

## Natural Gas STAR Annual Report - Production Segment

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

RS2021PRODV1

|                       |      |
|-----------------------|------|
| <b>Partner Name</b>   |      |
| <b>Reporting Year</b> | 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.

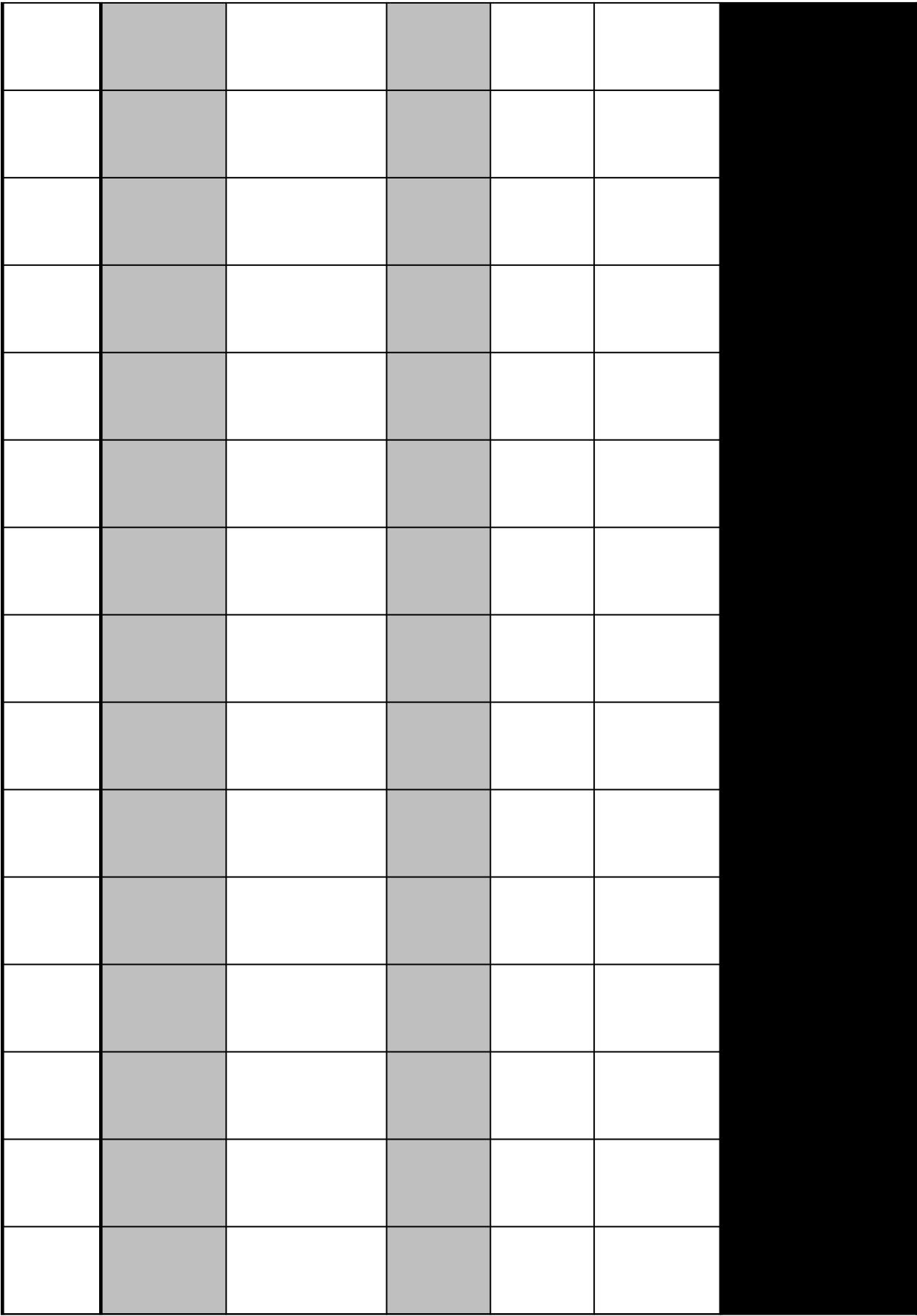
| Production Emission Sources                      | Data Reported | Information   |
|--|---------------|---|
| <a href="#">Dehydrator Vents</a>                 | No            | Install flash tank separators on glycol dehydrator vents  |
| <a href="#">Pneumatic Controllers</a>            | No            | 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  |
| <a href="#">Additional Production Activities</a> | No            | Use this tab to report all other methane reductions in the Production 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 |

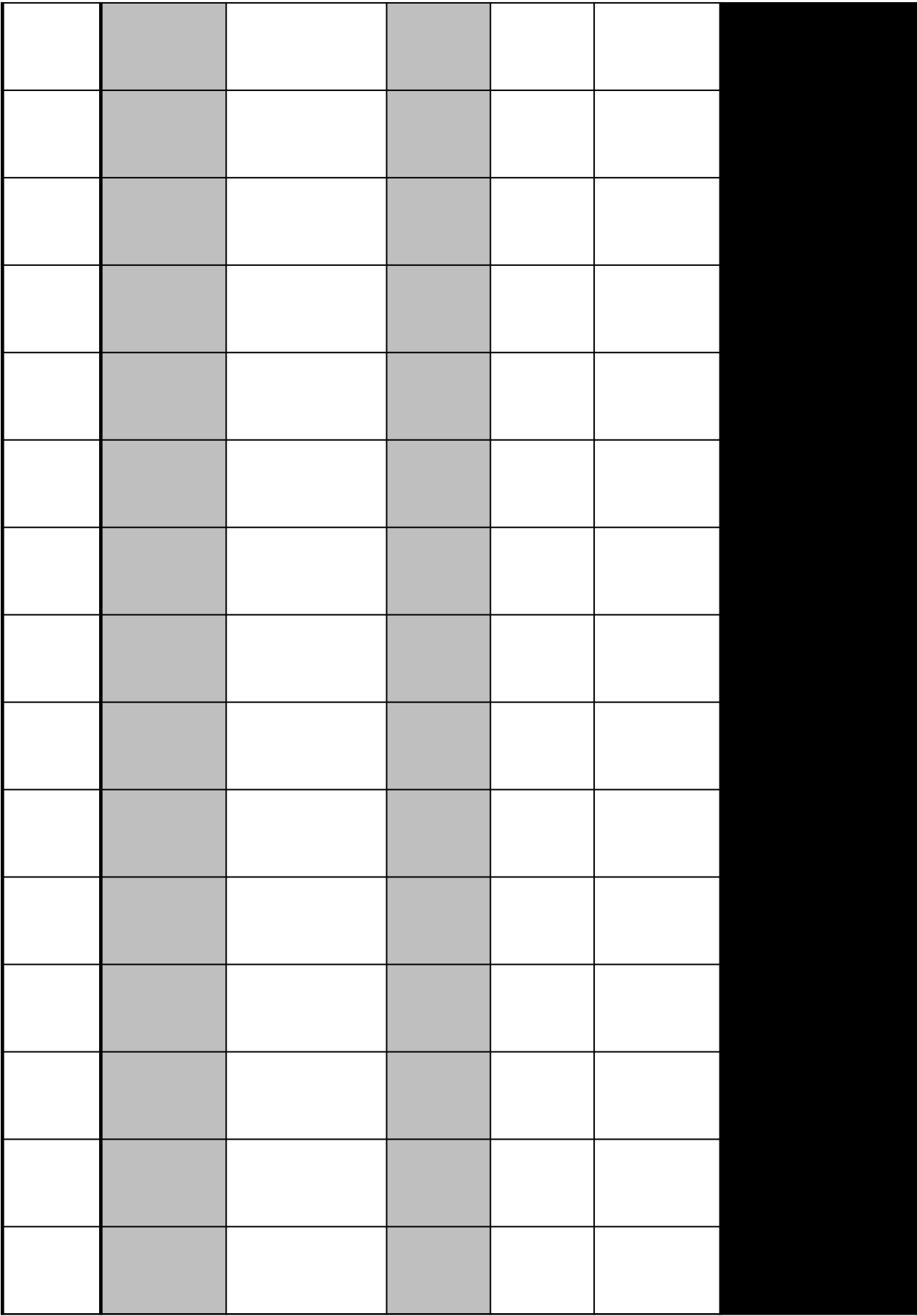
Update Partner Information (If applicable)

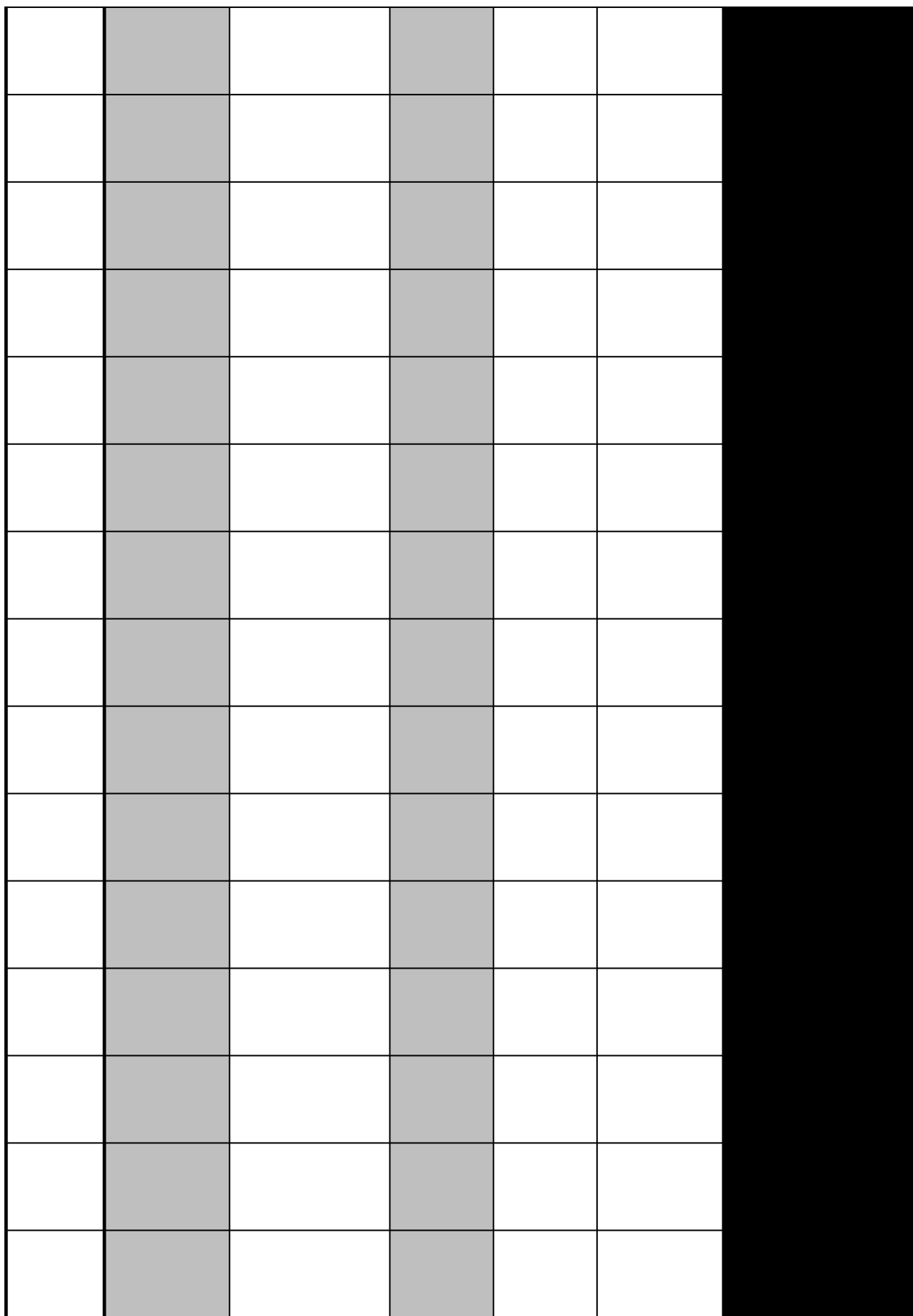
|                         |  |
|-------------------------|--|
| <b>New Partner Name</b> |  |
|-------------------------|--|

