

CITY OF AUSTIN

PURCHASE SPECIFICATION

FOR

**TRANSFORMER,DISTRIBUTION-NETWORK,OH-
URD,MULTIPLE SIZINGS,REFURBISHMENT**

DATE	PREPARED BY	ISSUANCE/REVISION	APPROVAL PROCESS MANAGER
09/28/98	Herman Millican	Issuance	
08/13/01	Carl A. Nance	Revision	
02/28/06	Ted Schoenberg	Revision	
06/01/06	Ted Schoenberg	Revision	Ted Schoenberg
09/08/11	Arthur Gonzalez	Revision	
1/24/12	Arthur Gonzalez	Revision	
11/6/15	Dennis Patrick	Revision	Michael Pittman

<i>Reason for Revision</i>	<i>Affected Paragraphs</i>
Added and Updated Sections	3.2.1.3, 6.4.4, 6.4.7, and 6.5
11/6/15: Added Secondary Voltage Signage	Section 7.0

This specification, until revised or rescinded, shall apply to each future purchase and contract for the commodity described herein.
Retain for future reference.

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CITY OF AUSTIN PURCHASE SPECIFICATION FOR REFURBISHMENT OF DISTRIBUTION TRANSFORMERS

1.0 SCOPE AND CLASSIFICATION

The following specification covers the transportation, refurbishment, testing, and repair of all types of electrical distribution transformers, having primary voltage less than 35 kV and secondary voltage less than 500V, for the Electric Utility Department of the City of Austin, (hereinafter referred to as Austin Energy or AE).

1.1 Type and sizes of transformers to be covered in this specification include:

- 1.1.1 Overhead single phase: 10 kVA through 167 kVA.
- 1.1.2 Padmount single phase: 25 kVA through 250 kVA.
- 1.1.3 Padmount three phase: 75 kVA through 2500 kVA.
- 1.1.4 Network three phase: 500 kVA through 2500 kVA

1.2 Unless otherwise approved by AE, transformers with the following types of construction shall not be repaired or picked up by the vendor: (1) cast iron tanks; (2) side wall pocket type bushings, if the high voltage rating is greater than 5 kV; (3) brown bushing transformers; (4) transformers with no pressure relief devices; (5) others; particularly non-standard or old units specifically identified by Austin Energy.

2.0 APPLICABLE SPECIFICATIONS/STANDARDS

- 2.1 All materials, construction, and testing shall be in accordance with the American National Standards Institute (ANSI), the institute of Electrical and Electronic Engineers (IEEE), the American Society for Testing and Materials (ASTM) standards, the National Electrical Manufacturers Association (NEMA), and AE Specifications E-649 Three-Phase Pas-Mount Transformers, E-1581 Single-Phase Pad-Mount Transformers, E-1579 Single-Phase Pole Mounted Transformers, E-708 Three-Phase 12.47kV Network Transformers, and E-709 Three-Phase 34.5kV Network Transformers, as applicable.
- 2.2 In the event of conflicting requirements, the order of precedence shall be the Austin Energy purchase order, this specification, applicable AE's Specification(s), ANSI, ANSI/IEEE, ASTM Standards.

3.0 FUNCTIONAL REQUIREMENTS

Even though a CLASS 3 REPAIR is defined below, it is provided as informational only. CLASS 3 REPAIR's are not to be performed on AE transformers.

- 3.1 Following are definitions of three (3) classifications used in this specification for repair of transformers.
 - 3.1.1 CLASS 1 REPAIR: This classification of repair covers units not requiring rewinding or un tanking of the core and coil unit. It includes new gaskets, oil, refinishing and recoating the tank, testing, transportation and other repairs necessary to bring the unit up to AE current specifications.
 - 3.1.2 CLASS 2 REPAIR: This classification of repair covers units requiring un tanking but not rewinding of the coil. It includes un tanking, baking and drying of the core and coil unit, refinishing and recoating the tank, new gaskets, oil, testing, transportation and other repairs necessary to bring the unit up to AE current specification.

