A photograph of a dam construction site. In the foreground, a worker wearing an orange safety vest and a dark cap is walking on a rocky, uneven path. The path is bordered by a metal railing. In the background, there is a large concrete dam structure under construction, with a steel framework of vertical and horizontal beams. The sky is clear and blue. The overall scene is a rugged, mountainous landscape.

PG&E's Dam Safety Compliance Management System



January 15, 2009

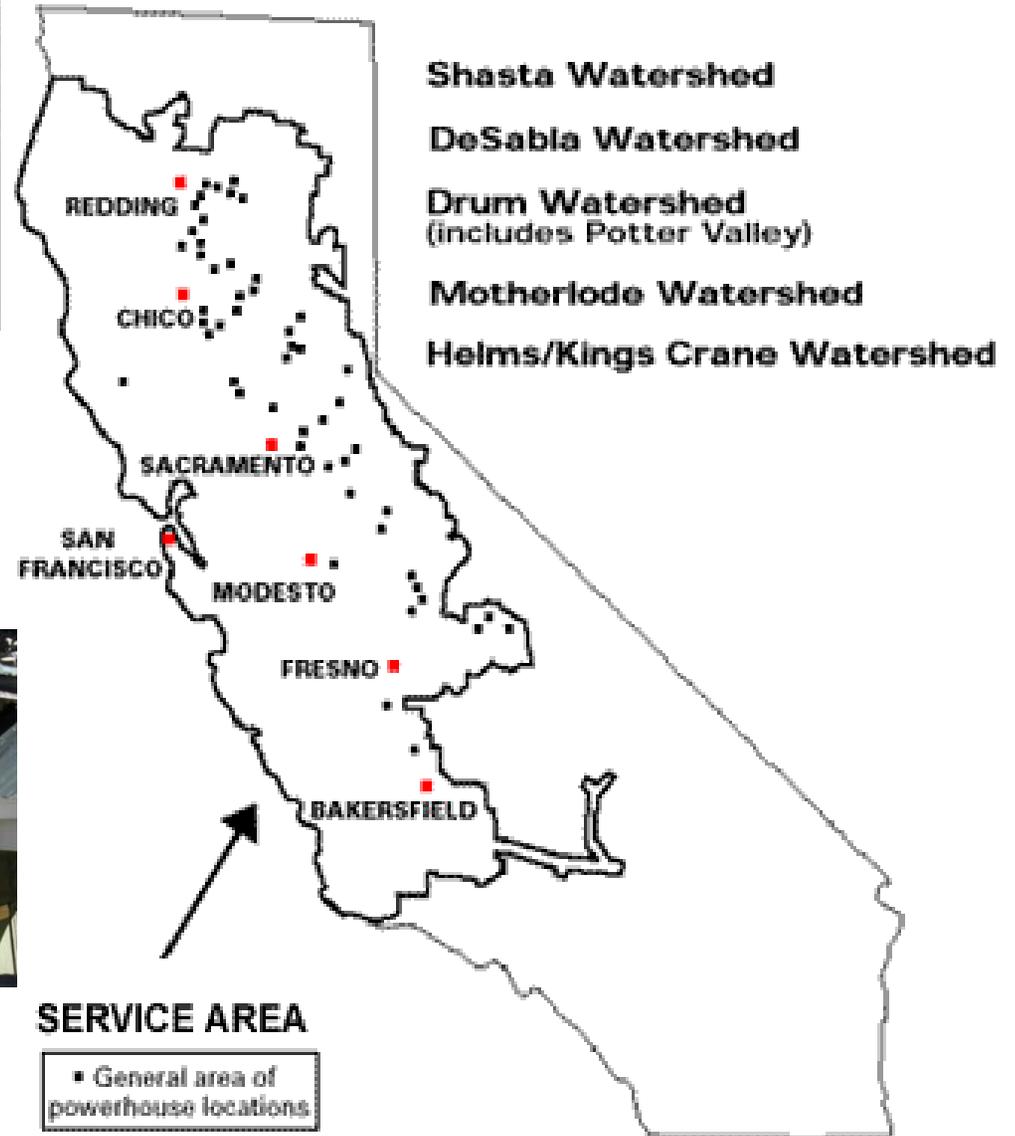
Kelly Lindblom

Facility Safety Coordinator

OUTLINE

- PG&E's Hydro System
- Power Generation Department's Organizational Structure
- Dam Safety Compliance Management System
 - Our regulatory compliance tracking software
 - Our regulatory compliance tracking processes
- Why this model works for PG&E
- Considerations when choosing compliance tracking software

