



CI RICE NESHAP

*Retrofit, Replace, Or Retire
A Process For Achieving Compliance*

Iowa Association of Municipal Utilities

July 20, 2010



Stanley Consultants

Introduction

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Stanley Consultants

Engineering, Environmental And Construction Services Worldwide

Established 1913

Headquartered In Muscatine, Plus 16 Domestic, 8 International Offices

Approximately 1,700 Member Owners

Over 375,000 Horsepower Of Diesel Electric Plant Project Experience



Overview

Implementation Schedule

Establishing Baseline Information

Determining Cost To Control

Additional Considerations

Retrofit, Replace, or Retire

Moving Forward



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Wednesday,
March 3, 2010

Federal

Part II

Environmental Protection Agency

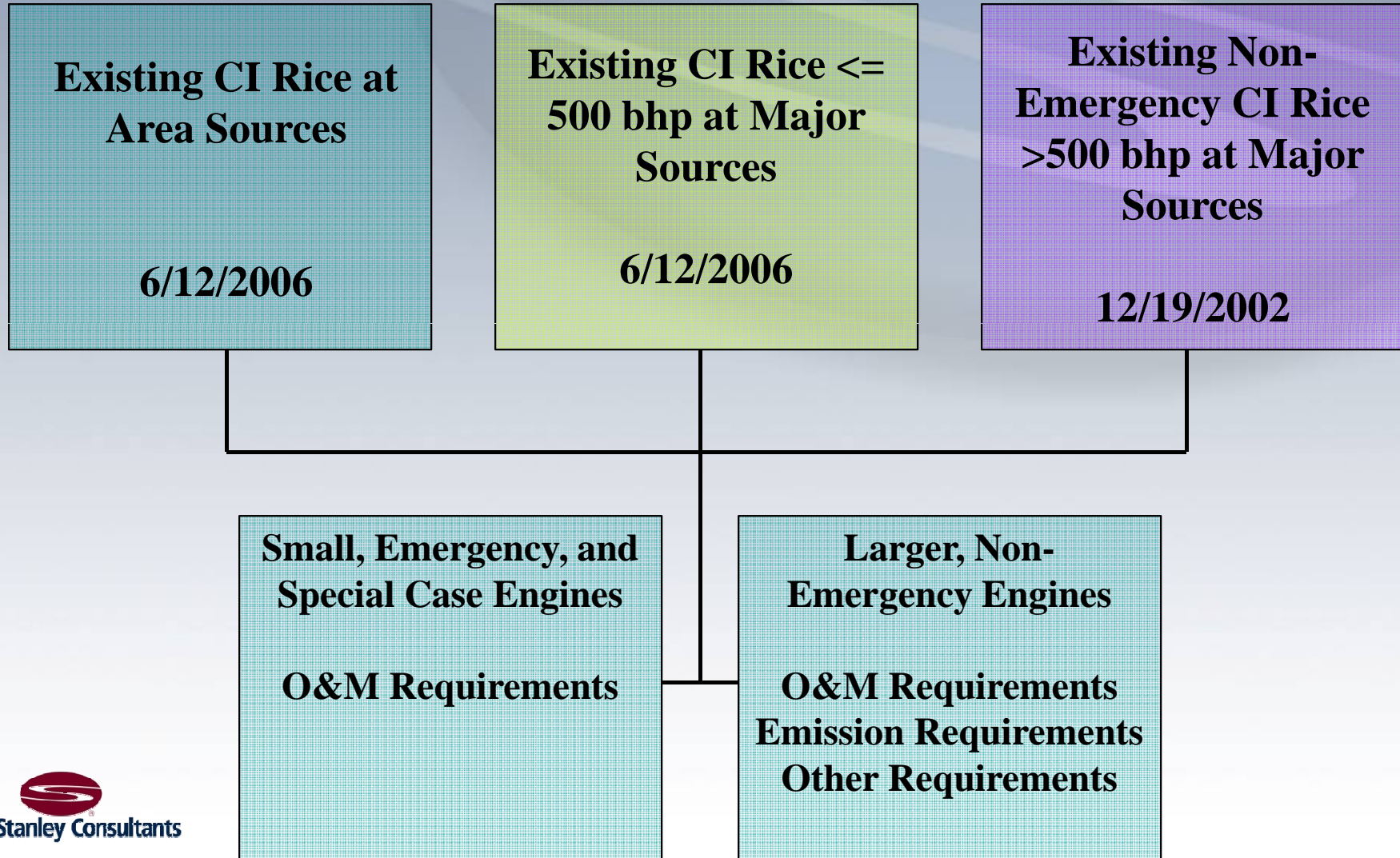
40 CFR Part 63

National Emission Standards for
Hazardous Air Pollutants for
Reciprocating Internal Combustion
Engines; Final Rule

Compression
Ignition
Reciprocating
Internal
Combustion
Engines

Carbon Monoxide Emission Standards
Crankcase Ventilation Requirements
Instrumentation & Operating Requirements
Fuel Requirements

Rule Overview



Key Definition

“Emergency”

Operation limited to emergency situations and required testing and maintenance.

