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IMPLEMENTATION PLAN FOR TESTING FACILITY GROUP 1 UNDERGROUND STORAGE TANKS FEED MATERIALS PRODUCTION CENTER FERNALD, OHIO AUGUST 1988

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IMPLEMENTATION PLAN FOR TESTING FACILITY GROUP 1 UNDERGROUND STORAGE TANKS FEED MATERIALS PRODUCTION CENTER FERNALD, OHIO

AUGUST 1988

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IMPLEMENTATION PLAN FOR TESTING
FACILITY GROUP 1 - UNDERGROUND STORAGE TANKS
FEED MATERIALS PRODUCTION CENTER
FERNALD, OHIO

1.0 INTRODUCTION

This implementation plan (plan) identifies and defines the activities involved in the testing of the Facility Group 1, Underground Storage Tanks (USTs) described in the Work Plan Addendum, Section 4.2.1.7, Facility Testing Work Plan dated July 1988. The USTs refer to the UST systems, including both the USTs and the associated piping located at the Feed Materials Production Center (FMPC).

The USTs will be tested using the Petro Tite tank and line testing methods, if possible, to determine their integrities. The Petro Tite tank testing (Petro Tite) method involves a careful compensation for the effects of most of the variables affecting the volume of the product in an UST. Compensation will be made for the effects of temperature, UST deformation/end deflections, and opposing ground water pressure. Any remaining losses will be considered as release due to leakage. The test results will be documented on data sheets, which will include associated testing procedures and readings for each UST.

The remainder of this chapter includes the purpose of this plan and the scope of the work. Chapter 2.0 provides information on each UST and describes the associated procedures, required equipment, and difficulties for testing. Chapters 3.0 and 4.0 provide the testing results documentation and health and safety procedures, respectively. A quality assurance/quality control (QA/QC) plan for UST testing and data management is provided in Chapter 5.0. Appendix A provides technical information for the Petro Tite tank and line testing principals and general procedures which are used for testing an UST. Finally, Appendix B provides details for tailgate safety meetings to be set for the personnel involved in each test prior to the testing.

1.1 PURPOSE

The purpose of this plan is to define the methods and procedures to be used for determining the rates of release, if any, from the USTs located at the

FMPC site. This plan will be implemented so as to conclude that each UST is either: a) tight as per National Fire Protection Association (NFPA) 329-1987, which states that "underground storage tanks up to 12,500 gallons in size will have a tolerance of plus or minus 0.05 gallons per hour (gph)" or b) not tight, in which case as per NFPA 329, an estimate will be provided as to the existing leak rates for the UST during the testing period. If for any reason a conclusive test cannot be performed on an UST, any modifications to that UST and arrangements for retesting the UST will have to be made on a case-by-case basis. This plan only accounts for the single testing of each UST. Lines attached to the USTs will be tested, if possible, and their tightness will also be compared to NFPA criteria. The objectives of this plan are to:

- Identify an efficient, timely, and accurate method of testing to determine past and present integrity of each UST indicated in Section 1.2, Scope of Work
- Identify testing equipment and requirements for UST testing
- Specify the health and safety procedures for UST testing
- Specify the documentation requirements for UST testing
- Specify the training requirements for team members for UST testing

1.2 SCOPE OF WORK

This plan involves the testing of 12 USTs located at the FMPC sites in the production area. Characteristics and locations of these USTs are indicated in Table 1.

In order to determine the effect of ground water on the USTs, a monitoring well must be established at each of the UST locations. One well can serve for several USTs where the USTs are in close proximity. It is assumed that these monitor points will be installed at all USTs that are to remain in service. Temporary borings will be used for out of service USTs. Permanent wells will be two-inch PVC wells installed with hollow-stem auger equipment.

All excavation works will be performed by Westinghouse Materials Company of Ohio (WMCO).

2.0 UST TESTING

2.1 PURPOSE

This chapter provides the sequence of steps to be followed in performing a valid Petro Tite test on the USTs.

2.2 TESTING PROCEDURE

The testing procedure for the USTs can be broken down into four activities as follows:

- Pretesting
- Testing
- UST modification
- Posttesting

2.2.1 Activity 1 - Pretesting

The following will be performed prior to an UST testing:

- At least the night prior to UST testing, the UST will be completely filled with the appropriate product, be it gasoline, diesel fuel, kerosene, or water.

- Ground water monitoring points will be installed, as close to each UST as possible, inside the UST excavation. If requested by WMCO, the cuttings from these borings will be examined for the presence of petrochemicals.

- All access to the UST, the UST fittings, product dispensers, and power supply must be made available prior to testing.

- Proper approvals will be obtained and proper work permits filled out for any work that may have to be done to complete a timely test of the UST. This includes radiation work permits, excavation permits if necessary, applications and arrangements to carry top-off product to the testing site and store it at the site, notification of downtime on any facility, and other applicable details.

- A check to verify that the fill pipe size matches the Petro Tite probe dimension will be made and any modifications necessary will be performed.

2.2.2 Activity 2 - Testing

Once all of the above requirements have been satisfied, the actual test of the USTs will begin as follows, in an order that allows maximum productivity:

- The Petro Tite probe is attached to the UST fill pipe and all lines leading to the UST are closed off.

- The UST and standpipe are filled with product or water and air pockets are bled off, if possible.

- The water level next to the UST is measured and the four-pound rule, described in Appendix A, is applied to compensate for any water table effect. The liquid in the standpipe is set to the 42-inch mark and the high-level test commences.

- The product is circulated in the UST for the appropriate length of time, depending on the density and amount of product in the UST.

- After the product has been circulated for an acceptable length of time, the American Petroleum Institute (API) gravity is taken to determine the coefficient of thermal expansion of the product, using the reciprocal method recommended by the manufacturer.

- At this point, 15-minute readings are taken to establish the behavior of the UST. The number of readings taken depends on the diameter of the UST being tested to allow for sufficient end deflection, between 6 and 12 readings. Each 15-minute reading consists of seven steps, as outlined below:

Step	Time	Event
i	Approximately 1 minute prior	Record liquid level in graduate
ii	Approximately 30 seconds prior	Record level in monitoring point
iii	Exactly "on"	Zero sensor meter
iv	Immediately following	Record liquid level in standpipe
v	Immediately following	Restore liquid level in standpipe to 42 inches
vi	Next	Record sensor reading
vii	Next	Record liquid level in graduate

- Once the correct number of high-level test, 15-minute readings have been taken (allowing more for fiberglass USTs) and there appears to be good circulation in the UST and air/vapor pockets are not in evidence, the decision to proceed to the low-level test is made. The low-level is established by removing product from the system until the standpipe level reads 12 inches.

- A minimum of five low-level readings are taken, restoring the liquid level to 12 inches each time. More readings are taken if the UST shows evidence of continued contraction.

- An on-site analysis is performed with the field data and the determination of a valid test and whether the UST is tight as per NFPA 329 is made.

- Using a magnetically automatic air-bleed attached to the Petro Tite Line Tester, all entrained air is quickly removed from any suction pump lines for tightness testing. The line will be pressured at 150 percent of the operating pressure. If pressure is lost, the necessary liquid measured to 1/1,000 gallon (or 2.5 milliliter [ml]) will be reintroduced to restore the pressure. Measurement of the leak will be by time/volume. Tight lines can be certified in as little as 15 minutes.

- The lines which are sealed off and cannot be tested for tightness will be located with a metal detector or any other available evidences. Limited soil samples will be collected along and beneath these lines to confirm if any soil contamination exists due to past releases of contamination from the lines.

2.2.3 Activity 3 - UST Modification

The following procedures are only performed if a test has been performed but an inconclusive results has been obtained. Only the applicable procedures will be applied. Once they have been completed to the satisfaction of the task leader, the UST will be retested. These procedures are not accounted for in this implementation plan and any budgeting and scheduling plans will not account for the possible retesting of an UST.

- If the test has failed due to erratic and inconclusive readings in the gains/losses column, it is likely that entrapped air/vapor pockets are a problem. Among possible solutions to this problem are bleeding any lines running to dispensers or check valves, clearing plugged vent lines, excavation to the UST top and bleeding air from an unused port, or sealing off abandoned lines at the UST instead of at the ground surface. Any or all of these solutions are likely to permit the UST to be tested again with conclusive results.

- If the test has failed due to erratic reading from the thermistor probe, it is likely that poor circulation of the product is a problem. This can be remedied by careful orientation of the discharge jet. Careful analysis of as-built plans as well as a walkover with a metal detector to determine UST orientation will usually result in adjustments that remedy poor circulation.

- A number of other factors will result in an inconclusive test. The solution to these problems is often determined on practical expertise and site knowledge and will be examined on case-by-case basis.

2.2.4 Activity 4 - Posttesting

Once a conclusive test has been performed, the following steps will be taken to return the site to its original condition and report the results of the test to the necessary persons:

- The excess product is drained off and disposed of properly
- The area is cleaned up, equipment decontaminated, if applicable, and the monitoring point sealed
- Any areas excavated during the test are filled in, subject to health and safety requirements, and the direction of WMCO
- A clear, concise data form is submitted to WMCO and data management for entry into the FMPC remedial investigation/feasibility study (RI/FS) data base

2.3 IMPLEMENTATION OF UST TESTING

Since the USTs involved in the testing are not identical, each UST is expected to require slightly different procedures. Based on a walkover conducted on June 16, 1988, the following procedures are expected to be performed on each of the respective USTs. Generally, the Petro Tite tank and line testing methods will be used for tightness testing. Details on these methods are presented in Appendix A.

