Natural Gas STAR Annual Report - Transmission Segment

OMB Control No. 2060-0722
Approval expires XX/XX/202X
EPA Form No. 5900-95

FORM VERSION: REPORTING SEASON 2021 (for activities completed in 2020)

RS2021TRANSv1

Partner Name	
Reporting Year	2020

Use the Table of Contents below to navigate to the different tabs of the form. You can use column B to indicate if you reported data on a specific tab.

Transmission Emission Sources	Data Reported	Information
Compressor Engines	No	Replace reciprocating engines with turbines
Equipment Leaks	No	Directed inspection and maintenance at compressor stations
Pneumatic Controllers	No	Convert high-bleed controllers to low-bleed; convert high-bleed or low-bleed controllers to zero-emitting controllers; remove controllers from service with no replacement
Additional Transmission Activities	No	Use this tab to report all other methane reductions in the Transmission segment. You will be able to select the technology/practice used from the list of Natural Gas STAR Partner Reported Opportunities. If the activity you are reporting is not included in the list, please contact EPA at GasSTAR@epa.gov

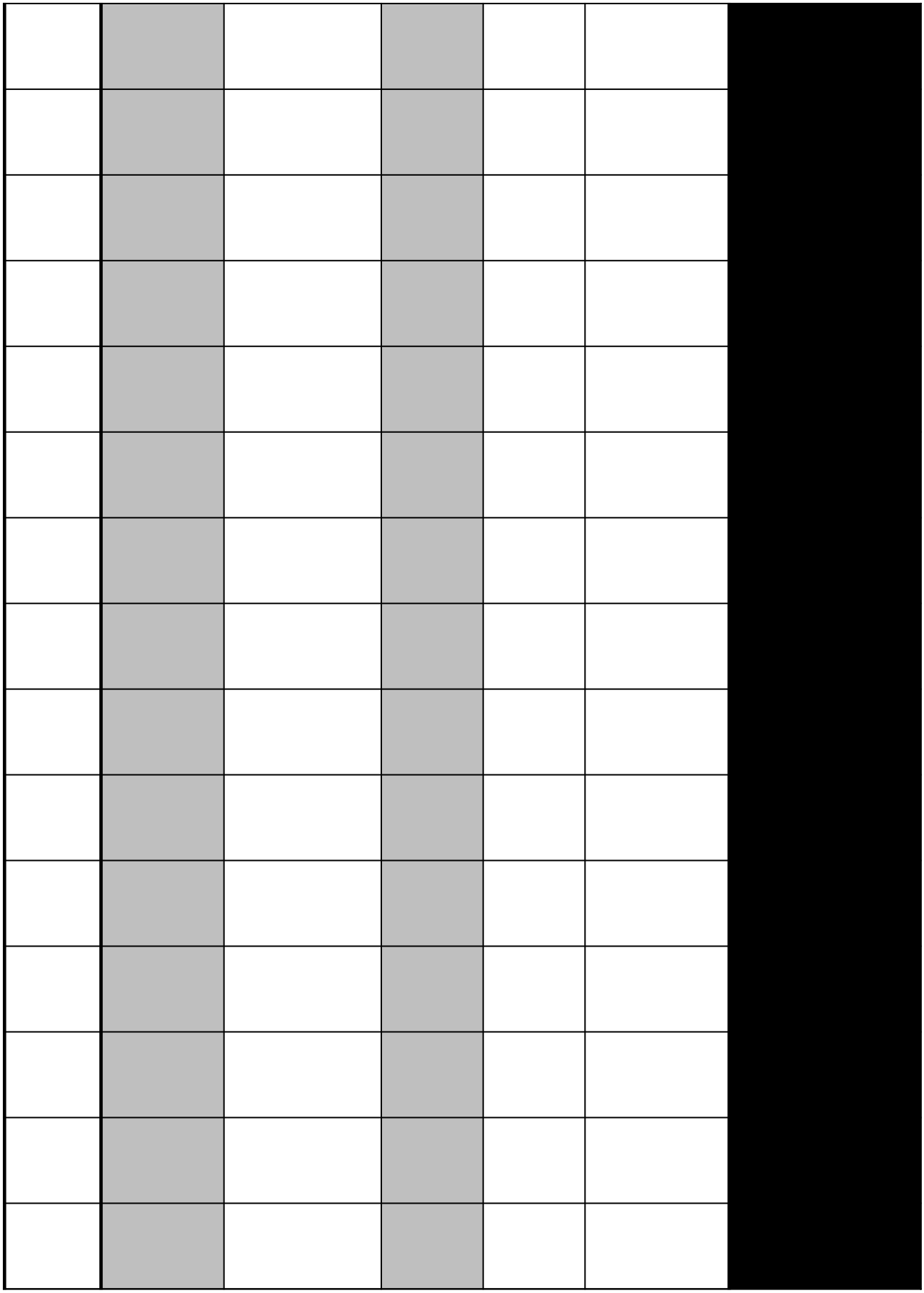
Update Partner Information (If applicable)

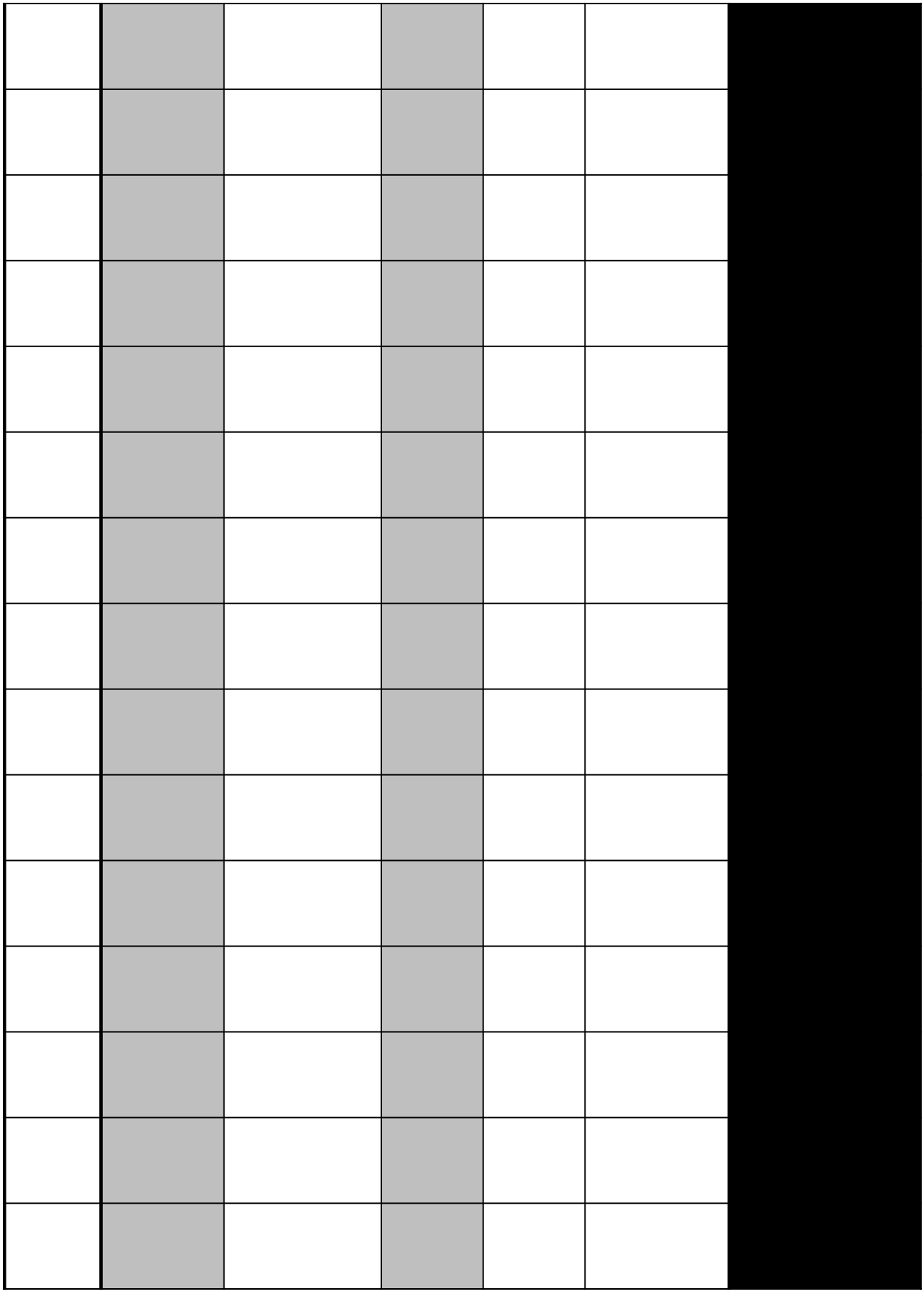
New Partner Name	

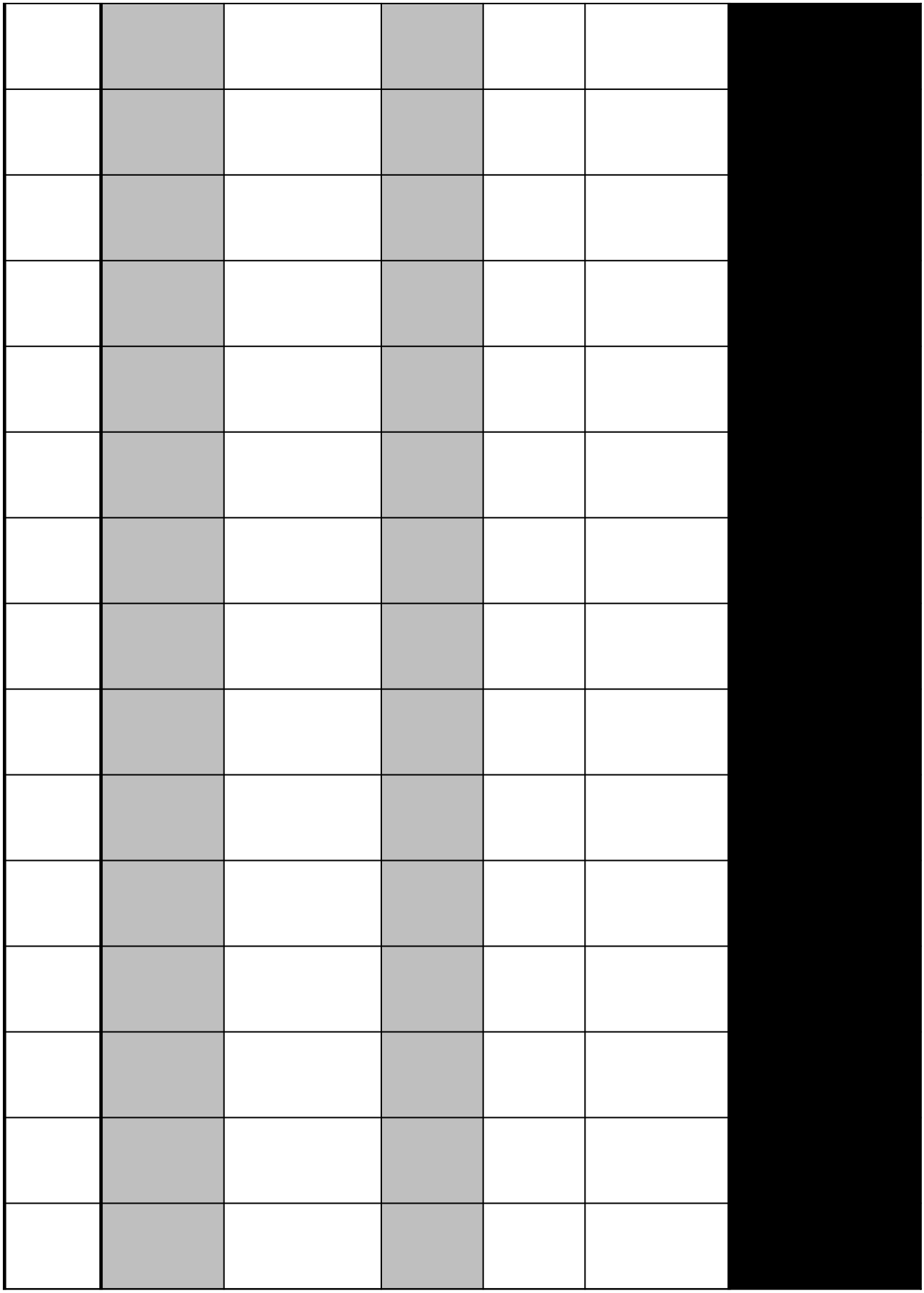
Compressor Engines

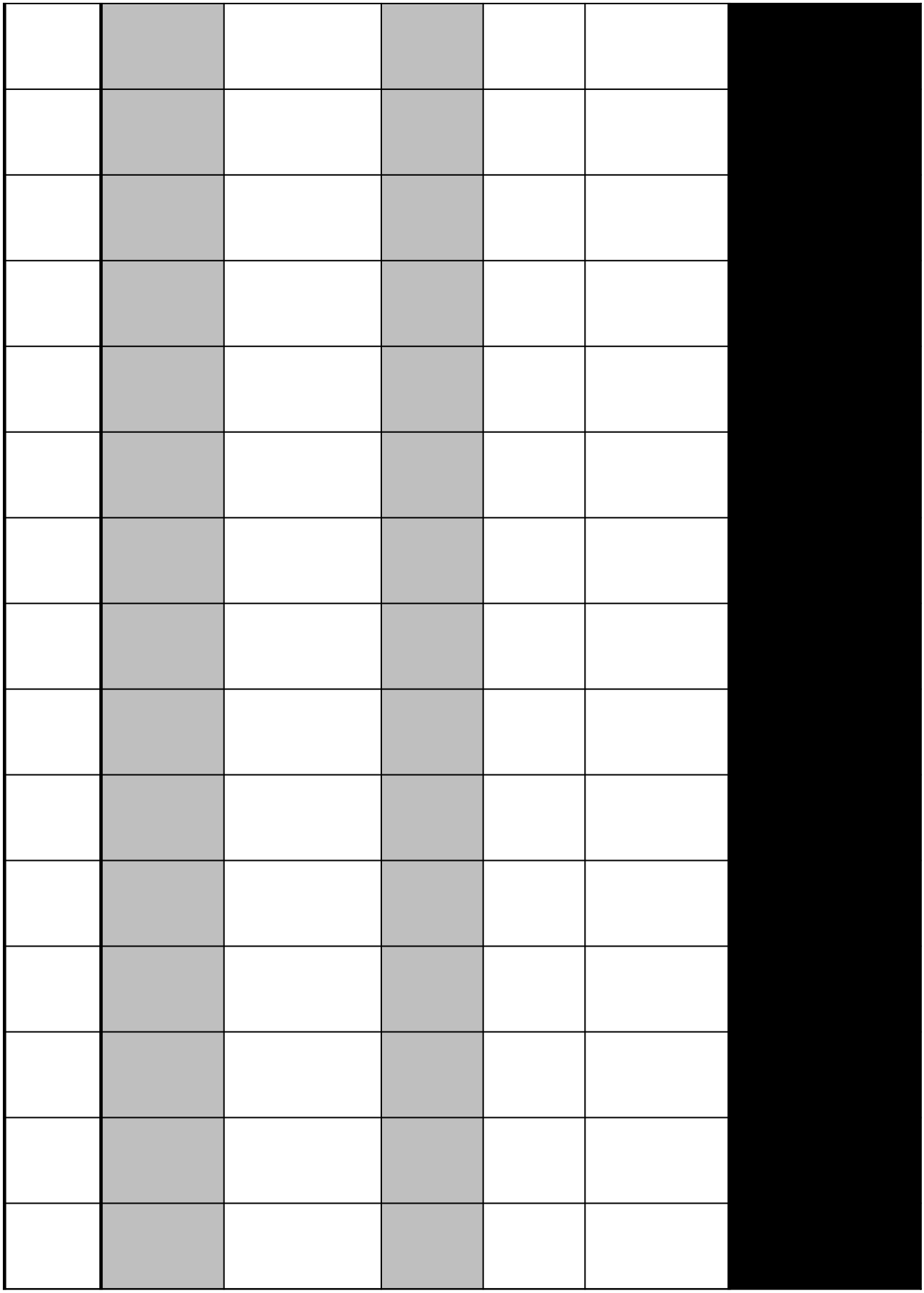
Replace reciprocating engines with turbines

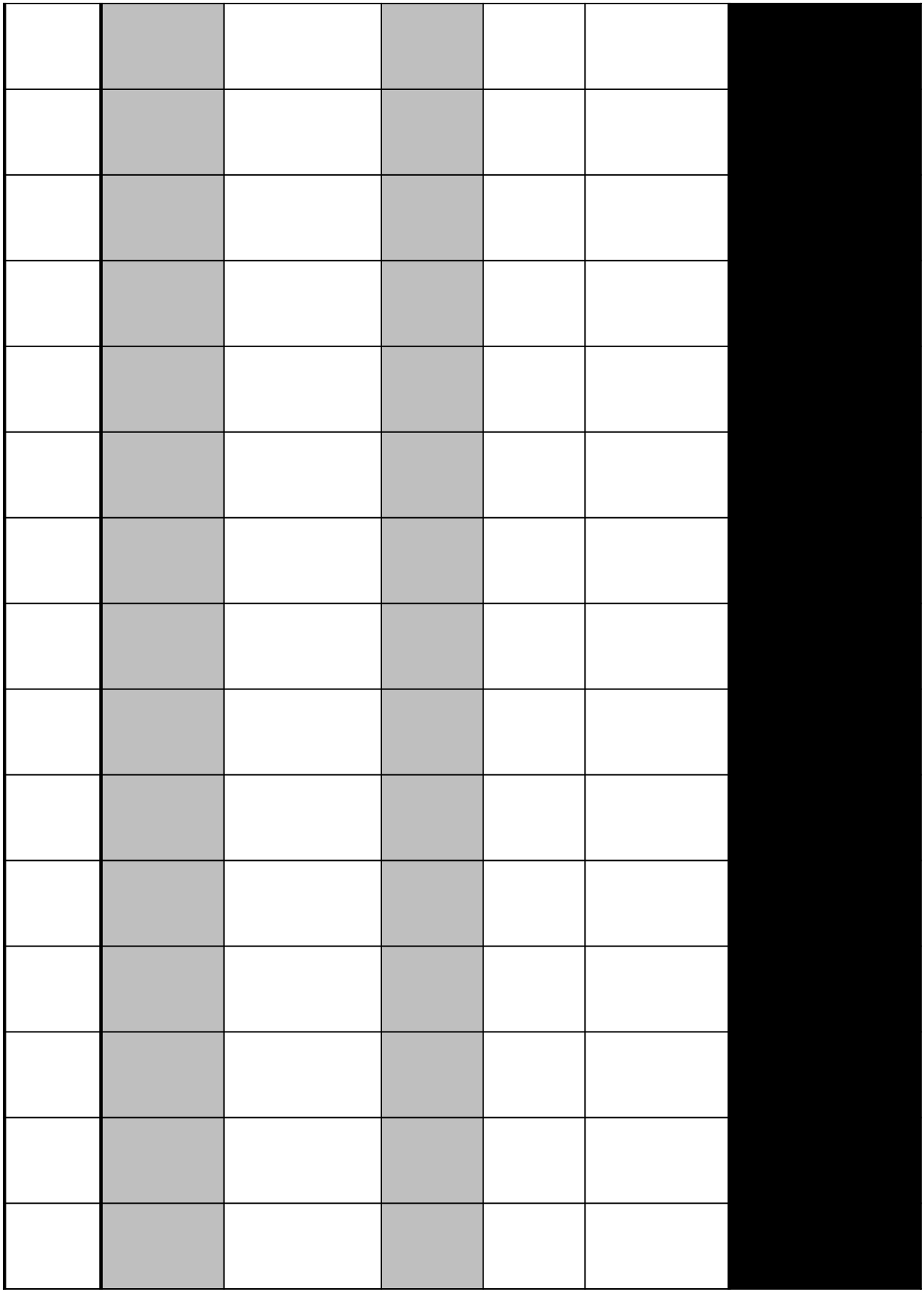
Start Year	Eligible Sunset Years for this Activity	Automatically calculate sunsets?	End Year	New or Ongoing?	Calculation Method: Default, Standard, or Other	Number of Turbines Installed

