

SANTA ROSA FIRE DEPARTMENT

FIRE PREVENTION BUREAU

PLAN REVIEW CHECKLIST

July 1, 2010



UNDERGROUND STORAGE TANK INSTALLATION

Address:		Permit #:
Inspector:	Date:	Status:
Inspector:	Date:	Status:
A-Approved; AC-Approved w/comments; I-Incomplete; D-Denied		

This Checklist outlines general requirements. Information contained herein applies to typical instances and may not address all circumstances.

FILE REVIEW

1. **Y** **N** **ENVIRONMENTAL SITE ASSESSMENT** – Submitted and approved? If required, a Phase I Environmental Site Assessment shall be approved prior to issuance of any grading, demolition or construction permits. Verify if site is contaminated.
2. **FEES** – Permit fees entered in Permits Plus. 3rd or greater checks require an hourly fee for the review.

DOCUMENTATION

3. **Verify Project Scope** - Also include a description of operations, hazardous materials handling procedures and safety systems. A schedule indicating projected start and completion dates.
4. **Groundwater Wells** – Are wells being removed? All wells being removed or destroyed require separate permit from the Sonoma County Permit and Resources Management Division - Well & Septic (PRMD @ (707) 565-1680). Provide copy of PRMD permit to the SRFD.
5. **Underground Service Alert** – Plan shall include locations of all utilities. Contact Service Alert at 800- 642-2444 prior to the start of any excavation.
6. **Subsurface Contamination** - Ensure subsurface is not contaminated – Refer to Phase I report
7. **Site Security** – Verify site security plan is in place.
8. **Training** – Verify training certifications for OSHA Hazwopper are submitted with packet.
9. **Site Safety Plan**

The plan shall cover:

- o PPE – Personal protective equipment.
- o Health and safety officers.
- o Training requirements.
- o Monitoring – Environmental air monitoring.
- o Site Safety meetings.

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- Hazard Evaluations – Chemical, Physical and Natural.
- Decontamination – Procedures for each.
- Emergency response procedures – Phone numbers, site map, route to nearest hospital (map and written directions).

Y N

10. **Contractor's License** – A copy of contractor's license.
11. **Certificate of Liability Insurance –A copy of workers compensation certificate of liability insurance.**
12. **Business Tax Certificate** – A copy of City of Santa Rosa business tax certificate.
13. **Manufacturers Installation Certifications** – Verify copies of manufacturer(s) certification(s) verifying contractors are trained and certified to install their equipment (UST's, piping, sumps, under dispenser containment, and monitoring systems). Installation contractors must be re-certified as required by the equipment manufacturers or every 3 years.
14. **ICC Certifications** – Verify at least one person to be on site must be certified by the International Code Council as a CA UST SYSTEM INSTALLER and as a CA UST SYSTEM SERVICE TECHNICIAN.

TANKS

15. **Verify tank submittal complies with the following:**
16. **PRODUCT TIGHT** - HSC 25290.1(c) Tanks are product tight and compatible with materials intended to be stored.
17. **SECONDARY CONTAINMENT** – TITLE 23 CCR 2631 (a) - All new underground storage tanks including associated piping used for the storage of hazardous substances shall have primary and secondary containment. Primary containment shall be product-tight. Secondary containment may be manufactured as an integral part of the primary containment or it may be constructed as a separate containment system. Secondary containment systems shall be designed and constructed such that the secondary containment system can be periodically tested
18. **UL LISTED** - TITLE 23 CCR 2631(b) Design and construction of primary containment is approved by an independent testing organization (e.g., UL).
19. **MANUFACTURER** - TITLE 23 CCR 2635(a)(6) Tank systems will be installed in accordance with manufacturers' written installation instructions
20. **LOADING** - TITLE 24 CFC 3404.2.11.2 #1 - Tanks are located with respect to existing foundations and supports such that the loads carried by the latter cannot be transmitted to the tank.
21. **SPACING** – TITLE 24 CFC 3404.2.11.2#2 - Tanks are located not less than 3 feet from the nearest wall of a basement, pit, cellar, or lot line.
22. **TANK SPACING** - TITLE 24 CFC 3404.2.11.2#3 - Tanks are separated by at least 1 foot, measured shell-to-shell.
23. **SPILL CONTAINER** - CHSC 25290.1(f), 25290.2(e), 25291(c), TITLE 23 CCR 2635(b), 2665 - A spill container having minimum 5 gallon capacity and drain valve allowing drainage of collected spills to the primary tank is provided at each tank fill location.
24. **OVERFILL** - HSC 25290.1(f), 25290.2(e), 25291(c), TITLE 23 CCR 2635(b), 2665 - An approved overfill prevention device is provided at each tank fill location.
[Note: The device must restrict flow at 90% of tank capacity or trigger an audible and visual alarm at 90% of tank capacity or positively shut off flow at 95% of tank capacity to alert the operator.]

