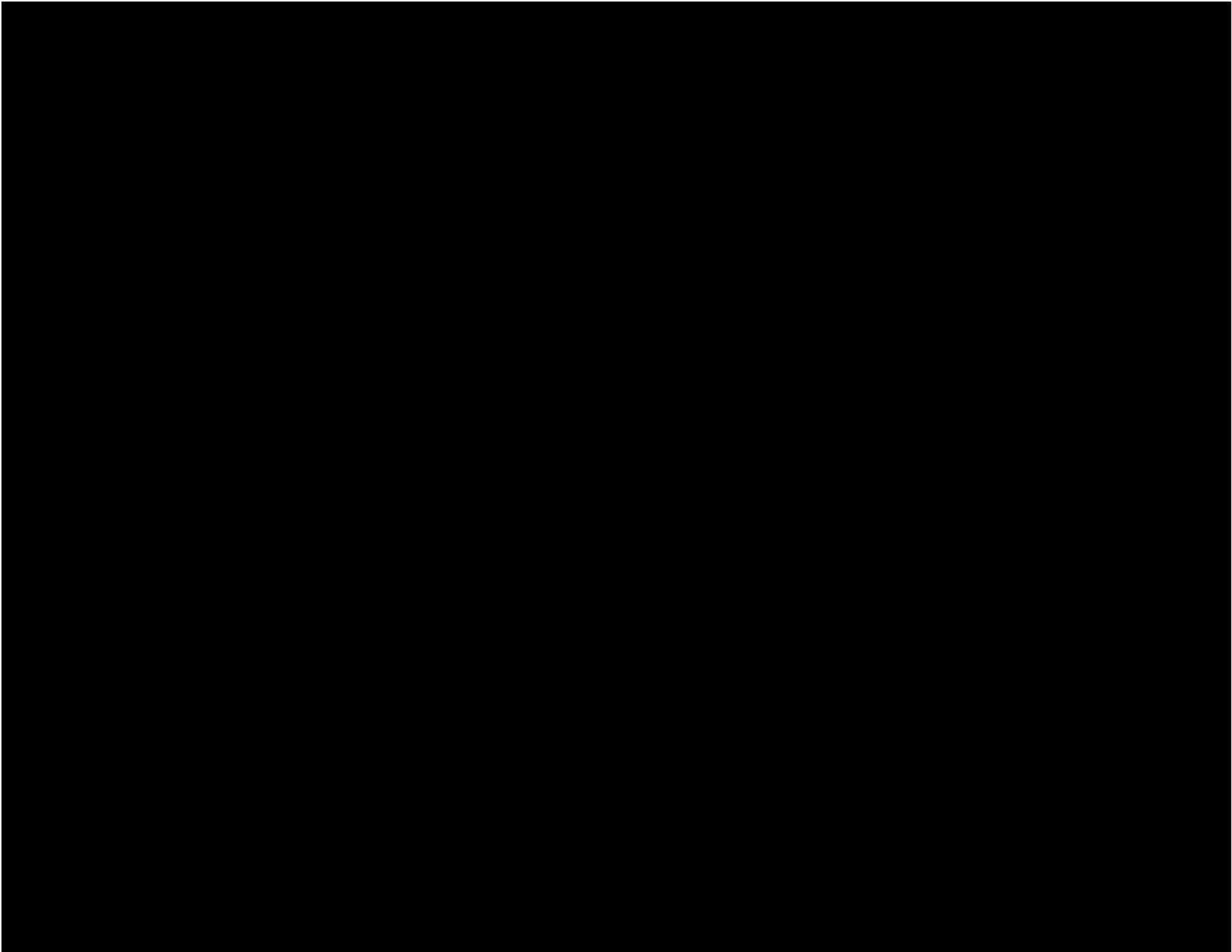




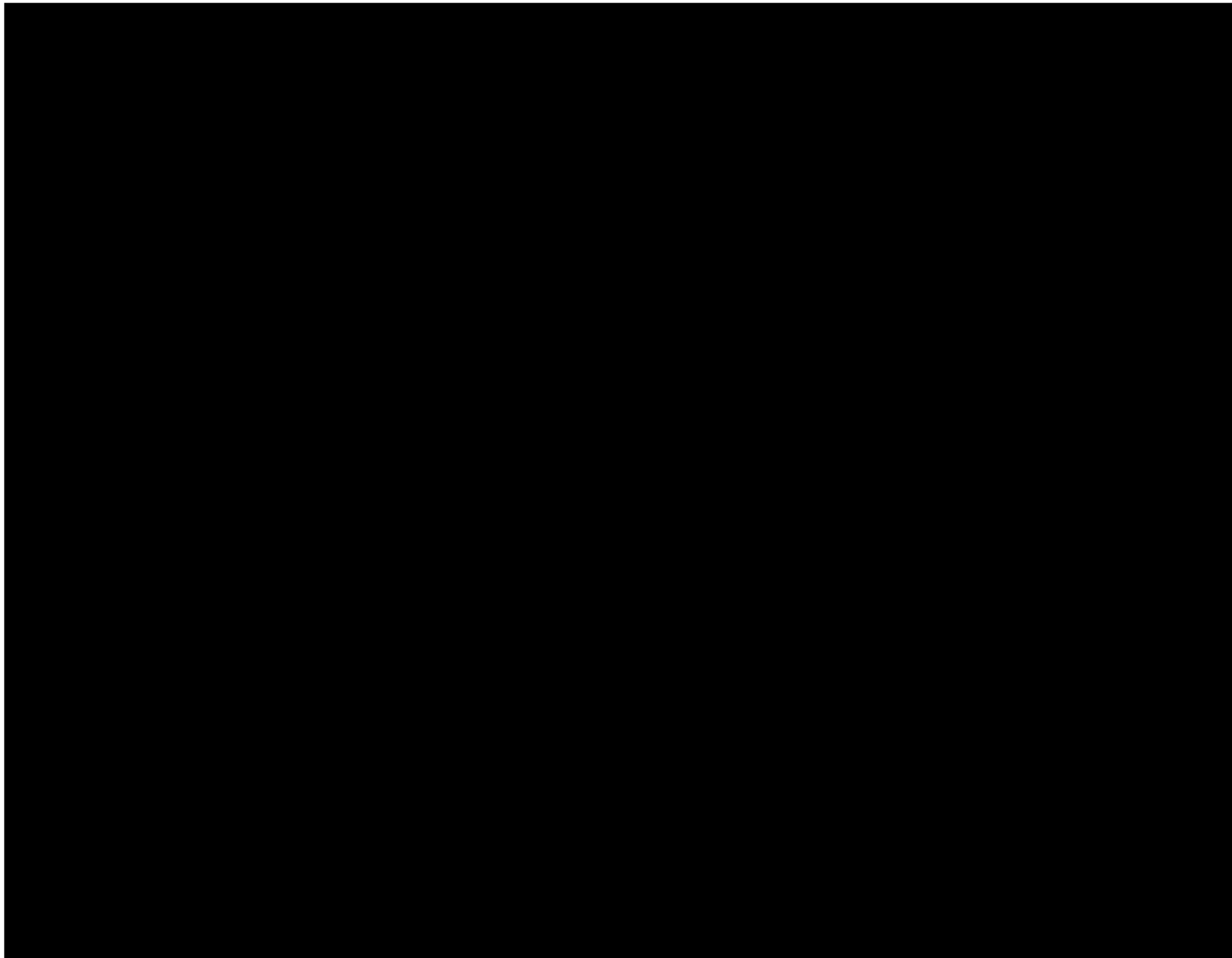


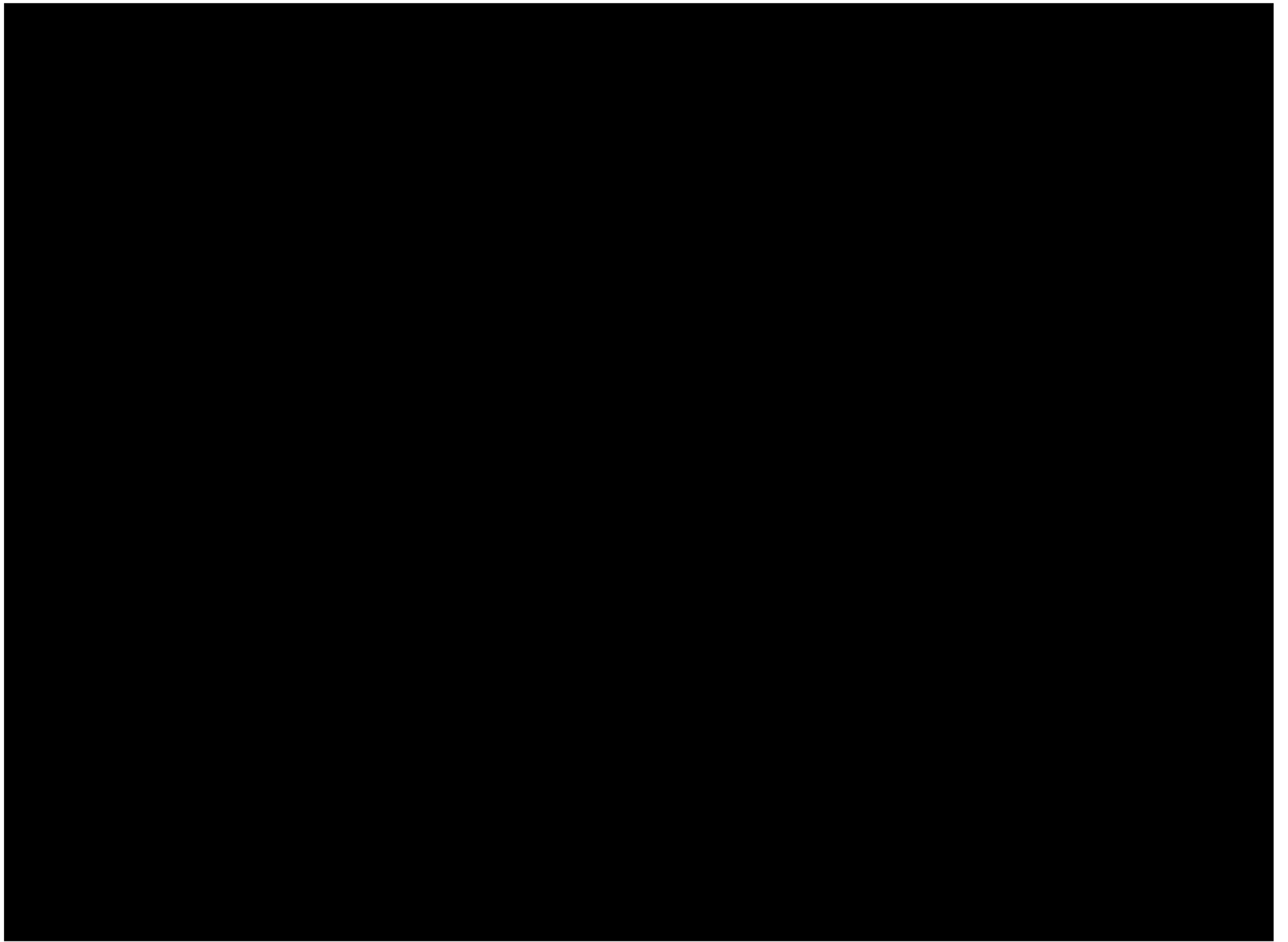




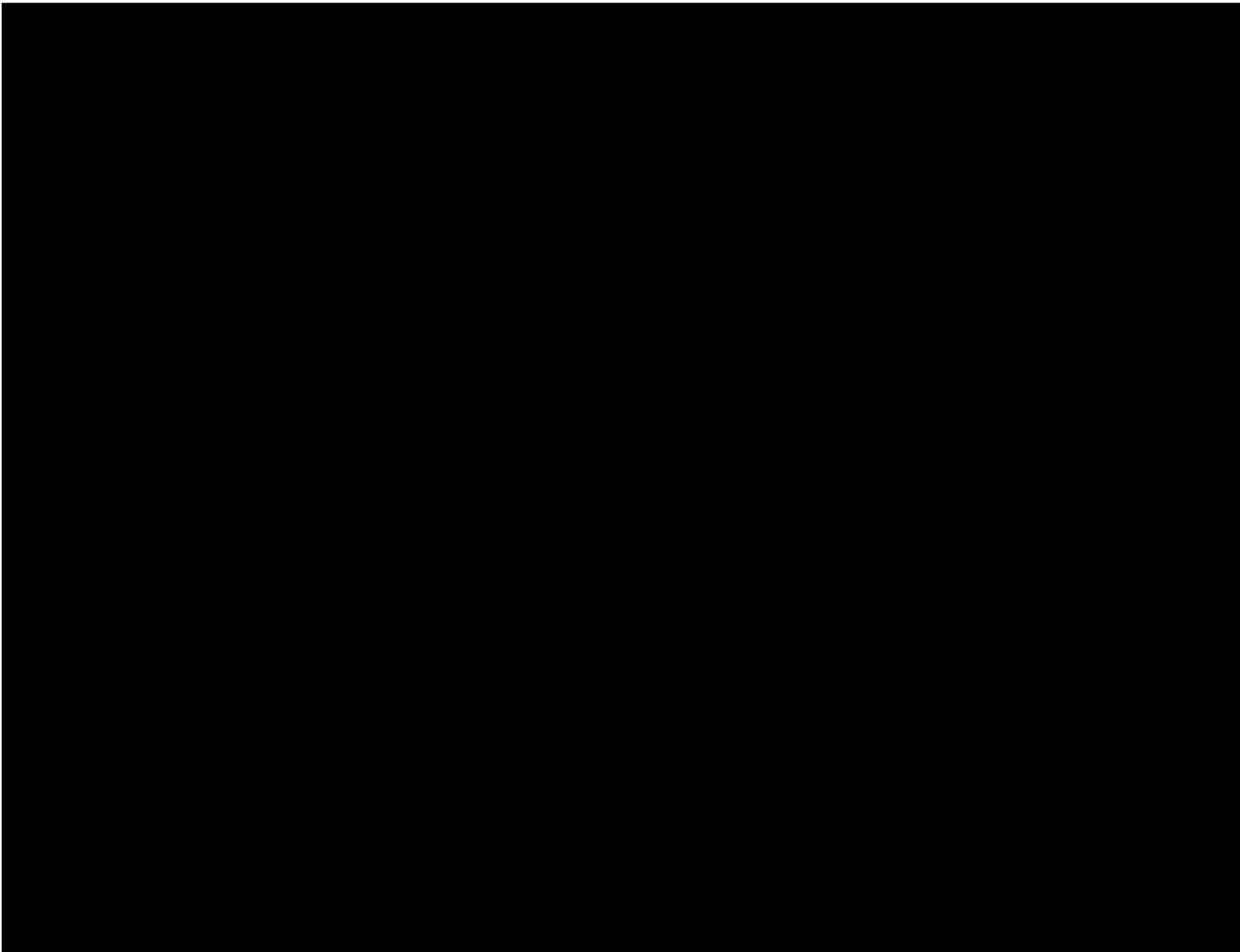


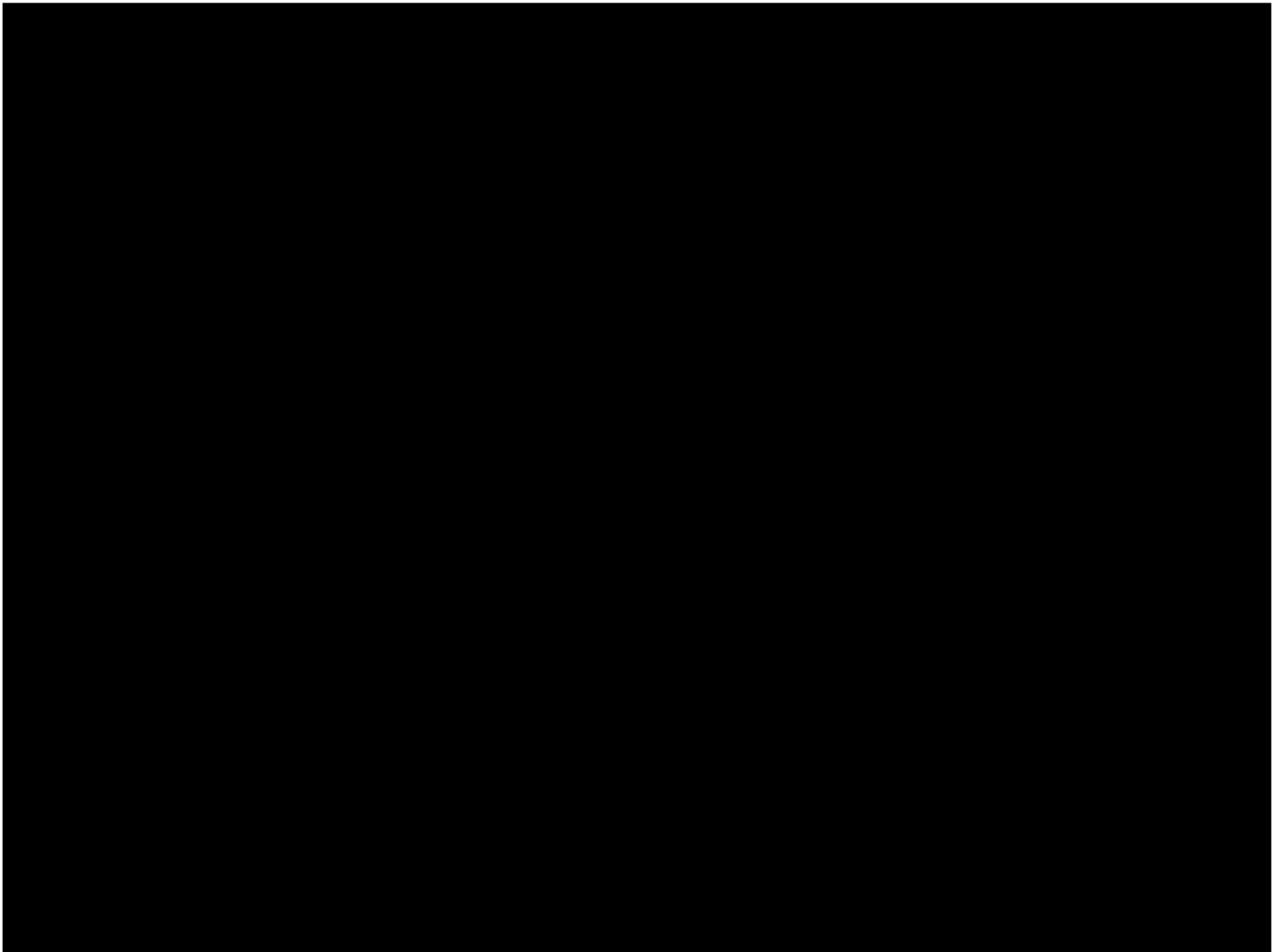


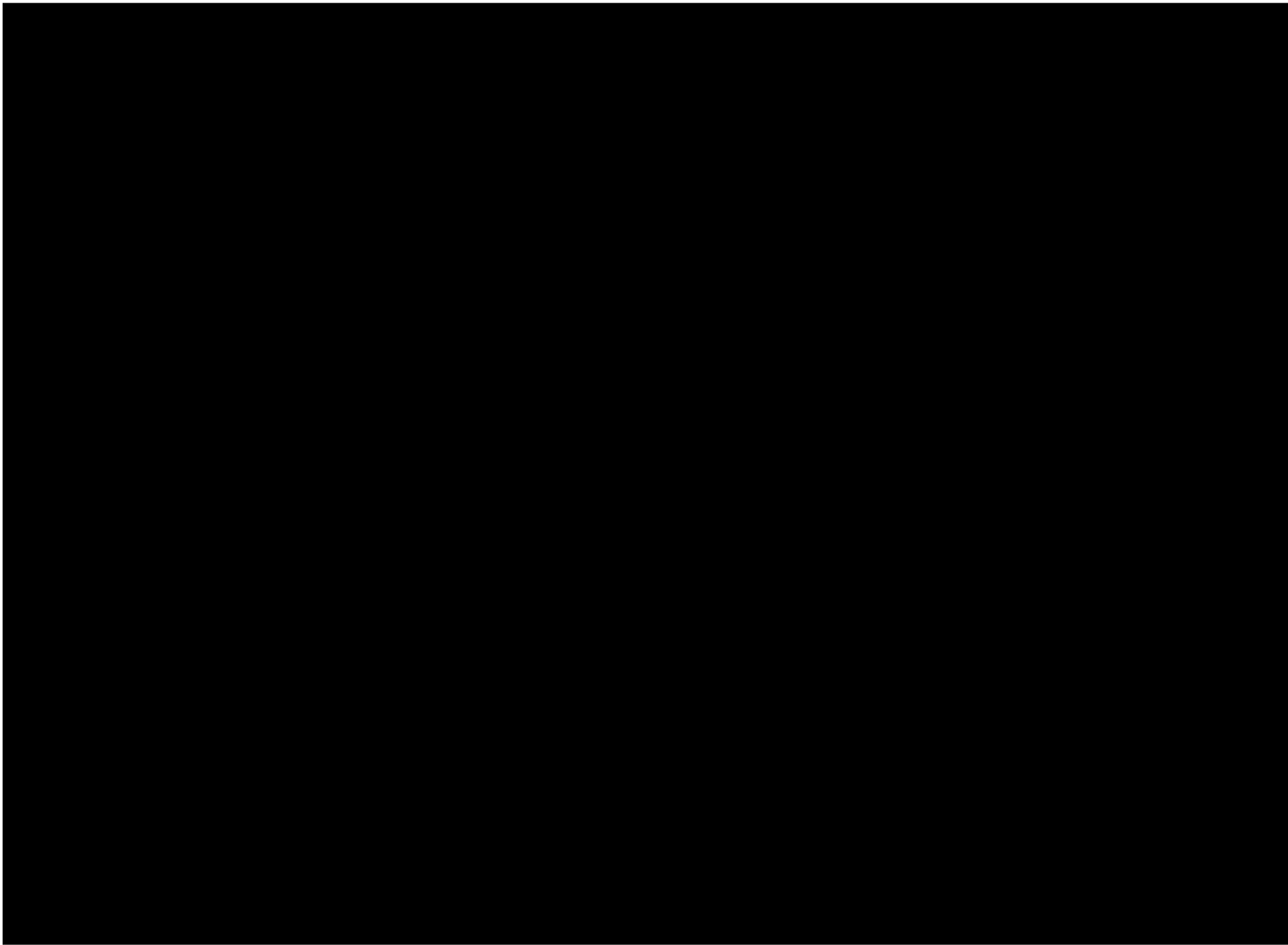


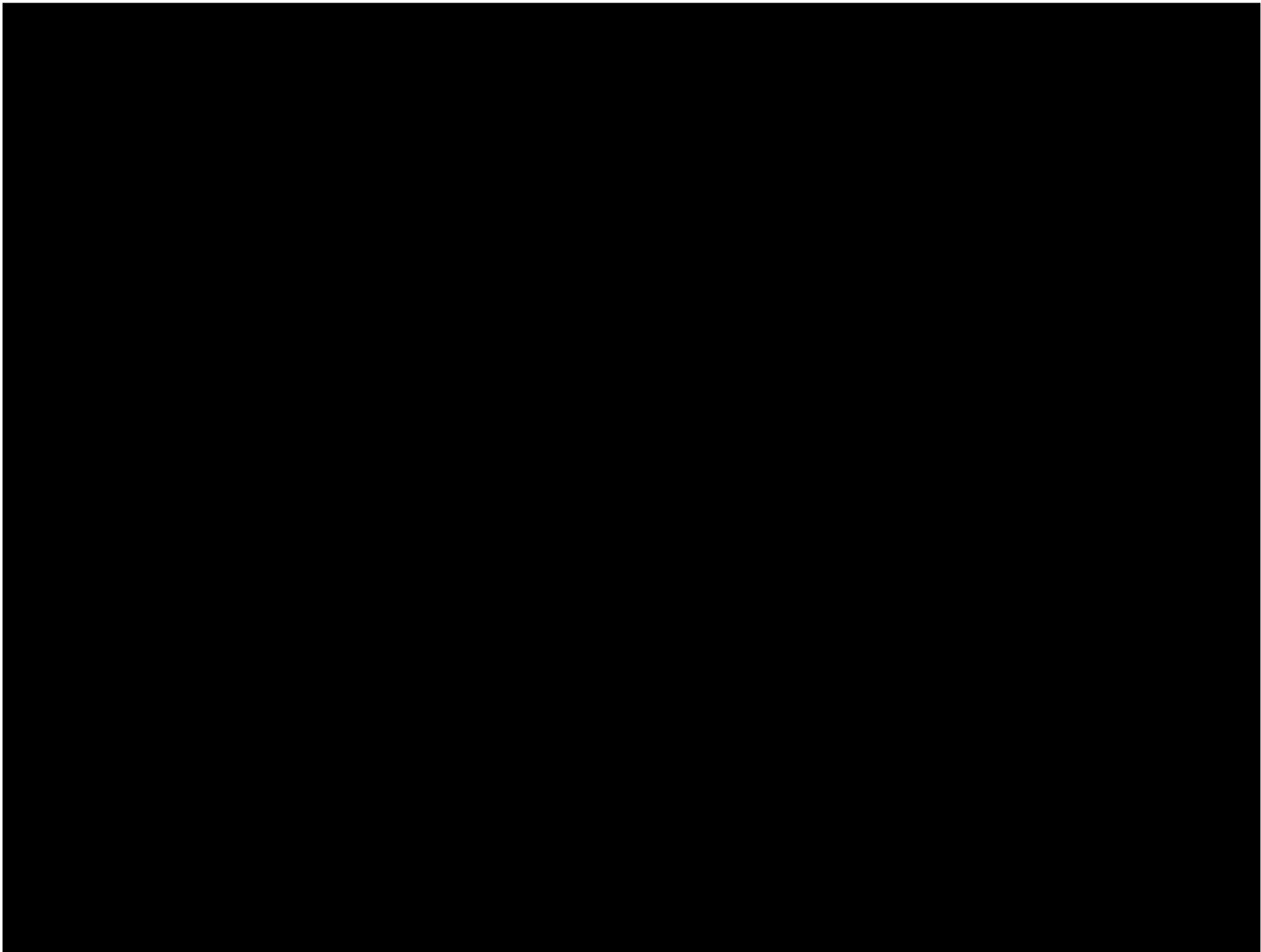


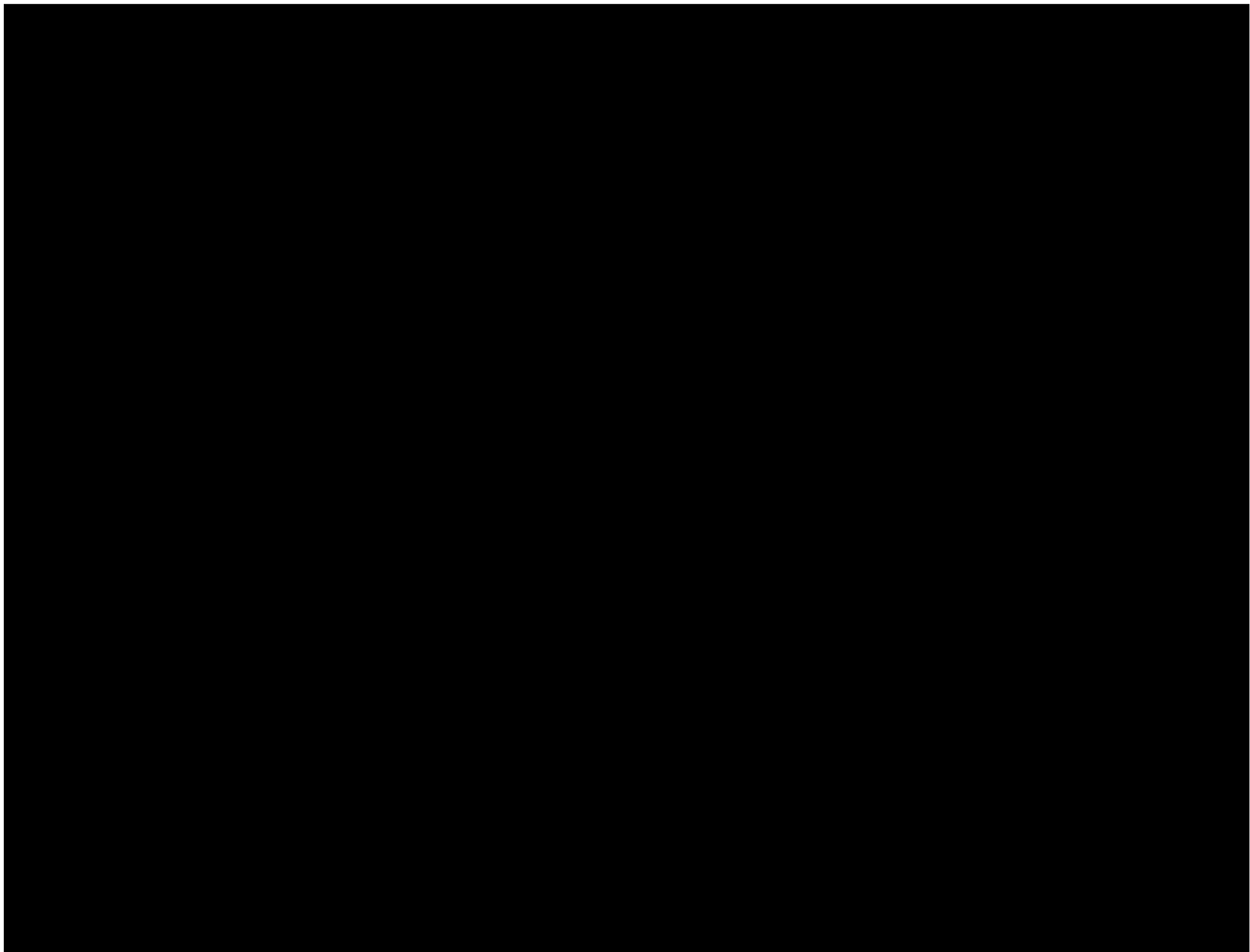




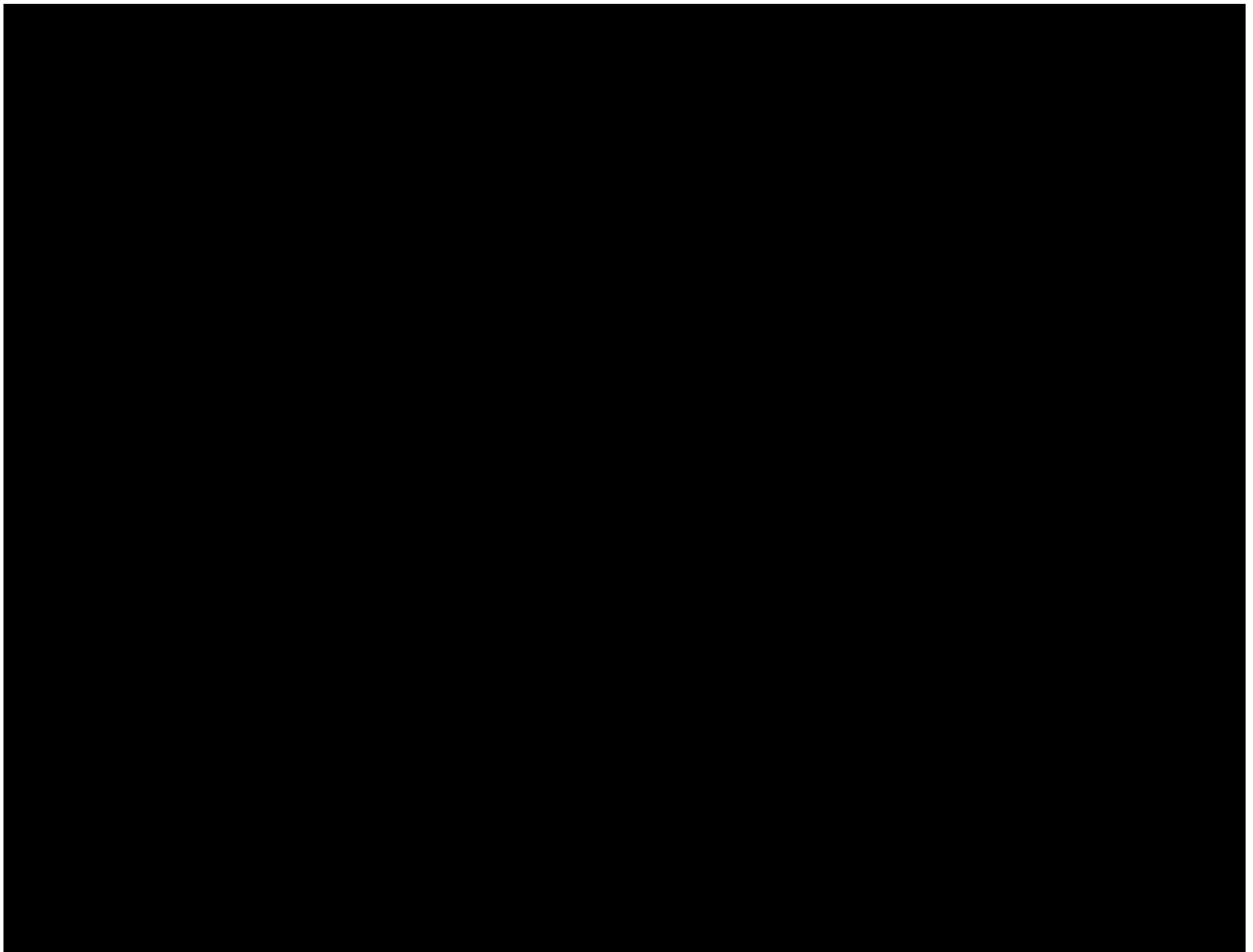


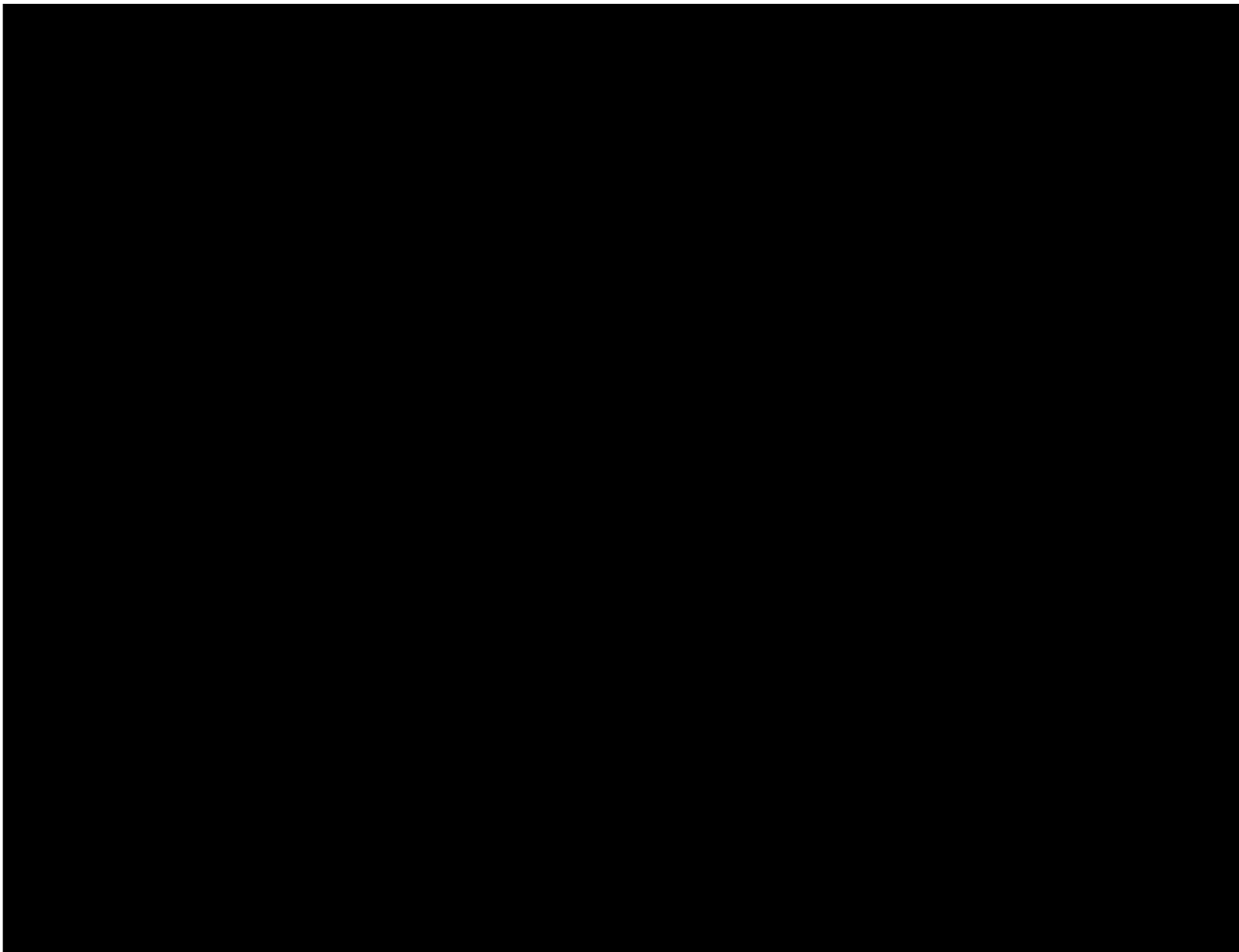


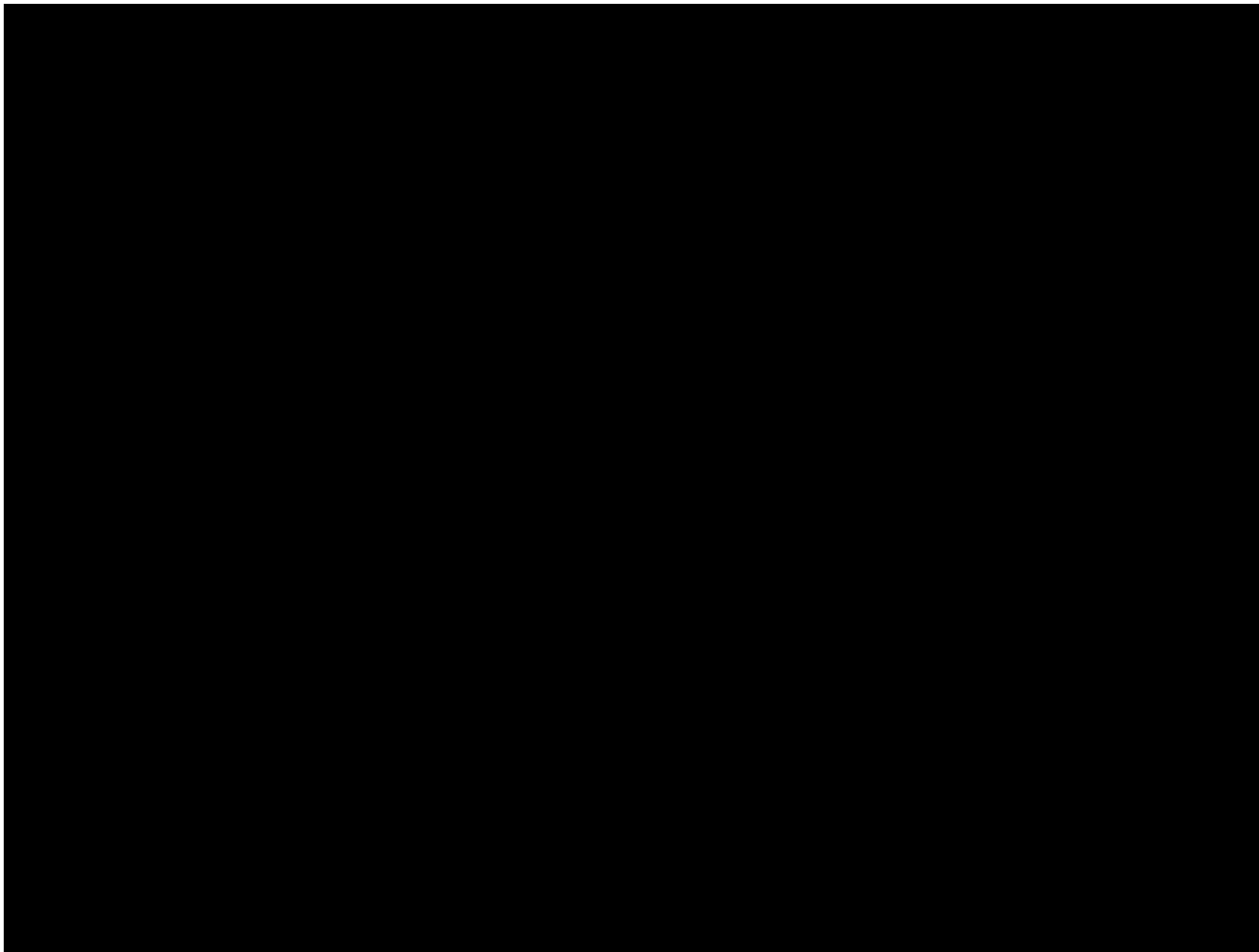


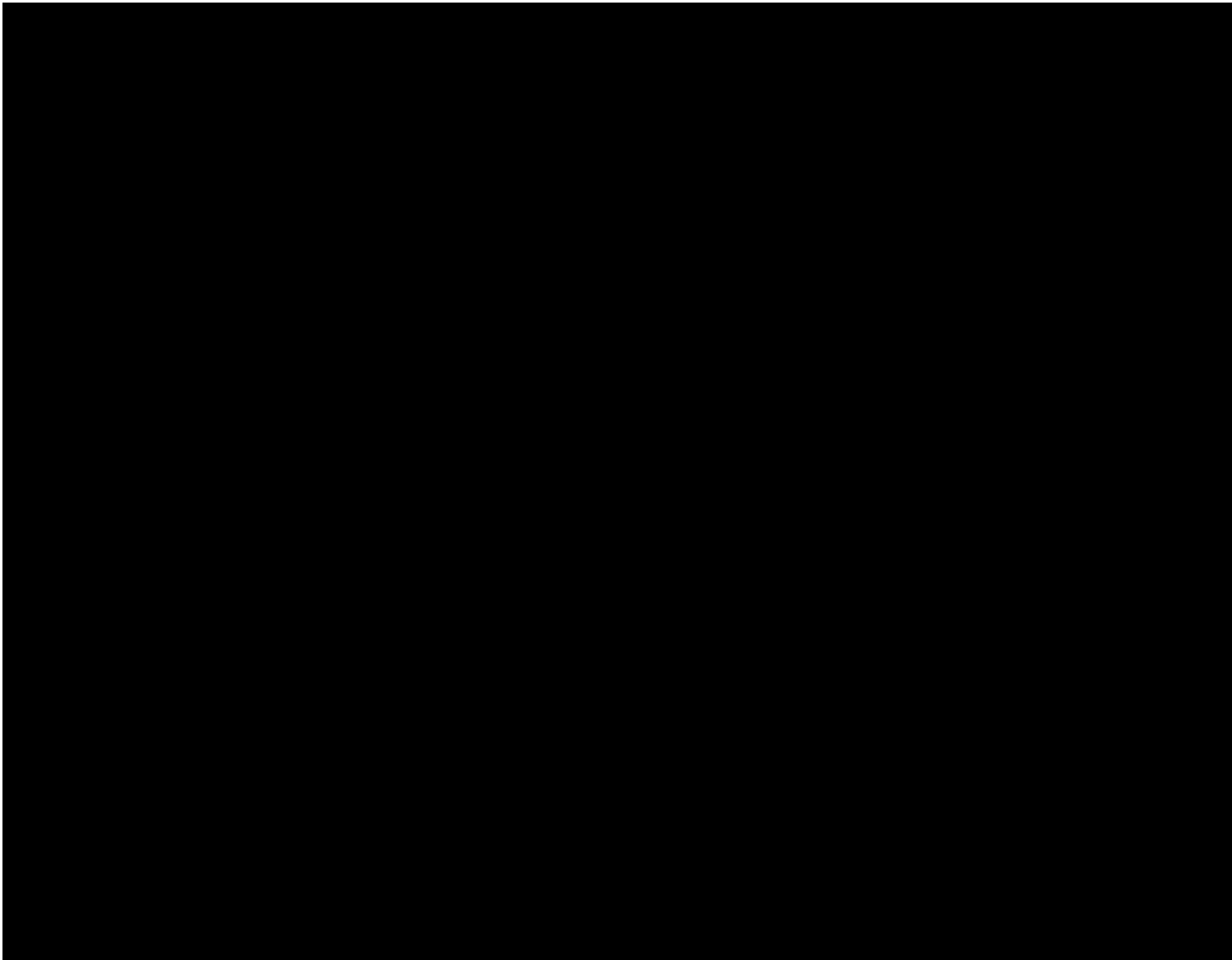




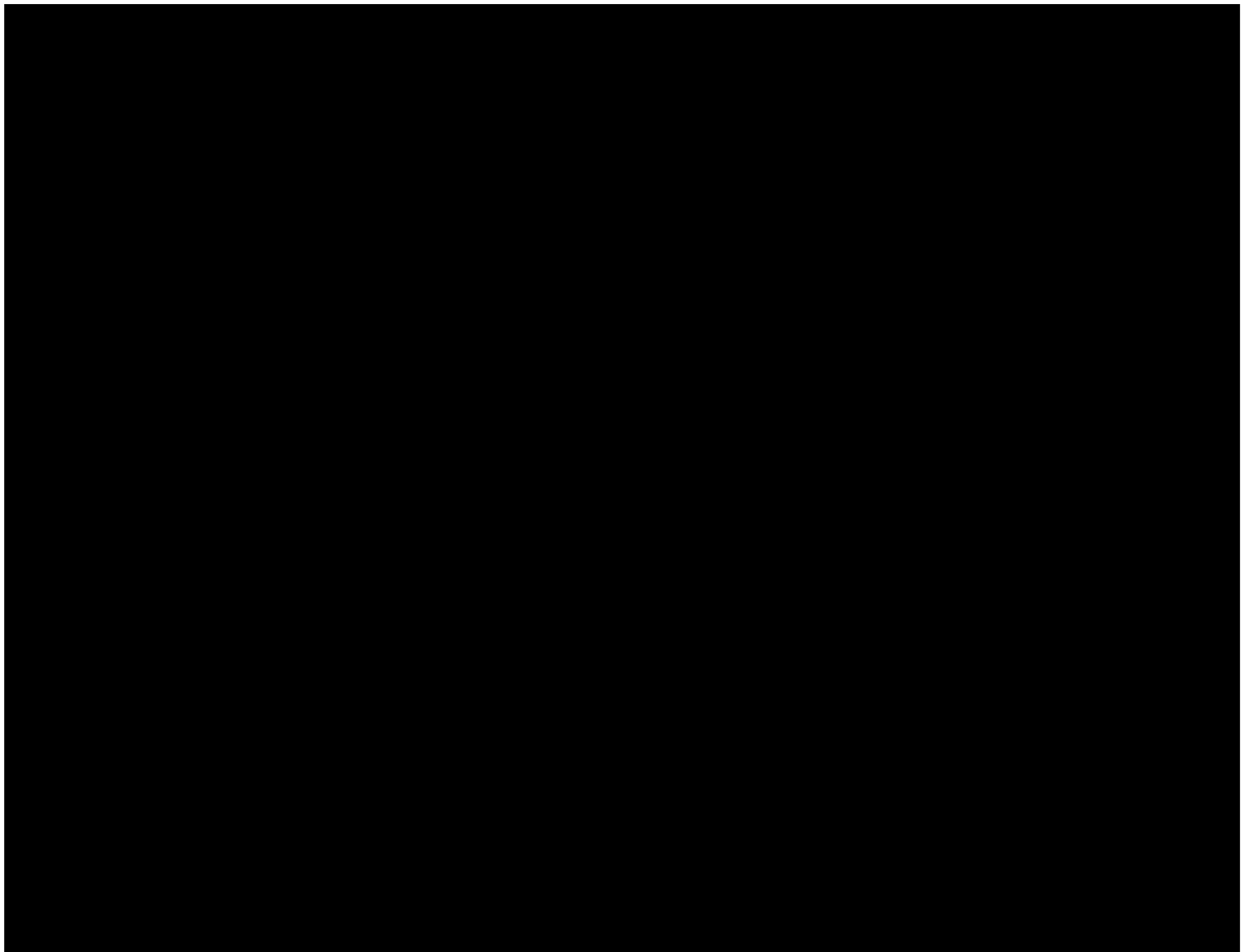