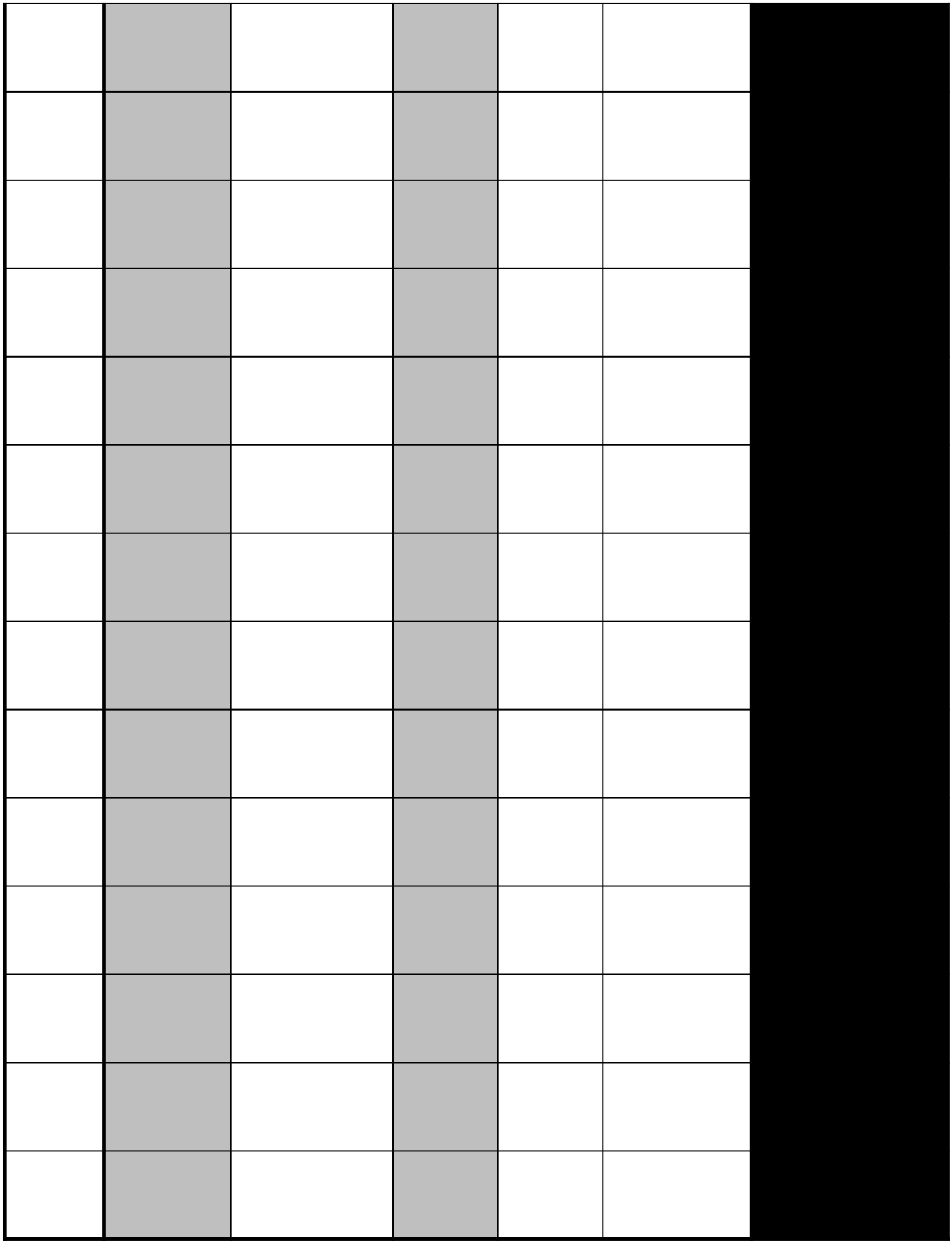












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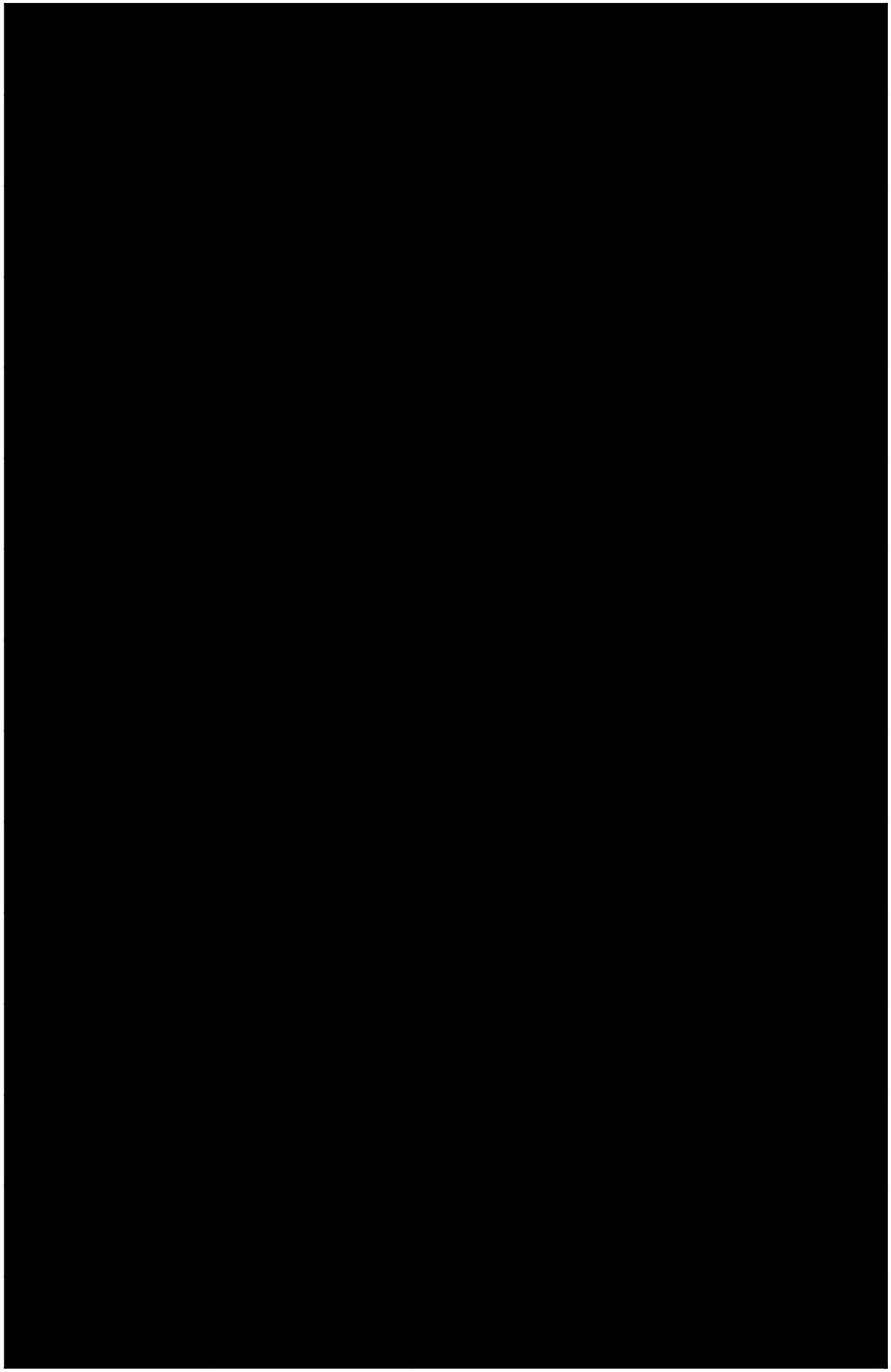
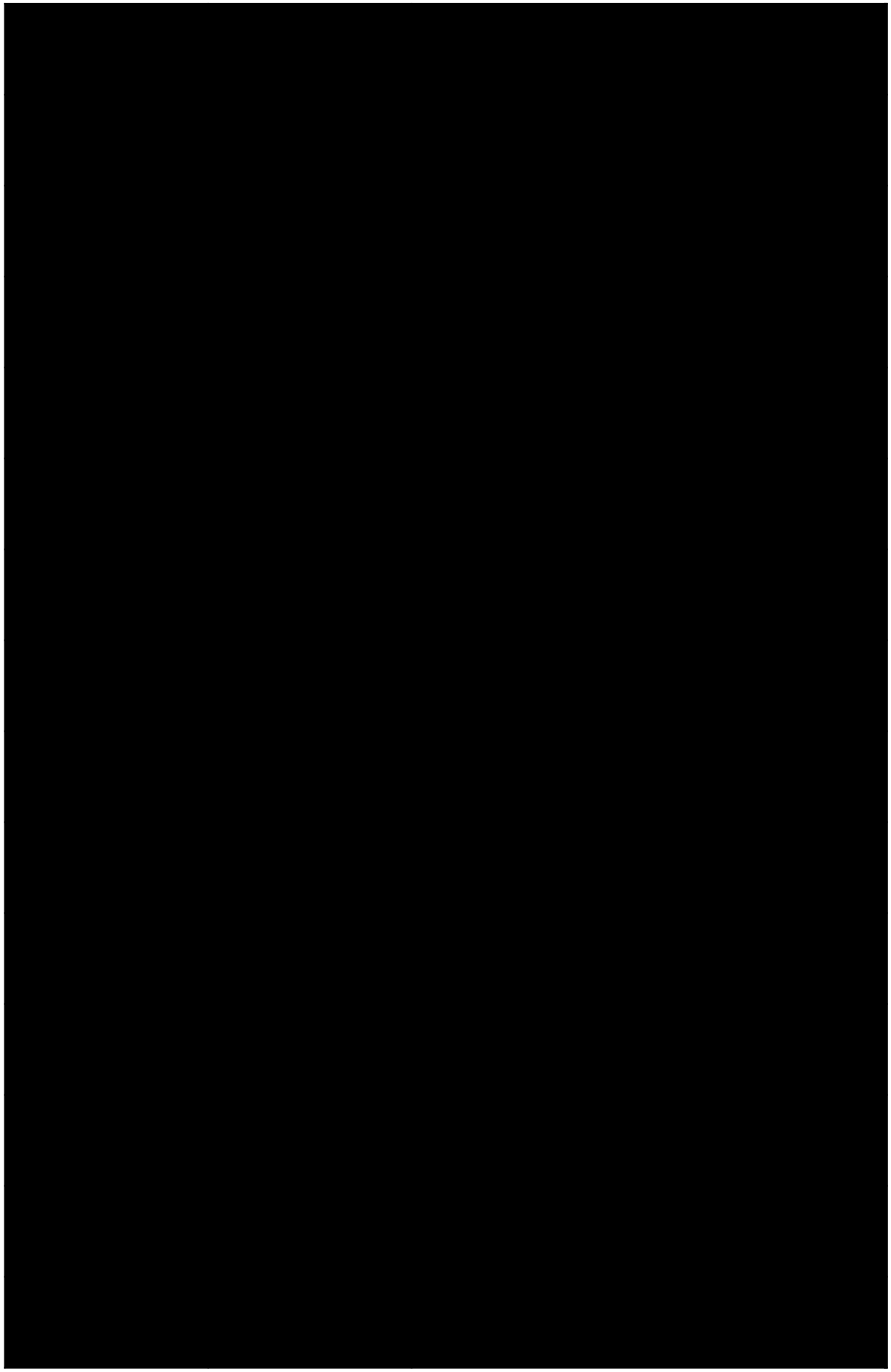
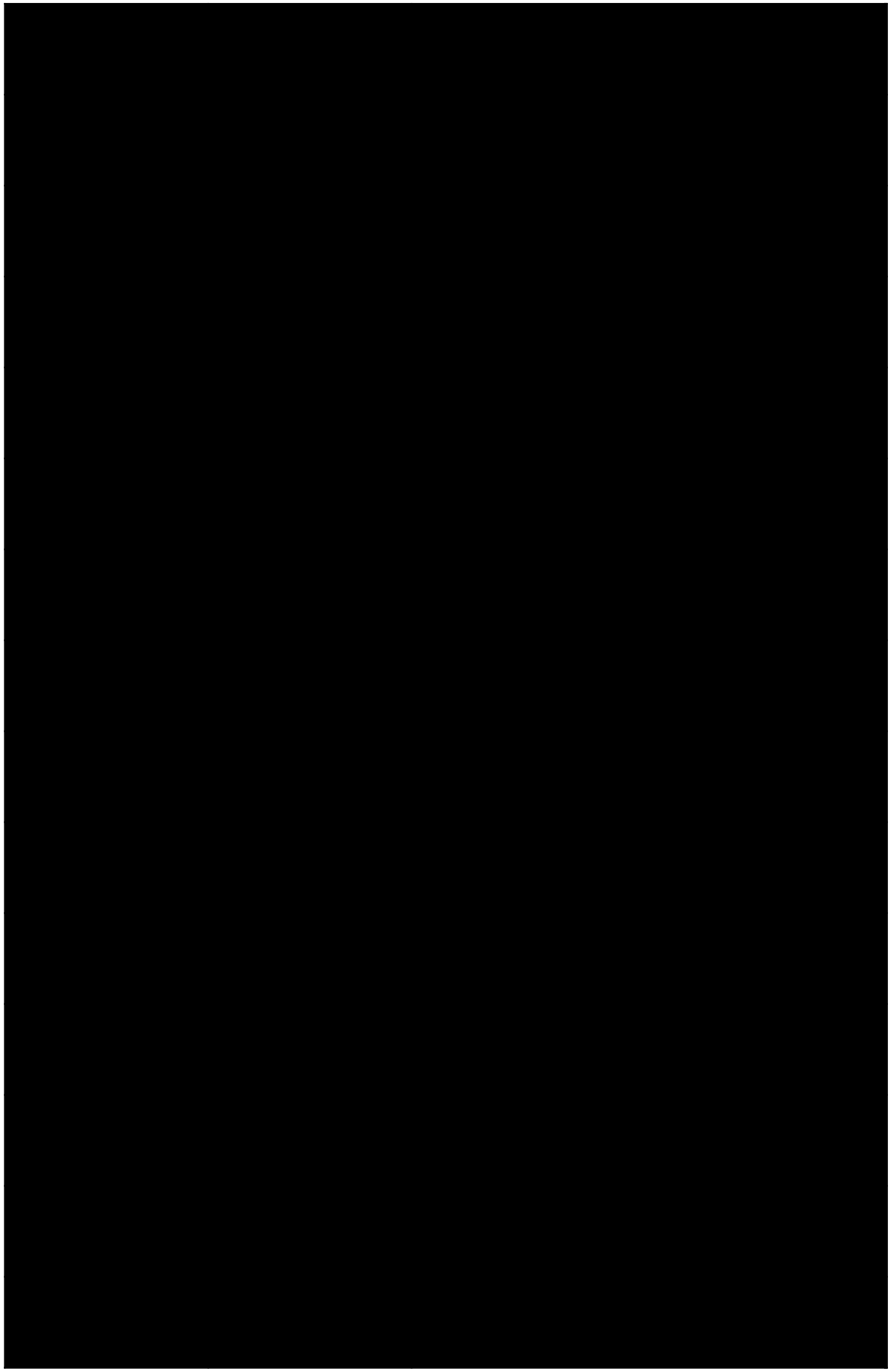
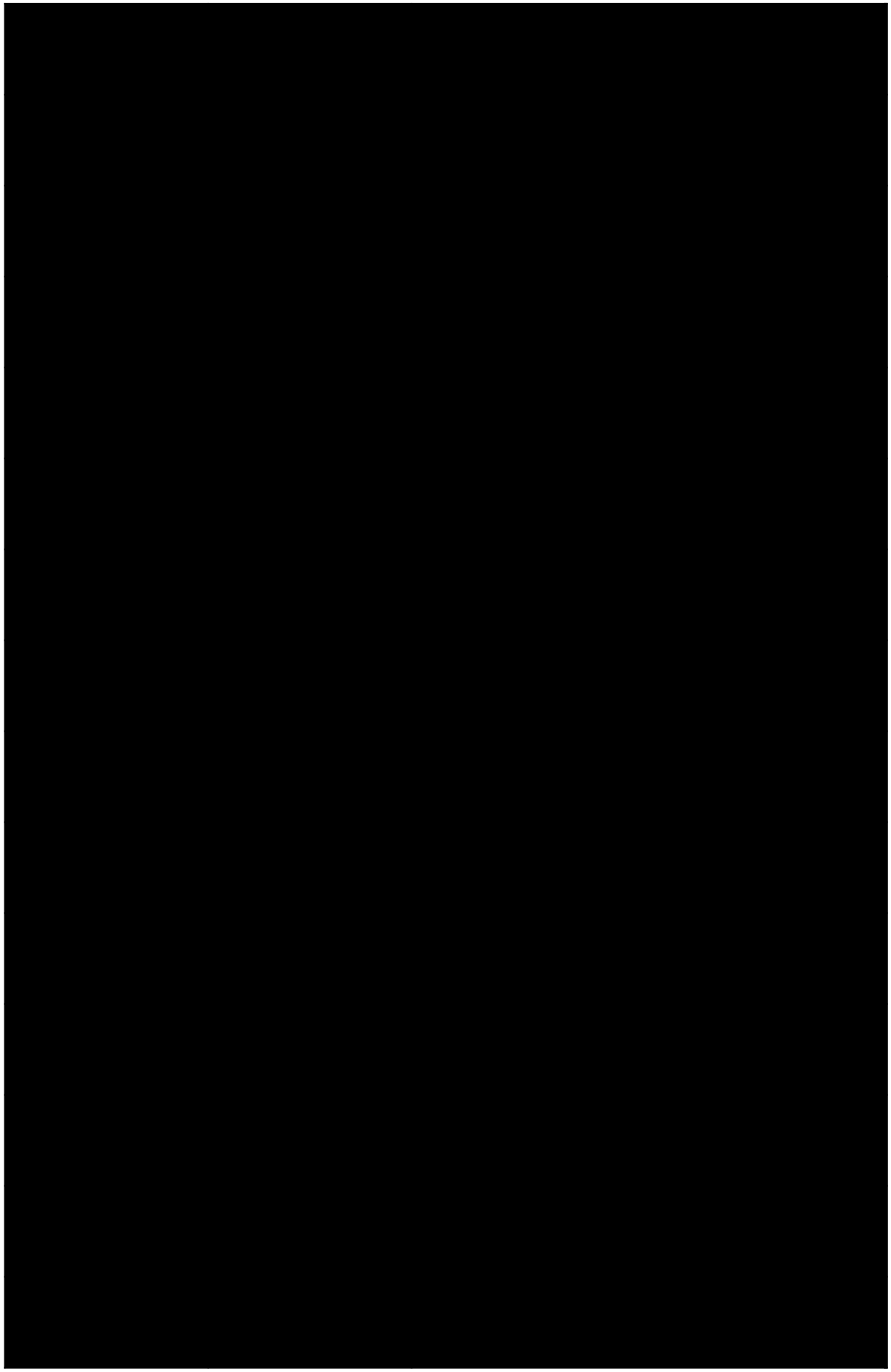
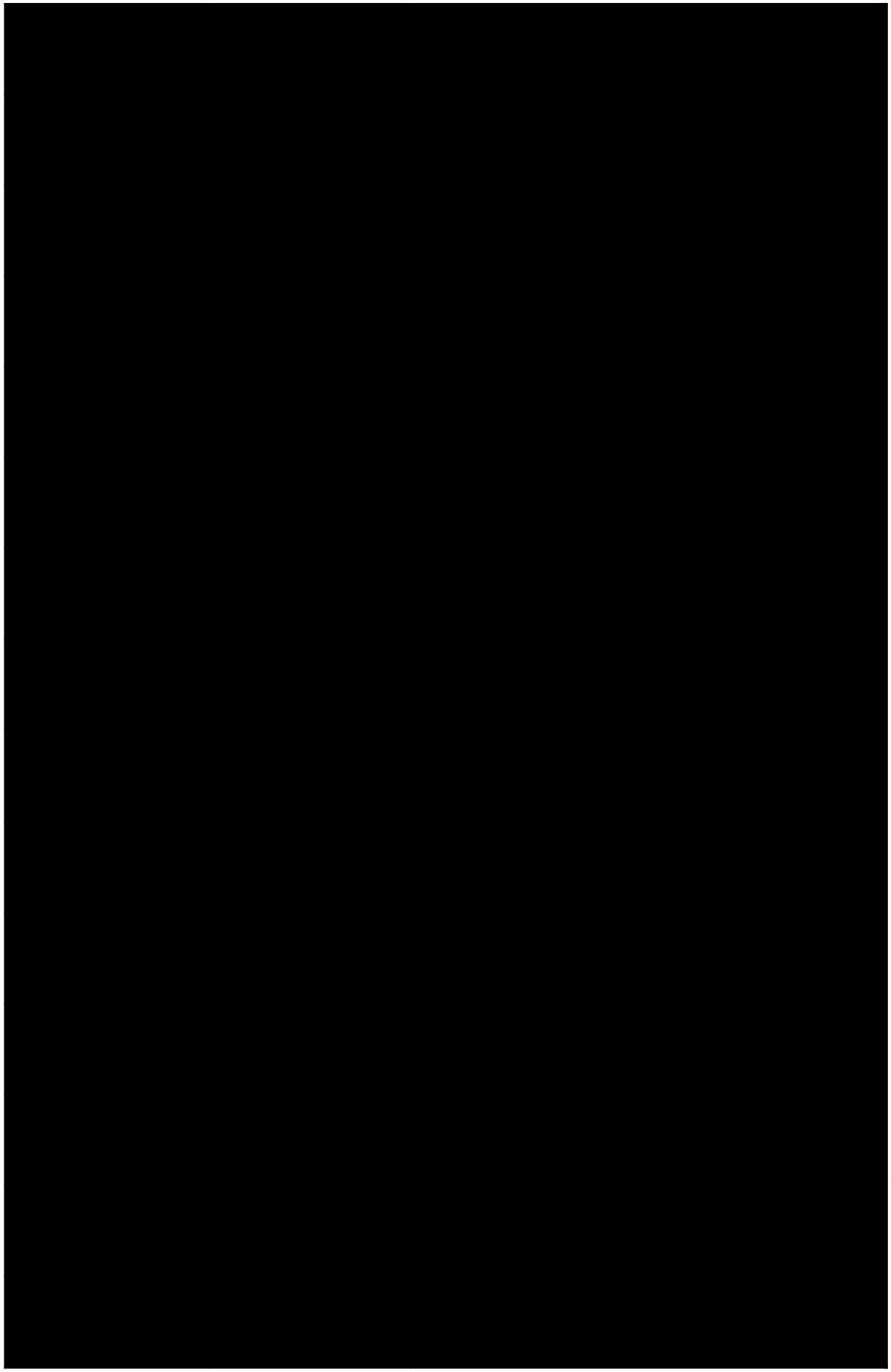
Calculate Using Default		
Horsepower of Turbine Engines Installed (average)	Hours Turbine Engines were Used (average)	Calculated Total Methane Emission Reduction Based on Default Values {[Number of Turbines Installed]x[Horsepower of Turbine Engines Installed]x[Total Hours Turbine Engines were Used]x[0.234 scf/hp/hr / 1000]}

