NYC Fleet

New York City’s B20 Compatibility Program for its Fleet Diesel Fuel Storage Facilities

Presented by:
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Presented at the 25th National Tanks Conference & Exposition held on September 14-16, 2015 in Phoenix, Arizona
Agenda:

- Introduction to NYC Fleet
- Biodiesel Benefits and Storage Considerations
- Overview of the New York City’s Program to Verify Compatibility of UST Sites to Store B20 Using EPA’s Guidance for Storing Biodiesel Blends over B20
- B20 Fleet Compatibility Program for its Fleet Diesel Storage Facilities. FDNY in NYC required fleet to implement the EPA process for B21 to B100 to permit our legally required B20 program. NYC is one of few organizations to have implemented the B21 to B100 type process.
  - Fire Department of New York City’s B20 Storage Permission Requirements
  - NYC Fleet Diesel Storage Facilities- B20 Variance Applications Approval Process
  - EPA Biodiesel Underground Storage Guidance
- Variance Application Examples
- NYC B20 Implementation Strategy
  - Challenges and Achievements
- Lessons Learned / Future Work
Biodiesel in the NYC Fleet

- New York City Fleet is a national leader in Biodiesel Use and has used Biodiesel for over a decade. NYC received the National Biodiesel Board’s Influence Award in 2011.

- New York City mandates the use of B20 by the City’s non-emergency diesel fleet in the warm months and B5 for the rest of the year.

- Our emergency services also voluntarily use B5.

- B20 Fleet Compatibility Program for its Fleet Diesel Storage Facilities.

- FDNY in NYC required fleet to implement the EPA process for B21 to B100 to permit our legally required B20 program.

- NYC is one of few organizations to have implemented the B21 to B100 type process.

  ✓ Fire Department of New York City’s B20 Storage Permission Requirements
  ✓ NYC Fleet Diesel Storage Facilities- B20 Variance Applications Approval Process
  ✓ EPA Biodiesel Underground Storage Tank Guidance for demonstrating the compatibility of the USTs with B20.
New York City Fleet – Biodiesel Use

- Over 27,000 owned and leased vehicles.
- Over 400 in-house fueling stations.
- Used 15.6 million gallons of diesel/biodiesel blends in FY 2015.
- Used 6.4 million gallons of B20 (20% biodiesel/80% petrodiesel by volume) in FY 2015.
- About 9,700 vehicles, or 93% of its diesel vehicle municipal fleet, are currently fueled with biodiesel blends.
- Major fleet agencies, such as Sanitation, Parks, DEP, DOT, and FDNY increased use of biodiesel.
- NYC Local Law 73 of 2013 requires that non-emergency diesel vehicles owned/leased by the City to use B20 during the warm weather months.
- NYC emergency services also voluntarily use B5.
Biodiesel Benefits

The National Renewable Energy Laboratory (NREL)\(^{(3)}\) lists the following benefits of biodiesel in its *Biodiesel Handling and Use Guide*:

- It is renewable.
- It displaces petroleum-derived diesel fuel.
- It can reduce global warming gas emissions.
- It can reduce tailpipe emissions, including air toxics.

From the NREL’s *Biodiesel Handling and Use Guide, Fourth Edition*:

![Diagram showing percent change in emissions versus percent biodiesel](image)
Overview of the New York City’s B20 Fleet Compatibility Program for its Fleet Diesel Storage Facilities

- NYC Local Law 73 of 2013 requires non-emergency diesel fuel-powered vehicles owned/leased by the City to use B20 during the warm weather months (April-November) starting July 1, 2016.

- With the increase in the use of biodiesel, there followed a need to store and dispense B20 using existing diesel underground storage tank (UST) and aboveground storage tank (AST) systems.

- Fire Department (FDNY) to certify and permit existing diesel USTs and ASTs systems for storage and dispensing of biodiesel blends.

- The NYC Fleet team at Department of Citywide Administrative Services (DCAS) worked with major fleet agencies, such as Parks, DEP, and DOT, to achieve the B20 certification of diesel USTs and ASTs by the FDNY.

- FDNY required that a variance application for the use of B20 be submitted for each diesel storage tank.
Overview of the New York City’s B20 Fleet Compatibility Program for its Fleet Diesel Storage Facilities (cont.)

- FDNY was to assure compliance with the UST compatibility requirements stated in 40 CFR 280.32

- FDNY required conservative approach
  - the B20 variance applications to adhere to the 2011 EPA guidance for UST systems storing greater than 20% biodiesel.
  - Even though they were not covered by guidance since not storing greater than B20

- Guidance On Compatibility Of UST Systems With Ethanol Blends Greater Than 10 Percent And Biodiesel Blends Greater Than 20 Percent- Published by the EPA in June 2011

- Owners and Operators were/are to demonstrate the compatibility of critical equipment & components used to store and dispense B20.12
NYC Fleet B20 Compatibility Program - What components of the USTs did we have to certify compatible?

