



Oil Spill Program Update

The U.S. EPA's Oil Program Center Report

ABOUT THE UPDATE

EPA's "Oil Spill Program Update" is produced quarterly, with information coming from the Regions in response to their needs. The goal of the Update is to provide straight-forward information to keep EPA Regional staff, other federal agencies and departments, industries and businesses, and the regulated community current with the latest developments. The Update is distributed in hardcopy

and is available on the Oil Program homepage at www.epa.gov/oilspill.

Help!

The July '98 edition of the Update will contain articles regarding vegetable oils and animal fats. Please contact Beatriz M. Oliveira at (703) 603-1229 or oliveira.beatriz@epamail.epa.gov, or Chris Skelley at (703) 519-1260 or skelleyc@dyncorp.com with your story ideas. All ideas welcome for the next edition and any other edition.

Headquarters, EPA Region 5, and EPA Region 7 served as sponsors with other local, state, and federal agencies and private corporation representatives serving as session moderators. EPA speakers included Dave Tordoff from Region 1; Bob Rosen from Region 4; Sheila Calovich, Ann Whelan, Steve Faryan, Michelle Jaster, Sam Borries, Karen Reshkin, Betty Lavies, and Karen Vendl from Region 5; Jim MacDonald from Region 7; Martha Wolf from Region 8; and Michelle Rogow and Don Zuroski from Region 9.

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The Second Biennial Freshwater Spills Symposium

The second Freshwater Spills Symposium was held in St. Louis, Missouri, on March 3-5, 1998. The symposium was a resounding success, as was the first symposium, with over 250 participants from across the country in attendance. U.S. EPA

The purpose of the symposium was to encourage the transfer of technology, promote the exchange of new ideas, and discuss pertinent issues regarding freshwater oil spills. There were a wide range of topics, with expert speakers covering pipelines, aquatic environments, marinas, wetlands, exercises, natural resource damage assessment (NRDA), public information center, incident command structure, and case studies.

Due to the success of this symposium, there are plans for another offering of the symposium in two years. U.S. EPA

Headquarters and the lead EPA Region (to be announced in the future) will be the sponsors of the event, although other regions are encouraged to participate as well. The date and location will be decided in the near future.

Spotlight on Region 9 Oil Program

Within the National Oil Program, Steve Calanog and Michelle Rogow, who are directed by Team Leader William Robberson, are the core of the Region 9 Oil Team. Over the last few years, they have helped build a program that has grown while facing many challenges.

Steve joined the Oil Program in 1991, implementing the SPCC program. At that time "no one knew what FRPs were" and only a handful of inspections were being conducted. Starting from ground zero, Steve quickly found that most state agencies in Region 9 had no idea that a federal program existed or were misinformed. Steve's most challenging project to date is known as the "Unocal Trilogy" -- San Luis Obispo, California oil fields' subsurface discharges to surface waters, which started the debate of applying OPA to historic oil discharges. As most Oil Program staff tend to be well rounded, Steve is no exception. He was the first to start an oil related website, primarily geared toward the regulated industry. Steve is also an instructor for the Principles of Enforcement international curriculum offered to international governments.

Transplanted from Region 3's Superfund office, Michelle joined the Oil Program in 1994. Like Steve, Michelle's major focus is the SPCC program, making her mark by bringing EPA's prevention efforts at the marina and waterside fueling facilities to the forefront. Her guidelines, combining SPCC and Best Management Practices for these industries coupled with hands-on outreach, have been well received by other federal, state, and local counterparts, as well as industry. Her 1997 International Oil Spill Conference presentation on this subject was a huge success.



Michelle has also initiated a pilot Federal-State SPCC inspection program. Working with one of California's Regional Water Quality Control Boards, she trained state authorities to conduct inspections, resulting in increased compliance and encouraging long-term resource leveraging. Thus far, the pilot has been a success. Michelle's goal is to expand this pilot to each of California's Regional Boards. Another example of Region 9's coordination effort is the Production Field Project, focusing on Kern County, which has over 1000 oil pits. Michelle,

teamed with the U.S. Fish and Wildlife Service, California Department of Fish and Game, and the California Division Oil and Gas Geothermal Resources, conducted an assessment of the county, addressing the worst sites first. Last summer, six multi-agency inspector teams conducted 90 inspections in five days.

