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FREE-PRODUCT RELEASE DETECTION FOR UNDERGROUND STORAGE TANK SYSTEMS

VOLUME 2

THE EFFECTIVENESS OF PETROLEUM TANK RELEASE DETECTION WITH WELLS IN FLORIDA

PREPARED FOR:

U. S. ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF UNDERGROUND STORAGE TANKS
WASHINGTON, D.C.

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1.0 INTRODUCTION

As part of its program to regulate underground storage tank (UST) systems, the Office of Underground Storage Tanks of the U.S. Environmental Protection Agency is considering a number of methods for detecting tank releases to the subsurface environment. One method of interest is the use of ground-water monitoring wells for detection of either separate liquid-phase hydrocarbons (free product), dissolved hydrocarbons, or organic vapors that could serve as evidence of a release.

This report is the second of a two-volume report that provides information and insight into the use of wells to detect product releases. Volume 1 identifies hypothetical conditions under which wells are either capable or significantly limited in detecting lighter-than-water petroleum products as a separate phase liquid. Volume 2 focuses on the effectiveness of wells in an on-going regulatory program for petroleum UST systems in Florida. As a basis for Volume 2, Geraghty & Miller, Inc, (G&M) collected information based on its experience at a number of petroleum UST sites in Florida. G&M's Florida experience has included the design and installation of wells for detection and spill cleanup monitoring. Florida's Stationary Tank Program is one of the first and most comprehensive State programs in the nation established

to regulate storage tanks used to store fuel for vehicular uses. The primary objective of this report is to identify and assess the prevalence of both successes and problems encountered in the use of monitoring wells for UST site conditions in Florida.

Information upon which this study is based was primarily obtained by interviewing selected key personnel in G&M's two Florida offices over a two-day period. Much of the information on monitor-well failures is based on the field experience of these persons. Very little of the information is formally documented. This information base was supplemented with limited interviews with one vendor of product detection well equipment and one major oil company that has a number of UST systems currently monitored under the Florida program. Very little specific data was obtained from either of these two additional sources.

2.0 FLORIDA REGULATIONS REGARDING UST MONITOR-WELL DESIGN AND PERFORMANCE STANDARDS

The Florida Stationary Tank Program was established on May 21, 1984, to regulate facilities within the state which store petroleum products in above- and below-ground tanks. It is also referred to as Chapter 17-61 of the Florida Administrative Code and is included in Appendix A of this report. The Stationary Tank Program specifies facility construction, operation and repair standards, including a schedule for the implementation of regulations for existing tanks. By 1989, all existing tanks must have an approved monitoring system installed, as well as overfill protection. All tanks installed after September 1, 1984 are required to be equipped with reliable monitoring systems at the time of construction.

The Stationary Tank Rule allows several options for acceptable leak-detection systems, including product inventory reconciliation, hydrocarbon vapor detection, and groundwater and/or free-product monitoring wells. Monitoring wells may be inspected and/or sampled manually once a month or monitored continuously by electronic sensing devices. The following is a discussion of the specifications for monitoring wells as used for leak detection.

2.1 Monitor-Well Construction Specifications Under the Provisions of Chapter 17-61

If monitoring wells are used to meet the requirements for release detection monitoring systems, the well screens should be within the excavation zone around each new tank. Secondary containment involves the emplacement of an impervious material along the excavation boundaries. In those cases, only one monitoring well is required within the backfill for each tank; if no secondary contaminant is present, a minimum of four monitoring wells must be installed around the tank or tanks. Emplacement of wells into backfill around older tanks is not required due to the uncertainty about exactly where backfill is located.

In addition to the above location requirements, the monitoring wells must be constructed in accordance with the specifications stated within the rule. These specifications state that the well casing shall:

1. Be a minimum of two (2) inches in diameter;
2. Be slotted from the bottom to at least two (2) feet above the annual high water table;
3. Have a minimum slot size of 0.010 inches;
4. Be completed by backfilling with appropriate clean-filter pack or wrapped in an appropriate filter cloth to prevent clogging under soil conditions where silty fines will blind the minimum slot size;
5. Be constructed of Schedule 40 PVC or other material which is impervious to the pollutant stored;

6. Be sealed into the borehole at the surface with an impervious barrier designed to prevent contamination of the well by surface pollutants and damage to the well;

7. Be equipped with a water-tight cap; and

8. Be of sufficient length that:

   a. The bottom of the casing shall be at least five (5) feet below the water level at the time of drilling, but no deeper than 25 feet; or

   b. The casing shall extend to within six (6) inches of the bottom of the secondary containment, but shall not contact the containment.

Most of these well construction specifications are fairly standard for all monitoring purposes. However, Item 8 does restrict the use of monitoring wells to site conditions where the water table is closer than 20 feet to ground surface, if no secondary contaminant is used. Monitoring wells can then be used inside the secondary containment zone independent of the depth to ground water.

2.2 Monitoring-Well System Performance Criteria

The Stationary Tanks Rule also dictates how the monitoring well leak-detection system must be maintained and operated. Along with the requirements that each of the wells be thoroughly developed and that the wells shall be kept capped when not being tested, the rule also makes provisions for two different types of monitoring: 1) manual, or 2) continuously functioning.

If a manual detection program is employed, the operator must sample the surface fluids from each well at least once each month. These fluid samples may be screened for product using one or more of the following three methods:

1. Poured into a clean, clear glass container, and examined for signs of an oily layer or odor of pollutant; or
2. Tested (analyzed) at the site; or
3. Sent to a laboratory and tested (analyzed).

If continuously functioning devices are used, the operator has a wide choice of types of devices which may be installed inside the well. All automatic leak detection devices must be checked on a monthly basis to ensure that they are functioning properly.

It is not required to analyze for dissolved constituents unless a spill or leak is detected. Once a leak has been detected, the required analytical program which must be implemented is currently controlled by the provisions of Chapter 17-70 Clean-Up Criteria Rule (Chapter 17-70 is proposed, not promulgated, and is used as a guideline). This rule requires that the water sample be analyzed by specific EPA methods for dissolved hydrocarbons depending on the type of product spilled.

3.0 EFFECTIVENESS OF MONITORING WELLS FOR UST LEAK DETECTIONS WITH RESPECT TO HYDROGEOLOGIC SETTING

The effectiveness of a monitoring-well system at any given site is strongly dependent on the site-specific hydrogeologic conditions. Generally, monitoring wells are most effective for leak detection when the water table is shallow and is located within unconsolidated materials of relatively high permeability. Monitoring wells are least effective when the water table is relatively deep, or when it is located within bedrock or low permeability, unconsolidated materials (i.e., clays and silts), or when there are undefined preferential pathways of high permeability that control product migration (e.g., buried utilities).