- Critical Components¹²
  - Storage tank system
  - Piping system
  - Dispenser system
    - Dispenser
    - Pump hose
    - Nozzle
    - Breakaway
    - Swivel
  - Flexible connector
  - Tank sump
  - Under-dispenser containment
  - Submersible pumps*
  - Emergency shut-off valve*

*If applicable

- Leak detection system
  - Automatic tank gauge
  - Leak sensor
  - Magnetostrictive probe

- Spill and overfill prevention equipment
NYC Fleet B20 Compatibility Program - What did we require on a certification?

- Materials - Compatibility Certifications:
  - Formally written by an official/recognized source
  - States the explicit equipment/component (make, model, year)
  - Specifies the fuel type
  - States blending concentration range (if applicable)
NYC Fleet B20 Compatibility Program - Who could certify compatibility?

- Sources of certification to demonstrate materials compatibility:
  - Manufacturer certification
    - Officially written certification
    - The specific equipment/component (make, model, year)
    - Specifying the fuel type and blending concentration range (if applicable)
  - Manufacturer warranty and/or Product datasheet/specifications
  - Independent test lab
    - Underwriters Laboratories (UL)
  - Recognized organizations
    - National Biodiesel Board (NBB)
    - Petroleum Equipment Institute (PEI)
    - Steel Tank Institute (STI)
  - Government organizations
    - US Environmental Protection Agency (EPA)
    - New York Department of Environmental Conservation (DEC)
NYC Fleet B20 Compatibility Program – What did we need to get FDNY approval?

- FDNY variance application and supporting documents:
  - Application for Modification (Variance) of Provisions of the New York City Fire Code or Fire Department Rules (Form BFP-MOD (10/09))
  - BFP-MOD (10/09) attachments:
    - Department of Buildings Certificate of Occupancy.
    - Fire Department Permit.
    - Explanation of modification sought.
    - Petroleum bulk storage (PBS) certificate.
  - Engineer’s certification.
  - List of equipment/components and Engineer’s notes:
    - DEC Facility Information
    - DEC Tank Information
    - List of equipment/components
    - Engineer’s notes
  - Equipment/components datasheets
  - Compatibility certifications
  - Site Pictures and Maps
NYC Fleet B20 Compatibility Program – How did we do it?

- Identification of the diesel fueling sites that would carry B20.

- Gathering of preliminary information for each fueling station:
  - As-built drawings.
  - PBS.
  - DEC – Bulk Storage Database information.
  - Contractor’s built package.

- Site Visit to the fueling station to collect on-site information.

- Review of collected data and B20 compatibility site assessment.

- Generation of variance application.

- Submission of the variance application to the FDNY.

- Review and Approval of the variance application by the FDNY.

- Fire permit update to include B20 for the approved sites.
Variance Application Example: BFP-MOD (10/09) Form

NEW YORK CITY FIRE DEPARTMENT

APPLICATION FOR MODIFICATION (VARIANCE) OF PROVISIONS OF THE NEW YORK CITY FIRE CODE OR FIRE DEPARTMENT RULES

INSTRUCTIONS:
A. This form shall be used to apply to the Fire Department, pursuant to FC104.8 and 3 RCITY 1104-01, for a modification (variance) of any Fire Code or Fire Department Rule provision. This application shall not be used for modifications of any provision of the New York City Building Code, including design requirements for fire alarm systems.
B. This application must be typewritten or legibly printed in ink, accompanied by all necessary supporting documents, including all applicable plans and installation documents.
C. A non-refundable application fee of $300.00 is required at the time of filing, in accordance with FC A04(5).
D. Complete all 18 sections of this application. Do not leave any sections blank. If a particular section is not applicable, mark the section "N/A." Sections 9, 10, 11, 14, 15 and 16 may require that additional documentation be filed with the application.
E. Modification applications shall be filed in duplicate to:
   Chief of Fire Prevention
   New York City Fire Department
   9 MetroTech Center, 5th Floor
   Brooklyn, NY 11201-3857

Any questions regarding this application or application filing procedures should be directed to the Technology Management Unit, Bureau of Fire Prevention, at (718) 999-2277.

1. Premises affected:
   Block No.: 320
   Lot No.: 1
   Address: NYC Department of Parks and Recreation - Coney Island Pool
   317 West 8th Avenue, Coney Island, NY 10304
   Affected floor(s):

2. Applicant:
   Name: New York City Department of Parks and Recreation - 1 Borough Operations
   Address: 10 Randall's Island
   New York, NY 10035
   Telephone: (212) 680-8015
   E-Mail: General Fragen@parks.nyc.gov
   Relationship to premises: Deputy Chief of Citywide Operations

BFP-MOD (09/09) PAGE 1 OF 3
Variance Application Example: BFP-MOD (10/09) Form (cont.)