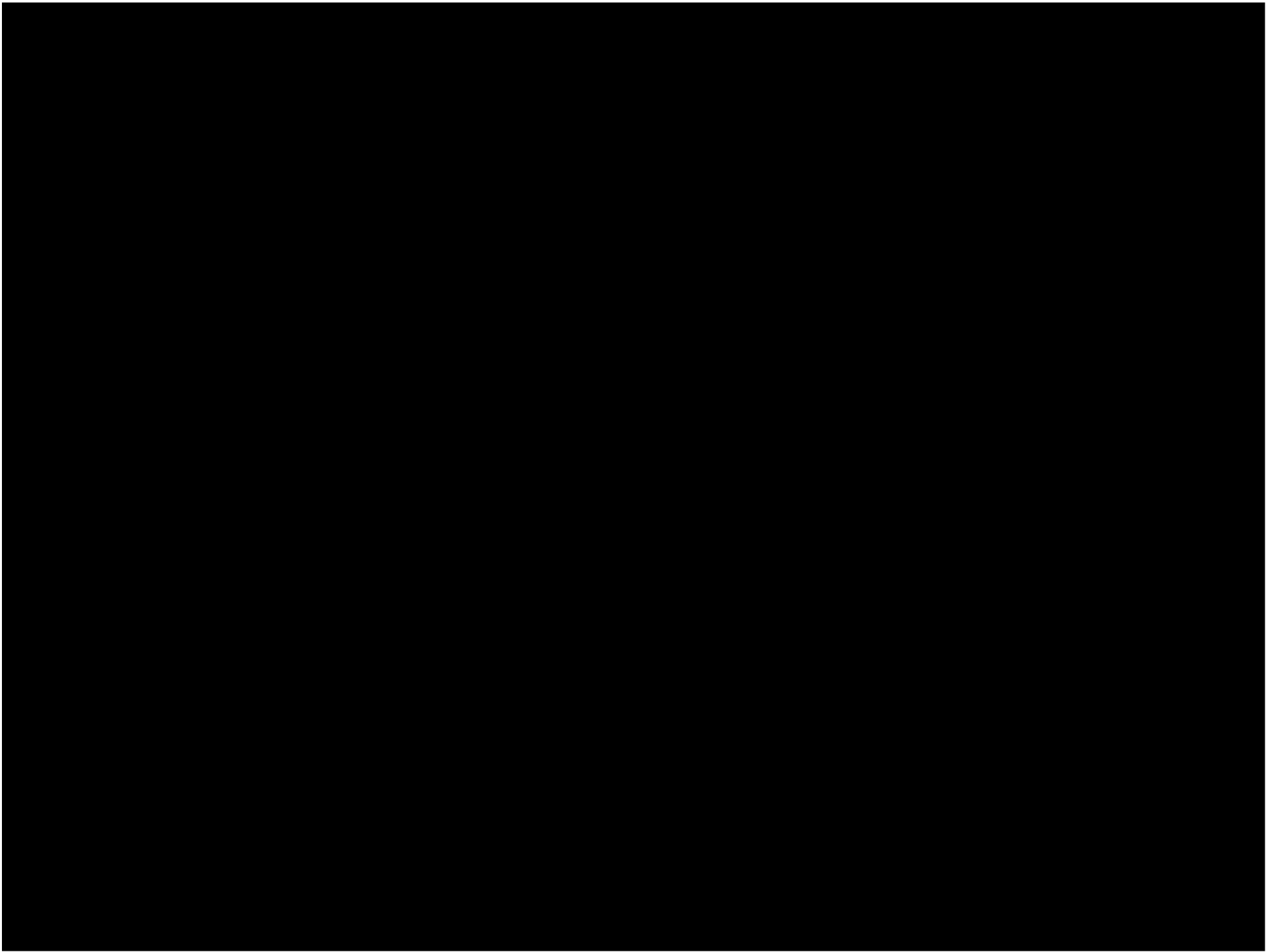






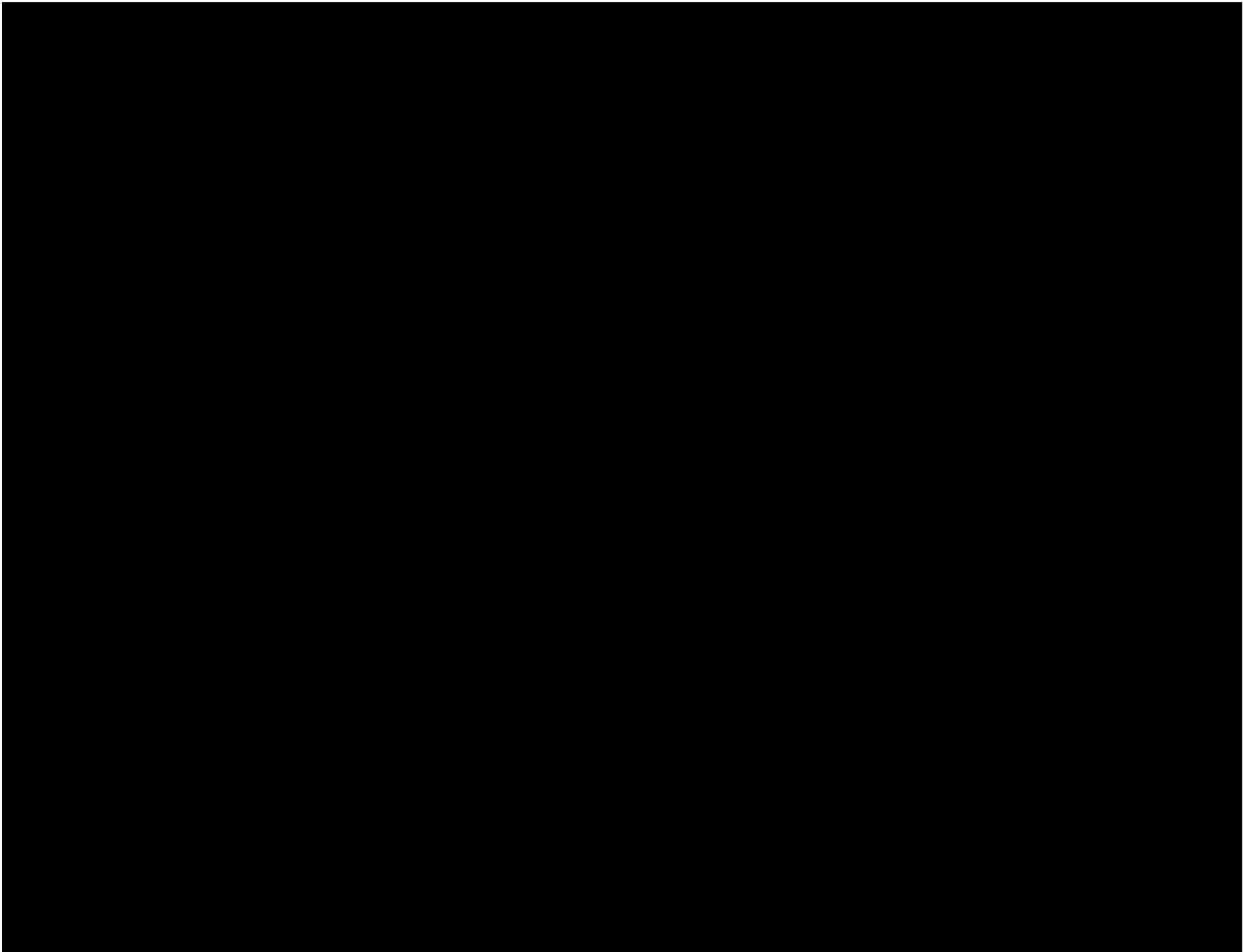


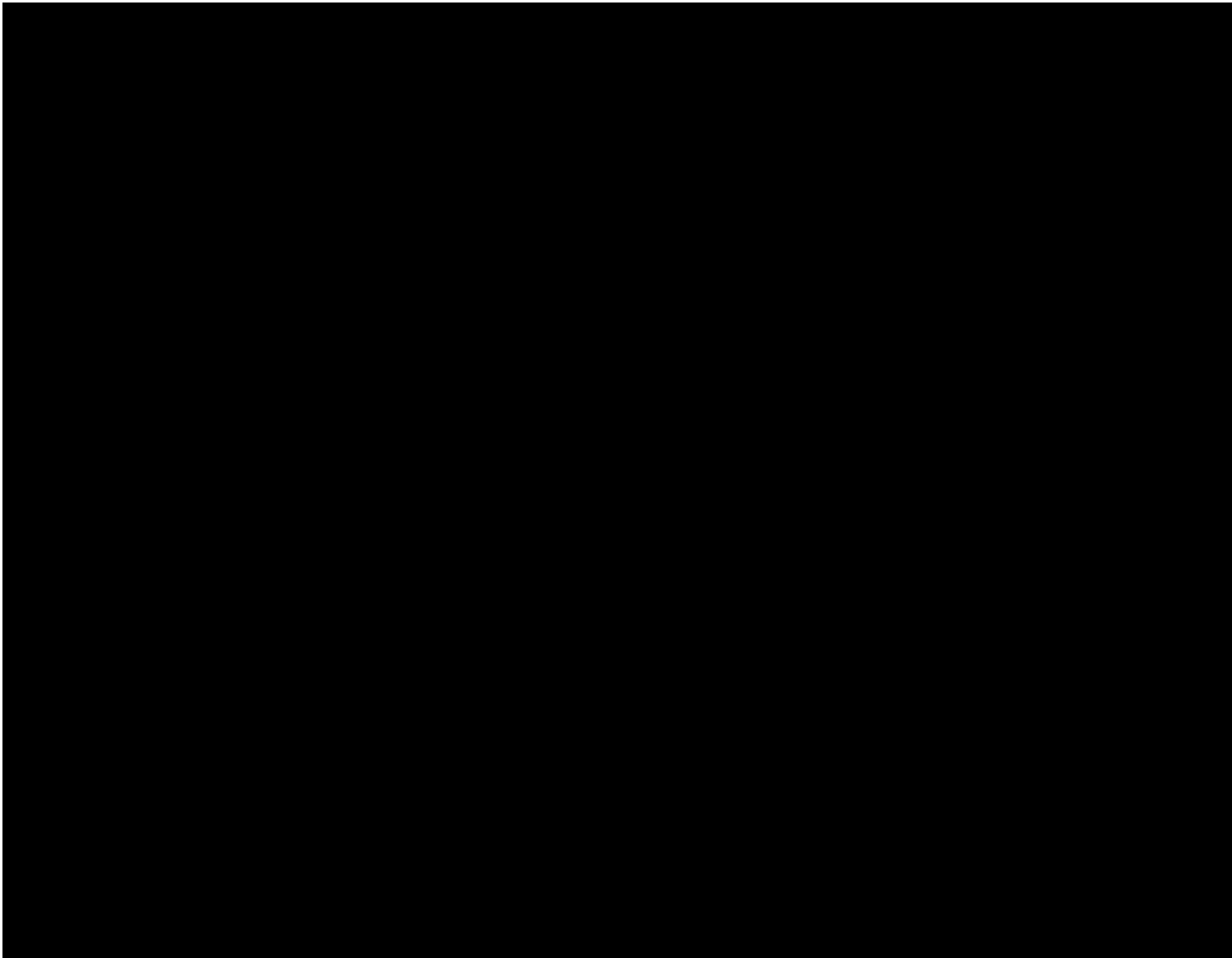


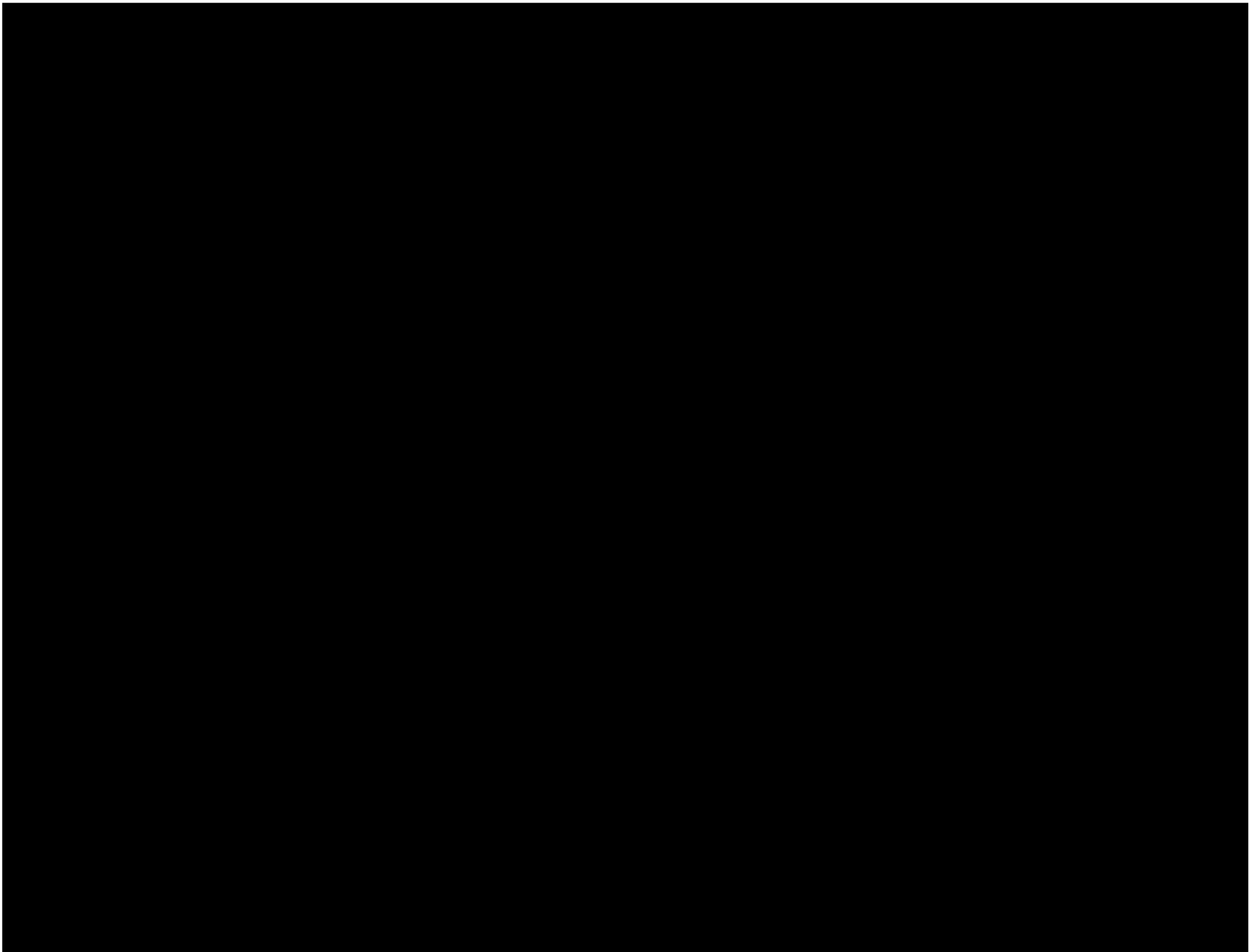


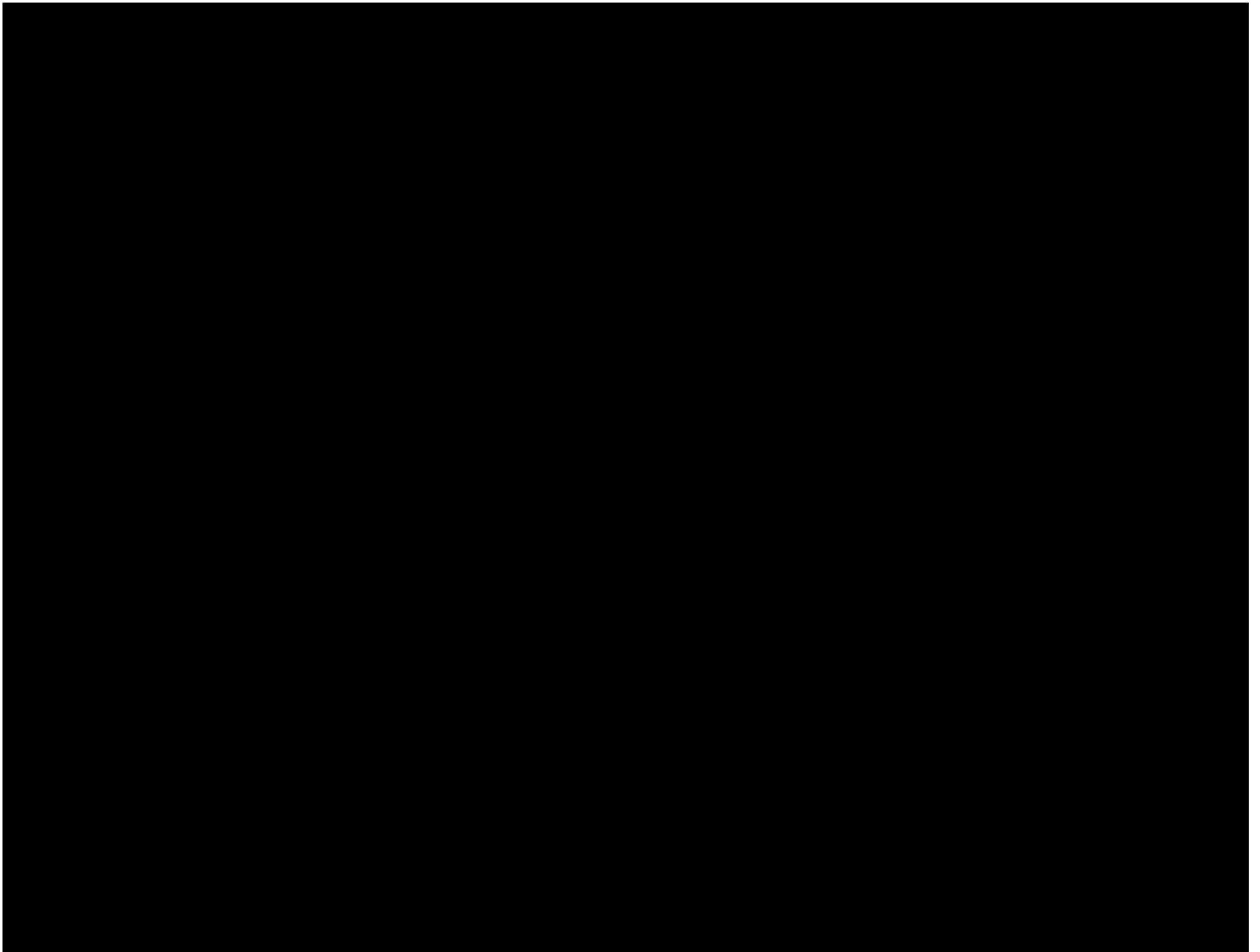


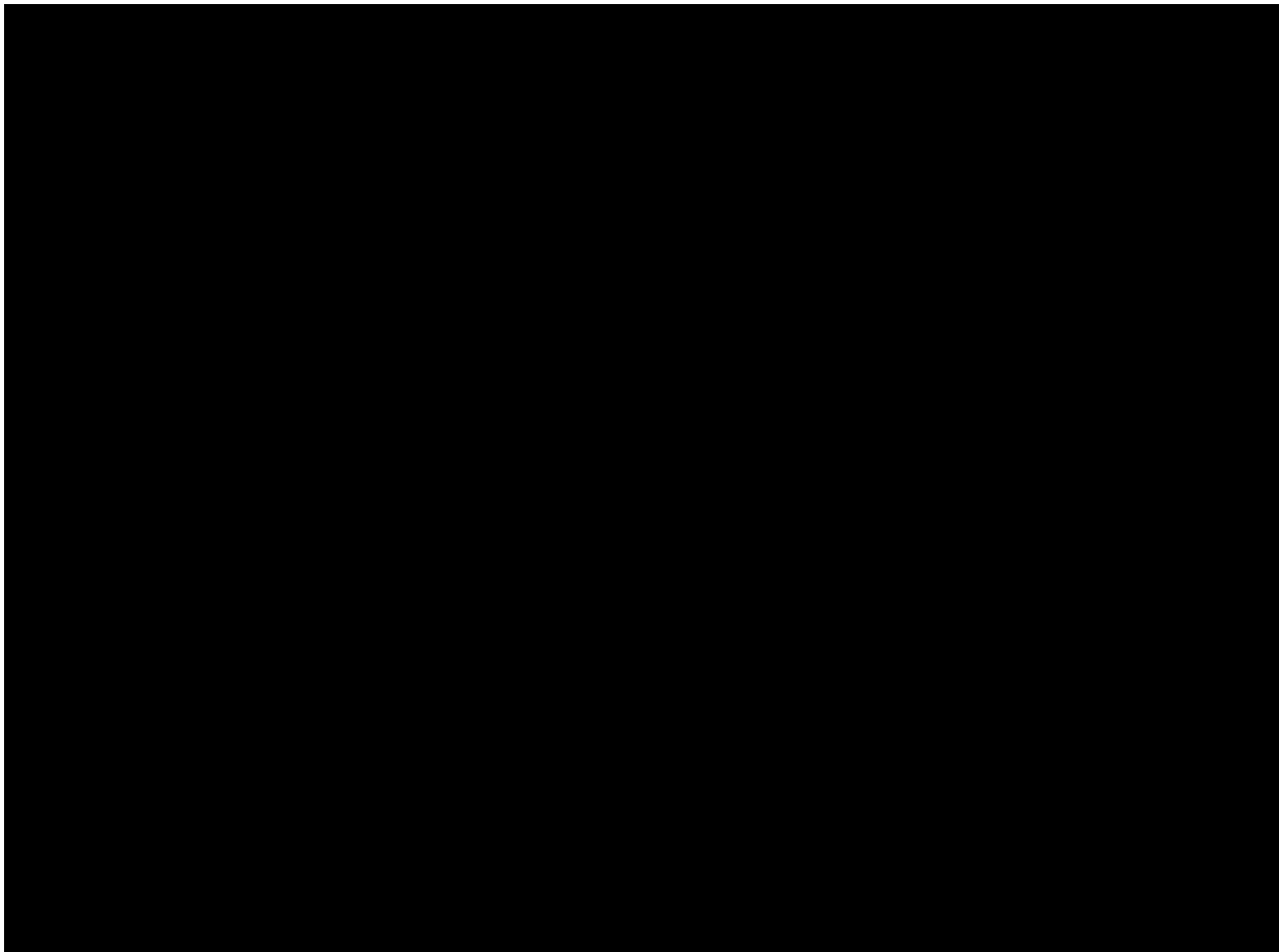


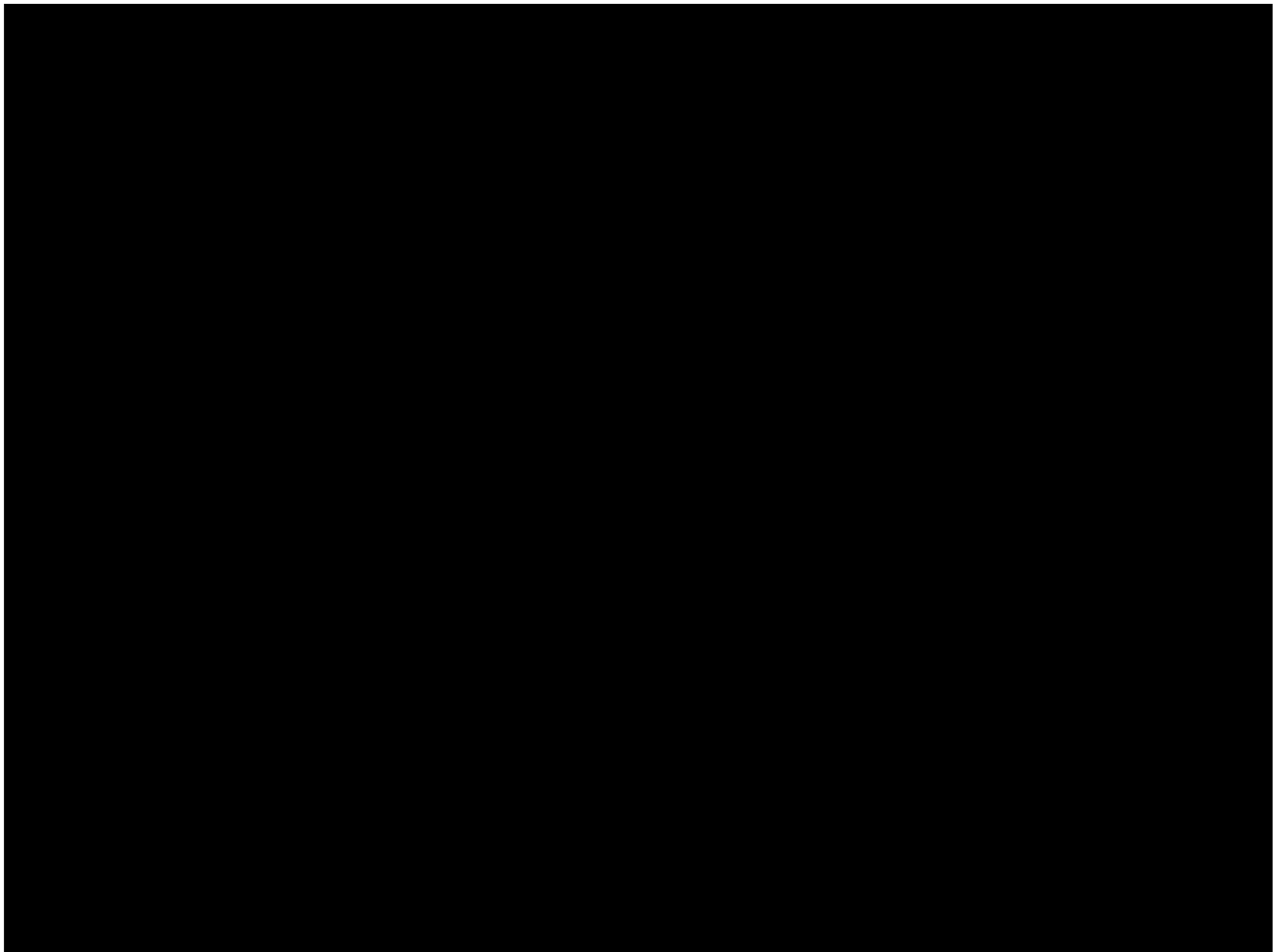


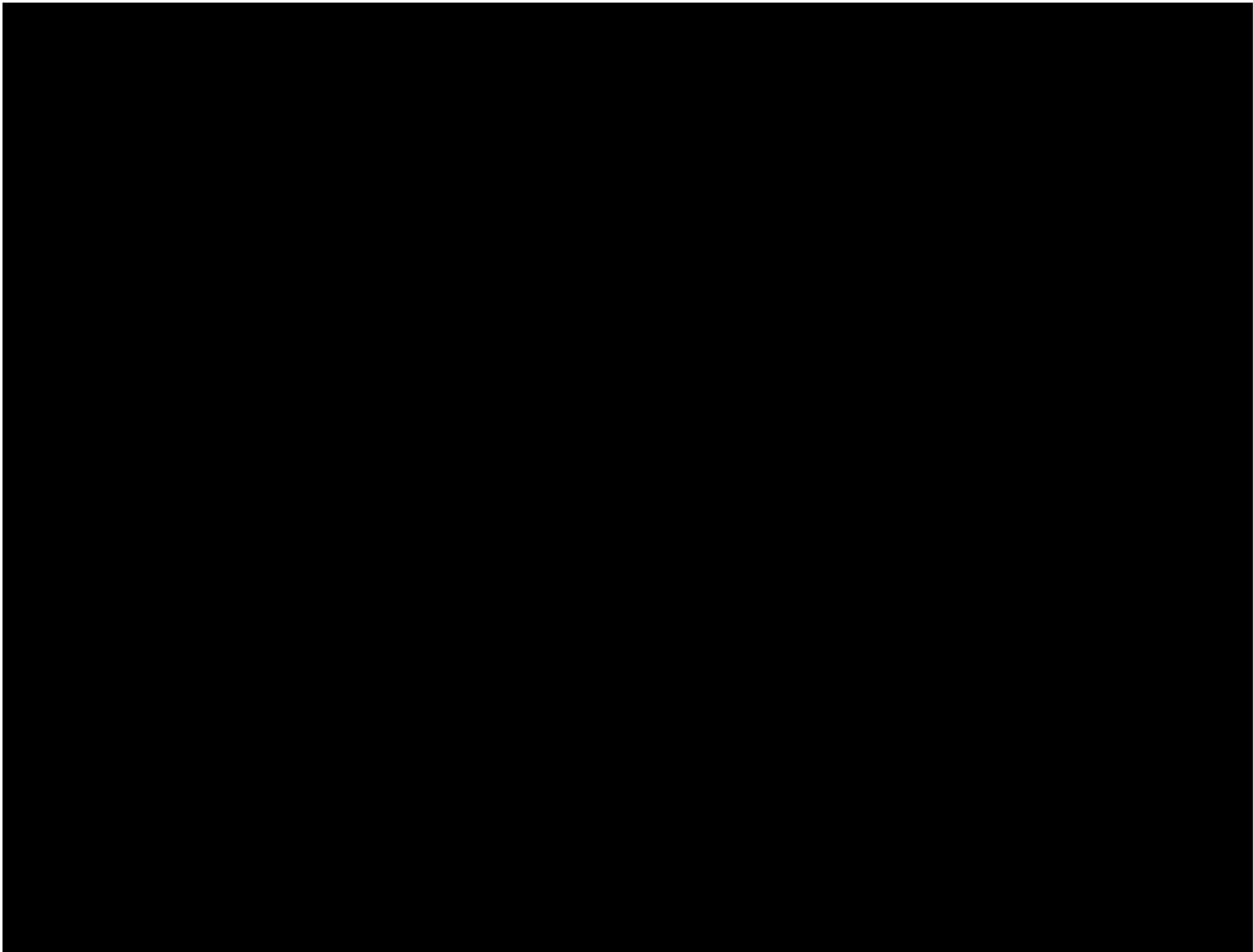


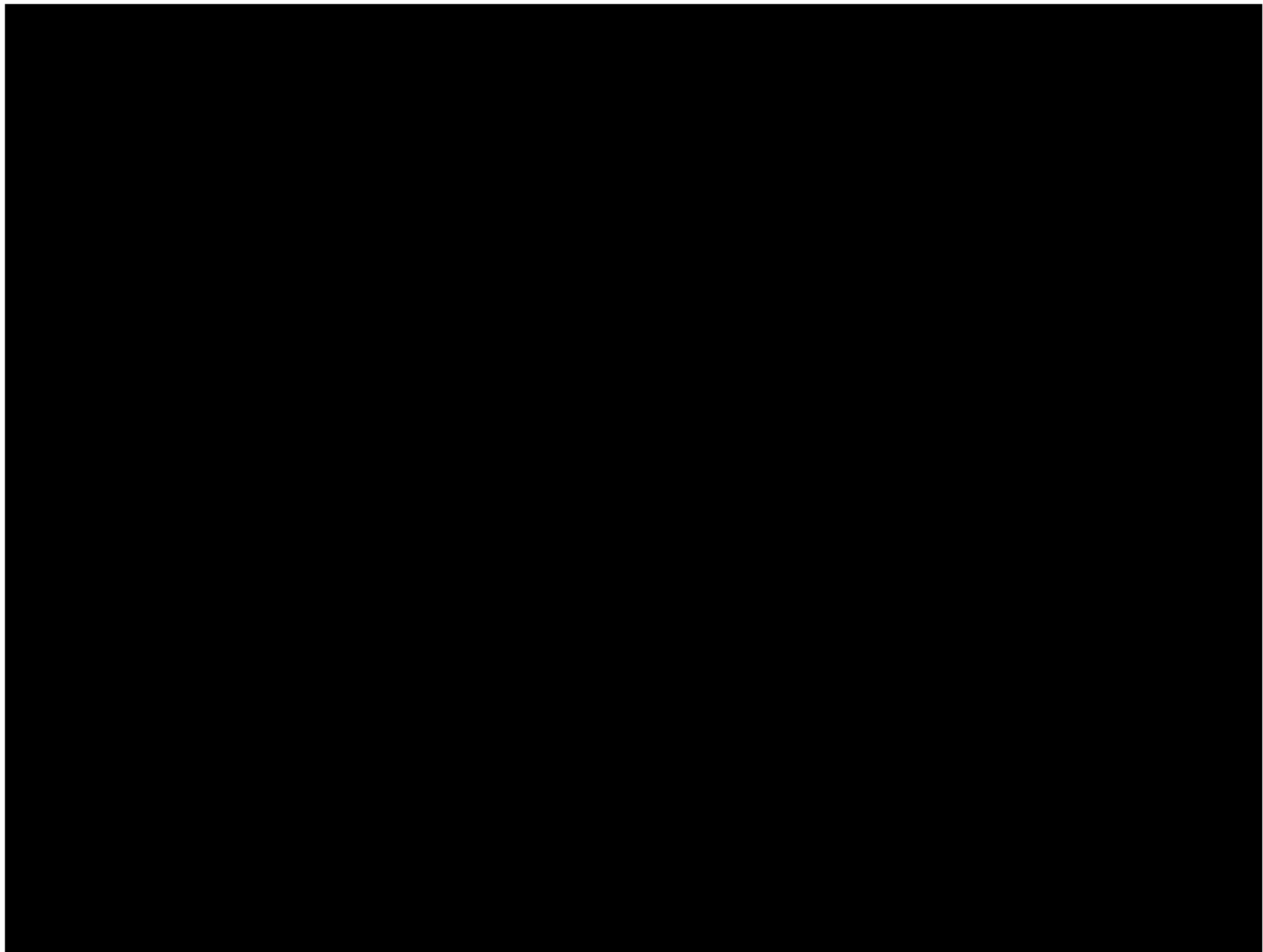




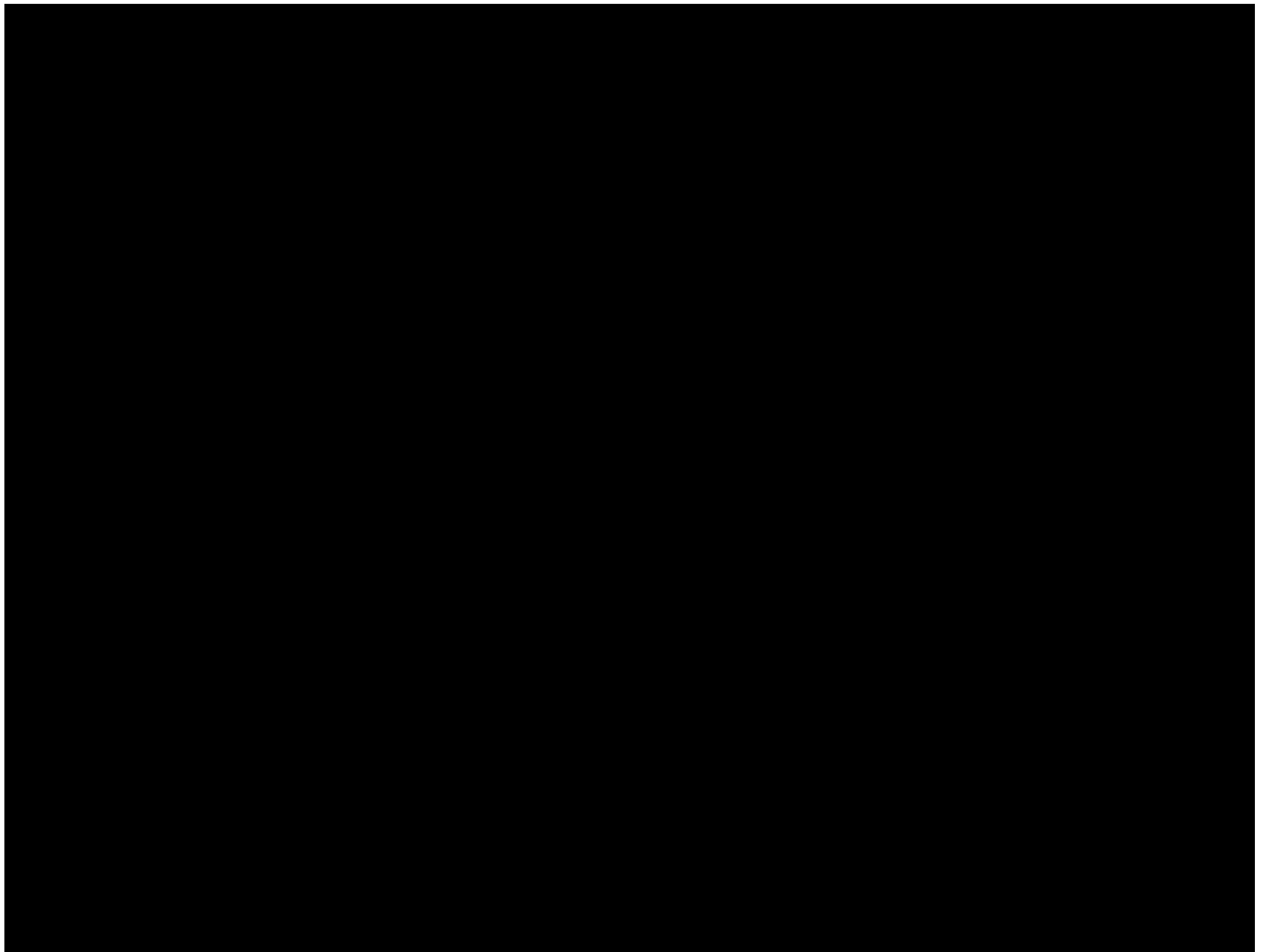


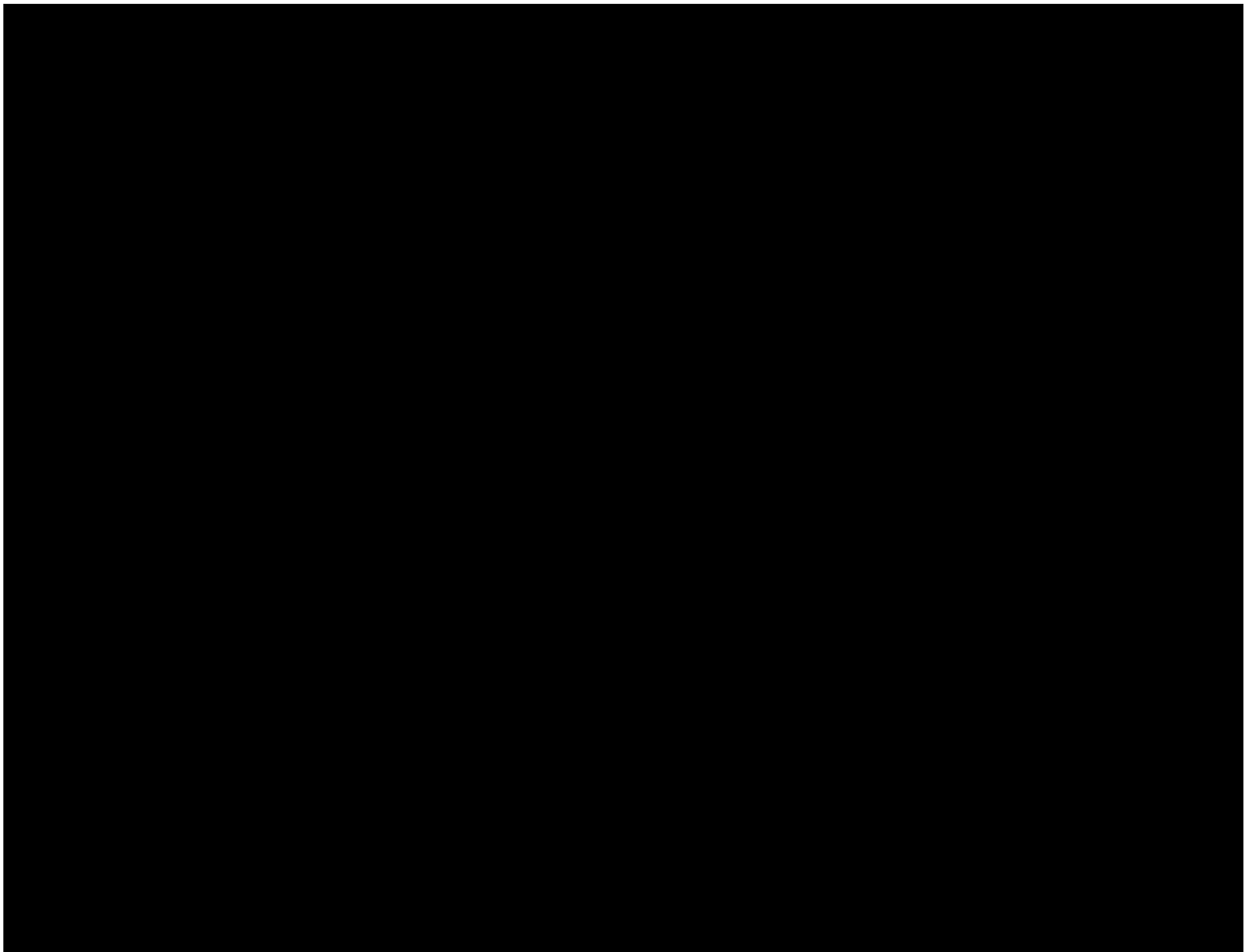










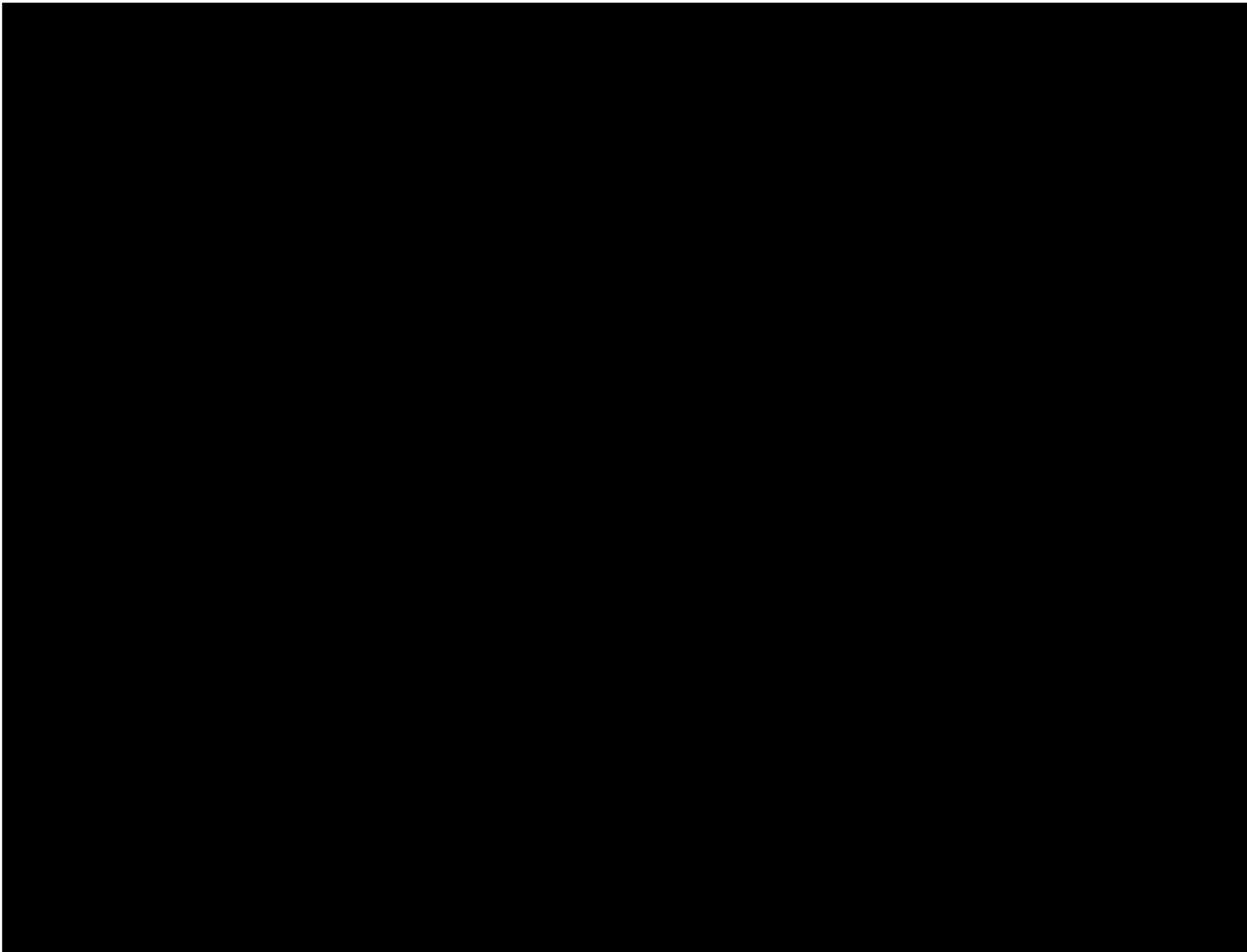


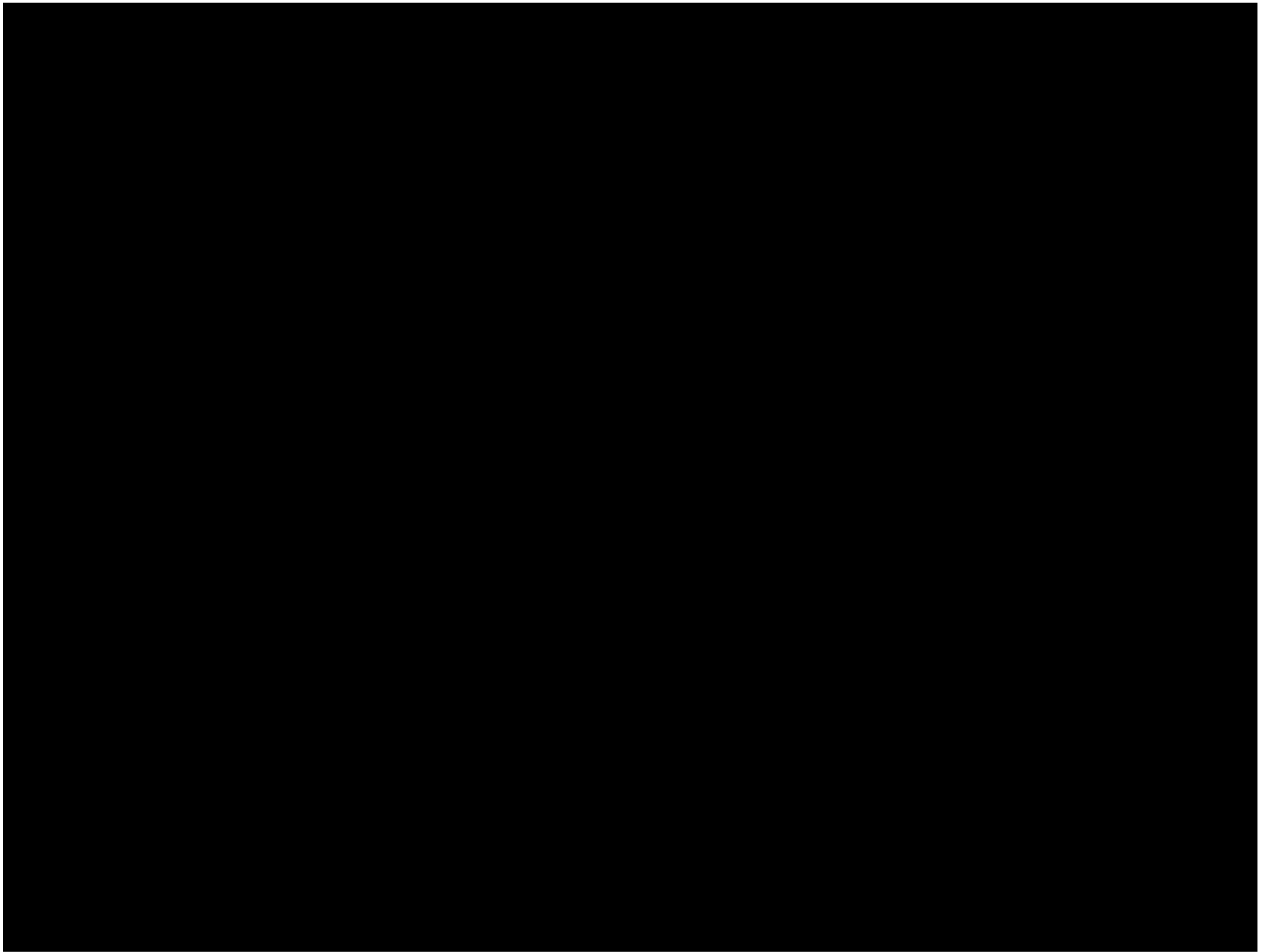