Each test is initiated with a high-level test. If the data indicates the UST is in good condition, the test will proceed to the low-level test. If the UST fails the high-level test, the WMCO Task Manager will be informed and no further action will be taken until directed by WMCO to proceed.

2.3.1 UST No. 1

A 1,500-gallon spherical fiberglass UST, located just west of the pump island at the garage, is approximately six years old, is being used for the storage of gasoline, and appears to be easily testable. One line extends to a suction pump located on the pump island.

No real difficulty is expected in testing this UST. The UST will be filled with gasoline to the top of the fill pipe at least the night before the test to allow the temperature of the product to equilibrate to ground temperature

and reduce UST deformation/end deflection problems, as fiberglass has a tendency to deflect more than steel. Some time before the test, a monitoring point will be installed between USTs Nos. 2 and 11.

A Petro Tite probe will be inserted into the fill pipe of the UST, the suction pump lines sealed off, and the standpipe filled with product. After circulating the product for at least 10 minutes, eight 15-minute readings will be taken in high-level test. If the data appear good, the test will proceed to the low-level test and at least five 15-minute readings will be taken and the sum of the final four readings will be compared to the NFPA 329 precision test criteria of plus or minus 0.05 gph.

After the UST has been tested, a Petro Tite line test will be performed on the single suction line associated with the UST, comparing it to the criteria for lines, or a 0.025 gph leak rate, tested at 150 percent operating pressure. It is expected that the entire test for UST and associated piping will require approximately six hours.

2.3.2 UST No. 2

A 1,500-gallon spherical fiberglass UST, identical to UST No. 1, located just west of the pump island at the garage, is expected to require similar procedures as those described above, and also require approximately six hours for testing the UST and associated piping.

2.3.3 UST No. 8

A 12,250-gallon steel UST, located at the engine house adjacent to the railroad tracks, is approximately 35 years old and is being used to store diesel fuel. This UST has a single suction line pump. There are several three-inch lines leading to the UST which should be acceptable as entry points for the Petro Tite probes for testing.

The UST will be filled with diesel fuel to the top of the fill pipe two days before the test to allow the temperature of the product to equilibrate to ground temperature. Some time before the test, a monitoring point will be installed next to the UST.

Two Petro Tite probes will be used for this test because of the size of the UST. Probes will be inserted into two of the lines leading to the UST, the suction pump lines sealed off, and the standpipe filled with product. After circulating the product for at least 45 minutes, twelve 15-minute readings will be taken in high-level test. Once the data appear good, the test will proceed to the low-level test and at least five 15-minute readings will be taken and the sum of the four readings will be compared to the NFPA 329 precision test criteria of plus or minus 0.05 gph.

After the UST has been tested, a Petro Tite line test will be performed on the single suction line associated with the UST, comparing it to the criteria for lines, or a 0.025 gph indicated leak rate, tested at 150 percent of operating pressure. It is expected that the entire test for UST and associated piping will require approximately eight hours.

2.3.4 UST No. 4

A 3,000-gallon steel UST, located near the Plant 1 truck dock is approximately 35 years old and is being used to store kerosene. This UST is equipped with a pump with a single suction line. Personnel working in the vicinity of this UST state that this UST usually remains empty.

The UST will be filled with kerosene to the top of the fill pipe at least the night before the test to allow the temperature of the product to equilibrate to ground temperature. Water will be used if WMCO indicates that the UST is being abandoned and does not wish to test with kerosene. Some time before the test, a monitoring point will be installed between USTs Nos. 4 and 12.

The Petro Tite probe will be inserted into the fill pipe of the UST, the suction pump lines sealed off, and the standpipe filled with product. After circulating the product for at least 20 minutes, six 15-minute readings will be taken in high-level test. If the data appear good, the test will proceed to the low-level test and at least five 15-minute readings will be taken and the sum of the final four readings will be compared to the NFPA 329 precision test criteria of plus or minus 0.05 gph.

After the UST has been tested, a Petro Tite line test will be performed on the single suction line associated with the UST, comparing it to the criteria for lines, or a 0.025 gph indicated leak rate, tested at 150 percent of operating pressure. It is expected that the test will require approximately six hours.

2.3.5 UST No. 5

A 200-gallon steel UST, located west of the garage, is approximately 35 years old and was used to store waste oil. The UST is no longer in use and is abandoned. Due to the orientation of the lines from this UST, it may be impossible to test this UST with Petro Tite equipment. According to the blueprints available on this UST, a single 1.5-inch line extends horizontally from the UST some nine feet west and seven feet south before surfacing inside the garage. Additionally, it is expected that the UST contains a large amount of sludge and solids that have settled to the bottom of the UST over the long life of this UST. This sludge will hamper the circulation of the fluid during the Petro Tite testing and may possibly have a different coefficient of thermal expansion than the waste oil in the UST. If it is necessary to test this UST, it will either have to be filled with oil, which then becomes unusable and difficult to dispose of, or cleaned out and tested with water, presenting the problem of disposal of the contents of this UST.

Because this UST is no longer in use and testing the UST will require excavation to the top of the UST and removal of the line anyway, it is recommended that the UST be removed and soil samples taken from below the UST to determine what leakage, if any, has occurred from this UST. The implementation plan for the UST removal will be outlined in a separate plan.

2.3.6 UST No. 6

A 1,000-gallon steel UST, located near the maintenance building, is 35 years old and is being used for storage of gasoline. The UST is operated with an emergency power supply. Similar to UST No. 5, the lines running from the UST are 1.5-inch lines and run horizontally before reaching the surface.

In order to test this UST, it will first be necessary to excavate to the top of the UST and attach a proper-sized fitting to one of the openings, most likely a two-inch pipe. Also during this time, a monitoring point will be

installed adjacent to the UST. At least the night before the test, the UST will be filled with gasoline to allow it to equilibrate to ground temperature.

The Petro Tite probe will be inserted into the opening of the UST, the suction pump lines sealed off, and the standpipe filled with product. After circulating the product for at least five minutes, six 15-minute readings will be taken in the high-level test. If the data appear good, the test will proceed to the low-level test and at least five 15-minute readings will be taken and the sum of the final four readings will be compared to the NFPA 329 precision test criteria of plus or minus 0.05 gph.

After the UST has been tested, a Petro Tite line test will be performed on the supply line associated with the UST, comparing it to the criteria for lines, or a 0.025 gph indicated leak rate, tested at 150 percent of operating pressure. It is expected that the test will require approximately 5.5 hours, not including excavation time.

2.3.7 UST No. 7

A 5,000-gallon steel UST, located north of Plant 9, is approximately 35 years old and is being used for storage of soluble oil mechanical coolant. The configuration of the UST is not suited for testing with Petro Tite. A 24-inch-diameter manhole extends above ground surface and is blocked off with a 3/8-inch flange held down by 24 bolts. The flange is equipped with a three-inch pipe vent with a 180-degree bend. The single line running to the UST from a floor drain inside Plant 9 begins below the top of the manhole and enters at the west end of the UST.

In order to test this UST, it will be necessary to remove the manhole cover and adapt it to fit a Petro Tite probe before replacing it. Additionally, the drainline will have to be sealed off at some point along its length, preferably near the UST. A number of difficulties are also presented by the material in the UST. In order to test the UST, it will be necessary to fill the UST with a similar type of material and at the conclusion of the test, at least 75 gallons of this material will have to be removed from the UST just to leave it full. This fluid material may be difficult to dispose of. Furthermore, there may be some sludge and/or solids settled out in the UST over its lifetime and these will greatly hamper any attempts at testing.

After the UST has been tested, a Petro Tite line test will be performed on the single suction line associated with the UST, comparing it to the criteria for lines or a 0.025 gph indicated leak rate, tested at 150 percent of operating pressure.

If testing with the Petro Tite is not feasible, it is recommended that either the Leak Lokator method be used for tightness testing or a limited analysis of soil samples taken along and beneath the UST using angled drilling methods to determine if any leakage from this UST has occurred.

2.3.8 UST No. 8

A 1,000-gallon steel UST, located just east of the garage, is approximately 35 years old and was used to store gasoline. It is no longer in use and is abandoned. This UST is supposedly filled with water and all lines leading from it are sealed off. The only line visible appears to be an old three-inch fill pipe which has been filled with concrete. It is not known how much of the pipe or UST is filled with concrete.

Before the test can proceed, the fill pipe will have to be cleared of concrete by various methods, such as a concrete drill or hammer and chisel. The UST will be filled with water to the top of the fill pipe at least the night before the test to allow the temperature of the water to equilibrate to ground temperature. Some time before the test, a monitoring point will be installed next to the UST.

The Petro Tite probe will be inserted into the fill pipe of the UST and the standpipe filled with water. After circulating the water for at least ten minutes, six 15-minute readings will be taken in the high-level test. If the data appear good, the test will proceed to the low-level test and at least five 15-minute readings will be taken and the sum of the final four readings will be compared to the NFPA 329 precision test criteria of plus or minus 0.05 gph. It is expected that the test will require approximately 4.5 hours, excluding work necessary to clear the fill pipe.