3. Premises Owner (if different from Applicant):
   Name: NYC Department of Parks and Recreation
   Address: 305 Fifth Avenue
   New York, NY 10036
   E-Mail: GBilko@parks.nyc.gov
   Telephone: (212) 408-8516

4. Filing representative:
   Name: N/A
   Company Name: 
   Address: 
   Telephone number: 
   E-Mail: 
   Expediter Registration No.: 

5. Person to contact to make arrangements for Fire Department inspection:
   Name: Gabriel Roman
   Telephone number: (212) 415-8816

6. Nature of modification sought:
   - Fire apparatus access roads
   - Rooftop access and obstructions
   - Other: Canopy of the roof overhangs deck and/or fire escape and/or stairways

7. Section(s) of Fire Code (29 Administrative Code §FC) or Fire Department rules (§ RCNY) sought to be modified: 

8. Is this application being made in connection with a proposed or existing condition?  ○ Proposed  ☒ Existing

9. Has the applicant or owner submitted any prior modification applications regarding this matter?  ○ Yes  ☒ No. If yes, submit a copy of the prior application and response received.

10. Has any modification previously been granted for this premises or occupancy?  ○ Yes  ☒ No. If yes, submit a copy of the modification determination.

11. Are there any outstanding Fire or Building code violation orders, notices of violation or summons outstanding against the applicant or the owner for the affected premises, whether related or unrelated to this matter?  ○ Yes  ☒ No.
    If yes, describe the nature of the violation and submit a copy of the violation and the disposition.
    - NOT APPLICABLE -

12. Building characteristics for affected premises:
   Construction date: Unknown
   Construction classification: Fireproof
   Occupancy classification: Vehicle Parking Station
Variance Application Example: BFP-MOD (10/09) Form (cont.)

Height: N/A
Number of stories: N/A
Floor areas (square footage): N/A
Certificate of Occupancy No (attach copy): Please see attachment #1 in Section 2.

13. Fire protection features of affected premises; suction Fire Suppression System - Dotted line in Section #6
   Is sprinkler system protection provided? Yes No. If yes, indicate the area protected:
   Is standpipe system protection provided? Yes No.
   Is a fire alarm system provided? Yes No. If yes, what type?

14. Submit copies of the most recent Fire Department permit(s), if any, issued to the owner or occupant relating to this application. Please see attachment #3 in Section 2.

15. Explain in detail the specific nature of the modification sought and describe the difficulty in complying with the requirements of the Fire Code or Fire Department rule. If you require more space, you may attach additional sheet(s). NOTE: Cost of compliance with code and rule requirements is not ordinarily sufficient grounds for granting of a modification. Please see attachment #4 in Section 2.

16. Explain in detail how you propose to mitigate the effect of modifying the code or rule requirement. Include all measures intended to ensure public safety. If you require more space, you may attach additional sheet(s).
   - Applicatant: Please provide details on the measures taken.

17. Applicant Certification. Under penalty of perjury, I certify that the information contained in this application is true to the best of my knowledge.

   Applicant’s name: Gabriel Ramos, Deputy Chief of Citywide Operations
   Signature: __________________________
   Date: ________________________________

18. Owner Statement (if different from applicant). I have authorized the applicant to file this modification with respect to the premises.

   Owner’s name: __________________________
   Signature: __________________________
   Date: ________________________________
Variance Application Example: Certificate of Occupancy

DEP_Brooklyn Repairs_FDNY BFP-MOD (10/09)_Section 12_Attachment 1_C of O_Page 3 of 4

NYC Buildings

Certificate of Occupancy

CO Number: 302377023F

This certificate that the premises described herein conforms substantially to the approved plans and specifications and to the requirements of all applicable laws, rules and regulations for the uses and occupancies specified. No change of use or occupancy shall be made unless a new Certificate of Occupancy is issued. This document or a copy shall be available for inspection at the building at all reasonable times.

A. Borough: Brooklyn
   Address: 855 REMSEAN AVENUE
   Building Identification Number (BIN): 3337004
   Block Number: 08116
   Lot Number(s): 1
   Certificate Type: Final
   Effective Date: 01/28/2014
   Building Type: New

For zoning lot sizes & setbacks, please see BZWeb.

B. Construction classification: 1.8
   (1966 Code)
   Building Occupancy Group classification: B-3
   (1966 Code)
   Multiple Dwelling Law Classification: None
   No. of stories: 2
   Height in feet: 35
   No. of dwelling units: 0

C. Fire Protection Equipment:
   Standpipe system, Fire alarm system, Sprinkler system

D. Type and number of open spaces:
   None associated with this filing.

E. This Certificate is issued with the following legal limitations:
   None

Borough Commissioner: None

[Signatures]

DOCUMENT CONTINUES ON NEXT PAGE
## Variance Application Example: Certificate of Occupancy (cont.)

### Certificate of Occupancy

**CO Number:** 302377023F

### Permissible Use and Occupancy

All Building Code occupancy group designations are 1968 designations, except RES, COM, or PUB which are 1938 Building Code occupancy group designations.