- 3.1.3 CLASS 3 REPAIR: This classification of repair covers units requiring major repair. It includes complete rewinding of the coil, refinishing and recoating the tank, new gaskets, oil, testing, transportation and other repairs necessary to bring the unit up to AE current specification.
- 3.2 Preliminary tests/inspections, listed below, shall be performed on every transformer by the vendor in order to determine the repair class. Only transformers containing less than 50 ppm detectable level of PCBs will be repaired.
 - 3.2.1 CLASS 3 - For failure of Transformer Turns Ratio (T.T.R.) and/or Low-Frequency Voltage test listed below:
 - 3.2.1.1 T.T.R., not within 0.5% of calculated ratio value.
 - 3.2.1.2 Low-Frequency Voltage Test - Apply 60 Hz winding test voltage per ANSI C57.12.00 section 5.10.4.
 - 3.2.1.3 **Class 3 Repairs will be performed on an as needed basis with the approval of the Contract Manager (paragraph 15 Section 0400).**
 - 3.2.2 CLASS 2 - For failures of (1) megger, and (2) oil visual observation & dielectric tests listed below:
 - 3.2.2.1 Megger insulation resistance, at 10-40 degrees C, minimum 1,000 megohms at 5000 volts DC, between windings and between windings and ground for overhead transformers and between windings only for padmounted transformers.
 - 3.2.2.2 Oil dielectric test less than 30 kV in accordance with disk electrode method ASTM D877 (except only one (1) test sample required) or darker than 3.0 as determined by ANSI/ASTM D1500 and ASTM D1524 or show obvious carbon due to internal arcing.
 - 3.2.3 CLASS 1 - All transformers passing the above tests and not requiring un tanking or rewinding.
- 3.3 Transformers shall not be upgraded or changed in kVA capacity, temperature rating, or voltage ratings unless specifically called for by the AE purchase order or approved by the Purchasing Office in writing.
- 3.4 Inspection, replacement and installation of broken or defective parts will be replaced with identical parts as to manufacturer, type, rating, etc., or AE approved equal.
- 3.5 Estimated costs for Class 3 repairs must be submitted to AE's Material Control Section for evaluation and Contract Manager's approval prior to beginning repair.
- 3.6 All oil filled electrical distribution and network transformers to be repaired shall be transported in a manner that is in full compliance with City, State and Federal laws.

4.0 MATERIAL REQUIREMENTS

- 4.1 TRANSFORMER OIL
 - 4.1.1 For all transformers repaired and returned to AE:
 - 4.1.1.1 Transformer oil shall be in accordance with ASTM D3487, Type II or IEEE C57.147, whichever is applicable. Transformer oil supplied in each transformer shall be replaced with the identical type of oil that was specified on the nameplate of the transformer.

- 4.1.1.2 Transformer oil, in units returned to AE, shall have a minimum dielectric strength of 30 kV when tested in accordance to ASTM D877 (Disk Electrode Method), except only one (1) test sample required.
- 4.1.1.3 Any transformer oil added to the tank, whether in supplement of replacement or refilling, shall be new and contain no detectable levels of Polychlorinated Biphenyls (PCB) when tested with Gas Chromatograph Electron Capture in accordance with ASTM D4059-96 or by using EPA method 8082 for PCBs.
- 4.1.1.4 No transformer ever having greater than 1 ppm PCB in the oil shall be returned to AE.
- 4.1.1.5 Certified test reports for Section 5.0

4.2 POLE-MOUNTED TRANSFORMER COMPONENTS/ACCESSORIES

- 4.2.1 Bushings, added or replaced, shall be ANSI 70 light gray in accordance with ANSI Z55.1, with electrical and mechanical characteristics in accordance with ANSI/IEEE 21 and 24.
- 4.2.2 Bushings shall be clean, free of cracks, and in good condition to perform intended function.
- 4.2.3 All bushings shall be in compliance with AE's specification E-1579.
- 4.2.4 Terminals on a transformer winding shall be the same, i.e., on a transformer, all high voltage terminals shall be alike, and all low voltage terminals shall be alike. Do not mix eye bolts with spade terminals on a transformer.

