



Getting the most of your site review dollars: the Tesoro 'Gatekeeper' Program

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Agenda

1 Traditional site reviews & their challenges

2 Tesoro Lean journey

3 Gatekeeper program - approach

4 Gatekeeper program - results



Additional site reviews & their challenges

Project review by internal team & 3rd party only

3rd party reviewer given a 'library' to review & write a report on findings

No context, no site visit, no consideration of Tesoro goals for site

Non-collaborative - done in a bubble

Meeting with 3rd party reviewer, incumbent and client

Turns into a marketing exercise

Outcomes

Minimal improvement to site management & strategy after a cursory review

- Suggestions often can't be implemented due to unknown limitations (e.g. regulatory preferences, local issues)

Expensive and time consuming

Metrics not tracked post-review – just 'yes or no' acceptance of recommendations



Tesoro's driver for improvement...

2013: acquisition led to a 2-3x increase in the environmental reserves

New sites, new consultants and new Tesoro PMs

Several significant sites presented opportunities to improve

Tesoro management wanted to establish an internal program to ensure that the large sites/reserves are managed effectively

Technically appropriate remediation measures are implemented

Financially responsible implementation of remedies



e designed 'Gatekeeper' using our tried and true Lean-based approach...

ork is done in alignment with customer goals

ollaboration

imple, visual documentation

emba

Examples of other challenges addressed using a Lean-based approach (from 2015 IPEC Presentation)

Reserves mgmt, tracking & reporting

Standardize financial management and documents

Spill response & remedial planning

Remedial system O&M optimization

Site closure strategies



Goals of the Gatekeeper program

Systematic site selection

Standard approach/tools for site reviews

Collaborative approach

Harness team institutional knowledge

Ensure inclusion of subject matter experts

Modular/flexible

Output: real, implementable

Improvements aligned with site goals



The Gatekeeper process – the team

Tesoro PM

Tesoro Gatekeeper

Project consultant team

Facilitator

Third party reviewer (as appropriate)



The Gatekeeper process

Full Team Kick-off

Intro to program and purpose *NOT a consultant performance review exercise!*

Standard Data Collection (by consultants) & Gatekeeper review


Std docs: CSM, recent reports

Project Scoping via Improvement Profile:

Identify challenges/data gaps

Identify site goals

Key considerations (risk, logistics, etc.)

Team Name: Example		Improvement Profile			
Date: 7/27/16				Workshop Dates, Time and Location:	
Event Description: This site has recently been transitioned to new management (C-PM & T-PM) and there have been recent site condition changes. The team needs to complete a deep dive to understand together what needs to be done to complete the site CSM. This work will include identifying the # of data gaps (currently unknown) and get the right questions asked to identify challenges and ideas and to begin to make, and communicate in an A3, strategic decisions to meet long term site remediation goals.				Aug 15 & 16 – AK (Full day Mon, 2/3 day Tues)	
Current Situation and Problems:				Objectives and Desired Outcomes (Including Specific Targets):	
Contributing Forces (supporting goals): <ul style="list-style-type: none">Former consultant participating (wealth of background knowledge and good database of information (historical, logs, etc.))Interaction with Terminal staff is good (due to recent storm drain work) mgr – is supportive, flexible and knowledgeableReasonable regulator – expecting us to stay on top of storm drainNot in a reactive state – we have time to collect the data we need to understand the site.New ideas at the table – good timing to step back together and readjust.		Restricting Forces (impeding goals): <ul style="list-style-type: none">No comprehensive CSM (data exists in different places)Spatial limitations (active site)Don't know who owns (portions of) the propertyLimited field season (May to Oct – typically)GAP: Benzene getting through sparge system (either missed tip of the plume or it's going through?)NPDS issues from drain (we think we've resolved that – but need monitoring time this summer)Nearby sources (military base upgradient); Horizon adjacent – don't want us on the propertyData gaps exist but are not holistically understood (not a lot done previously at site)Conduits under tank farm – limit activity, create flow pathsUnknown competence of sewer system (but had an engineer contribute to design)Sparge System and point design potentially insufficient (clay is a restricting factor re: point depth)		The team will flesh out the overall strategy for the site and an implementation plan to identifying data gaps in our Gatekeeper meeting and addressing them in the 2017 field able to complete the site CSM and then make strategic remedial decisions in Winter 2017 again once ready to shift into remedy selection (Fall 2017). Develop an A3 plan for the next steps at the site and the long term plan. Confirm, flesh out and prioritize data gap focus areas to work on – may include: <ul style="list-style-type: none">Complicated flow paths – vertical gaps – where benzene coming fromDowngradient gaps due to Horizon access limitationsFunky flow paths – sheet flow over clay Go to gamba – see sparge system (~10 feet deep, 10-12 ft spacing), storm drain configuration (~2 hours – including tour w/Dave – terminal manager). Develop a better understanding of how to prevent off-site impacts for long term management (Dissolved phase migration control is current long term plan. Long term goal is to identify efficient remedial approach to prevent off-site migration). Help the team see that all options are on the table with respect to remedial approach.	
Site Info: <ul style="list-style-type: none">Small, active terminal located in active Port (historic spills around train track)Clay with fill on top – clay has a lot of preferential pathways ('funnels') due to infrastructure.Historical impacts. Shallow gw. Free phase in 1 well.Storm drain recently re-routed – monitoring impacts (prelim – looks below levels). Potential new wells to include in SAP. Potential future changes to storm drains w/whole site re-route.					
Customers and Other Stakeholders – What do they Value? Tesoro-PM – solid SCM, smart long term strategy, maintaining good regulatory and terminal relationships Terminal Mgr – communication, operations uninterrupted Regulator – stay on top of the storm sewer, ensure nothing gets worse Consultant – understand what Kyle wants, good plan moving forward					
Stakeholders: neighbors? TSO Corp?					
* Customers: People, groups or organizations that pay for and/or dictate what services are needed					
* Stakeholders: People, groups or organizations and all customers that have an interest or role in quality, pace or cost of services					
<small>©HALEY & ALDRICH, INC. – ALL RIGHTS RESERVED. These materials are not to be used or reproduced by any means without prior permission.</small>				People: Gatekeeper, co-facilitator H&A - facilitator Tesoro-PM) Former Consultant Current Consultant Team	

