

A GENERAL

- 1.0 Reference to General Contractor is denoted by G.C.
- 2.0 G.C. shall handle and install all items per manufacturer's instructions and these drawings.
- 3.0 G.C. shall keep site free of waste and rubbish at all times.
- 4.0 G.C. shall ensure compliance with OSHA and all other regulations and Owner's retail facility construction requirements, and comply with all applicable codes and regulations. (See Appendix A, Installation Checklist, for more information on compliance requirements, except as described in B-9, shall be G.C. responsibility.

B. UST SYSTEM REMOVAL AND DISPOSITION PROCEDURES

1.0 HEALTH & SAFETY

- 1.1 TANK REMOVAL CONTRACTOR (TRC) SHALL ENSURE COMPLIANCE WITH OSHA AND ALL APPLICABLE PERMITS AND REGULATIONS, INCLUDING THESE PROCEDURES AND CONTRACT REQUIREMENTS. AMERICAN PETROLEUM INSTITUTE (API) RECOMMENDED PRACTICE 1604 (CLOSURE OF UNDERGROUND PETROLEUM STORAGE TANKS) SHALL BE USED AS A PRIMARY REFERENCE.
- 1.2 SAFETY RESPONSIBILITIES OF THE TRC INCLUDE, BUT ARE NOT LIMITED TO: PARTICIPATE IN THE PRE-CONSTRUCTION SAFETY MEETING ONLY SITE SAFETY MEETING EMERGENCY RESPONSE PROCEDURES AND IMPLEMENTATION SITE SECURITY COMPLETION OF ALL APPLICABLE CONSTRUCTION PROJECT FORMS PROVIDING OSHA CERTIFIED PERSON WHEN REQUIRED ON SITE PROVIDING HEALTH & SAFETY PLAN (HASP) ISSUE A HOT WORK PERMIT ON SITE AND MAINTAIN AS WARRANTED BY SITE CONDITIONS, FOR EXAMPLE, USTS ON SITE, SOIL IMPACTED ABOVE IGNITABILITY LIMITS, ETC. NOTIFYING FIRE DEPARTMENT AND OTHER AGENCIES, AS REQUIRED ENSURING TANKS ARE PROPERLY VENTED AT ALL TIMES ENSURE ALL ARC PRODUCING OPERATIONS ARE ISOLATED/GROUNDED AS APPROPRIATE TO PREVENT FIRE/EXPLOSION KEEPING SITE FREE OF WASTE AND RUBBISH. PROVIDE ON SITE FIRE PROTECTION CAPABLE OF COVERING THE EXCAVATION AREA, A MINIMUM OF TWO EACH 20 # ABC FIRE EXTINGUISHERS (RECOMMEND 20 #10-A-80-B; C) ARE REQUIRED FOR THE WORK AREA.

1.3 WORK PROCESS

- TRC IS RESPONSIBLE FOR THE APPLICABLE PORTIONS OF THE UST SYSTEM REMOVAL CHECKLIST AND REQUIREMENTS OUTLINED IN THE REQUEST FOR PROPOSAL.
- TRC IMPLEMENTS THE WASTE MANAGEMENT PLAN.
- TRC IS RESPONSIBLE FOR ALL SITE WORK AS FOLLOWS UNLESS WORK RESPONSIBILITY IS SPECIFICALLY ASSIGNED TO OTHERS.

DUE TO EXTREMELY HAZARDOUS POTENTIAL, PERSONNEL SHALL NOT ENTER A MOTOR FUEL OR MOTOR OIL STORAGE TANK WHETHER OR NOT THE TANK HAS PREVIOUSLY CONTAINED HYDROCARBONS.

1.4 WASTE MANAGEMENT PLAN

NOTE: ONLY EXXONMOBIL-APPROVED WASTE RECYCLING, TREATMENT OR DISPOSAL FACILITIES (AWSL) SHALL BE USED.