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- | | Y | N | |
|-----|--------------------------|--------------------------|--|
| 25. | <input type="checkbox"/> | <input type="checkbox"/> | STRIKER PLATE - TITLE 23 CCR 2631(c) - Striker plates are installed center-to-center below all accessible tank openings. |
| 26. | <input type="checkbox"/> | <input type="checkbox"/> | LOCATIONS SUBJECT TO FLOODING – TITLE 24 CFC 3404.2.7.8. Where a tank is located in an area where it is subject to buoyancy because of a rise in the water table, flooding or accumulation of water from fire suppression operations, uplift protection shall be provided in accordance with Sections 4.3.2.6 and 4.3.3.5 of NFPA 30. |

PIPING

- | | | | |
|-----|--------------------------|--------------------------|--|
| 27. | <input type="checkbox"/> | <input type="checkbox"/> | Verify submittal includes the following: |
| 28. | <input type="checkbox"/> | <input type="checkbox"/> | PRODUCT TIGHT - HSC 25290.1(c)(1), 25290.2(c)(1), 25291(a)(1), TITLE 24 CFC 2703.2.2.1#1, NFPA 30 5.2.1 - Piping is product tight and compatible with the material(s) intended to be stored; is of adequate strength and durability to withstand the pressure, structural stress, and exposure to which it will be subject; and complies with ASME B31. |
| 29. | <input type="checkbox"/> | <input type="checkbox"/> | UL LISTED - TITLE 23 CCR 2631(b), TITLE 24 CFC 2206.6.3 - Design and construction of piping is approved by an independent testing organization (e.g., UL). |
| 30. | <input type="checkbox"/> | <input type="checkbox"/> | MANUFACTURE INSTALL - TITLE 23 CCR 2636(c)(2) - Piping systems will be installed in accordance with manufacturers' written installation instructions. |
| 31. | <input type="checkbox"/> | <input type="checkbox"/> | FLEX LINE - TITLE 24 CFC 3403.6.9 - Underground liquid, vent, and vapor return piping is provided with listed and approved flexible joints at the following points: |
| 32. | <input type="checkbox"/> | <input type="checkbox"/> | Where piping connects to underground tanks; |
| 33. | <input type="checkbox"/> | <input type="checkbox"/> | Where piping ends at dispensing islands and vent risers;
At points where differential movement in the piping can occur.
<i>[Exception: Not required for FRP piping in locations where piping diameter does not exceed 4 inches and the piping has a straight run of at least 4 feet on one side of the connection when connections result in a change of direction.]</i> |
| 34. | <input type="checkbox"/> | <input type="checkbox"/> | VENTS LOCATION - TITLE 24 CFC 3404.2.7.3.3 - Tank vent piping discharges to a safe point outside of buildings and away from adjacent walls, eaves, or other obstructions to assist in vapor dispersion, with the following minimum distances: |
| 35. | <input type="checkbox"/> | <input type="checkbox"/> | 12 feet above adjacent ground level; |
| 36. | <input type="checkbox"/> | <input type="checkbox"/> | 5 feet to any lot line of a property that can be built upon or opening into a building. |
| 37. | <input type="checkbox"/> | <input type="checkbox"/> | SHEAR VALVE - CFC 2206.7.4 - Liquid supply piping is provided with an approved shear/fusible link emergency shutoff valve at the base of each dispenser supplied by a remote pump. |

SECONDARY CONTAINMENT

[Note: Laminated, coated, or clad primary containment is considered single-walled, and does not satisfy requirements for secondary containment.]

