

**Combining information management
talent with waste professionals
improves business efficiency and
reduces costs**

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Presentation Overview

- Benefits of combining an IT professional with a waste expert
- Examples where this combination has improved operations and reduced costs
- Summary of how each example helped a client



What are the benefits:

- Reduced operating expenses
- Improved efficiency
- Increased visibility between departments
- Central location of information
- Improved decision making



Proven applications in multiple industries:

- Solid waste management
- Rail transportation
- Manufacturing
- Mining



Our waste client wanted a system that could remind landfill management when to complete a task

- All information stored in one central location
- Easy to use regardless of computer skills
- Expandable so it grew as the company grew



An IT developer along with the waste expert created a web based system:

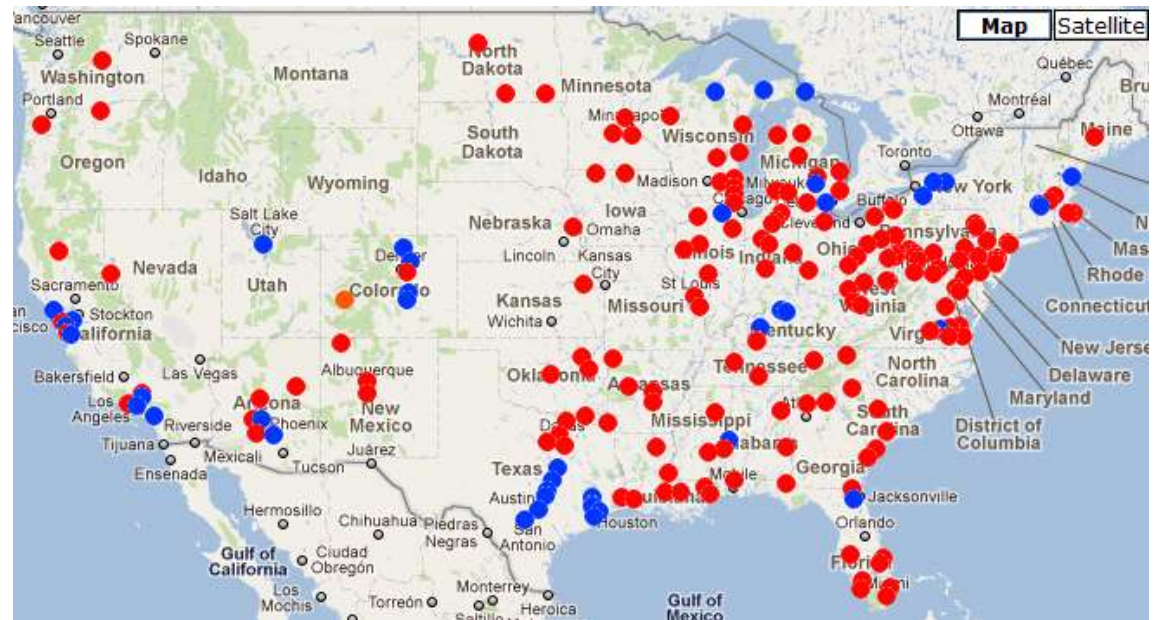
- Designed so anyone could use it
- Accessible anywhere
- Expandable





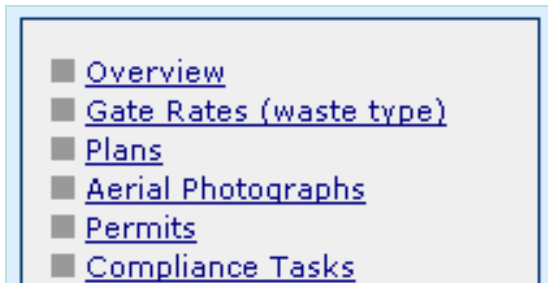
Example 1, a solid waste company

The system began with about 50 landfills in 2003 to hundreds of facilities in 5 years





Example 1, a solid waste company



The compliance module allowed users to:

- enter new tasks
- complete existing tasks
- generate reports



Example 1, a solid waste company

Task Builder

Please use the form below to
Note: Any fields shown in

Any changes in this section affect all individual tasks in this series, past and future.