- 1.4.1 REFER TO THE APPROVED SITE-SPECIFIC WASTE MANAGEMENT PLAN (WMP) DEVELOPED BY THE PM AND PC. USE THE WASTE MANAGEMENT GUIDELINES FOR SUPPORT/REFERENCE. THE WASTE MANAGEMENT PLAN SHOULD INCLUDE, BUT IS NOT LIMITED TO: A DISPOSITION OR TREATMENT PLAN FOR ALL ANTICIPATED WASTES. PLAN FOR MANAGING WASTE MANIFEST AND REQUIREMENTS TO INCLUDE SPECIFIC JOB NUMBERS, WASTE DISPOSAL TIED TO EACH TANK TO BE REMOVED. PLAN FOR WASTE DISPOSAL TIED TO EACH TANK TO BE REMOVED. (NOTE: EXXONMOBIL OR TRC, NOTE: THE TRC SHALL SIGN ALL WASTE MANIFESTS.)

THE SELECTION OF STOCKPILE LOCATIONS AND STOCKPILE BERM DESIGN FOR MATERIALS (SOIL, GRAVEL, DEBRIS) IMPACTED WITH USED OIL, GASOLINE, DIESEL, HYDRAULIC OIL, ETC. A WASTE MINIMIZATION PLAN, WHICH MAY INCLUDE PLANS FOR REUSE OF MATERIALS ON SITE, IF ALLOWED.

- 1.4.2 TRC SHALL RENDER TANKS UNUSABLE, DISPOSE OF TANKS AND PROVIDE EXXONMOBIL WITH REQUIRED DISPOSAL DOCUMENTATION.
- 1.5 REMOVAL & DISPOSITION OF EXISTING UST SYSTEMS

EXCAVATION WORK SHALL NOT COMMENCE UNTIL EXXONMOBIL'S REMEDIATION CONSULTANT IS ON SITE. IN ADDITION, SOME STATES OR JURISDICTIONS REQUIRE THAT AN INDIVIDUAL CERTIFIED FOR TANK CLOSURE WORK BE ON SITE TO COORDINATE THE CLOSURE WORK. IN THIS CASE, CLOSURE WORK MUST NOT COMMENCE UNTIL BOTH THE CERTIFIED INDIVIDUAL AND THE REMEDIATION CONSULTANT ARE ON SITE.

- 1.5.1 ISSUE A HOT WORK PERMIT FOR SITE AND MAINTAIN AS WARRANTED BY SITE CONDITIONS. SOME EXAMPLES: LISTS ON SITE, PROJECT LINES IN PLACE, SOIL IMPACTED ABOVE IGNITABILITY LIMITS, NAPL IN TANK-FIT OR LINE TRENCHES, FLAMMABLE VAPORS PRESENT, ETC.

- 1.5.2 ALL SPARK PRODUCING OR HEAT GENERATING EQUIPMENT NOT CERTIFIED EXPLOSION-PROOF MUST BE LOCATED A MINIMUM DISTANCE OF 50 FT. AWAY FROM THE TANK OPENING UNTIL THE LISTS ARE GAS FREE. NOTE: WHERE 50 FT. MINIMUM CAN NOT BE MAINTAINED, ALTERNATE MEASURES MUST BE DEFINED IN THE HOT WORK PERMIT TO ISOLATE THE EQUIPMENT OF CONCERN, OR MITIGATE VAPOR MIGRATION. FOR EXAMPLE, FIRE-WATCH SPECIFIC TO THE EQUIPMENT, SHUT OFF THE EQUIPMENT, WET DOWN SOURCE AREAS, ERECT A VAPOR BARRIER FENCE AT THE SOURCE AREA, ETC.

- 1.5.3 NO SPARK PRODUCING EQUIPMENT, WORK OR HEAT GENERATING SOURCE (E.G., CATALYTIC CONVERTER) IS ALLOWED IN THE HOT WORK PERMIT AREA (50 FEET) DURING VAPOR REMOVAL OPERATIONS (TANK DE-GASSING).

