

MUST News

Department of Environmental Quality

Fall Issue 2010

The "Perks" of Petroleum Brownfields

During the "Ice Age" large ice sheets dammed up the former Missouri River drainage forming the deep Glacial Lake Great Falls. The area around 901 Central Avenue in Great Falls, Montana and most of the surrounding area was underwater. In 1929, the property at 901 Central Avenue in Great Falls was a lumber mill. A stone building occupied the majority of the lot and, at that time, the area was just being developed. By 1950, the lumber mill was gone, and in its place were gasoline underground storage tanks (USTs) and a small building used as a gas station. In 1966, a new building was constructed to serve as a Phillips 66 Service Station, and the USTs were replaced. The new USTs were last used in 1977, and from 1978 until about 1998, the business was operated as an automotive service center under various names, most recently A-1 Transmission. Since the closure of A-1 Transmission, the property has been vacant. While the use of the property at 901 Central Avenue changed and eventually stalled, the City of Great Falls was growing up around it. A thriving downtown area with various businesses and government buildings rose out of the old lake bed of Glacial Lake Great Falls.

Photos by J Finn

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The “Perks” of Petroleum Brownfields – *continued from page 1*

The property at 901 Central Avenue had been vacant for nearly ten years when a local developer, Platinum, LLC, saw redevelopment potential for the property and had an environmental site assessment (ESA) conducted in October 2007. The ESA confirmed the presence of a petroleum release. Platinum, LLC worked with the previous owner on meeting DEQ’s assessment requirements. The site is eligible for Petroleum Tank Release Compensation Fund (PTRCF) reimbursement and, in spite of the environmental issues at the site, Platinum, LLC purchased the property in January 2008. A cleanup plan for the site was approved by DEQ on February 10, 2009, but money was not available in the fund to be obligated for the work and it appeared that the site might sit vacant even longer.

Enter the Petroleum Brownfields Program. The Great Falls Development Authority (GFDA) had received a Brownfields Revolving Loan Fund Grant from the Environmental Protection Agency in 2005. A portion of this grant is to be used at eligible petroleum brownfield sites. The first few years that GFDA had their grant, they were unable to find a site that met the petroleum brownfields eligibility criteria*. However, during the summer of 2009, DEQ and GFDA partnered to identify poten-

tial petroleum brownfield sites, and DEQ suggested the property at 901 Central Avenue as a potential candidate for an RLF loan.

GFDA approached Platinum, LLC, who gave their permission for GFDA to pursue a petroleum brownfields eligibility determination for the site. DEQ worked with GFDA to obtain the information necessary to determine that the site was eligible to receive the loan, and the PTRCF staff joined the discussion and worked with Platinum, LLC and GFDA to negotiate repayment terms and write a letter of obligation for repayment of the loan.

Excavation and replacement of petroleum contaminated soil with clean fill commenced on May 13, 2010. A total of 3,060 cubic yards of contaminated soil were removed and landfarmed. Confirmation soil sampling demonstrated that nearly all petroleum contaminated soil was successfully removed. Three new monitoring wells were installed on the property. It is anticipated that the site may be reviewed for closure after a few rounds of semi-annual groundwater monitoring are conducted to verify that human health standards and risk based screening levels are satisfied.

**BROWNFIELDS FUNDING:
901 Central Avenue, Great Falls, MT.**



Before



After

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The "Perks" of Petroleum Brownfields – *continued from page 2*

Due to the expedited cleanup, construction of a new Mountain Mudd Espresso coffee kiosk has begun and a landscaped park on the front corner of the property is taking shape. Because of the vision and patience of Platinum, LLC, the legwork and funding from GFDA, and the cooperation of federal and state agencies with the private sector, a petroleum brownfields site has moved from a vacant lot with a dilapidated building to a walk-up and drive-through Mountain Mudd Espresso shop complete with a small park, three to five years sooner than it otherwise might have. Threats to human health and the environment have been mitigated, jobs are being created, and a valuable business will be provided for the citizens of Great Falls.

Next time you're in the neighborhood, grab a latte and enjoy the park. In the meantime, think about brownfield sites in your own community that could benefit from a brownfields assessment or grant, and contact DEQ or your local brownfields grantee with suggestions and ideas. Many communities in Montana have

brownfield assessment and/or revolving loan fund grants, and are looking for opportunities to use them to ensure the health and welfare of their residents and to improve the appearance and collective morale of their communities.

* The criteria used to make petroleum brownfield eligibility determinations in Montana are mandated in brownfields law and are outlined and described in detail in DEQ's Petroleum Brownfields Guidance Document at <http://deq.mt.gov/Brownfields/MTBrownfieldsPrograms.mcp>. ■

jUST Jargon – Petroleum Hydrocarbon Fractions

The Montana Department of Environmental Quality (DEQ) uses the Massachusetts Method for Volatile Petroleum Hydrocarbons (VPH) and the Extractable Petroleum Hydrocarbon (EPH) analyses to separate the petroleum hydrocarbon compounds present in a petroleum release into broad classes based on chemical structure. Chemicals grouped within these broad "fractions" have relatively similar physical and toxicological properties that allow risks to be calculated much more accurately than with the "non-fractionated" Total Petroleum Hydrocarbon (TPH) methods. The classes consist of aromatic and aliphatic compounds. Compounds such as benzene whose carbon atoms are joined together in a ring structure are Aromatic compounds. Compounds whose carbon atoms are joined together in straight or branched chains are Aliphatic compounds. Since there are a large number of compounds in each of the classes, they are further subdivided into fractions based on the number of carbon atoms, environmental behavior and toxicity. The VPH analysis reports three fractions: C5-C8 aliphatics, C9-C12 aliphatics, and C9-C10 aromatics. The EPH analysis reports C9-C18 aliphatics, C19-C36 aliphatics, and the C11-C22 aromatics. The analytical results from the VPH and EPH fractions are compared with Risk Based Screening Levels, which are determined based on the risk that the fraction poses to human health and the environment.

ACKNOWLEDGEMENT

The following article is an excerpt from “What’s in Store for Tanks and Tank Programs Over the Next Decade – Part I” and has been reprinted with permission from the New England Interstate Water Pollution Control Commission that publishes L.U.S.T. Line newsletter, a report on federal and state programs to control leaking underground storage tanks. The first part of the article appeared in the summer 2010 issue of *MUST News*.

L.U.S.T. LINE - TRANSITION

What’s in Store for Tanks and Tank Programs Over the Next Decade – Part 1 (second half)

by Ellen Frye

Will the operator training requirements of the 2005 Energy Policy Act (EPAAct) have the desired effect?

It stands to reason that operator training and certification will afford operators a better understanding of what they must do to operate and maintain their UST systems and comply with UST regulations...but to what degree? It still all depends on enforcement. States have to be willing to provide frequent, consistent, slap-on-the wrist enforcement if owners and operators are to learn what they need to learn and then DO what they are supposed to do. There is still something to be said for the old “fear of getting caught” mindset. Without effective enforcement, the results of the operator training initiative are likely to be disappointing.