PG&E's Hydro System is LARGE

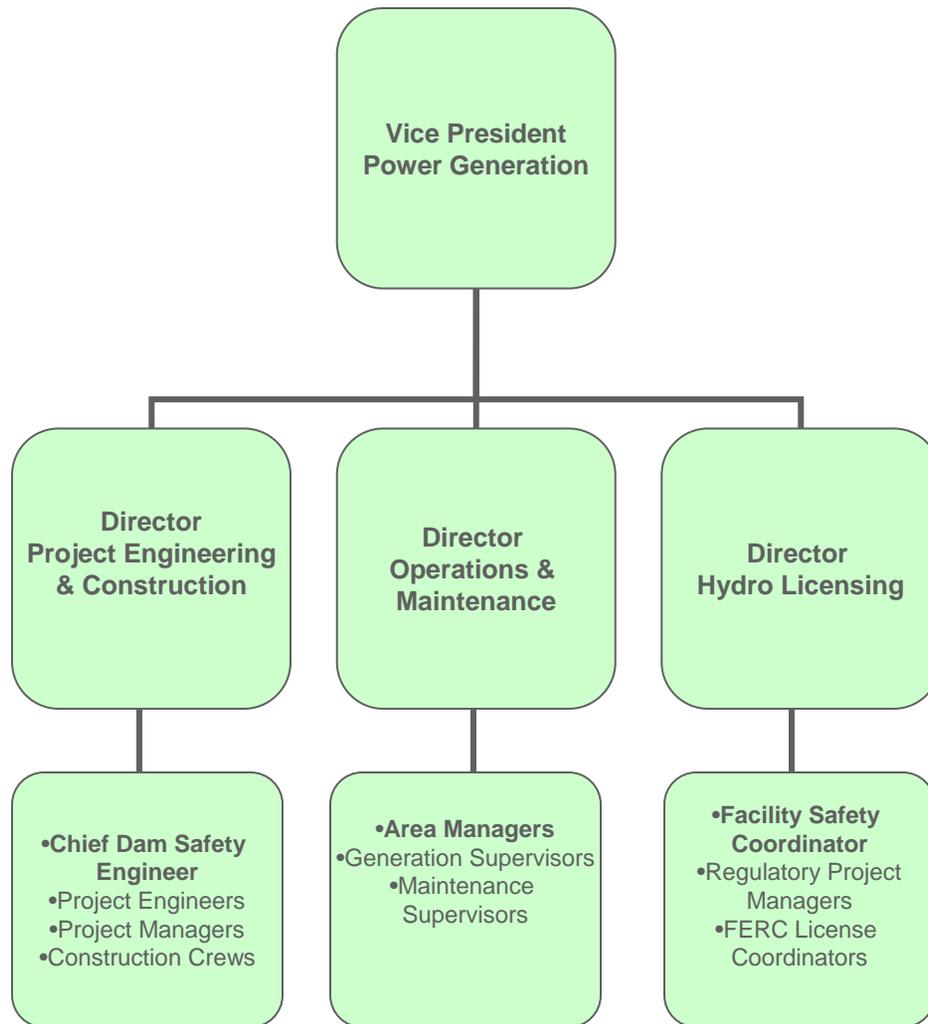


Dam Safety is Regulated by FERC and DSOD

- PG&E has 26 Federal Energy Regulatory Commission (FERC) Licenses with about 170 dams in total, 54 of which are classified as either “High” or “Significant” hazard
- The California Department of Water Resources – Division of Safety of Dams (DSOD) also regulated 81 of PG&E’s Dams



Power Generation Department Organization



Three Organizations work together on regulatory compliance:

1. Hydro Licensing department is the regulatory interface and manages compliance requirements
2. Requirements are relayed to the PE&C and O&M departments, and information is provided to Hydro Licensing for transmittal to regulators

Power Generation's Compliance Management System

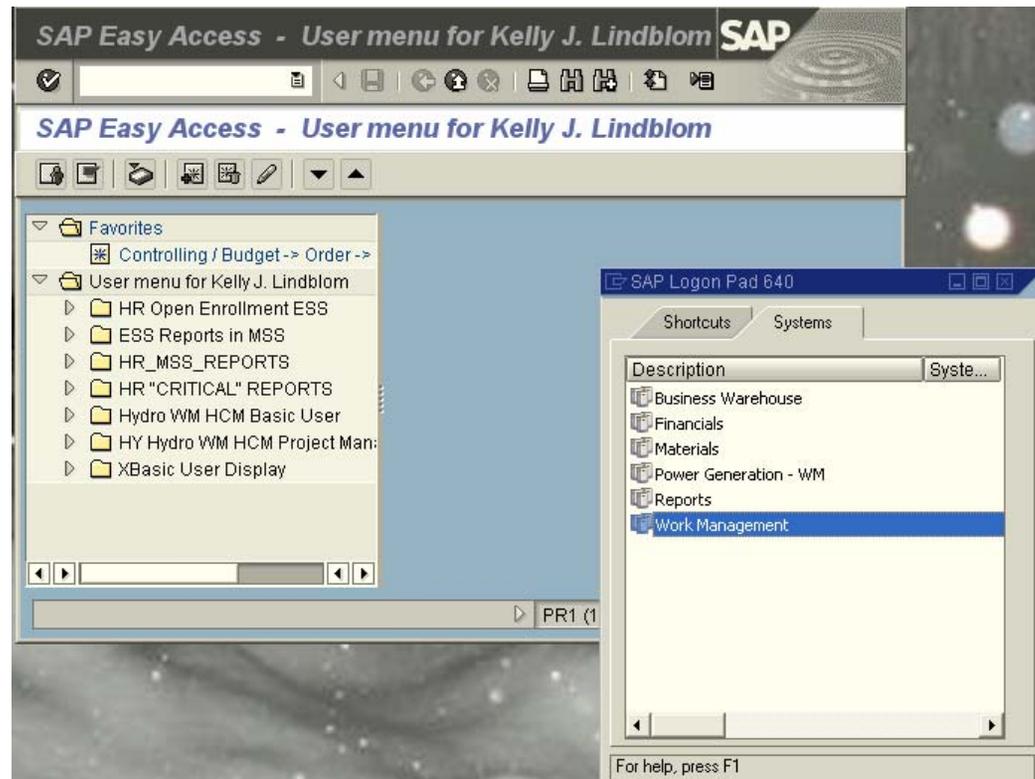
We Needed:

1. A reliable process to ensure all requirements are entered into a tracking system
2. A tracking system which is inter-departmental and multi-functional
3. One person to be responsible for all regulatory interface and compliance

So processes were developed to meet our needs.

The Tracking System

Power Generation uses a customized version of SAP software to manage compliance and work. We'll focus on the compliance tracking features in this presentation...



PM Notification Edit Goto Extras Environment System Help

SAP

Display PM Notification: Hydro - Compliance

Notification: 2078898 HC 2007 Part 12D Inspection- Lower Bear
 Status: OSNO OSTs actv

Header Location Recurring Tasks

Reference object
 Funct. Location: HUPL.BL.DAM.DAM DAM - RESERVOIRS, DIVERSION, OTHERS
 Equipment: 803345 LOWER BEAR DAM

Subject
 Coding: H-PERC 0137 Mokelumne River Project
 01/10/2008 13:28:28 Kelly J. Lindblom (KJLE) Phone 415/973-1923
 2007 Ninth Part 12D Follow-up Items are listed as tasks to this
 notification. See attached P&E plan and schedule to complete the
 items
 (letter dated 12/31/2007).
 05/13/2008 15:34:31 Kelly J. Lindblom (KJLE) Phone 415/973-1923
 By letter dated May 7, 2008, FERC accepts the plan and schedule. See
 attached

Responsibilities
 Planner group: HLM / E229 License Management
 Main WorkCtr: 11583FS / E229 Hydro License Management:Facility Safety
 Reported by: KJLE Notif.date: 08/22/2007 1

Item
 Work Type: H-TYPE WC22 Inspection, 5 Year Safety Review
 File Number: HF-0026 1193 FERC Compliance-Dam Safety/Inspections
 Cause code: H-AGENCY FD25 FERC (Dam Safety & Inspections)
 Entry 1 fro 1

Start/End Dates
 Required start: 08/22/2007 Priority: 2 = Regulatory Req'd
 Required End: 06/30/2008

PR1 (1) (820) pr1ap06 INS

The Subject of the requirement, SAP Notification number, And status are recorded here.

Details about the requirement, Including mention of the reference Documents or regulations, due date, And status are recorded here.

The notification is "owned" by The Facility Safety Coordinator And Hydro Licensing Department

Deadlines and Priorities are recorded Here.

Display PM Notification: Hydro - Compliance



Notification: 2078898 HC 2007 Part 12D Inspection- Lower Bear
 Status: OSNO OSTS **actv**

- Header
- Location
- Recurring
- Tasks

No.	Task text	Ta...	Responsible	List name	Planned fin...	Completed By	Completi...	Com..
1	Update PMF with HMR 59		RKW5	Rob (Hydro) K. White	12/31/2009			00:0.
2	Secure Spillway Stoplog ...		KLH7	Keith L. Heimbach	06/30/2008			00:0.
3	Post EAP flowcharts at S...		KLH7	Keith L. Heimbach	01/30/2008			00:0.
4	Update spillway rating cu...		RKW5	Rob (Hydro) K. White	12/31/2008			00:0.
5	add discharge rating curv..		RKW5	Rob (Hydro) K. White	12/31/2008			00:0.
6	develop tailwater rating c...		RKW5	Rob (Hydro) K. White	12/31/2008			00:0.