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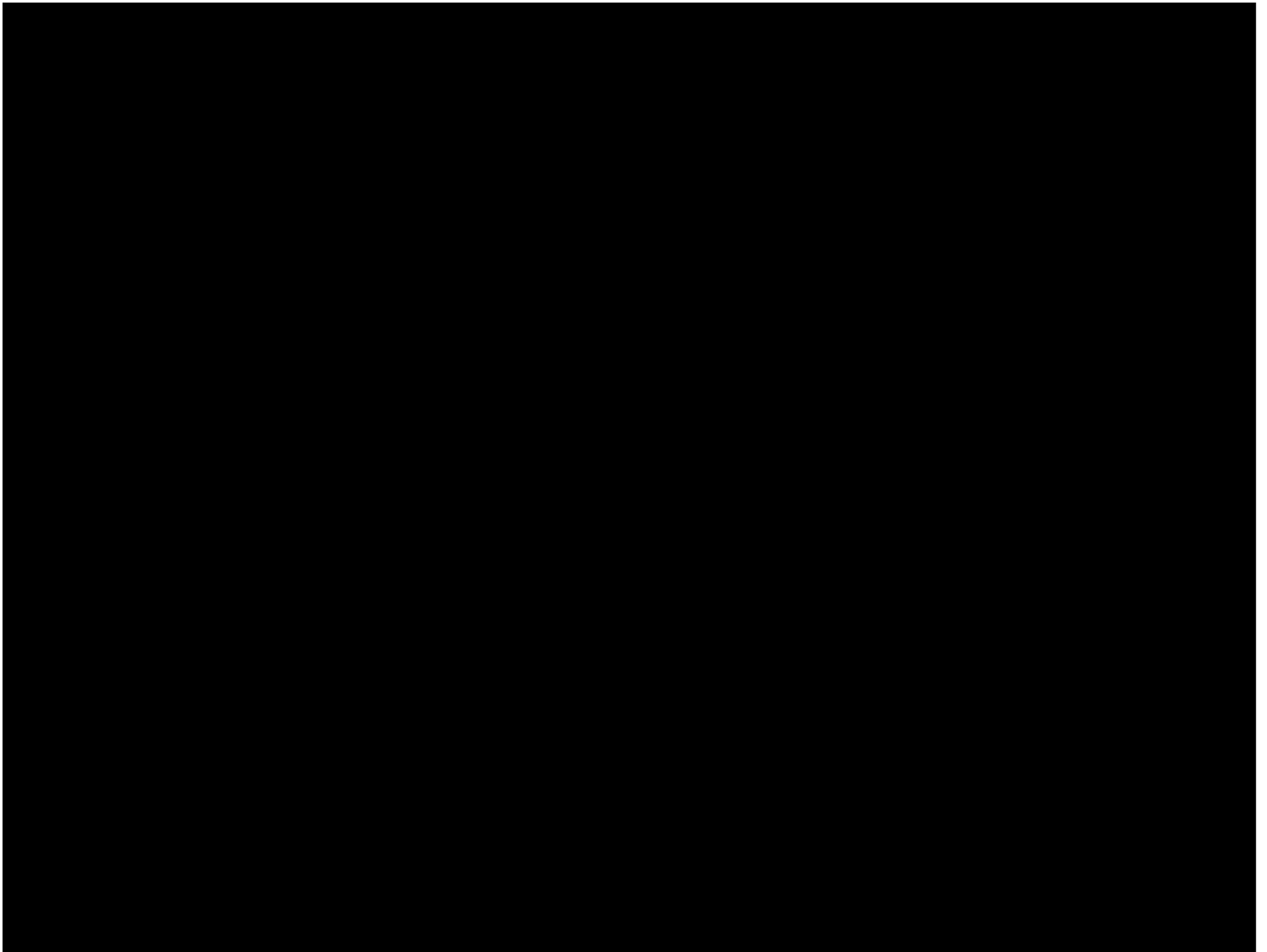
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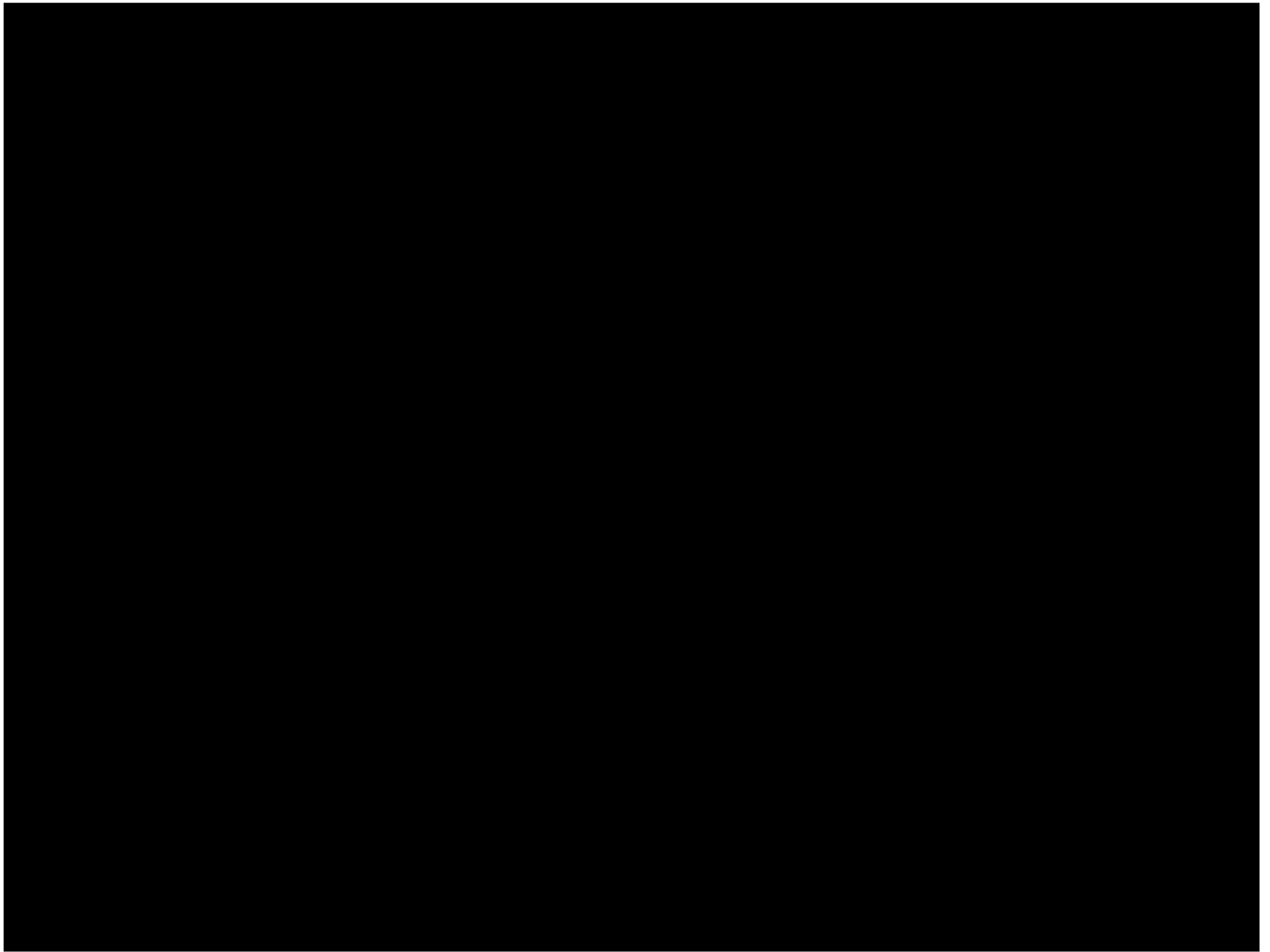
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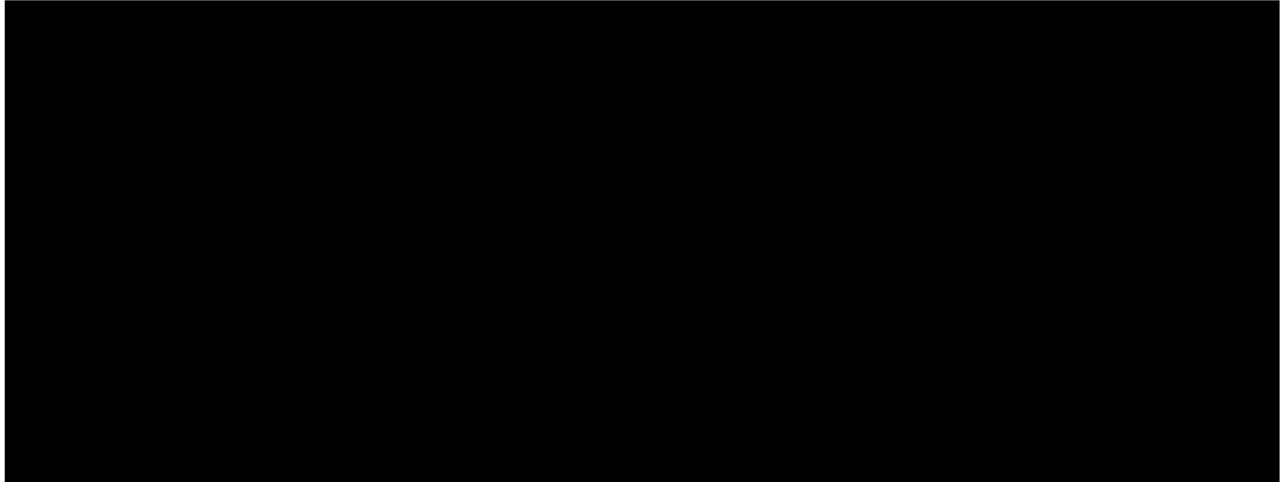








# Appendix 1











the 1990s, the number of people in the world who are under 15 years of age has increased by 1.2 billion, from 1.1 billion in 1980 to 2.3 billion in 1999. The number of people aged 15 years and over has increased by 1.1 billion, from 2.5 billion in 1980 to 3.6 billion in 1999. The number of people aged 65 years and over has increased by 0.2 billion, from 0.2 billion in 1980 to 0.4 billion in 1999.

These changes in the world population have led to a significant increase in the number of people who are under 15 years of age, from 1.1 billion in 1980 to 2.3 billion in 1999. This increase has been driven by a combination of factors, including a decline in the death rate, a decline in the birth rate, and a decline in the age at which people are having children.

The decline in the death rate has been a major factor in the increase in the number of people under 15 years of age. This decline has been driven by a number of factors, including a decline in the death rate from infectious diseases, a decline in the death rate from non-communicable diseases, and a decline in the death rate from violence.

The decline in the birth rate has also been a major factor in the increase in the number of people under 15 years of age. This decline has been driven by a number of factors, including a decline in the birth rate from developed countries, a decline in the birth rate from developing countries, and a decline in the birth rate from the world as a whole.

The decline in the age at which people are having children has also been a major factor in the increase in the number of people under 15 years of age. This decline has been driven by a number of factors, including a decline in the age at which people are having children in developed countries, a decline in the age at which people are having children in developing countries, and a decline in the age at which people are having children in the world as a whole.