We must also take into account certain barriers that may well come into play with regard to the success of operator training:

- **Language** – Many single owners/operators may not speak and understand English well enough to engage effectively in state training programs.
- **Complexity** - Rules have become even more complex as a result of the 2005 EPAAct requirements.
- **Economic** - Hard times dictate that many owner/operators must make choices. What will win out, paying the beer vendor or testing the automatic line leak detectors?
- **Culture/attitude** – Regulations are often not easily understood by some recent immigrants and are not viewed favorably by some longtime U.S. residents.

Can regulators mitigate these barriers?

Will the goals of the federal Renewable Fuel Standard (RFS) be achievable if we continue in the direction(s) we are heading (i.e., mainly E10 and little E85, biodiesel, or cellulosic ethanol in production)?

The RFS program was created under the EPAAct, requiring the

volume of renewable fuel blended into gasoline to reach 7.5 billion gallons by 2012 (RFS1). Under the Energy Independence and Security Act (EISA) of 2007, the Renewable Fuel Standard program increased the volume of renewable fuel required to be blended into transportation fuel to 36 billion gallons by 2022 (RFS2). Of these modifications, several are notable. First, the required renewable fuel volume continues to increase under RFS2, reaching 36 billion gallons by 2022. The chart below shows the volume requirements from EISA.

In a February 16th speech at the Renewable Fuels Association conference, General Motors Vice Chairman Tom Stevens said that half of the company’s vehicle line-up will be able to run on E85 by the 2012 model year. He noted that 12,000 or more ethanol stations are needed “to have ethanol fuel available for every one of our customers within about two miles of where they live.” So it appears that at least automobile manufacturers are taking RFS2 requirements seriously.

What impact will E15 have on existing UST systems and gasoline retailers?

Chances are that USEPA will give the green light to 15 percent ethanol (E15) in gasoline (a decision is expected by late summer 2010) for at least a portion of the existing vehicle fleet. Compatibility of most UST systems with E10 may not be much of an issue, although we can’t be certain. On the other hand, UST systems storing E85 often need to be built from scratch with alcohol-compatible materials. At what point between 10 percent ethanol and 85 percent ethanol should the UST regulatory community be concerned?

And what about older cars and small engines (e.g., boats, lawnmowers, weed whackers) that are not compatible with higher ethanol percentages? It seems unlikely that very many marketers will give up E10 and sell only E15. But how many marketers have an extra tank lying around that they can use for E15? How many will want to invest the tens of



L.U.S.T. LINE – TRANSITION – What’s in Store for Tanks and Tank Programs Over the Next Decade – Part 1 (second half) – *continued from page 4*

EISA Renewable Fuel Volume Requirements (in billion gallons)

Year	Cellulosic biofuel requirement	Biomass-based diesel requirement	Advanced biofuel requirement	Total renewable fuel requirement
2008	n/a	n/a	n/a	9.0
2009	n/a	0.5	0.6	11.1
2010	0.1	0.65	0.95	12.95
2011	0.25	0.80	1.35	13.95
2012	0.5	1.0	2.0	15.2
2013	1.0	a	2.75	16.55
2014	1.75	a	3.75	18.15
2015	3.0	a	5.5	20.5
2016	4.25	a	7.25	22.25
2017	5.5	a	9.0	24.0
2018	7.0	a	11.0	26.0
2019	8.5	a	13.0	28.0
2020	10.5	a	15.0	30.0
2021	13.5	a	18.0	33.0
2022	16.0	a	21.0	36.0
2023+	b	b	b	b

a To be determined by EPA through a future rulemaking, but no less than 1.0 billion gallons.
b To be determined by EPA through a future rulemaking.

thousands of dollars it will take to dispense E15? And how many customers will want to buy E15 when they see their mileage per gallon decreasing as the percentage of alcohol increases?

Storage system compatibility issues aside, what’s a marketer to do if he wants to store, meter, and dispense E10 and E15 fuels? Chances are it will cost him more money but only yield the already slim profit margin. Will tank owners continue to fall by the wayside if they feel the investment will just put them deeper in the hole.

Assuming that the fuel blend will change, what should tank regulators do to position them-selves to accommodate the new fuels on the horizon without risking new releases or more challenging cleanups, and how can we anticipate and manage the unintended consequences of increased use of biofuels?

On the leak prevention end, regulators want to know that UST owners and operators are using equipment that is compatible with the fuel being stored. A number of states (including IA, NC,

and WI) require UL-listed equipment or manufacturer’s certification for use with ethanol blends greater than 10 percent. A good way for owner/operators to do this is verify the UL listing or contact the manufacturer. However, in cases where the owner/operator cannot show a UL listing or documentation from the equipment manufacturer that the entire UST system is compatible with mid-level blends (E15, E20, E30), are states willing to prohibit the storage of higher-level blends?

With regard to leaking underground storage systems, consider the fact that currently 80 percent of gasoline sold in the U.S. is E10, and yet we haven’t really turned over all the stones with regard to ethanol’s behavior in the environment. As we have seen time and again, a “fix” for one environmental problem can often create yet another environmental problem—unintended consequences—if the life cycle of the fix isn’t examined adequately (e.g., MtBE).

Such new fuel consequences might include potential for vapor intrusion due to production of methane, changes in redox chemistry in plumes to mobilize arsenic and manganese, or

L.U.S.T. LINE – TRANSITION – What’s in Store for Tanks and Tank Programs Over the Next Decade – Part 1 (second half) – *continued from page 5*

solubilization of metals from water intakes. What minor components of biofuels, such as antioxidants, denaturants, and other additives, are of particular concern? It would be nice to know what is going to be in our fuel supply before it is added, not ten years later.

Will those of us in the groundwater protection sector ever be able to have a say on what is stored in petroleum storage tanks in order to ward off the chance of a release into the environment?

Right now, fuel content seems to be dictated by air programs and Congress. Wasn’t that how we ended up with a multibillion dollar MtBE problem? The press happily covers issues concerning compatibility of automobiles with higher ethanol blends, but we never see any discussion of compatibility with tank systems and higher ethanol blends. There is a serious lack of consideration for how long it will take to implement storage and dispensing infrastructure retrofits or extreme makeovers, the costs, and who pays.

We need more coordination between air, water, and waste programs, as well as vehicle and other engine manufacturers, fuel dispensing equipment suppliers, transportation people, agricultural interests, health officials, and so on. And we certainly need more lead time to make changes in the fuel systems to avoid creating another generation of leaking tank systems.

What impact will ultra-low-sulfur diesel fuel have on fuel stor-age systems?

There are instances of excessive corrosion being observed, which would have in impact on our fuel-storage systems. How serious is this threat? (See more on ULSD on page 16.)