Because the lines associated with this UST cannot be tested with the Petro Tite method, associated lines will be located using a metal detector and

limited soil sampling will be conducted along and beneath the lines. This will confirm if any soil contamination exists due to past releases of contamination from the lines. If the lines are no longer present, the past location of the lines will be identified using available data or minimal excavation and limited soil sampling will be conducted in the former line trenches.

2.3.9 UST No. 9

A 1,000-gallon steel UST, located north and east of the garage, is approximately 35 years old and was used to store gasoline. It is no longer in use and is abandoned. There appears to be a three-inch fill pipe located on a concrete pad directly over the UST but it is padlocked. There may still be a single line running to a nearby pump location, although the pump itself has been removed.

In order to gain access to the UST, it will be necessary to obtain the keys to the UST. If the keys are not available, the lock will be cut off and replaced. The UST will be filled with water to the top of the fill pipe at least the night before the test to allow the temperature of the water to equilibrate to ground temperature. Some time before the test, a monitoring point will be installed next to the UST.

The Petro Tite probe will be inserted into the fill pipe of the UST and the standpipe filled with water. After circulating the water for at least 10 minutes, six 15-minute readings will be taken in the high-level test. If the data appear good, the test will proceed to the low-level test and at least five 15-minute readings will be taken and the sum of the final four readings will be compared to the NFPA 329 precision test criteria of plus or minus 0.05 gph. It is expected that the test will require approximately 4.5 hours.

Because the locations of the lines associated with this UST are not known, associated lines will be located using a metal detector and limited soil sampling will be conducted along and beneath the lines. This will confirm if any soil contamination exists due to past releases of contamination from the lines. If the lines are no longer present, the past location of the lines will be identified using available data or minimal excavation and limited soil sampling will be conducted along the former line trenches.

2.3.10 UST No. 10

A 3,000-gallon UST, located east of the garage, directly beneath the pump island for USTs Nos. 1 and 2, is approximately 35 years old and was used to store gasoline. It is no longer in use and is abandoned. It appears that the fill pipe for the UST extends up through the north end of the island.

The UST will be filled with water to the top of the fill pipe at least the night before the test to allow the temperature of the water to equilibrate to ground temperature. A monitoring point will have already been installed next to the UST during the testing of USTs Nos. 1 and 2.

The Petro Tite probe will be inserted into the fill pipe of the UST and the standpipe filled with water. After circulating the water for at least 25 minutes, six 15-minute readings will be taken in the high-level test. If the data appear good, the test will proceed to the low-level test and at least five 15-minute readings will be taken and the sum of the final four readings will be compared to the NFPA 329 precision test criteria of plus or minus 0.05 gph. It is expected that the test will require approximately 4.5 hours.

Associated lines will be located using a metal detector and limited soil sampling along and beneath the lines will be conducted. This will confirm if any soil contamination exists due to past releases of contamination from the lines. If the line is removed, the past location of the lines will be identified using available data or minimal excavation and limited soil sampling will be conducted.

2.3.11 UST No. 11

A 3,000-gallon UST, located near the Plant 1 truck door, is approximately 35 years old and was used to store gasoline. This UST, right next to UST No. 4, a kerosene tank, is no longer in use and abandoned. It appears to have had one suction line pump which has been removed.

The UST will be filled with water to the top of the fill pipe at least the night before the test to allow the temperature of the water to equilibrate to ground temperature. A monitoring point will have already been installed next to the UST during the testing of UST No. 4.

The Petro Tite probe will be inserted into the fill pipe of the UST and the standpipe filled with water. After circulating the water for at least 25 minutes, six 15-minute readings will be taken in the high-level test. If the data appear good, the test will then proceed to the low-level test and at least five 15-minute readings will be taken and the sum of the final four readings will be compared to the NFPA 329 precision test criteria of plus or minus 0.05 gph. It is expected that the test will require approximately 4.5 hours.

Associated lines will be located using a metal detector and limited soil sampling along and beneath the lines will be conducted. This will confirm if any soil contamination exists due to past releases of contamination from the lines. If the lines are no longer present, the past location of the lines will be identified using available data or minimal excavation and limited soil sampling will be conducted along the former line trenches.

2.3.12 UST No. 12

A 3,000-gallon UST is located near the Plant 1 truck dock, is approximately 35 years old, and was used to store gasoline. It is no longer in use and is abandoned. It is expected to be very difficult to test the UST. The fill lines, vent lines, and draw-off lines to the UST have all been offset horizontally from the UST. The old pump foundation can be seen but the fill and vent pipes for the UST are not in evidence. It is not even certain that the UST remains in place.

If this UST is to be tested, it will be necessary to first locate it with a metal detector and then excavate to the UST top to gain proper access to the UST. As this UST has already been abandoned, it will probably be easier to completely excavate the UST and remove it, examining the soil beneath the UST for evidence of leakage. If it is desired to test the UST in situ, the Petro Tite equipment can be assembled on the UST once the top has been excavated and tested on a procedure similar to that for UST No. 6. In addition, associated lines will be located using a metal detector and limited soil sampling will be conducted along and beneath the lines. This will confirm if any soil contamination exists due to past releases of contamination from the lines. If the lines are no longer present, the past location of the lines will be identified

using available data or minimal excavation and limited soil sampling will be conducted along the former line trenches.

If this UST is not to be tested, it is recommended that it be removed and soil sampling and analysis performed. This should be done under a separate implementation plan.

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3.0 DOCUMENTATION PROCEDURES

Documentation will be conducted during the implementation of UST testing. The data collected from surveys and analysis will be used to complete the survey map and summary report.

The required documentation is as follows:

- Medical screening
- Forty hours of health and safety (H&S) training
- Eight hours of WMCO radiation worker training
- Petro Tite certification
- Daily instrument self-checks
- Test results for each test performed
- Summary report

3.1 PURPOSE

This chapter establishes the documentation procedures for testing of the USTs located at the FMPC site.

3.2 SCOPE

This procedure details the transfer of information obtained during the testing of USTs to a common place for the development of a file for each UST tested and information to be used in preparing the detailed report upon completion.

3.3 RESPONSIBILITY

The following responsibilities will be considered for documentation:

- The field task project manager will review the test data forms for accuracy and completeness prior to formulating the draft report

- The field task project manager will maintain full responsibility for the progress reports and documentation requirements, as described in Section 3.4

- UST testing crews will be responsible for the accuracy of their test data forms and validity of their test

3.4 PROCEDURE

The following procedures will be applied for documentation associated with UST testing:

- All information available concerning the UST will be recorded on the UST test data form Items 1 through 21, prior to the test for each UST; UST retests will be so noted in Section 10 of this form

- All procedures, times, standpipe readings, graduate readings, sensor readings, calculations, and coefficients will be recorded in the proper column of the tests form during the test

- Signatures and test conclusions will be placed on appropriate lines at the conclusion of the test

- A monthly update report will be provided to WMCO on the progress of the testing activities and the scheduled completion of the project

- A draft report of the tightness of each UST tested and estimated leak rates will be compiled for the UST test data forms

- A draft report will be completed and issued to WMCO for their review and comments upon completion of the testing activities

- A final report will be prepared which includes the comments from the WMCO review of the draft report

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4.0 HEALTH AND SAFETY

The H&S of workers and the protection of the environment will be ensured by following Addendum No. 2 to the Fernald RI/FS Health and Safety Plan (Revision 3), dated March 1988. The H&S plan and addendum describes applicable policies, requirements, and procedures for the recognition and elimination of hazards to ensure the H&S of personnel performing the work, as well as the general public.

The only addition to the plan involves the concern of handling of large quantities of flammable liquids. At all times during the test, when there are flammable liquids present outside the UST, there will be two working 1016-2016 fire extinguishers at either end of the work site, in easy reach at all times.

All activities will be conducted with the lowest reasonable risk of personal injury and radiation exposure will be kept as low as reasonable achievable.

A tailgate safety meeting will be arranged for the personnel associated with each testing. Details of these meetings are summarized in Appendix B.