Task Code

Title (optional)

Description

Source Document (optional) or enter

Source Details (optional)

Due Date

Reminder Date This date sets the number of days an e-mail reminder will be sent p recipient is selected.



Example 1, a solid waste company

Compliance Tasks

Summary List

Overdue:	0
Currently Due:	6
Coming Due:	133
Completed:	0 (0 Late)
Unable:	0
Total:	139

[Task Summary](#)
[Full Report](#)
[Condensed Report](#)
[Reminder Email](#)

Quick Complete

Refresh List

February 2009 - December 2013 Find Reminders too

Any/All - Any and all tasks

Sort by - Due date

Search - All Exactly

Corp-wash 1

Task Code	Title Description	Frequency / Start-End	Responsibility	Due Date Reminder	Completion	Status
Corp-Wash 1	Truck/Equipment Washing Truck/equipment washing mus...	Quarterly 5/1/2007-12/31/2013	General Manager	2/18/2009 1/8/2009		Due in 8 days
FDEP-SC22	Specific condition 22 Capacity and equipment Maximum total amount of 700...	Quarterly 12/1/2004-9/1/2009	General Manager	2/28/2009 2/15/2009		Due in 18 days
FACorp-1	Financial Assurance Process for Closure/Post Closure Financial Instruments * Direct all requests for ...	Quarterly 5/15/2004-12/31/2009	General Manager	2/28/2009 2/15/2009		Due in 18 days
Corp SpWaste 1	Run PC Scales Report - Profile Expiration Report	Monthly 4/2/2007-	Environmental Engineer	2/28/2009 2/16/2009		Due in 18 days



Example 1, a solid waste company

Task Edit

Close	Delete	Save
Status	Due in 3 days	
Task Type	Solid Waste	
Task Code	Safe 1	Edit Series: Safe 1
Title	Conduct monthly safety meetings	
Description	Conduct monthly safety meetings with all employees.	
Completion Date	<input type="text"/>	<input type="checkbox"/> Check if unable to meet completion due to inaction by others (regulators), and only if due date cannot be changed.
Required File		
Field Notes	<div style="border: 1px solid gray; height: 150px;"></div>	
Completed By	<input type="text" value="[unknown]"/> or enter: <input type="text"/>	
Assign to	<input type="text" value="Landfill Manager"/> or select <input type="text" value="[unknown]"/>	
Due Date	<input type="text" value="7/28/2011"/>	
Reminder Date	<input type="text" value="7/14/2011"/>	
Automated email to	<input type="text" value="no-one"/> Alternative: <input type="text"/>	
Facility	Haley Pike Landfill	
Authority	Operational	
Reference		
Recurrence	Monthly Starting: 2/21/2011 Ending: 2/21/2012	
All Attachments (files)	-- No files are attached. --	
All Field Notes		



Example 1, a solid waste company

Due Between: 2/1/2009 - 2/28/2009

FACorp-1 Financial Assurance Process for Closure/Post Closure Financial Instruments

Quarterly

- * Direct all requests for financial assurance instruments (Closure/Post Closure) to the Database Coordinator, at the Corporate Office. The number is 954-769-2357, or by e-mail at corbind@repsrv.com.
- * Requests must be done using the Landfill and Transfer Station Financial Assurance Request form. Use the same contact information above for a copy of this form if you have not received one already (eventually the form will be online).
- * Forms must be received 45 days before the instrument due date at the agency. Requests that are sent in later run the risk of not being completed in time to meet agency deadlines.
- * Email completed Landfill and Transfer Station Financial documentation cannot be processed.
- * The Database Coordinator will contact the initiator verifying that a request has been received and if additional information is needed.
- * Request will be routed to Director of Engineering and Assistant Treasurer.
- * When review has been completed and instrument issued, initiator will be contacted.
- * Normally the completed financial instrument will be returned to the person that made the original request, so that they can transmit it to the regulating body and keep copies as appropriate. The financial instrument will not be issued directly to the regulating body unless the initiator requests that this be done.