In what fuel/technology direction is the military going?

The U.S. military is collectively the biggest tank owner in the country. The EPAAct of 1992 set requirements for the acquisition of alternative fuel vehicles (AFVs) by federal agencies. Starting in fiscal year 2000, 75 percent of light-duty vehicle (LDV) acquisitions had to be AFVs. Law enforcement, emergency, and military tactical vehicles were exempt. A subsequent amendment permitted federal agencies to use biodiesel to meet a portion of their alternative fueled vehicle (AFV) acquisition requirements.

Biodiesel, a cleaner burning alternative fuel produced from domestic renewable feedstock such as vegetable oils, is typically used as B20 (a blend of 20% biodiesel and 80% petroleum diesel). The use of 2,250 gallons of B20 equates to one AFV credit under EPAAct.

ASTM D 6751, “Standard Specification for Biodiesel Fuel Blend Stock (B100) for Middle Distillate Fuels” is the spec used for blending biodiesel with petrodiesel in levels up to 20 percent by volume. Since there is currently no ASTM standard for higher percent petrodiesel blends, it is likely the military is using B20. However, biodiesel is not approved for use in tactical vehicles because of concerns regarding its long-term stability.

The bigger question for federal and state tank programs continues to center on the degree to which these entities are able to regulate and enforce military tanks. And an even more exciting futuristic question: Does the military have a secret underground cave where they are developing petroleum-free, pollutant-free, Star-Trek-like vehicles that will move us all into a new realm of transportation and put UST regulators out of business? ■

“In early 1999, during the EPA Blue Ribbon Panel hearings on fuel oxygenates, one of the committee members (who happened to be a VP for one of the largest MtBE producers) stated that if the tank people would just finish getting all the bare steel tanks out of the ground, there would be no MtBE problem, because gasoline (and MtBE) wouldn’t leak from a 1998-compliant tank. I believe that we have discovered that that wasn’t true. “

PATRICIA ELLIS

DELAWARE DEPARTMENT OF NATURAL RESOURCES & ENVIRONMENTAL CONSERVATION



State's First Certified "Green" Office Building in Kalispell



Montana state government is a shade greener, after one of its newest office buildings received official Leadership in Energy and Environmental Design (LEED) certification from the United States Green Building Council.

LEED is a rating system to evaluate environmental performance of buildings and encourage "green design." The system is credit-based, assigning points for each technology or design strategy implemented in a building design.

"A building requires at least 26 points for LEED certification, and our new Kalispell facility collected a total of 29," said Richard Opper, Director of the Montana Department of Environmental Quality (DEQ). "The building is sited for optimal solar energy gain and exceeds Energy Code minimums by 27 percent. Stormwater detention ponds return 90 percent of run-off to the subsoil on site. The heating and cooling system is 55 percent more efficient than minimum state code requirements."

"It's highly energy-efficient, it offers great convenience to the public, and it was designed and built using Montana talent and Montana materials," said Mary Sexton, Director of the Montana Department of Natural Resources and Conservation (DNRC), of the building that houses offices of the DEQ, DNRC and the Flathead Basin Commission. "I think it sets a new standard for green building design in our state."

The 17,900 square-foot office building is located at 655 Timberwolf Parkway in Kalispell and houses 54 employees. A separate fire cache and shop of 5,423 square feet serves DNRC's regional firefighting efforts. Construction began in

August 2008 and employees took up residence in July of 2009. The building cost \$5.5 million and was financed through 2007 appropriations by the Montana Legislature and resource development funds.

Consolidating government offices under one roof is a component of Governor Schweitzer's 20 x 10 Initiative to reduce energy consumption in state-owned buildings, and DEQ Director Opper said the new arrangement in Kalispell is working well.

"From the standpoint of public service and meeting our various natural resource missions, it's a great approach to put all of us under one green roof," Opper said. "DEQ, DNRC, and the Flathead Basin Commission are longtime partners in a lot of the work we do in the Flathead Valley."

Designed by Gordon Whirry Architecture of Great Falls and built by general contractor Hammerquist & Casalegno of Kalispell, under the auspices of the Montana Department of Administration, the building "has a very strong sense of place," DNRC Director Sexton said. "The landscaping and the interior make use of local wood and stone, and drought-tolerant shrubs and grasses. The main counter in the lobby is one solid slab of pine from a tree grown on state land in the Flathead."

Opper and Sexton noted that buildings in the United States are responsible for 39 percent of CO2 emissions, 40 percent of energy consumption, and 13 percent of water consumption. "In Montana and the rest of the nation, building green is an economic and environmental opportunity," said Sexton and Opper. ■

Recent Appointments to Petroleum Tank Release Compensation Board

Congratulations to a new member appointed by Governor Brian Schweitzer to serve on the Petroleum Tank Release Compensation Board and to two former members who've been reappointed.

Jerry M. Breen of Choteau joins the Petro Board as a news appointee to represent the independent petroleum marketing industry representative. Breen owns and operates Breen Oil Company, which distributes gasoline, diesel, oil, tires and propane. He has served in leadership positions with the Montana Petroleum Marketers Association, and has a degree in business administration from the University of Montana.

Roger Noble of Kalispell continues on the board representing the petroleum services industry. Noble is the principle and

senior hydrogeologist with Applied Water Consulting, LLC. He has a master's degree in geology from the Montana College of Mineral Science and Technology and a bachelor's degree in geology from the University of Montana.

Karl Hertel of Moore also continues on the board and represents the insurance industry. Hertel has a degree in agriculture business from Montana State University. He's a member of the Farmers Union Mutual Insurance Board and also works on his family farm and ranch. He is active in local livestock and agriculture associations.

Breen, Noble, and Hertel will serve a term of three years. Their terms expire in June 2013. The *MUST News* team thanks these gentlemen for their public service. ■

THANK YOU to Greg Cross

The Montana Department of Environmental Quality and Petroleum Tank Release Compensation Board would like to express thanks and appreciation to outgoing board member Greg Cross for his service as a member and as chairman. He is one of the longest serving members of the board and has held the position of chairman for several years. Mr. Cross served with the utmost dedication for three consecutive three-year terms representing independent petroleum

marketers and chain retailers. It was an honor to work with Mr. Cross. His commitment to the wise use of Petro funds and the cleanup of petroleum releases was evident. It is because of the commitment and hard work of people like Greg that the state is realizing the economic and environmental benefits of the Petroleum Tank Release Cleanup Fund. We wish Greg the best in his future endeavors. ■

jUST Jargon – Boring

Think soil sample and collection holes. A boring is a vertical, cylinder-like sample collection hole and cylindrical sample of earth obtained by boring a vertical hole into the soil. Once drilled a variety of investigation and cleanup equipment can be installed or constructed inside the "bore hole," such as: groundwater monitoring wells, vapor monitoring points, air sparge points, vacuum extraction wells, free product recovery wells, electric resistance heating electrodes, etc.