- 1.5.4 REMOVE ALL VENT CAPS FROM ALL TANK VENT RISERS.
- 1.5.5 DRAIN PRODUCT FROM PIPNO SYSTEM INTO TANK BY REMOVING STP CHECK VALVE AND OPENING SAFETY (SHEAR) VALVE TEST PORTS AT EACH DISPENSER ISLAND.

- 1.5.6 BEGINNING AT THE FURTHEST POINT FROM THE TANKS, PURGE THE PRODUCT PURGING BY APPLYING NITROGEN (5 PSI MAXIMUM) AT EACH SHEAR VALVE TEST PORT, AT EACH DISPENSER ISLAND, TO ENSURE AS MUCH PRODUCT AS POSSIBLE IS DRAINED INTO THE TANKS. THE STORAGE TANK VENTS MUST BE OPERATIONAL DURING THIS PROCESS. CAUTION: DO NOT PURGE PIPING WITH COMPRESSED AIR.

CAUTION: WHEN APPLYING NITROGEN ENSURE PROPER ELECTRICAL GROUNDING.

- 1.5.7 BEGINNING AT THE FURTHEST POINT FROM THE TANKS, APPLY A 25% "MIRACHEM 500" AND WATER SOLUTION (MINIMUM 100 "F") AT EACH SHEAR VALVE TEST PORT, AT EACH DISPENSER ISLAND, TO ENSURE A TRIPLE RINSE OF THE PIPING VOLUME. DRAIN THE SOLUTION INTO THE TANKS. THE STORAGE TANK VENTS MUST BE OPERATIONAL DURING THIS PROCESS.

- 1.5.8 DISCONNECT THE STP UNION/SWIVEL AND TRANSFER ANY REMAINING LIQUID FROM PIPING INTO THE UNDERGROUND STORAGE TANK.
- 1.5.9 IF EXXONMOBIL APPROVES CERTAIN PIPING TO BE PERMANENTLY ABANDONED IN PLACE (E.G., UNDER AN EXISTING BUILDING), FLUSH WITH 1 GALLON "MIRACHEM 500" (FULL STRENGTH) PER EACH 50 FT. OF LINE, AND HOT WATER WASH (MINIMUM 100°F) WITH 25% MIRACHEM SOLUTION TO ENSURE A TRIPLE RINSE OF THE PIPING VOLUME. VACUUM AND MANAGE SOLUTION PER WASTE MANAGEMENT PLAN. FILL LINE WITH SAND AND CEMENT SLURRY, OR EXXONMOBIL-APPROVED EQUIVALENT.

- 1.5.10 REMOVE REMAINING LIQUIDS FROM ALL TANKS USING A VACUUM TRUCK IN LIEU OF ON-SITE STORAGE CONTAINERS. MANAGE THIS MATERIAL PER THE WASTE MANAGEMENT PLAN. DOCUMENT RESIDUAL LIQUID REMOVAL PROCESS.

DO NOT POUR RESIDUAL GASOLINE OF DIESEL FUEL INTO USED OIL TANK.

- 1.6 PIPING REMOVAL THIS WORK CAN BE SCHEDULED AROUND THE TANK REMOVAL.

- 1.6.1 REMOVE ALL PRODUCT PRIMARY AND SECONDARY PIPING BY EXCAVATION. ENSURE ALL PRODUCT HAS BEEN REMOVED FROM TANKS AND PIPING PRIOR TO REMOVING PIPE. EXTREME CARE SHOULD BE EXERCISED IN THIS ACTIVITY USING APPROPRIATE MATERIALS TO CONTAIN ANY LIQUIDS ENCOUNTERED.
- 1.6.2 REMOVE ALL VENT PIPING BY EXCAVATION. TANK MUST BE PROPERLY VENTED A MINIMUM OF 12" ABOVE GRADE.