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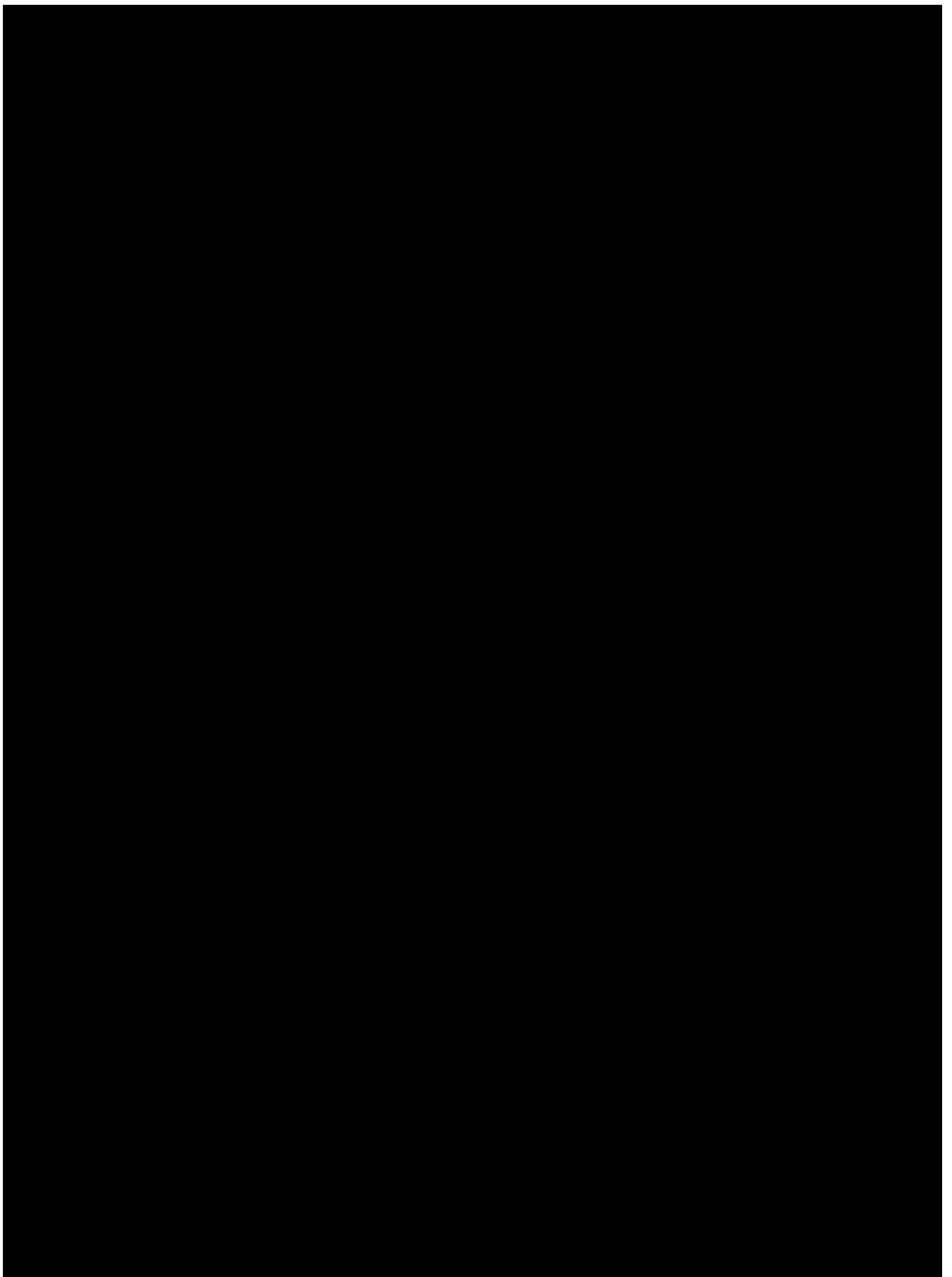
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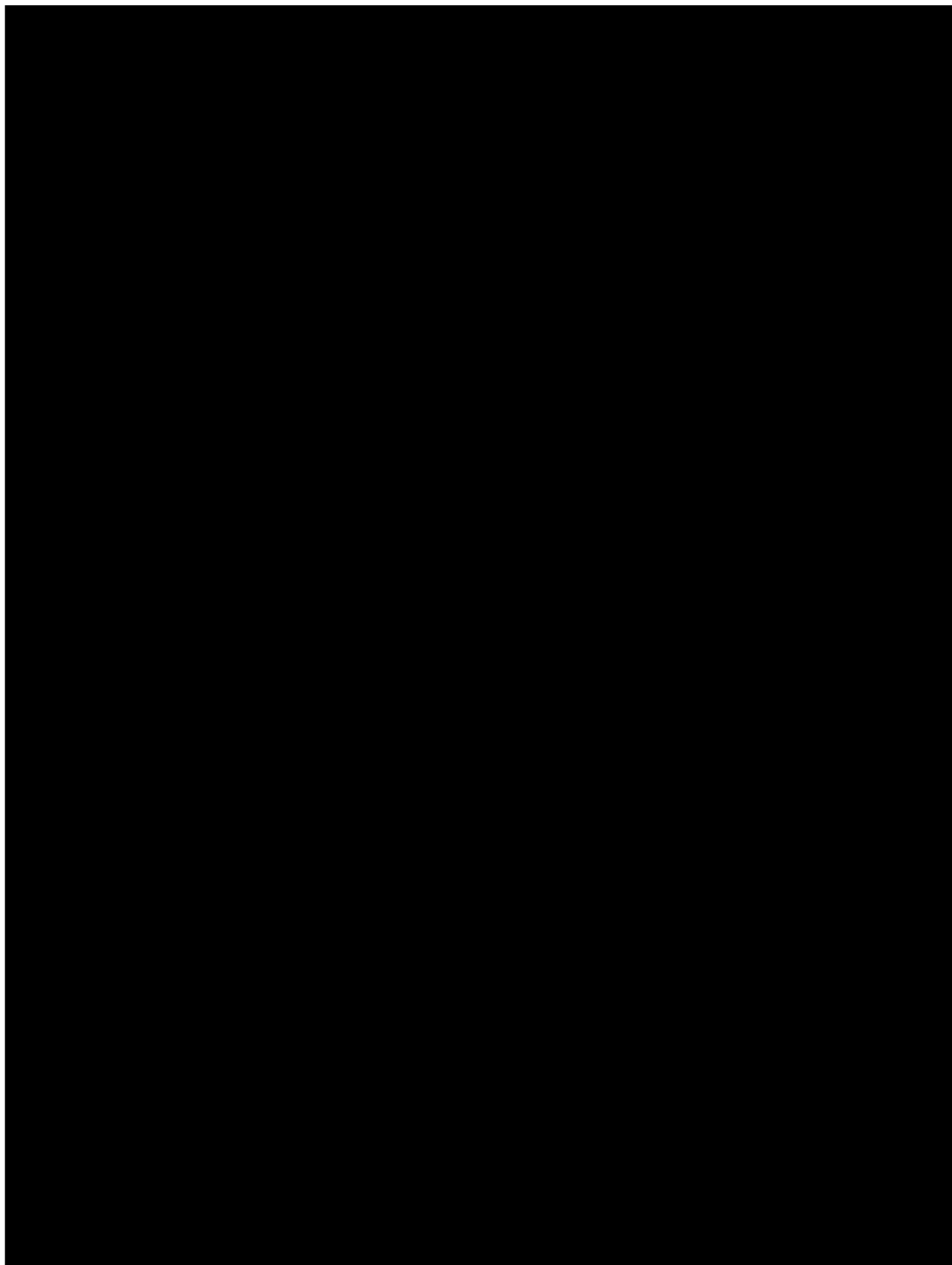
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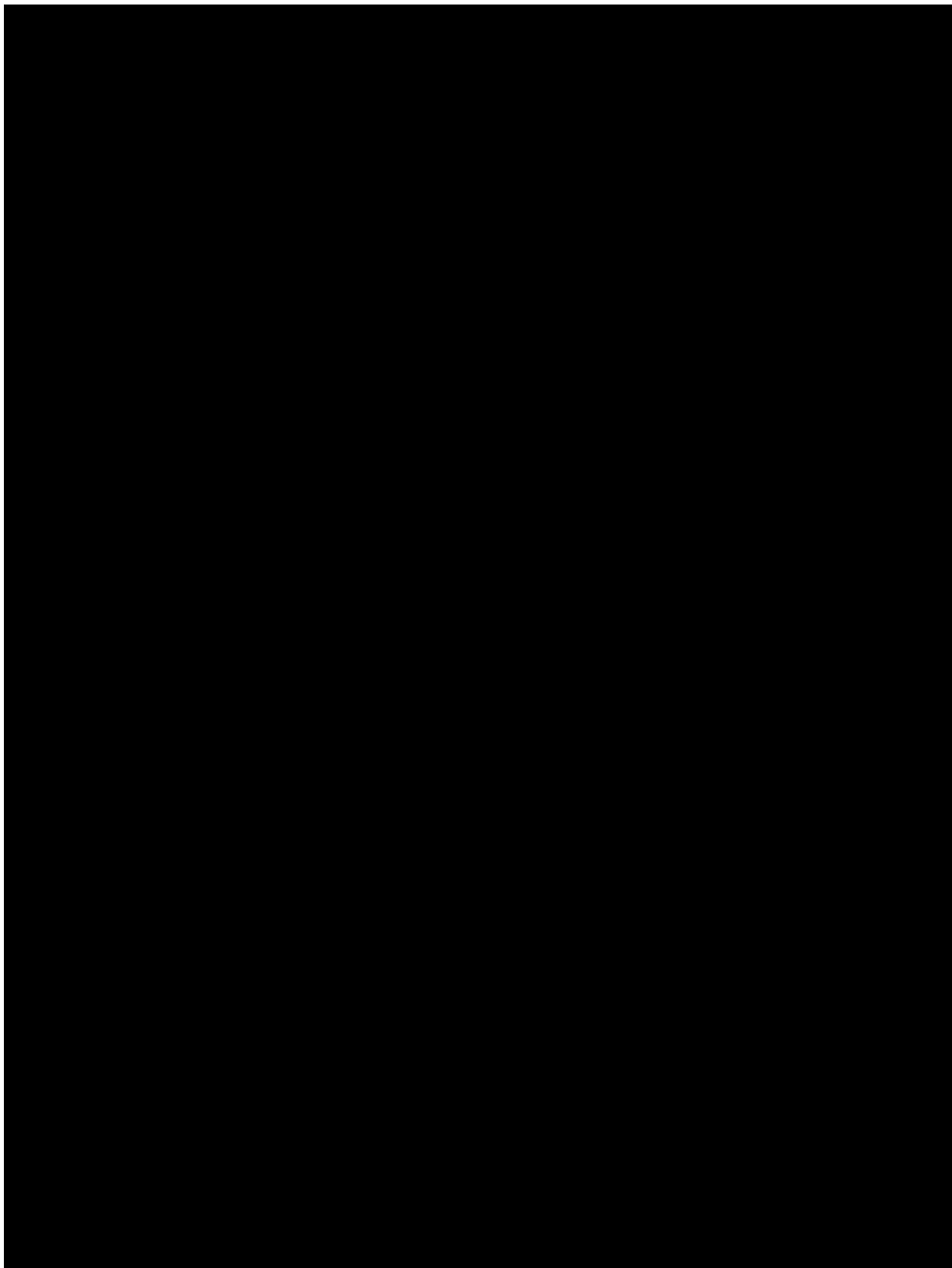
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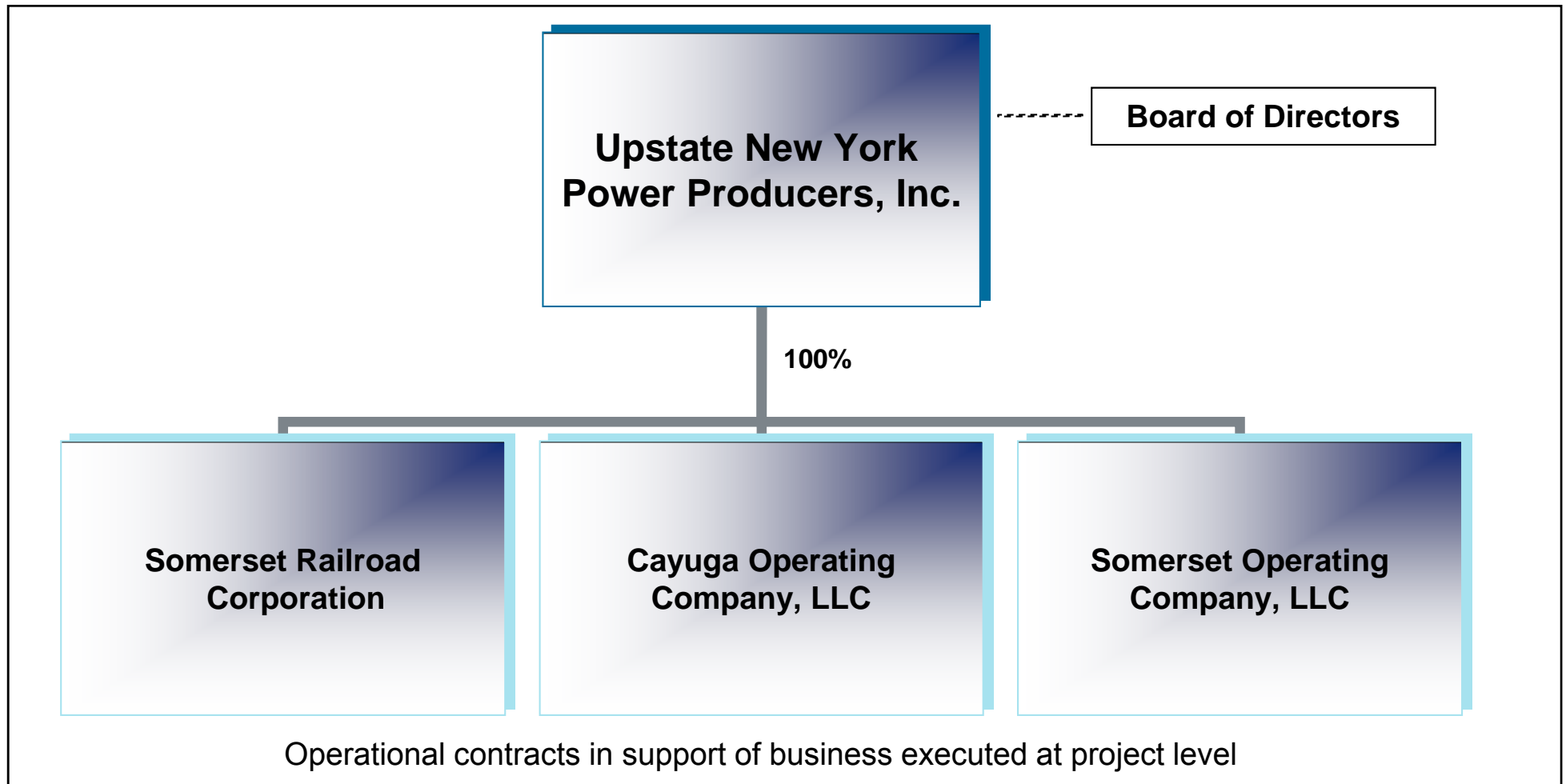