UST Oversight Inspection Summary

Every three years, each UST facility in the state of Montana is required to have a compliance inspection that is conducted by third party licensed inspectors. DEQ licenses the inspectors after they have shown competency in the ability to inspect a tank system by demonstrating past experience with tanks, passing a field inspection test and passing a written examination. Continuing education courses are also required to keep the license up to date. Since the department licenses the inspectors, the department also feels the need to ensure the inspectors are doing the job they are licensed to perform. This is where the UST oversight inspection comes in.

A state inspector, who has been licensed following the same requirements as a compliance inspector, will follow up a routine compliance inspection with his own oversight inspection. The oversight inspection is conducted within the six months following the compliance inspection, although usually it is much sooner after the compliance inspection than six months. The oversight inspection is conducted in exactly the same manner as the compliance inspection but the oversight inspector is looking for any deficiencies that a compliance inspector did not notice. The main purpose of an oversight inspection is to inspect the inspector. However, if additional deficiencies are found, the facility is responsible for correcting all new deficiencies.



Eric Meredith – Tank Nest

inspections during the same time-frame, making sure to inspect the work of each inspector at least once.

The biggest problem encountered during oversight inspections is a lack of leak detection records. For most leak detection methods, a facility must keep documentation of one record of leak detection for every month throughout the past year. This is true for both tank and piping leak detection. It is common for facilities to have tank leak detection records and then not have any records for piping leak detection. Remember, most facilities must have leak detection records for both tanks and piping. Other common issues that are discovered during oversight inspections include a failure to sufficiently anchor the shear valves, having liquid and debris in the spill buckets, and using a spill bucket that is not liquid tight. To alleviate these concerns you should periodically check your spill buckets for debris and to see if there are any holes in them. Spill buckets should be considered a maintenance issue with the average life span of a spill bucket being about five years.

Many facility owners and operators get a bit skittish with the thought of a state inspector snooping through their facility. Remember, state inspectors are there with two goals: to protect the investment you made on your tank by ensuring you get a quality inspection, and to prevent releases that cause harm to the environment and could cost you more down the road. Oversight inspections are also a good time to ask any questions or voice any concerns that you may have since you will have a trained professional on site. ■



Seth Hendrix doing UST Oversight Inspection

The UST Section tries to conduct oversight inspections on roughly 10 percent of all the compliance inspections that are conducted. For fiscal year 2010, which ended on June 30, 2010, there were 398 compliance inspections conducted by 18 different inspectors. The UST Section performed 43 oversight

Energy Policy Act – Five Years of Implementation

A Letter of Recognition from US EPA

TO: EPA, State and Tribal UST Partners

DATE: August 2010

As the Assistant Administrator for EPA's Office of Solid Waste and Emergency Response, I am proud to oversee the federal underground storage tank (UST) program, as well as other programs such as Superfund, Brownfields, emergency management, and solid waste management. Today I am writing to celebrate the underground storage tank program's progress over the past five years implementing prevention provisions of the Energy Policy Act of 2005. The underground storage tank program is a fine example of how much we – states, territories, tribes, and EPA – can achieve when we collaboratively partner to protect our environment.

When Congress passed the Energy Policy Act in August 2005, EPA, state (including territorial), and tribal UST programs were presented with a mandate that focused on reducing UST releases and required numerous changes to tank programs. This month marks the five year anniversary since the Energy Policy Act became law. Additionally, August 8, 2010, is an important Energy Policy Act deadline: the first three year on-site inspection requirement for all active USTs.

Over the past few years, states, tribes, and EPA devoted considerable efforts to meeting the three year inspection requirement. I sincerely thank you for your unwavering dedication to successfully reaching this significant milestone, and I congratulate you for your achievement. These positive results reflect your commitment and hard work:

- Almost all states except a few will successfully complete this first three year inspection requirement by August 8, 2010, or will do so soon after.
- EPA or its tribal partners will conduct inspections at all UST sites in Indian country by August 8, 2010, or soon after, except in two Indian Nations where sovereignty issues play a role.
- With continued support, states and EPA anticipate maintaining a three year inspection cycle from now on.

Over these five years, EPA, states, and tribes have shown tremendous dedication and made significant progress toward meeting many of the Act's requirements and strengthening UST release prevention programs. For example, all states have grant agreements in place to implement Energy Policy Act provisions. The attached graph depicts progress in meeting these major Energy Policy Act requirements: additional measures to protect groundwater, delivery prohibition, state UST compliance report, two year inspections, public record posted, operator training requirements developed, and three year inspections. And states are working diligently to complete the remaining requirements. In addition, EPA is collaborating with tribal partners, as well as other UST stakeholders, to develop regulations, which ensure these prevention requirements apply in Indian country too.

I am extremely pleased with the impressive progress states have made, as well as EPA regions' efforts in working with their state and tribal partners to meet these prevention provisions. I believe that because of this increased emphasis on prevention and compliance, our nation's groundwater and land will be safer, and we will see a reduced number of underground storage tank releases that threaten our environment.

As we celebrate our accomplishments at this fifth anniversary, let's also be attentive to the remaining tasks still ahead. Entering into grant agreements, developing requirements, and reporting on progress for the major Energy Policy Act UST provisions are important first steps. Now states are faced with the ongoing work necessary to implement these prevention requirements. The inspection requirement is a good example of this. States and territories did much to meet