<table>
<thead>
<tr>
<th>Floor From To</th>
<th>Maximum persons permitted</th>
<th>Live load lbs per sq. ft.</th>
<th>Building Code occupancy group</th>
<th>Dwelling or Rooming Units</th>
<th>Zoning use group</th>
<th>Description of use</th>
</tr>
</thead>
<tbody>
<tr>
<td>0FL</td>
<td>30</td>
<td>60</td>
<td>D-2</td>
<td>17</td>
<td></td>
<td>ACCESSORY USEs</td>
</tr>
<tr>
<td>0FL</td>
<td>3</td>
<td>60</td>
<td>B-1</td>
<td>17</td>
<td></td>
<td>STORAGE</td>
</tr>
<tr>
<td>0FL</td>
<td>52</td>
<td>60</td>
<td>D-2</td>
<td>17</td>
<td></td>
<td>PLUMBING ROOM, METER ROOMS, ELECTRICAL ROOM, FIRE PUMP ROOM, TELEPHONE ROOM, MECHANICAL ROOM.</td>
</tr>
<tr>
<td>0FL</td>
<td>74</td>
<td>100</td>
<td>B-2</td>
<td>17</td>
<td></td>
<td>STORAGE, CONTRACTORS YARD, ACCESSORY USEs</td>
</tr>
<tr>
<td>0FL</td>
<td>8</td>
<td>100</td>
<td>D-1</td>
<td>17</td>
<td></td>
<td>ACCESSORY MACHINE SHOP</td>
</tr>
<tr>
<td>0FL</td>
<td>300</td>
<td>100</td>
<td>E</td>
<td>17</td>
<td></td>
<td>ACCESSORY OFFICES &amp; ACCESSORY USEs</td>
</tr>
<tr>
<td>0FL</td>
<td>214</td>
<td>100</td>
<td>B-2</td>
<td>17</td>
<td></td>
<td>LOCKER ROOMS</td>
</tr>
<tr>
<td>0FL</td>
<td>142</td>
<td>100</td>
<td>E</td>
<td>17</td>
<td></td>
<td>LUNCHROOM, MAP ROOM, OFFICES, MEN'S AND WOMEN'S TOILETS</td>
</tr>
<tr>
<td>0FL</td>
<td>2</td>
<td>100</td>
<td>D-1</td>
<td>17</td>
<td></td>
<td>(2) ELECTRICAL ROOM</td>
</tr>
</tbody>
</table>

**GENERAL NOTE:** BUILDING MATERIALS OR CONTRACTORS YARD, OPEN & ENCLOSED, (16) ACCESSORY OFF-STREET PARKING SPACES & (4) ACCESSORY LOADING BERTHS

**END OF SECTION**

**Borough Commissioner:**

[Signature]

**Acting Commissioner:**

[Signature]
**Variance Application Example: Fire Permit**

![Fire Permit Example](image)

<table>
<thead>
<tr>
<th>ITEM CODE</th>
<th>SUB CODE</th>
<th>QTY</th>
<th>DESCRIPTION</th>
<th>FLOOR NO.</th>
<th>FEE</th>
</tr>
</thead>
<tbody>
<tr>
<td>025</td>
<td>00</td>
<td>1</td>
<td>SITE INSPECTION-BURIED TANKS</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

**PERMIT TYPE**

- 1 = REGULAR
- 2 = SUPPLEMENTAL
- 3 = DUPLICATE

**Account Number:** 33030669

**Premises Address:**
1875 RALPH AVE DEP
1887 RALPH AVE
BROOKLYN, NY 11234

**Issuer:** NYC DEP

**Issuance Date:** 03/26/14

**Permit Expires:** 01/15

**By Order of the Commissioner:**

1/2500 GALLONS GASOLINE
1/4000 GALLONS DIESEL
C OF P 15#86161924X11/15

**No Fee:** 0.00
Variance Application Example: Fire Permit (cont.)
**Variance Application Example: PBS Certificate**

<table>
<thead>
<tr>
<th>PBS Number</th>
<th>PETROLEUM BULK STORAGE CERTIFICATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-602547</td>
<td>New York State Department of Environmental Conservation</td>
</tr>
<tr>
<td></td>
<td>Region 2 NYSDEC - PBS Unit</td>
</tr>
<tr>
<td></td>
<td>One Hunters Point Plaza, 1st Floor</td>
</tr>
<tr>
<td></td>
<td>47-40 21st Street, L.I. City, NY 11101-6454</td>
</tr>
<tr>
<td></td>
<td>(718) 482-6454</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TANK NUMBER</th>
<th>TANK LOCATION</th>
<th>TANK INSTALLATION DATE</th>
<th>TANK TYPE</th>
<th>PRODUCT STORED</th>
<th>CAPACITY</th>
<th>DATE LAST TESTING</th>
<th>DUE DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>004</td>
<td>Underground</td>
<td>07/01/1996</td>
<td>Fiberglass Reinforced Plastic (FRP)</td>
<td>Gasoline/Ethanol</td>
<td>4,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01</td>
<td>Underground</td>
<td>07/01/1996</td>
<td>Fiberglass Reinforced Plastic (FRP)</td>
<td>Biodiesel</td>
<td>1,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>02</td>
<td>Underground</td>
<td>07/01/1996</td>
<td>Fiberglass Reinforced Plastic (FRP)</td>
<td>Biodiesel</td>
<td>1,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>05</td>
<td>Underground</td>
<td>10/01/2004</td>
<td>Urethane Clad Steel</td>
<td>#2 Fuel Oil (On-Site Consumption)</td>
<td>1.500</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Aboveground tanks require monthly visual inspections and may need documented internal inspections as described in 6 NYCRR Part 613.*
Variance Application Example: Tank Metal Plates