4.3 PAD-MOUNTED AND NETWORK TRANSFORMER COMPONENTS/ACCESSORIES

- 4.3.1 HV bushings shall be clean, free of cracks, and in good condition to perform intended function.
- 4.3.2 HV BUSHINGS/WELLS - DEAD FRONT
 - 4.3.2.1 HV universal wells or bushings on dead-front transformers shall have "interference fit" or "mating" surfaces clean, free of scratches, paint, or arcing deposits for proper component (elbow or bushing) mating.
 - 4.3.2.2 Threaded conductor studs on universal wells shall have "free running threads" and not be stretched or elongated. And shall be a replaceable type per AE Specification E-649, E-1581, E-708, or E-709, whichever is applicable.
 - 4.3.2.3 Mating surfaces of universal wells or bushings shall be protected from water and debris with fitted "caps" or "covers" prior to outdoor environmental exposure or shipping.
 - 4.3.2.4 All HV bushings/wells shall be alike, i.e., All wells or All bushings. If replacement is necessary, all bushings/wells shall be replaced.
- 4.3.3 LOW VOLTAGE BUSHINGS/TERMINALS
 - 4.3.3.1 LV bushings shall be clean, free of cracks, and in good condition to perform intended function.
 - 4.3.3.2 LV line and neutral bushings on three phase padmount transformers shall be in compliance with AE's specification E-649, E-708, or E-709 which ever is applicable.

4.3.3.3 The low voltage neutral bushing shall be an insulated bushing with the removable external ground connection. The ground strap shall be adequate to carry fault current based on the rating of the transformer.

4.3.4 Gasket replacements must be neoprene or transformer grade nitrile, or other premium grade, industry accepted material. No cork gaskets shall be used. Gaskets shall be of proper size and shape to provide a precise seal, with particular attention to recessed gasket grooves or pockets for controlled compression.

4.3.5 Three-Phase pad-mounted transformers shall have a switch installed on them. If a three-phase pad-mount transformer being repaired was not originally manufactured with a switch installed, a switch shall be added to these units in accordance with specification E-649, E-708, or E-709 sections 3.5, as applicable.

4.4 TANK

4.4.1 Tanks or cabinets requiring welding that affects tank integrity, shall have weld beads free of slag or voids.

4.4.2 All units requiring welding that affect tank integrity shall be pressure tested for leaks after welding. Any leak shall be repaired by grinding out and re-welding.

4.5 PRESSURE RELIEF DEVICES

4.5.1 Pressure relief devices on transformers shall be visually inspected for defects.

4.5.2 Pressure relief valves with obvious indications of damage or leaking shall be replaced with valves meeting AE's specifications E-649, E-1579, and E-1581.

4.6 NAMEPLATE/REPAIR TAG

4.6.1 The original manufacturer's nameplate shall remain attached in its original position on the repaired transformer.

4.6.2 New nameplates shall specify that the oil contains "NO PCB". The nameplate information is to be etched or indent printed.

4.6.3 Any repaired transformer shall have a "REPAIR TAG" of aluminum or stainless steel attached directly adjacent to the original nameplate or to an extension thereof.

4.6.4 The "REPAIR TAG" shall include:

- (1) name of repair shop
- (2) month and year of repair
- (3) class of repair
- (4) the original manufacturer serial number with an "R" at the end of the serial number (XX123456R) shall be etched or indent printed in both human readable and bar code form

4.6.5 The "REPAIR TAG" shall be affixed to the hanger bracket and shall be visible while viewing the nameplate. The "REPAIR TAG" shall be attached with aluminum rivets or stainless steel screws. Adhesive backed material is not acceptable.

4.7 TANK COATING SYSTEM

4.7.1 All transformers shall be coated with a system per ANSI C57.12.28 Section 5 Enclosure Coating System. The coating system shall not contain lead.