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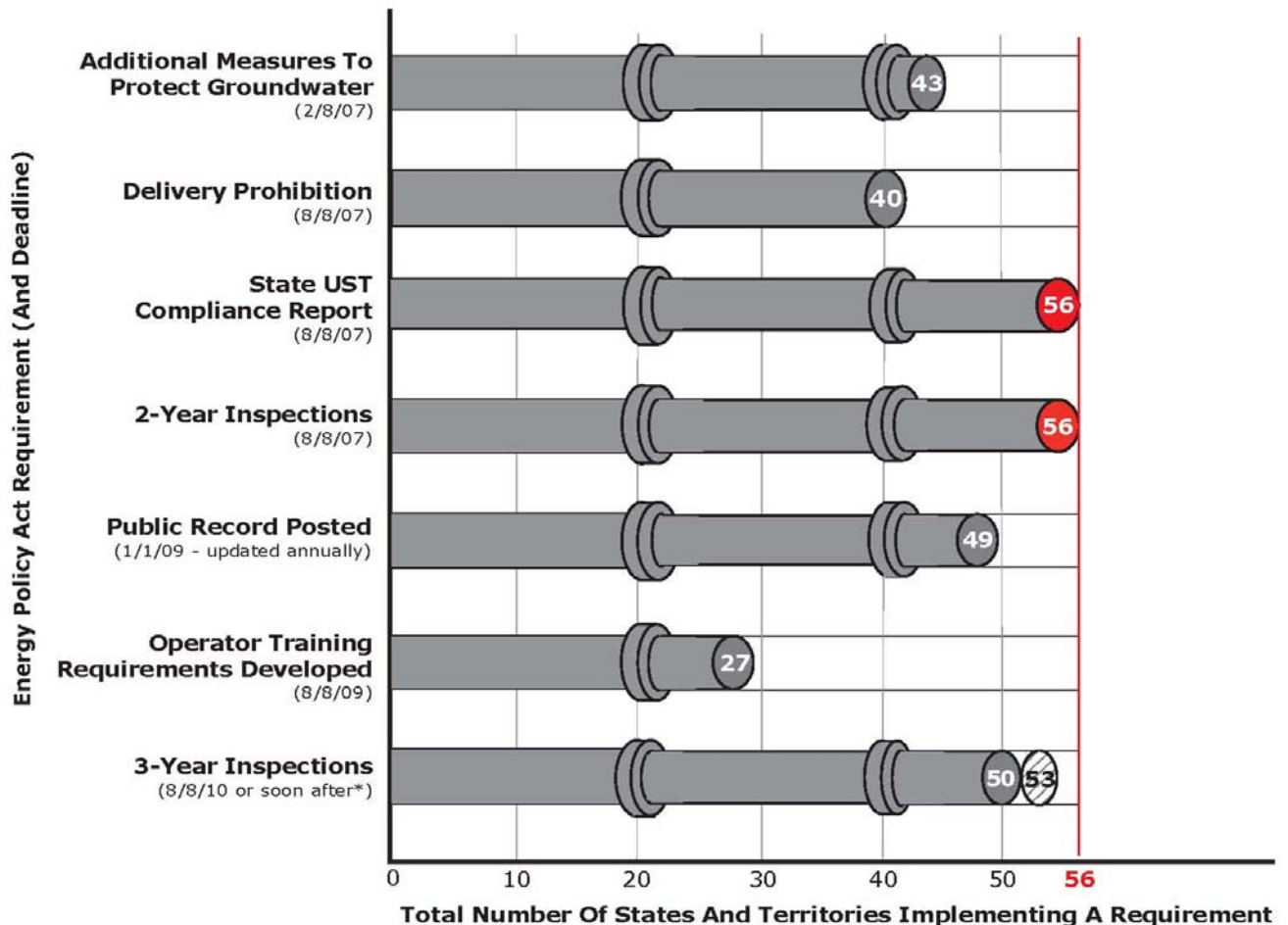
Energy Policy Act – Five Years of Implementation – A Letter of Recognition from US EPA – *continued from page 10*

the initial two year August 2007 inspection requirement as well as the first of the three year inspection cycles in August 2010. The three year inspection cycle continues on into the future. The operator training requirement is another example. By August 2012, states need to ensure operators are trained in accordance with the newly-established standards.

I am confident that state, territorial, and tribal UST programs, working with EPA’s regional UST programs, are up to this ongoing challenge. I know that together we will continue to make strides in keeping our land and groundwater safe from underground storage tank releases. I greatly appreciate your efforts thus far, and thank all of you who have contributed in so many ways to our successful efforts in meeting the UST prevention provisions of the Energy Policy Act.

Mathy Stanislaus
 Assistant Administrator Office of Solid Waste and Emergency Response
 US Environmental Protection Agency

Number Of States And Territories Indicating They Have Implemented An Energy Policy Act UST Requirement (Of 56 States And Territories) August 8, 2010



* 50 states will meet the deadline; three more states will meet the requirement soon after it.

Public Comment Encouraged for Petroleum Fund Rule Changes

The Petroleum Tank Release Compensation Board is requesting public comment on proposed amendments to its rules under Montana Law. The rule changes include, but are not limited to, eligibility requirements for the Petroleum Release Compensation Fund for underground and above ground storage tanks, comingled underground storage tank (UST) releases, guidelines for public participation, terminology definitions and clarifications, operation and management of USTs, insurance coverage and third party responsibility, corrective action plans and reimbursable costs.

The board's procedural rule requires updating as a result of amendments to Montana Code Annotated 2-4-202 and subsequent amendment of the model procedural rules in 2008. The proposed amendments install the correct model procedural rule references and are consistent in most respects with the Montana Department of Environmental Quality's model procedural rule.

For more information about the proposed changes, visit page 105 of the of the Petroleum Tank Release Compensation Board's September 13, 2010, Agenda located at <http://www.deq.mt.gov/pet/BoardMeetings.mcp.x>. ■

Installer/Remover License Revoked by UST

An underground storage tank (UST) facility in Billings was issued in 2007 two separate closure permits for the removal and site assessment of five USTs. The permits were issued to Todd Bernhardt.

Bernhardt did not provide the UST Section of the Montana Department of Environmental Quality (DEQ) with documentation required by each closure permit to close the tanks and remove them from DEQ's active state inventory. Submittals required by the permit were: closure forms, site sketch, soil samples and signed permit. After six months passed from the date of issuance of each permit, the UST section began telephone inquires and written requests to Bernhardt to provide the information. These attempts failed. The UST section then requested and received assistance from the DEQ Enforcement Division, which issued an Administrative Order to require

Bernhardt to provide the necessary submittals. Bernhardt did not comply with the Administrative Order.

The DEQ Enforcement Division then issued an Administrative Order to the owner of the property to provide the required documentation. This action was successful and these underground storage tanks are now deemed properly closed.

The UST section concluded this effort with revocation of Bernhardt's Installer/Remover license. The revocation action was based on Administrative Rule of Montana 17.56.1421 that states that DEQ may "restrict, condition, modify, suspend, revoke, or refuse to renew any license based on a violation of a department rule or order" or violation of any of the rules of professional conduct that govern the licensee's behavior. ■

jUST Jargon – Investigation

An investigation is any follow-up regulatory activity that is completed to validate, document, or resolve a violation or a complaint. Examples of investigations include, but are not limited to: documented phone calls, letters or contact with the responsible party or with other appropriate sources, the review of department files to determine site history, field investigations, and any sampling and analytical results. A Remedial Investigation conducted to determine the full extent and location of petroleum contamination from a petroleum release requires detailed assessment information described in Administrative Rules of Montana (ARM) 17.56.604, found at: <http://deq.mt.gov/dir/legal/Chapters/Ch56-toc.mcp.x>.



Containment Sump Functional Testing Date Changed to December 31, 2012

Containment sump functional testing requirements such as hydrostatic method of testing, were proposed by the Underground Storage Tank (UST) Section to be implemented by facilities no later than December 31, 2010. However, during administrative rule adoption, written comments were received by the UST Section that spoke in favor of the requirement to test each system's sumps but disagreed to the implementation date. The UST Section agreed to the preference for a later date so that the rule now requires initial sump functional tests to be conducted by December 31, 2012, two years later than originally proposed. This requirement to test containment sumps applies only to those underground storage tank systems that use interstitial monitoring as the primary method of piping leak detection.