G&M's experience in Florida has generally been at sites where the water table is shallow (i.e., less than seven feet below ground surface) and where water-table fluctuations are limited to several feet. The water table at these sites often occurs within a layer of unconsolidated sandy materials with the exception of limestone terrains in the southern and some central portions of the state.

The Florida settings involving a shallow water table with minimal fluctuations in sandy, unconsolidated units are well suited for implementing monitoring well networks for detecting UST releases. Except for the Miami area, these

settings typify coastal lowlands where most of the human population resides. These same areas have the greatest density of petroleum UST systems, and therefore, the greatest potential for exposure and need for reliable monitoring systems. The general success of the Florida UST program can, in part, be attributed to this favorable situation.

4.0 POTENTIAL PROBLEMS WITH THE UTILIZATION OF MONITORING WELLS FOR DETECTING LEAKS FROM USTS

There are several potential problems which may occur with respect to the use of monitoring wells for product-release detection. The major factors which are most likely to affect the success or failure of wells are the hydrogeologic conditions, well-construction details, and the methods by which well observations are made.

4.1 Problems Associated with Hydrogeologic Conditions

As discussed previously, the hydrogeologic conditions of a particular site strongly affect the performance of monitoring wells for product-leak detection. The location and nature of the water table is of primary importance to the effectiveness of the monitoring-well system. In addition, the site geology may also strongly influence released-product migration, and therefore, the effectiveness of a well system.

The depth of the water table is an important influence on the effectiveness of wells. Deep water-table conditions will result in a more significant environmental impact due to migration of liquid-phase hydrocarbons vertically under gravity. The hydrocarbon will adhere to the soil matrix as it migrates making it difficult to recover. These absorbed hydrocarbons may serve as a source of dissolved components

leached to the water table with infiltrating water. For this reason, Florida has restricted the use of monitoring wells to conditions where the water table is closer than 20 feet from ground surface. Given sufficient product release, free or dissolved product will eventually reach the water table in all hydrogeologic settings in Florida. However, the objective is to minimize the degree of environmental impact prior to detection, thus rendering subsequent remedial measures more manageable, effective and less costly.

In some parts of Florida, especially near surface waters or in coastal areas, a shallow water table can create problems for effective product-release monitoring. In areas where the water-table is within a few feet of ground surface, it becomes very difficult to construct a well which meets the Chapter 17-61 specification of having a slotted screen two feet above the annual high water table while meeting local water district specifications for a surface seal around the well. If the local rule supercedes the Chapter 17-61 rule, free product will not be detectable within the well when the water tables rises to the level of the well seal.

Water-table fluctuations are generally a common source of well failure for leak detection. It is essential that the well screen is situated such that it always intercepts the water table, and therefore, any potential floating product

layer. However, sometimes it is difficult to predict the expected water-table fluctuation at a given site prior to monitoring. Water-table fluctuations may follow natural seasonal trends, tide cycles, or may be attributed to ground-water pumping or injection. If the monitoring-well system is installed during high water-table conditions, the water table may drop too low, rendering the wells dry and unsuitable for product detection. If the wells are installed during low water-table conditions, the water table may rise sufficiently such that the water table, and therefore, any floating product layer, may be above the screened interval. This condition is of particular concern because it is likely that an operator monitoring the well may not notice that the water table is too high, and released product may go undetected. Water-table fluctuations in Florida are generally small (less than five feet), so that this problem usually does not occur; however, in the few areas where larger water-table fluctuations occur, or when the water table moves due to pumping or injection, the problem has been reported. There have been a few cases noted where the water table was above the screened interval of some of the wells, and floating product went undetected during the high water-table season; it is possible that this situation has occurred at other sites in Florida but has gone unnoticed.

The composition, texture and sequence of strata overlying the water table may also influence the effectiveness of monitoring-wells in Florida. In the karstic limestone and fractured bedrock areas, the well must be hydraulically connected with the portion of the bedrock which receives the released product. Whether or not one or more wells in the network is hydraulically connected with the product mass is frequently a matter of chance. This is especially true when openings in the rock are small and widely spaced. When the water table is located within low permeability units such as clay, detection problems may also arise because product is unlikely to migrate through water-saturated clay and silt units. This a result of the relatively low wettability of floating product compared with that of water and the preference for movement in larger pores of coarser-grained materials that may occur in backfill of tank or utility excavations. If product is released to a subsurface environment which contains layers of clay and/or silt within sandy material above the water table, product will tend to perch upon and flow around the clay and silt units. Perching units can slow down vertical migration of product and delay its arrival at the water table, or control flow direction other than the water-table gradient, thereby delaying its discovery. Free product is harder to detect above a perching horizon, especially if no water is also perched prior to the accumulation of product.

4.2 Problems Associated with Well Construction

It is essential that monitoring wells be properly constructed and maintained to effectively detect product releases. Of primary importance is the proper construction and development of the screened zone of the well, and the sealing of the annulus between the gravel pack and land surface.

It is critical to maintain hydraulic communication between surrounding strata and the well. Three problems can be identified based on G&M's experience:

- Improper drilling, design, or construction techniques
- Inadequate well development
- Clogging of screens by bacteria

In southern Florida, particularly in settings which contain softer limestones, drilling through the bedrock with augers can result in the production of a limestone paste which seals the fractures along the borehole wall, inhibiting the transmission of fluids from the surrounding aquifer. When wells are constructed in these types of boreholes, it maybe impossible to ever develop the well sufficiently to ensure reliable monitoring. Although other drilling methods could possibly prevent this problem, auger drilling is still the

method of choice in Florida due to lower costs, greater mobility, avoidance of cross contamination between wells and other advantages related to well construction.

In areas underlain by unconsolidated sediments, monitor well screens must be installed with a gravel or sand pack of an appropriate size distribution to prevent the accumulation of sand or silt in the well. After the well is constructed, the well should be developed sufficiently to remove a majority of the fine materials from the system. Without sufficient hydraulic communication between the aquifer and the well, the use of monitoring wells for product detection cannot be considered reliable. This problem appears to be very rare probably because gravel-packed monitor wells are being drilled without drilling muds and are being developed adequately to establish good hydraulic communication.

At some locations in Florida it has been reported that well screens can become clogged with bacterial growth, particularly if diesel fuel is present in the subsurface. Bacterial clogging of screens is more likely to be a problem during clean-up monitoring rather than detection monitoring.

Above the well screen, the annulus between the borehole and the casing must be properly sealed to ensure the surface fluids do not enter the wells. This is important to prevent

entry of contaminants from the surface environment, and to eliminate the occurrence of false alarms which could result from product on the surface short-circuiting to the aquifer through the annulus around the well. Once wells are in place, it is important that the integrity of the wells are maintained. Well casings and surface seals may become structurally damaged, particularly in sandy soils, via impact by motor vehicles.

4.3 Problems Associated with Monitoring Programs

Monitoring-well systems may be checked manually or equipped with continuously detection systems. There are a few potential problems associated with each type of program.