Manufactured to Underwriters Laboratories. Design Standard UL1316, UL142 or UL58. This tank is intended for the storage of petroleum products & blends as outlined in the tank warranty. New York State: This tank conforms with 6NYCCR Part 614.

- Tank Manufacturer: CSI
- Tank Number: 005
- Tank Model: DWT-6 Type II
- PBS Number: 2-601796
- Tank Dimensions: 72 ft x 21 ft
- UL No: A-125883
- Date Installed: 9/29/2010
- Date Manufactured: 8/20/2010
- Product Stored: Diesel
- Design Capacity: 3958 Gallons
- Working Capacity: 3562 Gallons
Variance Application Example: DEC Bulk Storage Database

**Bulk Storage Database Search Details**

**Facility Information**
- Site No.: 2-602547
- Status: Active
- Expiration Date: 12/21/2018
- Site Type: PBS
- Site Name: QUEENS WATER MAINTENANCE
- Address: 49-14 FRESH MEADOW LANE
- Locality: FLUSHING
- State: NY
- Zipcode: 11365
- County: QUEENS

**Owner(s) Information**
- Facility Owner: NEW YORK CITY DEP
  59-17 JUNCTION BLVD., CORONA. NY. 11373
- Mail Contact: NYC DEPT OF ENVIRONMENTAL PROTECTION
  59-17 JUNCTION BOULEVARD, FLUSHING. NY. 11373

**Tank Information**

<table>
<thead>
<tr>
<th>Tank No</th>
<th>Tank Location</th>
<th>Status</th>
<th>Capacity (Gal.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Underground</td>
<td>In Service</td>
<td>1000</td>
</tr>
<tr>
<td>02</td>
<td>Underground</td>
<td>In Service</td>
<td>1000</td>
</tr>
<tr>
<td>04</td>
<td>Underground</td>
<td>In Service</td>
<td>4000</td>
</tr>
<tr>
<td>03</td>
<td>Underground</td>
<td>Closed - Removed</td>
<td>1500</td>
</tr>
<tr>
<td>05</td>
<td>Underground</td>
<td>In Service</td>
<td>1500</td>
</tr>
<tr>
<td>06</td>
<td>Underground</td>
<td>Closed - In Place</td>
<td>3000</td>
</tr>
</tbody>
</table>
Variance Application Example: DEC Bulk Storage Database (cont.)

**Bulk Storage Database Search Details**

**Tank Information**

- **Site No:** 2-602547
- **Site Name:** QUEENS WATER MAINTENANCE
- **Tank No:** 01

**Tank Location:** Underground
**Tank Status:** In Service
**Tank Install Date:** 07/01/1996
**Tank Closed Date:**
**Tank Capacity:** 1000 gal.
**Product Stored:** Biodiesel
**Percentage:** 5%
**Tank Type:** 05 - Fiberglass Reinforced Plastic (FRP)
**Tank Internal Protection:** Fiberglass Liner (FRP)
**Tank External Protection:** Fiberglass
**Tank Secondary Containment:** Double-Walled (Underground)
**Tank Leak Detection:** Interstitial - Electronic Monitoring
**Overfill:** High Level Alarm
**Spill Prevention:** Catch Basin
**Dispenser:** Suction Dispenser
**Pipe Location:** Underground/On-ground
**Pipe Type:** Fiberglass Reinforced Plastic (FRP)
**Pipe External Protection:** Fiberglass
**Piping Secondary Containment:** Double-Walled (Underground)
**Piping Leak Detection:** Tank Top Sump
**Tank Next Test Due:**
**Tank Last Test:**
**Tank Test Method:** Testing Not Required

[Return To Facility]
Variance Application Example: List of Equipment/Components and Compatibility with B20