Both Steve and Michelle have mastered the intricacies of California's state environmental network, and have worked hard to build connections with other federal players. This insight has prompted the Region to lead the first Fuels Management Workshop. The workshop will attempt to bring together the federal and state communities who oversee refined petroleum. Emphasis will be placed on understanding the roles and responsibilities of others, initiating dialog on overlapping issues, and encouraging resource leveraging. The workshop is presently in the planning stages.

Steve summarizes, "Many tanks, pipelines, and wells put in place over 30 years ago are nearing the end of their useful life. It [can be] cost prohibitive to retrofit or replace them. There's a [false] assumption by many folks that the current state is okay." For example, the number of orphan well fields can far exceed the resources of state and local authorities in Region 9. "It's more cost effective to find out where they're located, and mitigate the most dangerous wells first." Michelle adds "our goal is to leverage resources at the federal, state, and local levels to achieve and maintain compliance."

EPA Region Takes Action at Oil Disposal Facility

On February 23, 1998, in Denver, EPA responded to the threat oily ponds pose to health and the environment by issuing a cleanup order to the operator of a commercial oil field waste disposal facility. The facility is near the Williams Fork River in Northwestern Colorado.

The action is part of a larger, regional effort led by EPA and the U.S. Fish and Wildlife Service (FWS). In the fall of 1996, EPA and FWS partnered with state, tribal, local, and other federal agencies and representatives of the oil industry to address the threat oil pits and ponds pose to migratory birds, other wildlife, and the environment. Initial work began in Colorado, Montana, and Wyoming.

Each year an estimated two million birds die nationwide when they mistake oily ponds for freshwater and land there. They become trapped and soon die from exposure or suffocation. Birds and other animals may die from oil they ingest while trying to clean their feathers or fur.

In addition to harming wildlife, improperly managed pits and ponds can also damage the environment or threaten human health. Oil can contaminate surrounding soil and seep into nearby surface water and groundwater.

“Often, when the owners and

operators of these oil pits are notified of the environmental problems, they cooperate and no formal enforcement action is needed,” according to Corbin Darling, an Environmental Engineer with EPA. “State and local regulators and industry are generally doing a good job managing oil operations in Colorado.”

However, not all owners and operators comply voluntarily. EPA’s action in Denver is the result of cooperation among EPA, FWS, the Colorado Department of Public Health and Environment, and Routt County environmental officials to correct environmental problems at the Williams Fork Waste Systems facility.

The RCRA 7003 order requires the facility operator immediately to -

- control access to the site,
- post warning signs,
- implement permanent measures to keep wildlife out of oil pits and ponds, and
- reduce excess liquids in oil pits and ponds.

“We prefer to work cooperatively with the owners and operators, but, in cases where there are threats to the environment, it’s important to take action,” said EPA’s Enforcement Director, Carol



Rushin.

Annual Call for Research Proposals

Established in 1993, the Oiled Wildlife Care Network addresses the problems facing wildlife exposed to petroleum products in the environment. The program is funded by interest from California’s Oil Spill Response Trust Fund and administered through the School of Veterinary Medicine at the University of California, Davis. Regional wildlife rehabilitation facilities along the California coast have been equipped and affiliated personnel trained to meet the primary goal of providing the best achievable treatment for oiled wildlife.

To further this goal, funds became available in 1996 for a competitive grant program. Each year, the Oiled Wildlife Care Network offers funding for projects in both basic and applied research that investigate petroleum effects on animal populations and ecosystems; baseline research that establishes normal health parameters for species and populations; basic biomedical, physiologic research that looks at fundamental organ system effects of petroleum on wild animals; and research into basic mechanisms of toxicity. The research must be based on the effects of petroleum only; non-petroleum oils are excluded.

This year, in order to balance the currently-funded research projects, high quality, field-based studies are

being encouraged and will be given preference over proposals for laboratory studies. Although research may be conducted worldwide, results must be applicable to the effects of petroleum on wildlife which occur in California. Only projects that have a relationship to the effects of petroleum on wildlife and/or their ecosystems will be considered for funding. Other criteria considered are availability of matching funds, track record of successful research in this area, principal investigator and collaborator experience and publishing record, pertinence of the research, potential to reduce population-level impacts of petroleum, and potential to yield "best achievable treatment" for oiled wildlife. Applicants need not be residents of California or the United States.