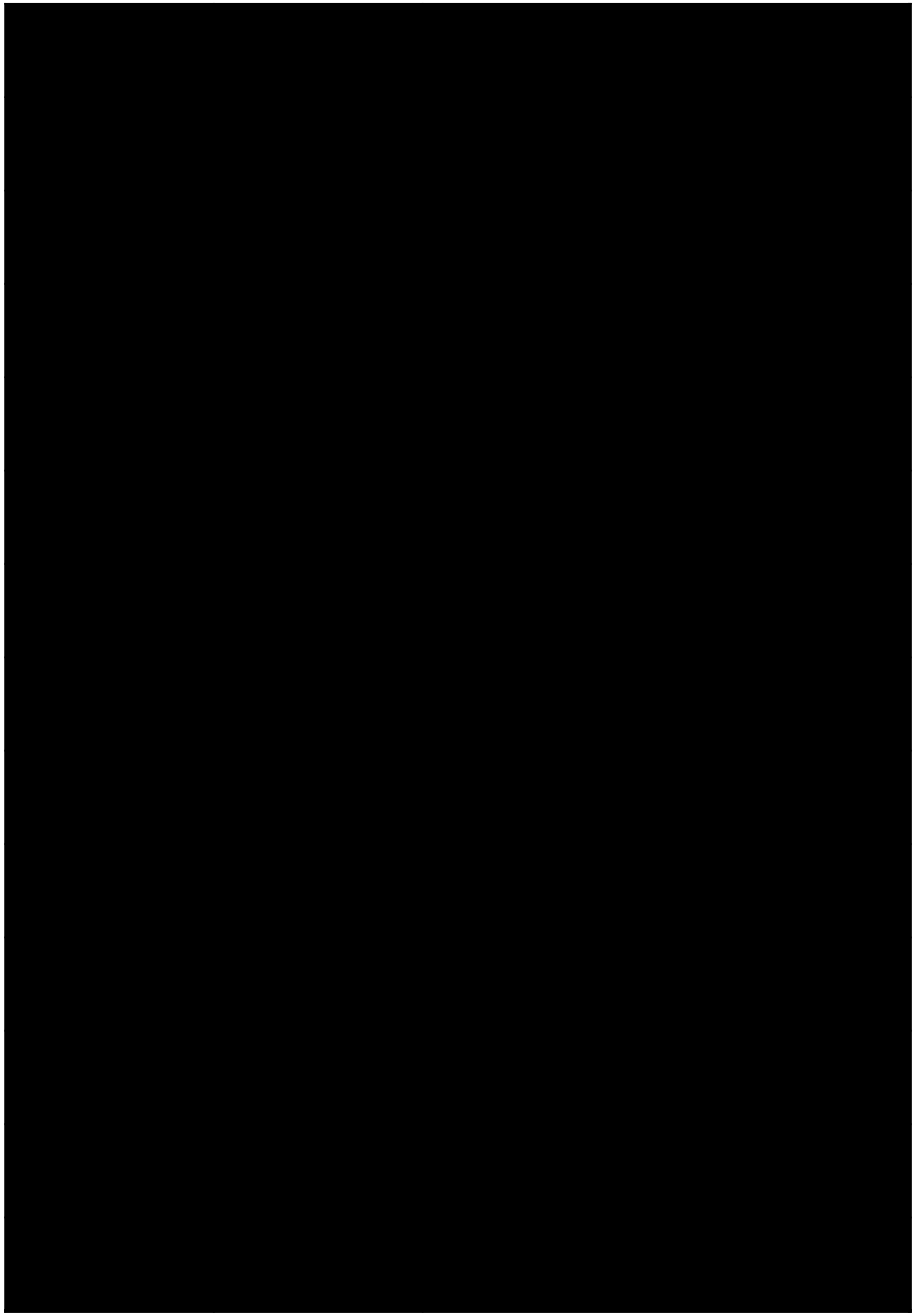




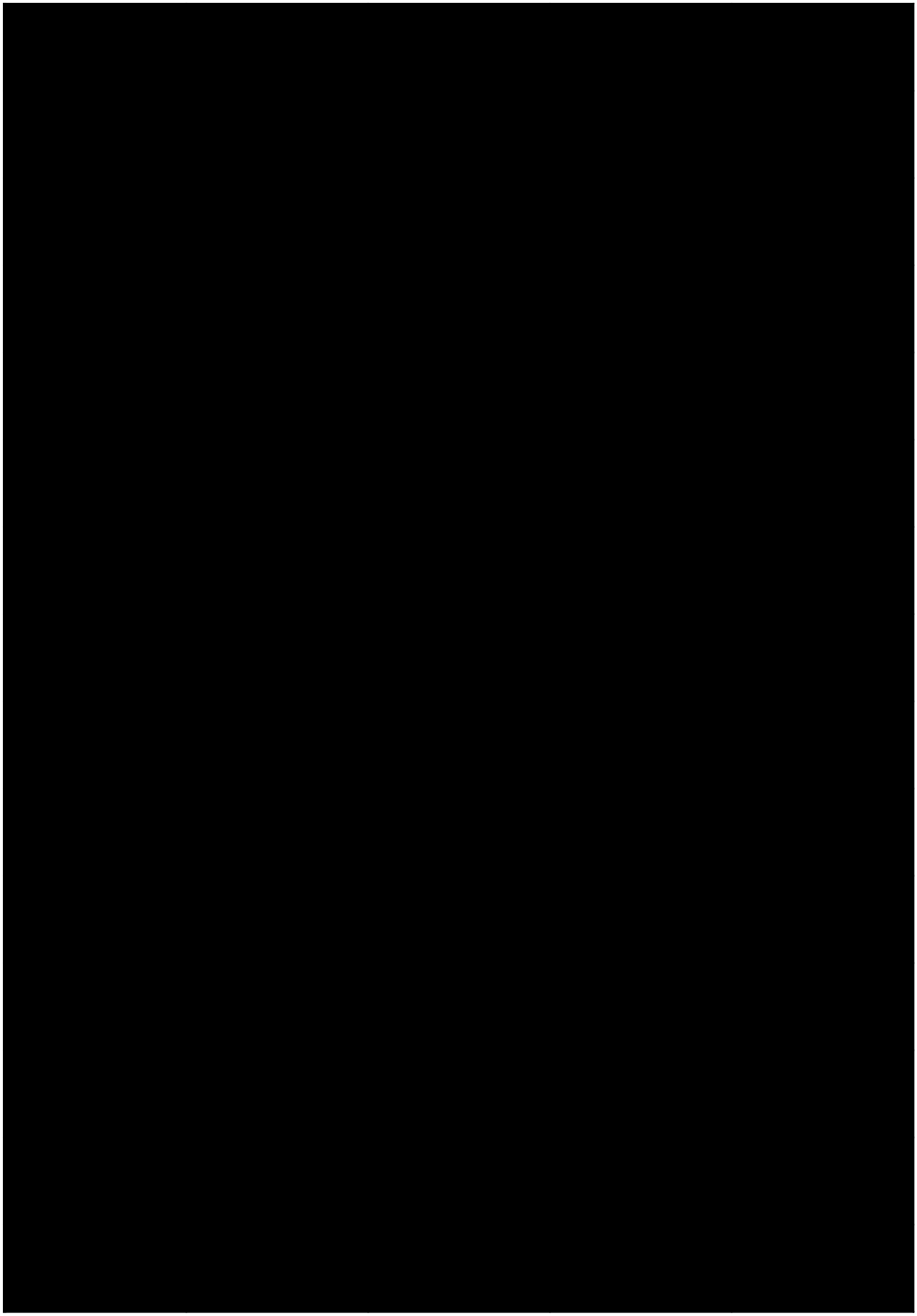


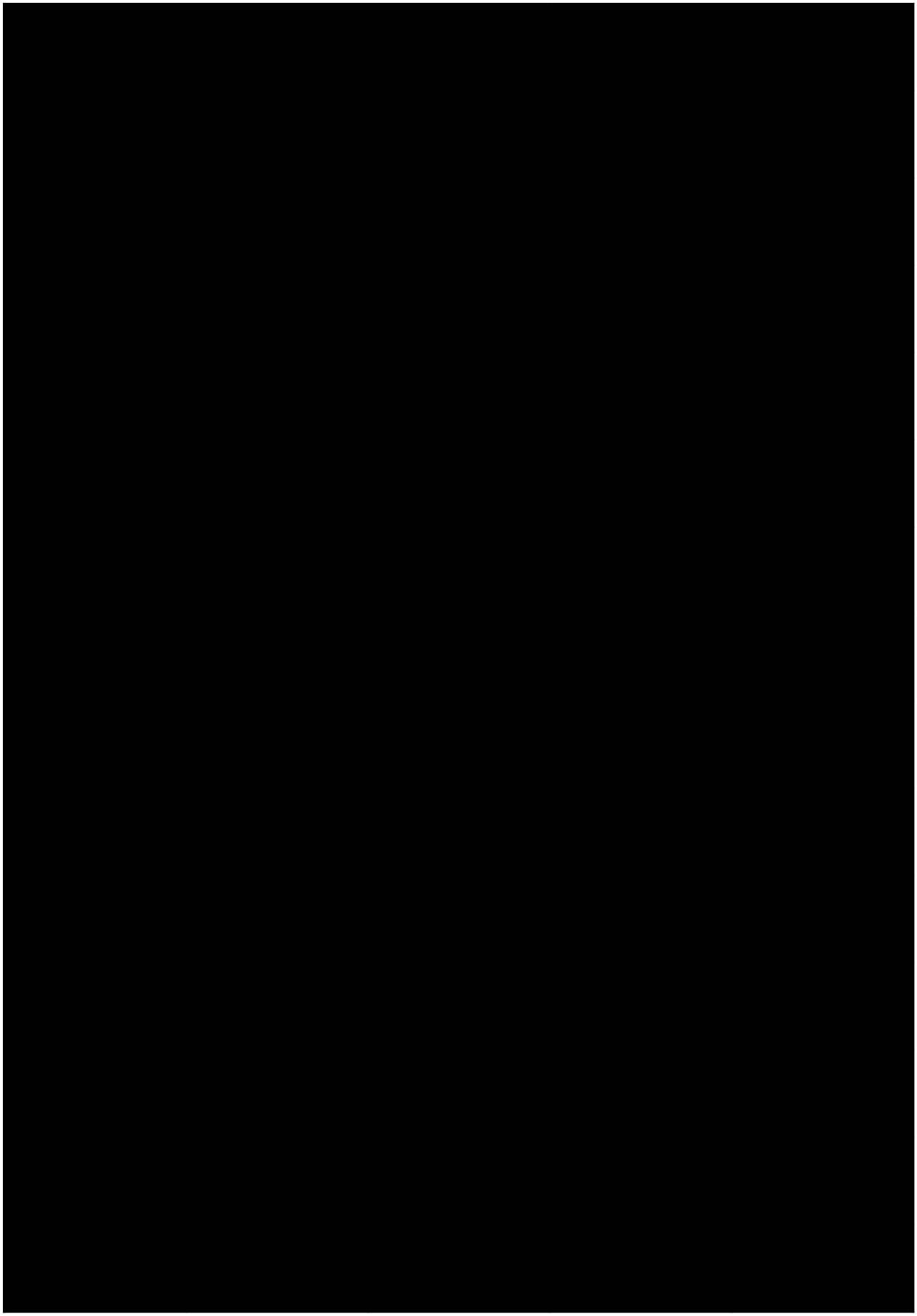


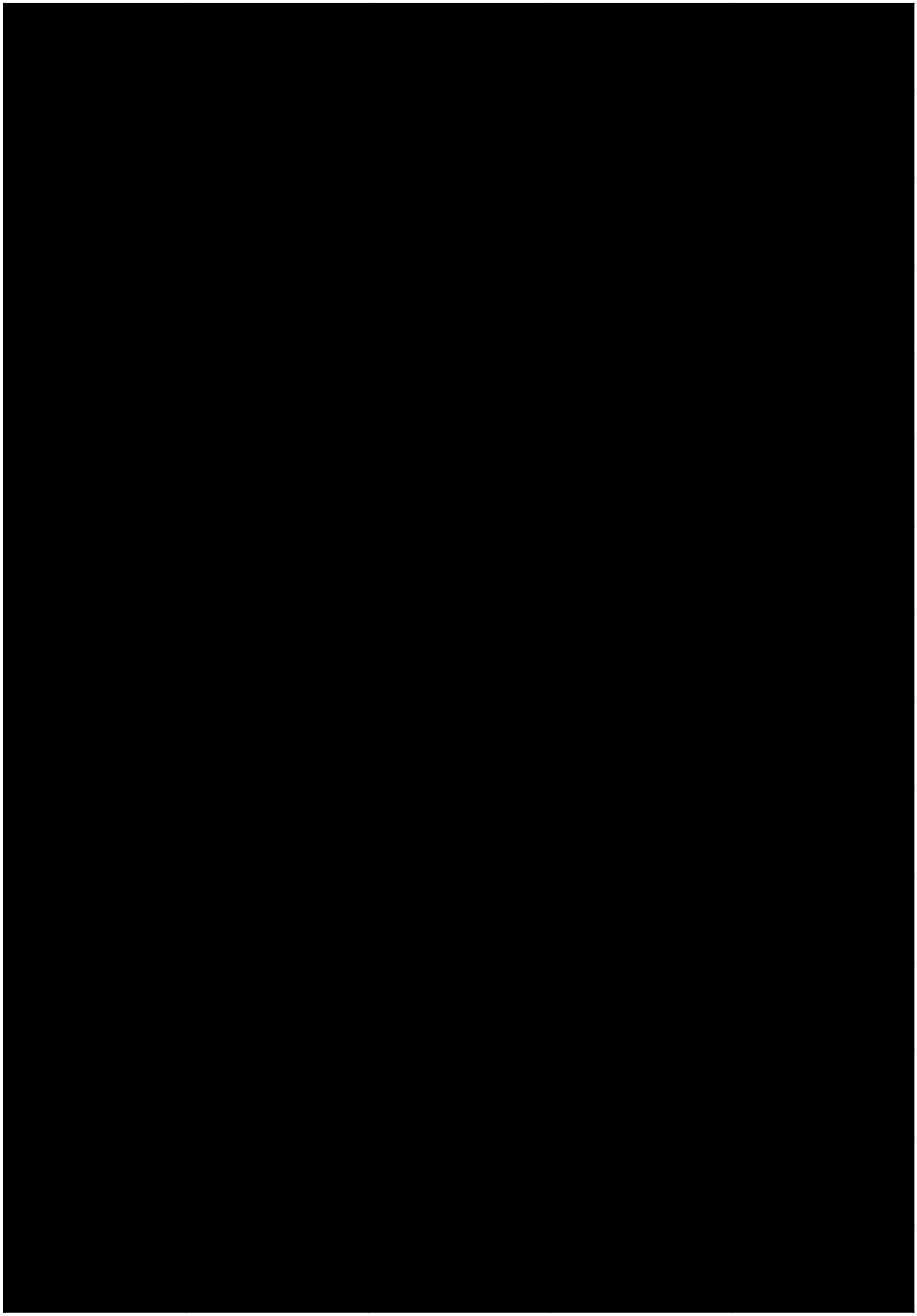


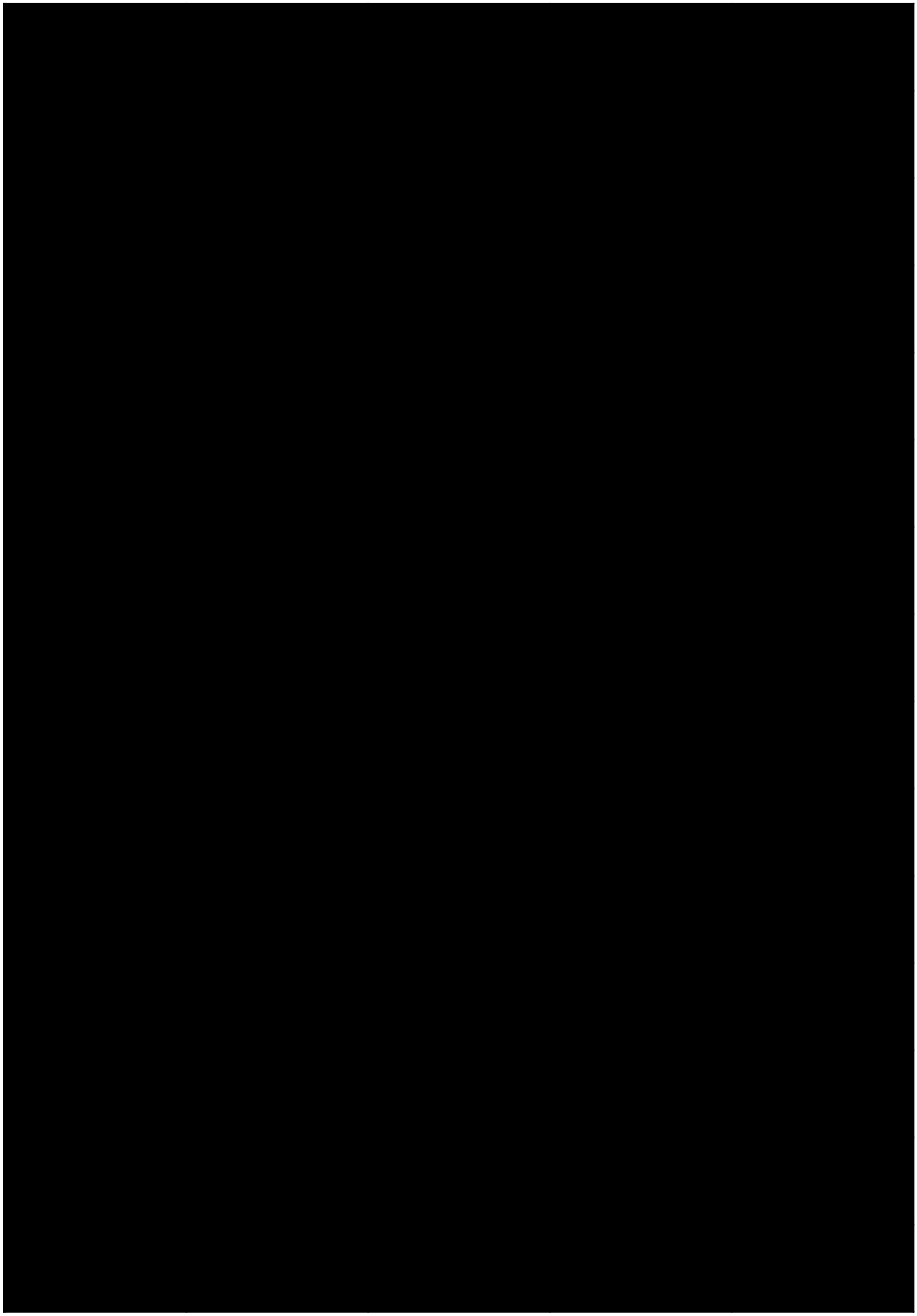


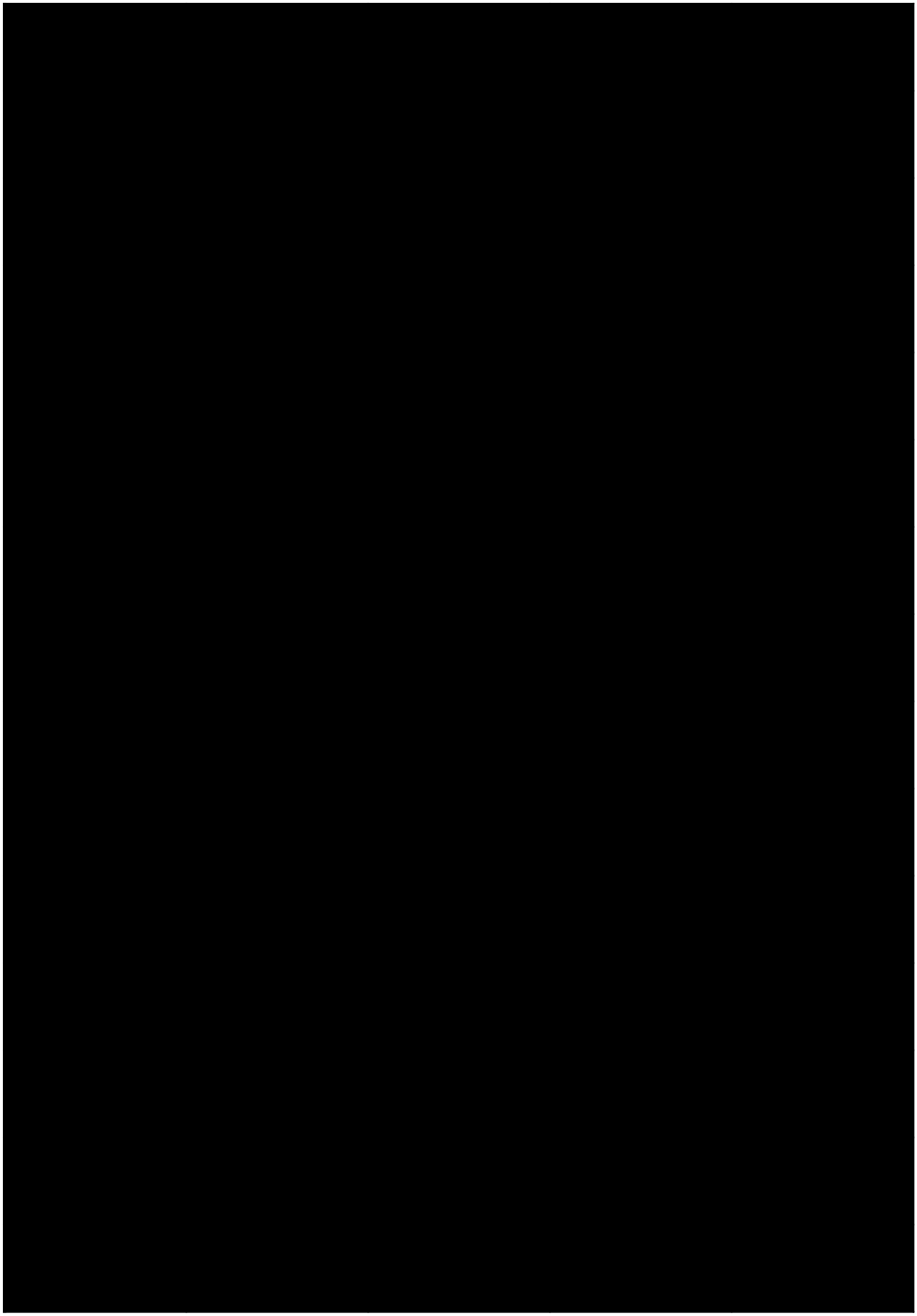
Calculate Using Standard Calculatio				
Number of Reciprocated Engines Retired	Emisison Rate of Reciprocated Engines Retired (Mcf CH4/MMcf of fuel used)	Fuel Consumption of Reciprocated Engines Retired (MMcf/hr)	Number of Turbines Installed	Emisison Rate of Turbines Installed (Mcf CH4/MMcf of fuel used)

