

**Cooper Nuclear Station**  
**Diesel Fuel Oil Storage Tank One-Time Tech Spec Change**  
**September 2004**



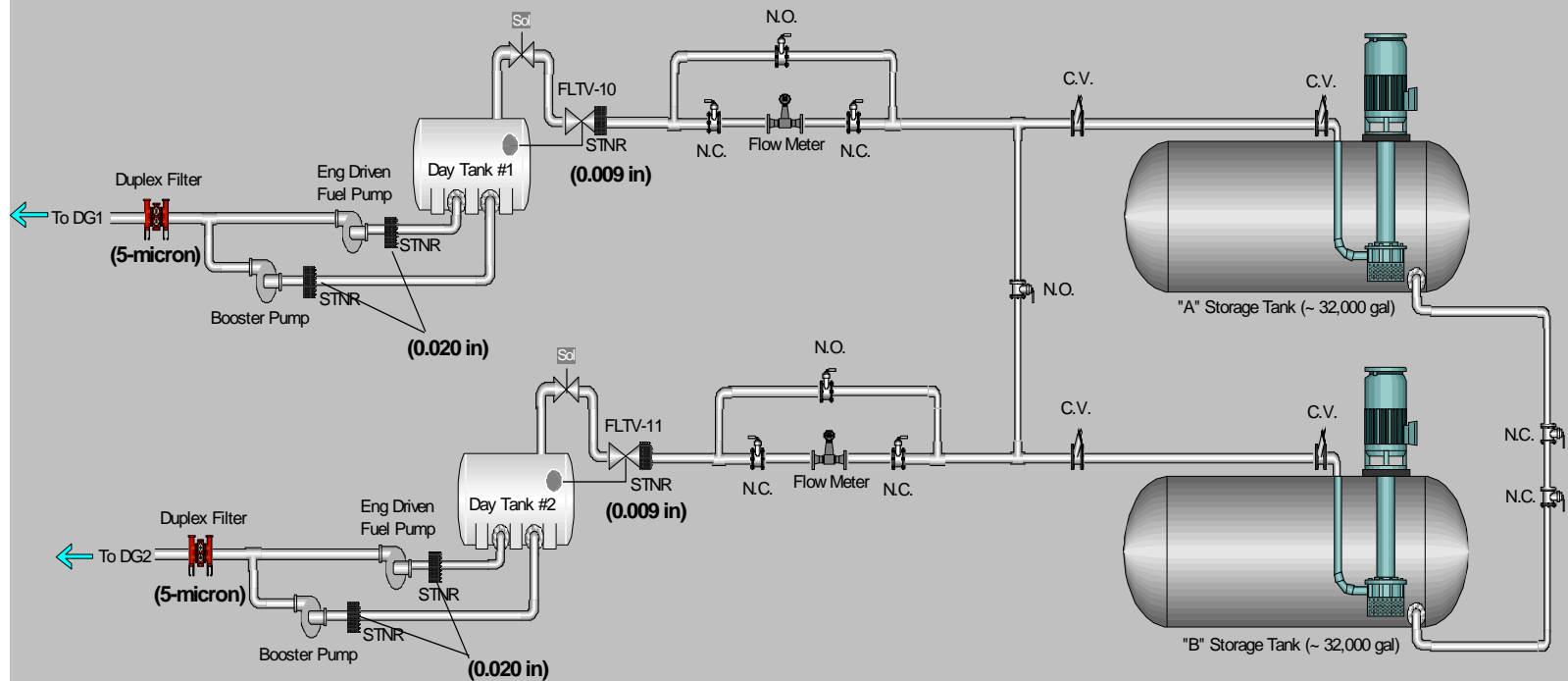


# Agenda

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- **Introduction** (Paul Fleming, Licensing Manager)
- **Background** (Mark Lingenfelter, DG System Engineer)
- **Tank Coating and Pipe Flush Project** (Rich Dewhirst, Nuclear Projects Director)
- **Defense-in-Depth Strategies** (Mark Lingenfelter)
- **Technical Specifications** (Ed McCutchen, Licensing Supervisor, )
- **Summary** (Paul Fleming)
- **RAI's and Responses** (Ed McCutchen, et. al.)

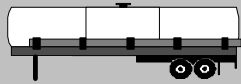
# Background - Configuration Prior to 3/04



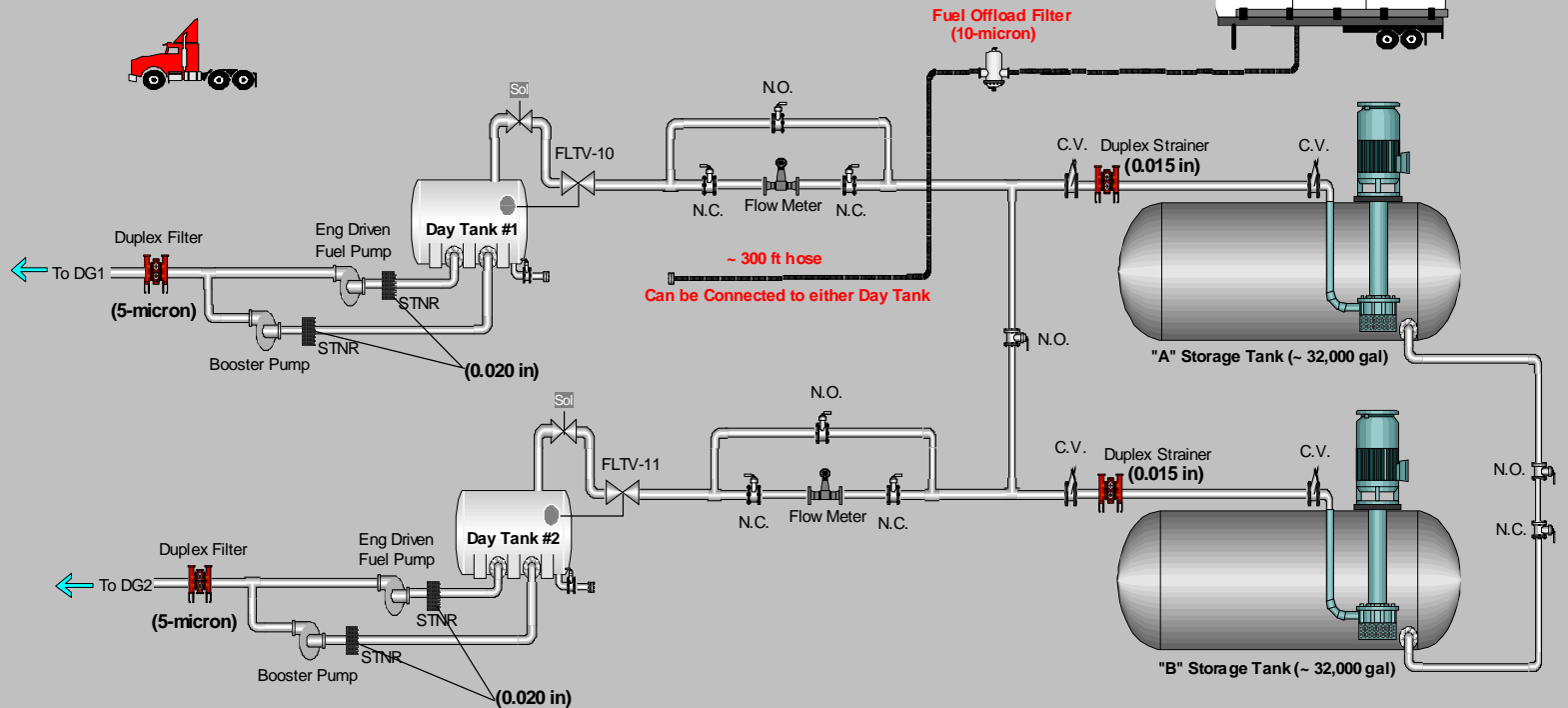
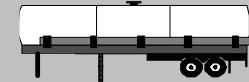
# Present Day Arrangement