Each action item, or component of the compliance Requirement, is assigned to a person in Power Generation. Details for each "task" can be entered in by selecting the notepad icon. The people assigned to tasks can individually Log into SAP and update their tasks, attach Documents, etc.

Maintenance plan SUBMIT SURVEILLANCE DATA- FERC

Maint. plan head...

Maintenance plan cycle

Maintenance plan scheduling parameters

Maintenance plan additional data

Date determination		
Shift Factor Late Compl.	<input type="text" value="0"/>	%
Tolerance (+)	<input type="text" value="0"/>	%
Shift Factor Early Compl.	<input type="text" value="0"/>	%
Tolerance (-)	<input type="text" value="0"/>	%
Cycle modification factor	<input type="text" value="1.00"/>	
Factory calendar	<input type="text" value="PG"/>	

Call control parameter		
Call horizon	<input type="text" value="75"/>	%
Scheduling period	<input type="text" value="2"/>	YR
<input checked="" type="checkbox"/> Completion Requirmnt		

These codes establish the schedule of The recurring compliance requirement

Item

Item location

Customer enhancement item

WEC Data

Maintenance Item SUBMIT SURVEILLANCE DATA- FERC



Reference object

Funct. Location	<input type="text" value="H"/>
Equipment	<input type="text"/>

HYDRO GENERATION DEPARTME

These codes establish the details for new Notifications that will be created by the Maintenance Plan

Planning data

Planning plant	<input type="text" value="E229"/> Hydro WM and DeSabra Matl ...	Planner group	<input type="text" value="HLM"/> License Management
Notifictn type	<input type="text" value="HC"/> Hydro - Compliance	Priority	<input type="text" value="2"/> = Regulatory Req'd
Main WorkCtr	<input type="text" value="11583FS"/> / <input type="text" value="E229"/> Hydro License Management:Facility Safety		
Sales Document	<input type="text"/> / <input type="text"/>		

Determine tasks

Display Tasks: List of Notifications

Notification Tasks

Notification	Description of technical object	DescEmpl.Resp.	Description	Task text	Pl.finish
2066831	PIT 7 DIVERSION DAM	Andrew M. Yu	2006 Part 12D Inspection- Pit 7 Dam	Revise table for Recording Piezo & Drain	12/31/2008
2066831	PIT 7 DIVERSION DAM		Part 12D Inspection- Pit 7 Dam	Test Reliability of Pneumatic Piezo	12/31/2008
2066764	SPAULDING 1 DAM		DSOD Inspection-Lake Spaulding	Dam #1 Weir 15F: Invest Increase seepage	12/31/2008
2073280	PIT 6 DIVERSION DAM		Part 12D Inspection- Pit 6 Dam	update piezo threshold & action levels	12/31/2008
2073280	PIT 6 DIVERSION DAM		Part 12D Inspection- Pit 6 Dam	update table for recording piezo	12/31/2008
2073280	PIT 6 DIVERSION DAM		Part 12D Inspection- Pit 6 Dam	maintenance on pneumatic piezos	12/31/2008
2073280	PIT 6 DIVERSION DAM		Part 12D Inspection- Pit 6 Dam	evaluate methods of measuring leakage	12/31/2008
2080287		Andrew M. Yu	2008 SURVEILLANCE DATA follow-up- FERC	Make Datum Consistent	03/31/2009
2080287		Andrew M. Yu	2008 SURVEILLANCE DATA follow-up- FERC	Landslide Drum FB Spillway	03/31/2009
2020248		Andrew M. Yu	Address Dam SURVEY DATA - FERC - HELMS	Provide response to FERC Comments	03/31/2009
2067695	PIT 5 OPEN CONDUIT DAM	Andrew M. Yu	2006 Part 12D Inspection- Pit 5 Open Con	Perform Geo Reconnaissance	01/01/2011
2066202	MACUMBER DAM	Chip G. Stalica	2006 Part 12D Inspection- Macumber Dam	Develop procedures to monitor spillway	12/31/2007
2067694	NORTH BATTLE CREEK DAM	Chip G. Stalica	2006 Part 12D Inspection- North Battle	Debris & Rodent Control	12/31/2007
2067694	NORTH BATTLE CREEK DAM	Chip G. Stalica	2006 Part 12D Inspection- North Battle	Weir CB 12 Maintenance	12/31/2007
2067694	NORTH BATTLE CREEK DAM	Chip G. Stalica	2006 Part 12D Inspection- North Battle	Inspect Leakage at left groin	12/31/2007
2066202	MACUMBER DAM	Chip G. Stalica	2006 Part 12D Inspection- Macumber Dam	Add Remote Monitoring to CB 15	12/31/2008
2066764	SPAULDING 1 DAM	Chris A. Brewster	2007 DSOD Inspection-Lake Spaulding	Dam #3 Spilway: Repair Concrete Spalling	12/31/2008
2066764	SPAULDING 1 DAM	Chris A. Brewster	2007 DSOD Inspection-Lake Spaulding	Dam #3: Monitor Freeze/Thaw damage	12/31/2008
2066831	PIT 7 DIVERSION DAM	Jerry L. Covert	2006 Part 12D Inspection- Pit 7 Dam	Replace Joint Sealant Compound	12/31/2007
2066831	PIT 7 DIVERSION DAM	Jerry L. Covert	2006 Part 12D Inspection- Pit 7 Dam	Enlarge Drain Holes in Spillway	12/31/2007
2066831	PIT 7 DIVERSION DAM	Jerry L. Covert	2006 Part 12D Inspection- Pit 7 Dam	Maintain Sump Pump & Pump Pond	12/31/2007
2066831	PIT 7 DIVERSION DAM	Jerry L. Covert	2006 Part 12D Inspection- Pit 7 Dam	Create Visual Barrier around Sta	12/31/2007
2073280	PIT 6 DIVERSION DAM	Jerry L. Covert	2006 Part 12D Inspection- Pit 6 Dam	maintain drainage gallery pump	12/31/2008
2073280	PIT 6 DIVERSION DAM	Jerry L. Covert	2006 Part 12D Inspection- Pit 6 Dam	Replace elastomeric joint	12/31/2008
2073280	PIT 6 DIVERSION DAM	Jerry L. Covert	2006 Part 12D Inspection- Pit 6 Dam	re-drill 3/8 inch diam drain holes	12/31/2008
2073280	PIT 6 DIVERSION DAM	Jerry L. Covert	2006 Part 12D Inspection- Pit 6 Dam	consider protective shield around	12/31/2008
2066477	IRON CANYON DAM	Jerry L. Covert	2006 Part 12D Inspection- Iron Canyon	Remove Trees in spillway	06/01/2008
2066477	IRON CANYON DAM	Jerry L. Covert	2006 Part 12D Inspection- Iron Canyon	Repair Surface Erosion at MC-10A	06/01/2008
2066477	IRON CANYON DAM	Jerry L. Covert	2006 Part 12D Inspection- Iron Canyon	Determine why MC-10 is at Capacity	06/01/2008
2066477	IRON CANYON DAM	Jerry L. Covert	2006 Part 12D Inspection- Iron Canyon	Repair Shotcrete drainage ditches	06/01/2008
2066477	IRON CANYON DAM	Jerry L. Covert	2006 Part 12D Inspection- Iron Canyon	Repair downstream face	12/31/2008
2066831	PIT 7 DIVERSION DAM	Jerry L. Covert	2006 Part 12D Inspection- Pit 7 Dam	Maintain No. 2 Sluice Valve	12/31/2008
2066831	PIT 7 DIVERSION DAM	Jerry L. Covert	2006 Part 12D Inspection- Pit 7 Dam	Reroute Seepage from Sluice Valve No. 2	12/31/2008
2073280	PIT 6 DIVERSION DAM	Jerry L. Covert	2006 Part 12D Inspection- Pit 6 Dam	clean/re-drill drain holes	12/31/2008
2066831	PIT 7 DIVERSION DAM	Jerry L. Covert	2006 Part 12D Inspection- Pit 7 Dam	Inspect Spillway flip bucket surface	01/01/2011