<table>
<thead>
<tr>
<th>Component</th>
<th>Manufacturer</th>
<th>Product Number or Model</th>
<th>Description</th>
<th>Standard Certification</th>
<th>Compatibility Certification For Diesel/Biodiesel Blends of up to 20% Biodiesel (B20)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tank</td>
<td>Highland Tank®</td>
<td>ACT-100-D®</td>
<td>Urethane clad steel, double-walled underground tank, 550 gal</td>
<td>6 NYCRR Part 614, UL-28</td>
<td>Steel Tank Institute (Biodiesel Compatibility Statement #1)</td>
</tr>
<tr>
<td>Automatic Tank Gauge</td>
<td>Veeda Root®</td>
<td>TLS-430®</td>
<td>Console</td>
<td>UL</td>
<td>Manufacturer’s certification (Biodiesel Compatibility Statement #2)</td>
</tr>
<tr>
<td>Magnetostrictive Probe</td>
<td>Veeda Root®</td>
<td>846390</td>
<td>MAG Plus</td>
<td>--</td>
<td>Manufacturer’s certification (Biodiesel Compatibility Statement #2)</td>
</tr>
<tr>
<td>Leak Sensor</td>
<td>Veeda Root®</td>
<td>794380</td>
<td>Solid State discriminating containment sump sensor</td>
<td>--</td>
<td>Manufacturer’s certification (Biodiesel Compatibility Statement #2)</td>
</tr>
<tr>
<td>Submersible pump (Suction System)</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>--</td>
<td>N/A</td>
</tr>
<tr>
<td>Overfill Prevention Valve</td>
<td>OFW®</td>
<td>61SO®</td>
<td>Single action, complete shut-off</td>
<td>New York City Fire Department (Approval 4902)</td>
<td>Engineer (See Note #1)</td>
</tr>
<tr>
<td>Piping System Underground &amp; On-ground</td>
<td>Unknown</td>
<td>Unknown</td>
<td>Fiberglass reinforced plastic, double-walled</td>
<td>--</td>
<td>Engineer (See Note #2)</td>
</tr>
<tr>
<td>Dispensers</td>
<td>Gasboy®</td>
<td>9852</td>
<td>Twin (2) hoses, 1HP</td>
<td>UL</td>
<td>Manufacturer’s certification (Biodiesel Compatibility Statement #3)</td>
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<tr>
<td>Dispenser Sump</td>
<td>Unknown</td>
<td>Unknown</td>
<td>One piece polyethylene</td>
<td>unknown</td>
<td>Engineer (See Note #3)</td>
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<tr>
<td>Spill Container</td>
<td>OFW®</td>
<td>1-3100</td>
<td>Double-walled</td>
<td>ULC</td>
<td>Manufacturer’s certification (Biodiesel Compatibility Statement #4)</td>
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</tbody>
</table>
### Variance Application Example: List of Equipment/Components cont.

The City of New York Department of Environmental Protection
Tallman Island WPCP – Diesel Tank #CN-003-06 and Dispenser Information
Component Datasheet

<table>
<thead>
<tr>
<th>Component</th>
<th>Manufacturer</th>
<th>Product Number or Model</th>
<th>Description</th>
<th>Standard Certification</th>
<th>Compatibility Certification For Diesel/Biodiesel Blends of up to 20% Biodiesel (B20)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frames and Cover</td>
<td>Fibercite®</td>
<td>FL90HD</td>
<td>36&quot; dia. heavy duty flat sealed cover &amp; composite frame</td>
<td>EN 124 - C250</td>
<td>Manufacturer’s certification (Biodiesel Compatibility Statement #5)</td>
</tr>
<tr>
<td>Dispensers Hoses</td>
<td>VSI®</td>
<td>VSIflex™</td>
<td>1” ntrile PVC hose</td>
<td>cULus</td>
<td>Manufacturer’s certification (Biodiesel Compatibility Letter #6)</td>
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<tr>
<td>Dispensers Nozzles</td>
<td>OPW®</td>
<td>7-HB®</td>
<td>Automatic Shut-off</td>
<td>UL and ULC</td>
<td>Engineer (See Note #4)</td>
</tr>
<tr>
<td>Hoses Swivels</td>
<td>OPW®</td>
<td>241TPS®</td>
<td>Aluminum, zinc, Buna-N, Viton®</td>
<td>UL and ULC</td>
<td>Engineer (See Note #5)</td>
</tr>
<tr>
<td>Hose Breakaway</td>
<td>OPW®</td>
<td>66RB®</td>
<td>Viton®, aluminum, high-density polyethylene (HDPE)</td>
<td>UL</td>
<td>Engineer (See Note #6)</td>
</tr>
<tr>
<td>Emergency Shut-off Valve</td>
<td>N/A (Suction System)</td>
<td>N/A</td>
<td>--</td>
<td>N/A</td>
<td>N/A (Suction System)</td>
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<tr>
<td>Extractable Check Valve</td>
<td>Universal</td>
<td>515</td>
<td>Zinc plated cast iron body</td>
<td>--</td>
<td>Engineer (See Note #7)</td>
</tr>
</tbody>
</table>
## Variance Application Example: Engineer’s Notes

**New York City Department of Environmental Protection - Tallman Island WPCP**  
**Tank CN-003-06029**

**Diesel tank and Fuel Dispenser - Component Datasheet Notes**

### Notes:


- **Note #2:** Underground/On-ground piping system: Pipe type has been identified/approved as “Fiberglass Reinforced Plastic (FRP)” by the New York State Department of Environmental Conservation (DEC). (DEC Tank Information attached).