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|-----|--------------------------|--------------------------|--|
| 37. | <input type="checkbox"/> | <input type="checkbox"/> | TANKS - CHSC 25290.1(c) – Verify secondary containment is provided for tanks. |
| 38. | <input type="checkbox"/> | <input type="checkbox"/> | PIPING - CHSC 25290.1(c), 25290.2(c), 25291(a), TITLE 23 CCR 2636 – Verify secondary containment is provided for piping as follows: |

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UST's installed on or after 7/1/2003 — Secondary containment is required for all product and remote fill lines; and all underground vent lines, vapor recovery lines, and riser piping connected to tank primary containment.

- Y** **N**
39. **UL LISTING** - TITLE 23 CCR 2631(b), 2631(d) - *Note the design and construction of each integral secondary containment system is approved by an independent testing organization (e.g., UL). Each secondary containment system which is not an integral part of primary containment is designed and constructed according to an engineering specification approved by a state-registered Professional Engineer or according to a nationally recognized industry code or engineering standard which includes the construction procedures.
40. **PRODUCT TIGHT** – CHSC 25290.1(c)(2), 25290.2(c)(2), 25291(a)(2) – Verify secondary containment is product tight and constructed to prevent structural weakening as a result of contact with any hazardous substance released from primary containment.
41. **WATER INTRUSION** - HSC 25290.1(c)(3), 25290.2(c)(3) – Verify all secondary containment systems will be constructed to prevent any water intrusion into the system by precipitation, infiltration, or surface runoff.
- [Note: Required for tank systems installed on or after 7/1/2003.]*
42. **UDC** - HSC 25290.1(c), 25290.2(c), 25291(a), TITLE 23 CCR 2636(g) – Verify a SWRCB approved under-dispenser containment (UDC) sump or pan is provided for each dispenser.

CORROSION PROTECTION

43. **TANKS** - TITLE 23 CCR 2635(a)(2) – Verify tanks are protected from corrosion.
44. **PIPING** - TITLE 23 CCR 2636(b) – Verify corrodible underground piping, if in direct contact with backfill, is protected against corrosion.

BURIAL AND COVER

45. TITLE 24 CFC 3404.2.11.3 – Verify plans show detail of burial and cover procedures. Tanks are to be set on a firm foundation and surrounded by a minimum 6 inches of non-corrosive inert material, such as clean sand or pea gravel. A certification, stamped by a registered engineer, that flooding will not occur and that groundwater conditions do not warrant additional engineering to counteract tank buoyancy, is included with this application.
[Alternative: Attach buoyancy calculations, stamped by a registered engineer and based upon the assumption that each tank lies completely submerged.]

DISPENSERS

46. Verify the following are included in the plans:
47. **VEHICLE IMPACT** – TITLE 24 CFC 2206.7.3 - Concrete islands at least 6 inches high are provided (or other approved method of vehicle impact protection).
48. **LOCATIONS** – TITLE 24 CFC 2203.1 - Dispensers are sited with the following minimum distances: 1.) 10 feet to any lot line; 2.) 20 feet to any fixed source of ignition; 3.) 10 feet to buildings having combustible exterior wall surfaces or buildings having noncombustible exterior wall surfaces that are not 1-hour rated or buildings having combustible overhangs; 4) such that all portions of vehicles being fueled will be on the premises of the facility.
49. **OPENING DISTANCE** – TITLE 24 CFC 2203.1#4 - Dispenser hoses, when fully extended, reach no closer than 5 feet from any building opening.