Due date(s) 2/28/2009

Responsible General Manager

FDEP-SC22 Specific condition 22 Capacity and equipment

Quarterly

Maximum total amount of 700 tons of waste for disposal in any one work day. A Caterpillar D7G bulldozer, 1 Rex compactor, 1 Ford tractor, 1 Caterpillar 355 loader, 1 fiat 160 loader, and 1 L90B loader shall be at the site and operational at all times. Provide sufficient reserve equipment on-site or have arrangements to obtain additional equipment within 24 hours of equipment breakdown. At least one trained spotter and one equipment operator, shall be present at the site at all times the facility is open for operation. Additionally, at least one facility operator who has had the 20-hour training requirement of FAC Rule 62-701.730(8), shall be present at the facility to supervise all actual operations, with one exception; at the time the facility is only accepting waste. Otherwise, including but not limited to, while the facility is pushing or disposing of waste, the facility operator is to be present.



Once the system was in place, they soon realized that they could do more.





Next Challenge: Create a landfill project management tool to help field engineers track construction costs.





Development of the module started with an understanding of the end and worked backward.





Example 1, a solid waste company

The end was a summary of the spending and a forecast of remaining funds to be spent

<u>Overview</u>		<u>Authorizations</u>						<u>Tracking</u>			<u>Journal</u>			<u>Reports</u>		
Tracking Costs Confirm Forecast															<input type="button" value="Close"/>	<input type="button" value="Save"/>
Project Actual & Forecast		2006											Remaining			
By Month	Total	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Balance	Notes	
Approved Project Funding (\$)	1,012,265	-	-	2,856	400,226	189,236	148,188	152,567	79,662	39,530	-	-	-	-	-	
	Project Forecast	Forecast	Forecast	Actual	Actual	Actual	Actual	Actual	Actual	Forecast	Forecast	Forecast	Forecast			
January Forecast (\$)	-	-												-		
February Forecast (\$)	-		-											-		
March Forecast (\$)	-			2,856	400,226	189,236	148,188	152,567	79,662	39,530				(1,012,265)		
April Forecast (\$)	1,052,229				400,226	189,236	148,188	152,567	79,662	39,530				42,820		
May Forecast (\$)	1,052,229				2,750	189,236	148,188	152,567	79,662	39,530				440,296		
June Forecast (\$)	1,052,229				2,750	48,856	148,188	152,567	79,662	39,530				580,675		
July Forecast (\$)	1,052,229				2,750	48,856	535,160	152,567	79,662	39,530				193,703		
August Forecast (\$)	1,052,229				2,750	48,856	535,160	169,464	79,662	39,530				176,806		
September Forecast (\$)	1,052,229				2,750	48,856	535,160	169,464	161,550	39,530				94,918		
October Forecast (\$)	1,052,229			0	2,750	48,856	535,160	169,464	161,550	6,980	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>	127,469		
November Forecast (\$)														-		
December Forecast (\$)														-		



Example 1, a solid waste company

Overview **Authorizations** **Tracking** **Journal** **Reports**

New Landfill TEST - Cell Construction

[Authorizations](#)
[Costs](#)
Approval
[Documents](#)
[Templates](#)
[Delete](#)

Planning Expenditure Request

 Pro Forma or Internal Capital Cost
 Zero Cost Change

CE/CLE #			Total Project Budget Proposed
<input type="text"/>			<input type="text" value="\$50,000"/>
Type	Line of Business	Date Start	Expenditure Planned
<input type="text" value="LF UOC Expansion Permitting"/>	<input type="text" value="600 -- Landfill"/>	<input type="text" value="2/17/2009"/>	<input type="text" value="\$11,000"/>
Asset Account	Asset Purchase Category	Date End	Expenditure Approved
<input type="text" value="CIP-EXPAN"/>	<input type="text" value="NewBusiness"/>	<input type="text" value="10/31/2009"/>	<input type="text" value="\$0"/>
			Total Project Budget Approved
			<input type="text" value="\$0"/>



Example 1, a solid waste company


Cell Construction

You may add any of the following activities.