- 4.7.2 Upon delivery to AE, each unit shall be clean and touched up to cover any shipping scratches.
- 4.7.3 Overhead transformers shall be ANSI Light Gray Number 70, Munsell Notation 5BG 7.0/0.4. All top coat paint shall be high grade acrylic enamel. The kVA size shall be stencil painted in two (2) inch black numerals on the tank side opposite the support mounting bracket and the "NO PCB" adhesive label shall be affixed as per AE's specification E-1579.
- 4.7.4 Pad-mounted transformers shall be Munsell 7GY3.29/1.5 padmount green color unless otherwise instructed. All top coat paint shall be high grade acrylic enamel. The kVA size shall be affixed to the outside, front upper left corner with two (2) inch black numerals on yellow background stickers and the "NO PCB" adhesive label shall be affixed as per AE's specifications E-649, E-1579, and E-1581.
- 4.7.5 Network transformers finish shall be a dark color and conform to ANSI C57.12.32 per ANSI C57.12.40 and AE's specification E-708 and E-709.

5.0 SAMPLES, INSPECTION, AND TESTING REQUIREMENTS

Final tests shall be in accordance with ANSI/IEEE C57.12.00 and ANSI/IEEE C57.12.90. and include:

- Transformer Turns Ratio Test
- No Load Loss Test & Excitation Current
- Impedance Voltage & Load Loss Test
- Low-Frequency Voltage Test
- Lightning Impulse Test (If available)
- Tank Pressure/Leak Test
- Megger Test

Test results shall be documented on forms acceptable to AE. Two (2) copies of the test results showing the final tests shall be sent to AE; One (1) copy with the repaired transformers when delivered to AE; One (1) copy sent to the following:

Electric Service Division
Distribution Material Standards
4411-B Meinardus Dr.
Austin, TX 78744-1835

6.0 OTHER REQUIREMENTS

6.1 APPLICABLE REGULATIONS

The contractor shall comply with all applicable federal, state, municipal and local regulations including but not limited to:

- 6.1.1 U.S. Department of Labor, Occupational Safety and Health Administration (OSHA):
 - 6.1.1.1 General Industry Lead Standard, Title 29 Code of Federal Regulations (CFR) part 1910, Section 1025.
 - 6.1.1.2 General Industry Respiratory Protection Standard, Title 29 CFR part 1910, Section 134.

- 6.1.1.3 Construction Industry Lead Standard, Interim Rule. Title 29 CFR Part 1926, Section 62.
- 6.1.1.4 Access to Employee Exposure and Medical Records. Title 29 CFR Part 1910, Section 2.
- 6.1.1.5 Hazard Communication, Title 29 CFR Part 1910, Section 1200.
- 6.1.2 U.S. Environmental Protection Agency (EPA):
 - 6.1.2.1 Resource Conservation and Recovery Act, Title 40 CFR Part 261 et al.
 - 6.1.2.2 National Emission Standard for Hazardous Air Pollution, Title 40 CFR Part 61, Subpart M (Revised Subpart B).
 - 6.1.2.3 National Ambient Air quality Standards (NAAQS).
 - 6.1.2.4 Standards for the Management of Used Oil, 40 CFR 279.
 - 6.1.2.5 Toxic Substance Control Act, 40 CFR 761.
 - 6.1.2.6 Spill Prevention Control and Countermeasure Rules, 40 CFR 112.
- 6.1.3 U.S. Department of Transportation (DOT):
 - 6.1.3.1 Title 49 CFR Part 173, 178, and 179.
- 6.1.4 Texas Natural Resource Conservation Commission:
 - 6.1.4.1 Used Oil Regulations, 30 TAC 324.
 - 6.1.4.2 Hazardous and Solid Waste Regulations, 30 TAC 335.
- 6.2 **CONTRACTOR-PROVIDED SERVICES**

The contractor shall provide, inclusive of but not limited to, the following services:

 - 6.2.1 Lead Specific Abatement operations may disturb lead-based paints and expose workers to lead. These operations may release lead in the form of dust, fumes, or mists into the air or onto surrounding surfaces. For this reason, the contractor shall take necessary precautions to reduce the potential for exposure and comply with all Federal, State and Local regulations, applicable to lead abatement and lead contaminated waste disposal. The work will be performed in such a way that there will not be any release of dust, mist, particulates or liquids from the designated work area.
 - 6.2.1.1 The contractor shall assume full responsibility and liability for compliance with all applicable federal, state, and local regulations pertaining to work practices, waste transporting, waste disposal, protection of workers, visitors to the site, and persons occupying areas adjacent to the site. The contractor shall hold AE and AE's representatives harmless for failure to comply with any applicable work, waste handling, safety, health or other regulation on the part of himself, his employees, or his subcontractors.
 - 6.2.1.2 Contractor shall provide, after award of contract, documentation certifying that all material used to paint is lead free.
- 6.3 **NON-PCB CONTAMINATED EQUIPMENT (LESS THAN 50 PPM PCB)**
 - 6.3.1 Non-PCB equipment are those items which can be redistributed into commerce, either wholly or in parts, within applicable EPA regulations.

6.3.2 Any parts to be reused, either wholly or in part: shall be identified by the Contractor and shall notify the Austin Energy in writing as to the PCB concentration. No parts having greater than 1 ppm PCB shall be used in the repair and manufacturing of equipment sold back to AE.

6.3.3 Waste Disposal

WASTE DESCRIPTION	DISPOSAL METHOD
Empty Non-PCB Transformers	Reclamation
Transformer Oil No Detectable PCBs	Recycle/Reclamation
Transformer Oil with greater than 1.0 ppm PCBs and less than 50 ppm PCBs	Energy Recovery Using Approved Boiler or Incinerator
Wastes from Repair/Reclamation Activities	Landfill or incineration in facility permitted to accept solid wastes contaminated with transformer mineral oil contaminated with less than 50 ppm PCBs.

6.4 GENERAL WASTE MANAGEMENT REQUIREMENTS

6.4.1 Placarding

The Contractor shall maintain and affix the appropriate placards to each vehicle prior to leaving the work site in accordance with Federal (i.e., DOT), State, and Local regulations.

6.4.2 Loading

Contractor or Subcontractor shall be responsible for transformers being properly loaded on to the transportation equipment unless other provisions are specified. AE may have facilities to assist in loading.

6.4.3 Weighing of Transport Vehicles

Contractor shall be responsible for assuring that the loaded transformers do not exceed weight limits for the transport vehicle.

6.4.4 Permits and Responsibility

The transporter and repair/disposal facility shall have all applicable licenses, insurance and permits necessary to perform the work required under this contract prior to award and make such facility licenses, permits and insurance available for inspection. Contractor shall provide a letter identifying all such licenses, insurance, and permits with the bid package. At any time during the life of this contract when such licenses, insurance, and permits are amended, renewed, or replaced, the Contractor shall provide a letter notifying AE of such within ten (10) calendar days prior to the amendment, renewal, or replacement.

During the term of this contract, the Contractor shall submit all formal written notices of violation concerning noncompliance of operations. Notices of violations or other official notices, or requests to be given or made under this Contract shall be sent either in person or by registered mail to the respective parties at the addresses below:

Austin Energy
 Environmental Services
 721 Barton Springs Rd
 Austin, TX. 78704

Austin Energy Purchasing Office
Purchasing Manager
721 Barton Springs Rd.
Austin, TX. 78704

Either party may change its official address for the purposes of notices by written notice of the change to the other party.

6.4.5 Spill Responsibility

The Contractor is solely responsible for any and all oil spills or leaks caused by the Contractor or Subcontractor while the transformer is in the custody of the Contractor or Subcontractor while performing under the terms of this contract. At no cost to AE, the Contractor shall contain, remediate, and restore the site of the spill in accordance with applicable State and Federal regulations, and, if on City property, in accordance with the City requirements.

The Contractor shall notify AE's official contact person within one (1) hour. A written report shall be submitted by the Contractor identifying the substance, associated profile number, quantity released, reportable quantity for the substance, agencies notified and representatives contacted, and remediation assistance required. The report shall be a narrative summarizing all on-scene activity, initial remediation and shall advise if long term remediation is required. The written report shall be submitted within seven (7) calendar days of the event and supplemented with follow up reports until the incident is closed out.