If a manual detection program is employed, Chapter 17-61 Florida requires that each monitoring well be checked on a monthly basis for any evidence of product release. The obvious potential problem with this type of program is that a significant leak could occur shortly after the day of monitoring, and not be detected until up to a month later. If the leak is large enough, significant environmental impact could occur prior to detection. If an operator chooses to observe the wells at the beginning of one month and at the end of the succeeding month, almost two months can elapse without any observations being made. Although significant

releases could go undetected between such infrequent observations, none were reported in G&M's limited investigation. This is probably because daily product inventories would allow discovery of significant losses within the two-month time frame.

In addition, slow leaks could result in the degradation of water quality by slowly imparting dissolved hydrocarbons to the aquifer without being visibly or odiferously noticeable. In this type of situation, slow leaks could go undetected for a long period of time.

There are a variety of commercially available continuous detection systems which can be installed inside wells. These types of systems also have some potential problems associated with their use. The mechanism by which these systems detect hydrocarbons varies, but generally they are triggered by the presence of product. For this reason, as with manual programs, slow leaks resulting only in dissolved hydrocarbon constituents in the aquifer can go undetected. Also, many of these automatic systems are reported to be prone to triggering of false alarms. This commonly results in operators disconnecting the systems, thus rendering the systems ineffective. The possibility of these systems malfunctioning also exists. Chapter 17-61 requires these to be checked on a monthly basis to ensure that they are functioning properly.

As with manual monitoring programs, a release could potentially go undetected for up to a two months and result in significant problems. However, no such events were noted in our investigation.

5.0 SUMMARY

Based on G&M's experience, monitoring wells can and have been used effectively to detect released product from USTs in Florida. However, it is important to recognize the potential limitations of monitoring wells for this purpose. The primary influences on the effectiveness of monitoring wells for a leak detection system are:

1. The hydrogeologic setting,
2. Monitoring-well design, construction and development, and
3. The methods by which well observations are made.

The hydrogeologic settings of Florida are generally well suited for the use of monitoring wells for product leak detection. Monitoring-well design/construction/development, and monitoring-program implementation, have apparently created only a few instances in Florida when monitoring wells have failed to detect a leak. In the vast majority of cases, these failures have not resulted in additional serious damage to the environment or to increased risks of exposure to humans.

It is important to note that monitoring successes are much more easy to recognize than failures. It is possible that, due to limitations of current monitoring technology, some failures have gone unnoticed.

APPENDIX A

FLORIDA STATIONARY TANK REGULATIONS

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LISTING OF AMENDMENTS

17-61.005(5)(a) = tank monitor wells

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17-61.001 Introduction and Scope.

(1) In Section 376.30, Florida Statutes, the Legislature finds and declares that:

(a) the storage of pollutants within the state is a hazardous undertaking and that the discharge of pollutants poses a great threat to the environment and the citizens of Florida, and

(b) the preservation of surface water and groundwater quality is a primary public concern and the benefit of regulating the storage of pollutants outweighs the burden imposed on facilities by these rules.

(2) This chapter establishes rules regulating underground and aboveground pollutant storage facilities. In addition to the requirements of this chapter, facilities may be subject to the groundwater requirements of Chapters 17-3 and 17-4, FAC.

Specific Authority: 376.303, F.S.
Law Implemented: 376.303, F.S.
History: New 5-21-84.

17-61.002 Definitions.

(1) "Abandoned" means a storage system which:

(a) is not intended to be returned to service, or

(b) has been out of service for over three (3) years, or

(c) cannot be tested in accordance with the requirements of this Chapter.

(2) "Aboveground tank" means that more than ninety percent (90%) of the tank volume is not buried below the ground surface. An aboveground tank may either be in contact with the ground, or elevated above it.

(3) "API" means American Petroleum Institute.

(4) "ASTM" means American Society for Testing and Materials.

(5) "Department" means the Department of Environmental Regulation.

(6) "Discharge" shall include, but not be limited to, any spilling, leaking, seeping, pouring, emitting, emptying, or dumping of any pollutant which occurs

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and affects lands and the surface waters and groundwaters of the state not regulated by Sections 376.011 - 376.21, Florida Statutes.

(7) "Discovery" means either actual discovery or knowledge of the existence of the abandoned facility or discharge.

(8) "Emergency replacement" means the replacement of the damaged parts of a storage system when that storage system is leaking and cannot be repaired to meet the standards contained in Sections 17-61.005 and 17-61.006.

(9) "Existing" means a facility or tank for which installation of a tank began prior to September 1, 1984.

(10) "Facility" means any nonresidential location or part thereof containing a stationary storage system or systems which contain pollutants, which have an individual storage capacity greater than 550 gallons, and which are not regulated by Sections 376.011 - 376.21, Florida Statutes.

(11) "Impervious material" means a material of sufficient thickness, density and composition (e.g., concrete, metal, plastic, clay) that will prevent the discharge to the lands, ground waters, or surface waters of the state of any pollutant for a period at least as long as the maximum anticipated time during which the pollutant will be in contact with the material.

(12) "In service" means a storage system which contains pollutants and has pollutants regularly added or withdrawn.

(13) "Integral piping system" means continuous on-site wetted pipes within the facility used in the transfer or transmission of pollutant to and from a storage tank.

(14) "NACE" means National Association of Corrosion Engineers.

(15) "New" means a facility or tank for which the installation of a tank began on or after September 1, 1984.

(16) "NFPA" means National Fire Protection Association, Inc.

(17) "Non-residential" means the primary purpose of the tank is the operation of a business rather than domestic use such as home heating at the facility.

(18) "Operator" means any person operating a facility whether by lease, contract, or other form of agreement.

(19) "Out of Service" means a storage system which:

(a) is not in use; that is, which does not have pollutants regularly added to or withdrawn from the storage system; and

(b) is intended to be placed in service.

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(20) "Owner" means any person owning a storage system or part thereof.

(21) "Person" means any individual, partner, joint venture, corporation; any group of the foregoing, organized or united for a business purpose; or any governmental entity.

(22) "Pipe" means any hollow cylinder or tubular conveyance which is constructed of non-earthen materials (e.g., concrete, metal, plastic, glass) and is designed to transport pollutant.