(Located Outside Protected Area)

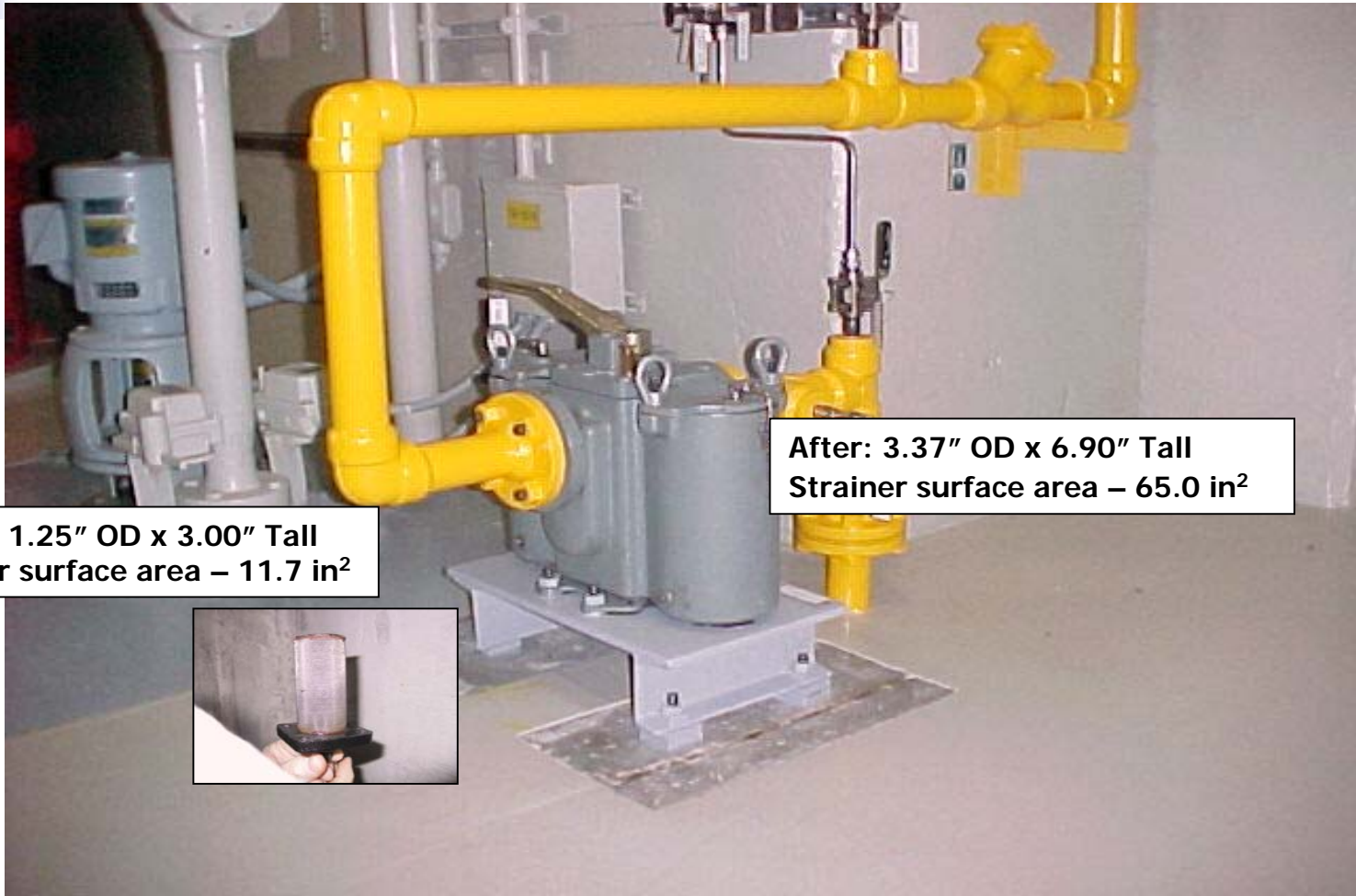
(~ 7,000 gal)



Additional On-site Tanker  
(Located Inside Protected Area)  
(~ 7,000 gal)