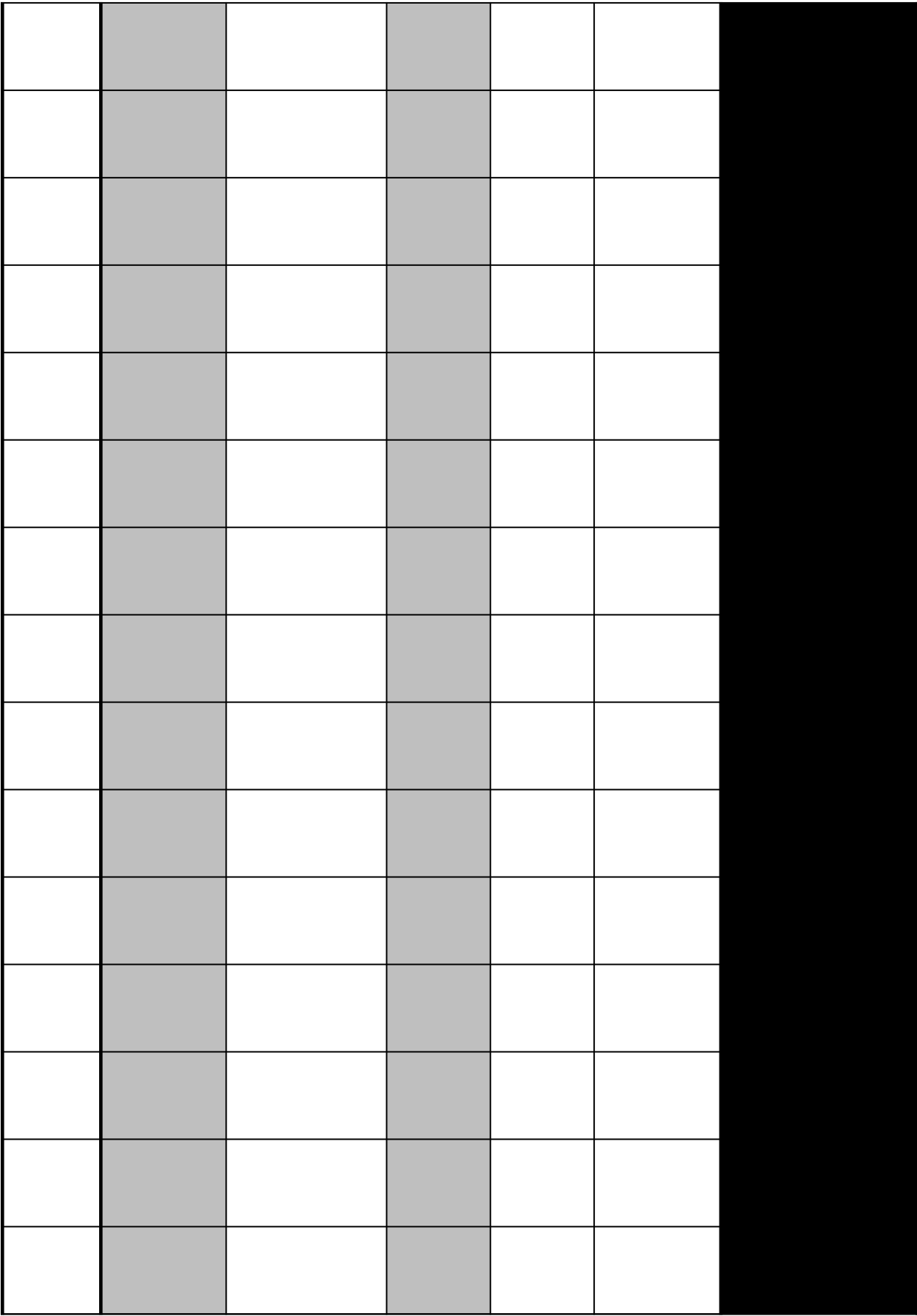
This collection of information is approved by OMB under the Paperwork Reduction Act, 44 U.S.C. 3501 et seq. (OMB Control No. 2060-0328). Responses to this collection of information are voluntary 42 USC 7403(g). An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. The public reporting and recordkeeping burden for this collection of information is estimated to range from 20 to 51 hours per response. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates and any suggested methods for minimizing respondent burden to the Regulatory Support Division Director, U.S. Environmental Protection Agency (2821T), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Include the OMB control number in any correspondence. Do not send the completed form to this address.