Example Improvement Profile



e Gatekeeper process

‘Gemba’ Meeting - 1.5 days, on-site

Full project team participates

- Engage operations personnel (e.g. Terminal Mgr/customer)

‘Gemba’

Key questions: Is site CSM complete? What are the gaps? Major issues/risk drivers at the site?

Outputs:

- improvement action plan for immediate implementation of improvements
- optimized long-term strategy
- key metrics to measure improvements

General Gemba Meeting Agenda

Day 1:

- Consult presentation on site
- Tesoro – site goals
- Assess what is going well and where challenges lie
 - Analyze and prioritize findings
- Site Gemba walk

Day 2:

- Assess data gaps/problems
- Brainstorm and a improvements
- Develop improvement action plan
 - Due dates
 - Assign responsibility

Site ‘Gemba’ Walk



e Gatekeeper process

Gemba Follow-up

~1 to 2 months after Gemba Meeting

Full team call lead by the Gatekeeper

Review Improvement Action Plan

- Ensure all improvements are on track; adjust where needed

Track metrics for report out to management & customers on results

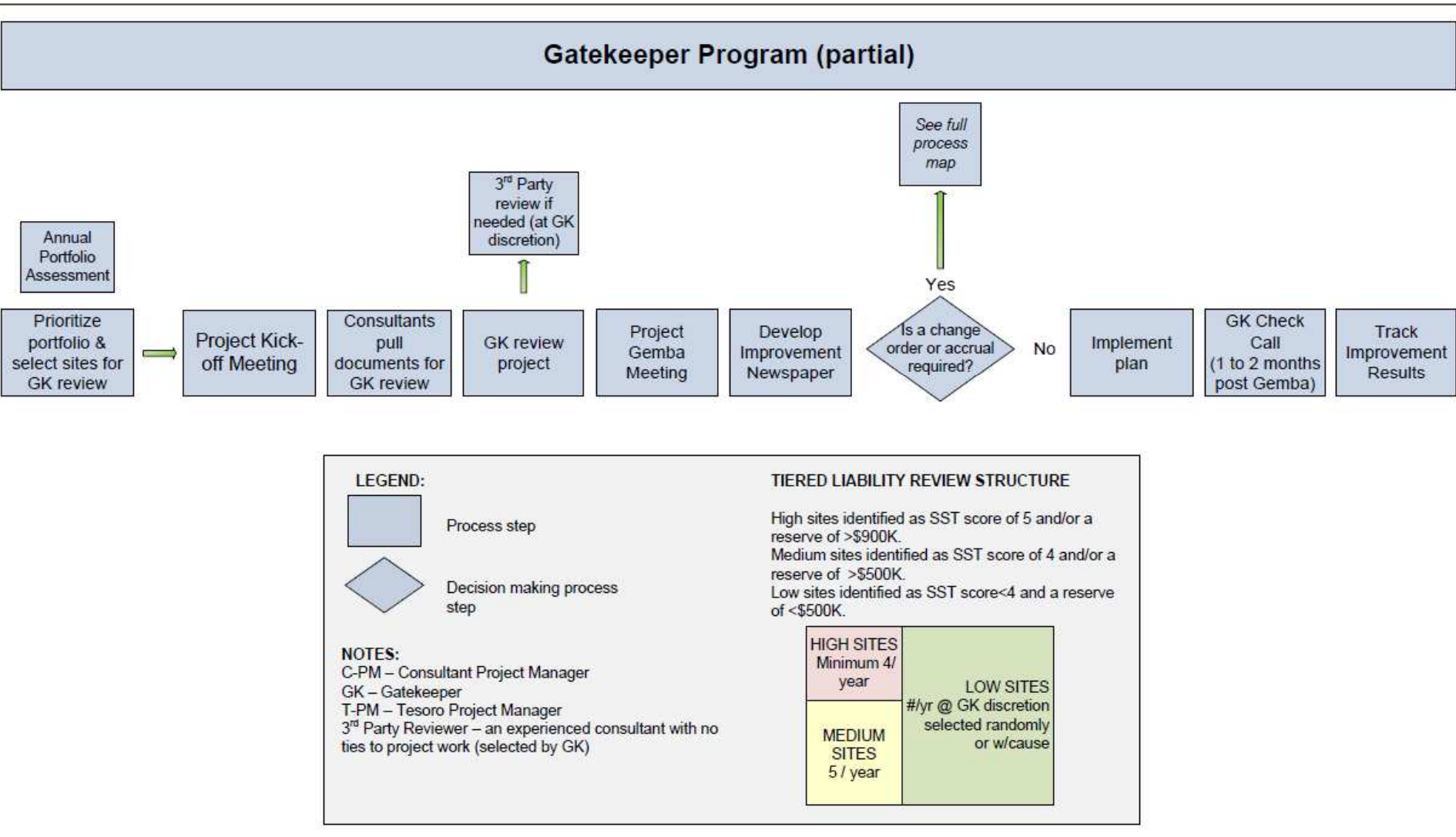
- Standard format (shown in results)

Item #	Description of Problem or Condition to be Improved	Improvement Action	Accountable Person	Responsible Person (s)	Du Da
1	property boundary & ownership / lease information not known	Figure this out - reach out to adjacent property owners	AP	RP	9/1/2
2	XX wells not in program & current survey is based on old data	Re-survey and add XX wells to program	AP	RP	9/15/
3	- Potential source areas at east end of terminal - Rack impacts - nature & extent unknown	- Historic data review - Develop work plan to fill gaps - Borehole colloidal scope	AP	RP	12/10/