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| 50. | <input type="checkbox"/> | <input type="checkbox"/> | HOSE LENGTH – TITLE 24 CFC 2206.7.5 - Dispenser hoses are listed and approved, and are no more than 18 feet in length. When not in use, hoses will be reeled, racked, or otherwise protected from damage. |
| 51. | <input type="checkbox"/> | <input type="checkbox"/> | BREAK-AWAY – TITLE 24 CFC 2206.7.5.1 - Each dispenser hose is provided with an approved emergency break-away connector designed to retain liquid on both sides of the breakaway point. |
| 52. | <input type="checkbox"/> | <input type="checkbox"/> | KNOZZEL LISTED – TITLE 24 CFC 2206.7.6 - Each dispenser hose is provided with a listed automatic-closing-type nozzle valve. |
| 53. | <input type="checkbox"/> | <input type="checkbox"/> | UN-MANNED – TITLE CFC 2204.3 - If dispensing is unsupervised, the following are provided:

Operating instructions shall be conspicuously posted in approved location on every dispenser and shall indicate the location of the emergency controls. |

Emergency sign visibly posted stating:

“ IN CASE OF FIRE, SPILL OR RELEASE
1. USE EMERGENCY PUMP SHUT-OFF
2. REPORT THE ACCIDENT TO:
SANTA ROSA FIRE DEPARTMENT: 707-528-5151
FACILITY ADDRESS: _____ “

- | | | | |
|-----|--------------------------|--------------------------|---|
| 54. | <input type="checkbox"/> | <input type="checkbox"/> | A telephone that does not require a coin to operate (or other approved, clearly identified means to notify the Fire Department); |
| 55. | <input type="checkbox"/> | <input type="checkbox"/> | Dispensing devices are programmed to limit uninterrupted fuel delivery to 25 gallons or limit delivery by use of a pre-programmed card. |

EMERGENCY SHUT OFF

Verify the following are included in the plans:

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|-----|--------------------------|--------------------------|---|
| 56. | <input type="checkbox"/> | <input type="checkbox"/> | LABEL – TITLE 24 CFC 2203.2 - Switch(es) to shut off electrical power used in dispensing operations are distinctly labeled “EMERGENCY FUEL SHUTOFF.” |
| 57. | <input type="checkbox"/> | <input type="checkbox"/> | LOCATION – TITLE 24 CFC 2203.2 - Switch(es) are installed at approved location(s) no less than 20 feet and no more than 100 feet from any dispenser. |
| 58. | <input type="checkbox"/> | <input type="checkbox"/> | VISIBLE – TITLE 24 CFC 2203.2 - Switch or sign is visible from every dispensing location. |

MONITORING

Verify the following are included in the plans:

TANK MONITORING - CHSC 25290.1(e)

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|-----|--------------------------|--------------------------|--|
| 59. | <input type="checkbox"/> | <input type="checkbox"/> | Double-walled tank with continuous monitoring using continuous vacuum, pressure, or hydrostatic monitoring of the annular space; AND |
| 60. | <input type="checkbox"/> | <input type="checkbox"/> | Any leak shall initiate an audible and visual alarm that can immediately be detected by the UST operator |

PIPING MONITORING - CHSC 25290.1(e) - All UST piping shall be double-walled with continuous monitoring of the secondary containment using continuous vacuum, pressure, or hydrostatic including:

- | | | | |
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| 61. | <input type="checkbox"/> | <input type="checkbox"/> | Product piping, |
|-----|--------------------------|--------------------------|-----------------|

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- | | Y | N | |
|-----|--------------------------|--------------------------|---|
| 62. | <input type="checkbox"/> | <input type="checkbox"/> | Vent piping, |
| 63. | <input type="checkbox"/> | <input type="checkbox"/> | Vapor recovery piping |
| 64. | <input type="checkbox"/> | <input type="checkbox"/> | Any leak shall initiate an audible and visual alarm that can immediately be detected by the UST operator. |