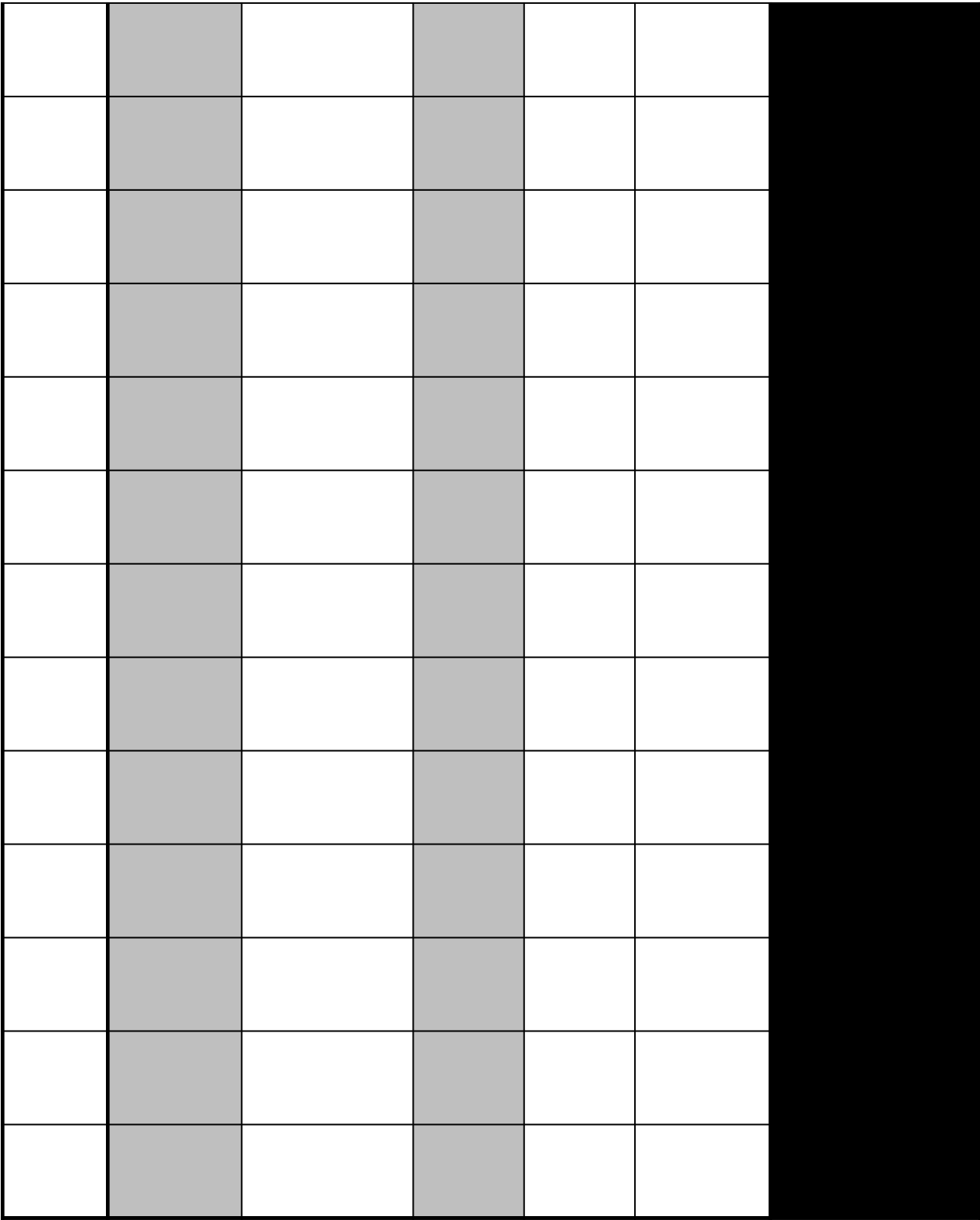






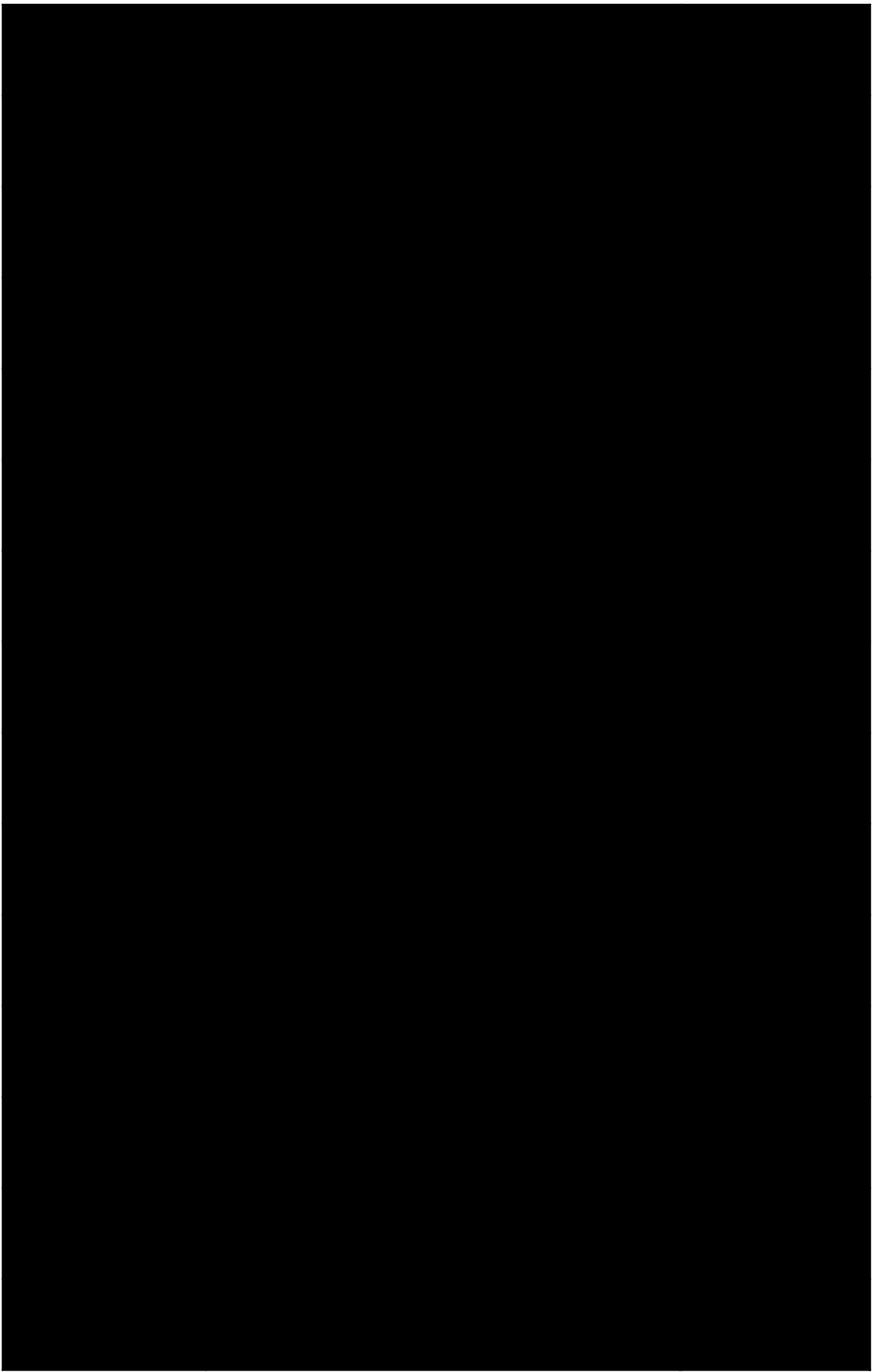


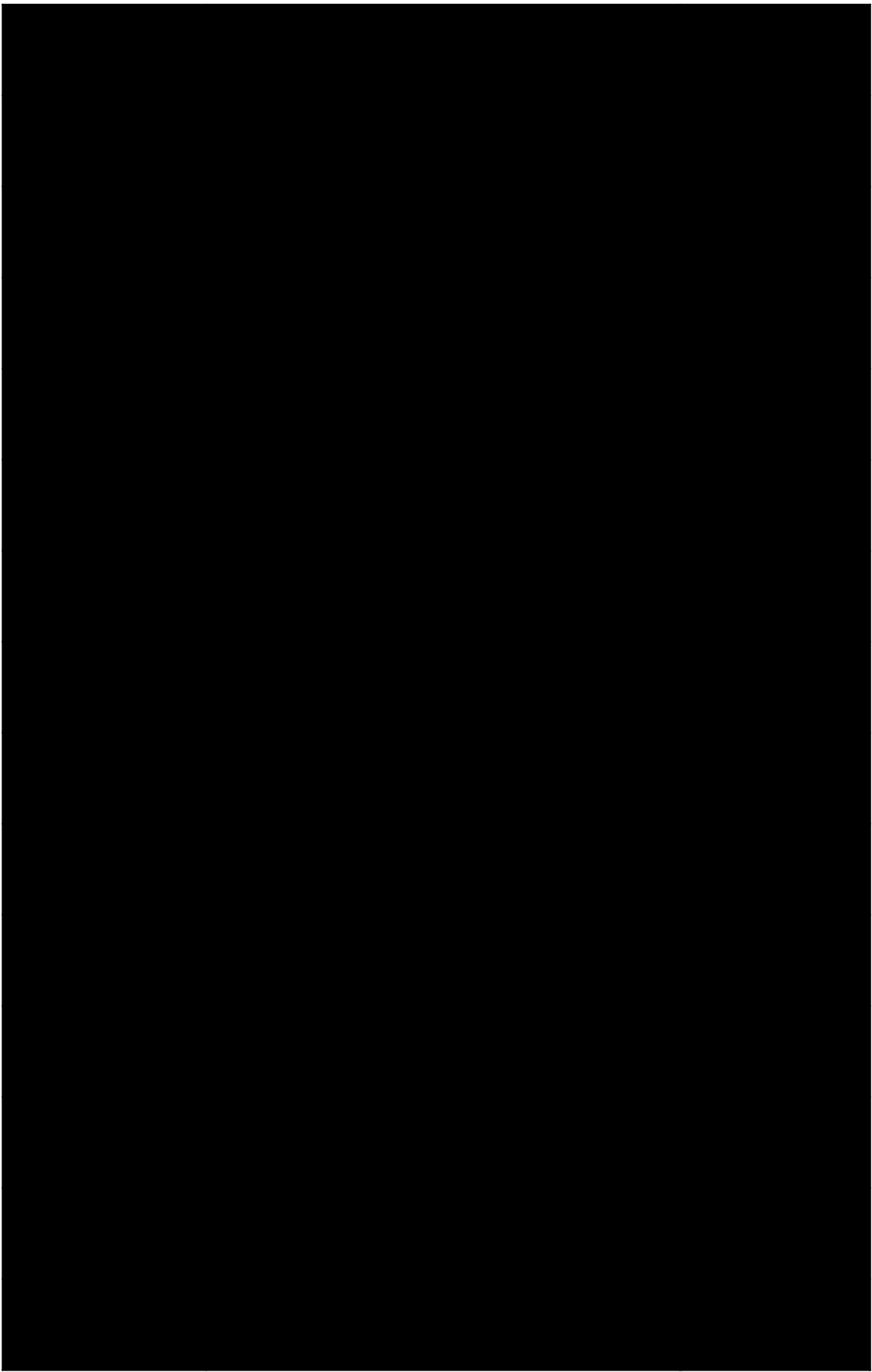


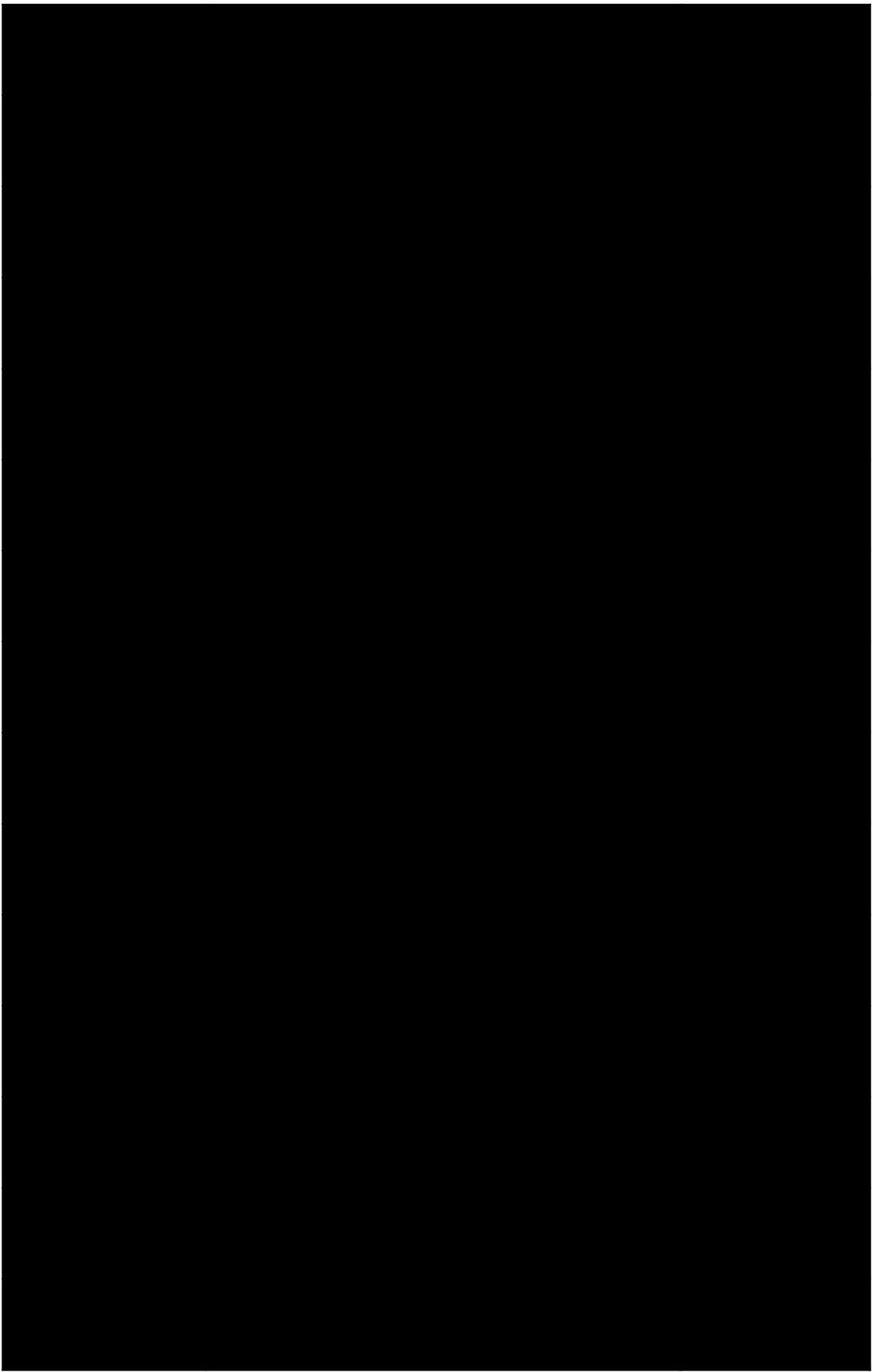


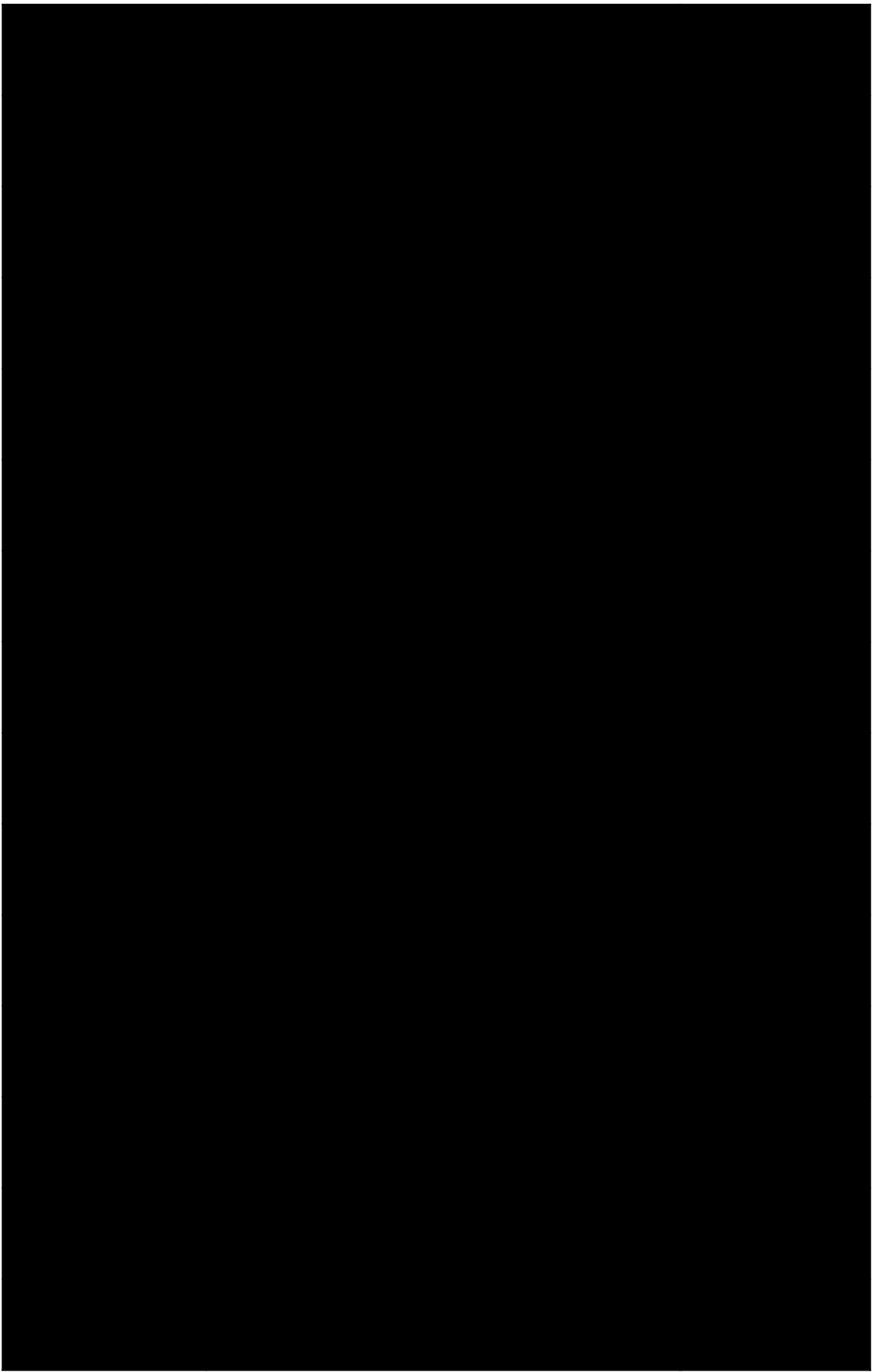
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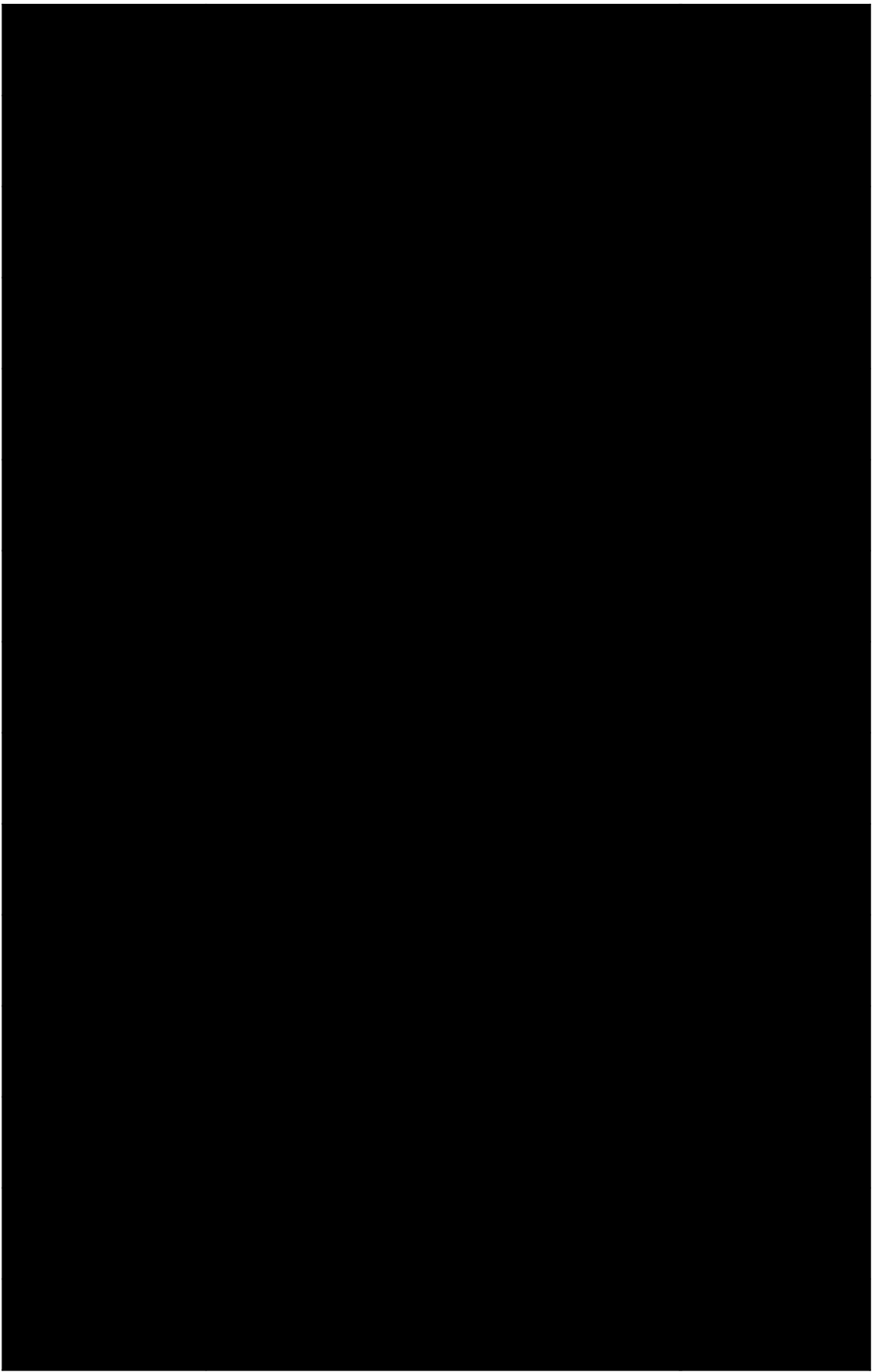
| Calculate Using Default          |  |                               |
|----------------------------------|--|-------------------------------|
| Average Gas Throughput (MMcf/yr) | Calculated Total Methane Emission Reduction Based on Default Values<br>{[Number of Flash Tank Separators Installed]x[Average Gas Throughput] x 170 scf/MMcf x 0.9} / 1000} | TEG Circulation Rate (gal/hr) |
|                                  |  |                               |