# Fuel strainer – Before & After



**Before: 1.25" OD x 3.00" Tall  
Strainer surface area – 11.7 in<sup>2</sup>**

**After: 3.37" OD x 6.90" Tall  
Strainer surface area – 65.0 in<sup>2</sup>**





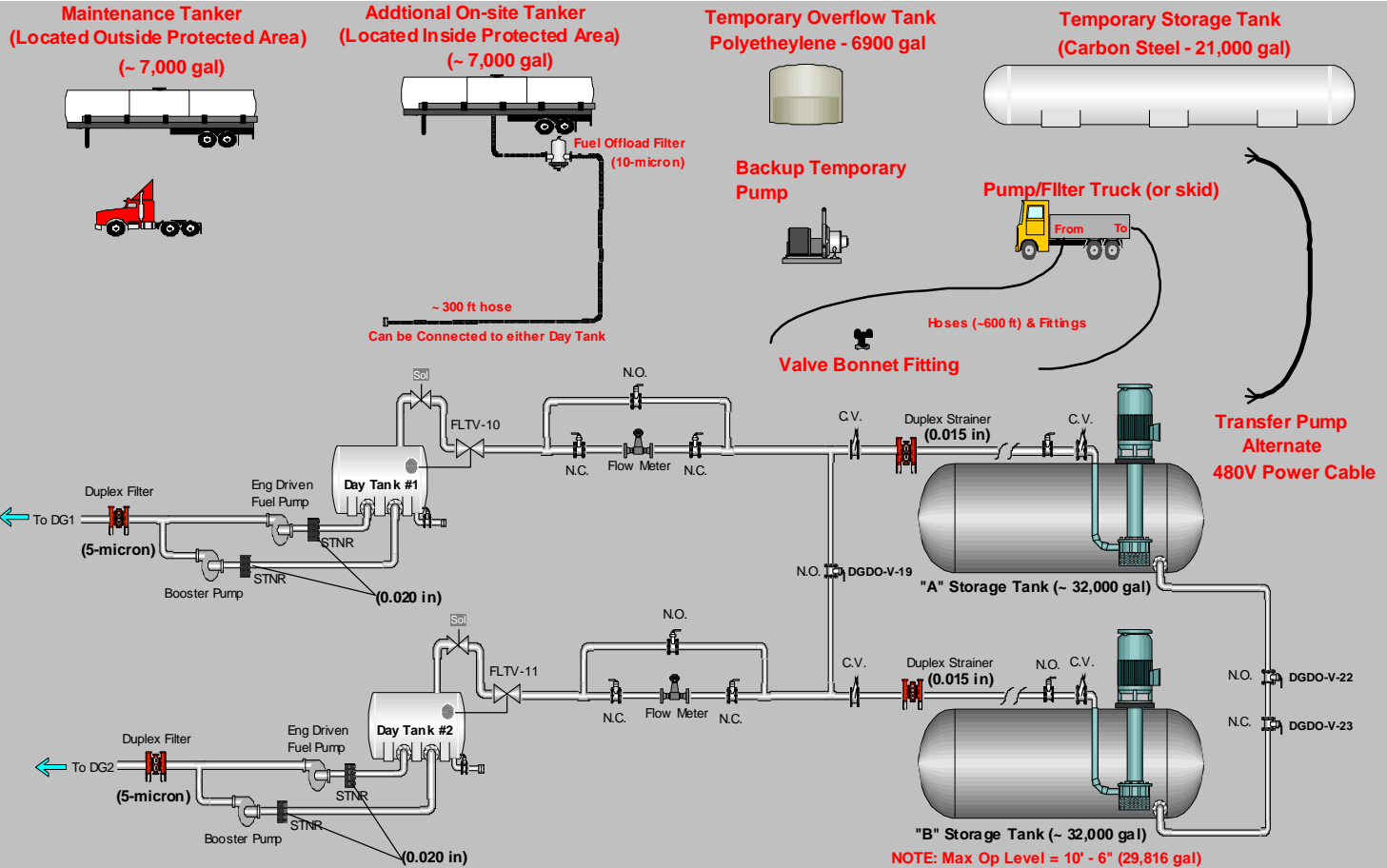
# Tank Coating and Line Flushing Project

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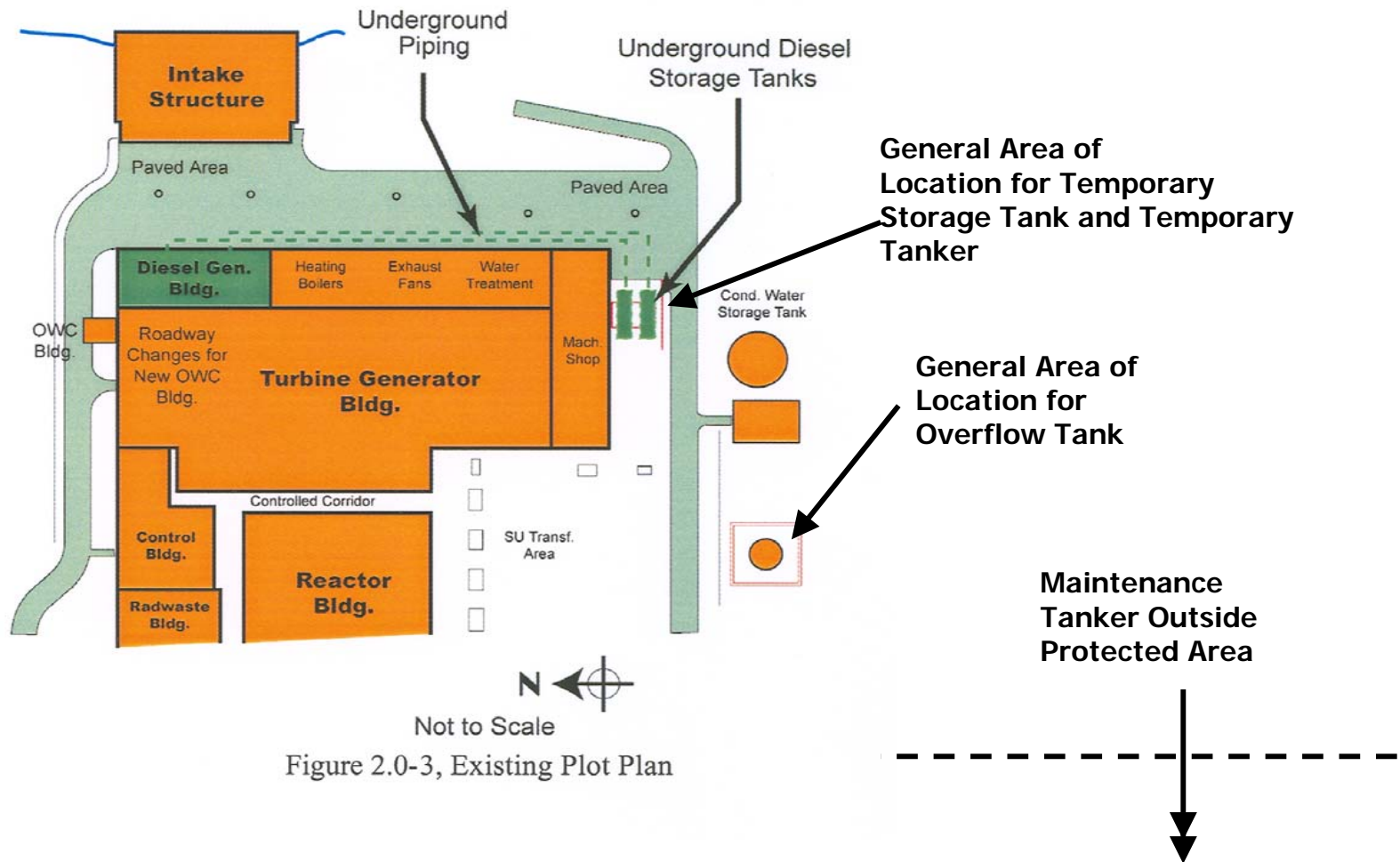
**During the weeks of 10/25 and 11/1/2004, CNS will perform the following:**