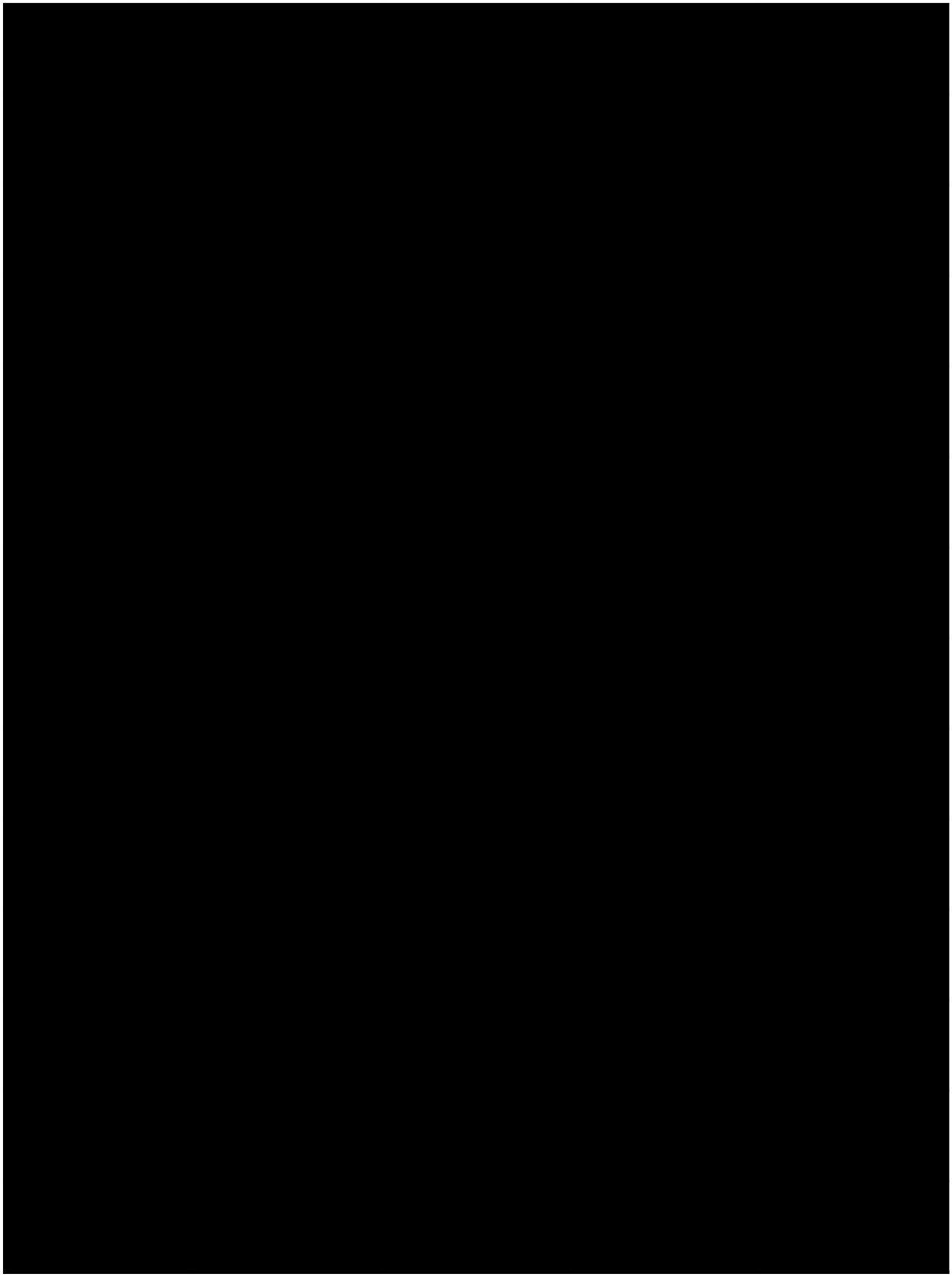




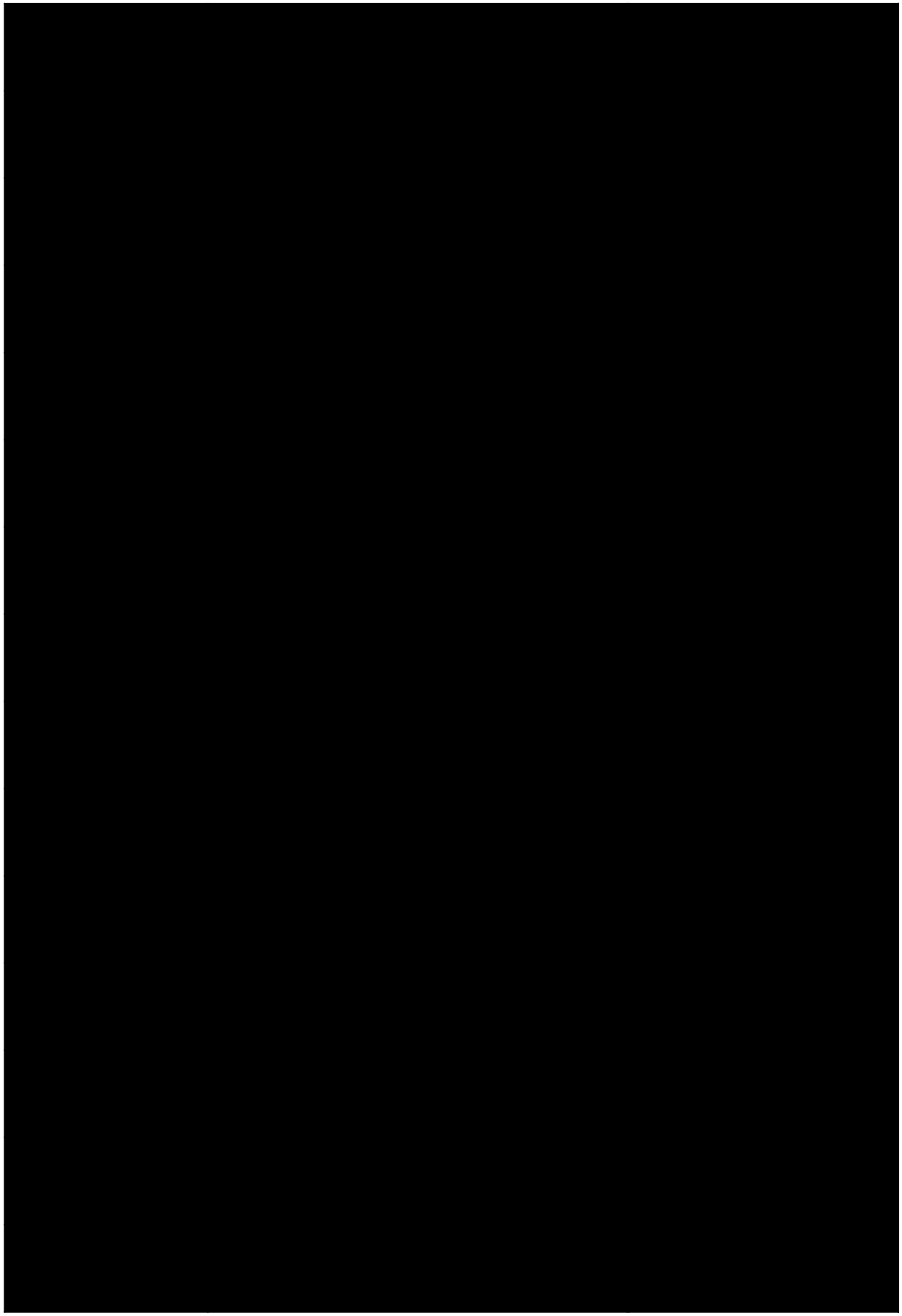


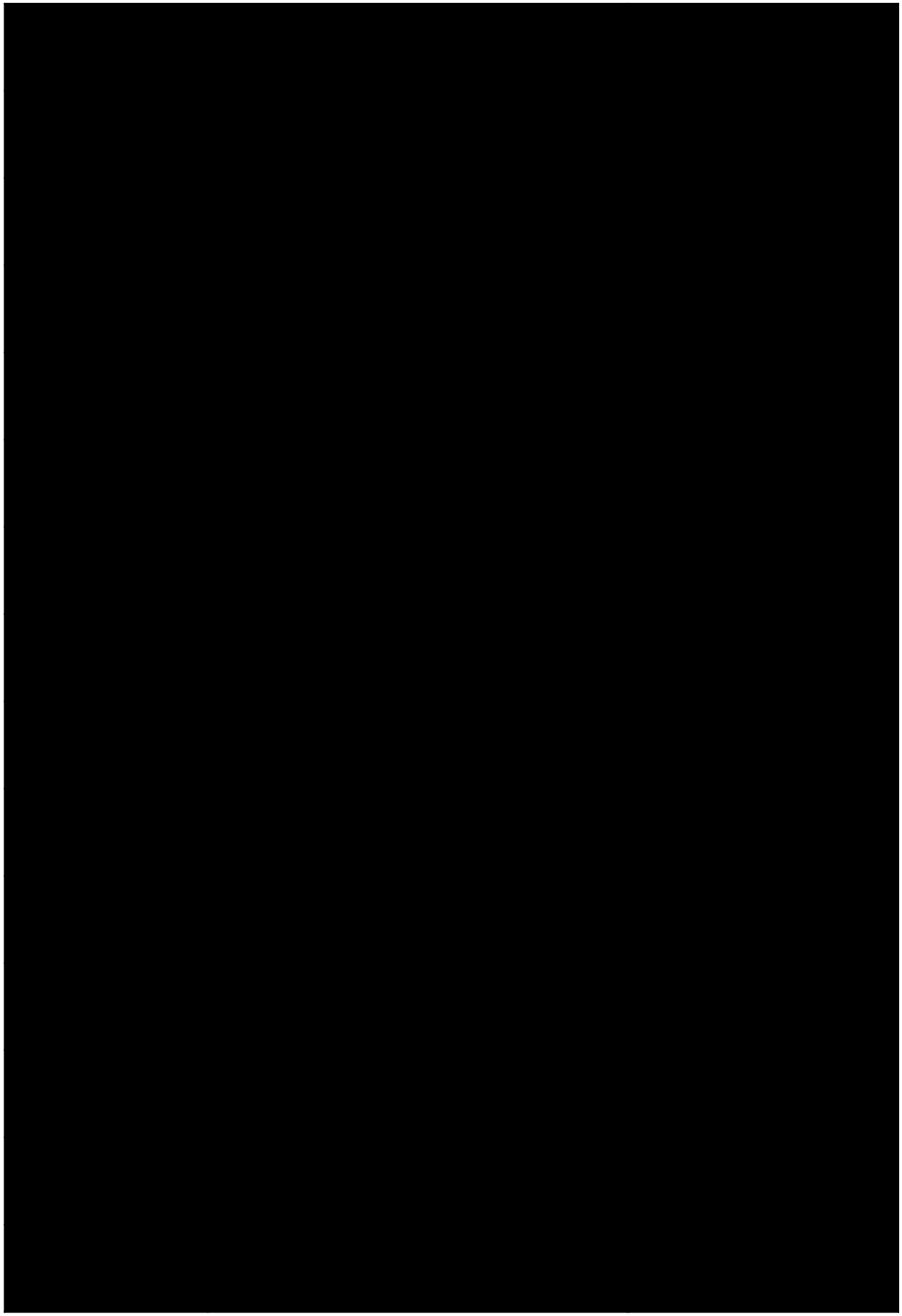


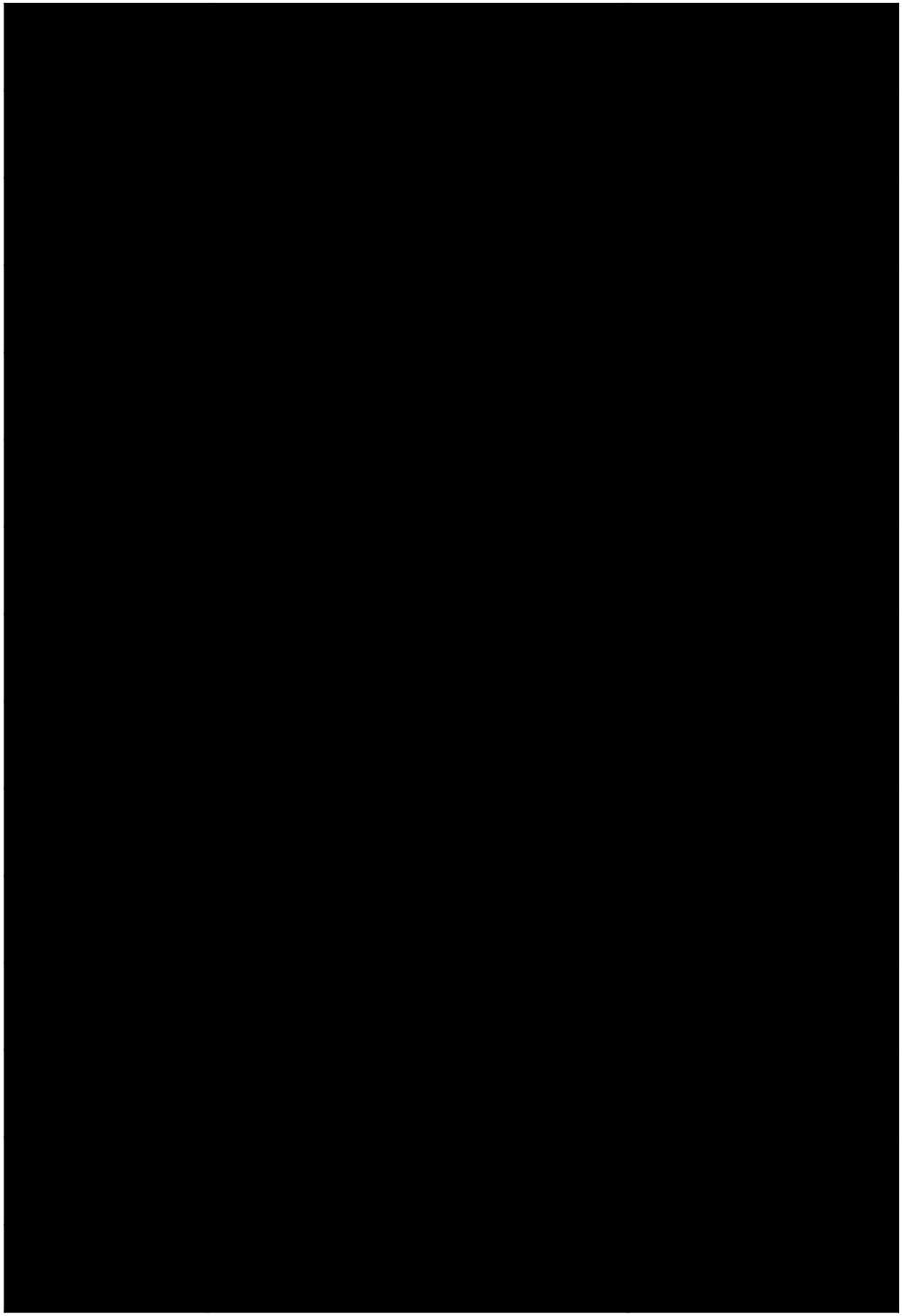


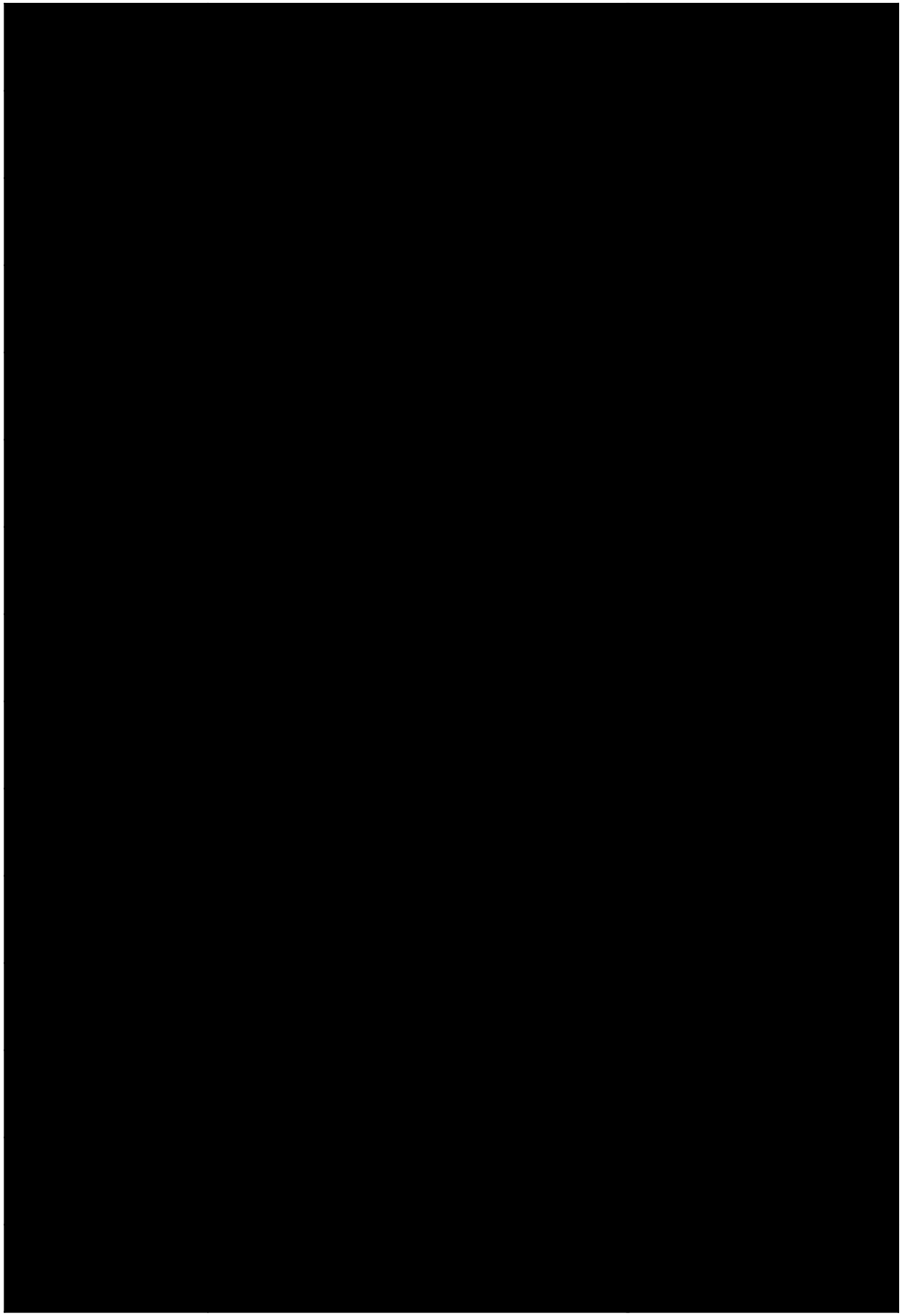


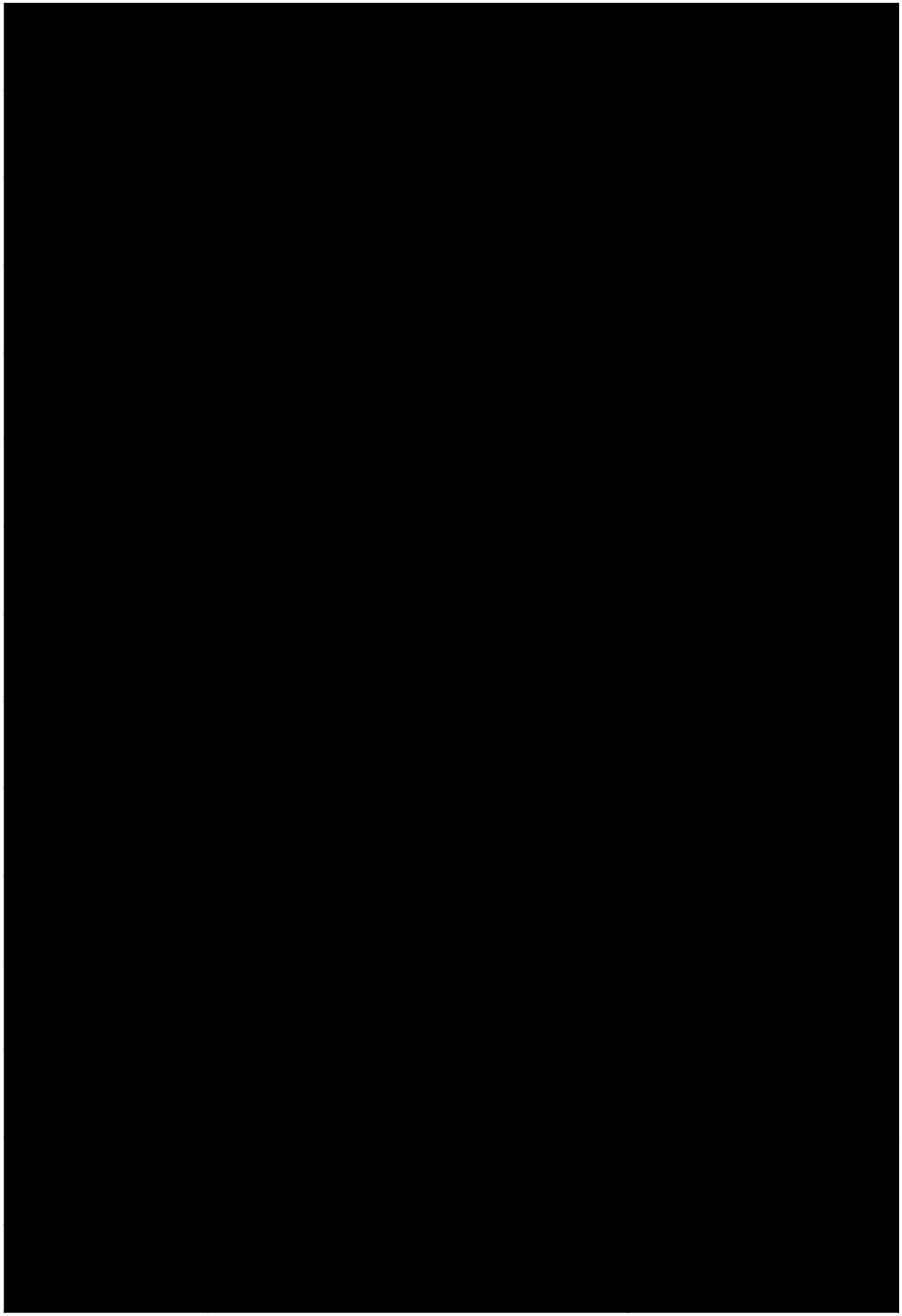
on		
Fuel Consumption of Turbines Installed (MMcf/hr)	Calculated Total Methane Emission Reduction Based on Standard Calculation {([Number of Reciprocated Engines Retired]x[Emissions Rate of Reciprocated Engine Retired]x[Fuel Consumption of Reciprocated Engine Retired])-([Number of Turbines Installed]x[Emissions Rate of Turbines Installed]x[Fuel Consumption of Turbines Installed])}	Total Methane Emission Reduction Based on Other Assumptions (Mcf/yr)
[redacted]		