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5.0 QUALITY ASSURANCE

The quality of the work to be performed in UST testing and analysis will be ensured by following the Fernald RI/FS Quality Assurance Project Plan (QAPP), Revision 3, dated March 1988. The QAPP was prepared to meet the requirements of AQMS-005/80 and includes the following:

- Definition of the quality assurance (QA) objectives for the collected data in terms of precision, accuracy, completeness, and representativeness are defined in Sections 4.0 and 14.0 of the QAPP
- Definition of project personnel and their responsibilities to ensure quality are defined in Section 3.0 of the QAPP and in Revision 3 of the RI/FS Project Management Plan
- The frequency of internal quality control (QC) checks defined in Section 11.0 of the QAPP

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TABLES

TABLE 1

CHARACTERISTICS AND LOCATIONS OF UNDERGROUND STORAGE TANKS
IMPLEMENTATION PLAN FOR TESTING
FACILITY GROUP 1 - UNDERGROUND STORAGE TANKS

NO.	SIZE (gallon)	PRODUCT	MATERIAL	AGE (year)	LOCATION	STATUS
1	1,500	Gasoline	Fiberglass	6	Garage	In Use
2	1,500	Gasoline	Fiberglass	6	Garage	In Use
3	12,250	Diesel Fuel	Steel	35	Engine House	In Use
4	3,000	Kerosene	Steel	35	Plant 1 Truck Dock	In Use
5	200	Waste Oil	Steel	35	Garage	Abandoned
6	1,000	Gasoline	Steel	35	Maintenance Shops Building Change	In Use
7	5,000	Soluble Oil Mechanical Coolant	Steel	35	Plant 9 (North Side)	In Use
8	1,000	Gasoline	Steel	35	Garage	Abandoned
9	1,000	Gasoline	Steel	35	Garage	Abandoned
10	3,000	Gasoline	Steel	35	Garage	Abandoned
11	3,000	Gasoline	Steel	35	Plant 1 Truck Dock	Abandoned
12	3,000	Gasoline	Steel	35	Plant 1 Truck Dock	Abandoned

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APPENDIX
A

APPENDIX A

PETRO TITE TANK AND LINE TESTING IMPLEMENTATION PLAN FOR TESTING FACILITY GROUP 1 - USTS

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APPENDIX A

PETRO TITE TANK AND LINE TESTING IMPLEMENTATION PLAN FOR TESTING FACILITY GROUP 1 - USTS

A.1.0 - PETRO TITE TANK TESTING

A.1.1 INTRODUCTION

During the early 1960s, members of the American petroleum Institute were interested in developing a system that could safely test gasoline tanks for leaks. A task force was established and funded, headed by Mr. Fred McLean. Mr. McLean and his associates worked to develop what is now known as the "Petro Tite Tank Tester," now manufactured by Heath Consultants, Inc.

COOL GUYS

A.1.2 WHY PETRO TITE

The Petro Tite method has been specifically designed to accommodate the several variables and difficulties that have plagued tank testing devices since their inception.

First and foremost is safety. The Petro Tite method applies a low pressure to the tank (less than 5 psi at the tank bottom). Additionally, the test uses the material contained in the tank, resulting in a safer and more reliable test than the "air test" used as the industry standard at the time of development and prevents the dangerous practice of removing the product and storing it during the test.

A.1.3 UNKNOWN VARIABLES

One of the most difficult and obvious variables involved in tank testing is product expansion and contraction. The constantly changing temperatures in the surrounding ground, associated with the large volume of product involved, can result in a change of volume that will seriously affect the accuracy of the test. For example, gasoline that has an expansion coefficient of 0.00068 gallons per degree Fahrenheit in a 10,000-gallon tank, undergoing a 0.01 degree Fahrenheit change in temperature, will result in a 0.068-gallon change in volume, exceeding the NFPA 329 precision test criteria of plus or minus 0.05 gph.

Many solutions to this problem have been proposed, the most common being a series of temperature probes inserted into the tank to measure the "average" temperature in the tank. Unfortunately, petroleum products have a tendency to stratify, a difficult system to model, which will result in inconsistent temperature expansions and contractions. Petro Tite's solution to this problem is to circulate the product in the tank, creating one uniform temperature which is measured at one point with a thermistor probe capable of detecting changes in temperature of 1/300 of a degree Fahrenheit. A Marlow 35 gallons per minute (gpm) centrifugal pump is attached to a probe which discharges at the bottom of the tank, angled 45 degrees upwards and 45 degrees off the long axis of the tank. This angle of the jet results in a "swirling" motion in the tank which fully mixes the product. The intake for the pump is located at the top of the tank and contains the thermistor probe.

A second variable in precision tank testing is the effects of tank end deflection. The extra height of product added to fill the tank results in a deflection of the tank ends, especially in fiberglass tanks and tanks buried in loose fill. The added volume this deflection produces can appear as a loss of volume, which will be interpreted as a leak. In a 96-inch-diameter tank, for instance, deflecting 1/8 of an inch at each end will appear to lose almost eight gallons. These apparent losses have been shown to continue for several hours, even into the second day of testing. This deflection is affected by several factors, such as age of the tank, tank type, soil type, soil moisture, past filling practice, and many other variables. As a result, losses from tank end deflection cannot be predicted and taken into account during the test. Petro Tite's solution to this is to eliminate the deflection curve in two steps. The first step is called the "high-level test." In this stage, the liquid level in the standpipe is kept at 42 inches, resulting in a high level of deflection. After a predetermined period of time has passed in the high-level stage (based on tank diameter), the liquid level is lowered to 12 inches in the standpipe (called the "low-level" stage) which would cause a tank end deflection less than that which has already occurred. This causes the tank end to "rebound" to their maximum deflection for the low level and effectively eliminates tank end deflection in as little as half an hour. After this has occurred, which is a definitely noticeable effect, the final readings are made to determine the tightness of the tank. This effect is

shown in Figure A-1.

A third variable that will cause detrimental effects on tank testing is the presence of a water table outside the tank. The hydrostatic pressure exerted on the tank by this water will diminish or even mask a leak in the tank (Figure A-2). Additionally, the reduced pressure on the tank ends may cause problems with tank end deflection. For that reason, Petro Tite insists that it is necessary to monitor the water level immediately surrounding the tank. Upon finding a water level above the bottom of the tank, the operator applies what is known as the "4 pound rule." This allows the operator to raise the column of liquid above the tank to increase the pressure inside the tank, compensating for the external pressure of the water. Care is maintained that the net pressure inside the tank does not exceed 5 psi, considered the optimum testing pressure (Figure A-3).

A fourth and very detrimental variable involved in underground tanks is the presence of trapped air/vapor pockets within the tank. These pockets can be trapped by any number of reasons, i.e., inclined tanks, blanked off manways or lines, inset fill pipes, etc. (Figure A-4). The result of these pockets, should they be large enough, is erratic readings as they expand or contract at different rates from the product or cause a rapid volume drop as they escape from the system. The best way to account for this variable is to eliminate air/vapor pockets before beginning the test. If that is not possible, the circulation of the product in a Petro Tite test will often cause the pocket to exit the system before the actual volumetric readings are made. If an air/vapor pocket is still in evidence, it will show up quite clearly in the testing, as erratic changes in standpipe height, without a corresponding change in column loss. Sometimes the only recourse to removing these pockets is to excavate to the top of the tank and by opening a vent on the top of the tank, bleed the air/vapor off.

A.1.4 HOW IT WORKS

The Petro Tite tank testing procedures work by carefully tracking the volume changes in the tank while circulating the product and maintaining a constant height in the standpipe. Three sets of data are tracked during the test, in both high- and low-level stages.

The first set is the standpipe level. A three-inch-diameter standpipe, graduated in inches, is maintained at a certain level, either 42 or 12 inches. Every 15 minutes, the level to which the liquid has fallen or risen is recorded and product is added or subtracted to return the liquid to the correct level in the standpipe. The second set of numbers, the volume added or subtracted from the system, is carefully recorded with a graduated cylinder accurate to 0.005 gallons.

The third set of data is the volume associated with the temperature change. A high-sensitivity thermistor is located in the intake portal of the probe, which sits approximately six inches inside the tank. By balancing out the resistors and noting the change on the digidial from the last balance, the change in temperature can be recorded. The digidial ranges from 0 to 25,000 digits and is sensitive from 20 to 99.6 degrees Fahrenheit. This results in between 288 to 326 divisions per degree Fahrenheit, due to variances in the system. The actual number of divisions can be seen in Figure A-5. The thermistor is balanced every 15 minutes and the change in temperature is related by tank size and the expansion coefficient of the liquid to the expected change in volume of the product.

Combining the second and third sets of data results in a net volume change inside the tank. This data can be analyzed and compared to expected trends to determine if any changes in volume are due to leaks, tank end deflection, or air/vapor pockets, each of which has its own characteristic behavior. The first set of data, standpipe levels, is used to correlate the volume added or subtracted. A consistent relationship between the two values indicates a leak or tank end deflection; an inconsistent relationship is indicative of an air/vapor pocket.

Once the test has proceeded long enough to obtain sufficient tank end deflection, a lack of air/vapor pockets is concluded from consistent standpipe and graduate readings and good circulation of the product in the tank is deduced from consistent trends in the temperature column; the decision to proceed to the low-level stage of the test is made.

The liquid level in the standpipe is drained to 12 inches and the standpipe, graduate, and thermistor readings are taken as before. At least five such readings are taken to obtain representative data, more if an increase in tank volume indicates that the tank ends are still "rebounding" in. The last four net changes in volumes are summed in the tank. Should this be less than 0.05 gph, the tank is tight and has passed according to NFPA 329 criteria. If the result was greater than 0.05 gph change in volume and the operator did not observe any air/vapor pockets, this sum approximates the leakage rate in the tank.

A.1.5 WHAT IS NEEDED

In order to test a tank by the Petro Tite method, the first thing needed is a compatible tank. In order for the pump discharge and thermistor probe to be inserted and sealed in the tank, a three-inch opening (or two-inch opening if a two-inch Petro Tite probe is available) leading directly down into the tank is required. Additionally, if a drop tube, a pipe which directs incoming product to the bottom of the tank, is present, it will have to be removed or there will not be adequate circulation of the product. The second thing required is a full tank. The tank must be as full as possible within the fill pipe, if at all possible. Additional product is necessary to have on hand to fill the standpipe and keep the graduate full during the test. A final thing required from the tank is an accurate as possible rating of the volume contained in the tank. The better the true volume of the tank is known, the better the thermal expansion can be calculated.