The Facility Safety Coordinator can query Information from SAP, such as a complete List of outstanding "tasks" and summarized Information about them.

Notice the position of The scroll bar.... The Facility Safety Coordinator has many, Many tasks to track!

What goes into SAP?

System Help

Hydro User Desk

Loc Hierarchy Hyd Hierarchy

Default Data for Plant E229 Hydro WM

Plant Section Planner Grp FLoc Main WC Oper WC

Equipment Notification Order Recurring Create/Change List Reports

Change

Number/ID Funct Loc Work Ctr WC Avail TaskListGrp WC Hier Revision

Create Function HC Notification

Create a new Hydro Compliance Notification

Maint. Plan HC
 Revision
 H1 Notification
 H2 Notification
 HC Notification

Enter this data for record creation

Description
Coding
Required End
Corrective Action Status

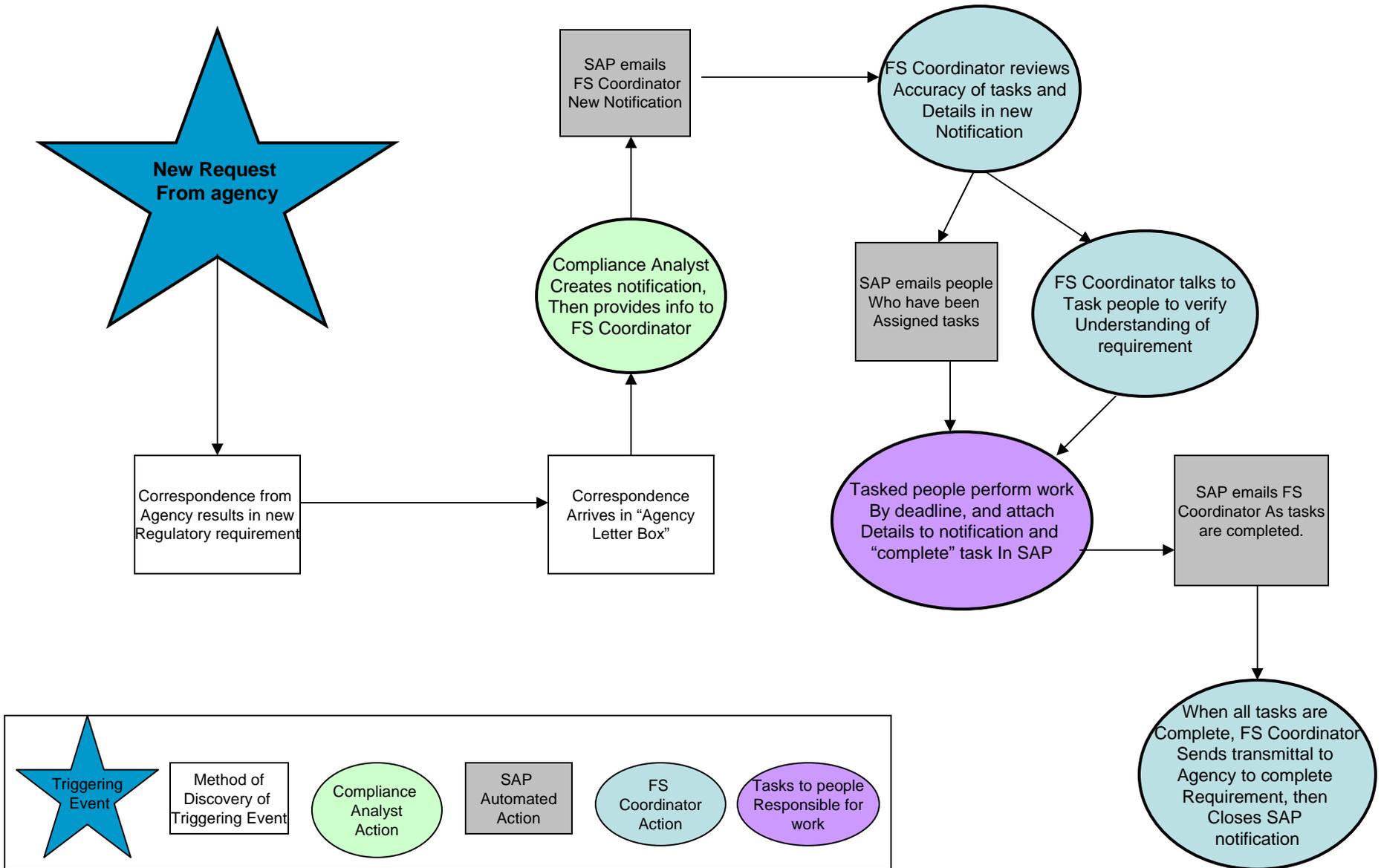
Certain “Triggering Events” Initiate Compliance Action

- New Requests from Regulatory Agencies
- Period Compliance Requirements Come Due
- Regulatory Agencies Conduct Inspections
- New Dam Safety “Incidents” Occur
- Owner Initiates New Construction or Repair Project

The goal is to timely capture each “triggering event” in SAP, and then track the compliance action items associated with that event until all requirements have been met.