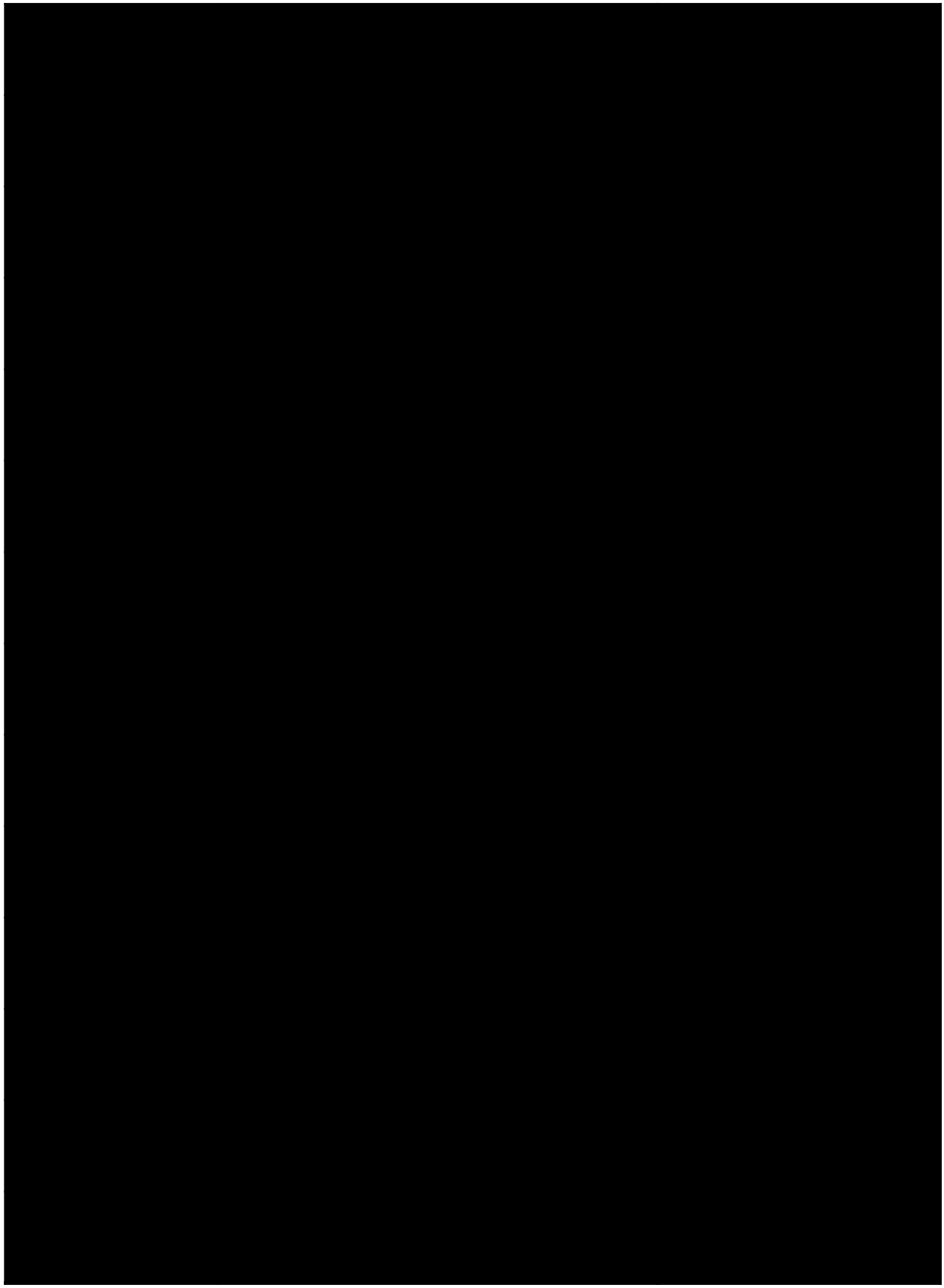




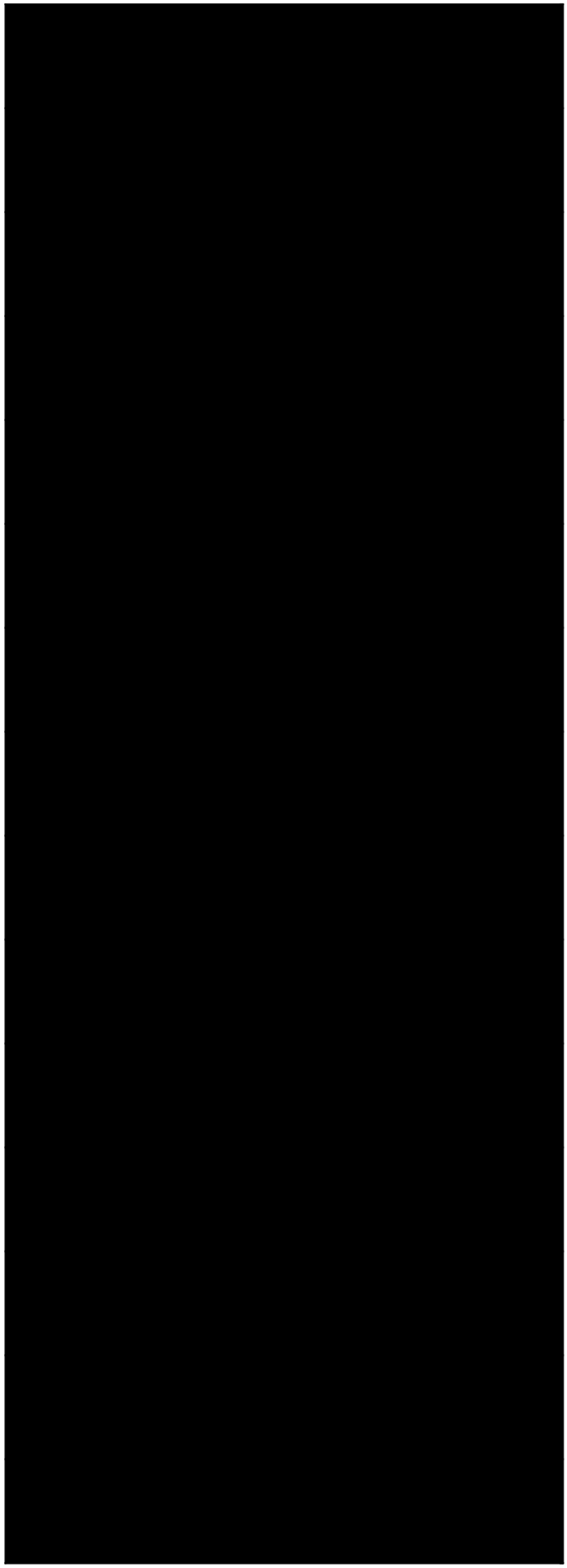


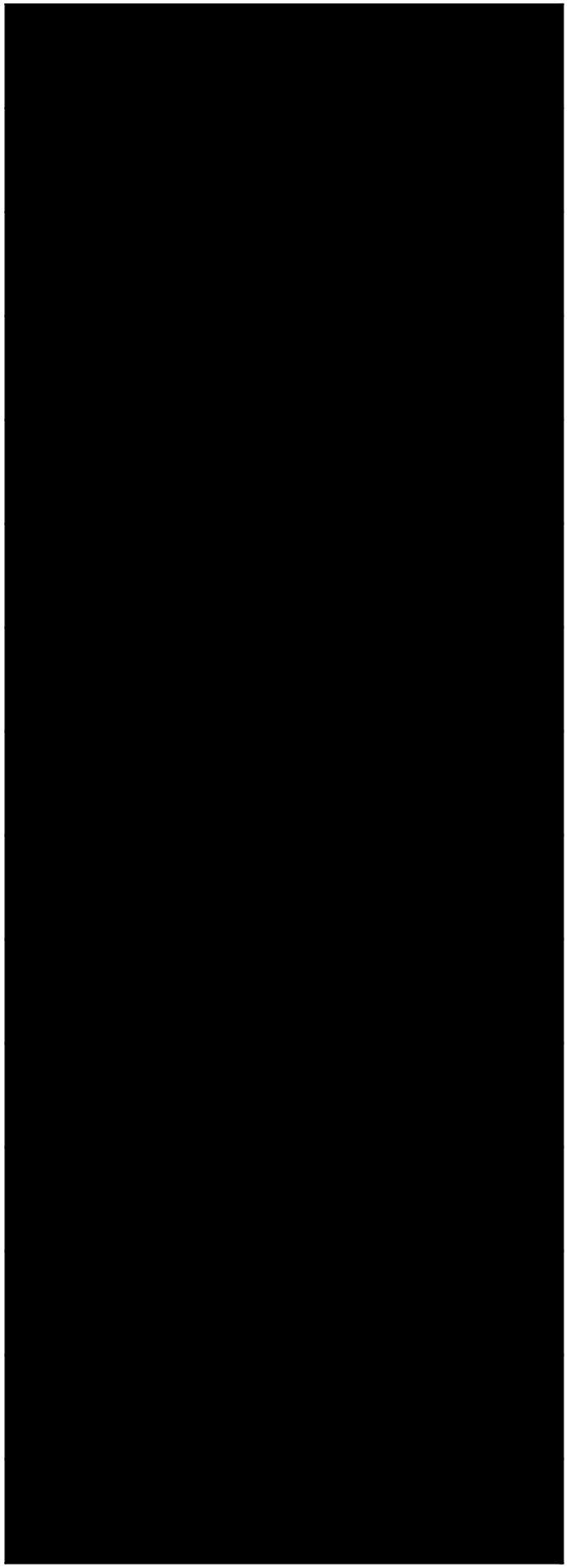


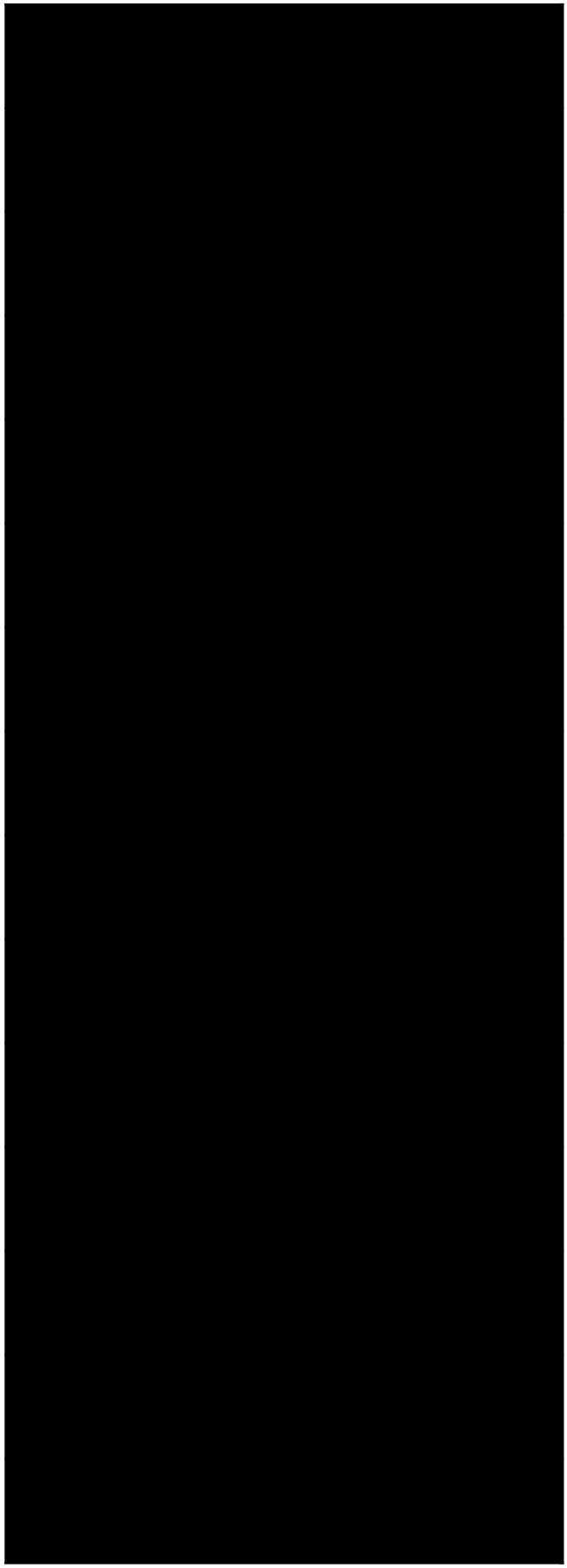


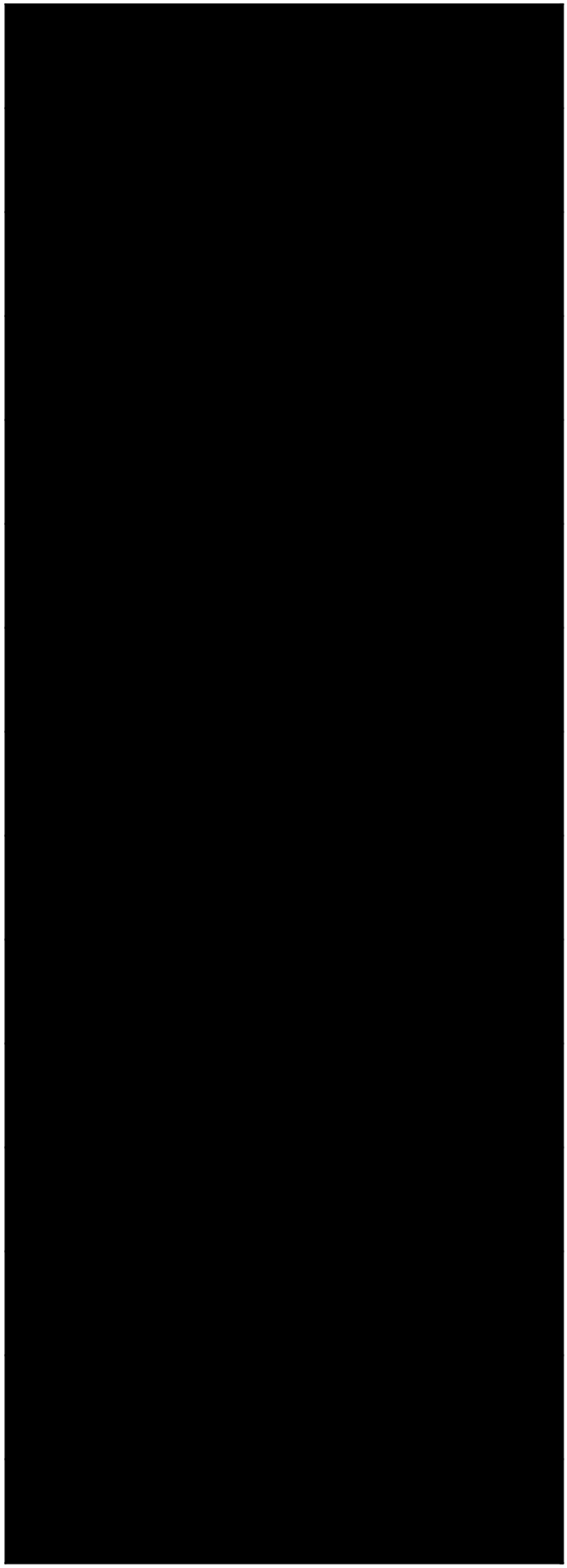


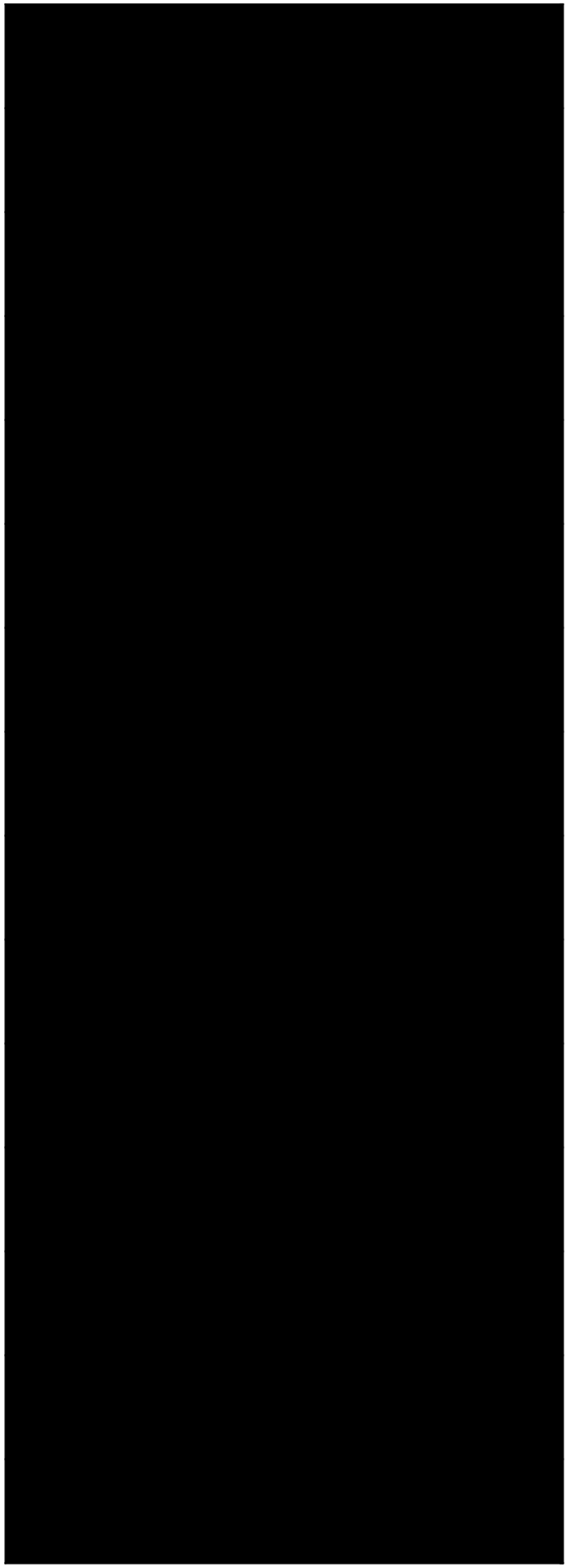
Other Calculation
Explain Reduction Calculation Used