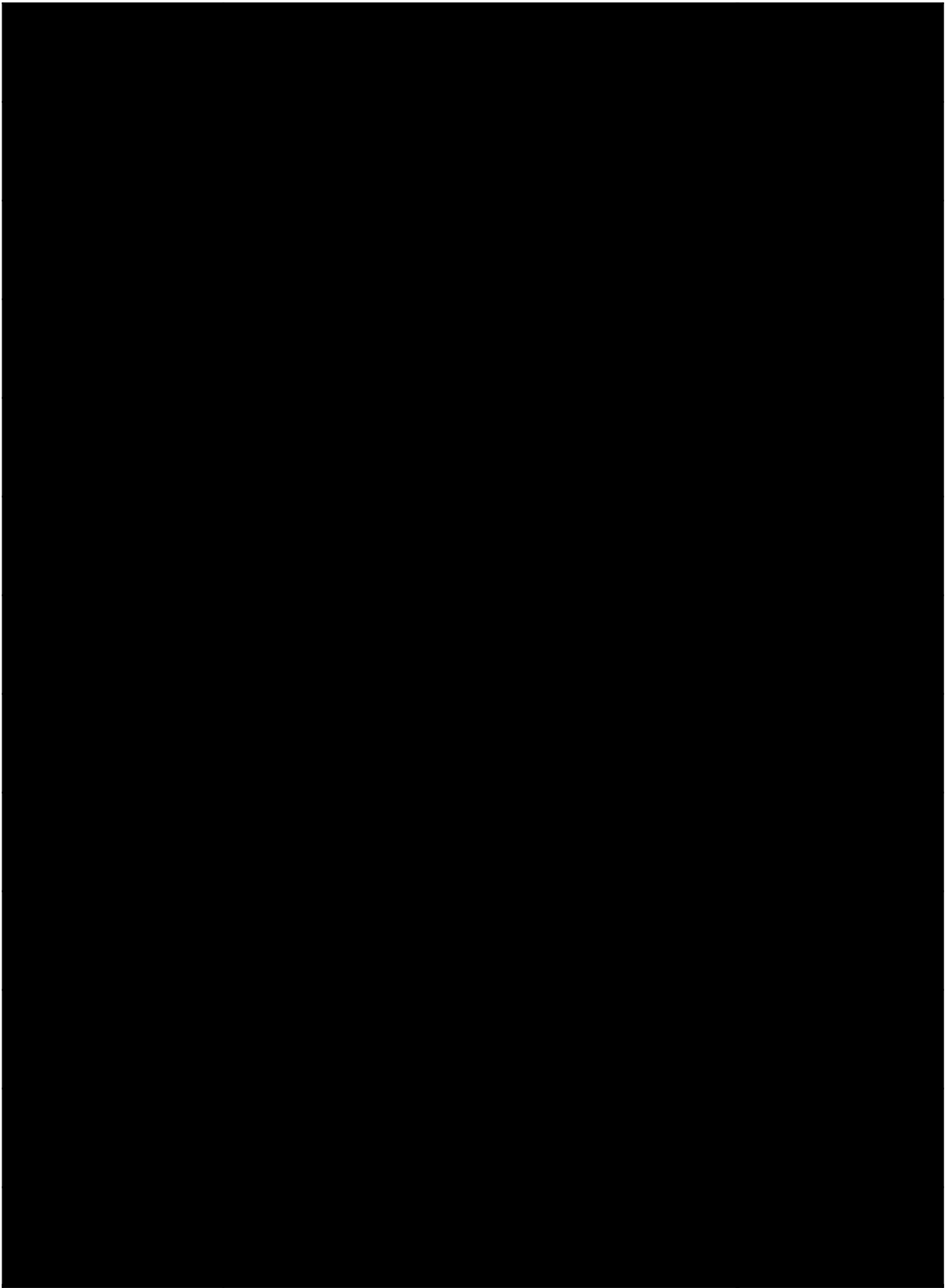






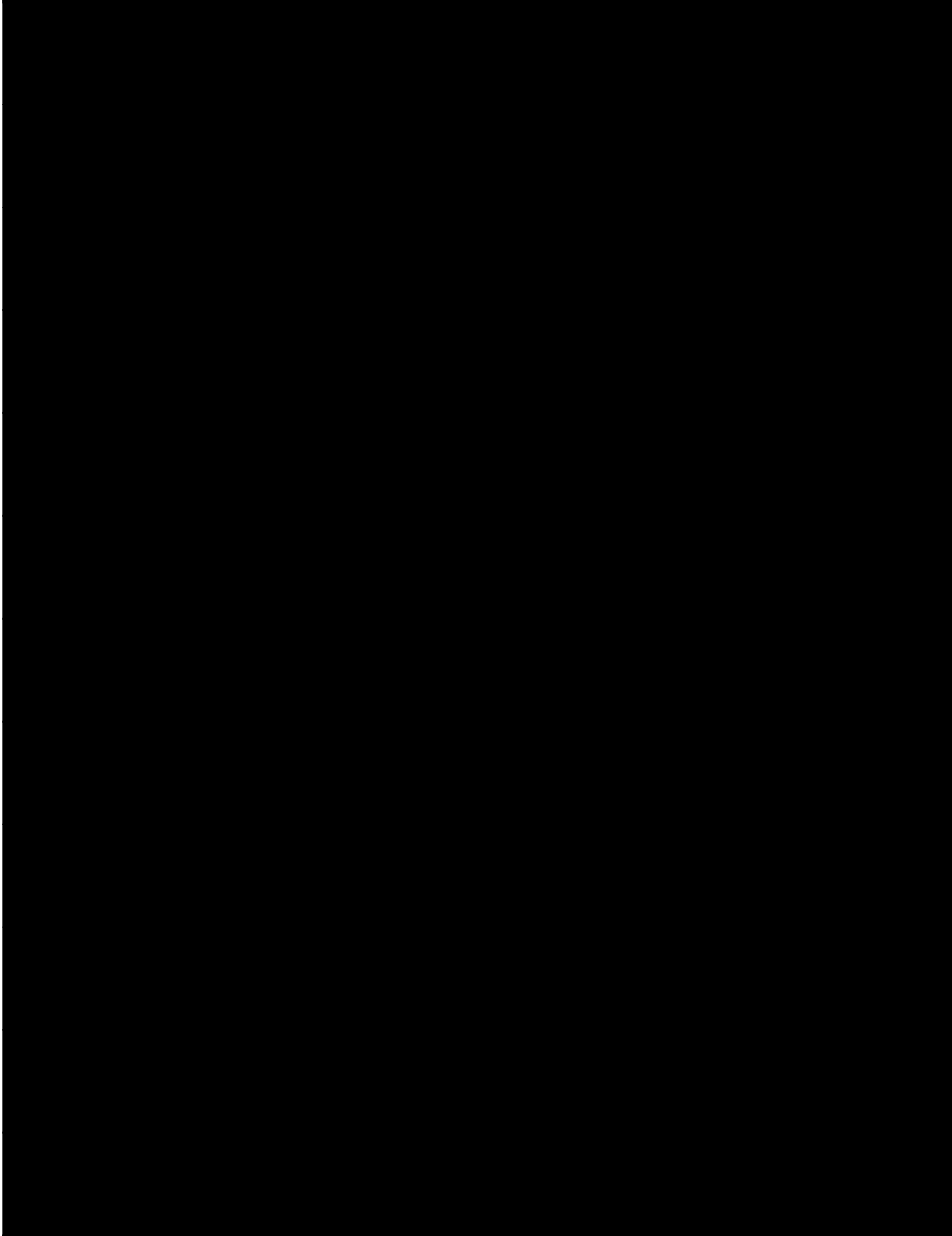


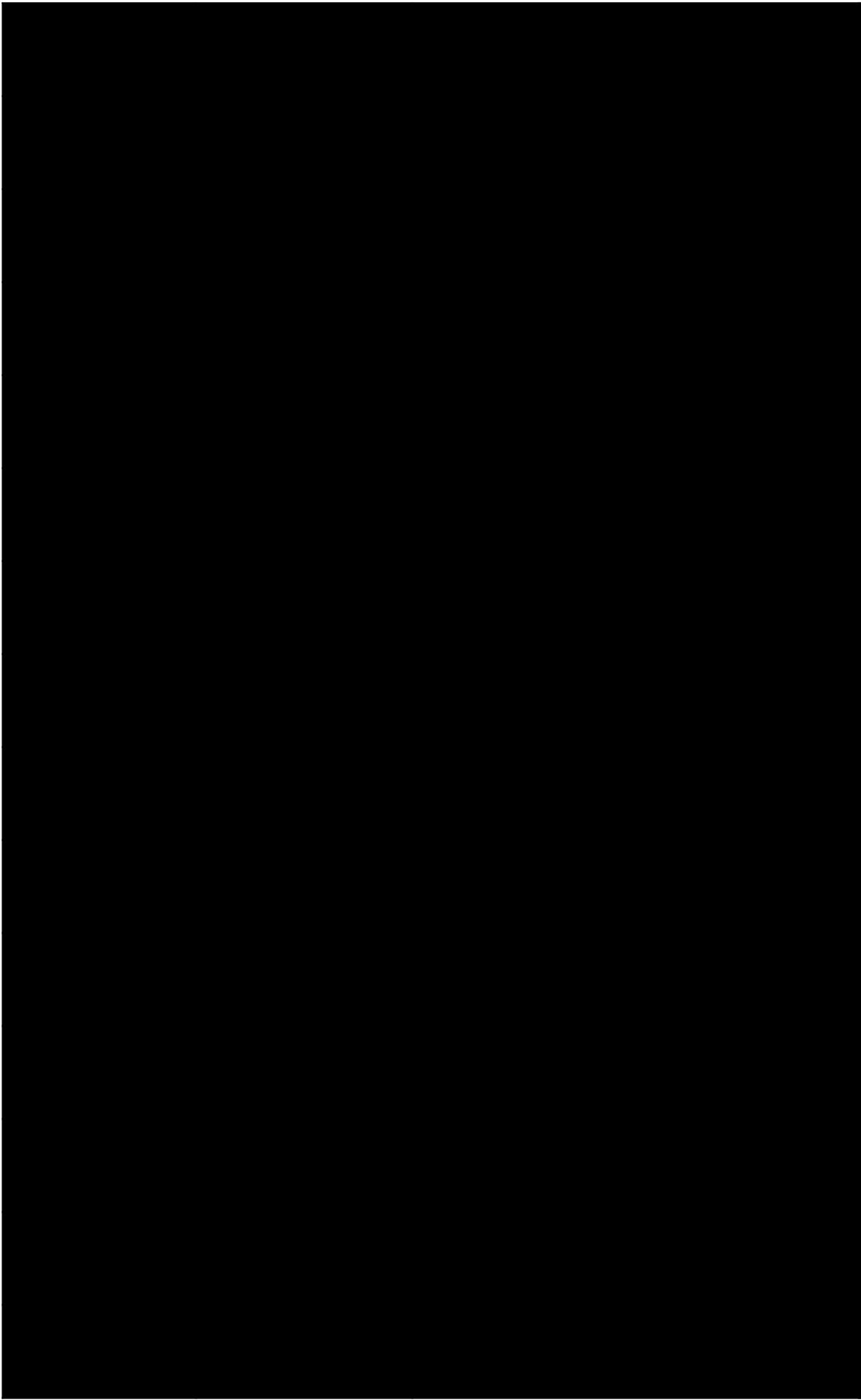


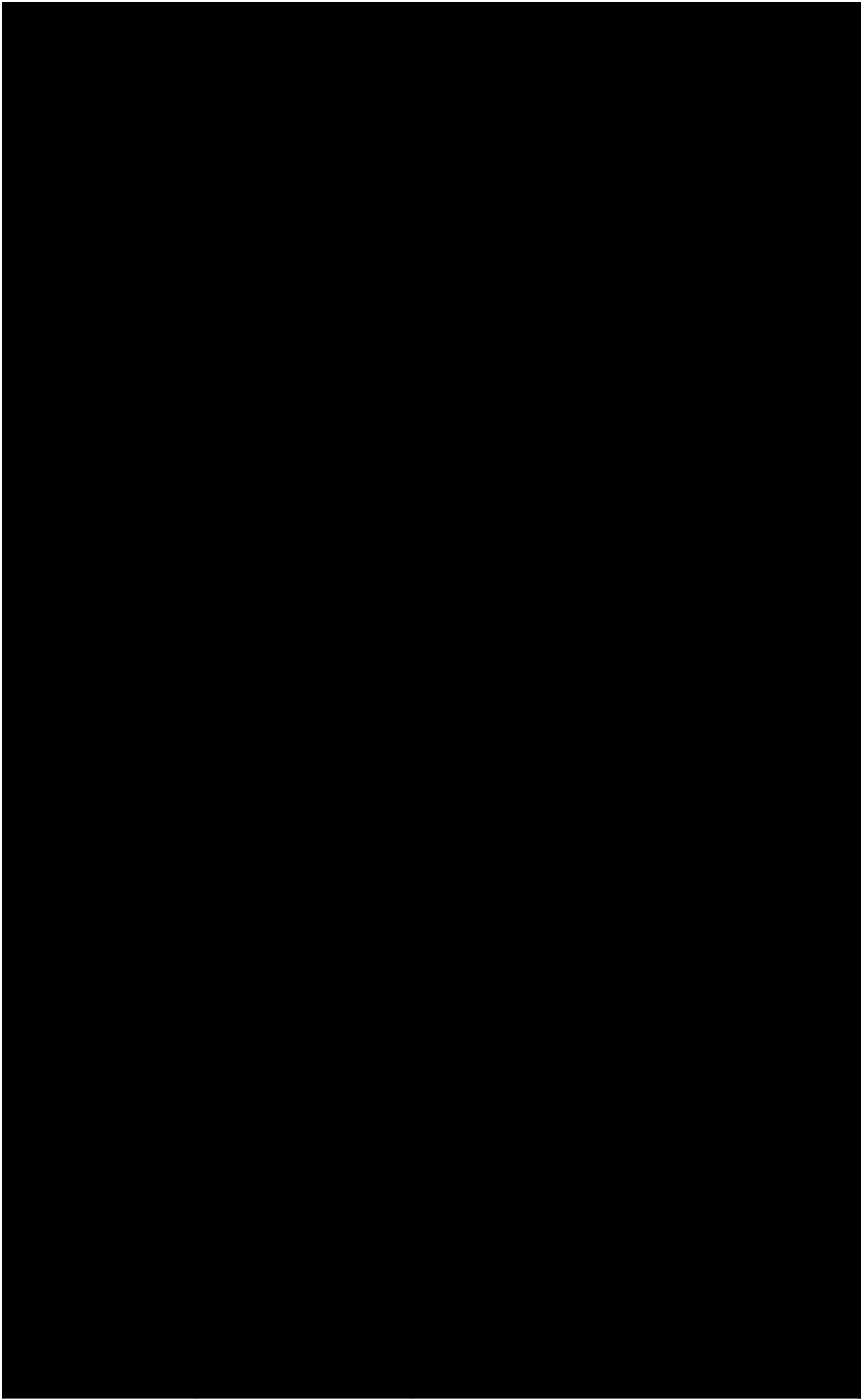


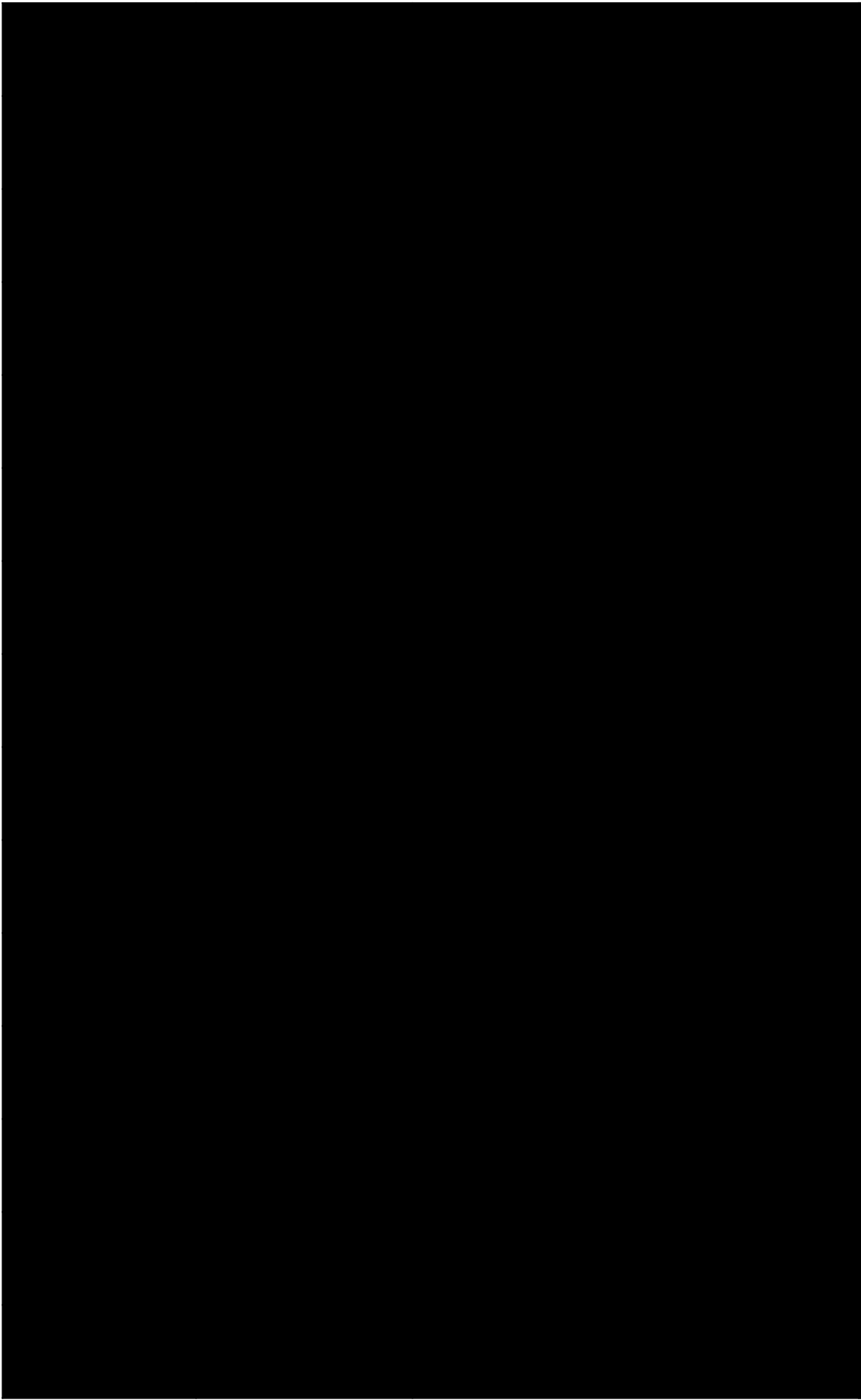
**Calculate Using Standard Calculation**

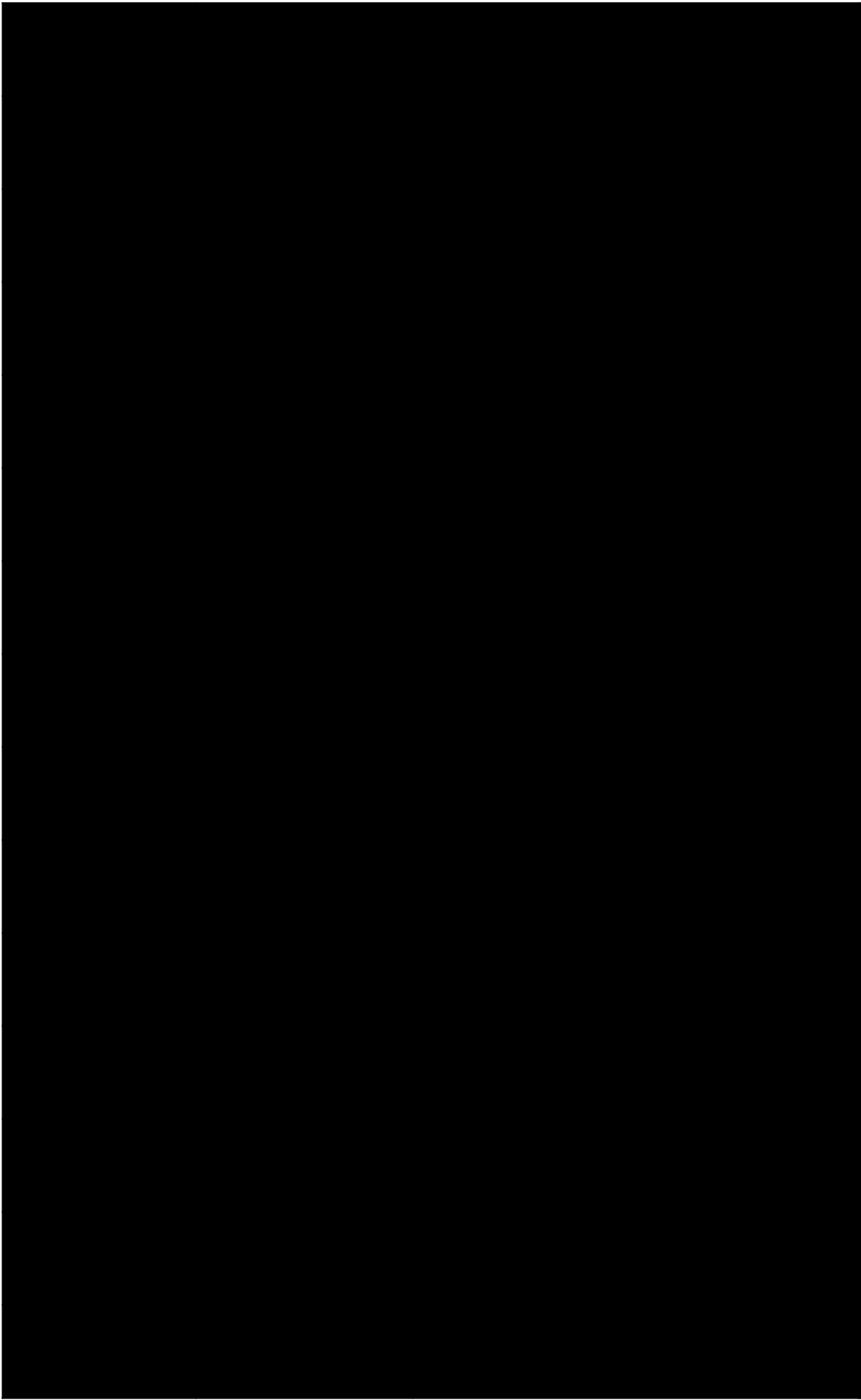
| Methane Entrainment Rate (scf/gal) | Hours of Operation (hrs/yr) | Calculated Total Methane Emission Reduction Based on Standard Calculation {[TEG Circulation Rate]x [Methane Entrainment Rate]x[Hours of Operation] x 0.9} / 1000} |
|------------------------------------|-----------------------------|---|
|------------------------------------|-----------------------------|---|