Amounts Funded:

\$5,000–\$20,000; exceptional proposals with unusual circumstances may be funded up to \$50,000.

Submission Deadline:

July 1, 1998

Awards Notification Date:

October 1, 1998, effective until September 30, 1999. (Possibility of renewal for a total of 3 years, subject to annual approval)

The number of projects funded is dependent upon the funding available for the research and the dollar amount of each grant. Last year, ten projects were funded for a total of \$200,000. More funding is



expected to be available this year.

The funding period is for one year, but multi-year proposals are acceptable and subject to annual review. Extension of a project requires the submission of a request for extension of funding, a brief progress report, and both lay and scientific abstracts.

For more information or to obtain a grant application packet, contact Nancy Ottum at (530) 752-3809 or ndottum@ucdavis.edu.

Recent Highlights From the Office of Pipeline Safety

OPS CHANGES PLAN REVIEW CYCLE

Until late December 1997, the Office of Pipeline Safety (OPS), in the U.S. Department of Transportation, reviewed Oil Pollution Act of 1990 facility response plans (FRPs) every three years. In order to be consistent with EPA and U.S. Coast Guard review schedules, OPS will conduct its review every five years. This regulation change was published on December 24, 1997, in the Federal Register (62 FR 67292). This change was made so that OPS-regulated facilities would not have to go through the plan review process more frequently than facilities under EPA or Coast Guard regulation.

Operators of OPS-regulated facilities who classify their pipelines as significant and

substantial harm facilities should resubmit their plans every five years after the dates they were approved. However, if in those five years the plans do not change, the operator simply needs to send a letter to OPS stating that the plan on file is current.

OPS plans to publish both a Federal Register notice to answer questions about the plan review cycle and a rule in 1998 to finalize 49 CFR 194, with any changes made based on public comments.

PLAN REVIEW LESSONS

Operator's facility response plans are reviewed by OPS for compliance with 49 CFR 194. Generally, OPS sends the review finding six weeks after plans are submitted. New plans submitted because a line is built or sold must include a statement confirming that sufficient personnel and equipment exist to respond to a worst case or substantial threat of a discharge.

The main planning challenges are protecting environmentally sensitive areas, possessing adequate communication capabilities, and enacting incident command systems. OPS wants to make certain that operators implement a unified command with federal, state, and local agencies when responding to a major spill.

OPS may help operators meet these planning requirements by issuing temporary conditional approval for their plans, enabling operators to continue operating a pipeline while OPS helps them meet the standards. Operators who need assistance should contact OPS to help find solutions to fit their companies.

OPS reviews operator plans with a check list based on the interim final rule for 49 CFR 194. OPS will update the list when a final rule is issued.

Questions should be directed to Jim Taylor at (202) 366-8860, (202) 366-4566 (fax), or jim.taylor@rspa.dot.gov.



The National Response System

The National Oil and Hazardous Substances Response System, a network of federal, state, and local authorities, is set up to handle oil and hazardous substance spills and provide a framework for coordination among the government authorities and responsible parties. This network consists of three levels: On-Scene Coordinators (OSCs), Regional Response Teams (RRTs), and the National Response Team (NRT).

Subpart C of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) describes

the roles and responsibilities for planning at the federal, state, and local levels to achieve a coordinated planning and response system. The NCP is based on legislative authorities, including the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the Emergency Planning and Community Right-to-Know Act (EPCRA) of the Superfund Amendments and Reauthorization Act, and the Clean Water Act and the Oil Pollution Act of 1990 (OPA 90). OPA 90 required the establishment of Area Committees comprised of federal, state, and local agency representatives. Under the direction of a federal OSC, Area Committees develop Area Contingency Plans (ACPs) and coordinate them with state plans and Local Emergency Planning Committee (LEPC) community plans.

On-Scene Coordinators

OSCs are designated for each Region and are responsible for coordinating all efforts during an incident, including response by federal, state, and local agencies, and responsible parties. They also provide local support and information in their response communities. OSCs are notified of spills by the National Response Center, which receives notification of all chemical, radiological, oil, and biological releases. Under the direction of the OSC, Area Committees, made up of federal, state, and local agency representatives, develop Area Contingency Plans for specific areas within the state.