- **Note #3:** Dispensers Sumps: Upon inspection, the sump beneath dispenser appeared to be a one-piece polyethylene sump, which is adequate for biodiesel use. The make/model of the sumps could not be identified.

- **Note #4:** Dispensers Nozzles – OPW® 7-HE*: Body – aluminum, lever & lever guard – Dura-Tuff® (Formulated with the Dura-Tuff® elastomer), packing - graphite with Teflon®, disc - Viton® fluoroacarbon. (Manufacturer’s datasheet attached).


- **Note #7:** Extractable Check Valve – Universal 515*: body – cast iron, seal – Buna-N. (Manufacturer’s datasheet attached).

**Footnote:** The effects of biodiesel-diesel blends of up to 20% biodiesel (B20) on metals, such as brass, bronze and zinc, and on elastomers, such as Nitrile (Buna-N), are minimal and additional monitoring for leaks on the storage and dispensing equipment/components is not necessary.

### References:

   “Biodiesel blends of 20% or less have shown a much smaller effect on these materials. The effects are virtually non-existent in low-level blends, such as B2. When handling blends of B20 or less normal monitoring of hoses and gaskets for leaks is sufficient. Blends of B20 and lower reduce the impact of metal compatibility issues.”

   Blends of B20 or lower are literally a “drop in” technology. No new equipment and no equipment modifications are necessary. B20 can be stored in diesel fuel tanks and pumped with diesel equipment.” And “B20 or lower blends minimize most issues associated with materials compatibility. Experiences over the last 10 years indicate compatibility with all elastomers in diesel fuel systems, even those, such as nitrile rubber, that are sensitive to higher blends.”
Variance Application Example: OPW 61SO Overfill Valve Datasheet
**Variance Application Example:** **Veeder-Root Certification**

[Veeder-Root Logo]

---

**Veeder-Root**  
125 Powder Forest Drive  
P. O. Box 2003  
Simsbury, CT 06070-7684  
USA  
Phone: (860) 651-2700  
Fax: (860) 651-2719

To: Veeder-Root ATG customers  
From: Jeff Kappler, ATG Product Manager  
Date: October 7th, 2013  
Re: Biodiesel compatibility

The products listed in the table below are compatible with the alternative fuels as shown. TLS-450/350/300/2 tank gauge systems can be combined with any of these products to monitor the alternative fuels listed.

<table>
<thead>
<tr>
<th>Equipment Type</th>
<th>Series or P/N</th>
<th>ASTM D6751 Biodiesel</th>
<th>Ethanol</th>
<th>Methanol</th>
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</thead>
<tbody>
<tr>
<td>Magnetostrictive Probes (Aluminum)</td>
<td>Series 8453x0, 8473x0</td>
<td>0-20%</td>
<td>0-15%</td>
<td>0-7%</td>
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<tr>
<td>Magnetostrictive Probes (Stainless Steel)</td>
<td>Series 8483x1, 8473x1</td>
<td>0-100%</td>
<td>0-100%</td>
<td>0-100%</td>
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<tr>
<td>Continuous Intensital Tank System</td>
<td>P/N 857280-100, -200, -30x</td>
<td>0-20%</td>
<td>0-15%</td>
<td>0-5%</td>
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<tr>
<td>Electronic Line Leak Detector</td>
<td>P/N 8475, 8464, 8494</td>
<td>0-20%</td>
<td>0-15%</td>
<td>0-5%</td>
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<tr>
<td>Groundwater Monitoring</td>
<td>P/N 794380-621, -622, -624</td>
<td>0-20%</td>
<td>0-15%</td>
<td>0-5%</td>
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<td>Interstital Detectors</td>
<td>P/N 794380-xxx, P/N 794390-xxx</td>
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<td></td>
<td>P/N 847590-xxx</td>
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<td>P/N 857080-xxx</td>
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<td></td>
<td>P/N 827080-xxx</td>
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<td>Vapor Monitoring</td>
<td>P/N 394390-700</td>
<td>0-20%</td>
<td>0-15%</td>
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<td>Red Jacket Submersible Turbine Pump (non-AG)</td>
<td>P/N 41014x-xxx</td>
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<tr>
<td>Red Jacket Submersible Turbine Pump (AG)</td>
<td>P/N 41014x-xxx</td>
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<td>Red Jacket FX Leak Detector</td>
<td>FXV series</td>
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</table>