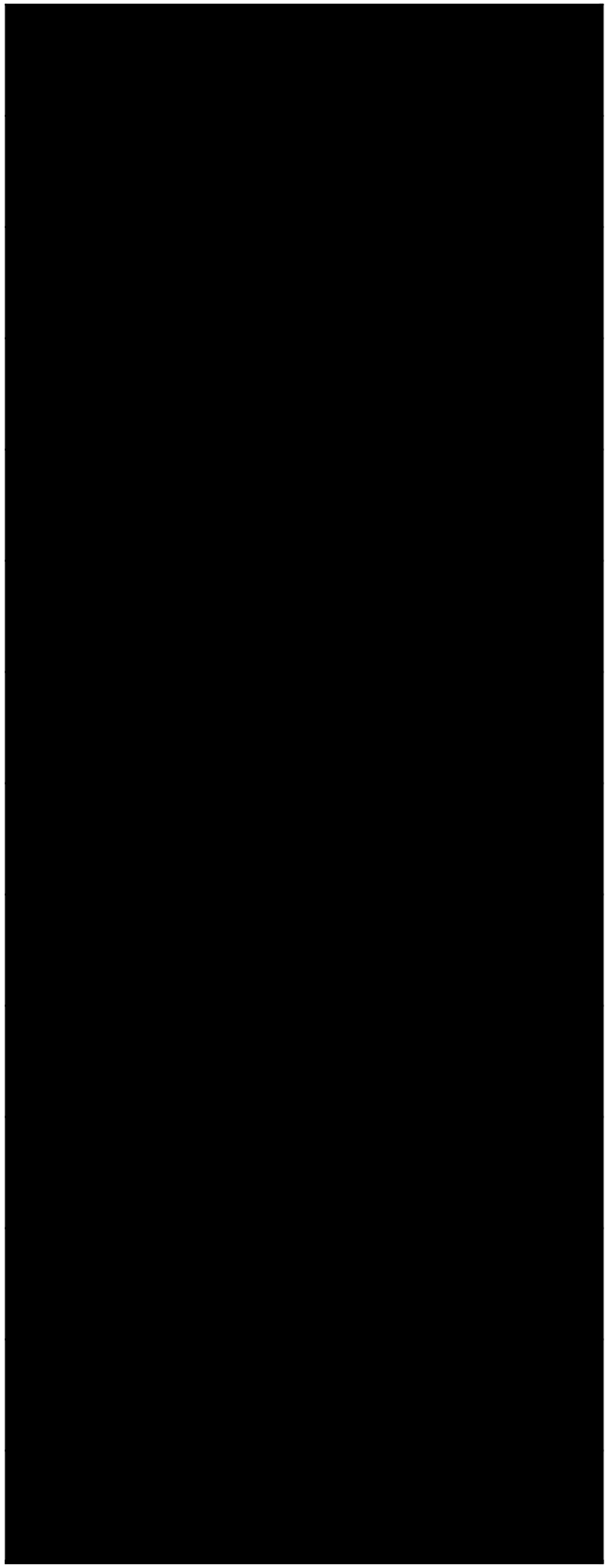












Provide additional comments or detail about how your company implemented this BMP

Equipment Leaks

Directed inspection and maintenance at compressor stations

Year	Total Number of Surveys Conducted	Total Number of Leaks Found	Total Number of Leaks Repaired	Calculation Method: Default or Other	Total Number of Facilities at Which Leaks Repaired

					[redacted]

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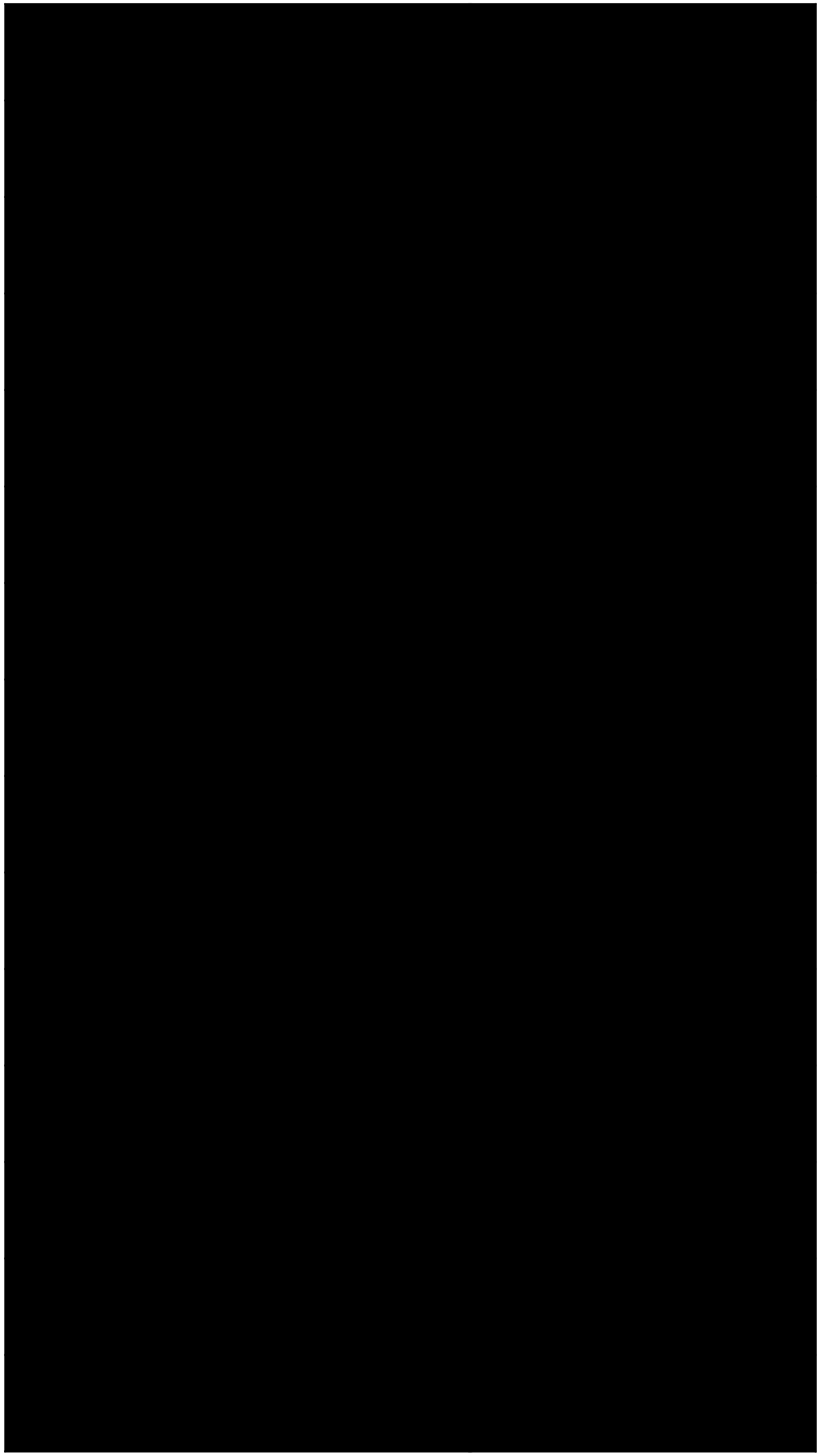
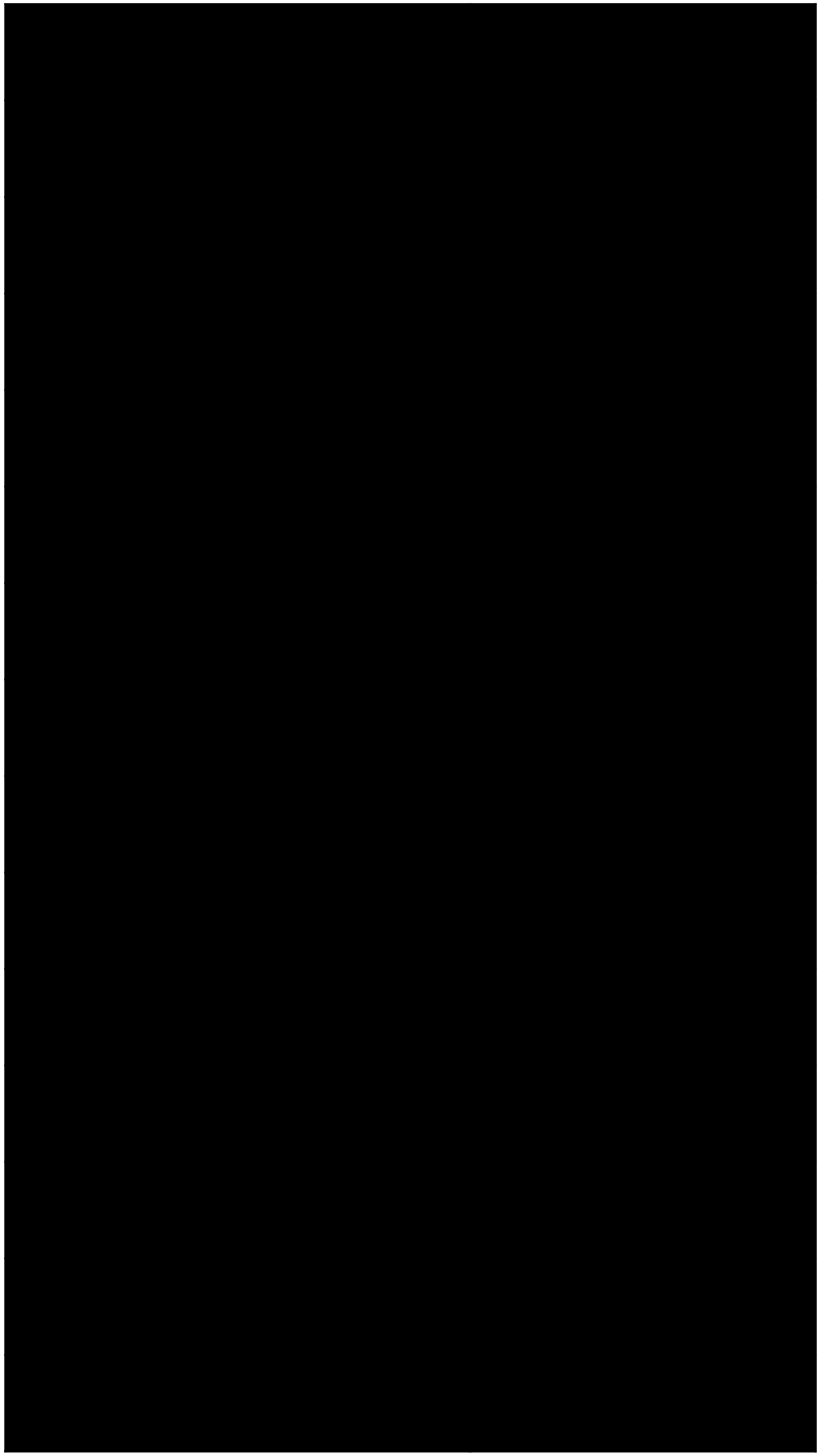
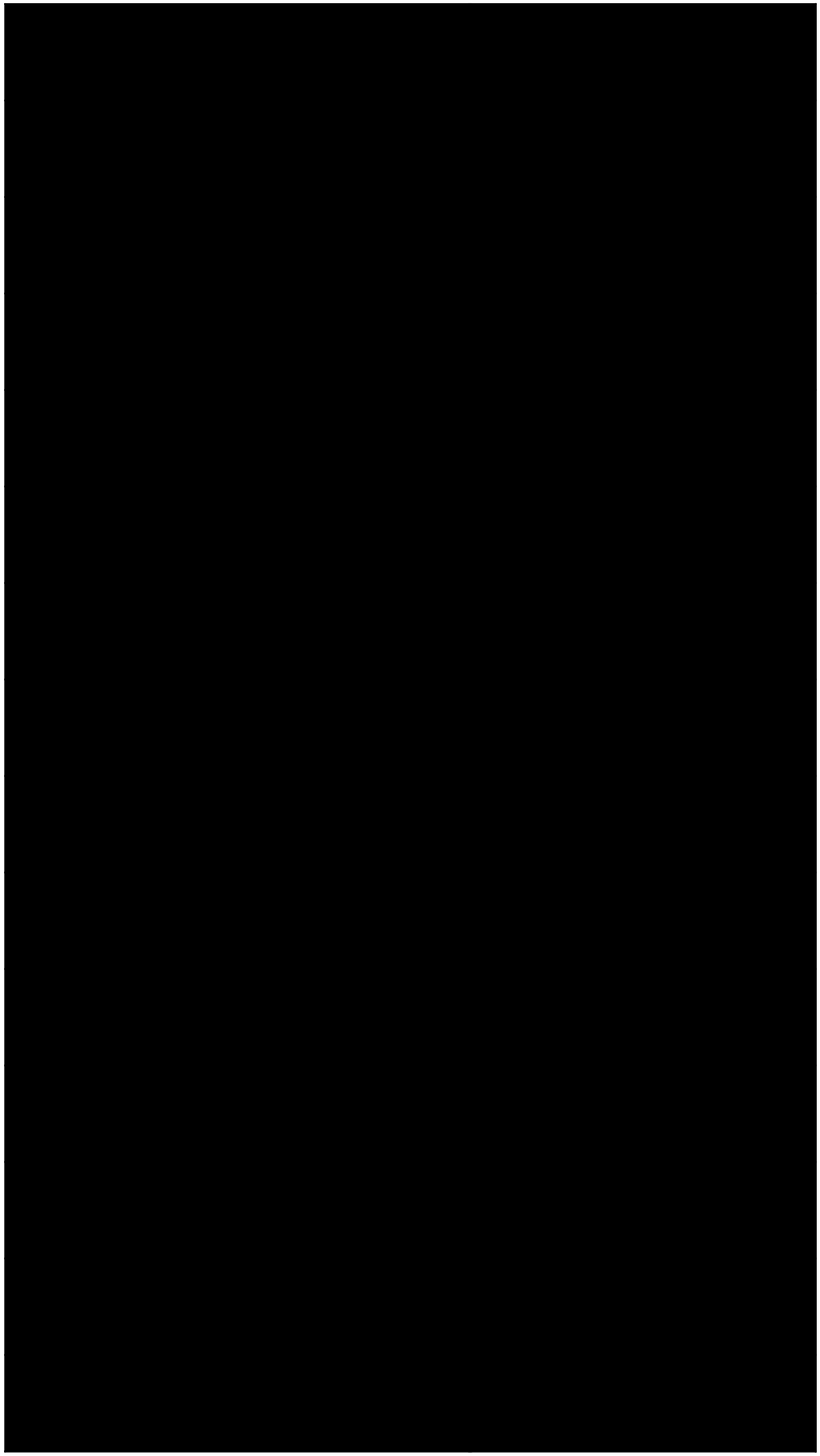
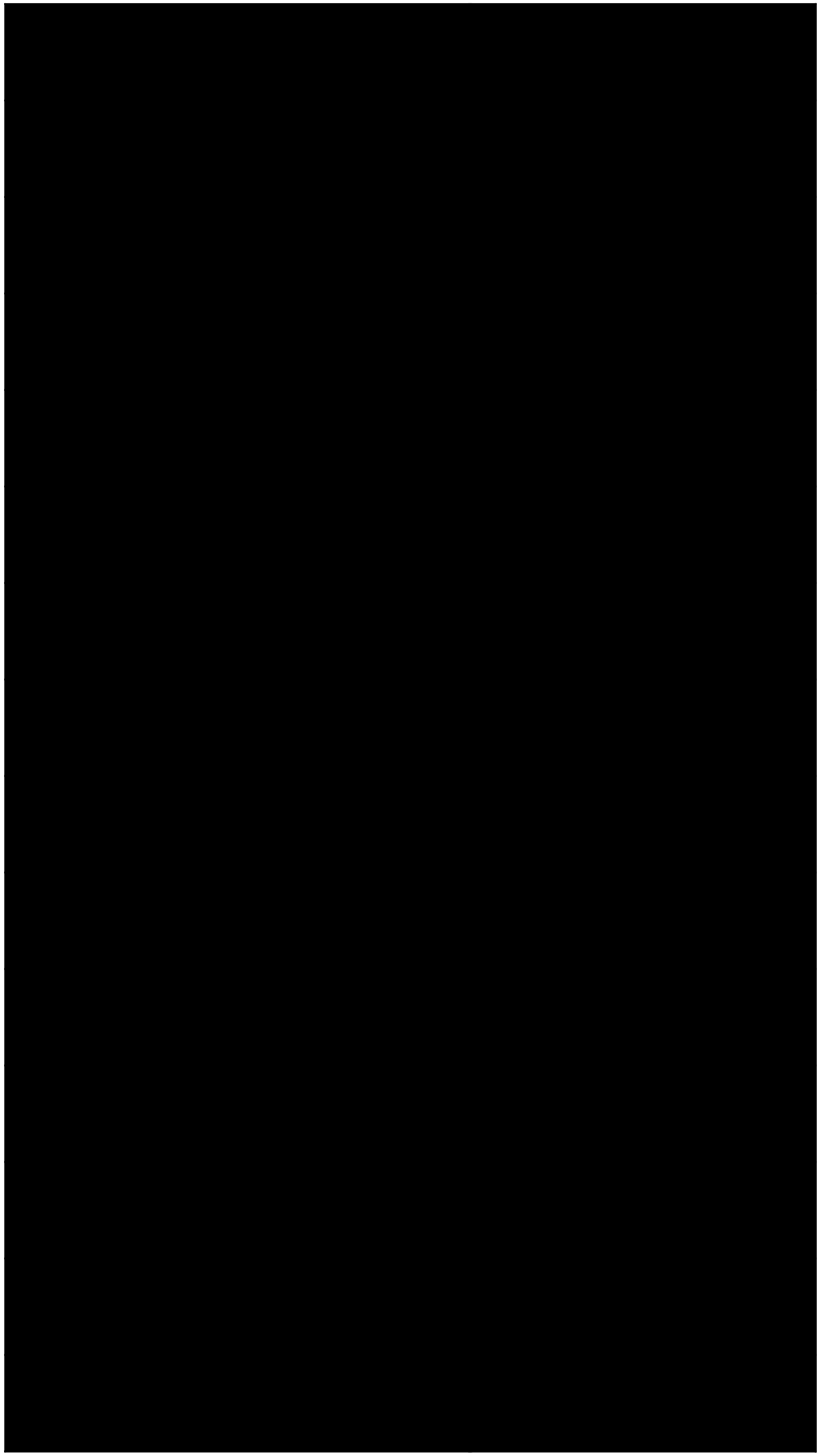
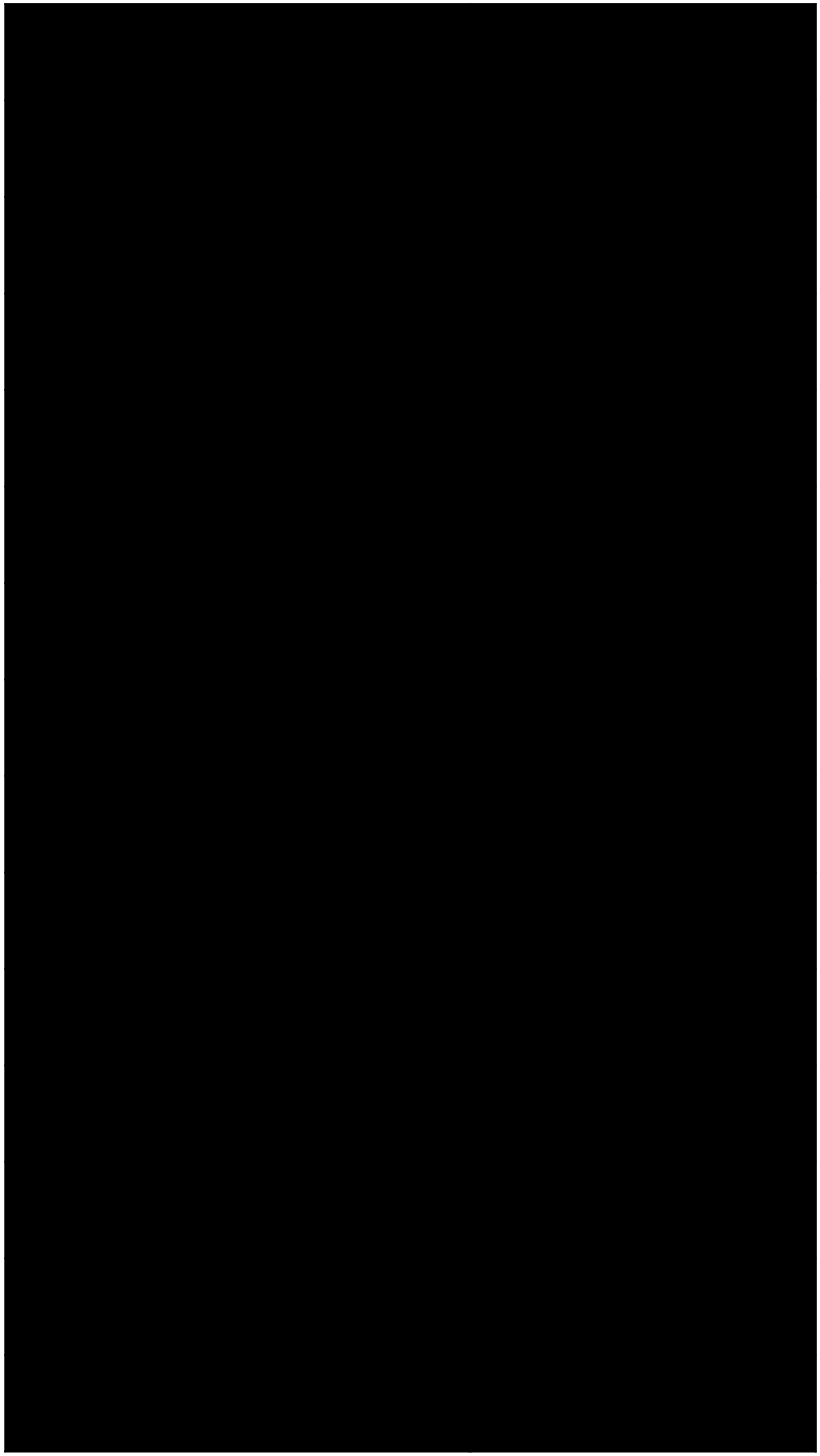
Calculate Using Default	
Calculated Total Methane Emission Reduction based on default values {[Total Number of Facilities at Which Leaks Repaired]x[12200 Average Annual Leak Rate per Facility at 70% Efficiency]}	Total Methane Emission Reduction Based on Actual Field Measurement or Other Assumptions (Mcf/yr)