Regional Response Teams

There are 13 RRTs -- one for each

Region, one for Alaska, one for the Caribbean, and one for the Pacific Basin. The RRTs do not respond on-scene, but provide assistance as requested by the OSC. They are primarily planning, policy, and coordinating bodies that assist state and local governments in preparing, planning, and training for emergency response.

The National Response Team

The NRT is made up of 16 federal agencies, with EPA serving as chair and the U.S. Coast Guard serving as vice-chair. The team does not respond directly to spills, but assists by providing information, technical advice, and access to resources and equipment during an incident. In the event that response is needed by more than one Region, the NRT helps in the coordination of response efforts which include policy support and overall planning.

The Incident Command System

The Incident Command System (ICS) provides an onsite organizational structure for immediately responding to oil spills and hazardous substance emergencies. ICS is typically implemented by first responders and is led by the Unified Command (UC), made up of the federal, state, local OSCs, and the responsible party. First responders are usually from local fire and police departments and possess specific authorities such as evacuation and arrest powers. When federal and private party responders arrive at the scene, the UC is developed within the ICS. The UC allows all parties with jurisdictional or functional responsibility for the incident to work together in developing common objectives and strategies, to share information, to

maximize the utilization of available resources, and to enhance the efficiency of the individual response organizations. Several resources are available to the National Response System. The Coast Guard's National Strike Force is a specially trained unit that can respond to major oil spills and chemical releases. The Coast Guard's Public Information Assist Team is a group of public affairs specialists that can complement existing public information capabilities. The National Oceanic and Atmospheric Administration provides Scientific Support Coordinators to serve as the head of the scientific team on the OSC's staff specially at coastal spills. Finally, the Environmental Response Team is a group of highly trained scientists and engineers that provide sampling and analysis, hazard assessment, cleanup techniques, and specialized technical support.

For more information on the National Response System, see its web site at www.nrt.org. Spills can be reported by calling the National Response Center at (800) 424-8802.

The Recreational Boating Industry and the NCP

Confusion has developed regarding the use and application of products listed on the NCP Product Schedule (Subpart J) with regard to the boating industry. The NCP Product

Schedule establishes a "schedule of dispersants, other chemicals, and other spill mitigating devices and substances, if any, that may be authorized for use on oil discharges..." EPA has observed that there are vendors who mistakenly encourage recreational watercraft and marina operators to buy NCP Product Schedule listed products because it is assumed that they are required by law.

Products listed on the NCP Product Schedule have had specified effectiveness and/or toxicity testing which the EPA has reviewed before listing. This does not mean the EPA approves, recommends, licenses, certifies, or authorizes the use of any product listed on the schedule. To prevent misrepresentation, all product labels, literature, or advertisements that mention the product's listing on the Schedule must either reproduce the entire EPA letter announcing listing, or include the disclaimer set forth in Section 300.920(e).

Subpart J applies to oil spills that affect navigable waters and their adjacent shorelines. Individuals responding to oil spills affecting these environments as part of an emergency response effort must use products that are listed on the NCP Product Schedule, with the exception of watercraft operators cleaning their boats of spilled oil. Use of listed products for emergency response purposes must be approved by a federal On-Scene Coordinator and/or the Regional Response Team. Products listed on the Schedule are screened for emergency response to oil spills. For general boat cleaning, less toxic products should be encouraged.

Recreational boating on lakes, rivers, and oceans can present a serious threat to water quality when fuel and oil is discharged into water through careless boating habits. Watercraft operators can minimize discharge by following best management practices (BMPs). Following BMPs may also help a boat owner or marina avoid violations of the Clean Water Act and Oil Pollution Act regulations.

For more information about the NCP Product Schedule, call EPA's NCP Product Schedule Information Line at (202) 260-2342.

Inspector Training Course

Visit the Oil Spill Program at
<http://www.epa.gov/oilspill>

To report oil and chemical spills,
call **1-800-424-8802**

The next SPCC/FRP Inspector Training Course is planned for the week of June 1, 1998, and will be held in Chicago, EPA Region V. This one week course will provide EPA personnel tasked to perform important spill prevention, control, and countermeasure (SPCC) and Facility Response Plan (FRP) inspections with the following: a complete overview of the requirements of 40 CFR part 112 (i.e., EPA's Oil Pollution Prevention Regulation); an understanding of SPCC inspection, FRP inspection, and program specific enforcement issues; and a review of essential oil facility

inspection techniques and procedures.