- **Isolate tank and off-load fuel**
- **Clean and Inspect storage tanks**
- **High flow flushing of underground piping**
- **Tank corrosion inhibitor lining will be applied**

# Staging Equipment

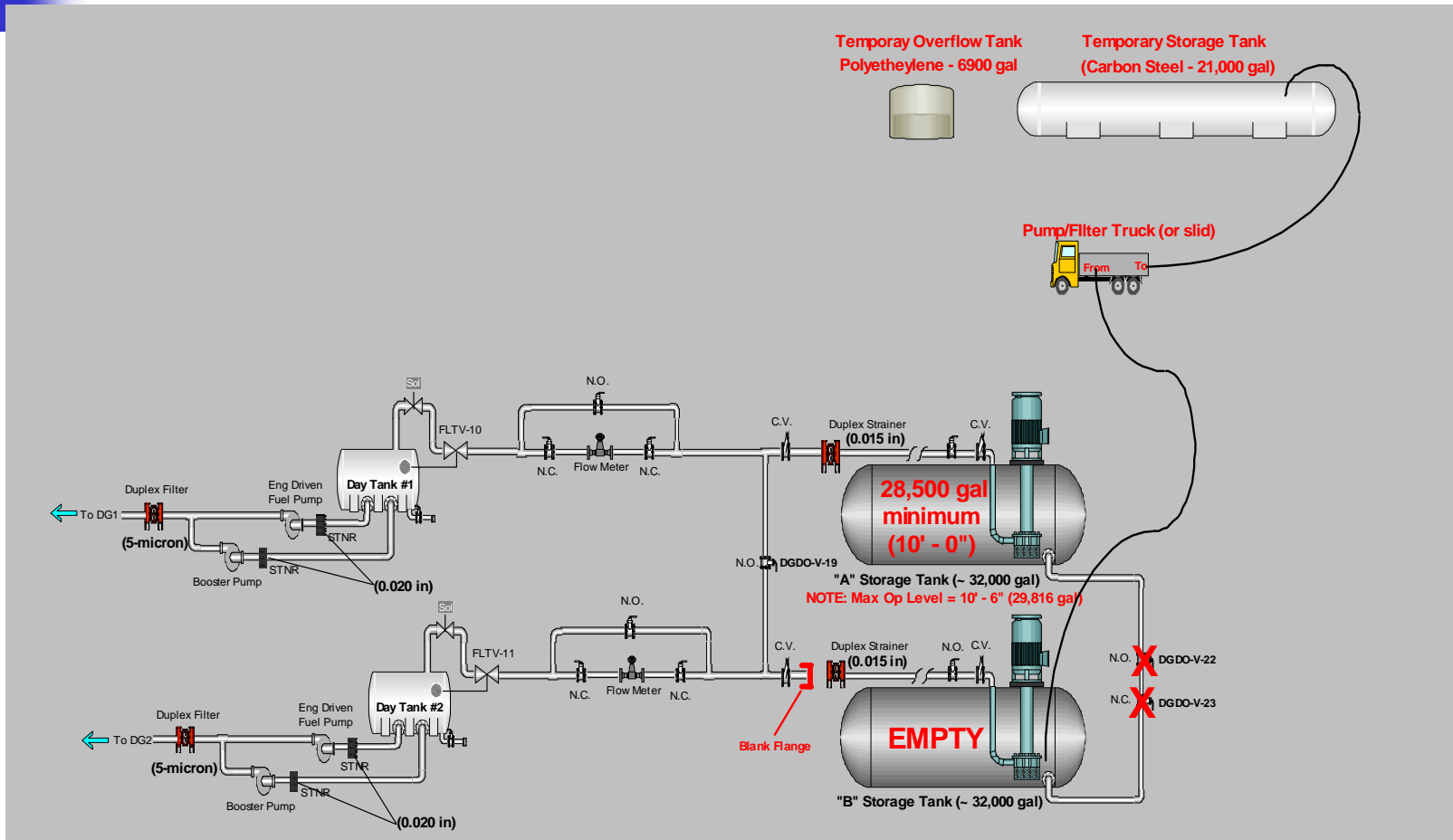


# Site - DG Fuel Oil System Layout



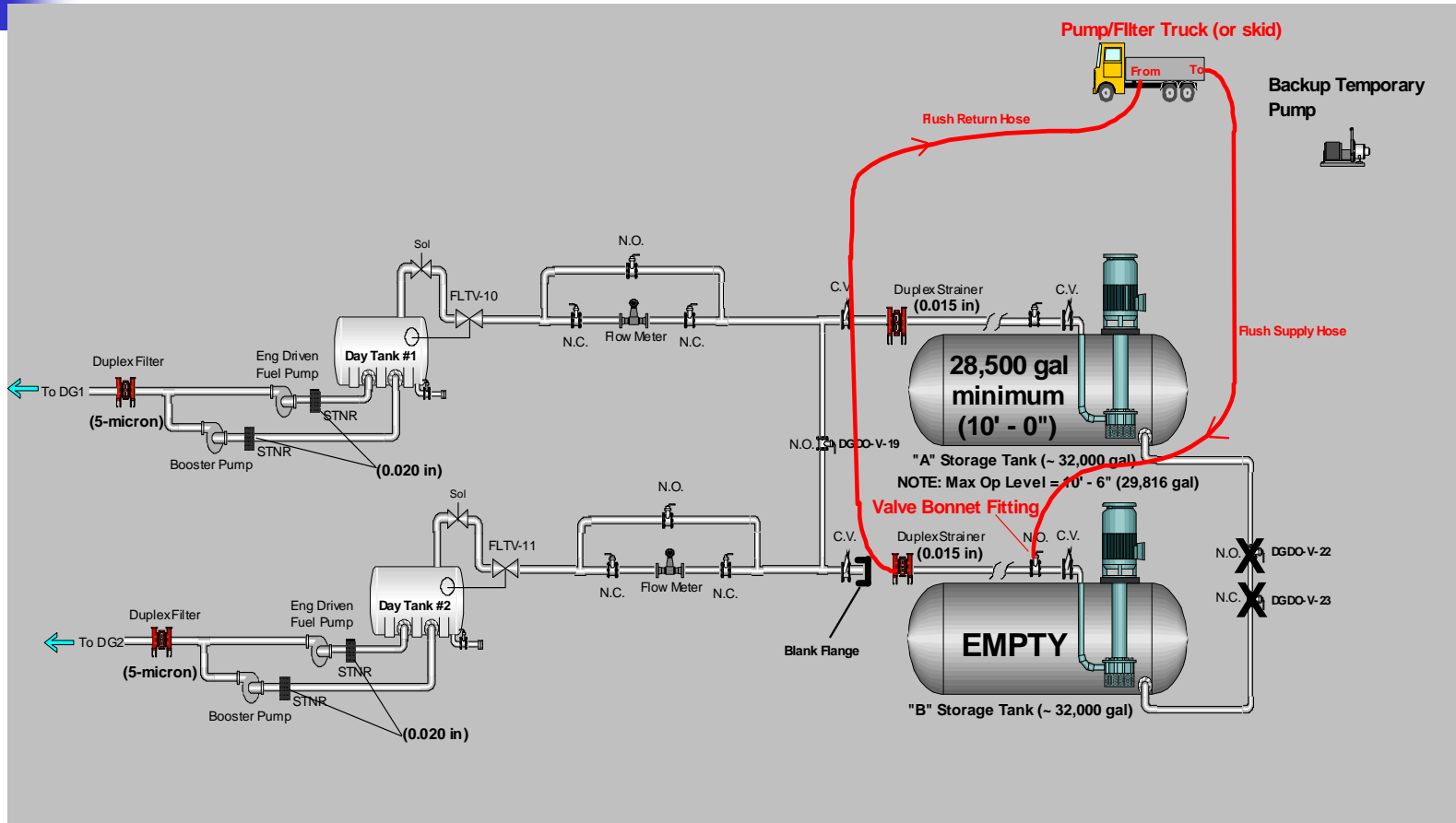


# Configuration-Fuel Off-Load & Tank Coating (Shown for "B" Tank)



# Configuration During Pipe Flush

(Shown for "B" System)





# Post Maintenance Testing

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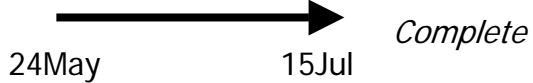
- **Sampling & analysis of stored fuel**
- **Fuel inventory surveillance**
- **Perform monthly diesel surveillance run**
- **Perform pump IST test**
- **Inspect and clean strainer**

# Schedule and Duration (Overview)

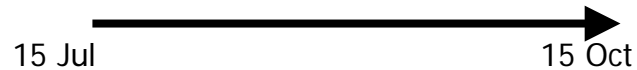
**Procure lining material and contract vendor to apply coating**



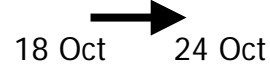
**Submit One-time TS Change Request**



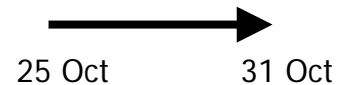
**Approve one-time Tech Spec request**



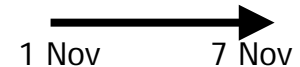
**Field Prep & Training**



**Coat DG2 Tank**



**Coat DG1 Tank**





## **Defense in Depth - Administrative**

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- **Inoperable DG will remain available**
- **No competing scheduled activities**
- **Special Procedure per Conduct of Infrequently Performed Tests or Evolutions**
- **Operating & Emergency procedures temporarily revised**
- **Training of involved personnel prior to commencing**
- **24-hour support to implement defense-in-depth**