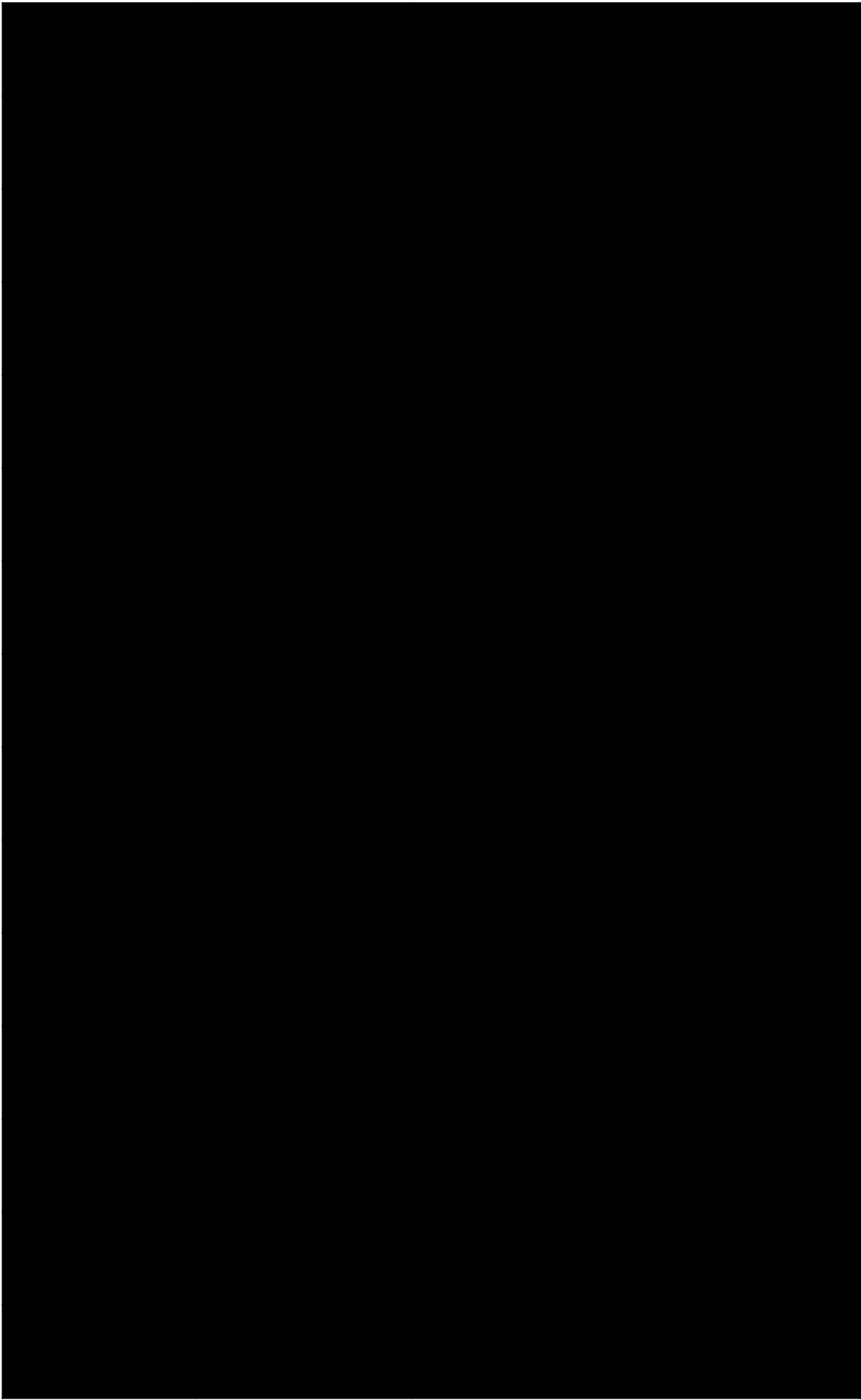


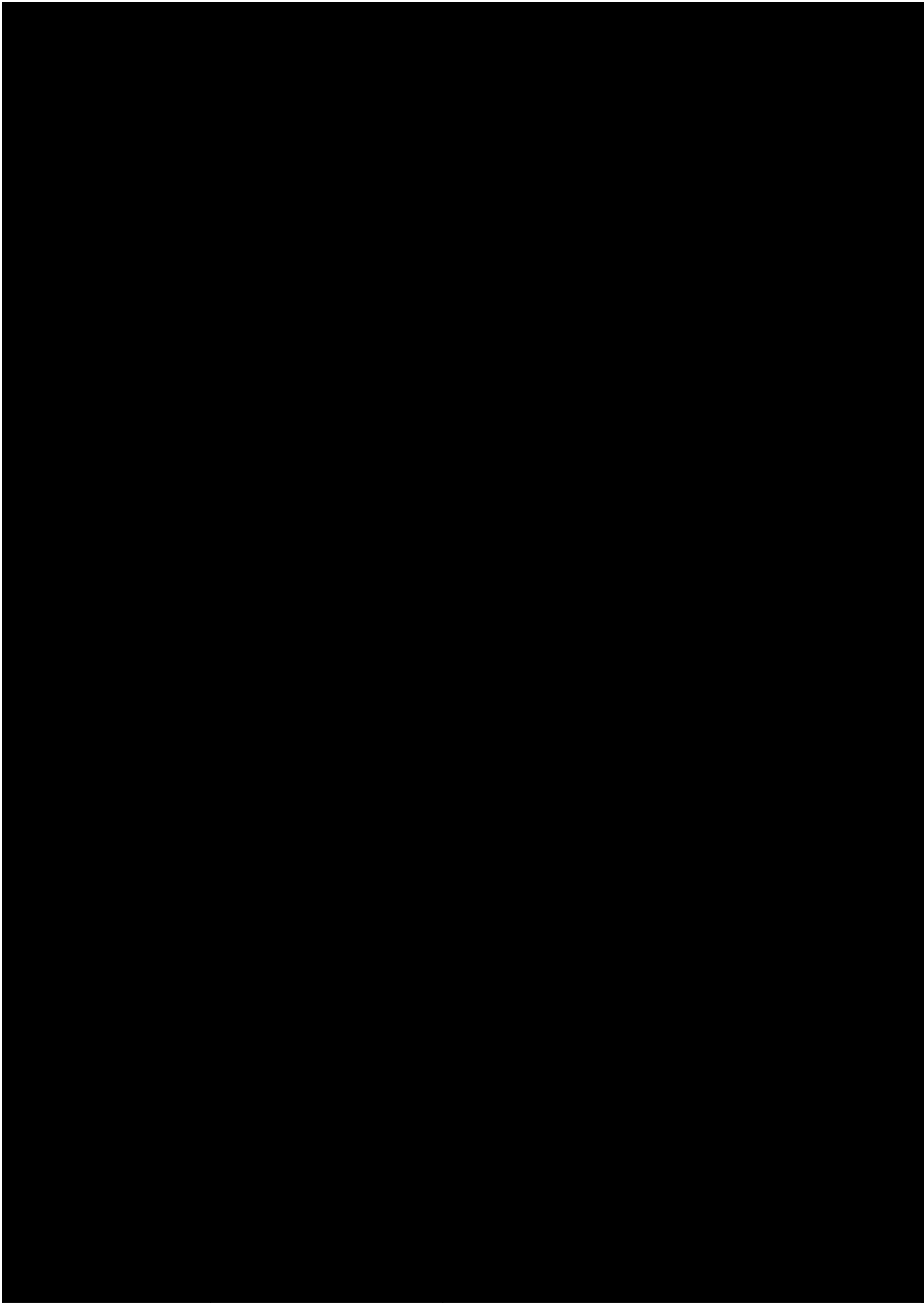








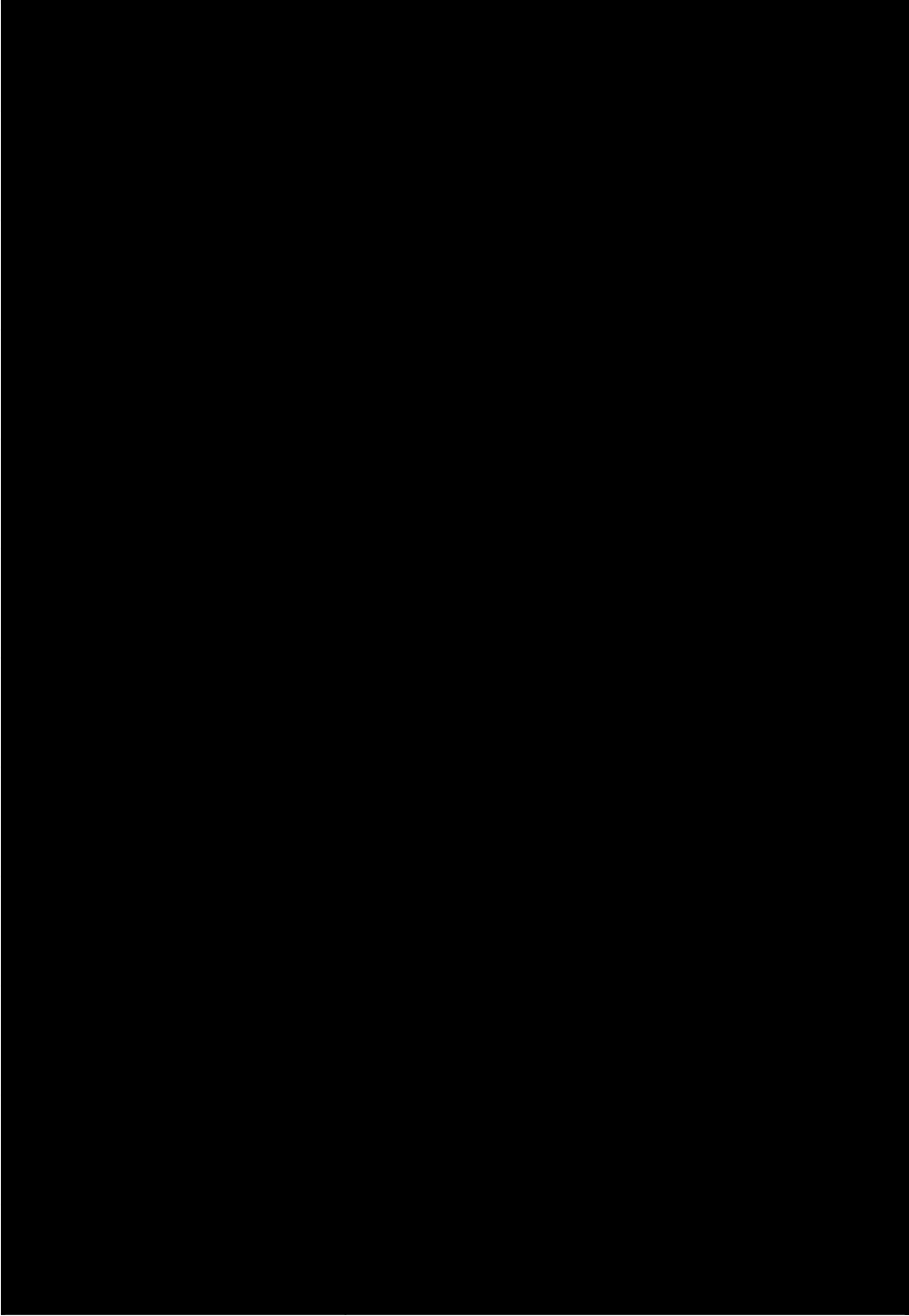


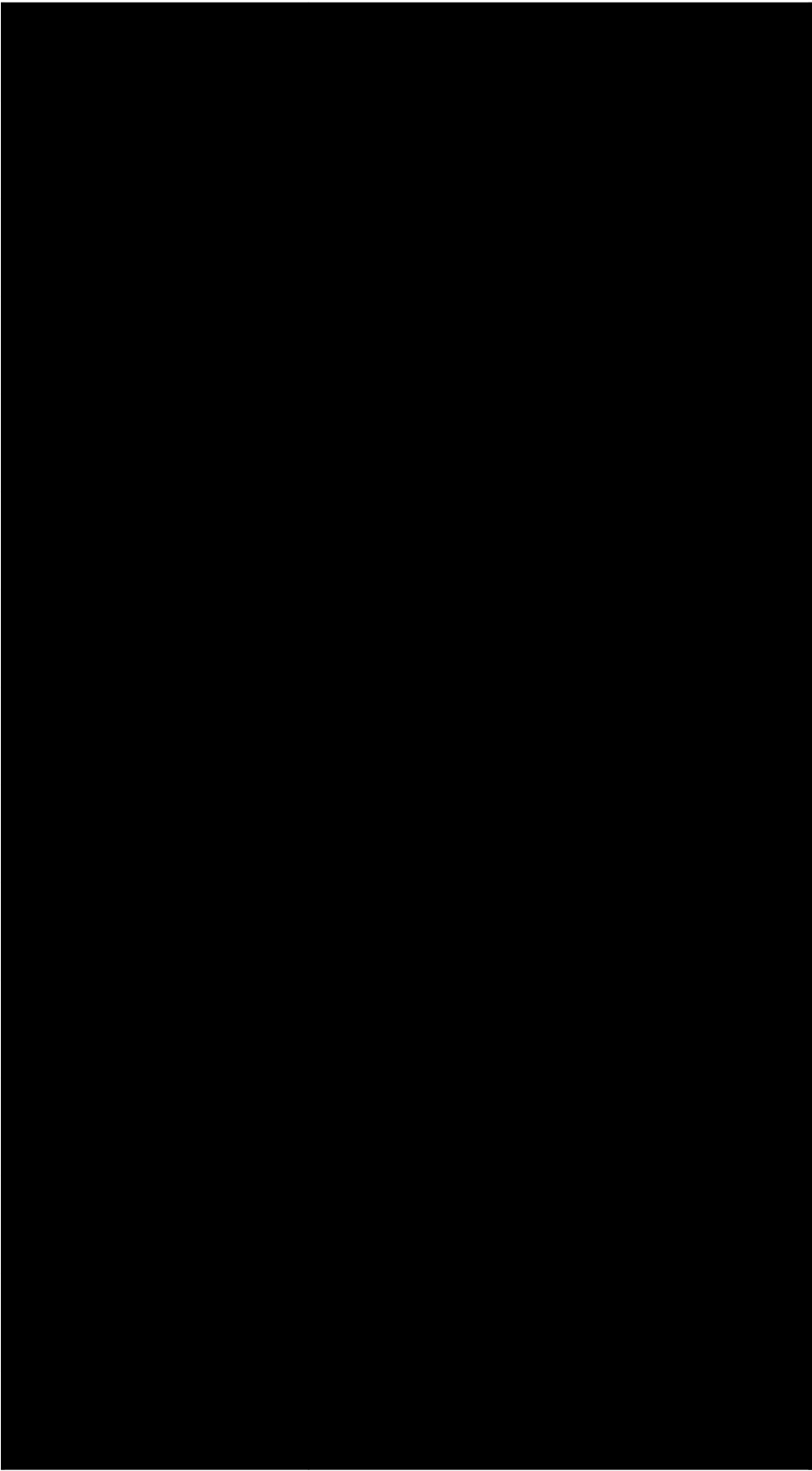


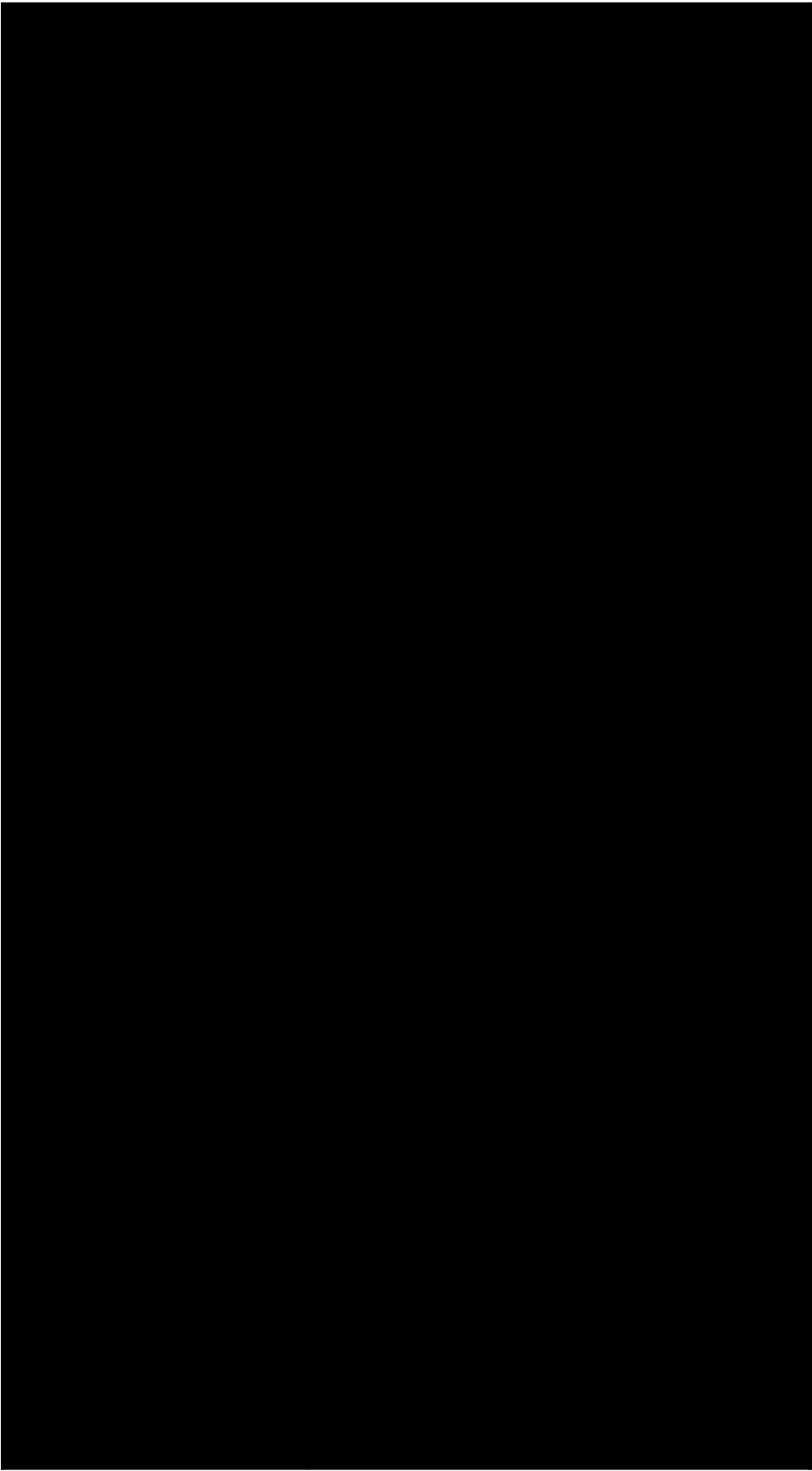
**Other Calculation**

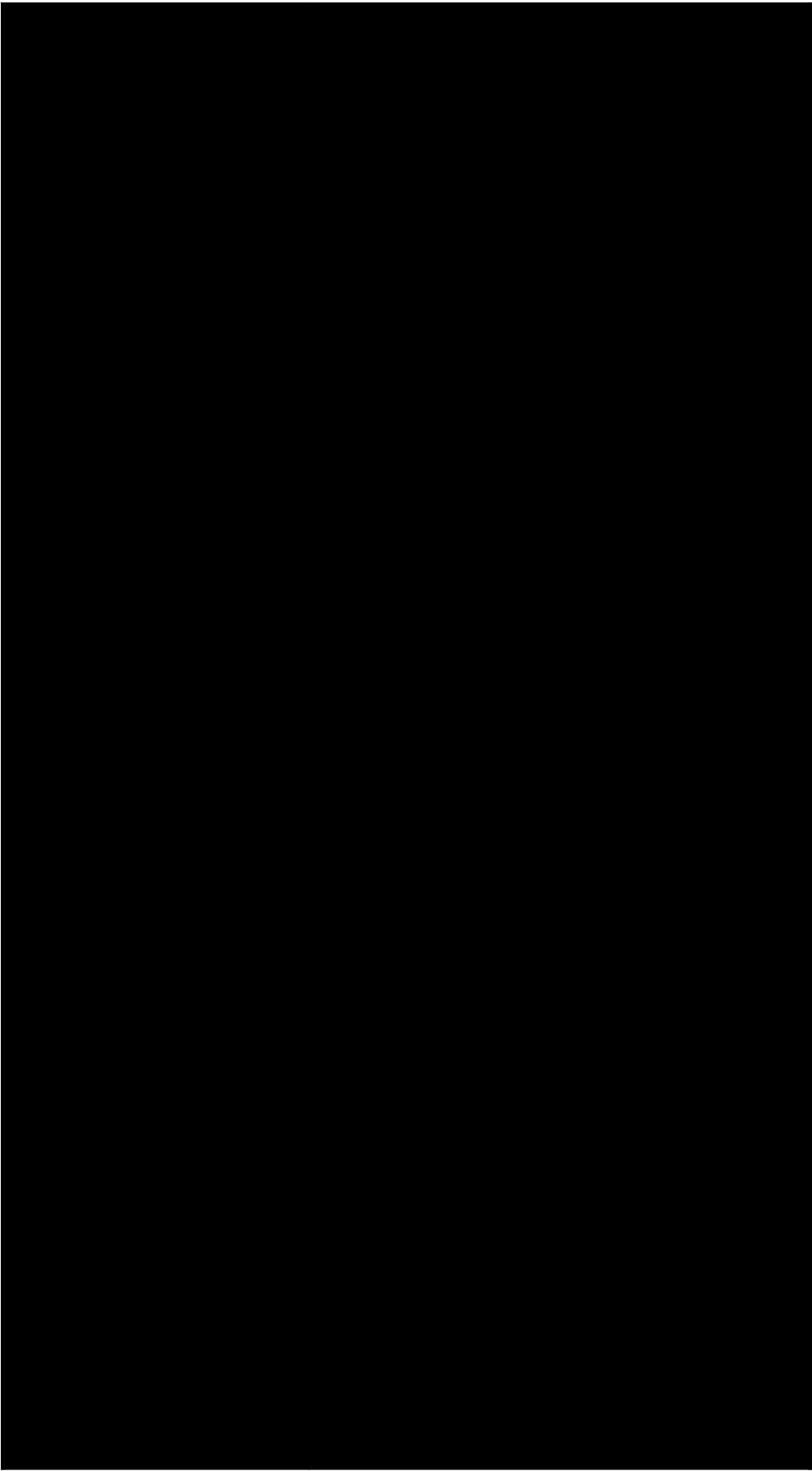
Total Methane Emission  
Reduction Based on Other  
Assumptions  
(Mcf/yr)