Course attendance will be limited, and priority will be given to EPA OSCs and then to state personnel in Region V; however, other participants are encouraged to register. The registration deadline will be Thursday, April 30. If you are interested in attending the course, please call Gloria King at (703) 603-9074 or Angela Jones of ICF at (703) 934-3271.

Questions and Answers

LISTING A PRODUCT ON THE NATIONAL CONTINGENCY PLAN (NCP) PRODUCT SCHEDULE

What is the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) Product Schedule?

Section 311 (d)(2) of the Clean Water Act and Section 4201(a) of the Oil Pollution Act of 1990 require the preparation of a "schedule of dispersants, other chemicals, and other spill mitigating devices and substances, if any, that may be authorized for use on oil discharges..." (300.905(a)). EPA prepares and maintains this schedule, known as the NCP Product Schedule.

Where can one find the procedures for listing a product on the NCP Product Schedule?

The procedures governing the addition of a product to the NCP

Product Schedule are found in Section 300.920 of Subpart J. A manufacturer or vendor must perform specified effectiveness and toxicity tests and submit the results along with other information to EPA. Depending on the type of product, the required data may include safety and handling requirements, storage information, physical properties, and recommended application procedures. The testing procedures ensure that Federal On-Scene Coordinators (OSCs) and Regional Response Teams (RRTs) have comparable data regarding the effectiveness and toxicity characteristics of different products. The submitter must pay for the tests, and they may be performed by any qualified laboratory (300.915(a)(12)).

Who may submit data on a product for listing?

In the past, an individual or corporation other than the owner(s) of a product, has submitted data to list a product on the NCP Product Schedule. For such a submission, EPA requests that the owner submit a letter stating that it agrees to the listing of its product by the submitter.

How does EPA decide whether to list a product?

EPA's Oil Program Center conducts a review of the raw data and a summary of results from the tests to confirm that the data is complete and valid, and that the specified procedures were followed. EPA will inform the submitter in writing within 60 days of the receipt of complete technical product data of its decision whether

to add the product to the Schedule or, in the case of dispersants, whether additional information or a sample of the product is required (300.920(a)(2)).

What does EPA's decision to list a product mean?

For each product on the NCP Product Schedule, EPA prepares a technical bulletin presenting summary information on the conditions under which products may be used. Inclusion of a product on the NCP Product Schedule means only that the data submission requirements have been satisfied, not that EPA approves, recommends, licenses, certifies, or authorizes the use of a product on an oil discharge (300.920(e)). To prevent possible misrepresentation or misinterpretation, all product labels, literature, or advertisements that refer to placement on the Schedule must either reproduce the entire EPA letter announcing the placement on the Schedule or include the disclaimer set forth in Section 300.920(e).

How can further information about listing products on the NCP Product Schedule be obtained?

Further information on listing a product may be obtained by calling EPA's NCP Information Line at (202) 260-2342.

Notice to OSCs

Over the last few months, the EPA Oil Program has received several reports regarding the possible unauthorized use by states and first responders of both NCP Product

Schedule-listed chemical countermeasures (dispersants) and products not listed on the Schedule. In one case, the use of a listed product without the authorization of the OSC resulted in a substantial fish kill. In another incident, an unlisted product, formerly listed on the Schedule as a miscellaneous agent, was used as a dispersant.

There is a concern that the designation of "pre-approved" areas for the use of products on the Schedule has led to the incorrect belief that the products may be used at will on spills. Please help to maintain the integrity of the regulations by informing the response community about the proper use of chemical countermeasures, and ensure that the required procedures are being followed. For more information about the proper use of dispersants, please contact Nick Nichols of EPA at (703) 603-9918.