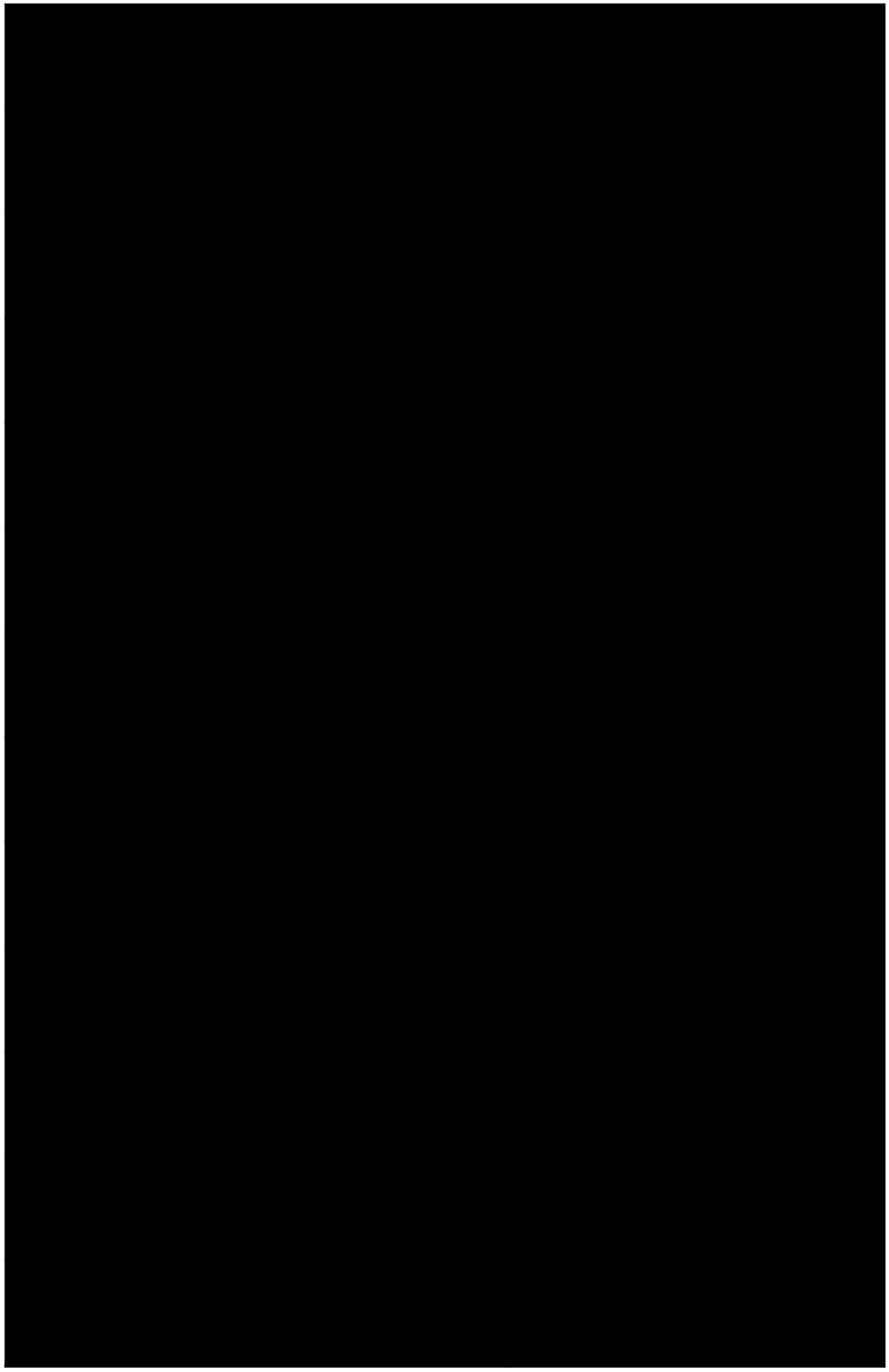




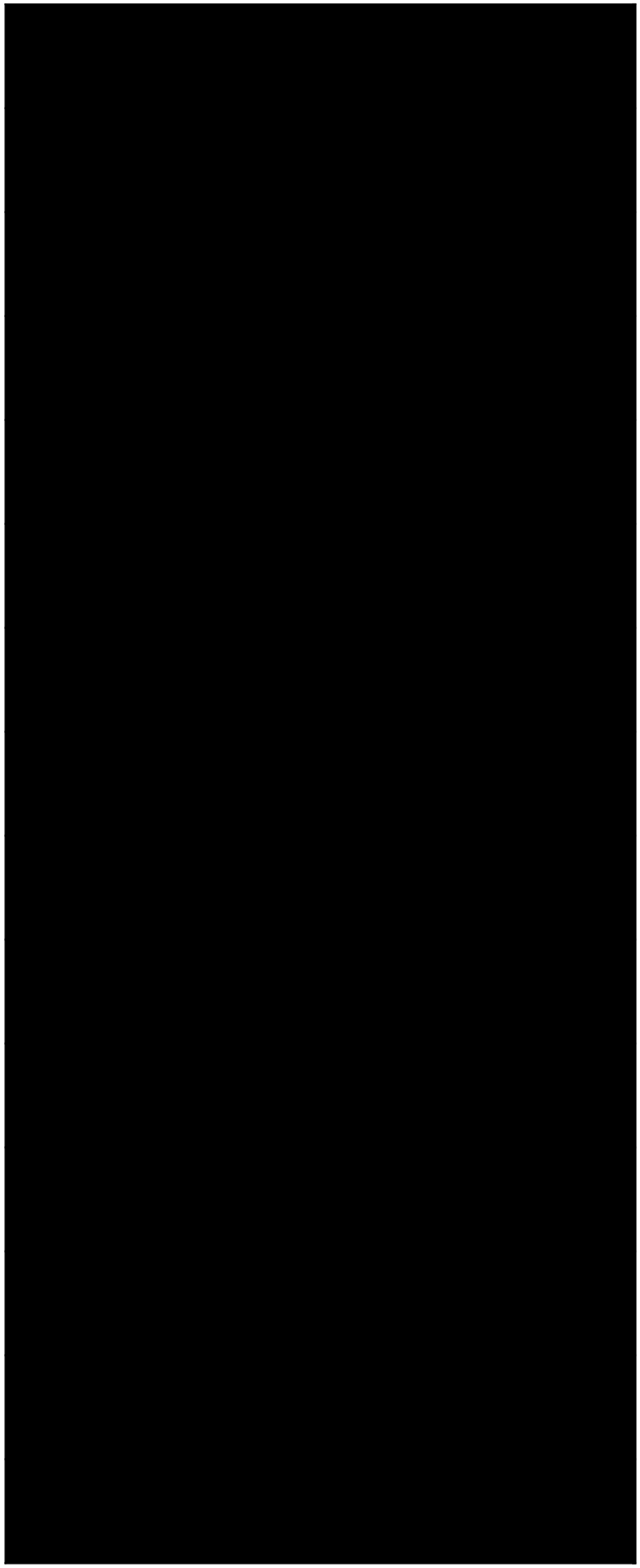


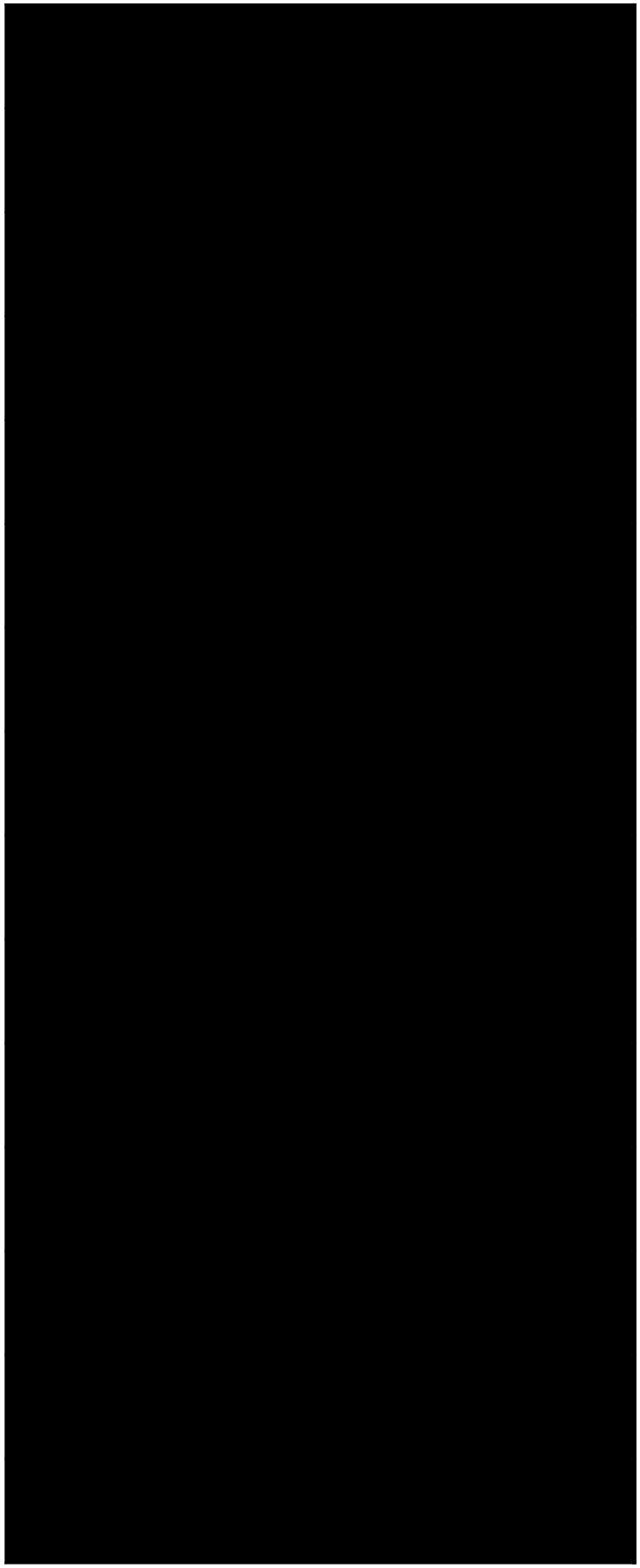


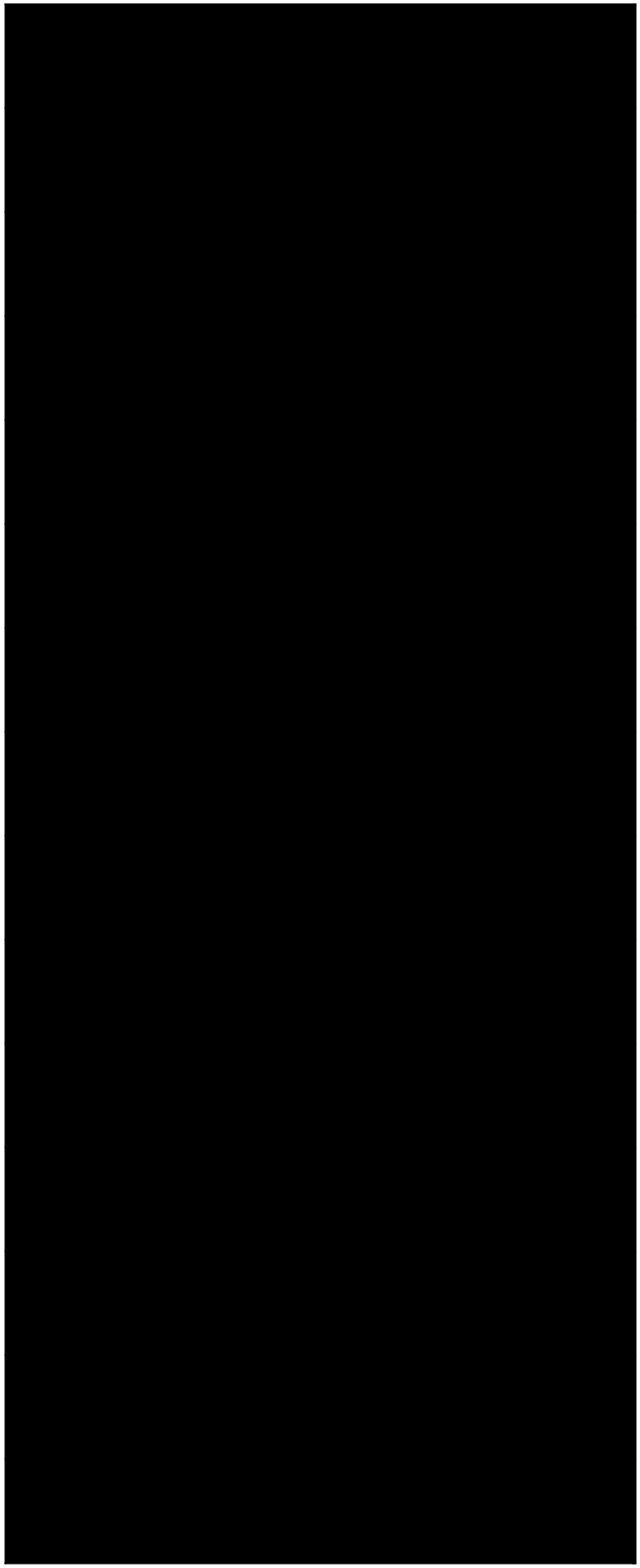


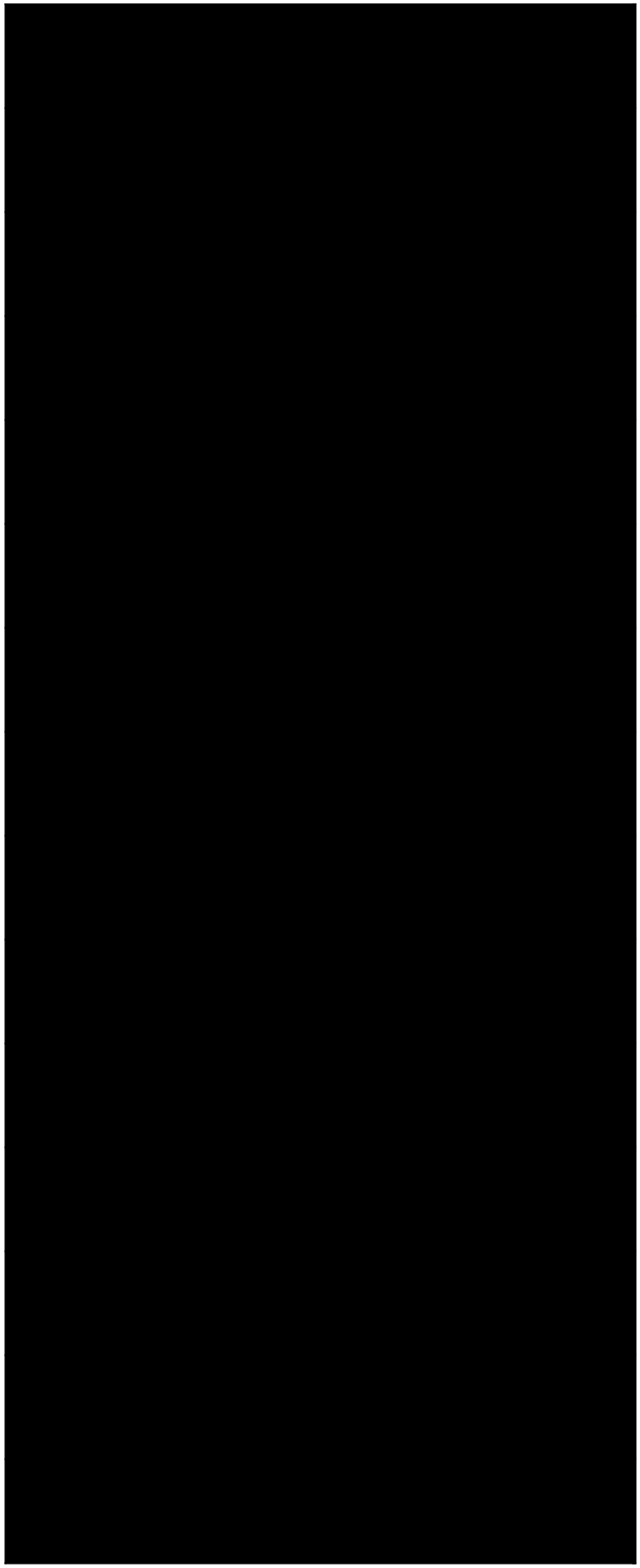


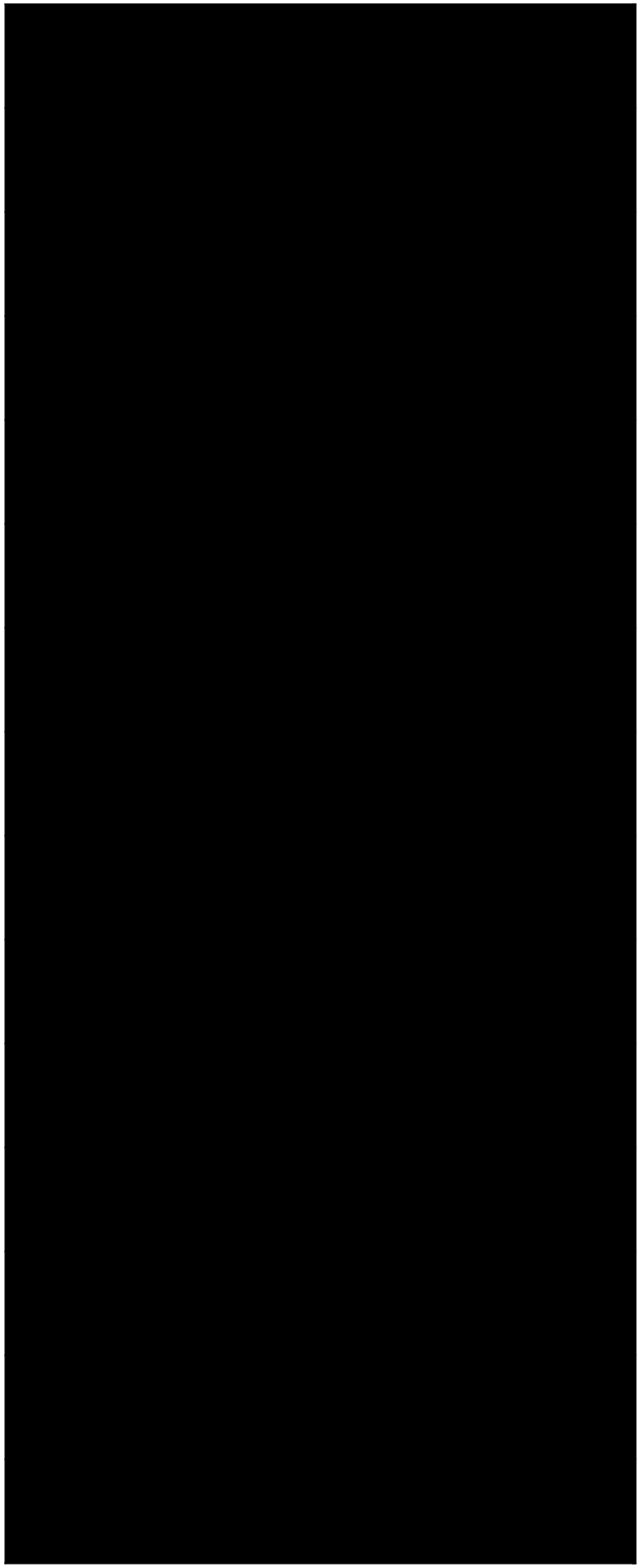
Other Calculation
Explain Reduction Calculation Used

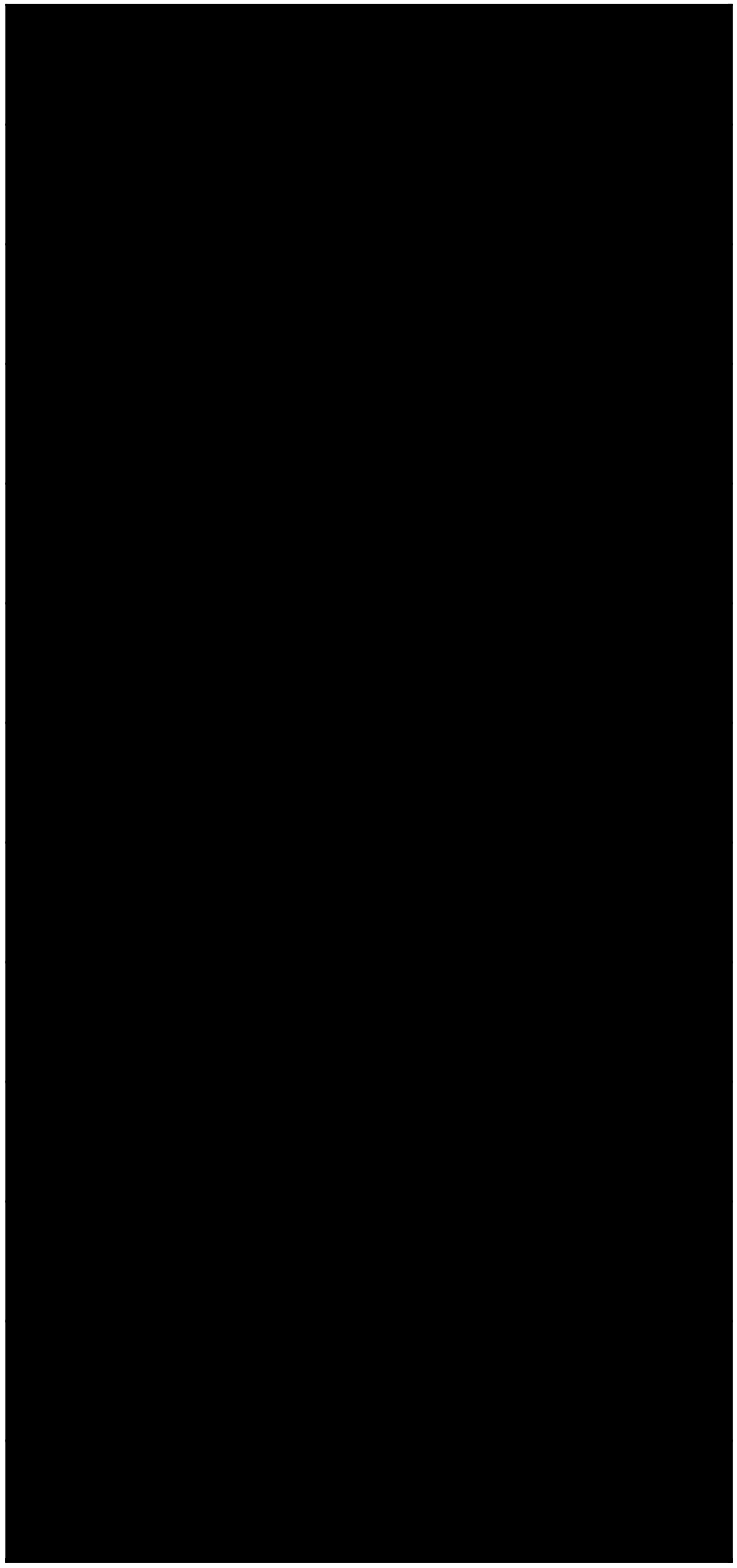












Provide additional comments or detail about how your company implemented this BMP