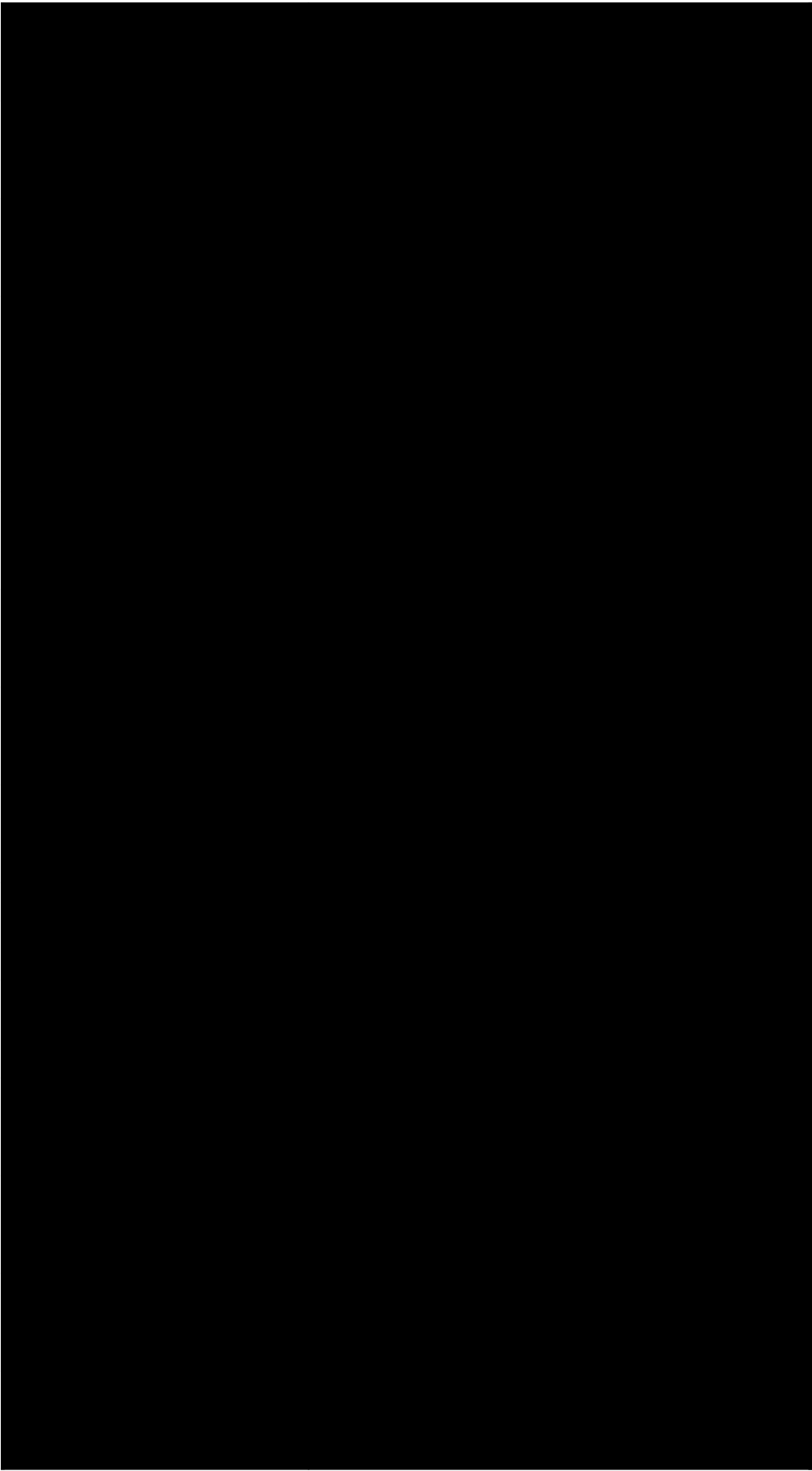
Explain Reduction Calculation Used

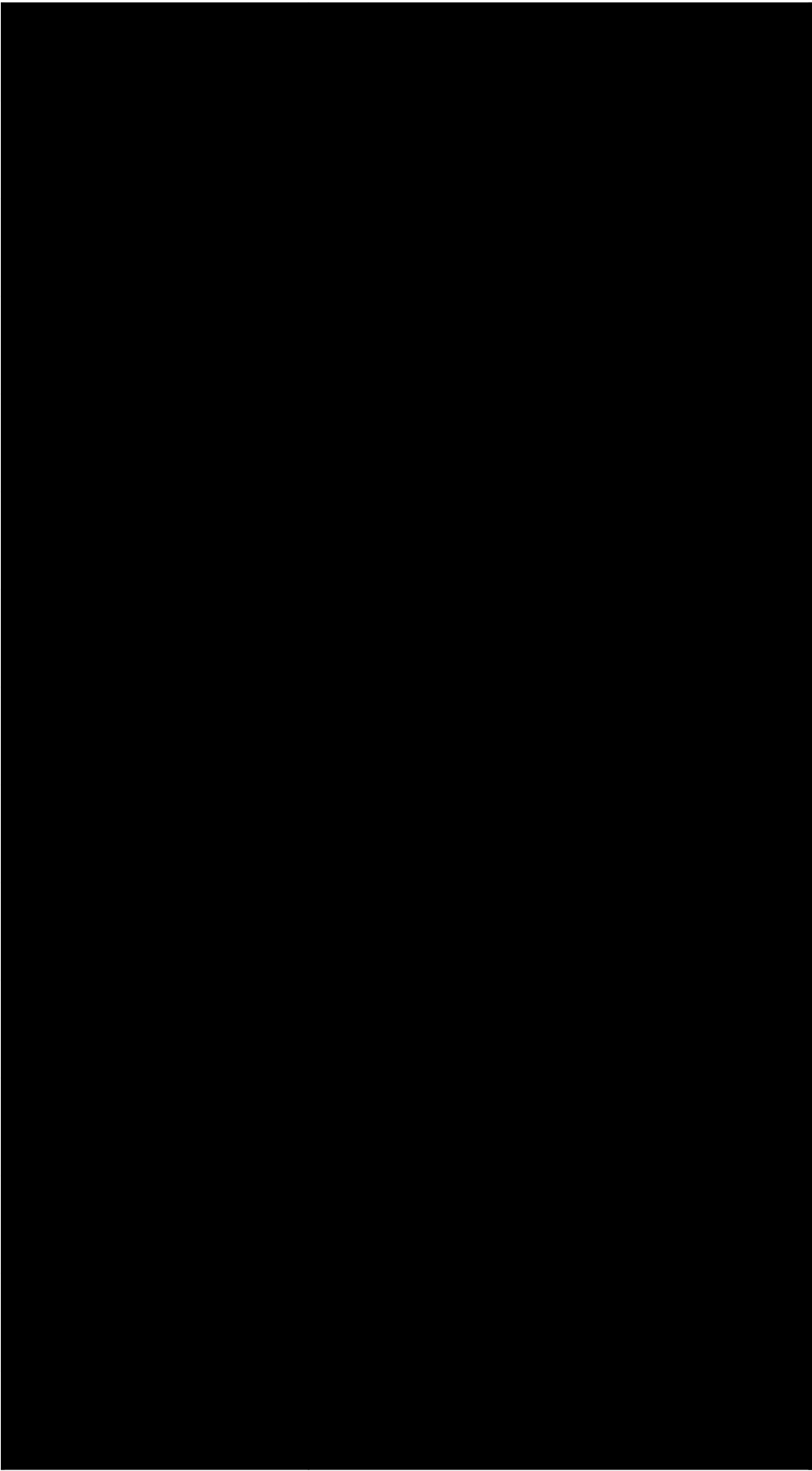


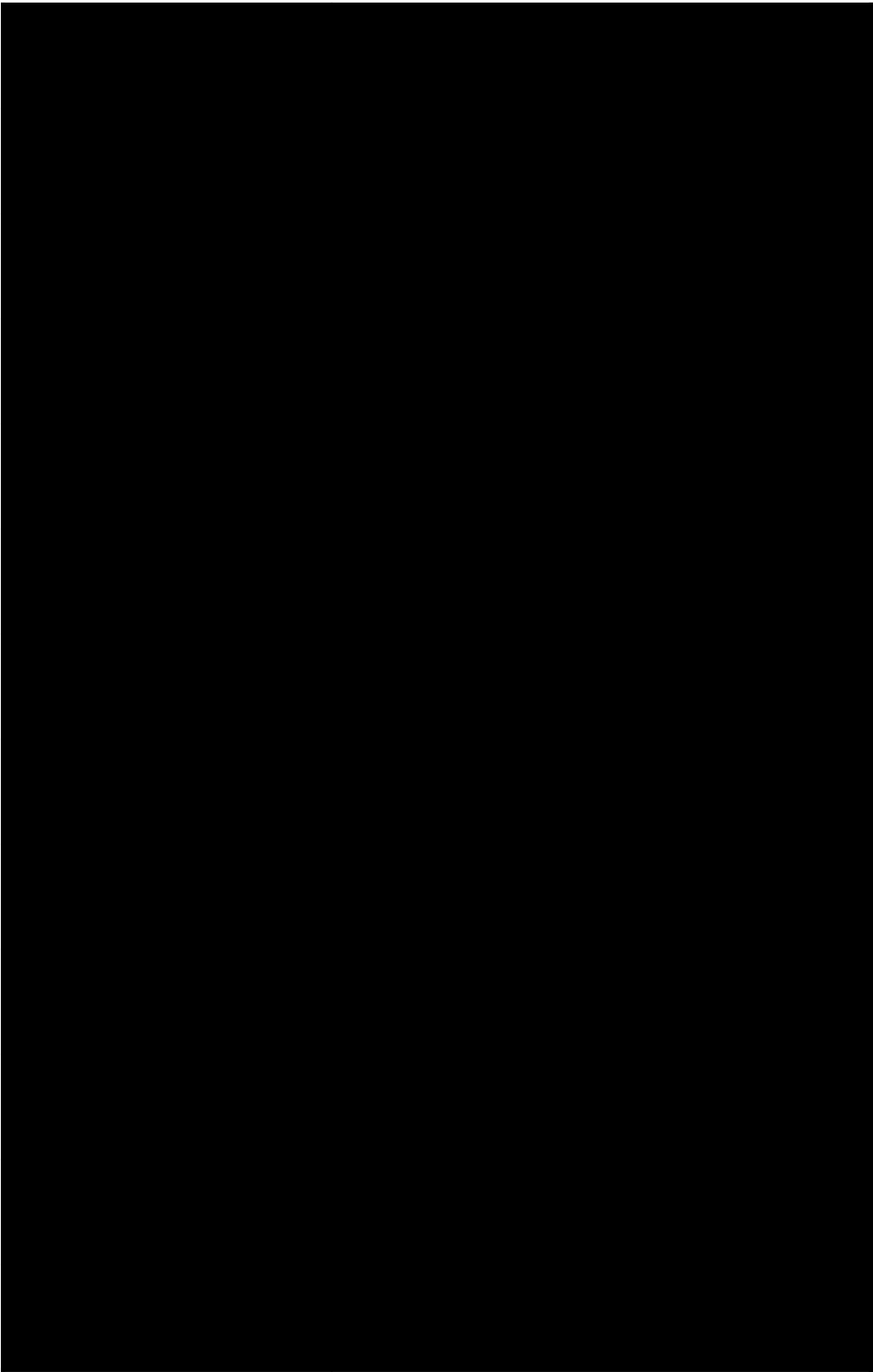


































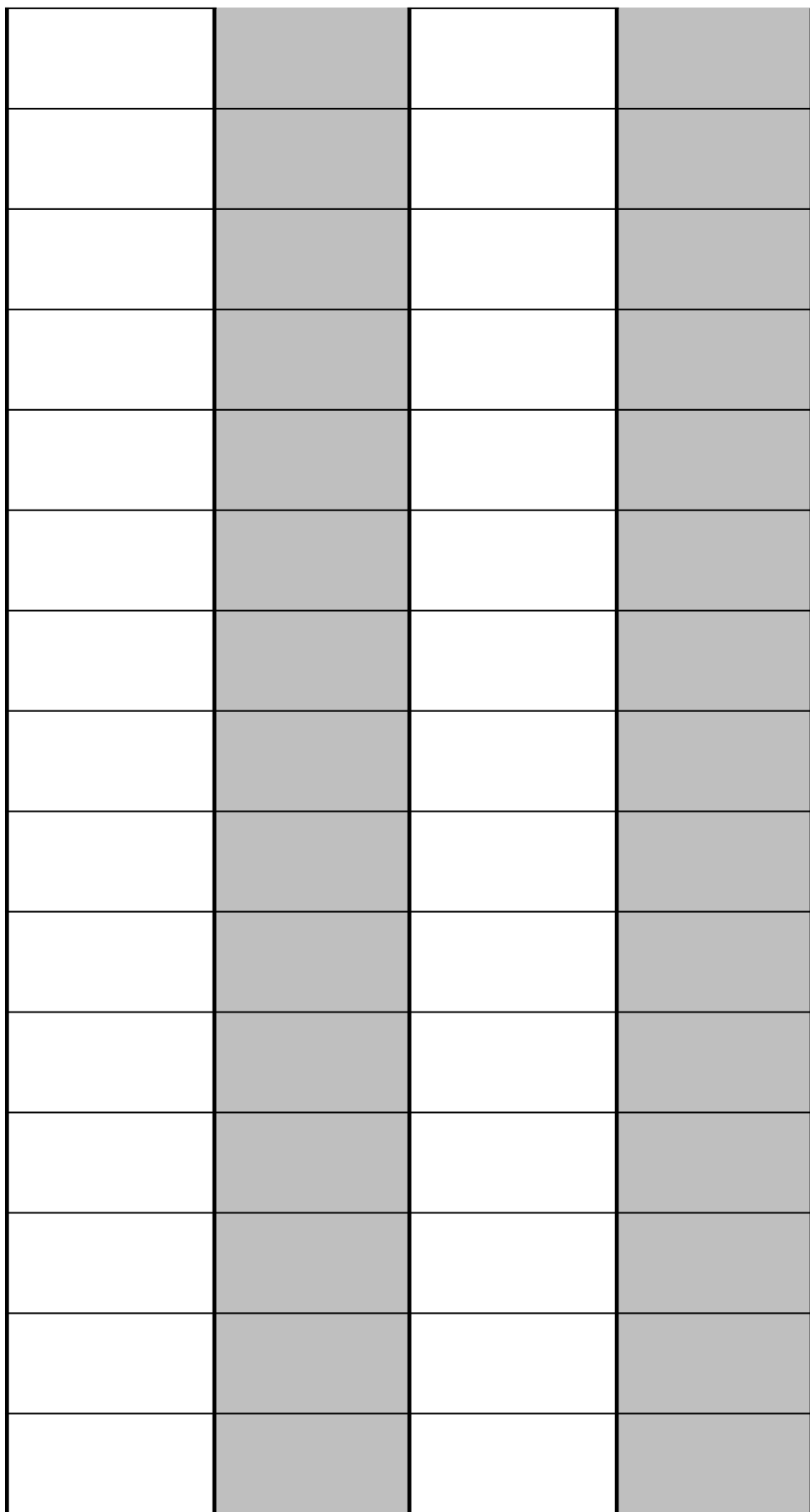






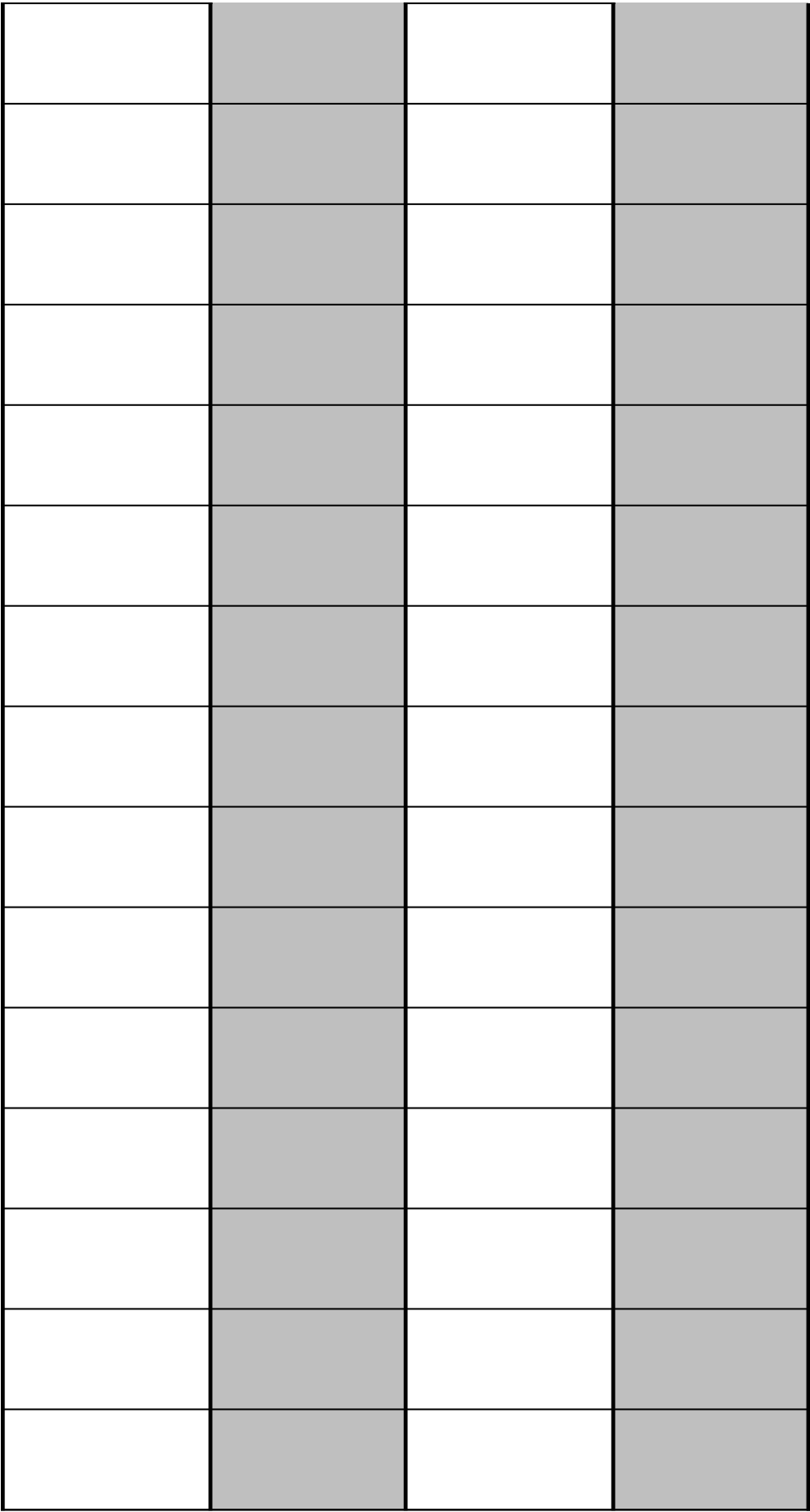










































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| Automatically calculate sunsets (if Sunset Years >1)? | End Year | Total Methane Emission Reduction (Mcf/yr) | Basis for Emission Reduction Estimate |
|---|----------|---|---------------------------------------|
| [Redacted]  |          |   |   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













| Explain Reduction Calculation Used |
|------------------------------------|
|                                    |
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|                                    |
|                                    |



























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

### Install Flash Tank Separators on Glycol Dehydrators

#### Default Values

|                              |     |
|------------------------------|-----|
| Emission Factor <sup>1</sup> | 170 |
| Efficiency <sup>2</sup>      | 0.9 |

### Pneumatic Controllers

#### Emission Factors

Source: 40 CFR 98, Table

|  |      |
|--|------|
| Low Continuous Bleed Pneumatic Device Vents  | 1.39 |
| High Continuous Bleed Pneumatic Device Vents | 37.3 |

#### Default Values

|                                |       |
|--------------------------------|-------|
| Operating hours                | 8760  |
| Methane content of natural gas | 82.1% |

Notes:

<sup>1</sup> Derived from "Methane Emissions from the Natural Gas Industry," Volume 14, Glycol

<sup>2</sup> Derived from "Optimize Glycol Circulation And Install Flash Tank Separators In Glycol I

For questions on any of the values used, please contact EPA at [GasSTAR@epa.gov](mailto:GasSTAR@epa.gov)

scf/MMcfd

percent (expressed as decimal)

W-1A (*Population Emission Factors, Gas Service*)

scf whole gas / hr / device

scf whole gas / hr / device

Assumes 24/7 operation all year

Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2016, Annex 3.6

(Table 3.6-3), [https://www.epa.gov/sites/production/files/2018-](https://www.epa.gov/sites/production/files/2018-04/2018_ghgi_natural_gas_systems_annex_tables.xlsx)

[04/2018\\_ghgi\\_natural\\_gas\\_systems\\_annex\\_tables.xlsx](https://www.epa.gov/sites/production/files/2018-04/2018_ghgi_natural_gas_systems_annex_tables.xlsx)

Dehydrators, co-sponsored by the Gas Research Institute and EPA, June 1996.

Dehydrators" Lessons Learned document, EPA, October 2006.