- 1.7 EXCAVATE TO TOP OF TANK.

- 1.7.1 CHECK THE WATER TABLE LEVEL IN TANK FIELD PRIOR TO EXCAVATION IF OBSERVATION WELLS ARE PRESENT. IF CONDITIONS DIFFER FROM THE INITIAL CONDITIONS USED TO DEVELOP THE WASTE MANAGEMENT PLAN, CONTACT EXXONMOBIL'S PROJECT MANAGER TO DISCUSS PROPER DISPOSITION OF WATER.

- 1.7.2 SEPARATE CONSTRUCTION DEBRIS (E.G., CONCRETE, PIPING, ETC.) FROM EXCAVATED SOIL/GRAVEL.

- 1.7.3 MANAGE ALL EXCAVATED MATERIALS PER WASTE MANAGEMENT PLAN. NOTE: AS A MINIMUM, ALL STOCKPILED MATERIAL (EXCLUDING CONSTRUCTION DEBRIS) MUST BE PLACED ON AN IMPERVIOUS SURFACE, BERMED, AND COVERED WITH AN IMPERVIOUS MATERIAL (IF NOT CONTAINERIZED).

WALKING ON TOP OF AN EXCAVATED TANK SHOULD BE AVOIDED WHENEVER POSSIBLE. ALL SAFE ALTERNATIVES SHOULD BE REVIEWED BEFORE DETERMINING THAT A WORKER MUST WALK ON TOP OF AN EXCAVATED TANK. IF A WORKER MUST WALK ON TOP OF AN EXCAVATED TANK, IT MUST BE DEVELOPED FOR THE WORK THAT INVOLVES WALKING ON TOP OF THE EXCAVATED TANK AND THE EXXONMOBIL PROJECT MANAGER (PM) MUST REVIEW. BY USING GOOD PLANNING, THE FILL AROUND THE TANK CAN AND SHOULD BE DEVELOPED TO BE USED AS THE WALK/WORK SURFACES FOR THE MAJORITY OF WORK NECESSARY AROUND THE TANKS. IT IS RECOGNIZED THAT AT TIMES IT MIGHT BE NECESSARY TO WORK ON TOP OF TANK; HOWEVER SAFETY DEVICES SUCH AS WALK-WAYS WITH HANDRAILS, MAN LIFTS, STEPPERS, OR OTHER DEVICES, SHOULD BE USED WHEN POSSIBLE TO MINIMIZE THE RISK TO PERSONNEL. THE USE OF THESE DEVICES AND THE WORK ON TOP OF THE TANK MUST BE APPROVED IN ADVANCE BY THE EXXONMOBIL PM.

NO PERSON SHALL BE AUTHORIZED TO ENTER A TANK EXCAVATION AREA UNTIL THE PM OR PROJECT COORDINATOR HAS VERIFIED THAT IT IS SAFE TO DO SO. THIS VERIFICATION SHALL INCLUDE EVALUATION OF THE EXCAVATION BY THE (OSHA) CERTIFIED PERSON, AND VERIFICATION THAT ANY HYDROCARBON VAPORS ARE LESS THAN 10% OF THE LOWER EXPLOSION LIMIT (LEL), AS DETERMINED BY A THAN 10 COMBUSTIBLE GAS INDICATOR (CGI). NOTE: SPECIFIC OSHA REGULATIONS APPLY TO EXCAVATIONS INCLUDING OSHA 1910 AND 1926.

- 1.8 REMOVE ALL TANK APPURTENANCES, AND PLUS ALL TANK OPENINGS. ENSURE THE TANK IS PROPERLY VENTED AT ALL TIMES. TANK MUST BE VENTED A MINIMUM OF 12" ABOVE GRADE DURING VAPOR FREEZING PROCESS. DEADMAN STRAPS ARE TO REMAIN UNTIL AFTER THE TANKS HAVE BEEN RINSED.