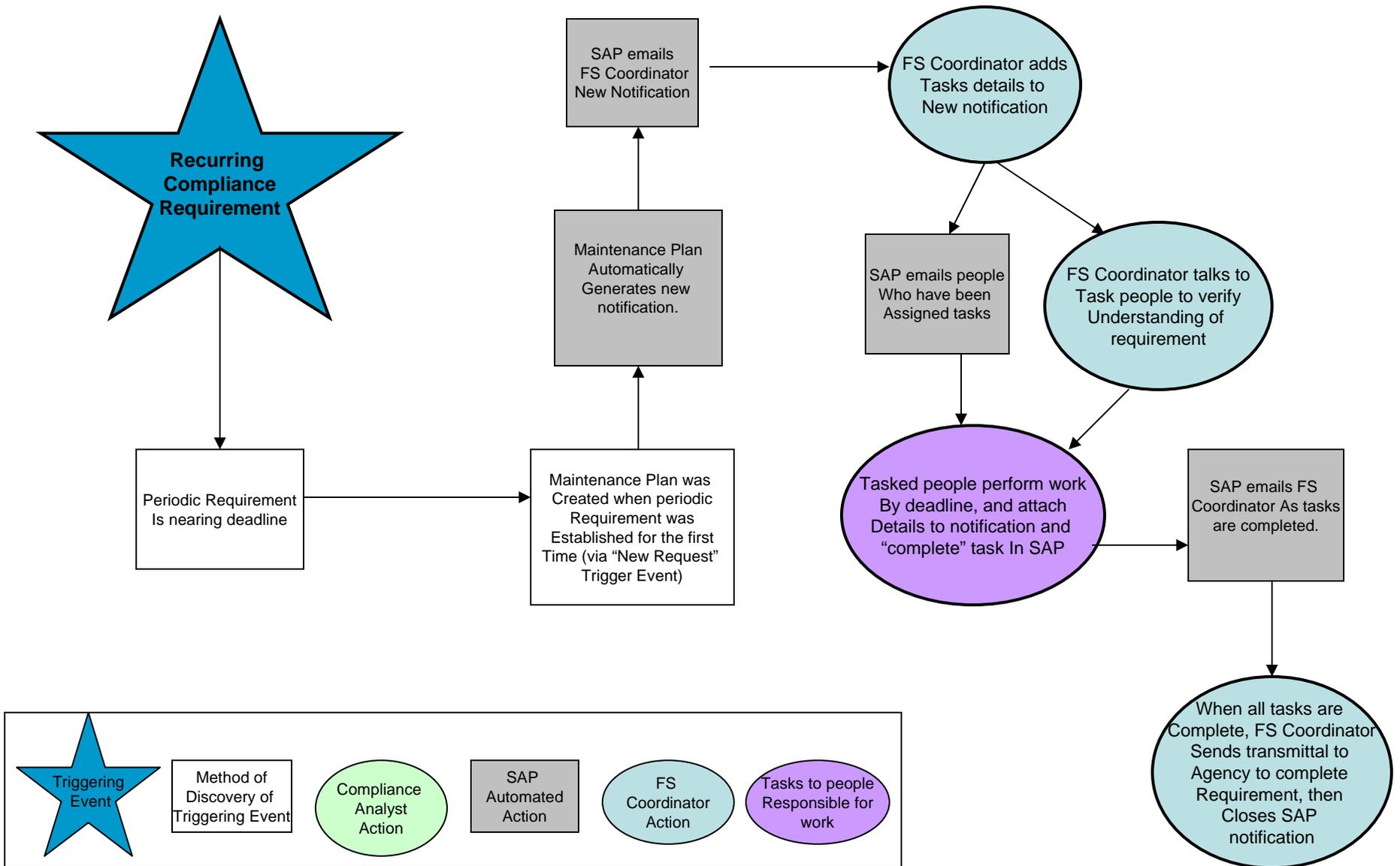
COMPLIANCE MANAGEMENT PROCESS

Triggering Event Occurs → *Entering Compliance Actions in SAP* → *Managing & Tracking Compliance Actions*



COMPLIANCE MANAGEMENT PROCESS

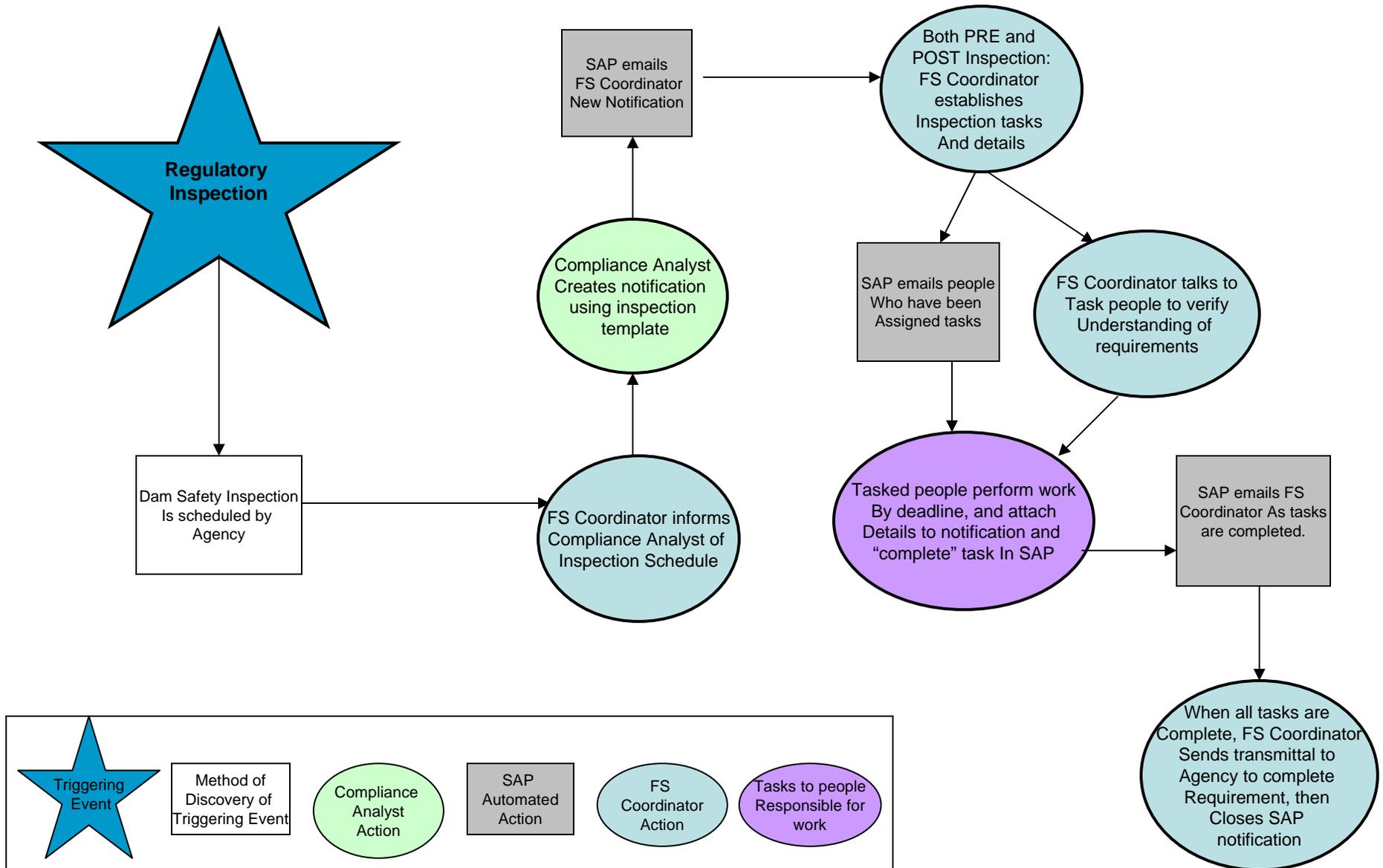
Triggering Event Occurs → *Entering Compliance Actions in SAP* → *Managing & Tracking Compliance Actions*