Power for critical networks or equipment when electric power is interrupted

Engines used to pump water in the case of fire or floods

Peak shaving is not considered emergency use

Power supply to the grid as part of a financial arrangement is generally not considered emergency use

Special provisions for highly qualified demand response agreements (imminent blackout or grid failure)

Special considerations for black start engines at CT's

Implementation Schedule

Rule Final – March 3, 2010

Compliance Deadline ~ April / May, 2013

To Do List:

Regulatory Submissions

Studies, Preliminary Design, And Permitting

Specifications And Bid Documents

Project Award And Equipment Delivery

Construction And Commissioning

Performance Testing And Compliance

Getting Started

Establish Your Baseline

Engine Inventory & Classification

Engine Installation & Manufacture Date

Major Maintenance History

Engine Characteristics

Operating Uses And History

Emission Performance Information

Cost / Benefit Of Existing Operations

Base Compliance Costs

Future Cost Of Operations

Technology Options

Engine Manufacturer Retrofits

Good Third Party Control Devices

Questionable Third Party Control Devices

Magic Pixie Dust Control Devices

Over 900,000 Engines Impacted

Stick With Known Names And Proven Results

Capital And O&M Costs, Performance Guarantees

Base Compliance Costs

Future Cost Of Operations

Mechanical And Piping Modifications

Engine By Engine Or Multi-Engine Control

Piping Constraints And Options

Open Crankcase Ventilation Filtration Options

Straight Pipe Run Requirements For Stack Testing

Additional Building Safety Exhaust Options

Multi-Discipline Solution Integration

Base Compliance Costs

Future Cost Of Operations

Instrumentation And Control Retrofits

Updates And Modification To Existing Controls

Control System Performance Measurements

Catalytic Oxidation System Continuous Monitoring

Monthly Pressure Drop Instrumentation

Operational Monitoring And Compliance Data Logging

Potential Opportunity To Upgrade Existing Controls

Base Compliance Costs

Future Cost Of Operations

Structural Modifications

Changes To Stack Characteristics

Basic Vertical Structural Integrity

Foundation Requirements

Internal Equipment Modifications

Additional Building Structures

Maintenance And Inspection Platforms

Base Compliance Costs

Future Cost Of Operations

Record Keeping And Testing Requirements

Stack Testing Requirements

Develop And Implement Recordkeeping Procedures

Evaluate Opportunities To Minimize Impact

Operational / Performance Impacts

Manufacturer Recommendations Regarding Backpressure

Control Equipment O&M

Impact on Flexibility For Intended Use

Additional Considerations

Revised Air Quality Standards

Fine Particulate Matter (PM_{2.5})

1-Hour NOX Standard (NO_x)

1-hour SO2 Standard (SO₂)

Air Dispersion Modeling Evaluations

CI RICE Emission Limits

Ambient Air Quality Emission Limits

Multi-Pollutant Controls

Stack Height Modifications

Additional Considerations

Avoid CI RICE Tunnel Vision

Integrate Early In Process

What Other Requirements Will Be Necessary?

Base CI RICE Compliance

New Permit Requirements

Stack Height Increases

Multi-Pollutant Controls

Property Acquisition And Fencing

Preliminary Study

What Is Needed To Comply With CI RICE?

ID Candidate Control Options

What Is Needed For Additional Considerations?

Integrate Secondary Considerations

What Are The Capital Costs?

Complete Budgetary Cost Estimates

What Are The O&M Costs?

Integrate O&M Costs

Retrofit, Replace, Or Retire?

Existing Cost of Doing Business

Costs And Benefits Of Existing Facilities

New Cost With Existing Equipment

Capital And O&M Impacts

New Cost With New Equipment

Capital And O&M Impacts

Operational Constraints

Reduced “Value” of Generating Capacity?

Moving Forward

Engine Inventory And Classification Analysis

Emission Control Options Analysis

Crankcase, Fuel, And Instrumentation Analysis

Recordkeeping And Compliance Procedures System

Integrate Additional Considerations

Moving Forward

Preliminary Design, Budgetary Costs, And Permitting

Specifications And Bid Documents

Construction And Commissioning

Performance Testing And Continuous Compliance

Services Offered

Diesel Engine Inventory & Classification

Review of existing engines and regulatory applicability classification for the new requirements

Catalytic Oxidation System Retrofits

Design of mechanical, structural, and instrumentation and control systems

Crankcase Ventilation Retrofits

Design of mechanical and structural systems

Power Options Analysis

Retrofit or replace recommendations

Compliance Procedures

Operating manuals, new or revised Environmental Management Systems

Questions?

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