Jeff Kappler  
ATG Product Manager
### OPW Fuel Compatibility Matrix

#### Above Ground Products

<table>
<thead>
<tr>
<th>OPW Product Number</th>
<th>Description</th>
<th>Unleaded Fuels up to 10% Ethanol (E10)</th>
<th>Petroleum Diesel</th>
<th>Up to 25% Ethanol (E25)</th>
<th>Up to 50% Ethanol (E50)</th>
<th>Up to 100% Ethanol (G100)</th>
<th>Bio-Diesel Up to 5% (B5)</th>
<th>Jet Fuel</th>
<th>Marine Fuel Oil</th>
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<tr>
<td>11A Series</td>
<td>Automatic Conventional Nozzles</td>
<td>UU/ULC</td>
<td>UU/ULC</td>
<td>UL/UL</td>
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<td>11AP Series</td>
<td>Automatic Conventional Nozzles</td>
<td>UU/ULC</td>
<td>UU/ULC</td>
<td>UL/UL</td>
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<td>11A1 Series</td>
<td>Farm Nozzles</td>
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<td>UU/ULC</td>
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<td>11AP1 Series</td>
<td>Farm Nozzles</td>
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<td>118 Series</td>
<td>Pressure Sensing Automatic Conventional Nozzles</td>
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<td>118P Series</td>
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<td>Pressure Sensing Automatic High Flow Conventional Nozzles</td>
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<td>12YM Series</td>
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<td>3111B/11 Series</td>
<td>General Duty Manual Nozzles</td>
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<td>1990/20/250/35 Series</td>
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<td>2995/1K Series</td>
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<td>241 Series</td>
<td>Two Piece Hose Swivels</td>
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<td>UU/ULC</td>
<td>UL</td>
<td>UL</td>
<td>Ul</td>
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<td>2411PS-632 Series</td>
<td>Nickel Plated Two Piece Hose Swivels</td>
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<td>Straight Swivels</td>
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<td>205 Series</td>
<td>Two Piece Hose Swivels - Cold Weather</td>
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<td>68S Series Breakways</td>
<td>Single Use Conventional Breakways</td>
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<td>66V Series Breakways</td>
<td>Various Recombinable and Single Use Fuel Assist Breakways</td>
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<td>6816R Series Breakways</td>
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<td>38C Series Breakways</td>
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<td>Vapex/Sure • Tank Pressure Management System</td>
<td>UL/ATEX</td>
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</tr>
</tbody>
</table>
NYC B20 Implementation Strategy and Results

- FDNY granted a two-year grace period (4/2/2013 to 4/2/2015) for city agencies to generate/submit/obtain the required biodiesel variances.

- FDNY issued temporary fire permits that allowed city agencies to store and dispense biodiesel blends up to B20 at their diesel fueling stations.

- B20 variance applications for 98 fueling stations from Sanitation, Parks, DEP, and DOT.
  - Some of the fueling stations were installed over 30 years ago.
  - B20 variance applications to adhere to the EPA 2011 UST compatibility guidance.
  - Be generated by registered engineers/architects and/or other technical professionals approved by the FDNY Commissioner.

- FDNY reviewed/granted 86 variances of use for B20.
  - Permanent fire permit to store/dispense B20.

- FDNY extended grace period to April 2, 2017 for remaining 12 fueling stations.

- Fueling stations to store/dispense B20 April-November.
NYC Fleet B20 Compatibility Program - Lessons Learned

- Contractors to provide all equipment/component information.

- Central repository for permanent storage of the as-built drawings/information.

- New/rebuilt storage/dispensing systems to be compatible with biodiesel (B100).

- Site managers/operators to be familiar, and have access, to all parts of the fueling system.
NYC Fleet B20 Compatibility Program - Lessons Learned – continued

- Verify using independent systems that all information gathered is correct.

- Take lots of pictures!

- Talk to manufacturer tech support.

- Check for updates on compatibility.

- Do not be an inspector!
Future Work

- Complete variance applications for the remaining 12 sites.

- **Expand B20 program** to include exempted agencies, such as the NYC Department of Correction (DOC).

- **Run B50 Pilot during warmer months in 2016.**
  - Select sites.
  - Obtain FDNY waiver and temporary permit.
  - Identify information to be collected and time frame.
  - Expand B50 pilot based on favorable results.

- **Enhance B50 use.**
  - Variance Applications
Reference Links


Reference Links (cont.)

   http://www.nrel.gov/docs/fy07osti/42312.pdf

7. US Environmental Protection Agency (EPA) and the US Department of Energy Biodiesel Fuel Economy
   http://www.fueleconomy.gov/feg/biodiesel.shtml


9. US Department of Energy Alternative Fuels Data Center
   http://www.afdc.energy.gov/fuels/biodiesel_blends.html

10. National Biodiesel Board - Materials Compatibility
Reference Links (cont.)

11. US Environmental Protection Agency - Biodiesel Benefits and Concerns
   http://www.epa.gov/region9/waste/biodiesel/benefits.html

12. US Environmental Protection Agency - Office of Underground Storage Tanks
    “Guidance On Compatibility Of UST Systems With Ethanol Blends Greater Than
    10 Percent And Biodiesel Blends Greater Than 20 Percent” (2011)
    http://www.epa.gov/oust/compend/biofuels-compat-guidance.pdf
Contact Information

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Citywide Administrative Services – NYC Fleet
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rgarrido@dcas.nyc.gov
New York City’s B20 Compatibility Program for its Fleet Diesel Fuel Storage Facilities

Thank you for your attention!