(23) "Pollutant" in accordance with Section [1]376.32(6) is interpreted to mean:

(a) "oil of any kind and in any form" and "derivatives thereof" to include, but not be limited to, crude petroleum or liquid products that are derived from crude petroleum by distillation, cracking, hydroforming, and/or other petroleum refinery processes to include "gasoline";

(b) "pesticides" means all preparations intended for use as insecticides, rodenticides, nematocides, fungicides, herbicides, amphibian and reptile poisons or repellents, fish poisons or repellents, mammal poisons or repellents, invertebrate animal poisons or repellents, plant regulators, plant defoliants, and plant desiccants. A product shall be deemed to be a pesticide regardless of whether intended for use as packaged or after dilution or mixture with other substances, such as carriers of baits. Products intended only for use after further processing or manufacturing, such as grinding to dust or more extensive operations, shall not be deemed to be pesticides. Substances which have recognized commercial uses other than uses as pesticides shall not be deemed to be pesticides unless such substances are:

1. specially prepared for use as pesticides, or

2. labeled, represented, or intended for use as pesticides;

(c) "ammonia" and "derivatives thereof" include, but are not limited to, anhydrous liquid ammonia (NH_3), ammonia in aqueous solution (NH_4OH), ammonium salts or other liquid chemical preparations which when discharged release free ammonia (NH_3), or ammonium ion (NH_4+);

(d) "chlorine" and "derivatives thereof" include, but are not limited to, anhydrous liquid chlorine (Cl_2), chlorine in aqueous solution (H+ HOCl Cl^-), compounds containing hypochlorite (ClO^-), chlorite (ClO_2^-), chlorate (ClO_3^-), perchlorate (ClO_4^-) ions, and other liquid preparations which, when discharged, release free chlorine (Cl or Cl_2) or any of the above chlorine-containing ions.

(24) "Pollutant-tight" means a material which is not subject to significant chemical or physical deterioration by the pollutant which is or could be contained therein so as to prevent discharge of the pollutant.

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(25) "Retrofit" means to modify a storage system to meet standards contained in this Chapter.

(26) "Secretary" means the secretary of the Department of Environmental Regulation.

(27) "Significant loss or gain" means a loss or gain of pollutant in a storage system over five (5) consecutive inventory periods which exceeds one percent (1%) of the storage system capacity, or one percent (1%) of the output, or 50 gallons, whichever is greater.

(28) "Stationary" means a tank or tanks not meant for multiple site use or a tank or tanks which remain at the facility site for a period of 180 days or longer.

(29) "Storage system" means a storage tank and all associated integral piping, excluding aboveground dispensing units.

(30) "Substantial modifications" shall mean the construction of any additions to an existing storage system or restoration, refurbishment or renovation which significantly impairs or affects the physical integrity of the storage system or its monitoring system.

(31) "Tank" means an enclosed stationary device which is constructed primarily of non-earthen materials (e.g., concrete, metal, plastic, glass) and which is designed for the primary purpose of storing pollutants.

(32) "UL" means Underwriters Laboratories, Inc.

(33) "Underground tank" means that ten percent (10%) or more of the tank volume is buried below the ground surface.

Specific Authority: 376.303, F.S.
Law Implemented: 376.303, F.S.
History: New 5-21-84.

[1]REGfile.system Editor's Note: Section 376.32(6) in session law chapter 83-310 s. 84 was renumbered as 376.301(10), Florida Statutes.

17-61.003 Referenced Standards.

(1) Referenced standards are available for inspection at the Department of Environmental Regulation's District and Tallahassee Offices and from the following sources:

(a) American Petroleum Institute (API), 1220 L Street, N.W., Washington, D.C. 20005;

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(b) National Association of Corrosion Engineers (NACE), P.O. Box 218340, Houston, Texas 77218;

(c) National Fire Protection Association (NFPA), Batterymarch Park, Quincy, Massachusetts 02269;

(d) American Society for Testing and Materials (ASTM), 1916 Race Street, Philadelphia, Pennsylvania 19103; and

(e) Underwriters Laboratories (UL), 333 Pfingston Road, Northbrook, Illinois 60062.

(2) Titles of documents. Specific references to documents listed in (a) through (e) below are made throughout this Chapter. Each of these documents or parts thereof are adopted and incorporated as standards only to the extent that they are specifically referenced in this Chapter.

(a) National Fire Protection Association Standards.

1. Standard Number 30, 1981, "Flammable and Combustible Liquids Code";

2. Standard Number 329, 1983, "Underground Leakage of Flammable and Combustible Liquids".

(b) American Petroleum Institute Standards.

1. Standard Number 650, 1980, "Welded Steel Tanks for Oil Storage," Seventh Edition;

2. Standard Number 620, 1982, "Recommended Rules for Design and Construction of Large, Welded, Low-Pressure Storage Tanks," Seventh Edition;

3. Publication 1110, 1981, "Recommended Practice for the Pressure Testing of Liquid Petroleum Pipelines";

4. Specification Number 12B, 1977 (and Supplement 1, 1982), "Specification for Bolted Tanks for Storage of Production Liquids," Twelveth Edition;

5. Specification Number 12D, 1982 (and Supplement 1, 1983), "Specification for Field Welded Tanks for Storage of Production Liquids," Ninth Edition;

6. Specification Number 12F, 1982 (and Supplement 1, 1983), "Specification for Shop Welded Tanks for Storage of Production Liquids," Eighth Edition;

7. Bulletin 1615, 1979, "Installation of Underground Petroleum Storage Systems";

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8. Publication 1632, 1983, "Cathodic Protection of Underground Petroleum Storage Tanks and Piping Systems," First Edition;

9. Publication 1604, 1981, "Recommended Practice for Abandonment or Removal of Used Underground Service Station Tanks";

10. Publication 1631, 1983, "Recommended Practice for the Interior Lining of Existing Steel Underground Storage Tanks"; and

11. Publication 1621, 1977, "Recommended Practice for Bulk Liquid Stock Control at Retail Outlets".

(c) National Association of Corrosion Engineers Standard Number RP-01-69 "Control of External Corrosion on Underground or Submerged Metallic Piping Systems" (1976).

(d) Underwriters Laboratories standards.

1. Specification 58 "Steel Underground Tanks for Flammable and Combustible Liquids" (1981);

2. Specification 1316, "Standard for Glass Fiber-Reinforced Plastic Underground Storage Tanks for Petroleum Products"; and

3. Specification 142 "Steel Aboveground Tanks for Flammable and Combustible Liquids" (1982).

(e) American Society for Testing and Materials Specification D4021-81, "Standard Specification for Glass-Fiber-Reinforced Polyester Underground Petroleum Storage Tanks".

Specific Authority: 376.303, F.S.
Law Implemented: 376.303, F.S.
History: New 5-21-84.

17-61.004 Applicability.

(1) Standards contained in this Chapter shall apply only to those facilities which receive, store, or use petroleum products which are distributed from such facilities for use as fuel in vehicles, including, but not limited to, those used on and off roads, aircraft, watercraft, and rail, and which receive, store, or use either more than 1,000 gallons in any one calendar month, or more than 10,000 gallons in any calendar year. The above described facilities which do not receive, store, or use more than 1,000 gallons in any one calendar month, or more than 10,000 gallons in any calendar year shall only meet the requirements in 17-61.006(1)(b)1. or 17-61.006(2)(b)1. for new tank construction standards.