A vital requirement for the test is a proper Petro Tite tank testing kit. The major components of the kit include:

- Centrifugal pump with explosion-proof switch
- T-assembly with connections
- Thermal sensor
- Top and bottom discharge assemblies
- Discharge tube assemblies (two-, three-, and four-foot lengths)
- Standpipe assembly
- Graduated cylinder with hose and stopcock
- Compete API conversion kit, including tables

- Hand pump
- Inlet pipe thermistor probe assembly
- Thermometer

In order for a valid test to be performed, it is vital to monitor for the presence of a water level around the tank. This requires a monitoring point be installed as close to the tank as possible. A three-inch hand-held auger will usually suffice for this and open-ended PVC pipe will hold the boring open during the test.

Along with the proper equipment, qualified personnel are required, at least one of which must have a Petro Tite Tank Tester certification. Additional personnel should at least be familiar with the procedure but do not need to be certified.

A.2.0 PETRO TITE LINE TESTER

The Petro Tite Line Tester (line tester) by Heath Consultants, Inc., is a fully hydraulic system which can be used independently for testing lines associated with UST or can be used in conjunction with the Petro Tite Tank Tester as an overall accurate test method for UST testing.

Using the magnetically automatic air-bleed attached line tester, entrained air is removed. The desired hydraulic pressure is achieved by the self-contained hand pump. The pressure applied to the piping leading back to the angle check at an UST or the remote pump. If pressure is lost, the necessary liquid measured to 1/1,000 gallon (or 2.5 ml) will be reintroduced to restore the pressure. Measurement of the leak will be by time/volume. By installing the test connector in advance, tight lines can be certified in as little as 15 minutes.

A.3.0 RESULTS

Once a valid test has been performed, the tank can either be declared tight or not tight according to NFPA. No other conclusion can be given with conviction. However, if a tank has not passed the test, the operator can give an opinion as to the cause and if it is a leak, give an estimated leak rate. The

data of the test is recorded on a formatted data sheet (Figure A-6). This sheet records all the information required for the test and provides a good format for the data analysis.

A.4.0 CERTIFICATION

Petro Tite tank testing certifications are only available from Heath Consultants, Inc. The training course involves a week-long seminar of lectures and demonstrations.

The training of the team members will only serve to acquaint them with the procedures that will be used during the tank testing, as only the crew leader will require Petro Tite certification.

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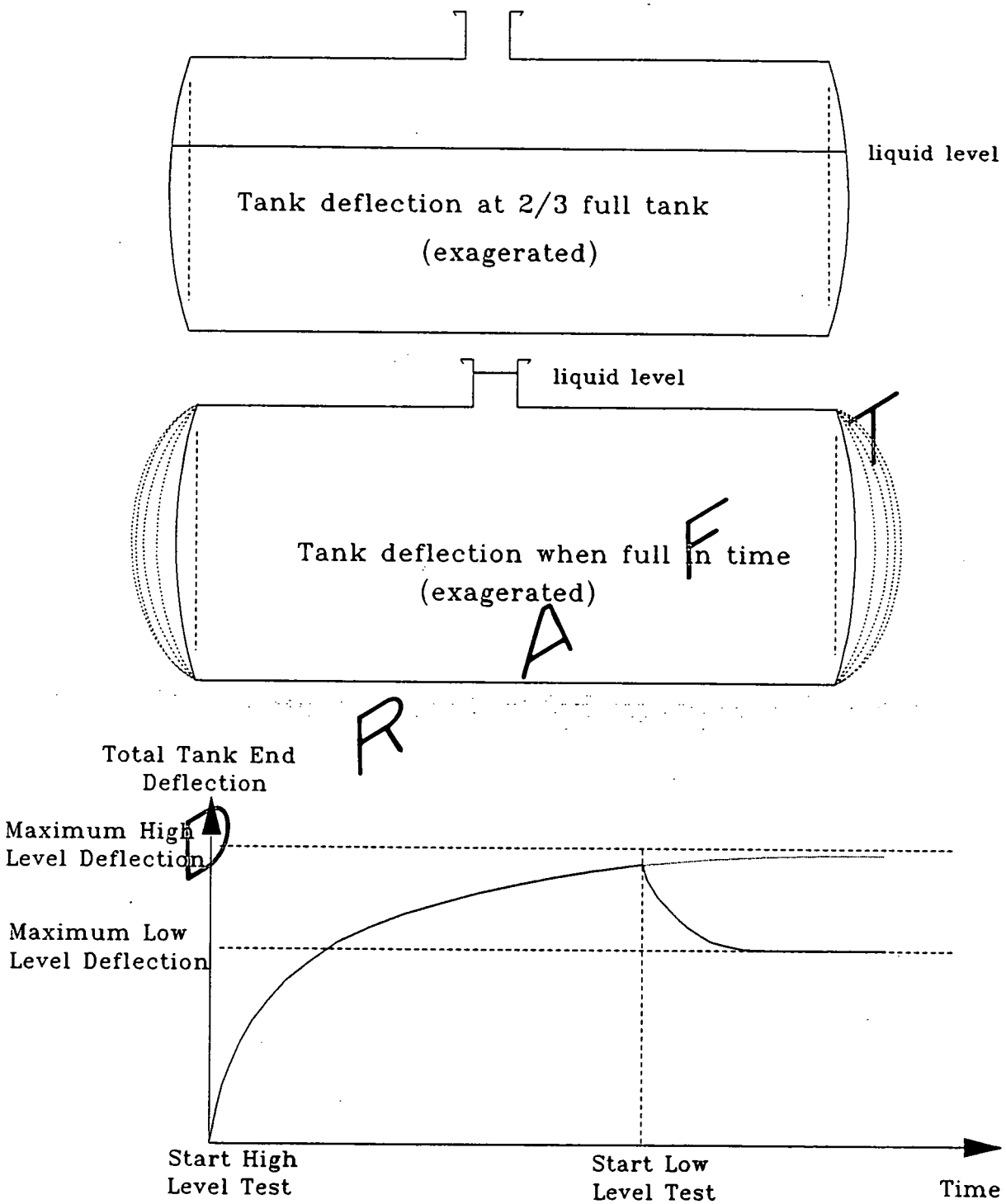
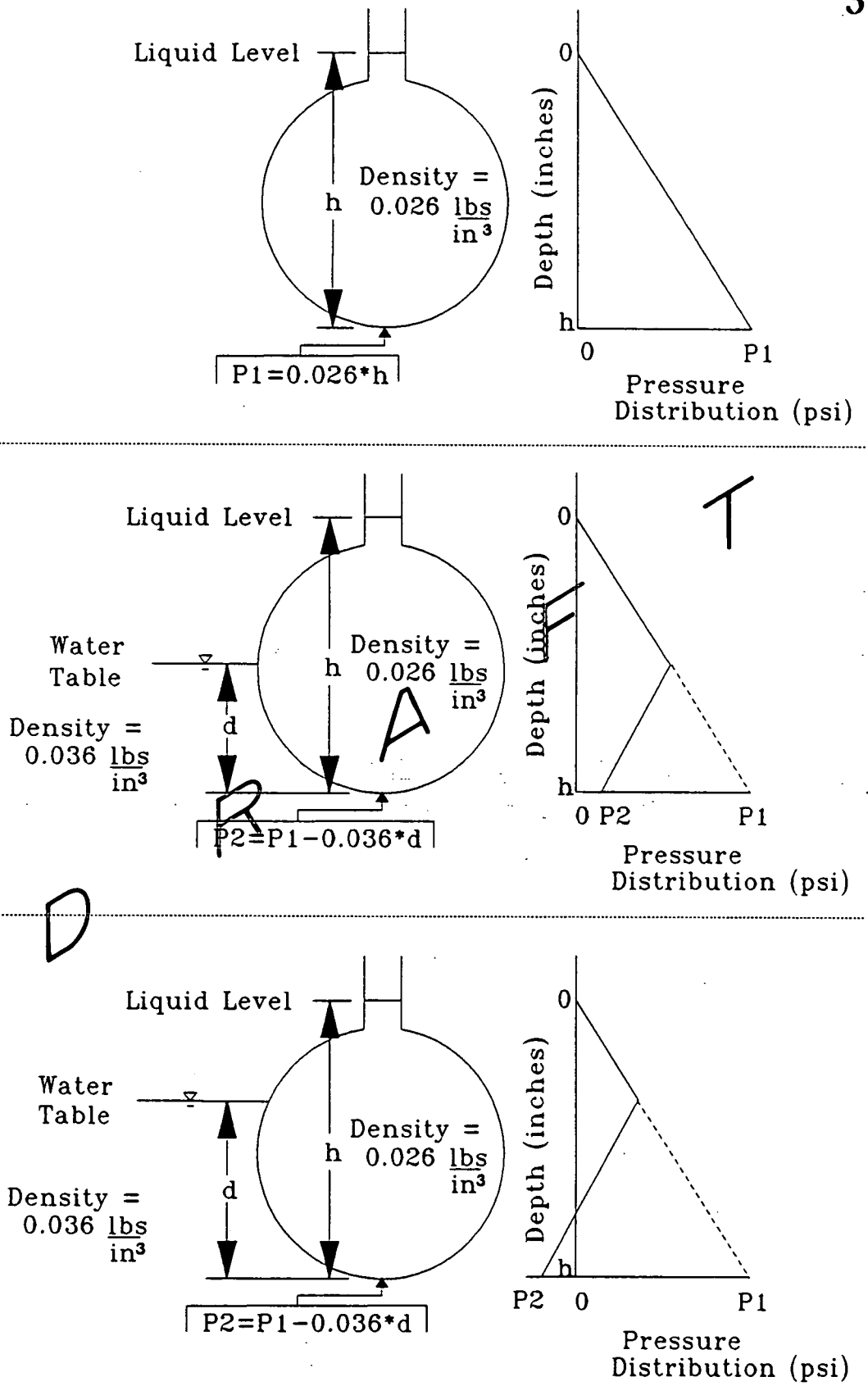