Aboveground Storage Tank Symposium

The challenge of preventing and managing aboveground storage tank (AST) fires will be the main topic at the Atlanta Fire Department's AST Symposium, to be held May 11-15, 1998. The symposium consists of three course options: two three-day courses, or one five-day course which combines the two three-day courses. The following are the course descriptions: Course A - Inspection of AST Facilities for Fire Safety (covers the design, construction, and leak detection of

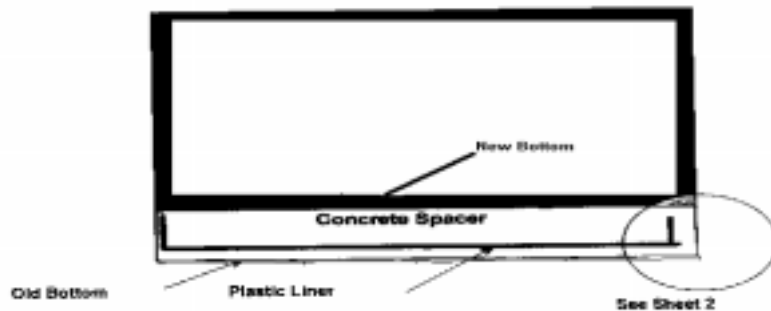
petroleum storage tank facilities); Course B - Fire Prevention, Protection, and Suppression of AST Fires (encompasses how to pre-plan for fires, how to mitigate consequences, what equipment is necessary, and when to evacuate); and Course C - a combination of both courses.

Last year's symposium was well-received, with many participants from other countries, including England and New Zealand. The keynote speaker for this year's symposium will be Mel Cosgrove, Chairman of the National Fire Protection Association, 30-A Committee.

For more information on the upcoming symposium, contact Chief H.D. Jones at (404) 853-7010, James Brundage III (AST Symposium Chairman) at (404) 530-6639, or visit the symposium website at www.atlanta.org/dept/fire/symp98.htm.

One Company's Approach to Double Bottom Tanks

Figure 1-Sheet 1
Double Bottom Tank



What is the best way to protect the environment from the leaking bottoms of aboveground storage tanks? A simple but effective method is to simply put an impermeable (liquid proof) liner under the tank bottom so, if the tank bottom leaks, it will be diverted to the perimeter where it can be visually observed and corrected.

Before tackling how to construct a double tank bottom, let us take a refresher from the American Petroleum Institute (API) concept called the Release Prevention Barrier or RPB. API states "API supports a general position of installation of a Release Prevention Barrier (RPB) under new tanks during initial construction." Notice that the statement addresses new tank construction only. This is because installation of an RPB is a simple and easy operation before the tank is constructed.

For new tanks, any medium which is relatively impermeable will work; it can be a plastic liner, clay, impermeable soil, a reinforced concrete foundation or anything else that will serve to block the flow of hydrocarbons into the ground and provide an early warning that leakage is occurring.

For existing tanks, the problem is much more difficult. Chevron solved the problem of using RPBs by inventing the “double bottom tank” or “El Segundo” tank bottom. In essence, a double bottom is an RPB and it functionally satisfies the requirements of an RPB. Figure 1, sheet 1, shows an example of what this looks like.

The practice has become widespread, but it not used as often as it should be, even by Chevron. The reason is that the economics appear to be misleading. While the cost of a double bottom tank is more than that of repairing a single bottom tank, Chevron has shown that the long-term total cost of ownership is more economic for a double bottom tank program.

The chart on your below shows the pros and cons of repair vs. double bottom. The scenario is that a tank has been taken out of service for an internal API 653 inspection. The bottom is corroded in some places.

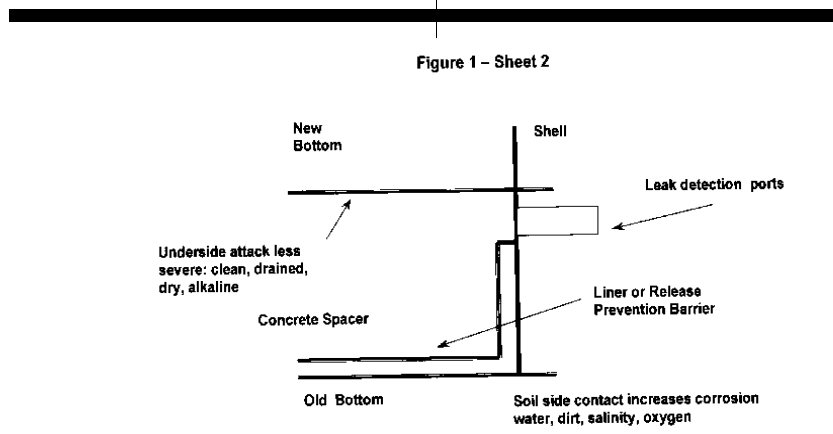
While this table is brief, it shows the benefits of a double bottom. The best way to understand this is to consider corrosion and costs. Tank bottoms are subject to both internal (topside) as well as external (underside) corrosion effects. Bottoms are typically ¼ inch thick. Tank bottoms last anywhere from