4	Limited options to investigate & fill CSM data gaps	<u>CSM To Do:</u> 1. Complete a thorough review of existing data 2. Develop/amend site cross-sections E to W, N to S (3 D model) 3. Identify existing data gaps (use flux measure where possible when AS sys down (see #3 & #5)) 4. Prep a work plan to complete data gaps and to support a remedial alternatives evaluation & implement (2017 Field Season) 5. Complete a remedial alternatives evaluation based on the complete data set (cost/benefit) 6. Select a preferred alternative (2017/2018)	AP	RP	12/10/ (thro step Step 4 2017 seas Step 5 Fall/W 2017/
5	We don't know if Air Sparge is the "right" remediation technology	<u>Complete the following:</u> - Pilot test AS shut off for 6-12 months - Link flux measure data w/AS shut down - Measure DO across area & create contour map - Collect MNA data including Bio traps & geochem data <u>AS System Shut Down Plan:</u> 1. Evaluate GW qual & MNA/bio data (for baseline) 2. Turn off AS to see steady state conditions 3. Monitor GW monthly (spring/fall) 5. At least 1 round of MNA/bio w/GW to show shut down state 4. 6 or 12 month AS pilot monitoring report (possible 6 month extension if system off shows no impact) 5. Final AS report with O&M recommendations	AP	RP	Work 2/20 Imple Shut D 5/20 11/20 5/20

Improvement Action Plan (partial)



Gatekeeper process (simplified, partial)



Gatekeeper reviews to date

Program Launched November 2015

Large CA Terminal with significant SPH

Medium Terminal in Alaska

Medium Terminal in CA (in progress)

Small pipeline release (Gatekeeper 'light')



