



STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION

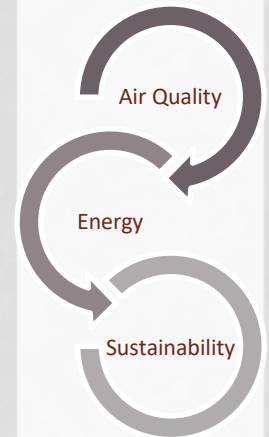


DIVISION OF AIR QUALITY

AIR QUALITY, ENERGY, AND SUSTAINABILITY

RISK SCREENING WORKSHEET UPDATE

INDUSTRIAL GROUP STAKEHOLDER MEETING
JUNE 7, 2019



Presented by Joel Leon

OVERVIEW

- General Risk Screening Worksheet (RSW)
- Natural Gas Risk Combustion Risk Screening Worksheet (NG-RSW) Evaluation
- NG Combustion - RSW for Engines

DRAFT GENERAL RSW

- ❑ Revised General RSW was issued for public comment on May 7, 2019
 - ❑ Comments due by June 10, 2019
 - ❑ Fact Sheet describes all proposed changes
 - ❑ <https://www.state.nj.us/dep/aqpp/archived/rsworksheet.html>

- ❑ Methodology for risk determination
 - ❑ Based on recently issued Technical Manuals 1002 and 1003
 - ❑ Updated air quality model (AERMOD)
 - ❑ Updated meteorological data
 - ❑ Updated toxicology factors

DRAFT GENERAL RSW

Revisions made

- Minimum stack height raised from 10 to 15 feet
- Sulfuryl fluoride, carbonyl sulfide, and 1-bromopropane (n-propyl bromide) have been added to the Worksheet

Draft RSW output is more protective of public health than current RSW

- Two to four times higher risks
- Resulting from updated meteorological data and AERMOD program
- Updated toxicity values

RISK SCREENING WORKSHEET

NATURAL GAS COMBUSTION

Development began

1) To address additional contaminants subject to risk assessments

Reporting thresholds lowered for HAPs which are emitted during natural gas combustion

Formaldehyde

Prior RT 400 lb/yr

Current RT 3.5 lb/yr

Acrolein

Prior RT 8 lb/yr

Current RT 1 lb/yr

RISK SCREENING WORKSHEET

NATURAL GAS COMBUSTION

Development began

2) Proposed General RSW is more protective than existing General RSW (approximately two to four times higher risks)

3) Natural Gas units that would have passed risk with the prior reporting thresholds and existing RSW may now have to undergo a refined risk assessment

DEVELOPMENT PROCESS FOR NATURAL GAS RSW

Reviewed all current data and permitting information on natural gas units

- ❑ Modeling studies and risk assessments
- ❑ General Permits/General Operating Permits (GP/GOP) developed and issued
- ❑ Permit applications which had to conduct a refined modeling analysis
- ❑ Determine what type(s) of combustion equipment (boilers, turbines, engines) to focus efforts on

DEVELOPMENT PROCESS FOR NATURAL GAS RSW

- ❑ Evaluated Preconstruction Permits which had natural gas combustion (not including General Permits)
 - ❑ 550 Natural Gas Boilers
 - ❑ 10 Combustion Turbines
 - ❑ 40 Emergency Generators
 - ❑ 72 Stationary Reciprocating Engines (several have digester gas as primary fuel)
 - ❑ 16 Process heaters
 - ❑ 174 Other (ovens, food fryers, melters)

DEVELOPMENT PROCESS FOR NATURAL GAS RSW - BOILERS

Air Quality Modeling was done for the proposed GP-009B and GOP-009, for Natural Gas Boilers

- ❑ Modeling showed negligible risks for natural gas combustion
 - ❑ Up to 840 million BTU per year of natural gas combustion (Equivalent of two 50 MMBTU/hr boilers operating continuously)
 - ❑ For natural gas boilers with a capacity ranging 10 - 50 million BTU/hr
 - ❑ Minimum stack height 20 feet
- ❑ Concluded that majority of NG Boilers would qualify and RSW for NG Boilers not needed

DEVELOPMENT PROCESS FOR NATURAL GAS RSW -TURBINES

- ❑ Only one GP/GOP CHP has been filed
 - ❑ Single or multiple units
 - ❑ Cumulative heat input rate \leq 65 MMBTU/hr
- ❑ Currently three NG turbine applications undergoing refined modeling and risk assessment
 - ❑ Three 22.5 MW Simple Cycles Turbines and Two 22.5 MW Combined Cycle Turbines
 - ❑ 700 MW Combined Cycles Turbine
 - ❑ Two 386 MW Combined Cycle Turbines

DEVELOPMENT PROCESS FOR NATURAL GAS RSW -TURBINES

- ❑ Decision made not to develop RWS for NG turbines
 - ❑ Minimal number of installations
 - ❑ Turbines tend to be installed at larger facilities which would be required to conduct refined modeling
 - ❑ Concluded that very few NG turbines have capacities which could meet the limitations of a RSW

DEVELOPMENT PROCESS FOR NATURAL GAS RSW - ENGINES

- ❑ RSW is being developed for NG Engines
 - ❑ Vary in sizes
 - ❑ Many installations
- ❑ RSW variables being evaluated for NG Engines
 - ❑ Stack heights
 - ❑ Distances to the property line
 - ❑ Discharge temperature
 - ❑ Stack flowrate/exit velocity

DEVELOPMENT PROCESS FOR NATURAL GAS RSW SUMMARY

- ❑ NG Boilers - No RSW –Most can obtain GP/GOP
- ❑ NG Turbines – No RSW – Not many in number and are located at larger facilities
- ❑ NG Engines – RSW

Questions or would like to participate in RSW development – Joel Leon (joel.leon@dep.nj.gov)