Triggering Event	Method of Discovery of Triggering Event	Compliance Analyst Action	SAP Automated Action	FS Coordinator Action	Tasks to people Responsible for work
------------------	---	---------------------------	----------------------	-----------------------	--------------------------------------

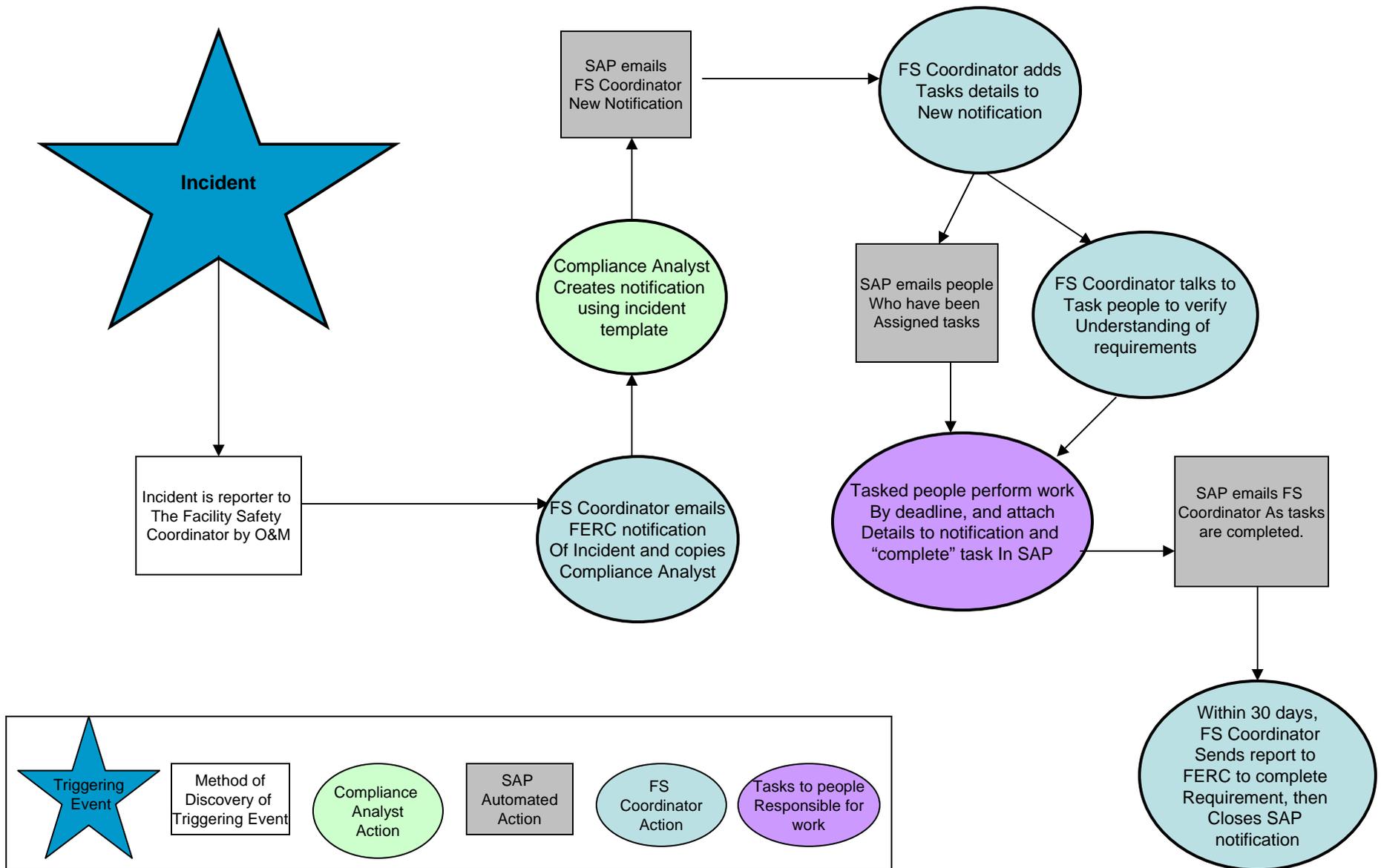
COMPLIANCE MANAGEMENT PROCESS

Triggering Event Occurs → *Entering Compliance Actions in SAP* → *Managing & Tracking Compliance Actions*