Terminal Site Gatekeeper Review
November 2015



Results summary


\$5 - \$7M – cost avoidance via an improved municipal well contingency plan

Reduce 1 FTE via optimized product management

7 significant data gaps identified & an action plan developed

High risk storm sewer condition identified; protection of bay

Proposed expensive remedy rejected in lieu of completion of CSM



Project Strategy/Current Activities

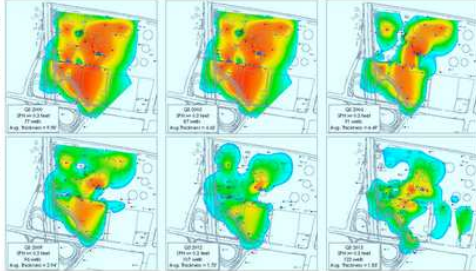
Site: Example
Remediation Phase Project Cycle: 2
AFE Balance (1/2016): \$XXM

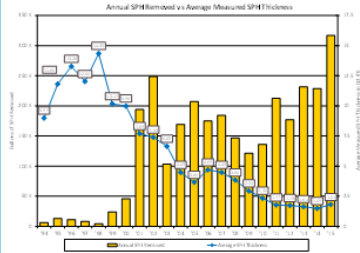
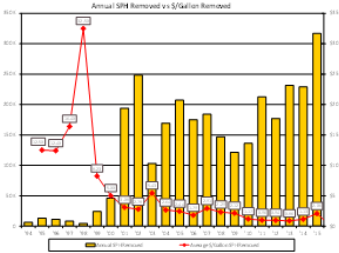
Team Leader: XX
Sponsor: XX
Gatekeeper Lead: XX
Date: 06/30/16

Participants: XX
Lean Advisor: H

Site Remediation Goals Objectives: We are working to reduce the lateral & vertical extent of petroleum impacts, residual mass in the source area, potential risks to receptors, and impacts to terminal operations through optimizing spend & remedial effectiveness to attain post-remediation monitoring while maintaining safe & compliant operations.


Current Situation and Problems:
 Significant progress made to date at this former war time refinery site with a long history of significant impact. Product removal systems are effective at a terminal with refinery-scale issues. Remediation system expansion nearly complete (Model 2 Flame Ox, tie in of ~40 additional wells for SVE, mobile SPH trailer). Persulfate injection and air sparging proposed to address dissolved-phase impacts. Potential directional drilling options to address inaccessible areas. Continued communication with Tesoro management and cooperative work efforts with Terminal personnel needed for successful project implementation.



Recent Work:

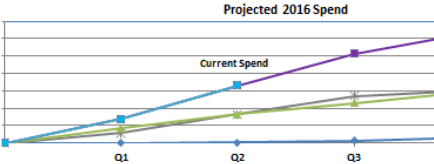
- Dissolved-Phase Remediation - ISCO pilot test proposed off-site; prep for startup of existing AS cell in tank farm; addition of subsurface AS piping during SVE well expansion; bio-analyses discussion for upcoming NS2D/mass flux evaluation.
- Working with Terminal staff to increase Flame Ox system up-time.
- SPH Removal Optimization - Second Flame-Ox purchased, bringing online by 3Q16 to increase product recovery; mobile SPH trailer being constructed to supplement VEPR unit and address outlying well locations.
- Overall Project Implementation - Developed A3 communication tool (this document); monthly Gatekeeper Meetings



Long Term Plan w/Schedule * - ongoing project execution costs (regular expenses)

Task	Notes	1Q16	2Q16	3Q16	4Q16	
1	Pre-Field*	[Progress bar]				
2	Well Install	[Progress bar]				
3	ISCO	[Progress bar]				
4	Rem Sys Expans	[Progress bar]				
5	GW Mon*	[Progress bar]				
6	Sys O&M	[Progress bar]				
11/12	Reporting/P.M.*	[Progress bar]				
13	Direct Costs*	[Progress bar]				

Projected 2016 Spend



Obstacles to Work Progress:

- SVE System Expansion - Terminal management requirements substantially increased

Upcoming Work:

- Finalize SVE wellhead connections, startup and troubleshoot Model 2 Flame Ox
- Implement bio-analyses plan for microbial assessments (Q3-16)
- ISCO pilot test (persulfate) off-site (Q3-Q4-16)
- Data Gap investigations (scissor drains; pressure testing of piping, CSM updates)
- Interface with utility for potential expansion of remediation lines (SVE and AS)
- Evaluate directional drilling options to increase remedial coverage beneath off-

Example project summary with improvement action items



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