- 1.9 VAPOR FREE TANK (TANK DE-GASSING)

1.9.1 TRC MUST ENSURE THE TANK IS VAPOR FREE, TO LESS THAN 10% OF THE LOWER EXPLOSION LIMIT (LEL) USING METHODS DESCRIBED IN API 1604 EXCLUDING PURGING WITH STEAM. EXXONMOBIL'S PREFERRED METHOD IS INSERTING BY ADDING SODIUM CARBON DIOXIDE (DRY ICE) TO THE TANK IN THE AMOUNT OF AT LEAST 1.5 POUNDS PER 100 GALLONS OF TANK CAPACITY. AN ALTERNATE METHOD IS PURGING THE TANK USING AN EDUCTOR OR DIFFUSER. (AN EDUCTOR EXTENSION SHALL BE USED TO DISCHARGE VAPORS A MINIMUM OF 12" ABOVE GRADE). FILLING THE TANK WITH WATER IS ACCEPTABLE ONLY IF APPROVED BY THE PROJECT MANAGER. IN A SITUATION WHERE TANK BALLAST IS REQUIRED, (NOTE: WATER DISPOSAL SHOULD BE COVERED IN THE WASTE MANAGEMENT PLAN).

TRC MUST BE ABLE TO PROVIDE STEAM EXXONMOBIL'S PREFERRED CALIBRATION RECORD IF REQUESTED.

TRC MUST ENSURE THE DE-GASSING EQUIPMENT IS PROPERLY GROUNDED.

- 1.10 WASH TANK ACCORDING TO THE FOLLOWING TANK WASH PROCEDURE:

- 1.10.1 TRIPLE RINSE TANK USING A 25% SOLUTION OF "MIRACHEM 500" AND HOT WATER (MINIMUM 100°F) OR APPROVED EQUAL. INITIAL RINSE MUST BE PERFORMED WHILE TANKS REMAIN IN PLACE. FINAL RINSE MAY OCCUR ABOVE GROUND AS REQUIRED TO CERTIFY TANK AS CLEAN.

- 1.10.2 PRIOR TO CLEANING A HEATING OR USED OIL TANK, FILL BOTTOM 12" OF TANK WITH A 25% (MINIMUM) SOLUTION OF "MIRACHEM 500" AND HOT WATER (MINIMUM 100°F) OR EQUAL. LET SOLUTION REMAIN IN TANK FOR 1 HOUR.

- 1.10.3 VACUUM AND MANAGE ALL SOLUTIONS AFTER EACH RINSE PER WASTE MANAGEMENT PLAN.

- 1.10.4 EXSURE PRESSURE WASH APPARATUS IS PROPERLY GROUNDED AND BONDED TO REDUCE THE POTENTIAL FOR A STATIC DISCHARGE.

- 1.10.5 TRC (OR OTHER AS REQUIRED BY LOCAL REGULATORY AGENCY) MUST CERTIFY ALL TANKS CLEAN WHILE TANKS ARE ON-SITE. REPEAT TANK WASH AS NECESSARY TO CLEAN TANK.

(NOTE: EXXONMOBIL PM MAY ELECT TO INERT AND RINSE TANKS BEFORE TANK PAD IS REMOVED).

- 1.11 TANK REMOVAL.

- 1.11.1 TRC MUST ENSURE THE TANK IS VAPOR FREE, TO LESS THAN 10 % OF THE LOWER EXPLOSION LIMIT (LEL). SEE "VAPOR FREE TANK" ABOVE.

- 1.11.2 CONNECT LIFTING DEVICES (CABLES, STRAPS, LIFTING EYES, ETC.) TO TANK AND RELEASE THE TANK'S DEADMAN STRAPS. EXPANDER MUST BE UNDOING BACKFILL TO A DEPTH SUFFICIENT TO REMOVE TANK INTACT. REMOVE TANK FROM THE EXCAVATION AND PLACE IT IN A SECURE LOCATION.