(2) Exemptions. The following are exempt from the requirements of this Chapter:

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(a) Stationary storage systems which contain liquefied petroleum (lp) gas;

(b) Stationary storage systems whose contents have a softening point above 100°F.

(c) Aboveground tanks which are elevated above the soil and comply with subparagraph 17-61.006(1)(c)2. shall comply only with the requirements of paragraph 17-61.005(4)(b) concerning discharges, subsection 17-61.005(1) concerning registration and notification, and subparagraphs 17-61.006(1)(d)2. and 3. concerning repair.

(3) This rule shall not apply to new large petroleum storage facilities (often known as tank farms) which have more than five (5) above-ground storage tanks whose total combined storage capacity exceeds 500,000 gallons of stored petroleum product at any one time. The department will regulate these new large petroleum storage facilities on a case-by-case basis until such time as specific rules governing such facilities are adopted.

Specific Authority: 376.303, F.S.
Law Implemented: 376.303, F.S.
History: New 5-21-84.

17-61.005 General Provisions.

(1) Registration and Notification Requirements.

(a) Each owner or operator shall register the following on forms provided by the department:

1. All existing facilities by December 31, 1984.

2. All new storage systems or facilities at least ten (10) days prior to start of installation of tanks except in cases of emergency replacement.

3. A non-pollutant containing installation which is to be converted to a facility, at least ten (10) days prior to the placement of pollutants in such a facility.

(b) Each owner or operator shall make notification of the following on forms provided by the department.

1. All storage systems within ten (10) days of abandonment.

2. Facility sale within ten (10) days of the sale. Notice shall be made by the seller.

3. Retrofitting of existing facilities within ten (10) days of completion.

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4. Results of tank testing which reveals a discharge within three (3) working days of testing.

5. Discharges exceeding 100 gallons on pervious surfaces as described in Section 17-61.005(4)(b) within three (3) working days of discovery.

6. Positive response of a detection device, monitoring well test or sample or laboratory report within three (3) working days of discovery.

(2) Overfill protection. No person shall construct, install, use, or maintain any new facility without providing a reliable means of detecting and preventing an overfilling condition of a storage system before any discharge can occur. Overfill protection may consist of:

(a) an impervious containment system, or

(b) a tight fill device, or

(c) another equivalent design approved by the department.

(3) Storage system status. A facility may contain storage systems which are:

(a) In-service storage systems. Any pollutant may be placed in an in-service storage system if the storage system is pollutant-tight and meets the requirements of this Chapter.

(b) Out-of-service storage systems.

1. An out-of-service storage system shall have recorded a weekly inventory of contents and the results of monthly leak detection and monitoring system examinations unless the storage system contains no free liquid pollutant or vapors. An out-of-service storage system which contains no pollutant shall be secured against tampering and unauthorized filling and inspected monthly for signs of damage to the security system. The storage system may be filled with water for ballasting. The water shall be disposed of in an environmentally sound manner consistent with department rules when pumped out of the system.

2. A storage system may be kept in the out-of-service status for more than three (3) years and not deemed abandoned if approved by the department.

(c) Abandoned storage systems.

1. The owner of an abandoned storage system must within 90 days after discovery, pump the system clean of free liquid, and remove the storage system in a safe manner, except that underground tanks may be filled with sand, concrete, or other inert material in lieu of removal, in accordance with the requirements in API Bulletin 1604, 1981, Chapter 2.

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2. The owner or operator of an abandoned tank shall not dispose of it unless he meets the requirements of API 1604, Chapters 3 and 6, and:

a. the tank is removed for sale or use elsewhere, in which case it must be permanently labeled "Not For Food Use" if it has at any time contained leaded fuel, cleaned, and made vapor free to be safe in transit; or

b. the tank is disposed of as junk by rendering it vapor free, and dismantling or perforating it in a safe manner so as to render it unfit for further use.

3. An abandoned storage system may be brought into service only if it has been completely retrofitted in compliance with the applicable requirements in Section 17-61.006.

4. No person shall place pollutants in an abandoned storage system.

(4) Record Keeping, Discharge Reporting and Contamination Cleanup.

(a) Records required in Sections 17-61.005, and 17-61.006 shall be maintained in permanent form for two (2) years and shall be available for inspection by the department at the facility. If records are not kept at the facility they shall be available at the facility or other location approved by the department upon two (2) working days notice. Records of the following are required as a minimum.

1. Measurements taken and reconciliations of inventory.

2. Results of examinations of monitoring wells and other leak detection systems.

3. Dates of retrofitting of existing storage systems.

4. Results of maintenance examinations of storage systems.

5. Results of interior examinations of aboveground tanks.

6. Results of all NFPA 329 tests of underground tanks.

7. Results of tests of pipes.

8. Descriptions of repairs.

(b) Any person discharging pollutants from a facility described in Section 17-61.004(1) shall:

1. immediately undertake to contain, remove, and abate the discharge; and

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2. in the case of a discharge to the groundwater in violation of applicable standards, as soon as possible institute such further corrective action as necessary under the provisions of Section 17-4.245(7), FAC.

(c) Leak Detection Systems, Inventory Schedules and Loss Investigation.

1. Leak detection devices.

a. All continuously operating leak detection systems or devices shall be installed, maintained, and operated in accordance with manufacturer's requirements, and shall include a warning device to indicate the presence of a leak of pollutant or other failure or breach of integrity. A leak detection device shall be inspected at least once a month to determine that the device is functioning.

b. All monitoring wells for which manual test devices or methods are used shall be tested at least once a month in a manner which will indicate the presence of a pollutant leak or other failure or breach of integrity.

c. All monitoring wells not tested with automatic or manual detection devices or methods shall be tested at least once a month in accordance with the requirements in 17-61.005(5)(b) below.

d. A monitoring well which contains less than one (1) foot of water may not be tested by removal of a sample as described in Section 17-61.005(5)(b) below, but must be tested with a manual or automatic detection method.

2. Inventory records.

a. All facilities shall maintain inventory records for each pollutant-containing tank as required in Section 17-61.006. The data required shall be accumulated for each day a tank has pollutants added or withdrawn, but not less frequently than once a week.

b. Losses or gains from each day's inventory shall be averaged for each five (5) consecutive readings or once a week. For any average which is a significant loss or gain, the investigation procedure below shall be followed.

3. Investigation procedure. The investigation shall not stop until the source of the discrepancy has been found, the tank has been tested, repaired, or replaced, or the entire procedure has been completed.

a. Inventory, input, and output records shall be checked for arithmetical error.

b. Inventory shall be checked for error in measurement.