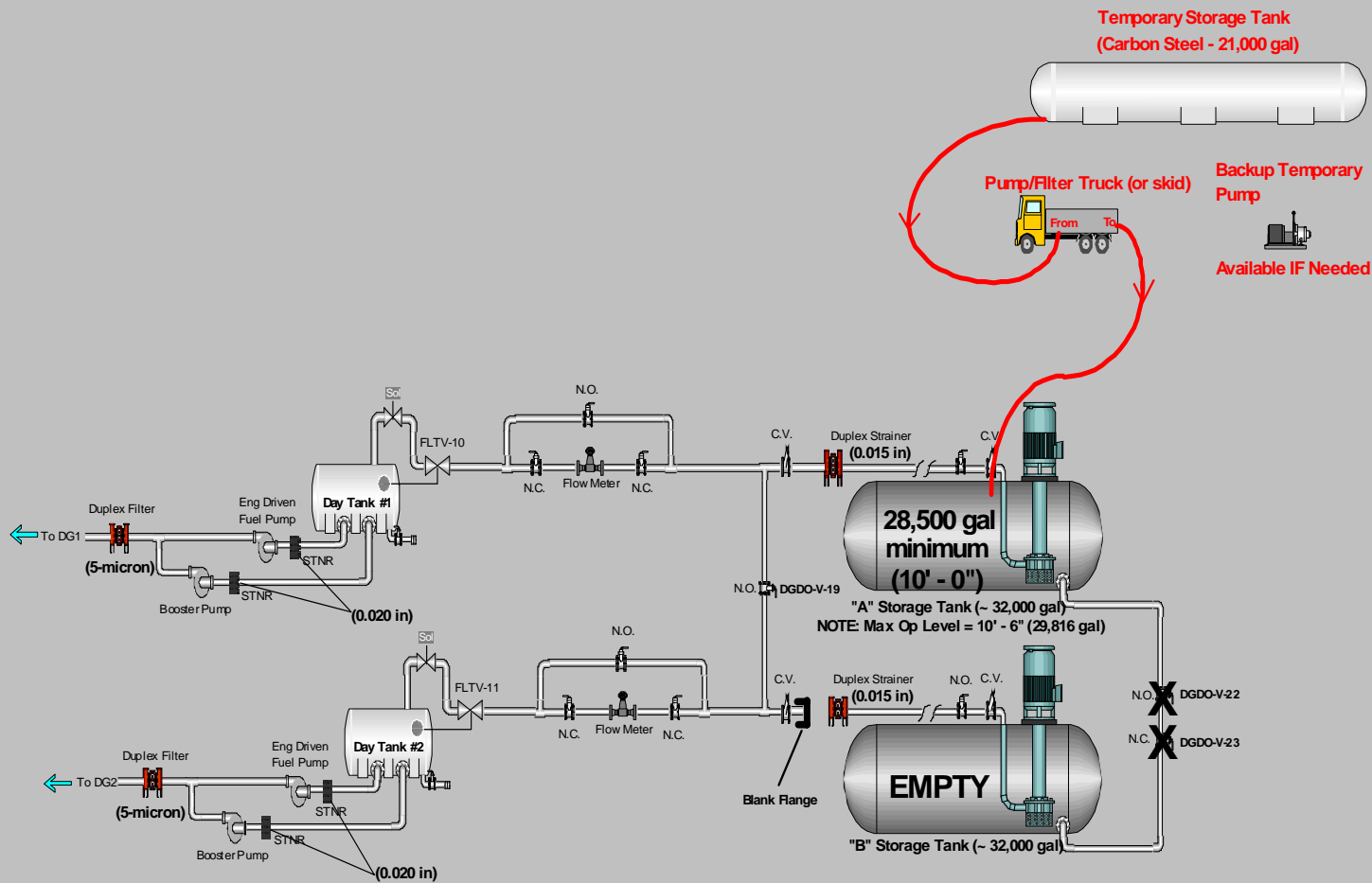


# Defense in Depth - Physical

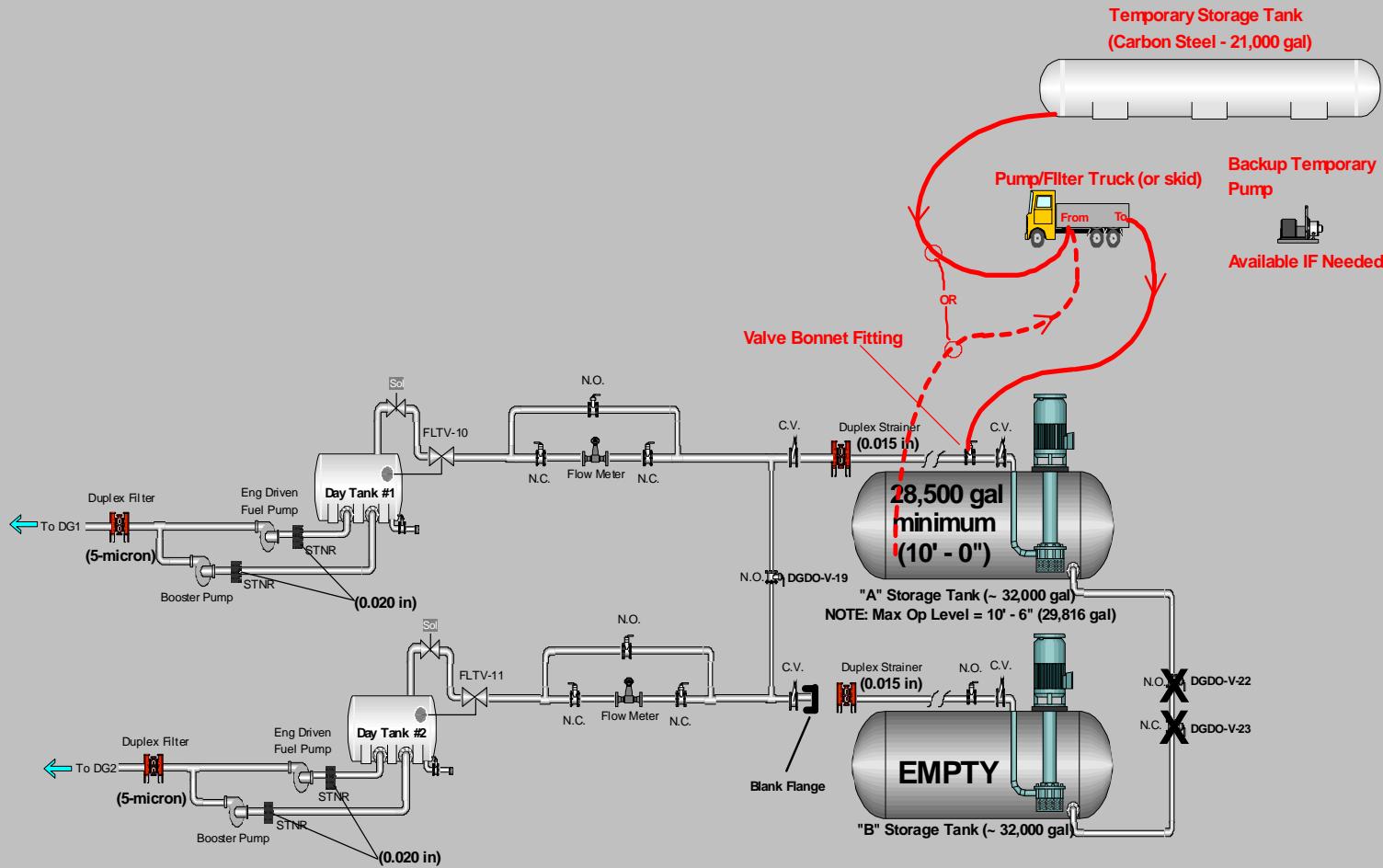
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- **Defense in Depth for:**
  - **Start of Diesel Generator(s)**
  - **Failure of Fuel Transfer Pump**
  - **Loss of Power to Available Fuel Transfer Pump**
  
- **Additional Defense in Depth measure**
  - **Provide fuel directly to day tank**