The objection to the proposed date of December 31, 2010, for initial sump functional test was that petroleum retailers are required during year 2010 to update their point of sale (POS) equipment to the Payment Card Industry (PCI) Data Security Standard. Retailers faced business costs with the implementation of the new data standard as well as our new functional test requirement during the same year. The UST Section agreed with

the comments and this new date of December 31, 2012, is incorporated into the rule final form.

Thank you to all who provided input to this specific rule making process. We value your involvement and look forward to your continued input in the years ahead. ■

Chemical Health Effects: Trimethylbenzene

Trimethylbenzene comes in three variations: 1, 2, 3,-trimethylbenzene, 1, 2, 4, and 1, 3, 5. Health effects from all variations are similar, but 1, 2, 4 is the most common type found in gasoline and other light fuels. It is a colorless liquid chemical with a strong, pleasant scent and is one of the most toxic chemicals in gasoline. Trimethylbenzene is a major part of what is known in the petroleum industry as the C9 fraction. Oil refineries produce large amounts of C9 fraction each year for use as a gasoline additive.

Sites polluted by leaking oil or gasoline storage tanks may contain trimethylbenzene contamination. People may be exposed to the chemical following releases to air, surface water, land or groundwater. Exposure can occur through inhalation, ingestion,

or skin or eye contact. You should avoid breathing gasoline fumes when refueling.

Breathing high levels of trimethylbenzene for even short periods affects the nervous system, causing headaches, tiredness, sleepiness or dizziness. The vapor irritates the nose, throat and lungs, causing coughing, wheezing and shortness of breath. Other symptoms include problems with muscle control, anxiety and confusion. Long term effects that can last for months or years may include anemia, asthma, shortness of breath, cough or chest tightness or skin irritation. ■

PTS Groundwater Monitoring “Pilot Project”

In late May 2010, the Petroleum Technical Section (PTS) of the Montana Department of Environmental Quality accepted bid proposals for a combined groundwater monitoring project at eight low-priority petroleum release sites. The idea behind the “pilot project” was to demonstrate cost, time, and resource savings through combined travel, mobilization, sampling, and report writing efforts. The selected release sites are geographically-close in three central Montana counties (Musselshell, Meagher, and Chouteau). Selected release sites are ranked as low priority sites and where natural attenuation is the current remedial action. Also, PTS targeted release sites where a round of follow-up sampling might close a release site.

PTS conducted an extensive search of release files to identify release sites that would be suitable for inclusion in the project. Release owners/operators (O/O) were contacted in late 2009 to determine if they were interested in participating in the project. The impetus was that their release site was a low priority site and, as such, PTS would likely not request work because PTRCB reimbursement funds would not likely be available in the near future. Most of the release sites already had environmental consultants; however, unless the O/O was going to be funding additional work, the consultant would not be losing work since the PTRCB reimbursement would not occur in a timely fashion. Once permission was granted by the O/O, PTS personnel gathered historical data, site maps. Following, personnel completed release site visits as an attempt to locate monitoring wells and meet with the responsible party.

PTS received 13 bids suggesting considerable interest in the pilot project. The submitted bids ranged from \$7,999.93 to \$25,306.29.

Each bid was reviewed and scored to ensure that the required elements were included in the bid documents. Items reviewed included the following: contact information; consultants’ ability to demonstrate adequate training, qualifications and specific field experience; consultants’ experience in conducting groundwater monitoring for a state or federal agency project or project regulated by a state or federal agency; three references provided that had environmental remediation projects performed by the consultant; the consultants’ sampling analysis plan (SAP) or quality assurance/quality control (QA/QC) documents; the consultants’ health and safety plan; the consultants’ capability to meet the workload demands given their present and projected workload; project schedule; and the location of personnel and equipment. MSE Technology Applications, Inc. (from Butte) was the successful qualified low bidder.

MSE Technology, Inc. completed the sampling during the week of July 5, 2010. Based on the analytical data provided in reports received September 27, 2010, several sites will be reviewed by PTS for closure. Two other release sites will require only one additional sampling event with constituents below risk based screening levels (RBSLs) before they can be written up for closure. The other sites, while not yet closeable, demonstrate that natural attenuation is occurring at the site.

The pilot project was successful in that DEQ demonstrated significant money savings by mobilizing one consultant to sample multiple sites, data indicates that all sites chosen continue to attenuate naturally, several of the sites will be written up for closure, and several sites will require only one additional sampling event. While there are no immediate plans to repeat this sampling process or to go full scale, several lessons were learned on how to improve the process in the future. ■

Petro Factoid. . . Dig Outs

Dig outs are considered the most cost-effective cleanup option in locations of Montana where soil-types restrict natural biodegradation factors and/or where groundwater does not move quickly through the soils. The soil-types that are best for excavation, or “dig outs,” are fine grained and typically dominated by clay and/or silt-sized particles. Source removal through excavation does have a large up-front pricetag, but in the long-run, the cost savings is realized. In-situ (in place) remediation technologies that require movement of water, air, or oxidants do not work favorably in clay-dominated soil because it inherently holds onto groundwater and contaminants, thus restricting water, air, or oxidant movement.



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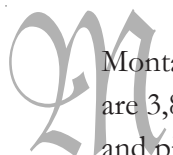
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<http://svc.mt.gov/deq/ListServe/AllListsStep1.asp>

For more information, contact Mary Ann Dunwell at (406) 841-5016, mdunwell@mt.gov or Kathy Gessaman at (406) 444-3992, kgessaman@mt.gov.