- Permitting (CC) (ea)
- Engineering and Bidding (CC) (ea)
- Mobilization (CC) (ea)
- Project Management (CC) (ac)
- Surveying (CC) (ac)
- General Conditions (CC) (ac)
- Quality Assurance (CC) (ac)
- Site Preparation (CC) (ac)
- Excavation (CC) (cy)
- Underdrain (ac)
- Gas Vent Layer (ac)
- Soil Fill & Berms (CC) (cy)
- Soil Liner (ac)
- Geosynthetic Liner (ac)



Example 1, a solid waste company

Geosynthetic Liner  Close Update

Planned Quantity: ac

Install 5m HDPE (sf) Unit Cost: Seed

	Jan	Feb	Mar	Apr	May	Jun
Qty (Sf)	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>
Unit Cost (\$)	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>
Total	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>

Purchase 60 mil 5m HDPE (sf) Unit Cost: Seed

	Jan	Feb	Mar	Apr	May	Jun
Qty (Sf)	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>
Unit Cost (\$)	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>
Total	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>



Example 1, a solid waste company

Overview **Authorizations** **Tracking** **Journal** **Reports**



[Authorizations](#)
[Costs](#)
[Approval](#)
Documents
[Templates](#)
[Delete](#)



no promoted documents
[close](#)

New Landfill TEST - Cell Construction

[Upload Documents...](#)

Please click on any of the thumbnails below to download the file.



Example 1, a solid waste company

Purchase 40 mil Tx LLDPE (sf) Committed Quantity: <input type="text" value="0"/> Committed Unit Cost: <input type="text" value="0"/> <input type="button" value="Commit"/>						
	Jan	Feb	Mar	Apr	May	Jun
Qty (Sf)	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>	<input type="text" value="551,267.14"/>
Unit Cost (\$)	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>	<input type="text" value="0.1992"/>
Total	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>	<input type="text" value="109,812.414288"/>

Purchase GCL (sf) Committed Quantity: <input type="text" value="0"/> Committed Unit Cost: <input type="text" value="0"/> <input type="button" value="Commit"/>						
	Jan	Feb	Mar	Apr	May	Jun
Qty (Sf)	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>	<input type="text" value="532,425.00"/>
Unit Cost (\$)	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>	<input type="text" value="0.304"/>
Total	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>	<input type="text" value="161,857.20"/>



Example 1, a solid waste company

Overview		Authorizations	
Tracking			
Costs			
Confirm			
Forecast			
Cost (\$)			
2009	Actual	Committed	Year Forecast
January			
February	\$0.00	\$0.00	\$0.00
March	\$0.00	\$0.00	\$0.00
April	\$0.00	\$0.00	\$0.00
May	\$0.00	\$0.00	\$0.00
June	\$0.00	\$0.00	\$0.00
July	\$0.00	\$0.00	\$0.00
August	\$0.00	\$0.00	\$0.00
September	\$0.00	\$0.00	\$0.00

- Each month the costs would roll up into a monthly summary
- The PM could then forecast the remaining dollars



Example 1, a solid waste company

The total capital spent on projects was listed in one reports.

Cell 8E	7/1/2006		7/3/2006	Target: \$1,373,830
Approved	7:11:28 AM		5:52:31 AM	Approved: \$0
Cell Construction				
Cell 6B Construction	1/18/2006	Planning	2/7/2006	Target: \$745,999
Approved	7:23:08 AM		5:15:02 AM	Approved: \$744,568
Cell Construction			#: 3070600-06001	
Southern Expansion Phase 2A Cell Construction	7/5/2006		7/7/2006	Target: \$2,276,864
Approved	2:13:58 PM		6:41:32 AM	Budgeted: \$110,000
Cell Construction			#: 3064600-06010	Approved: \$110,000
Southern Expansion Phase 2A Cell Construction	3/30/2006	Planning	4/7/2006	Target: \$2,276,864
Approved	1:43:35 PM		9:23:31 AM	Approved: \$2,276,864
Cell Construction			#: 3064600-06003	
Clay Borrow Investigation	8/28/2006		9/22/2006	Target: \$49,624
Approved	11:38:35 AM		10:11:55 AM	Budgeted: \$49,624
Cell Construction			#: 3064600-06015	Approved: \$49,624
Region Approved: \$26,842,474				



Lessons learned:

- East coast versus the west coast
- Testing the system as you go
- Checking direction often
- IT developer who can “talk trash”



A rail client needed a system that improved efficiency when dealing with audit findings

Concerns:

- Hundreds of facilities
- Email reminders
- Project updates
- Management approval