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c. If the significant loss or gain is not reconcilable by steps a. and b., or cannot be affirmatively demonstrated to be the result of theft, the accessible parts of the storage system shall be checked for damage or leaks.

d. Monitoring wells and leak detection systems shall be checked for signs of a discharge.

e. Calibration of the inventory measuring system and any dispensers shall be checked.

f. The entire storage system, excluding the vent but including joints and remote fill lines, shall be tested in accordance with the applicable portions of Section 17-61.006.

g. If a discharge or leak is discovered, the requirements of applicable Sections 17-61.006(1)(d), (2)(d), or (3)(d) shall be met.

(5) Monitoring wells.

(a) Monitoring wells used to meet the requirements of Section 17-61.006 shall be designed to meet the following specifications, or shall be a part of an approved groundwater monitoring plan for the pollutant storage facility pursuant to 17-4.245. Monitoring wells installed before the effective date of this Chapter may be used as a part of a monitoring system as approved by the department. The well casing shall:

1. be a minimum of two (2) inches in diameter;

2. be slotted from the bottom to at least two (2) feet above the normal annual high water table;

3. have a minimum slot size of .010 inches;

4. be completed by backfilling with appropriate clean filter pack or wrapping in an appropriate filter cloth to prevent clogging under soil conditions where silty fines will blind the minimum slot size;

5. be constructed of schedule 40 PVC or other material which is impervious to the pollutant stored;

6. be sealed into the bore hole at the surface with an impervious barrier designed to prevent contamination of the well by surface pollutants and damage to the well;

7. be equipped with a watertight cap; and

8. be of sufficient length that:

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a. the bottom of the casing shall be at least five (5) feet below the water level at the time of drilling but no deeper than twenty-five (25) feet; or

b. the casing shall extend to within six (6) inches of the bottom of a secondary containment, but shall not contact the containment.

(b) All monitoring wells shall:

1. be placed as required in Section 17-61.006; and

2. if water enters the well, be developed upon drilling until the water is clear and relatively sand free by overpumping, bailing, surging with compressed air, backwashing, a combination of the above, or other methods approved by the department; and

3. if not equipped with a continuously functioning detection device, or tested with a portable device inserted into the well, be sampled by the removal of at least one (1) cup of fluid from the well, using a Kemmerer-type sampler, bailer, or a sampler of similar design. The fluid shall be taken from the surface of the water table. The fluid shall:

a. be poured into a clean, clear glass container kept for the purpose, and examined for signs of an oily layer or odor of pollutant; or

b. be tested at the site; or

c. be sent to a laboratory and tested.

(c) The positive response of a detection device, the presence of a layer or odor of pollutant, or the positive report of a laboratory that the sample contains pollutant shall be treated as a discharge unless the owner or operator affirmatively demonstrates that no discharge has occurred.

(d) All wells shall be kept capped when not being tested.

(6) Required testing.

(a) In addition to the testing requirements of Section 17-61.005(4)(c)3.f., the owner or operator of a storage system shall test the entire storage system whenever the department has ordered that such a test is necessary to protect the lands, ground waters, or surface waters of the state. The department may order a test if:

1. the operator of a storage system has failed to comply with the provisions of Section 17-61.006; or

2. a discharge detection device or monitoring well indicates that pollutant has been or is being discharged; or

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3. groundwater contamination exists in the vicinity and the facility is reasonably likely to be a source of the contamination.

(b) Testing shall be conducted in accordance with the requirements of Sections 17-61.006(1)(d)4., 17-61.006(2)(d)4., and 17-61.006(3)(a)4.

Specific Authority: 376.303, F.S.
Law Implemented: 376.303, F.S.
History: New 5-21-84.

17-61.006 Facility Construction, Operation and Repair Standards.

(1) Aboveground Facilities

(a) All storage tanks. Inventory records as required by subparagraph 17-61.005(4)(c)2. shall be maintained for all aboveground tanks and shall include:

1. pollutant contained,

2. physical inventory,

3. inputs and outputs of pollutant, and

4. reconciliation of the above.

(b) New storage tanks.

1. No person shall install, use or maintain any new aboveground storage system in a manner which will allow the discharge of a pollutant to the lands, groundwaters, or surface waters of the state, and without meeting the requirements contained in NFPA 30, Chapters 2-1, 2-2, 2-5 and 2-7; API Standards 650, 620, 12B and Supplement 1, 12D and Supplement 1, 12F and Supplement 1, and UL 142, as applicable.

2. No person shall use or maintain any new aboveground storage system without having constructed around and under it an impervious containment system, including a dike enclosing the tank or tanks, conforming to the requirements of NFPA 30, Chapter 2-2.3, regardless of whether or not the tank is in contact with the containment or supported above it.

a. The dikes and the entire areas enclosed by the dikes including the area under the tanks shall be made impervious to the types of pollutants stored in the tanks.

b. Drainage of precipitation from within the diked area shall be controlled in a manner that will prevent pollutants from entering the lands, groundwaters or surface waters of the state in excess of water quality standards established by department rule.

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3. No person shall construct, install, use or maintain any new aboveground metal tank making contact with the soil unless portions in contact with the soil are corrosion protected. Such corrosion protection shall be in accordance with NACE Standard Number RP-01-69.

(c) Existing storage tanks.

1. Commencing January 1, 1990, no person shall use, maintain or fill with pollutants any existing in-service aboveground storage system without conforming to all of the requirements of Section 17-61.006(1)(a) and (b) above, except that impervious barriers are not required under existing field-erected tanks in contact with the soil. In lieu of the impervious barrier, existing field-erected tanks in contact with the soil shall have:

a. the interior bottom and at least 18 inches of the interior sides joining the bottom of the tank coated with a glass fiber-reinforced epoxy coating or other suitable material which in impervious to the pollutant to be stored; or

b. a network of monitoring wells installed outside of and around the dike surrounding the tank or tanks. There shall be at least four wells in each network, with no two consecutive wells farther apart than 150 feet. Each well shall be within 25 feet of the dike, and may be part of more than one network; or

c. a groundwater monitoring plan submitted and implemented for the pollutant storage facility in accordance with the requirements in Chapter 17-4.245, FAC, or

d. a copy of a Spill Prevention Control and Countermeasure plan for the pollutant storage facility as required by 40 CFR Part 112, submitted to the department; or

e. the portions of the tank in contact with the soil corrosion protected in accordance with NACE RP-01-69.

2. Commencing January 1, 1990, no person shall use, maintain or fill any existing tank elevated above the soil without placing an impervious containment system under and around it and sealed to its supports in accordance with NFPA 30, Section 2-2.3.3.

(d) Pollutant leaks, maintenance, and repairs.

1. The owner or operator of an aboveground facility shall at least once a month inspect the exterior of each pollutant-containing tank and the dike and impervious containment surrounding the tank for wetting, discoloration, blistering, corrosion, cracks, or other signs of structural damage, paying particular attention to the condition of the containment at the base of the tank.