TYPICAL TANK END DEFLECTION DURING PETRO TITE TANK TEST

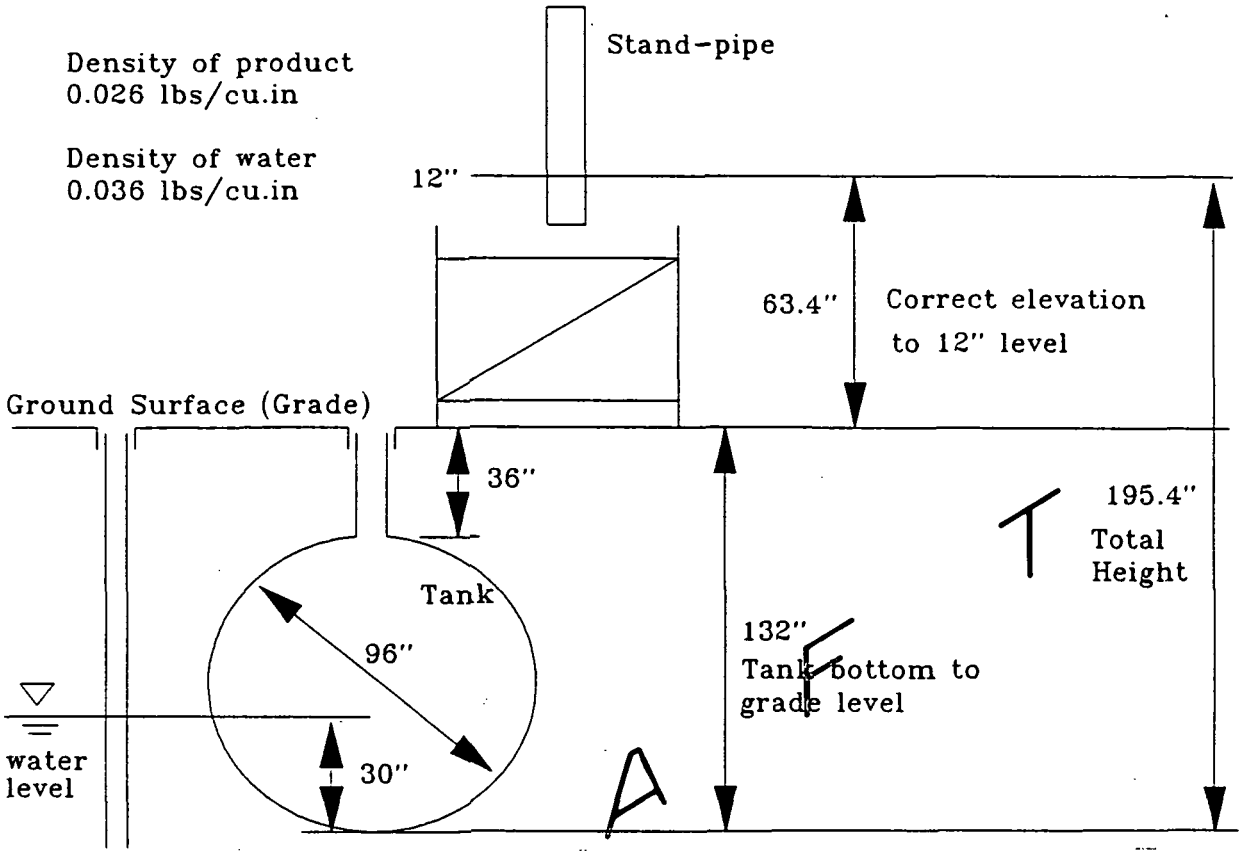
FIGURE A-1



PRESSURE DISTRIBUTIONS WITH WATER TABLE VARIATIONS

FIGURE A-2

The 4 Pound Rule



1. Locate the water table in reference to tank bottom
2. Calculate the pressure exerted by the water on the tank bottom

   30" x 0.036 lbs/cu.in = 1.08 psi

3. Add the 4 psi to determine the internal liquid pressure

   1.08 psi + 4 psi = 5.08 psi

4. Calculate the total height from the tank bottom

$$\frac{5.08 \text{ psi}}{0.026 \text{ lbs/cu.in}} = 195.4''$$

5. Determine the height of the stand-pipe above grade to the 12" mark

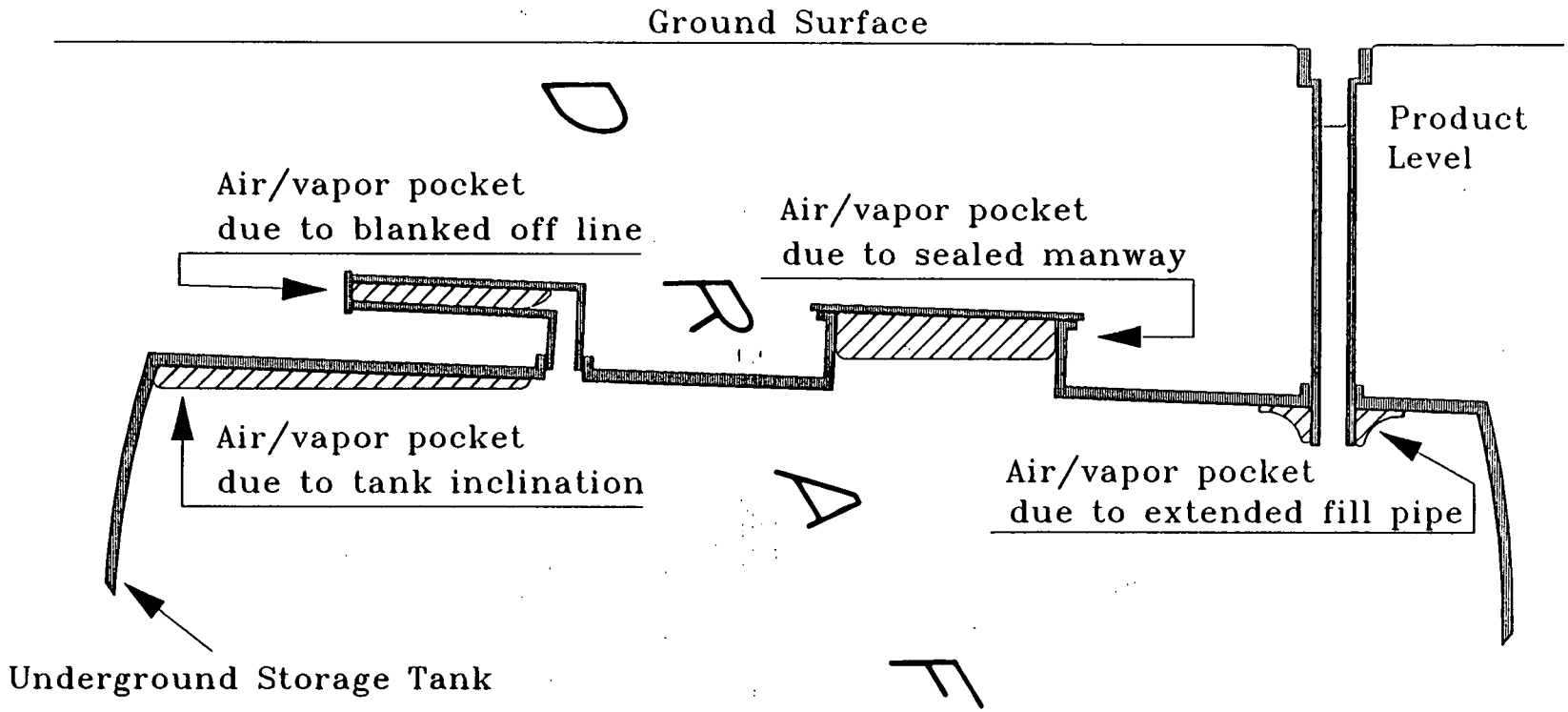
   (Total Height) - (Tank bottom to grade) = Elevation to the 12" mark

   195.4" - (96" + 36") = 63.4"