Example 2, a rail company

Findings

Scorecard 2 Total

Overdue 0

<7 days 0

7-30 days 0

30-60 days 0

60-90 days 0

>90 days 0

Closed 0 (0 Late)

Refresh List

July 2010 - July 2011

Any/All - Any and all Findings

Sort by - Tier, Year, Finding#

Search All - for

Exact Match

Loaded	Noted for Progress	Requested for Closure	Closed
Overdue	Overdue	Overdue	Overdue
0- 7 days	0- 7 days	0- 7 days	0- 7 days
7-30 days	7-30 days	7-30 days	7-30 days
30-60 days	30-60 days	30-60 days	30-60 days
60-90 days	60-90 days	60-90 days	60-90 days
>90 days	>90 days	>90 days	>90 days

Findings Summary
Full Report
Condensed Report
 Export to Excel
 Reminder Email
 New Finding

Finding#	Title Regulatory Citation and Relevant Text	Rule	Priority	Inspection Date	Responsibility	Due Date Reminder	Completion	Status
Tier I-2010								
20101	Review Health and Safety pl...	SAFETY	1	4/30/2011	Regional Engineer	5/2/2011 4/25/2011	3/19/2011	Editing - Late by 72 days
20102	Review training records and...	TRAIN	2	4/30/2011	Regional Engineer	5/14/2011 5/7/2011		Editing - Late by 60 days
Finding#	Title Regulatory Citation and Relevant Text	Rule	Priority	Inspection Date	Responsibility	Due Date Reminder	Completion	Status



Example 2, a rail company

Insert New Finding(s) Close

Please use the form below to update the information.
Note: Any fields shown in **bold** are required.

THESE DOCUMENTS ARE INTENDED ONLY FOR THE USE OF THE INDIVIDUAL OR ENTITY FOR WHICH IT WAS PREPARED AND MAY CONTAIN INFORMATION THAT IS PRIVILEGED, CONFIDENTIAL, AND EXEMPT FROM DISCLOSURE UNDER APPLICABLE LAW. ANY DISSEMINATION, DISTRIBUTION, OR COPYING OF THIS DOCUMENT IS STRICTLY PROHIBITED.

Due Date 09/22/2011

Inspection Date 08/22/2011

Facility Pine Grove Yard

Tier Tier I

Year 2010

Finding#	Priority	Rule	Responsible Party	Explanation
Responsible Dept.	Env. Description			
[unknown]	[unknown]	CAA DOC - Missing or incorrect permit or registration	Primary: Admin, Super (edh@golder.com) Additional: -please select-	Regulatory Citation and Relevant Text Recommendation for Corrective Action
[unknown]	[unknown]	CAA DOC - Missing or incorrect permit or registration	Primary: Admin, Super (edh@golder.com) Additional: -please select-	Regulatory Citation and Relevant Text Recommendation for Corrective Action
[unknown]	[unknown]	CAA DOC - Missing or incorrect permit or registration	Primary: Admin, Super (edh@golder.com) Additional: -please select-	Regulatory Citation and Relevant Text Recommendation for Corrective Action



Example 2, a rail company

Updates are entered as the project moves towards completion

Finding Edit

<input type="button" value="Close"/> <input type="button" value="Save"/>	
Status:	Noted for Progress - Due in 16 days Last Updated: 7/14/2011 Select new status: <input type="radio"/> Request For Closure - Due in 30 Days Or Less <input type="radio"/> Closed - Due in 30 Days Or Less <input checked="" type="radio"/> No Change
Facility:	Landfill Site
Tier:	Tier I
Review Year:	2011
Finding#:	2
Task Priority:	2
Rule:	SAFETY
Regulatory Citation and Relevant Text:	Monthly safety meeting attendance log was not up to date and did not include topic of
Observation/Recommendation for Corrective Action:	Update the past 12 months of safety meeting notes, add list of names attending the r attached file.
Attachments (files):	  Safety Meeting Sign.docx
Field Notes:	A monthly safety meeting roster has been created and distributed to all managers. The Safety manual has been updated with the form and process that should be followed.