# Start of EDG's

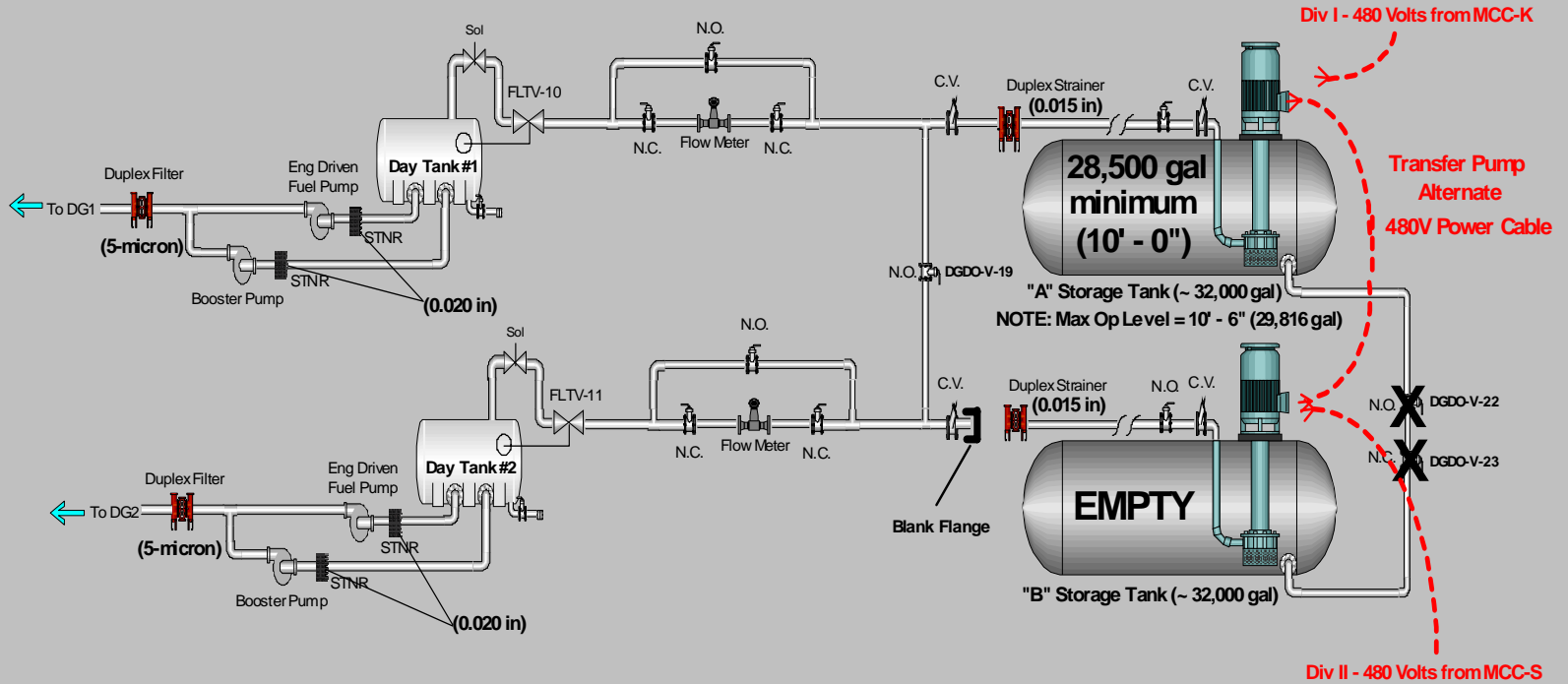


# Failure of Available Fuel Transfer Pump

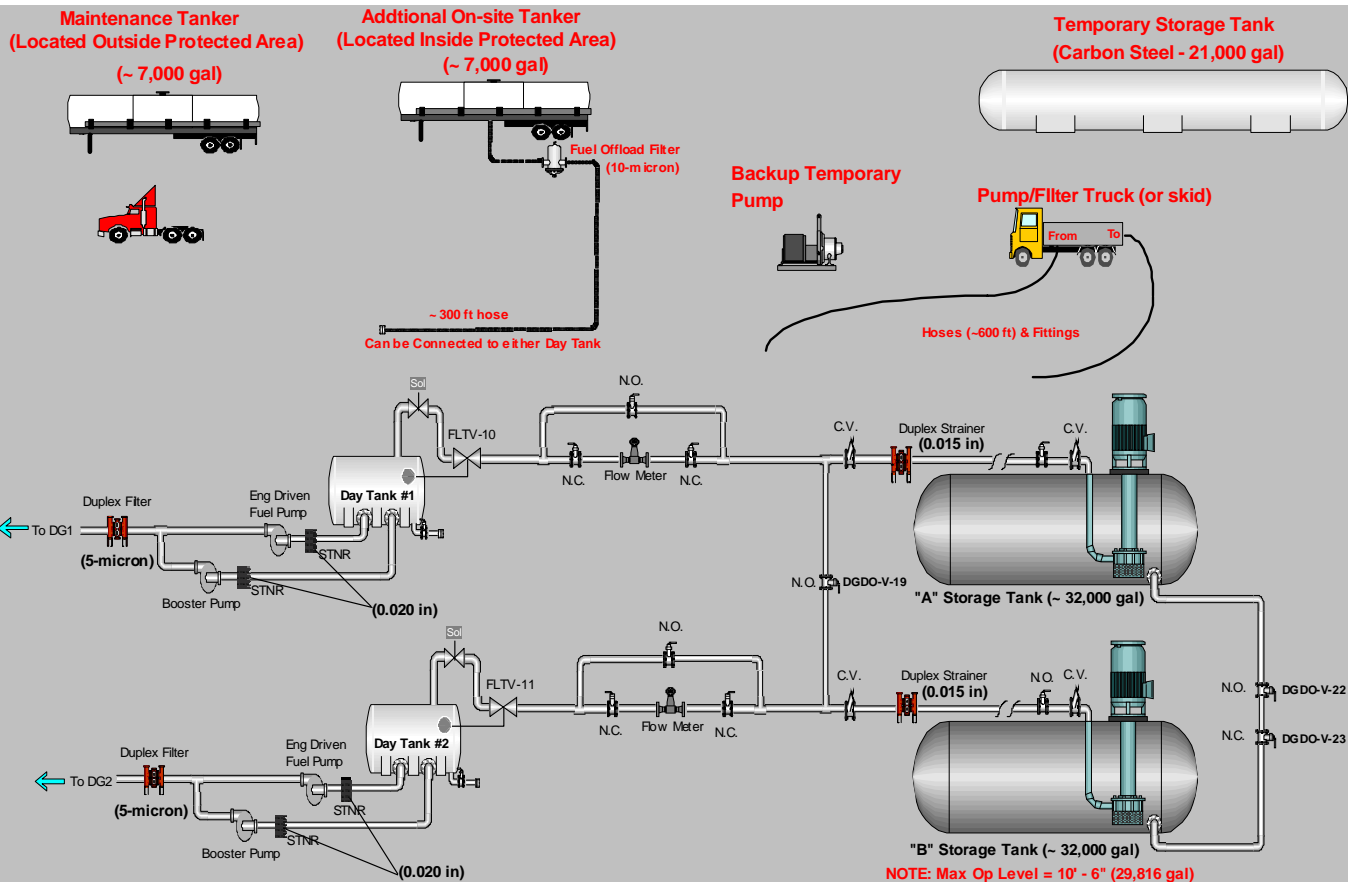




# Loss of Power to Available Pump



# Additional Defense in Depth



# Technical Specification - Current

## 3.8 ELECTRICAL POWER SYSTEMS

### 3.8.3 Diesel Fuel Oil, Lube Oil, and Starting Air

**LCO 3.8.3** The stored diesel fuel oil, lube oil, and starting air subsystem shall be within limits for each required diesel generator (DG).

**APPLICABILITY:** When associated DG is required to be OPERABLE.

#### ACTIONS

-----NOTE-----

Separate Condition entry is allowed for each DG, except for Conditions A, C, and D.

CONDITION	REQUIRED ACTION	COMPLETION TIME
<b>A. Fuel oil level &lt; 49,500 gal and &gt; 42,800 gal in storage tanks.</b>	<b>A.1 Restore fuel oil level to within limits.</b>	<b>48 hours</b>
<b>F. Required Action and associated Completion Time of Condition A, B, C, D, or E not met. <u>OR</u> One or more DGs with diesel fuel oil, lube oil, or starting air subsystem not within limits for reasons other than Condition A, B, C, D, or E.</b>	<b>F.1 Declare associated DG(s) inoperable.</b>	<b>Immediately</b>

# Technical Specification - Current

## 3.8 ELECTRICAL POWER SYSTEMS

### 3.8.1 AC Sources Operating

**LCO 3.8.1 The following AC electrical power sources shall be OPERABLE:**

- a. Two qualified circuits between the offsite transmission network and the onsite Class 1E AC Electrical Power Distribution System; and
- b. Two diesel generators (DGs).

**APPLICABILITY: MODES 1, 2, and 3.**

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<b>B. One DG inoperable.</b>	<b>B.1 Perform SR 3.8.1.1 for OPERABLE offsite circuit(s).</b>	<b>1 hour</b>
	<b><u>AND</u></b>	<b><u>AND</u></b>
	<b>B.2 Declare required feature(s), supported by the inoperable DG, inoperable when the redundant required feature(s) are inoperable.</b>	<b>Once per 8 hours thereafter</b>
	<b><u>AND</u></b>	<b>4 hours from discovery of Condition B concurrent with inoperability of redundant required feature(s)</b>
	<b>B.3.1 Determine OPERABLE DG is not inoperable due to common cause failure.</b>	<b>24 hours</b>
	<b><u>OR</u></b>	
	<b>B.3.2 Perform SR 3.8.1.2 for OPERABLE DG.</b>	<b>24 hours</b>
	<b><u>AND</u></b>	
	<b>B.4 Restore DG to OPERABLE status.</b>	<b>7 days</b>
		<b><u>AND</u></b>
		<b>14 days from discovery of failure to meet LCO</b>

# Technical Specification - Current

*LCO 3.8.1 (continued)*

CONDITION	REQUIRED ACTION	COMPLETION TIME
<b>F. Required Action and associated Completion Time of Condition A, B, C, D, or E not met.</b>	<b>F.1 Be in Mode 3.</b>	<b>12 hours</b>