6.4.6 Occupational Safety and Health Act Requirements

The Contractor shall be held responsible for compliance with all applicable Texas Hazard Communication Act requirements, Occupational Safety and Health Act (OSHA) laws and regulations, training requirements established by 40 CFR 264.16 and 265.16, and safety practices as they relate to contract operations.

6.4.7 Environmental Audits

6.4.7.1 The City and the City's Consultants shall have the right, but not the obligation, to (1) inspect, at the City's expense, any equipment scrapping and refurbishing facilities and obtain copies of written licenses, permits, or approvals issued by any governmental entity or agency to the Contractor which are applicable to the performance of this contract; (2) inspect and test, at the City's expense, transportation vehicles or vessels, containers provided by Contractor; and (3) to inspect the handling, loading, transportation, storage or disposal operations conducted by Contractor in the exercise thereof. Audits performed prior to bid award that show that the Contractor does not meet the requirements of this specification will be grounds for not considering the Contractor for award of bid. Unsatisfactory audits performed after bid award will be grounds to terminate the contract. The exercise of the foregoing rights by the City shall not relieve Contractor of any of its obligations under this contract, or impose any additional liability upon the City.

6.4.7.2 Contractor shall submit the following information to the City **with their bid**:

- (1) A complete listing of Equipment scrapping and refurbishing facilities which will be utilized, including information concerning facility contact name and phone number; Federal I.D. and/or State I.D. numbers, and scrapping/refurbishing activities to be performed at each site.

- (2) Copies of all licenses, permits, or approvals by any governmental entity or agency which are applicable to the performance of this contract.
- (3) Copy of the facility's emergency and spill response plan.
- (4) A complete list of transporters to be used and their State and Federal transporter numbers, current permits held by the transporter to transport interstate or intrastate.

6.4.8 AE Warranty

AE warrants that the transformers identified in this Bid Specification contains less than 50 ppm PCBs. AE holds clear title to all transformers to be transferred hereunder and has contractual authority to dispose of the materials. AE is under no legal restraint or order which would prohibit transfer of possession of such materials to Contractor for transportation, storage, or disposal.

6.4.9 Shipment Rejection

In the event materials are discovered to be substantially non-conforming to the descriptions (i.e. PCB concentration of oil greater than or equal to 50 ppm) Contractor may revoke its acceptance of the materials. If the materials are no longer on the City's premises at the time of revocation, Contractor shall have the responsibility for proper storage of the material from the time of revocation to the time the waste materials are returned to the City's premises.

Contractor shall have five (5) working days from the time of acceptance of the waste materials to give written notice to AE of its revocation of such acceptance. Contractor shall be deemed to have accepted the waste materials at the time the same are loaded for transportation. Materials discovered by contractor to be non-conforming, if they are in Contractor's possession, shall be prepared for lawful transportation and returned to AE by the same method as used to transport from AE within a reasonable time not to exceed seven (7) calendar days after notice of revocation of acceptance has been communicated to AE unless within such time the parties agree to some alternative lawful manner of reasonable expenses and charges for handling, loading, preparing, transporting, storing, and caring for non-conforming materials returned to AE or to another facility.

6.4.10 Laws and Regulations

The Contractor's attention is called to the Federal, State, and Local laws, health and safety codes, regulations, and ordinances in reference to labor, materials, equipment, specifications, proposals, contracts, and other matters pertaining to the relationship between AE and Contractor. Contractor shall perform the work in strict accordance with all applicable Federal, State, and Local statutes, regulations, rules, and ordinances, including, but not limited to, those pertaining to (1) health and safety, (2) the environment, and (3) employer-employee relations. In the event, that a conflict exists between a Federal, State, or Local statute, law, regulation, rule, or ordinance, the more stringent standard shall apply. Reference in this specification to a statute, law, regulation, rule, or ordinance does not relieve the Contractor or any Subcontractors from its obligation to comply with any and all other statutes, laws, regulations, rules, or ordinances which are applicable to performance of the referenced task.