- 1.11.3 REMOVE ALL LOOSE GRAVEL/SOIL/DEBRIS FROM TANK SURFACES.

- 1.11.4 REMEDIATION CONSULTANT SHALL INSPECT TANKS AND OPEN EXCAVATION FOR EVIDENCE OF A HYDROCARBON RELEASE.

- 1.11.5 ALL TANKS MUST BE RENDERED UNUSABLE BY PLACING A MINIMUM OF THREE 12" HOLES IN THE SIDEWALL. POSITION HOLES UPWARD IN SUBSEQUENT STORAGE AND TRANSPORTATION.

- 1.11.6 TRC SHALL DETERMINE TANKS ARE READY FOR DISPOSAL.

- 1.11.7 TANKS SHOULD BE TRANSPORTED IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL REGULATIONS.
- 1.11.8 ONLY FIBERGLASS TANKS MAY BE CRUSHED ON SITE. PRECAUTIONS MAY BE REQUIRED TO MINIMIZE DAMAGE FROM AIRBORNE PIECES OF FIBERGLASS AND/OR INHALATION OF AIRBORNE PARTICLES.

- 1.11.9 PRIOR TO TRANSPORTING TANKS FROM SITE:
 - * ENSURE TANKS ARE PROPERLY VENTED.
 - * LEGIBLY LABEL EACH TANK AS FOLLOWS:

"TANK HAS CONTAINED FLAMMABLE LIQUIDS AND/OR PETROLEUM HYDROCARBONS. NOT GAS FREE, NOT SUITABLE FOR FOOD OR DRINKING WATER"

- 1.11.10 IMMEDIATELY PRIOR TO TRANSPORTING TANK, TRC MUST ENSURE THE TANK IS VAPOR FREE, TO LESS THAN 10% OF THE LOWER EXPLOSION LIMIT (LEL). SEE "VAPOR FREE TANK" ABOVE.

- 1.12 BACKFILL APPLICATION:

1.12.1 BACKFILL AND PAVE DISTURBED AREA PER SPECIFICATIONS. UNLESS SPECIFIED ELSEWHERE, USE IMPORTED CLEAN FILL OR: WHERE ALLOWED AND PRACTICAL TO DO SO, USE EXCAVATED SOIL AS FILL MATERIAL. FILL MATERIALS SHALL BE COMPACTED TO 90% OF THE OPTIMUM DENSITY BASED ON STANDARD PROCTOR COMPACTION TESTS. EXXONMOBIL RESERVES THE RIGHT TO HAVE FIELD TESTS PERFORMED TO CONFIRM THE SUITABILITY OF ANY FILL MATERIAL. COVER DISTURBED AREAS WITH APPROXIMATELY 6 INCHES OF COMPACTED AGGREGATE.

- 1.13 REMOVAL & DISPOSAL OF LIFTS

- 1.13.1 EVALUATE HYDRAULIC FLUID FROM RESERVOIR AND CYLINDER.
- 1.13.2 REMOVE RESERVOIR AND LIFTS AND PLACE ON AN IMPERVIOUS SURFACE UNTIL REMOVED FROM SITE.

- 1.13.3 EXXONMOBIL'S REMEDIATION CONSULTANT MUST VERIFY EXTENT OF EXCAVATION.

- 1.13.4 MANAGE HYDRAULIC FLUID AND EXCAVATED MATERIALS PER WASTE MANAGEMENT PLAN.

- 1.13.5 PREPARE LIFTS, RESERVOIRS, PIPING, AND LIFT CYLINDERS FOR DISPOSAL. RINSE AS DESCRIBED ABOVE AS REQUIRED.