	<b><u>AND</u></b> <b>F.2 Be in Mode 4.</b>	<b>36 hours</b>

## SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<b>SR 3.8.1.6</b> <b>Verify the fuel oil transfer system operates to automatically transfer fuel oil from storage tanks to the day tanks.</b>	<b>92 days</b>



# Technical Specification – Need for Change

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- **TS 3.8.3 fuel requirements cannot be met during activity**
- **SR 3.8.1.6 fuel transfer system automatic operation cannot be met**
- **TS 3.8.1 Condition B is entered – requires restoration in 7 days**
- **If Condition B cannot be met, then TS 3.8.1 Condition F requires plant shutdown.**
- **Extended AOT allows for contingency actions and eliminates potential need for enforcement discretion**
- **Resolution of strainer fouling issue**



## Proposed One-Time TS Change

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- **Revise TS Section 3.8.3, LCO to allow use of temporary storage tanks with Temporary Note**

**“Fuel oil level in temporary storage tanks may be utilized to support OPERABILITY of a DG during tank cleaning and coating maintenance activities. Equipment (temporary transfer pump, hoses, and appropriate fittings) capable of supplying the **fuel oil in the temporary tanks to the DG must be available**. The fuel oil level in the temporary tanks, in conjunction with the fuel in the permanent tank must be within the limits of Condition A and Condition C. This note is applicable **only to the DG aligned to the full permanent tank**. This temporary note expires upon completion of the fuel oil storage tank cleaning and coating maintenance activities but no later than November 30, 2004.”**



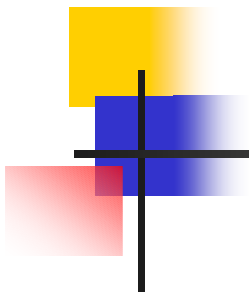
# Proposed One-Time TS Change

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- **Revise TS Section 3.8.1, Condition B, to extend AOT to 14 days with Temporary Note**

**“A Diesel Generator which is INOPERABLE solely due to its alignment to a fuel oil storage tank drained in support of fuel oil storage tank cleaning and coating shall be restored to OPERABLE status within **14 days**. This temporary note is applicable only if the fuel oil level in the associated DG day tank is maintained above the low level alarm setpoint. This temporary note **expires upon completion** of the fuel oil storage tank cleaning and coating maintenance activity, **but no later than November 30, 2004.**”**





# Summary



# RAI's and Responses

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- **Seismic Issues**
- **Off-site power auto-transfer, PMT and Evolution Control**