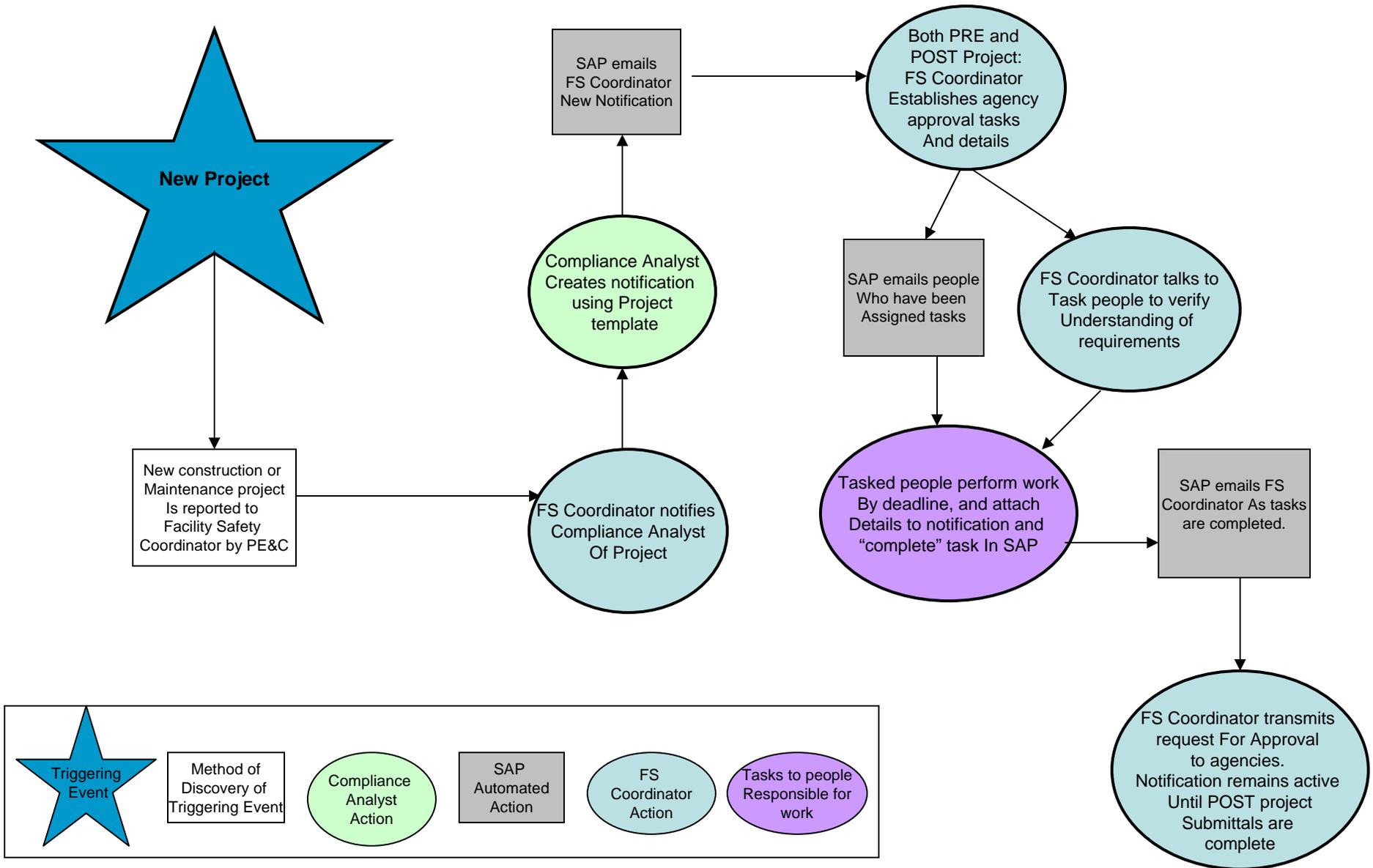
COMPLIANCE MANAGEMENT PROCESS

Triggering Event Occurs → Entering Compliance Actions in SAP → Managing & Tracking Compliance Actions



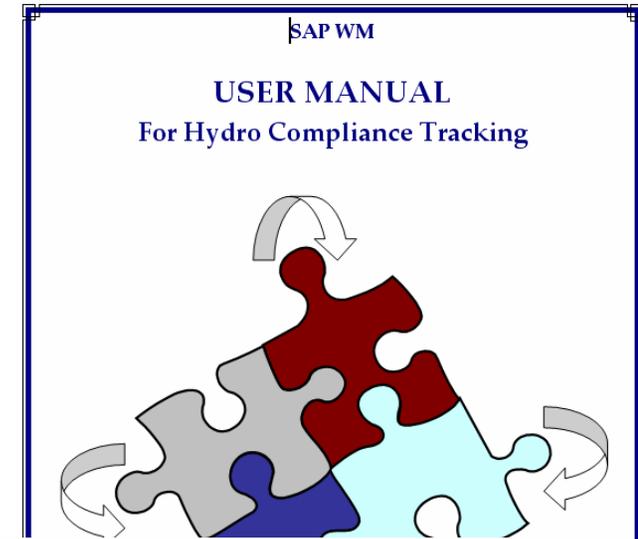
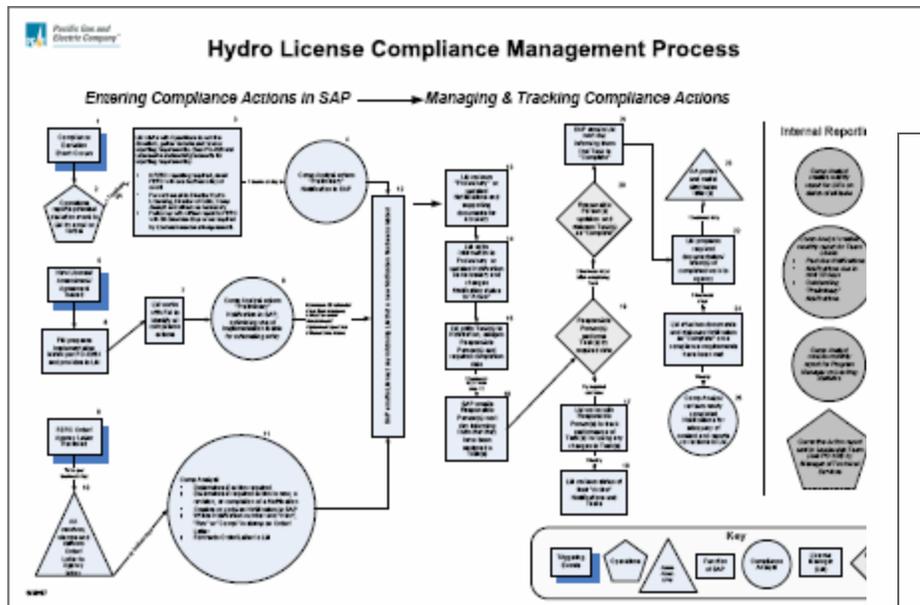
COMPLIANCE MANAGEMENT PROCESS

Triggering Event Occurs → **Entering Compliance Actions in SAP** → **Managing & Tracking Compliance Actions**



Why This Model Works for PG&E

- Employees are used to complex tools
- Power Generation Management *enforces* the processes
- Guidelines are in place to support the process



PG STANDARD	
<i>Power Generation Standard PG-S020</i>	
ISSUING DEPARTMENT: Power Generation	EFFECTIVE DATE: 4/15/2005
SPONSOR: Senior Director, Power Generation	REVIEW DATE: 4/15/2007
PAGE NO.: 1 OF 3	
TITLE: GOVERNMENT AGENCY NOTIFICATIONS FOR REPORTING INCIDENTS	
Purpose	The purpose of this Standard is to provide instructions for governmental agency reporting requirements associated with the discovery of cultural resources, a death or serious injury, unauthorized releases to the environment, events affecting facility integrity or dam safety, newsworthy incidents and deviations from license conditions at Power Generation's hydro facilities. This Standard attempts to include all explicit reporting requirements (including references to the governing regulation) as well as courtesy notifications and factors to consider in making such notifications.
Implementation And Enforcement Responsibilities	The Senior Director, Power Generation is responsible for approving, issuing and revising this Standard. The Senior Director may delegate document issuing and revising responsibilities to a supervisor within the department. The Area Hydro Managers, Hydro Construction Manager, and Hydro Maintenance Manager are responsible for enforcement of this Standard. The assigned job lead is responsible for implementation of this Standard. The

Considerations when Choosing Compliance Management Tools/Software

- It is advantageous to use compliance tracking Software that is compatible with your company's work management software

The screenshot displays two SAP windows. The top window, titled 'COMPLIANCE TRACKING SAP', shows a task list for order 10225686. The bottom window, titled 'WORK MANAGEMENT SAP', shows an 'Order List (Multi-Level): List of Orders' for the same order number, listing tasks and their associated costs.