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2. Any aboveground tank which shows signs of damage which could impair the ability of the tank to retain pollutants shall, as soon as practicable, be drained of sufficient contents to permit repair.

3. When an aboveground tank is found to be leaking, the leak shall be contained as soon as practicable or the tank must be drained of sufficient contents to prevent further leakage and allow repair.

4. When the inventory records of an aboveground tank show a significant loss or gain of pollutant and tank testing is required, the tank shall be emptied, cleaned, and visually and mechanically or electronically examined on the interior and bottom, or tested by other means approved by the department.

5. No person shall use or repair an aboveground tank which is leaking or which has leaked without:

a. containing the leak;

b. performing or having the repairs performed in a manner which restores the structural integrity of the tank, except that temporary repairs may be made to lesser standards and may remain in place for up to six (6) months.

6. Any dike or impervious containment which shows damage which could impair its ability to retain pollutants shall be repaired.

(2) Underground Facilities.

(a) All storage tanks.

1. Inventory records as required by subparagraph 17-61.005(4)(c)2. shall be maintained for all underground tanks in a manner equivalent to that shown in API 1621, Appendices A, D, and E, and shall include as a minimum:

a. pollutant contained,

b. physical inventory,

c. inputs and outputs of pollutant,

d. amount of water in tank, and

e. reconciliation of the above.

2. Where a tank has pollutants added and withdrawn for 24 hours per day, physical inventory shall be measured at least every 24 hours.

(b) New storage tanks.

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1. All new tanks installed for the underground storage of pollutants shall be designed and constructed in a manner which will prevent discharges of pollutant to the land, groundwaters, or surface waters of the state. Acceptable designs for tank construction include cathodically protected steel, glass fiber-reinforced plastic, steel clad with glass fiber-reinforced plastic, double-walled steel or plastic, or other equivalent design approved by the department. Design, construction and installation of new underground tanks shall be in accordance with standards contained in NFPA 30, Chapters 2-1 and 2-3, API 1615, Chapters 3(3) and 3(4), and UL 58 or UL 1316, and manufacturers' requirements. The design of double-walled tanks shall be approved by the department on a case-by-case basis.

2. All new tanks shall be equipped with a strike plate beneath the fill pipe and gauge opening.

3. All new tanks must be provided with a means of monitoring for any leakage and spillage of the stored pollutant at the time of installation. The monitoring system may consist of:

a. a continuous leak detection system in between the walls of a double-walled tank; or

b. a single monitoring well or detector located in an impervious secondary containment; or

c. a continuously operating leak detection system placed around a tank in an excavation or secondary containment in accordance with the manufacturer's requirements; or

d. a network of at least four monitoring wells placed in the excavation around a tank or tanks in compliance with requirements of Section 17-61.005; or

e. a groundwater monitoring plan submitted to and approved by the department for the pollutant storage facility pursuant to Chapter 17-4.245; or

f. a Spill Prevention Control and Countermeasure plan for the pollutant storage facility as required by 40 CFR Part 112, submitted to the department; or

g. another alternative approved by the department.

4. A cathodically protected tank shall meet the specifications in API 1632, be coated in accordance with NACE RP-01-69, and shall meet the following requirements:

a. A sacrificial anode-type tank shall be electrically isolated.

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b. A tank protected by an impressed current system shall:

i. be designed so that the impressed current source cannot be de-energized at any time, including during closure of the facility, except during power failures or to perform service work on the storage system or the impressed current cathodic protection system; and

ii. include a continuously operating meter to show that the system is working.

5. A glass fiber-reinforced plastic tank shall:

a. be tested in accordance with ASTM Specification D4021-81; and

b. be labeled on the tank and fill cap "Non-metallic Underground Tank for Petroleum Products, Alcohols, and Alcohol-Gasoline Mixtures", or "Non-metallic Underground Tank for Petroleum Products Only".

6. A glass fiber-reinforced plastic-clad steel tank shall as a minimum:

a. be cleaned by sandblasting to SSPC 6;

b. be clad with a mixture of isophthalic resin and fiberglass 100 mils thick;

c. be tested by a 10,000 volt holiday test performed over 100 percent of the surface; and

d. be electrically isolated.

(c) Existing storage tanks.

1. Commencing January 1, 1999, no person shall use, maintain, or fill any in-service existing underground storage system without retrofitting the system so as to comply with all of the provisions of 17-61.006(2)(b), except that:

a. strike plates are not required to be retrofitted; and

b. tanks which are other than the approved types must either be lined in accordance with the recommendations in API 1631, or replaced with an approved type tank. A tank which has been lined shall be tightness tested before being put into service.

2. In achieving the above compliance, retrofitting shall be completed by December 31 of the appropriate year shown in the table below. [Table I located at end of chapter] If the age of the tank cannot be determined, retrofitting shall be completed by the earliest date shown.

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(d) Pollutant leaks, maintenance and repairs.

1. All underground tanks shall be maintained in the following manner.

a. A sacrificial anode type tank shall have the struc structure-to-soil potential tested six (6) weeks after installation or construction in the area, at the end of the first year, and every five (5) years thereafter. If the cathodic protection system is not operating in accordance with manufacturer's requirements, the cause shall be determined and the necessary repairs made within 60 days of the test.

b. An impressed current type tank shall be inspected monthly, and if the protective system is not operating in accordance with manufacturer's requirements, the cause shall be determined and the necessary repairs made within 60 days of the test.

c. A glass fiber reinforced tank shall be tested for deflection in accordance with manufacturer's requirements at the time of installation.

2. When an underground tank is found to be leaking, the tank must be emptied of all free liquid and meet the requirements of Section 17-61.005(4).

3. No person shall put back into service any underground tank which has leaked or has otherwise failed, for the purpose of reusing the facility, without:

a. containing the leak;

b. performing or having the repairs performed in a manner which restores the structural integrity of the tank or meets the specifications in API 1631; and

c. testing or having the tank tested.

4. Testing and inspection.

a. All testing of underground tanks shall be done by the precision test of NFPA 329, Chapter 4-3.10 or other test of equivalent or superior accuracy.

b. Such tests shall be conducted by a person trained and certified by the manufacturer of the test equipment or his agent in the correct use of the necessary equipment, and shall be performed in accordance with the testing procedures and requirements of the test system manufacturer.

c. If for any reason testing required by this Chapter cannot be performed, the tank shall be deemed abandoned.

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(3) Integral Piping Systems.

(a) All systems.

1. All integral piping systems shall be installed, used, and maintained in a manner which will prevent the discharge of pollutants to the lands, groundwaters and surface waters of the state.

2. All integral piping systems shall be constructed in accordance with accepted engineering practices, and NFPA 30, Chapter 3.

3. All integral piping systems shall be designed, constructed and installed in a manner which will permit periodic testing of the entire system.

4. Each owner or operator of any integral piping system shall test the piping whenever the associated tank is tested. All tests shall be conducted in accordance with API 1110, or other equivalent methods approved by the department.