about 10 years to over 50 years. Studies by Chevron show that, on average, a double bottom tank lasts about 30 to 50 percent longer than a single bottom tank under the same conditions.

The reason for this is that the underside attack by corrosion is substantially mitigated by the double bottom construction details.

- presence of water
The internal corrosion is reduced because the bottom slope and drainage of internal water is better due to the underlying concrete

Another big advantage to the double bottom tank is that the internal inspection frequency can be reduced. API 653, which is the



The double bottom reduces corrosion by:

- Raising the bottom off of the dirt so that it is in a less corrosive environment
- If concrete is used as shown in the figure the concrete is actually a corrosion inhibitor because it is alkaline in the

standard for tank internal inspections, has a safety factor of 0.1 inch to allow for uncertainty in corrosion rates. For a tank which has a double bottom, not only are the corrosion rates reduced, but there is less need for a safety factor and the 0.1 inch can be reduced to 0 inches because in all reported cases the double bottom tank has not only acted as an early warning system but no environmental damage has occurred.

Precautions should be used with double bottoms. First, it would be foolish to attempt to double bottom all tanks at once. Not only would there be insufficient resources to do this, it would waste the “remaining life” of many good tank bottoms.

| | Repair | Double Bottom |
|---|----------------|----------------------|
| Cost | Varies | Usually higher |
| Leak detection | None | Included |
| New lifespan | Same as before | 35 – 50% longer |
| Release Prevention Barrier (RPB) | None | Included |
| Bottom Monitoring | None | Included |

The method Chevron has used to handle this problem is to phase in the double bottom over a period of time which is roughly coincident with the average period between internal inspections (between 10 to 20 years).

Another problem with such a program is that some tanks should not be double bottomed. Chevron has delineated certain products that do not require a double bottom. A good example is asphalt where, if the bottom leaks, there is no significant environmental consequence. Other examples are situations in which the double bottom would jeopardize the integrity of the tank, such as very soft soils in which the bottom would severely deform. In these environments, other methods such as more frequent internal inspections, good coatings, and cathodic protection can extend the life and guarantee tank integrity.

How do you install a double bottom? The best way is to contract with a reputable firm that has expertise, experience and the know-how to do it right. Doing it right is critical for a good, long-term working double bottom. There are many cases where a poor job has created more problems than it has solved. A few good companies have done this work for Chevron.

As far as details go, a minimum thickness 80-mil polyethylene (HDPE) liner is placed on the old bottom. Sometimes a geosynthetic fabric is placed under the liner to protect it from old bottoms, which are rough enough to cut the liner. Next, a spacer is used to separate the new bottom from the old one.

Sand can be used, but this requires cathodic protection and care in handling of the plates. Concrete works better than sand, according to Chevron. Concrete functions as a corrosion inhibitor, does not rely on a cathodic protection system to work, and provides a good hard bottom surface which allows for accurate control of the tank bottom slope. This makes for good water removal, which reduces corrosion and keeps the product clean. After the concrete is poured and sloped to the proper point, the new bottom is welded on top of the concrete spacer just as it would be for a new tank installation. Lastly, the shell slot is sealed by the proper welding techniques and the tank is just about as good as new.

For more information regarding double bottom tanks, you may contact Philip Myers from Chevron at (510) 842-2288 or pemy@chevron.com or Phil Wetmore from Chevron at (510) 842-9546 or pawe@chevron.com.

This article is a summary of a presentation made at the 1998 Freshwater Spills Symposium in St. Louis, Missouri. It is not intended to be an advertisement for a specific technology.

Visit the Oil Spill Program at
<http://www.epa.gov/oilspill>

To report oil and chemical spills,
call **1-800-424-8802**