COMPLIANCE TRACKING SAP

No.	Code gr...	Task text
1	H-TASK	Pump toilets Rucker M
2	H-TASK TC49	Inspection, Close Findings Clean/restock toilets r
3	H-TASK TC49	Inspection, Close Findings Remove incinerator &
4	H-TASK TC49	Inspection, Close Findings Remove I-beam Ruck
5	H-TASK TC49	Inspection, Close Findings Fill in brick lined hole
6	H-TASK	
7	H-TASK	

WORK MANAGEMENT SAP

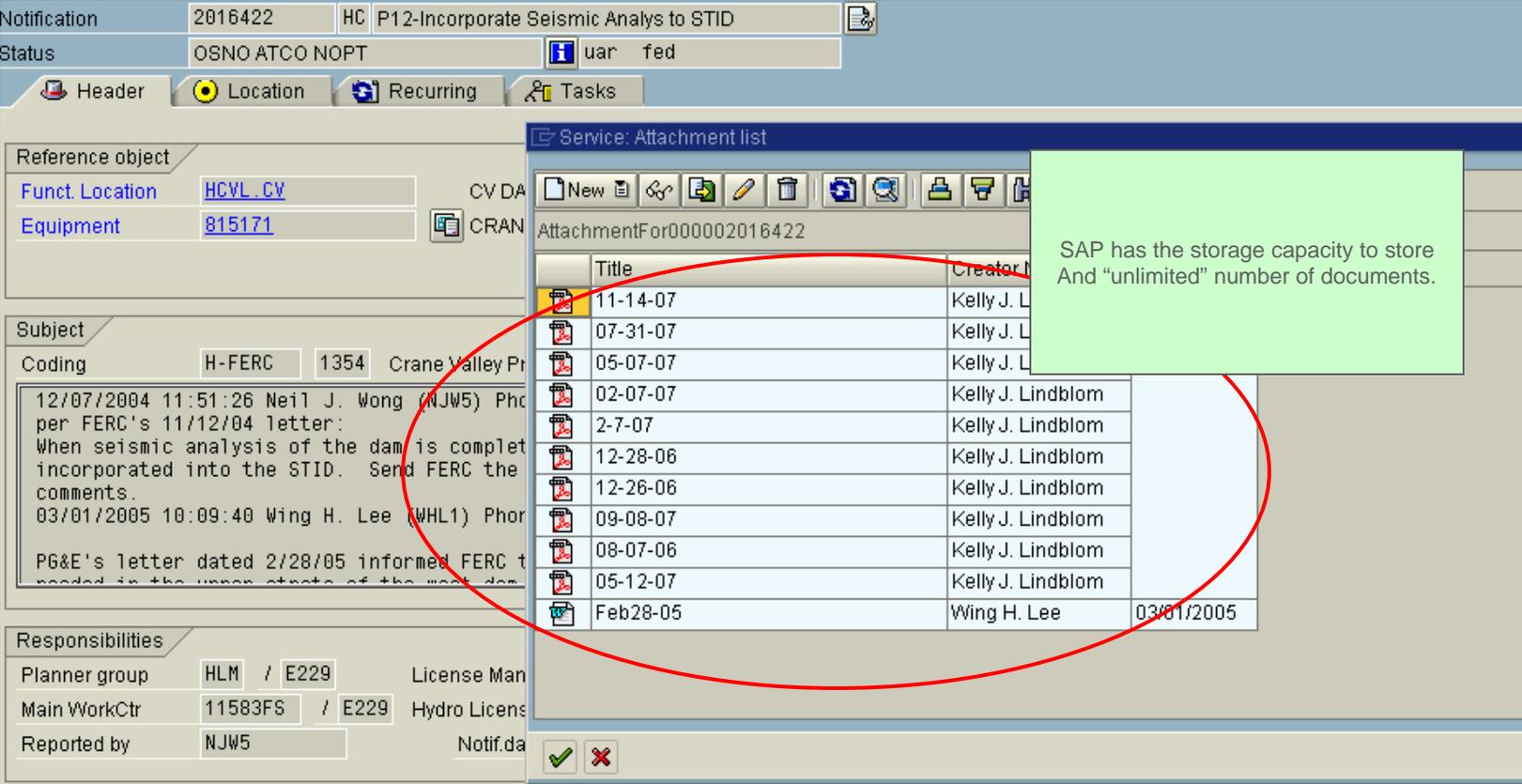
Order Number	Superior Order	Sub Order	Description
10226921	10226897	10226897	Rucker Lake Spillway undercut - place ri
	10226898	10226898	Remove 6" valve and flange on the downst
	10226899	10226899	Remortor rocks in the d/s face of dam
	10226890	10226890	Patch Fordyce Dam parapet wall
	10226894	10226894	Remove gravel from Diversion Dam
	10226895	10226895	Remove vegetation Dam 1, Dam 3
	10226896	10226896	Replace Weir YB-20C with steel plate
	10226897	10226897	

Order List (Multi-Level): List of Orders

Order Number	Description	Start Date	Category	Cost
10223746	REMOVE INCINERATOR		work	2,913.15
10223747	Other:Worn /Deteriorated DOC		comp	3,231.80
10223748	FILL IN VOIDS		comp	447.48
10223750	BLOCK ROADS		work	2,486.00
10223751	REMOVE GRAVEL PILE	08/04/2005	work	1,491.60
10223752	REOLACE DAMAGED VENTS	08/04/2005	work	2,053.90
10223753	SILVER TIP DAY USE AREA	08/04/2005	comp	1,827.00
10223754	SET K-RAILS TO REPLACE CABLES.	08/04/2005	comp	2,246.46
10223755	Other:Sign damaged/missing	08/04/2005	work	397.76
10224478	Spa. 3 sump system upgrade	08/18/2005	prel	0.00
10225286	Sterling Lake Restroom	08/30/2005	work	5,344.48
10225604	Install expanding foam in conduit	09/06/2005	prel	0.00
10225605	Inject expanding foam in CB32 Switchhous	09/06/2005	work E	99.44

Considerations when Choosing Compliance Management Tools/Software

- Choose software with unlimited storage memory and reliability



The screenshot displays the SAP interface for a notification. The notification ID is 2016422, and the subject is 'P12-Incorporate Seismic Analysis to STID'. The attachment list is as follows:

Title	Creator	Date
11-14-07	Kelly J. Lindblom	11-14-07
07-31-07	Kelly J. Lindblom	07-31-07
05-07-07	Kelly J. Lindblom	05-07-07
02-07-07	Kelly J. Lindblom	02-07-07
2-7-07	Kelly J. Lindblom	2-7-07
12-28-06	Kelly J. Lindblom	12-28-06
12-26-06	Kelly J. Lindblom	12-26-06
09-08-07	Kelly J. Lindblom	09-08-07
08-07-06	Kelly J. Lindblom	08-07-06
05-12-07	Kelly J. Lindblom	05-12-07
Feb28-05	Wing H. Lee	03/01/2005

Considerations when Choosing Compliance Management Tools/Software

- Consider the complexity of the software. If you have a lot of work to manage, you might need a custom program. If you don't, maybe something simpler (with less training, change, and complexities for your employees) will do!



THANKS!