(b) Systems in contact with the ground.

1. New systems.

a. All integral piping systems shall:

i. be constructed of corrosion resistant materials; or

ii. for metal integral piping systems be protected against corrosion by the use of double-walled piping or cathodic protection in accordance with API 1632, NACE RP-01-69, or an equivalent system.

b. Cathodically protected piping systems of the sacrificial anode type shall:

i. be designed and installed to permit measurement of structure to soil potential, and be tested six (6) weeks after installation or construction in the area, at the end of the first year, and every five (5) years thereafter; and

ii. if inadequate cathodic protection is indicated, the cause determined, and necessary repairs made to meet manufacturer's requirements within 60 days of the test.

c. Cathodically protected integral piping systems of the impressed current type shall:

i. be designed so that the impressed current source cannot be de-energized at any time including during closure of the

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facility, except during power failures or to perform service work on the storage system or the impressed current cathodic protection system; and

ii. be equipped with a continuously operating meter to show that the system is working. The system shall be inspected monthly, and if any test indicates that the system in not functioning in accordance with manufacturer's requirements, the cause shall be determined and the necessary repairs made within 60 days of the test.

d. All integral piping systems shall be equipped with a leak detection system which may consist of:

i. a network of monitoring wells; or

ii. a continuously operating leak detector in the excavation along the piping, between the walls of double-walled piping or in a secondary containment in which the piping lies; or

iii. a single monitoring well or detector in an impervious underground catchment basin where piping is installed so that all leaks will enter the basin; or

iv. a groundwater monitoring plan submitted to and approved by the department for the pollutant storage facility subsequent to Chapter 17-4.245;

v. a Spill Prevention Control and Countermeasure plan for the pollutant storage facility as required by 40 CFR 112, submitted to the department; or

vi. another alternative approved by the department.

e. Where monitoring wells are used, they shall:

i. be installed in the excavation beside the integral piping system and shall be located along its entire length, with one well within 100 feet of each end of the excavation; and

ii. be located so that no two (2) consecutive wells are more than 250 feet apart.

2. Existing systems. Commencing January 1, 1999, no person shall use or maintain any existing in-service integral piping system in association with any facility unless the existing system complies with all of the provisions of 17-61.006(3)(a) and (b)1. An integral piping system shall be retrofitted on the same schedule as the associated tank.

(c) Systems not in contact with the ground. All new and existing systems.

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1. All integral piping systems shall be inspected at least once a month for wetting, discoloration, blistering, corrosion, cracks or other signs of surface or structural damage.

2. Any integral piping system which shows signs of damage which could impair its ability to retain pollutants shall, as soon as practicable, be drained of sufficient contents to permit repair, and be repaired in a manner which restores the structural integrity of the system.

3. Commencing January 1, 1990, no person shall use or maintain any existing in-service integral piping system which does not meet the requirements in 17-61.006(3)(a). An integral piping system shall be retrofitted on the same schedule as the associated tank.

(d) Product leaks and repairs.

1. When an integral piping system is found to be leaking, the leak must be contained as soon as practicable or the system must be drained of sufficient contents to prevent further leakage and allow repair.

2. No person shall use or repair an integral piping system which is leaking or which has leaked without:

a. containing the leak;

b. performing or having the repairs performed in a manner which restores the structural integrity of the storage system and is in accordance with accepted engineering practices; and

c. testing the integral piping system.

Specific Authority: 376.303, F.S.
Law Implemented: 376.303, F.S.
History: New 5-21-84.

17-61.007 Financial Responsibility. (Reserved)

17-61.008 Approval of Alternative Procedures and Requirements.

(1) The owner or operator of a facility subject to the provisions of this Chapter may request in writing a determination by the Secretary or his designee that any requirement of this Chapter shall not apply to such facility, and shall request approval of alternate procedures as requirements.

(2) The request shall set forth at a minimum the following information:

(a) Specific facility for which an exception is sought.

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(b) The specific provision of Chapter 17-61 from which an exception is sought. Any provisions which reference this section are subject to the approval procedures set forth herein.

(c) The basis for the exception including, but not limited to, the hardship which would result from compliance with the established provision.

(d) The alternate procedure or requirement for which approval is sought and a demonstration that the alternate procedure or requirement provides a substantially equivalent degree of protection for the lands, surface waters, or groundwaters of the state as the established requirement.

(e) A demonstration that the alternate procedure or requirement is at least as effective as the established procedure or requirement.

(3) The Secretary or his designee shall specify by order each alternate procedure or requirement approved for an individual facility in accordance with this section or shall issue an order denying the request for such approval. The department's order shall be final agency action, reviewable in accordance with Section 120.57, Florida Statutes.

Specific Authority: 376.303, F.S.
Law Implemented: 376.303, F.S.
History: New 5-21-84.

17-61.009 Stationary Tank Forms. The forms used by the Department in the Hazardous Waste Management Program are adopted and incorporated by reference in this section. The forms are listed by rule number, which is also the form number and with the subject title and effective date. Copies of forms may be obtained by writing to the Director, Division of Environmental Programs, Department of Environmental Regulation, 2600 Blair Stone Road, Tallahasssee, Florida 32301.

(1) Form 17-61.009(2), Stationary Tank Registration/Notification Form, September 1, 1984.

(2) Form 17-61.009(3), Discharge Notification Form, September 1, 1984.

(3) Form 17-61.009(5), Federal/State Storage Tank Notification Form, October 31, 1985.

(4) Form 17-61.009(6), Post Card Notification Form, July 24, 1986.

Specific Authority: 376.303 and 376.307, F.S.
Law Implemented: 376.303 and 376.307(5), F.S.
History: New 9-28-86.

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Table I
Retrofitting Schedule
For
Existing Storage Tanks
[Reference 17-61.06(2)(c)2.]

Year Tank Installed	Year Retrofitting Required						
	1986	1987	1988	1989	1992	1995	1998
Prior to 1970	MO			LR			
1970 - 1975		MO			LR		
1976 - 1980			MO			LR	
1981 - Sept. 1, 1984				MO			LR

MO = Installation of Monitoring system and devices and Overfill protection.

LR = Lining or Replacement of Non-Approved-Type Tanks.

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LISTING OF AMENDMENTS

SECTION	CHANGE	EFFECTIVE DATE: DESCRIPTION OF CHANGE
UPDATE: 9/86		
17-61	Amendment	September 28, 1986: Renumbering rule 17-61 to conform with the requirements of FAC 1S-1.
17-61.009	Addition	September 28, 1986: Adding section to identify forms used by the Department in the hazardous waste management program; adding new form #17-1.218(6) to meet the requirements of the 1986 amendments to Section 376.303(1)(a),(2), which mandate the submission of data on storage tanks with a capacity of 550 gallons or less.

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