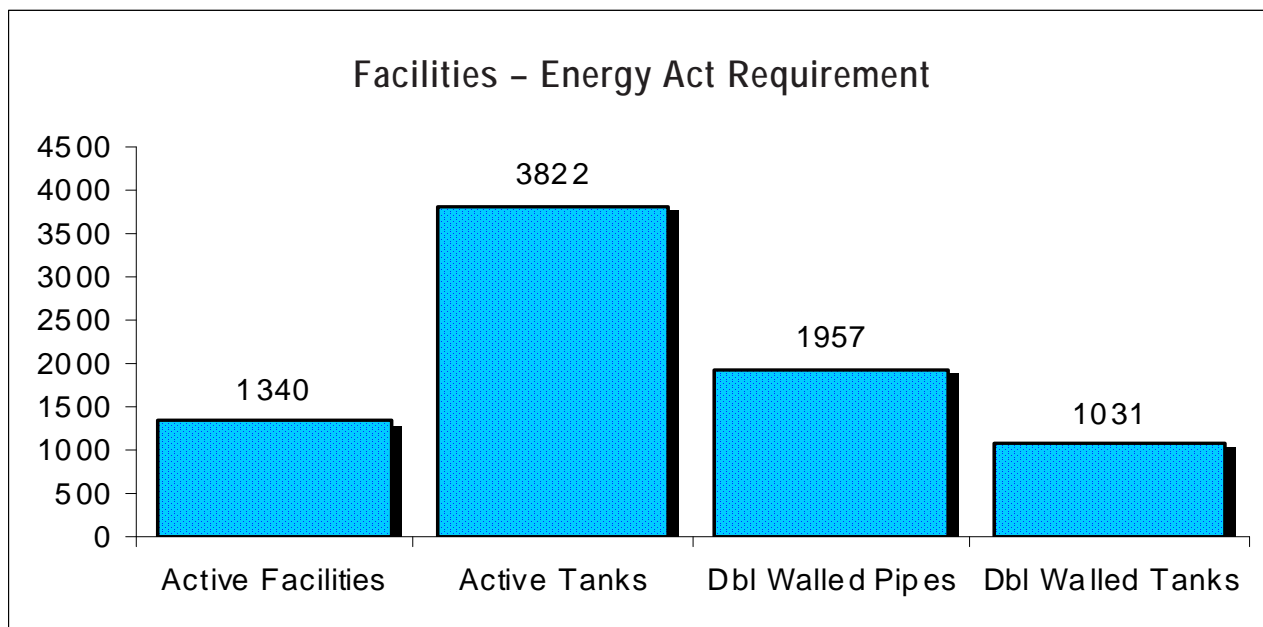
Mailing list

To save money and paper, the *MUST News* production team is consolidating its mailing list. If you no longer want to receive a print copy of *MUST News* via postal mail, please let us know. To have your name removed from our *MUST News* postal mailing list, please contact Teresa Sturm at tsturm@mt.gov or (406) 444-3840. We appreciate your concern for the environment and budget. ■

Petro Factoid. . . Double Walled Tanks



Montana currently has 1,340 active underground storage tank facilities. Within those facilities there are 3,822 active tanks. The Energy Policy Act of 2005 requires secondary containment on tanks and piping be installed and monitored for leaks on new and replaced underground storage tank systems. Currently Montana has 1,957 systems with double walled piping, and 1,031 double walled tanks. The number of secondary containment systems continues to grow.



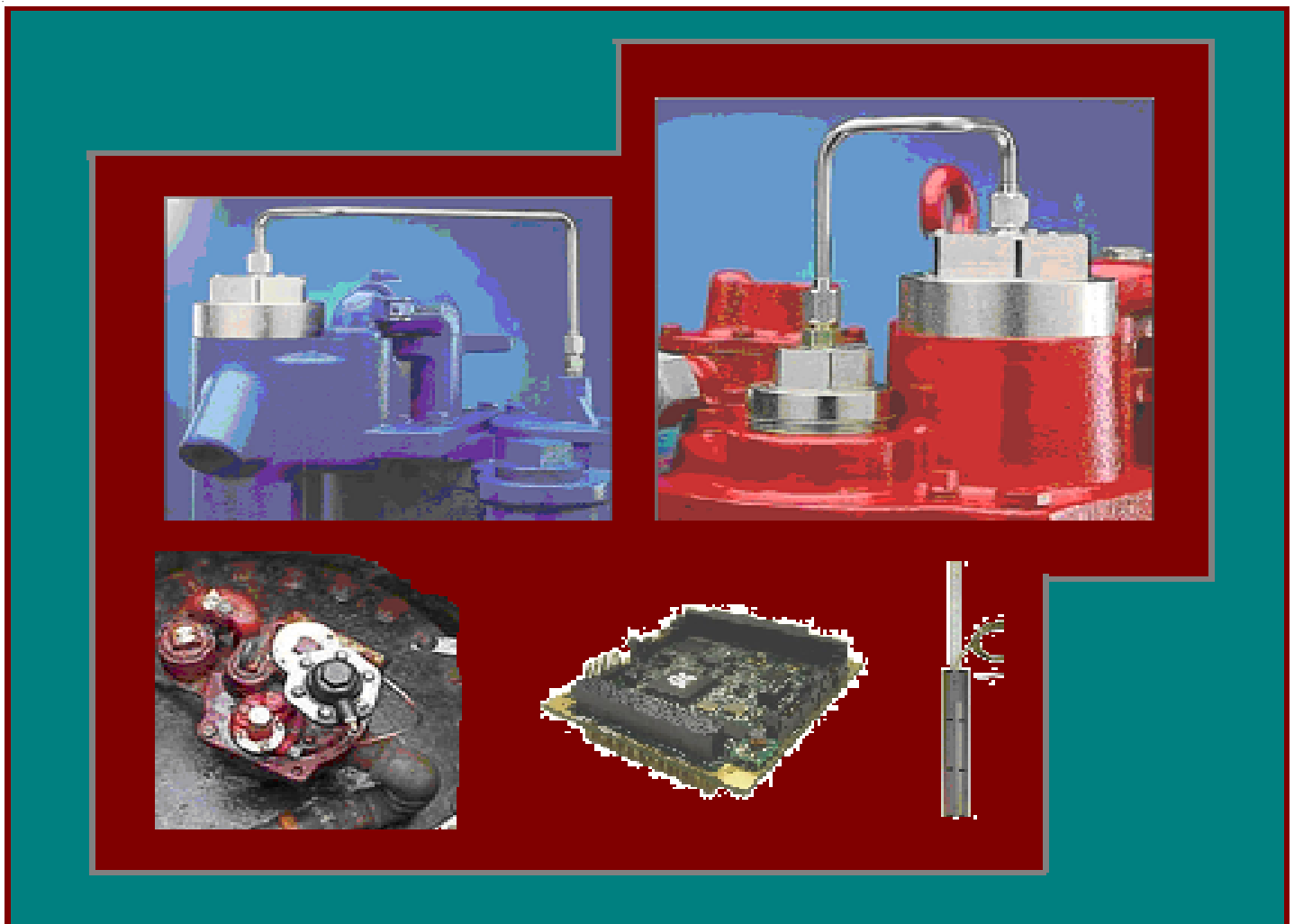
Catastrophic Leak Detection

The Montana Department of Environmental Quality's Underground Storage Tank (UST) Program is committed to keeping catastrophic leaks from occurring at every UST facility in the state. It is our mission to protect the people of Montana and the environment from large releases that may be prevented with a catastrophic leak detection device. Catastrophic leak detection devices include "methods which alert the operator to the presence of a leak by restricting or shutting off the flow of regulated substances through piping; or triggering an audible or visual alarm." The owner and operator has a choice of which catastrophic release detection method to use at their facility, but their methods equipment must be able to detect leaks of three gallons per hour at ten pounds per square inch line pressure within one hour. Equipment that can meet these criteria includes mechanical line leak detectors (MLLD), pump sensors that use a relay system to control the turbine, auto-

dialers, and electronic line leak detectors (ELLD). The department requires one or more of the above mentioned equipment options to be in use at all UST facilities that have pressurized piping.