# Appendix 2

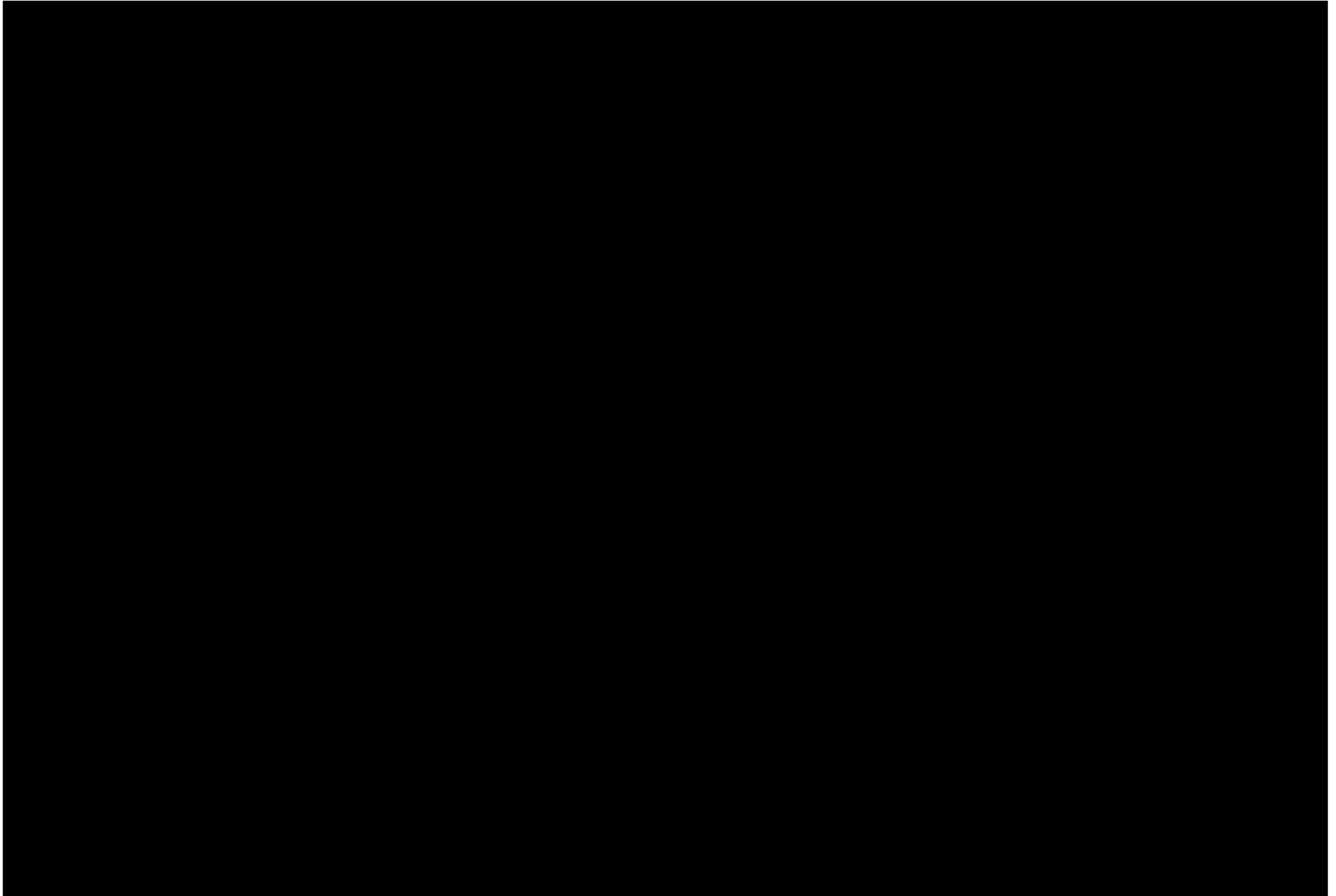


## Organization Structure



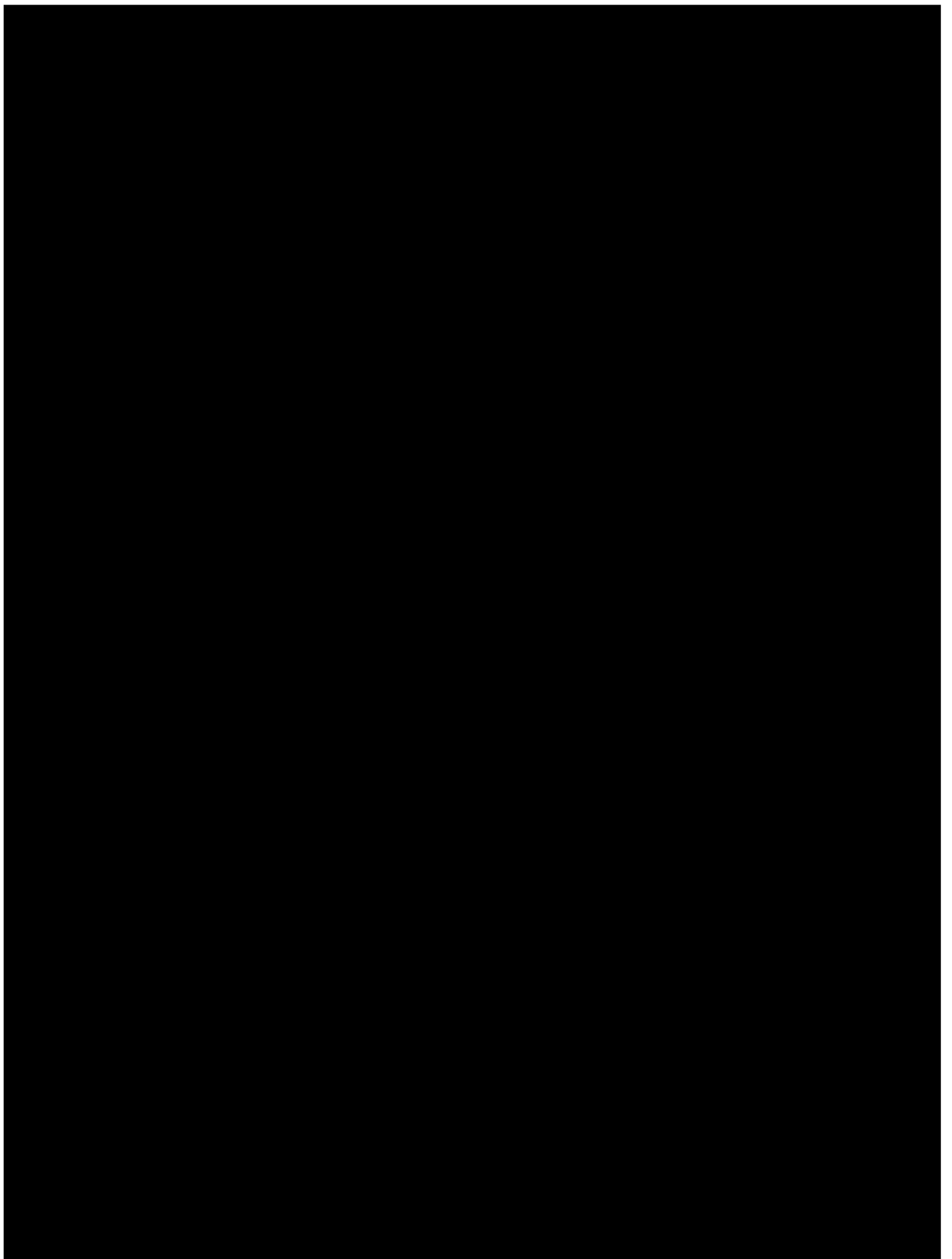
# Appendix 3

# Cayuga Repowering Project



# Appendix 4

[The following text is a dense, handwritten manuscript, likely a letter or a page from a book. It is written in a cursive script and is mostly illegible due to the quality of the scan. The text appears to be a continuous paragraph or a series of connected sentences. The handwriting is fluid and somewhat slanted. There are some words that are more legible than others, but the overall content cannot be accurately transcribed. The text is written in dark ink on a light-colored paper. The margins are narrow, and the handwriting fills most of the page area.]





the 1990s, the number of people in the UK who are employed in the public sector has increased by 1.5 million (1990–1999) and the number of people in the public sector has increased by 2.5 million (1990–1999) (Department of Health 2000).

There is a growing emphasis on the need to improve the efficiency of the public sector. The Department of Health (2000) has set out a number of targets for the NHS, including a reduction in the number of people in the public sector. The NHS is currently facing a number of challenges, including a growing demand for services, a shortage of staff, and a need to improve the quality of care. The NHS is currently facing a number of challenges, including a growing demand for services, a shortage of staff, and a need to improve the quality of care.

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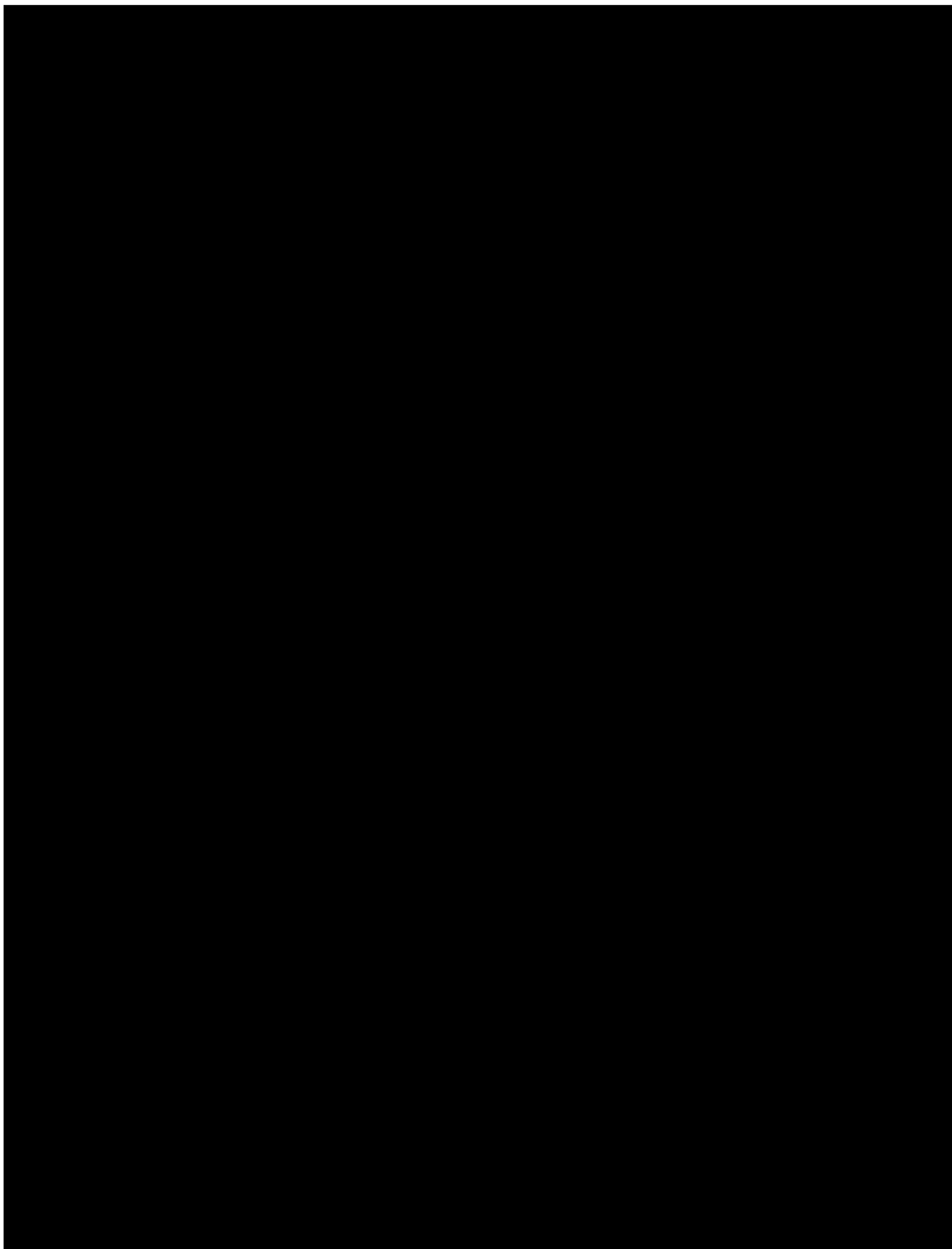
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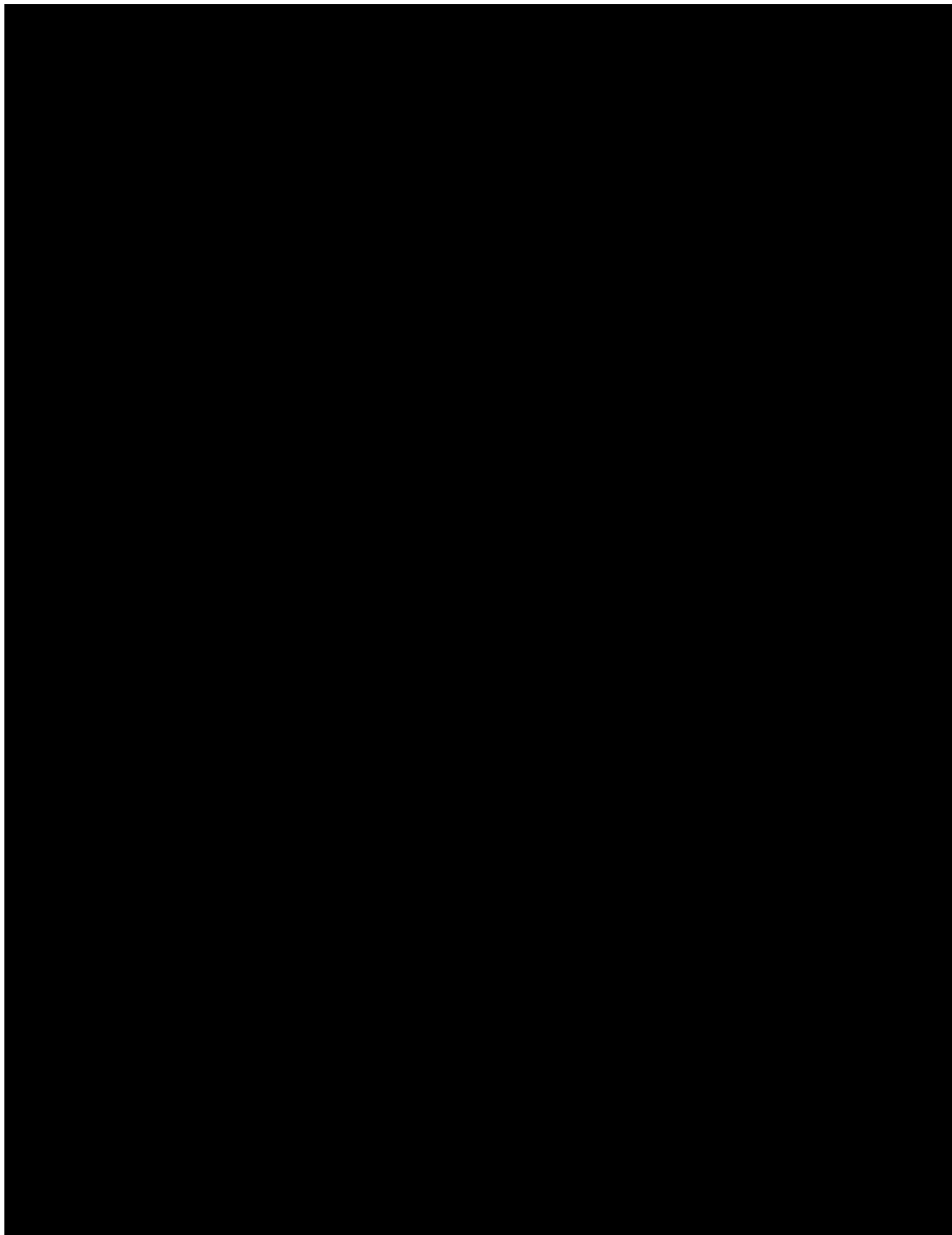
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the 1990s, the number of people in the world who are under 15 years of age has increased from 1.1 billion to 1.5 billion. The number of people aged 65 and over has increased from 200 million to 350 million. The number of people aged 15–64 years has increased from 1.5 billion to 2.2 billion.

There are a number of factors which have contributed to this increase in the number of people in the world. One of the main factors is the increase in life expectancy. In 1990, the average life expectancy at birth was 47 years. In 2000, it was 52 years. This increase in life expectancy has led to a larger proportion of the population being aged 65 and over.

Another factor which has contributed to the increase in the number of people in the world is the increase in the number of people who are aged 15–64 years. This increase is due to a number of factors, including the increase in the number of people who are aged 15–24 years, and the increase in the number of people who are aged 25–64 years.

The increase in the number of people in the world has led to a number of challenges. One of the main challenges is the need for more resources to support the growing population. This includes the need for more food, water, and shelter. It also includes the need for more education and healthcare.

Another challenge is the need for more jobs. As the number of people in the world increases, the number of people who are aged 15–64 years also increases. This means that there are more people who are of working age, and therefore there is a need for more jobs to support them.

The increase in the number of people in the world has also led to a number of environmental challenges. One of the main challenges is the need for more land to support the growing population. This includes the need for more agricultural land, and the need for more land for housing and infrastructure.

Another environmental challenge is the need for more water. As the number of people in the world increases, the number of people who are aged 15–64 years also increases. This means that there are more people who are of working age, and therefore there is a need for more water to support them.

The increase in the number of people in the world has also led to a number of social challenges. One of the main challenges is the need for more education. As the number of people in the world increases, the number of people who are aged 15–64 years also increases. This means that there are more people who are of working age, and therefore there is a need for more education to support them.

Another social challenge is the need for more healthcare. As the number of people in the world increases, the number of people who are aged 15–64 years also increases. This means that there are more people who are of working age, and therefore there is a need for more healthcare to support them.

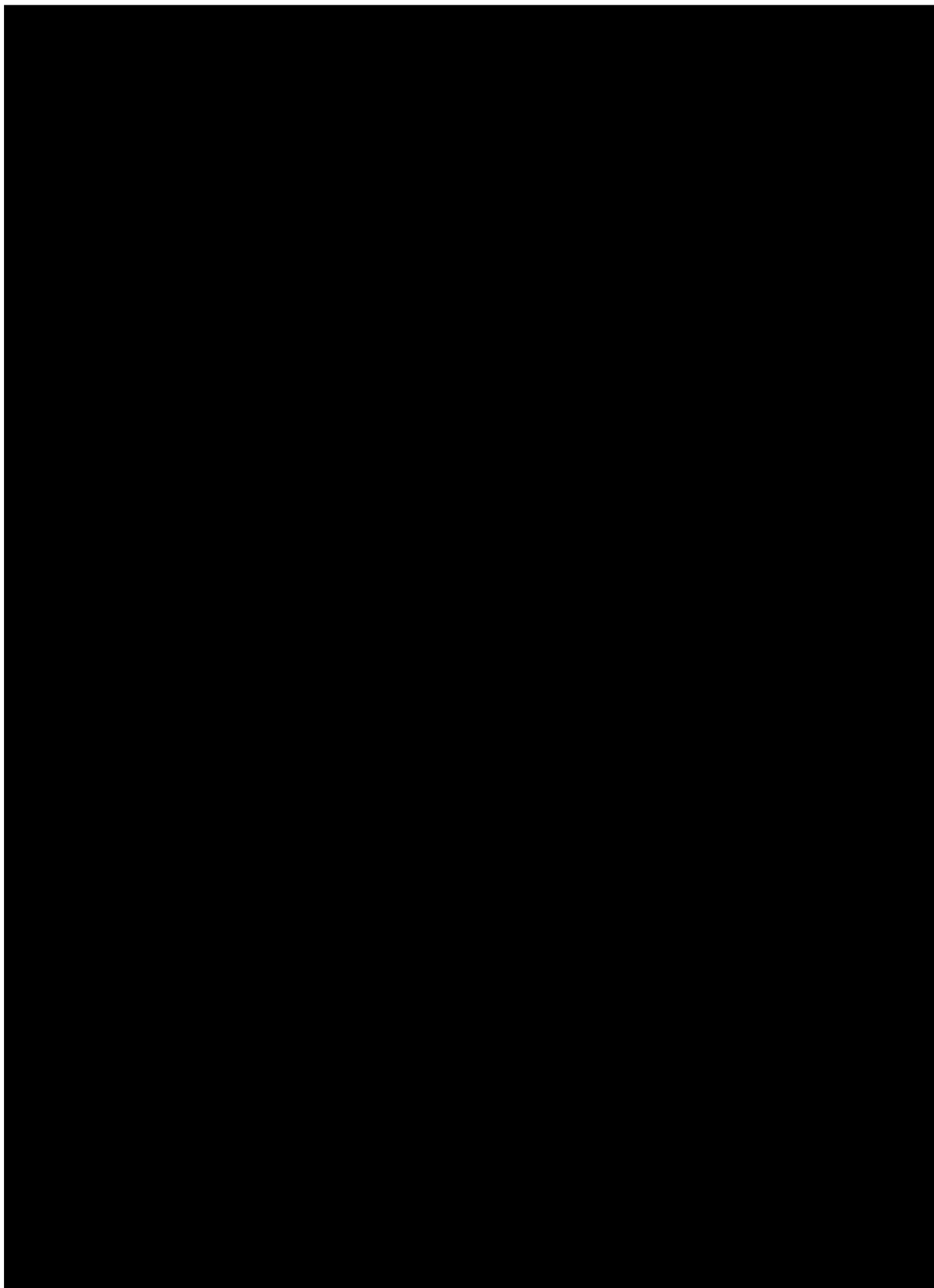
The increase in the number of people in the world has also led to a number of economic challenges. One of the main challenges is the need for more resources to support the growing population. This includes the need for more food, water, and shelter. It also includes the need for more education and healthcare.

Another economic challenge is the need for more jobs. As the number of people in the world increases, the number of people who are aged 15–64 years also increases. This means that there are more people who are of working age, and therefore there is a need for more jobs to support them.

The increase in the number of people in the world has also led to a number of environmental challenges. One of the main challenges is the need for more land to support the growing population. This includes the need for more agricultural land, and the need for more land for housing and infrastructure.

Another environmental challenge is the need for more water. As the number of people in the world increases, the number of people who are aged 15–64 years also increases. This means that there are more people who are of working age, and therefore there is a need for more water to support them.





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# Appendix 5