Example 2, a rail company

This project has requested closure and is ready for review by the management

Status	Requested for Closure - Late by 205 days Last Updated: 7/14/2011 Select new status: <input type="radio"/> Request For Closure - Past Due <input checked="" type="radio"/> No Change		Email To: Steve Taylor (steven_taylor@golder.com)
Facility	Bay Minette Yard		
Tier	Tier I		
Review Year	2010		
Finding#	1		
Task Priority	1		
Responsible Department	Engineering		
Rule	State and Local		
Environmental Description	Fixed equipment: Storage container does not meet requirements		
Regulatory Citation and Relevant Text	Above ground storage tank should be held within secondary confinement.		
Observation/Recommendation for Corrective Action	Review state regulations regarding secondary containment for fuel tanks. Design must be approved and stamped by Professional Engineer and submitted to State for approval. Construct the containment system.		
Attachments (files)		There are no files are attached to this task.	
Field Notes	This is an example of some field notes		
Inspection Date	<input type="text" value="10/28/2010"/>		
Due Date	12/28/2010		
Responsibility	Primary	Steve Taylor (steven_taylor@golder.com)	
	Additional		
Completion Date	<input type="text" value="7/14/2011"/>		
Completed By	<input type="text" value="no-one"/> or enter <input type="text"/>		
Status	Requested for Closure - Late by 205 days		



Example 2, a rail company

Each user has a dashboard so they can see what requires approval or review

Search Engine		Findings			Facilities		Metrics		
Review Findings <input type="checkbox"/> My Personal Findings <input type="checkbox"/> Landing Zone <input type="checkbox"/> Multi Column Report <input type="checkbox"/> Two Column Report <input type="checkbox"/> Send Email Reminder									
<small>THESE DOCUMENTS ARE INTENDED ONLY FOR THE USE OF THE INDIVIDUAL OR ENTITY FOR WHICH IT WAS PREPARED AND MAY CONTAIN INFORMATION THAT IS PRIVILEGED, CONFIDENTIAL, AND EXEMPT FROM DISCLOSURE UNDER APPLICABLE LAW. ANY DISSEMINATION, DISTRIBUTION, OR COPYING OF THIS DOCUMENT IS STRICTLY PROHIBITED.</small>									
Personal Findings for Steve Taylor (steven_taylor@golder.com)									
Finding#	Title (or Regulatory Citation and Relevant Text)	Rule	Inspection Date	Responsible Department	Responsibility	Due Date	Completion Date	Completed By	Status
<i>Total Count of Search Results at bottom of page</i>									
AL - Bay Minette Yard Tier I-2010									
<u>1</u>	Above ground storage tank s...	State and Local	10/28/2010	Engineering	Steve Taylor	12/28/2010	7/14/2011		Requested for Closure - Late by 206 days
<u>2</u>	Several 55 gal drums contai...	Solid Waste Disposal Act (SWDA) - General	10/28/2010	Facilities	Steve Taylor	12/28/2010			Loaded - Late by 206 days



Example 2, a rail company

Once the project is complete and approval is granted, the finding is stored

Tier	Tier I
Review Year	2010
Finding#	7
Task Priority	2
Responsible Department	Facilities
Rule	Clean Air Act (CAA)
Environmental Description	Fixed Equipment - Missing appropriate label
Regulatory Citation and Relevant Text	Entrance sign does not include all necessary information according to Illinois Environmental Protection Agency permit.
Observation/Recommendation for Corrective Action	All entrance signs must include permit numbers, hours of operation, after hours contact and phone number. Add the necessary information and post near entrance. Private property signs should also be placed no less than every 500 feet on each property boundary fence.
Attachments (files)	There are no files are attached to this task.
Field Notes	All signs are posted.
Inspection Date	10/28/2010
Due Date	12/28/2010
Responsibility	Primary Steve Taylor (steven_taylor@golder.com)
	Additional
Completion Date	10/28/2010
Completed By	Steve Taylor (steven_taylor@golder.com)
Status	Closed - Early by 61 days



Results:

- The time required to complete an audit finding was reduced significantly.
- The average time to complete an audit finding was reduced to less than 60 days
- Efficient record keeping of audit findings



In summary, the benefits of this relationship are:

- Reduction in operating expenses
- Improved efficiency
- Increased visibility
- Central location of information
- Better decision making
- Improved compliance



Questions

Any questions?



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