Pneumatic Controllers

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Convert high-bleed controllers to low-bleed; convert high-bleed or low-bleed controllers to zero-emitting controlle

				Convert high-bleed to low-bleed	
Start Year	New or Ongoing?	Average Methane Content of Gas (enter as a decimal; leave blank to use default 95% methane)	Average annual operating hours (leave blank to use default 8760 hours)	Number of controllers converted	Calculated Total Methane Emission Reductions (Mcf/yr)

Contents

ers; remove controllers from service with no replacement

Convert high-bleed to zero-bleed/remove from service		Convert low-bleed to zero-bleed/remove from service	
Number of controllers converted/removed from service	Calculated Total Methane Emission Reductions (Mcf/yr)	Number of controllers converted/removed from service	Calculated Total Methane Emission Reductions (Mcf/yr)

Provide additional comments or detail about how your company implemented this BMP

Additional Transmission Activities

Start Year	Select the Activity	New or Ongoing?	Eligible Sunset Years for this Activity

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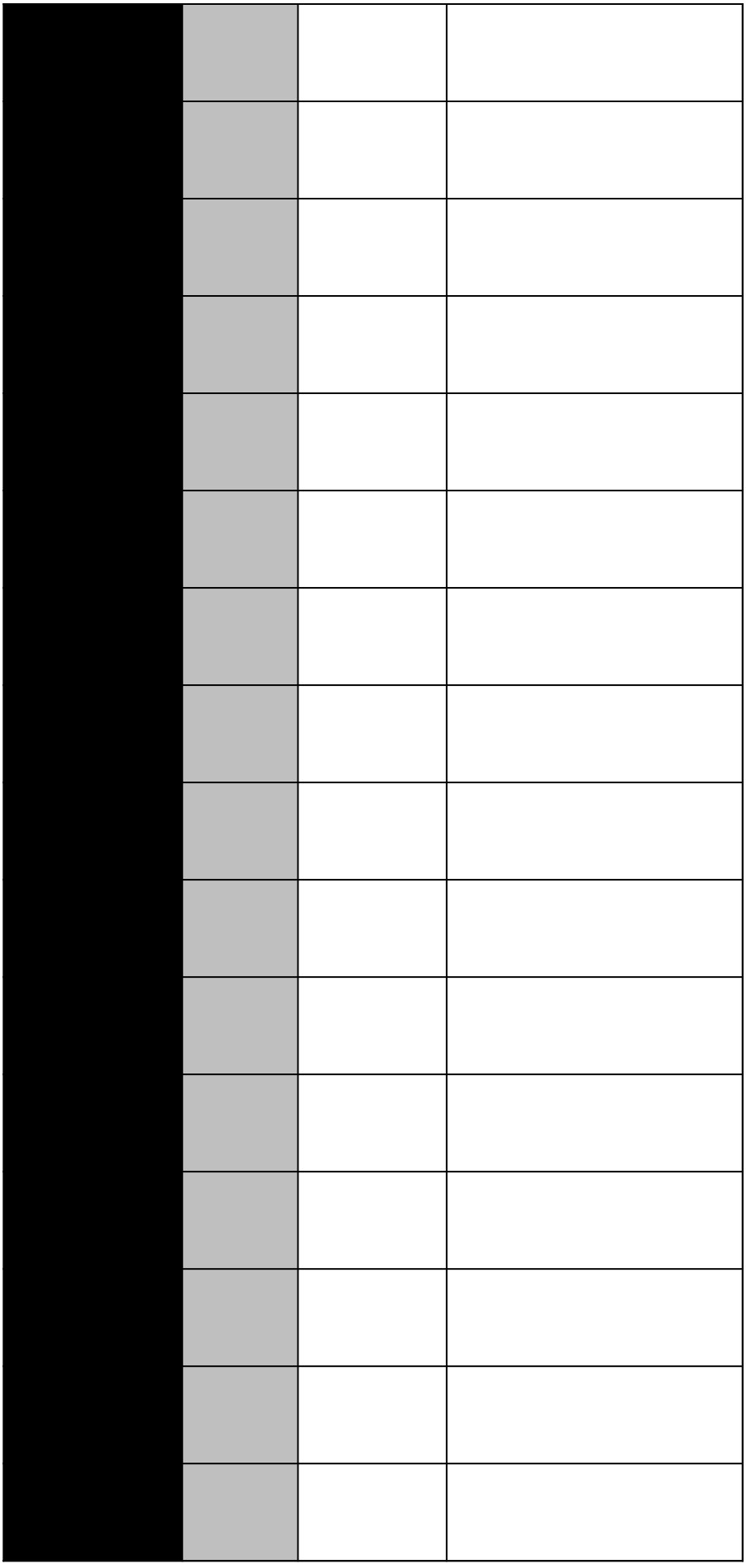
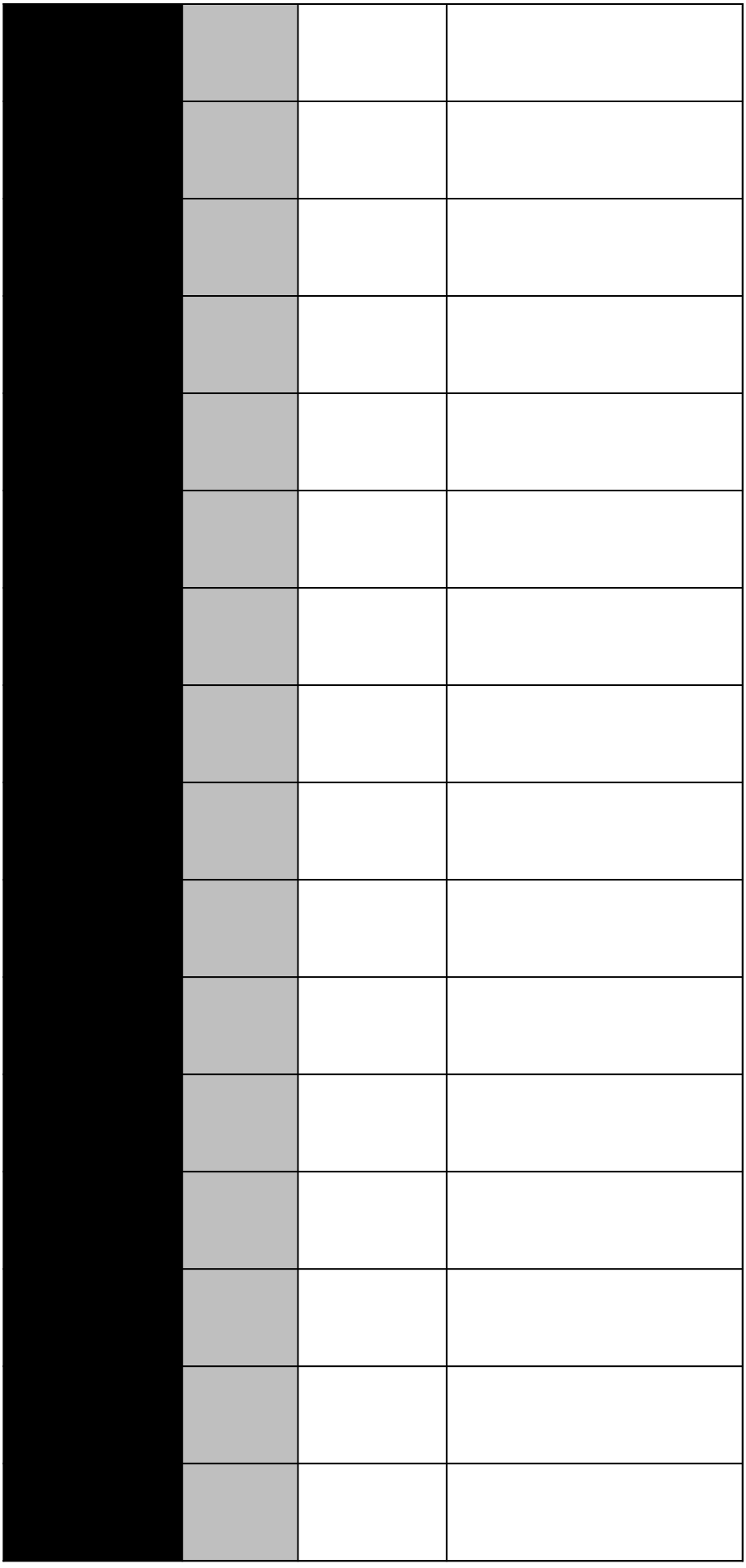
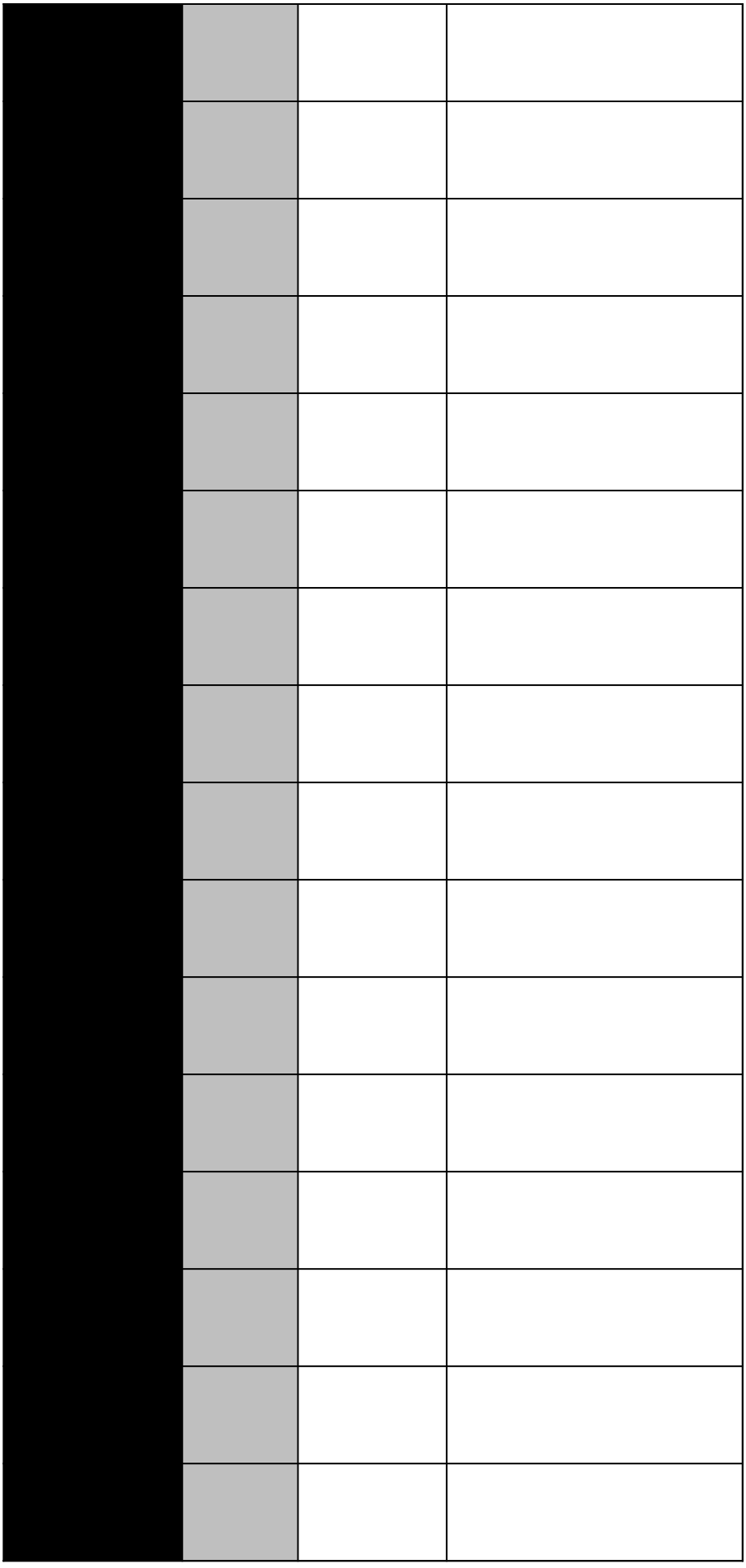
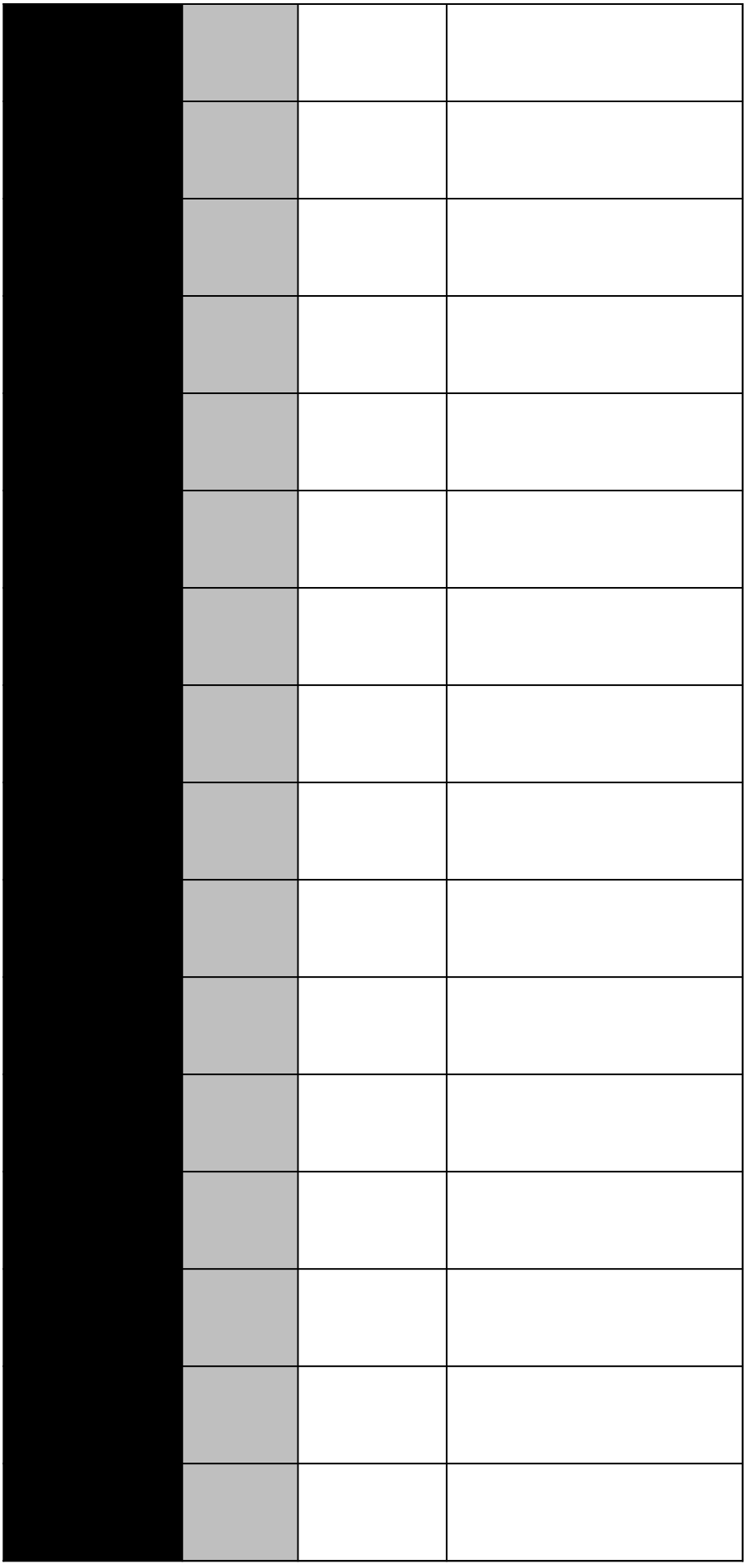
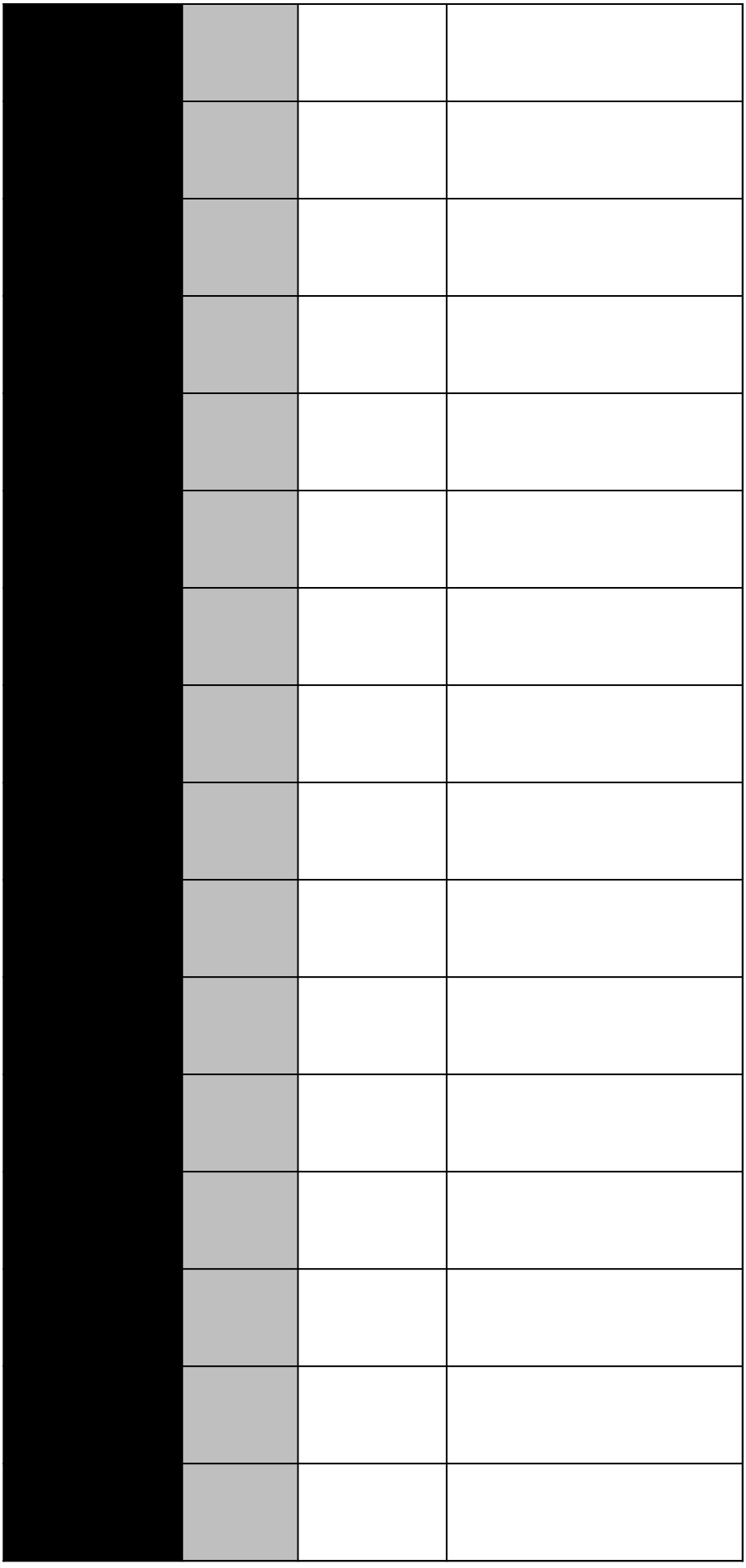
Automatically calculate sunsets (if Sunset Years >1)?	End Year	Total Methane Emission Reduction (Mcf/yr)	Basis for Emission Reduction Estimate











Explain Reduction Calculation Used

Describe how your company implemented this activity (e.g., number of units installed or other activities conducted)

This sheet summarizes values used in calculations in this workbook. If you have questions on any

Equipment Leaks

Default Values

Average Annual Leak Rate per Facility[1]	12,200	mcf/yr
Efficiency[2]	0.7	percent (expressed as decimal)

Replace Reciprocating Engines with Turbines

Default Values

Average hourly reduction potential[3]	0.234	scf/hp/hr

Reciprocating compressor exhaust methane emission factor is 0.24 scf/HP-hour. Turbine compressor drivers emission factor is 0.0057 scf/HP-hour. The difference is 0.234 scf/HP-hour.

Pneumatic Controllers

Emission Factors

Source: 40 CFR 98, Table W-3B

Low Continuous Bleed Pneumatic Device Ver	1.37	scf whole gas / hr / device
High Continuous Bleed Pneumatic Device Ver	18.2	scf whole gas / hr / device

Default Values

Operating hours	8760	Assumes 24/7 operation all year
Methane content of natural gas	95%	*Source: 40 CFR 98.233(u)(2)(iii)*

[1] Derived from EPA Report to Congress, 1993.

[2] Derived from “Cost Effective Leak Mitigation at Natural Gas Transmission Compressor Stations,” sponsorec

[3] Derived from “Methane Emissions from the Natural Gas Industry,” Volume 6, Vented and Combustion Sou

of the values used, please contact EPA at GasSTAR@epa.gov

d by the Pipeline Research Committee International (PRCI), EPA and GRI, 1999.
rce Summary, co-sponsored by the Gas Research Institute and EPA, June 1996.