- 1.13.6 BACKFILL APPLICATION:
 - UTILIZE EXCAVATED MATERIALS WHERE ALLOWED AND PRACTICAL. USE IMPORTED CLEAN FILL FOR ALL OTHER BACKFILL APPLICATIONS.

- 1.14 REMOVAL & DISPOSAL OF OIL WATER SEPARATORS (OWS)

- 1.14.1 EVACUATE FLUIDS FROM OWS.

- 1.14.2 FLUSH FILL LINES AND RINSE AS DESCRIBED ABOVE AS REQUIRED.

- 1.14.3 WASH OWS PER TANK WASH PROCEDURE AS DESCRIBED ABOVE.

- 1.14.4 REMOVE OR CLOSE OWS IN PLACE AS DIRECTED BY PM / PC.

C EXCAVATION

NO PERSON SHALL BE AUTHORIZED TO ENTER A TANK EXCAVATION UNTIL OWNER'S ENGINEER HAS VERIFIED SAFE TO DO SO. THIS VERIFICATION SHALL INCLUDE EVALUATION OF THE TANK, THE EXCAVATION DESIGN AND VERIFICATION THAT ANY HYDROCARBON VAPORS ARE LESS THAN 10% OF THE LOWER EXPLOSION LIMIT (LEL) AS DETERMINED BY A COMBUSTIBLE GAS INDICATOR (CGI). IN ADDITION, PERSONNEL ENTERING THE TANK EXCAVATION SHALL WEAR AN OSHA APPROVED HARD HAT AND A SAFETY HARNESS WHICH SHALL BE ATTACHED TO GRADE WITH A SAFETY LINE. EXCAVATION SHALL ALSO HAVE ALL OSHA APPROVED LADDER IN POSITION AT ALL TIMES FOR IMMEDIATE EMERGENCY EGRESS.

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- 1.0 EXCAVATION shall be cut as specified in design provided at bidding.

- 2.0 Prior to tankfield excavation, G.C. shall excavate a 4' deep test hole for a preliminary soil structure assessment by owner's engineer.

- 3.0 Based on preliminary engineering assessment, tankfield excavation may proceed in accordance with the design provided at bidding.

- 4.0 Tank field excavation shall not be performed until sides have been shored, braced or sloped as designed and determined solely by owner's engineer.

- 5.0 Excavation shall be sized to provide a minimum 1 ft tank bed, 2 ft or 3ft between tanks and 2 ft between tank sides/end caps and excavation walls. When soil has less than 750 lbs./sq. ft. cohesion as calculated from an unconfined compression test or less than 3500 lbs./sq. ft. ultimate bearing capacity, increase the distance between the tank sides/endcaps and excavation walls to the tank diameter.

- 6.0 Owner reserves the right to design and/or construct shoring under an amended agreement with G.C. or separately with another company. If Owner engages G.C., G.C. shall submit shoring design to owner's engineer for approval. Supplemental job scope and cost shall also be agreed to in terms of a contract change order prior to commencing work. Shoring shall be removed prior to installing product piping.

DO NOT ABANDON SHORING IN PLACE

- 7.0 Install a fiber fabric liner when soil is unstable, i.e., have less than 250 psf cohesion or ultimate bearing capacity less than 500 psf.

D TANKS

- 1.0 Tank manufacturer's installation checklist shall be initiated/signed by G.C. and owner's engineer, as appropriate, as each step is completed.

- 2.0 Lifting equipment shall be adequate to handle tank without dropping. Use of lifting lugs and gaskets when lifting tanks. Rest tanks on smooth and debris free ground. Check tanks to prevent rolling. Do not drag tanks.

- 3.0 TESTING (Prior to setting tanks).

- 3.1 G.C. shall notify owner's engineer two working days prior to testing and tank installation. Tanks shall be set and backfilled to top of tank the same day as testing.