6. The height of the stand pipe above grade to the 12" mark is 63.4"

THE FOUR POUND RULE

FIGURE A-3



TYPICAL AIR/VAPOR LOCATIONS IN BURIED TANKS

FIGURE A-4

5039 Thermal Sensor Data Chart

DIAL READING	TEMP. DEGREES F.	DIVISION PER DEGREES F.
00126	20	301
00427	21	307
00734	22	307
01041	23	307
01348	24	308
01656	25	307
01963	26	305
02268	27	304
02572	28	301
02873	29	300
03173	30	298
03471	31	297
03768	32	294
04062	33	291
04353	34	288
04641	35	292
04933	36	297
05230	37	302
05532	38	308
05840	39	313
06153	40	318
06471	41	323
06794	42	326
07120	43	323
07443	44	320
07763	45	316
08079	46	312
08391	47	

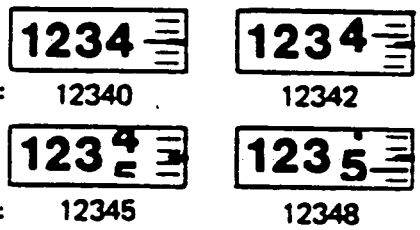
DIAL READING	TEMP. DEGREES F.	DIVISION PER DEGREES F.
08391	47	307
08698	48	301
08999	49	299
09298	50	301
09599	51	304
09903	52	307
10210	53	308
10518	54	311
10829	55	313
11142	56	314
11456	57	317
11773	58	318
12091	59	320
12411	60	321
12732	61	322
13054	62	324
13378	63	324
13702	64	325
14027	65	326
14353	66	326
14679	67	326
15005	68	326
15331	69	326
15657	70	325
15982	71	325
16307	72	323
16630	73	322
16952	74	

DIAL READING	TEMP. DEGREES F.	DIVISION PER DEGREES F.
16952	74	321
17273	75	319
17592	76	319
17911	77	321
18232	78	321
18553	79	318
18871	80	314
19185	81	312
19497	82	308
19805	83	304
20109	84	306
20417	85	309
20726	86	308
21034	87	309
21343	88	311
21654	89	311
21965	90	311
22276	91	311
22587	92	312
22899	93	313
23212	94	314
23526	95	316
23842	96	319
24161	97	322
24483	98	324
24807	99	
25000	99.6	

READING THE THERMAL SENSOR DIGIDIAL

Dial readings should be recorded as whole numbers from 00000 to 25000 (20° to 99.6° F.) Note lines on the right hand side of the dial The long line at the center of the last numeral is read as "0." The short lines are read as "2, 4, 6, and 8;" and the spaces between the lines are read as "1, 3, 5, 7, and 9." Record the four numerals and these line divisions as a five digit whole number.

Examples:



petro Tite LINE TESTER

75-71

Made in U.S.A.

Part No 5166

THERMAL SENSOR DATA CHART

FIGURE A-5

Data Chart for Tank System Tightness Test

PLEASE PRINT

1. OWNER Property ☐ Tank(s) ☐

Name | Address | Representative | Telephone

Name | Address | Representative | Telephone

2. OPERATOR

Name | Address | Telephone

3. REASON FOR TEST (Explain Fully)

4. WHO REQUESTED TEST AND WHEN

Name | Title | Company or Affiliation | Date

Address | Telephone

5. TANK INVOLVED

Use additional lines for manifolded tanks

Identify by Direction	Capacity	Brand/Supplier	Grade	Approx. Age	Steel/Fiberglass

6. INSTALLATION DATA

Location	Cover	Fills	Vents	Siphones	Pumps
North inside driveway, Rear of station, etc.	Concrete, Black Top, Earth, etc.	Size, Titefill make, Drop tubes, Remote Fills	Size, Manifolded	Which tanks?	Suction, Remote, Make if known

7. UNDERGROUND WATER

Depth to the Water table _____"

Is the water over the tank? ☐ Yes ☐ No

8. FILL-UP ARRANGEMENTS

Tanks to be filled _____ hr. _____ Date Arranged by _____ Name Telephone

Extra product to "top off" and run tank tester. How and who to provide? Consider NO Lead.

Terminal or other contact for notice or inquiry _____ Company Name Telephone

9. CONTRACTOR, MECHANICS, any other contractor involved

10. OTHER INFORMATION OR REMARKS

Additional information on any items above. Officials or others to be advised when testing is in progress or completed. Visitors or observers present during test, etc.

11. TEST RESULTS

Tests were made on the above tank systems in accordance with test procedures prescribed for as detailed on attached test charts with results as follows:

Tank Identification	Tight	Leakage Indicated	Date Tested

12. SENSOR CERTIFICATION

Date

Serial No. of Thermal Sensor

13. This is to certify that these tank systems were tested on the date(s) shown. Those indicated as "Tight" meet the criteria established by the National Fire Protection Association Pamphlet 329.

Technicians

1. _____

Certification # _____

2. _____

Certification # _____

Testing Contractor or Company. By: Signature

Address

PN6827

FIGURE A-6
PETRO TITE TANK TEST DATA SHEET

14.

Name of Supplier, Owner or Dealer | Address No. and Street(s) | City | State | Date of Test

15. TANK TO TEST

Identity by position

Brand and Grade

15a. BRIEF DIAGRAM OF TANK FIELD

16. CAPACITY

Nominal Capacity _____ Gallons

By most accurate capacity chart available _____ Gallons

From
- ☐ Station Chart
- ☐ Tank Manufacturer's Chart
- ☐ Company Engineering Data
- ☐ Charts supplied with
- ☐ Other _____

17. FILL-UP FOR TEST

Stick Water Bottom before Fill-up _____ in. to ⅛" _____ Gallons _____ in. Tank Diameter

	Gallons	Total Gallons as Reading
Inventory		
	Transfer total to line 25a	

18. SPECIAL CONDITIONS AND PROCEDURES TO TEST THIS TANK

☐ Water in tank ☐ Line(s) being tested with LVLLT

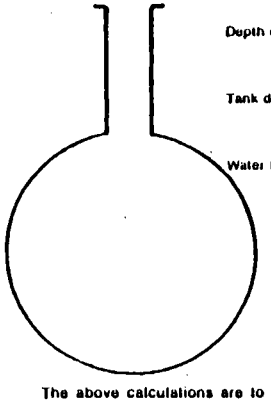
☐ High water table in tank excavation

See manual sections applicable. Check below and record procedure in log (27).

Use maximum allowable test pressure for all tests.
Four pound rule does not apply to doublewalled tanks.

Complete section below:

1. Is four pound rule required? Yes ☐ No ☐
2. Height to 12" mark from bottom of tank _____ in.
3. Pressure at bottom of tank _____ P.S.I.
4. Pressure at top of tank _____ P.S.I.



Depth of burial _____ in.

Tank dia. _____ in.

Water table _____ in.

NOTES:

The above calculations are to be used for dry soil conditions to establish a positive pressure advantage, or when using the four pound rule to compensate for the presence of subsurface water in the tank area.

Refer to N.F.P.A. 30, Sections 2-3.2.4 and 2-7.2 and the tank manufacturer regarding allowable system test pressures.

19. TANK MEASUREMENTS FOR TSTT ASSEMBLY

Bottom of tank to grade* _____ in.

Add 30" for "T" probe assy. 30 in.

Total tubing to assemble — approximate _____ in.

20. EXTENSION HOSE SETTING

Tank top to grade* _____ in.

Extend hose on suction tube 6" or more below tank top _____ in.

*If Fill pipe extends above grade, use top of fill.

22. Thermal-Sensor reading after circulation _____ digits _____ °F Between

23. Digits per °F in range of expected change _____ digits

COEFFICIENT OF EXPANSION (Complete after circulation)

24a. Corrected A.P.I. Gravity

Observed A.P.I. Gravity _____

Hydrometer employed _____ H

Observed Sample Temperature _____ °F

Corrected A.P.I. Gravity @ 60°F, From Table A _____

Coefficient of Expansion for Involved Product From Table B _____

Transfer COE to Line 25b.

21. VAPOR RECOVERY SYSTEM ☐ Stage I ☐ Stage II

24b. COEFFICIENT OF EXPANSION RECIPROCAL METHOD

Type of Product _____

Hydrometer Employed _____ H

Temperature in Tank After Circulation _____ °F

Temperature of Sample _____ °F

Difference (+/-) _____ °F

Observed A.P.I. Gravity _____

Reciprocal _____ Page # _____

_____ ÷ _____ = _____

Total quantity in full tank (16 or 17) | Reciprocal | Volume change in this tank per °F

Transfer to Line 26a.