SUMP MONITORING - CHSC 25290.1(d) - If a new UST tank is installed then the UST sumps shall be continuously monitored by one of the following methods:

- | | | | |
|-----|--------------------------|--------------------------|---|
| 65. | <input type="checkbox"/> | <input type="checkbox"/> | Single-walled sump with single-walled piping inside sumps. The interior sump space shall be continuously monitored using continuous vacuum or pressure |
| 66. | <input type="checkbox"/> | <input type="checkbox"/> | Single-walled sump with continuously monitored double-walled piping inside sumps using continuous vacuum, pressure, or hydrostatic |
| 67. | <input type="checkbox"/> | <input type="checkbox"/> | Double-walled sump continuously monitored by using continuous vacuum, pressure, or hydrostatic monitoring of the annular space of the double-wall. The internal sump space must have continuous <u>liquid</u> leak sensors for any leaks. |
| 68. | <input type="checkbox"/> | <input type="checkbox"/> | A leak shall initiate an audible and visual alarm that can immediately be detected by the UST operator. |
| 69. | <input type="checkbox"/> | <input type="checkbox"/> | All sumps must have water-tight lids |
| 70. | <input type="checkbox"/> | <input type="checkbox"/> | Sumps must be installed on all UST riser piping and man-ways |

UNDER DISPENSER CONTAINMENT (UDC) MONITORING - HSC 25290.1(d) - If a new UST tank is installed then the UDC shall be continuously monitored by one of the following methods:

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|-----|--------------------------|--------------------------|---|
| 71. | <input type="checkbox"/> | <input type="checkbox"/> | Single-walled UDC with continuously monitored double-walled piping inside UDC using continuous vacuum, pressure, or hydrostatic monitoring of the double-walled piping. The double-walled piping must extend all the way to the shear valve. |
| 72. | <input type="checkbox"/> | <input type="checkbox"/> | Double-walled UDC continuously monitored by using continuous vacuum, pressure, or hydrostatic monitoring of the annular space. Inside the UDC, piping may be single walled but the internal space of the UDC must have a continuous <u>liquid</u> leak sensor for any piping joint leaks, fuel filter, or other leaks in the UDC as follows:

<ol style="list-style-type: none">1. Liquid float sensor with audible and visual alarm and positive shut down OR2. Mechanical float connected to shear valve |
| 73. | <input type="checkbox"/> | <input type="checkbox"/> | Any leak shall initiate an audible and visual alarm that can immediately be detected by the UST operator, except 3, the mechanical float shut-off |

AUTOMATIC LINE LEAK DETECTORS (LLD's) for PRESSURIZED PIPING - 23 CCR 2636(f)(2) - All pressurized piping must have automatic line leak detectors approved by an independent testing organization (e.g. UL Listing) for its particular use. Must, at a minimum, detect release within 1 hour equivalent to 3.0 gph at 10 psi with a 95% probability of detection and 5% probability of false alarm. Automatic line leak detectors must be capable of restricting the flow or shutting down the pump when a leak is detected.

[Exception: Not required for Emergency Generator Tank Systems (EGTS) meeting the requirements of TITLE 23 CCR 2636(f)(6).]

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|-----|--------------------------|--------------------------|---|
| 74. | <input type="checkbox"/> | <input type="checkbox"/> | AUDIBLE VISUAL ALARM: 23 CCR2632(c)(2)(B), 2634(b) - Alarm panel provides both audible and visual alarms. It is located in a protected area and within sight and hearing of on-site personnel and hard-wired to a dedicated circuit. |
|-----|--------------------------|--------------------------|---|

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75. **Y** **N**

CONTINUOUS - CHSC 25290.1(d), 25290.2(d), 25291(b), 25291(e) - All secondary containment systems (i.e., tank annular spaces, secondary piping, sumps, UDC) are continuously monitored by approved electronic leak detection systems that can detect the entry of hazardous substance and water.