OWNER'S ENGINEER SHALL WITNESS TANK TESTING AND SETTING

CAUTION: DO NOT:

- 1) LEAVE PRESSURIZED TANKS UNATTENDED.
- 2) APPROACH TANK ENDS OR FLUSS OF PRESSURIZED TANK.
- 3) EXCEED 5 psi in ANNUAL SPACE OR PRIMARY TANK.
- 4) ATTEMPT TO REPAIR A DAMAGED TANK.
- 5) APPLY AIR PRESSURE TO ANY TANK WHICH HAS CONTAINED MOTOR FUEL.

- 3.2 FOLLOW THE TANK MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR TESTING THE WELLS OF THE TYPE OF TANK BEING INSTALLED. THERE ARE VERY DIFFERENT PROCEDURES FOR TANKS WITH BRINE FILLED OR DRY INTERIORS.

- 4.0 INSTALLATION:

- 4.1 Installing contractor shall be certified by tank manufacturer on proper tank installation procedures.

- 4.2 Bedding and backfill material shall be well washed and free of ice and snow and must be work backfill completely under tank for quality and soundness. G.C. shall provide above analysis acceptable to owner's engineer. The following materials may be used:

- 4.2.1 Peg gravel with particle size not less than 1/8" or more than 3/4" diameter with no more than 5% passing a No. 8 sieve. Dry gravel density no less than 95 pounds per cubic foot.

- 4.2.2 Crushed stone with particle size not less than 1/8" or more than 1 1/2" diameter with no more than 5% passing a No. 8 sieve. Dry gravel density no less than 95 pounds per cubic foot.

- 4.3 Standard Installation:

- 4.3.1 Place minimum 12" bedding material smooth and level over excavation floor.

- 4.3.2 SLOPE TANKS 1" TOWARD THE FILL END ON bedding material. USE ALL LIFTING LUGS provided and guide ropes at each tank end. (DO NOT SET tanks directly on deadman or concrete slab if used.)

- 4.3.3 Place 12" backfill material evenly around tank. Use wooden shovel probe to work backfill completely under tank between ribs and under endcaps.

- 4.3.4 Repeat D-4.3.3 for next 12", probing to fill all voids.

- 4.3.5 Freely add additional backfill to tank tops. (Additional probing not required.)

- 4.4 Alternate Installation: (in lieu of shoring)

- 4.4.1 Place minimum 18" bedding material at end cap locations.

- 4.4.2 Set tanks on end cap walls. Use 1/2" thick steel plates to increase tank stability and guide ropes at each tank end. (Do not set tanks directly on deadman or concrete slab if used.)

- 4.4.3 Add backfill at each end cap to stabilize tank. Pump backfill to within 3 ft. of excavation top.

- 4.4.4 Add backfill along sides of tanks adjacent to excavation sidewalls by dumping a full bucket of backfill in one place from a minimum of 6 ft. above tank top. Use a long handled probe with curved end (or air jet per tank manufacturer's specifications) while standing at top of excavation to move backfill under tank sides. Repeat this procedure until backfill is up the tank sides.

- 4.4.5 Without probing, add additional backfill and ramp to within 3 ft. of excavation top.

- 4.4.6 Add backfill between tanks by dumping a full bucket in one place from a minimum of 6 ft. above tank top. After excavation is complete, use a long handled probe with curved end (or air jet per tank manufacturer's specifications) to move backfill under tank sides and end caps. Repeat this procedure until backfill is up the tank sides.

- 4.4.7 Without probing, add additional backfill to tank tops.

- 4.5 Wet Excavation Conditions:

- 4.5.1 G.C. shall be responsible to evacuate up to 500 GPM of water from excavation if water level exceeds 500 GPM or require shoring, consult owner's engineer. Use the applicable local, state, and federal regulations.

- 4.5.2 G.C. shall be responsible to evacuate up to 500 GPM of water from excavation if water level exceeds 500 GPM or require shoring, consult owner's engineer. Use the applicable local, state, and federal regulations.

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- 4.5.25 G