24c. FOR TESTING WITH WATER see Table C & D

Water Temperature after Circulation Table C _____ °F

Coefficient of Water Table D _____

Added Surfactant? ☐ Yes ☐ No Transfer COE to Line 25b

25. (a) _____ × (b) _____ = (c) _____ gallons

Total quantity in full tank (16 or 17) | Coefficient of expansion for involved product | Volume change in this tank per °F

26. (a) _____ ÷ _____ = _____ This is

FIGURE A-6 (CONTINUED)
PETRO TITE TANK TEST DATA SHEET

27. Sensor Calibration _____ / _____			30. HYDROSTATIC PRESSURE CONTROL		31. VOLUME MEASUREMENTS (V) RECORD TO .001 GAL.			34. TEMPERATURE COMPENSATION USE FACTOR (a)			38. NET VOLUME CHANGING EACH READING	39. ACCUMULATED CHANGE
LOG OF TEST PROCEDURES												
28. DATE / TIME (24 hr.)	Record details of setting up and running test. (Use full length of line if needed.)	29. Reading No.	Standpipe Level in Inches		32. Product in Graduate		33. Product Replaced (-)	35. Thermal Sensor Reading	36. Change Higher + Lower - (c)	37. Computation (c) × (a) = Expansion + Contraction -	Temperature Adjustment / Volume Minus Expansion (+) or Contraction (-) #33(V) — #37(T)	At Low Level compute Change per Hour (NFPA criteria)
			Beginning of Reading	Level to which Restored	Before Reading	After Reading	Product Recovered (+)					

PIGURE A-6 (CONTINUED)
PETRO TITE TANK TEST DATA SHEET

		D											
			R										
				A									
						T							
							A						

FIGURE A-6 (CONTINUED)
PETRO TITE TANK TEST DATA SHEET

P-T Tank Test Data Chart
Additional Info

1. Net Volume Change at Conclusion of Precision Test ____ gph

Signature of Tester: _____

Date: _____

2. Statement:

☐ Tank and product handling system has been tested tight according to the Precision Test Criteria as established by N.F.P.A. publication 329. This is not intended to indicate permission of a leak.

OR

☐ Tank and product handling system has failed the tank tightness test according to the Precision Test Criteria as established by N.F.P.A. publication 329.

It is the responsibility of the owner and/or operator of this system to immediately advise state and local authorities of any implied hazard and the possibility of any reportable pollution to the environment as a result of the indicated failure of this system. Health Consultants Incorporated does not assume any responsibility or liability for any loss of product to the environment.

Tank Owner/Operator _____

Date _____

APPENDIX
B

APPENDIX B

TAILGATE SAFETY MEETINGS
IMPLEMENTATION PLAN FOR TESTING
FACILITY GROUP 1 - USTS

DRAFT

Title: Tailgate Safety Meetings

Procedure #: HS 020 Issued: _____

1.0 PURPOSE

To explain the concept and value of Tailgate Safety Meetings as a training tool, and provide guidelines on the proper use of the Tailgate Safety Meeting form.

2.0 SCOPE

Tailgate Safety Meetings are required in order to fulfill regulatory provisions for employee training and indoctrination on workplace hazards and as a means to minimize workplace incurred injuries and illnesses.

3.0 RESPONSIBILITY

3.1 Project Health and Safety Officer

3.1.1 It is the responsibility of the PHSO, or his designee, to ensure that all personnel understand and follow this procedure.

3.1.2 Maintain copies of completed TSM forms.

3.2 Site Health and Safety Officer, Team Leaders or Other Qualified Persons

3.2.1 It is the responsibility of the SHSO, team leader, or other qualified persons, to conduct these meetings.

3.2.2 It is the responsibility of the SHSO, team leader, or qualified person to document these meetings in writing on the Tailgate Safety Meeting form.

3.3 Team Members

3.3.1 It is the responsibility of the team members to attend the Tailgate Safety Meetings and acknowledge attendance by signing the Tailgate Safety Meeting form.

Title: Tailgate Safety Meetings

Procedure #: HS 020 Issued: _____

4.0 REFERENCE

4.1 Title 8, California Administrative Code 3203

5.0 REQUIREMENTS

5.1 Material

Tailgate Safety Meeting Form

6.0 PROCEDURE

6.1 Tailgate Safety Meeting

A Tailgate Safety Meeting shall be conducted at the beginning of each shift or whenever new employees arrive at the job site by the SHSO, team leaders, or other designated qualified persons.

6.2 Tailgate Safety Meeting Form

The Tailgate Safety Meeting Form shall be properly completed in accordance with the following guidelines:

6.2.1 Date - date of meeting

6.2.2 Time - time at which meeting is held

6.2.3 Task - Sampling/measurement task

6.2.4 Location - specific location of the job at the site.

6.2.5 Type of Work - detailed description of the work to be performed, hazardous substances to be handled, etc.

6.2.6 Chemicals Used - specific name of chemicals introduced into the work area to facilitate the cleaning process.

Title: Tailgate Safety Meetings

Procedure #: HS 020 Issued: _____

6.2.7 Safety Topics Presented -

6.2.7.1 Protective Clothing/Equipment - list all protective clothing and protective devices to be used by employees.

6.2.7.2 Chemical Hazards - specific chemical name and adverse properties of all chemicals to be encountered on the job. Indicate potential hazardous reactions. Original products and chemicals introduced during cleaning are to be included.

6.2.7.3 Physical Hazards - address hazards associated with the physical work site, such as, radiation, radioactive materials, slipping/tripping/falling hazards, elevated locations, weak structures,overhead hazards and nearby operations that could pose a hazard, etc.

6.2.7.4 Emergency Procedures - brief explanation of proper procedures should an employee injury, chemical spill, or other non-routine event occur.

6.2.7.5 Hospital/Clinic Phone Number, Paramedic Phone Number, Hospital Address - this information can be taken directly from the Emergency Phone List.

6.2.7.6 Special Equipment - indicate proper work techniques and any hazards associated with new or unfamiliar equipment.

6.2.7.7 Other - list any remaining safety topics pertinent to the potential hazards of the job.

6.2.8 Attendees -

6.2.8.1 NAME PRINTED - printed name and affiliation of all persons in attendance.

6.2.8.2 SIGNATURE - legible signature by all attendees.

6.2.9 Meeting Conducted By - printed name and legible signature of individual(s) conducting the Tailgate Safety Meeting.

Title: Tailgate Safety Meetings

Procedure #: HS 020 Issued: _____

7.0 PRECISION AND ACCURACY

None

8.0 QUALITY ASSURANCE PROVISIONS

None

9.0 CALCULATIONS

None

10.0 APPENDICES

10.1 Completed Tailgate Safety Meeting form

10.2 Tailgate Safety Meeting form

DRAFT

FERNALD RI/FS
TAILGATE SAFETY MEETING

313

Date: 9/10/87 Time: 0700 Task: Well Drilling

Location: Zone 3 Northwest Corner of Site

Type of Work: Installation of Monitoring Wells and Core Samoling

Chemicals Used: Methanol

SAFETY TOPICS PRESENTED

Protective Clothing/Equipment: Hard hats, Safety glasses, safety shoes in exclusion zone. Goggles, poly apron and gloves when handling methanol.

Chemical Hazards: Skin or eye contact with methanol.

Physical Hazards: Heavy equipment, slip, trip and fall hazards.

Emergency Procedures: Notify WMCO Energency, initiate first aid procedures.

Emergency Phone Numbers:

WMCO Emergency	(513) 738-6511
Hamilton County Emergency	(513) 825-2260
Butler County Emergency	(513) 867-5700

Hospital/Clinic: _____ Phone: _____

Hospital Address: _____

Special Equipment: _____

Other: _____

ATTENDEES

NAME PRINTED	SIGNATURE
U.R. Boss	U.R. Boss
Imma Worker	Imma Worker

Meeting conducted by: I.M. Safe (NAME PRINTED) _____ (SIGNATURE)

FERNALD RI/FS
TAILGATE SAFETY MEETING

313

Date: _____ Time: _____ Task: _____

Location: _____

Type of Work: _____

Chemicals Used: _____

SAFETY TOPICS PRESENTED

Protective Clothing/Equipment: _____

Chemical Hazards: _____

Physical Hazards: _____

Emergency Procedures: _____

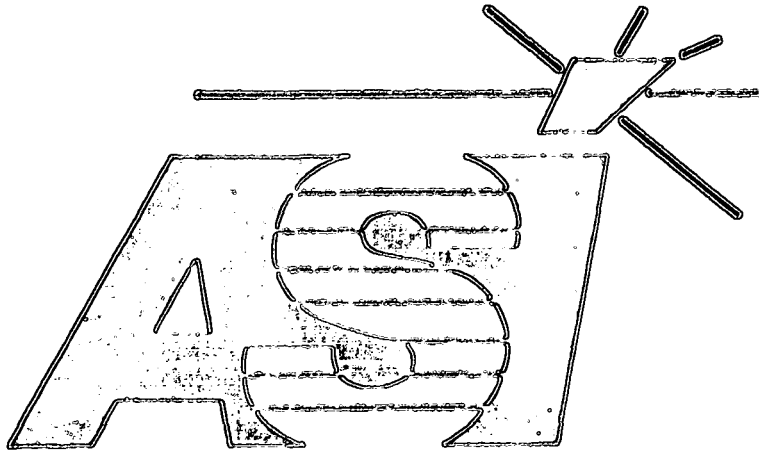
Emergency Phone Numbers: WMCO Emergency _____ (513) 738-6511
Hamilton County Emergency (513) 825-2260
Butler County Emergency (513) 867-5700

Hospital/Clinic: _____ Phone: _____
Hospital Address: _____

Special Equipment: _____

Other: _____

ATTENDEES

NAME PRINTED	SIGNATURE

Meeting conducted by: _____ _____
NAME PRINTED SIGNATURE