All statutory and regulatory provisions currently in effect or which may be subsequently enacted and which are applicable to the performance of this

Contract are hereby incorporated by reference as additional terms of this Contract and shall be enforced as though the same were included specifically herein. Contractor shall be responsible for determining for itself the laws, regulations, rules, ordinances, orders, or other legal requirements imposed upon its activities hereunder.

If the Contractor observes that any contract documents or provisions are at variance with such laws, ordinances, rules, regulations, and orders in any respect, the Contractor shall notify AE in writing and any necessary changes will be made by appropriate modification. If Contractor performs any work to the contrary of such laws, rules, ordinances, regulations, and orders, the Contractor shall bear the full responsibility and cost attributable to such performance.

6.4.11 Disposal Locations and Treatment Methods

Contractor shall provide a list of all disposal sites and treatment methods used by Contractor under this contract with the bid. Any change in disposal site or treatment method without obtaining prior approval of AE's Project Coordinator shall constitute a material breach of the provisions of this contract.

6.5 FACILITY REQUIREMENTS

6.5.1 The Contractor's facilities that will be used for the purposes of this contract shall meet the following criteria:

6.5.1.1 Must not be on any Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) list.

6.5.1.2 Must not be under investigation for remediation.

6.5.1.3 Must not be under any criminal, civil, or State compliance order for violations.

6.5.1.4 Must have all applicable federal and state permit(s) for waste management.

6.5.1.5 Spill Prevention & Containment

6.5.1.5.1 The facility must have a written emergency and spill response plan.

6.5.1.5.2 Spill containment or spill response kits must be used at transfer facilities and loading racks.

6.5.1.5.3. Aboveground storage tanks must have:

- 1) Labels that clearly identify the contents of each tank.
- 2) External visual or electronic site gauges.
- 3) Secondary containment in accordance with EPA Regulation 40 CFR 112, including being composed of an impermeable material and having a capacity of at least 110% of the largest primary containment.

7.0 **SINAGE**

TYPICAL EXTERNAL SIGNAGE MATERIAL REQUIREMENTS OF 3-PHASE PAD-MOUNTED TRANSFORMERS

“NO PCBS” decal: 6 inch X 6 inch, blue. Base Film: 0.0035-inch cast polyvinyl chloride, with UV inhibitors as per MIL-M-22106A. Cyasorb UV-9 light absorber C14H1203, Gloss 80 UL 94 rated. Over lamination: 002PVF (polyvinylflouride) Tedlar UV screening film from E.I. DuPont. Cold-seal bonded. Adhesive: 0.002-inch permanent acrylic hi-tack, with high-temperature-resistant Elasticisors for adhesion at 40 deg. F. PSTC test method: #1 modified for a 15 minute dwell time, with 2 mils of adhesive, 56 oz/inch width rating. Ink: Silkscreen type 4, with automotive grade pigments and binders, 0.0004-inch thick + 0.0001, inch high pigment volume concentration total PVC 40-50 (copper phthalocyanines). Liner: 0.0007-inch + 0.001-inch Kraft coated one side chemical resistant. Salt spray: 240 hours 5%, at 100 degrees, with no blistering, color change, or other material degradation. No effect when immersed in diesel fuel, motor oil, anti-freeze, detergent 2 %, ammonium hydroxide (12% and 39%), kerosene, acetic acid, acetone and water. Service temperature range: -40 to +170 deg. F. Decal shall last a minimum lifetime exterior durability of 15 years from installation date with proper surface preparation.

“SIZE KVA” decal: width as required, 2 7/8 inches tall, Engineer Grade, adhesive reflective vinyl, with yellow numbers, black background.

“SIZE SECONDARY” decal: width as required, 2-7/8 inches tall, Engineer Grade, adhesive reflective vinyl, with yellow numbers on Black Background. Sticker shall read “L-L Voltage Y / L-G Voltage”.