Catastrophic leak detection is only as good as the equipment; and the equipment is only as good as its installation and programming. Some UST facilities have catastrophic leak equipment installed on their UST systems, but the equipment is not performing to maximum potential because the owner or operator failed to have their contractor program it to shutdown the submersible turbine pump (STP) when an alarm situation occurs. Equipment that is properly set up to temporarily disable the pumping system is cheap insurance when it comes to preventing leaks. Petroleum releases to the environment have occurred in Montana in the past, because the UST equipment

continued on page 17





Catastrophic Leak Detection – *continued from page 16*

was not set up for shutdown. In these situations, an alarm situation occurs and no one responds, but the equipment that could have prevented a major catastrophic release was right there.

New UST requirements regarding leak detection monitoring equipment will take effect after December 31, 2010. The DEQ hopes this new requirement will minimize releases that may be easily prevented by just programming the leak detection equipment appropriately. This new requirement states that after December 31, 2010, if the leak detection monitoring equipment has the capability, an owner or operator of an UST system that conducts leak detection must have their leak detection console programmed to temporarily disable the pumping system. When an alarm situation arises and the equipment shuts the turbine down; then the owner or operator must investigate the UST alarm condition and determine if a release has occurred to the environment. If a release has not occurred (i.e. the equipment had a false alarm) then the owner and operator may continue to dispense fuel. This requirement applies to all tank and piping leak detection methods that have the capability to temporarily disable the pumping system.

The following situation is an example of how this new requirement will commence. If a UST facility is using an ATG as their method of tank leak detection and ELLD's installed on each

turbine are being used to conduct an annual 0.1 gph line tightness test or a monthly 0.2 gph line tightness test; then after December 31, 2010, this facility would have to have their ATG programmed to temporarily disable the pumping system (i.e. the turbine) after a failed 0.2 gph or 0.1gph leak test. Whenever this alarm situation occurs, owners or operators of the system cannot restart the pumping system until a complete investigation has been conducted and evidence is received that a release to the environment did not occur. It is important to emphasize that this scenario assumes that the actual equipment currently installed at this facility is capable of temporarily disabling the STP.

Catastrophic leak detection devices are very diverse and specialized equipment. UST owners and operators should consult with their service provider and/or equipment manufacturer before making any changes to their equipment or changing the equipments programming. It is possible that UST facilities may need to change their ATGs programming to meet this new regulatory requirement. The department recommends that you consult with your ATG operations manual and service provider whenever a modification is required. Your service provider will be able to tell you if your equipment has this capability and can make the appropriate changes. ■

Petro Factoid. . . Denatured Alcohol

Denatured alcohol is ethyl alcohol (ethanol) made unfit for human consumption by adding another chemical to it. "Denaturing" refers to removing a property from the alcohol (being able to drink it), not to chemically altering or decomposing it. Drinkable ethanol is highly taxed for revenue and public health policy purposes. Thus, the primary objective of denaturing is to escape the excise duty levied on drinkable ethanol.

Ethanol can be denatured using many different compounds. Denatured alcohol intended for use as a fuel ("fuel grade ethanol") or a solvent typically contains 5% or more by volume methanol or benzene. In some countries, blue or purple aniline dye is used to color denatured alcohol in order to distinguish it from consumption-grade ethanol. Denatured alcohol is also used as a wood sanding aid, as a solvent for products containing shellac, as fuel for small camping stoves, and as a cleaning solvent for glass, metal, and fabrics.

Fund and Release Status Report

Petroleum Fund Financial Status — Through end of 4th Quarter, Fiscal Year 2010 (July 1, 2009 – June 30, 2010)

Total Revenue	\$6,528,345.00
Current and Prior Year Claims Expenditures	\$3,696,781.00
Total Expenditures	\$4,736,371.00
Outstanding work waiting to be obligated	\$3,074,077.00

Petroleum Fund Financial Status – Through end of 1st Quarter, Fiscal Year 2011 (July 1, 2010 – September 30, 2010)

Total Revenue	\$1,358,584.19
Current and Prior Year Claims Expenditures	\$ 981,558.00
Total Expenditures	\$1,638,364.80
Outstanding work waiting to be obligated	\$2,953,220.44

Petroleum Releases – Through end of 1st Quarter, Fiscal Year 2011 (July 1, 2010 – September 30, 2010)

New Releases	8
Releases Resolved (Closed)	16

Petroleum Release Activity Status – Since Summer 2010 *MUST News* (August 1, 2010 – September 30, 2010)

New Releases	5
Releases Resolved (Closed)	10

Summary of Total Petroleum Release Activity

Total Confirmed Releases	4,486
Total Active Releases	1,550
Total Releases Resolved (Closed)	2,936

(Please note these numbers include sites with the status “Transferred to Another Program or Agency.”)

Petro Factoid. . . Leak Line

Suspected or confirmed petroleum releases must be reported to the DEQ Petroleum Technical Section within 24 hours of being detected as required by ARM 17.56.501.

Just call the Leak Line at 1-800-457-0568, or after hours at (406) 841-3911. You must talk to a person. Voicemails are not adequate notification.



SAVE THE DATE

Petroleum Tank Release Compensation Board

November 15, 2010

10:00 a.m. – 2:00 p.m.

Montana Department of Environmental Quality

Room 111 • Lee Metcalf Building

1520 East Sixth Avenue • Helena, MT 59620

Contact: Terry Wadsworth • 841-5092 • twadsworth@mt.gov



Sump Testing Requirements

December 31, 2010

Initial sump functional tests for UST facilities using Interstitial Monitoring as their primary method of piping release detection must be conducted prior to December 31, 2012. The working deadline was originally December 2010. That date has been amended to 2012. Please see the full article in this MUST News issue, "Containment Sump Functional Testing Date Changed to December 31, 2012."

Contact: Redge Meierhenry, (406) 444-1417, rmeierhenry@mt.gov



UST Compliance Inspector and UST Installer/Remover Refresher Course

February 25, 2011

8: a.m. – 5:00 p.m.

Montana Department of Environmental Quality

Room 111 • Lee Metcalf Building

1520 East Sixth Avenue • Helena, MT 59620

Contact: Teresa Sturm • (406) 444-3840 tsturm@mt.gov

Underground Storage Tank Section

Call for Articles . . .

The MUST News production team welcomes your articles about successful cleanups or lessons learned from the operation and maintenance of petroleum storage tanks. Please contact Mary Ann Dunwell at mdunwell@mt.gov or (406) 841-5016, if you would like to submit an article. We would like to reserve the right to edit if necessary.



Acknowledgements to those involved in the production of the summer 2010 *MUST News*:

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MUST News is a quarterly, communication tool produced by the Montana Department of Environmental Quality to inform and update petroleum storage tank owners and operators, environmental consultants, and others interested in developments about underground storage tank operation, rules, release prevention, remediation, and reimbursement.

