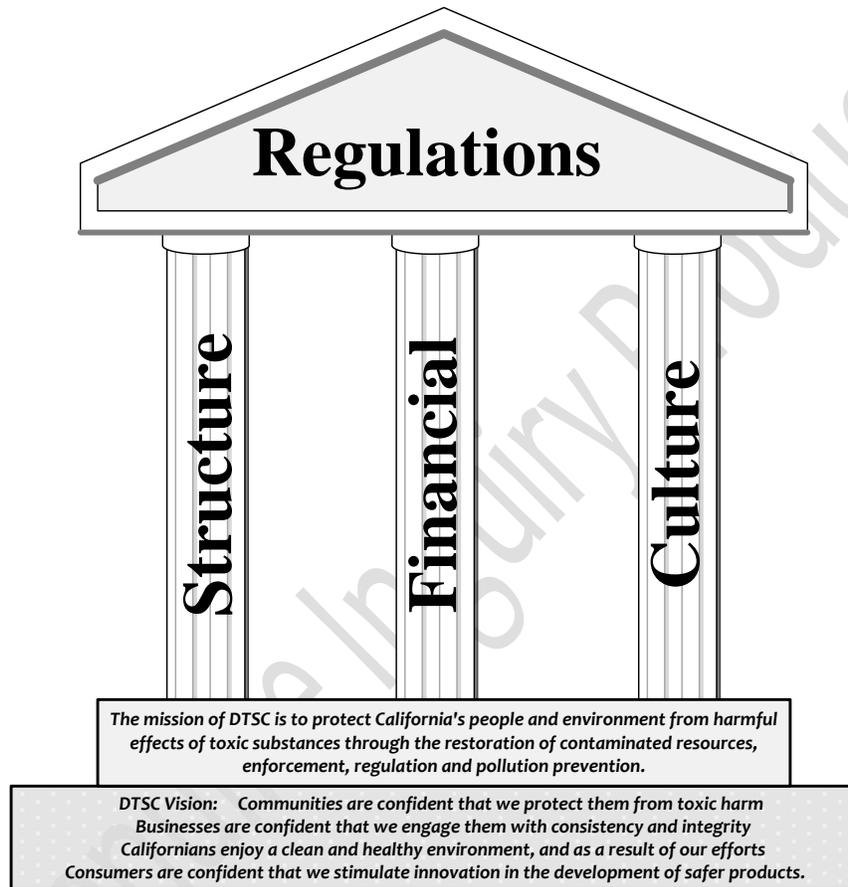


Preliminary Action Plan for DTSC Foundation Repairs

(Stabilization Plan)

Prepared by Scott Warren & Ted Peng

5/14/2012



Strategic Goals

1. Protect California from toxic harm to improve the quality of life for communities, businesses, and consumers and preserve the environment.
2. Restore land and water to protect human health and the environment, and to facilitate efficient reuse and redevelopment.
3. Strengthen our effectiveness, efficiencies, and capabilities to better serve stakeholders.

Action Plan to Repair Cracks in Our Foundations: Executive Summary

We find ourselves out-of-step with the Environmental Movement and facing a severe budget shortfall. In response, we need to shore up our structure, prop up our financial basis and change our culture. The initial shift will be emergency action to protect DTSC from immanent financial threats, but the longer term fix will require structural planning for the future and a fundamental shift from a “process” to a “performance” basis.

This year’s budget shortfall will be \$23 to \$51¹ million. Beyond this shortage, we should expect a recurring shortfall and additional State Government consolidation. ***To survive, we must: Speed-up Brownfields projects, improve relations with the A. G. and complete the Green Chemistry regulations.*** To do so, we will need to identify key issues we must solve, prioritize tasks and resources, and ensure our oversight leads to practical, meaningful, timely, defensible and palatable solutions.

Funding shortfalls are not the cause of our problems, but they are the catalyst for this change. The “Cracks” threatening our foundation are primarily internal in nature but external factors have created urgency. The fundamental “Cracks-in-our-Foundation” are:

External Factors

External Factor 1) The environmental industry consolidated around us and we did not respond with adequate incremental organizational shifts so we find ourselves fundamentally out-of-step with the environmental movement.
We must realign DTSC to restore land and water in order to protect human health and the environment, and to facilitate efficient reuse and redevelopment of California’s resources in accordance with our strategic Goals.

External Factor 2) DTSCs annual operating revenues and our traditional work load has declined but our work force was not adjusted accordingly.
Launching Green Chemistry will pick up some staff but adequate funding

¹ \$15 Mil. TSCA, \$8 Mil. HWCA, \$24 Mil. Furlough back pay and \$4 Mil. Back Supervisors Pay (Geologist & Engineers)

to launch the new program may not materialize. We must re-evaluate our Core Program priorities in light of the future workload demand and distribution. Additional funding mechanisms need to be vigorously pursued. Brick and mortar office needs will change as will staffing. A mobile, professional fee-for-service cleanup workforce may be a viable alternative. Using retired annuitants seems appealing, but reduces opportunities for staff and reinforces the attitudes we need to outgrow.

External Factor 3) We are underprepared financially and programmatically to manage unfunded environmental liabilities (Superfund, Orphan Sites and Failing Landfills) that the State will be responsible for. We should form a financial and technical team to ease the transition, responsibly minimize the impact and get the best possible financial deal to minimize State exposure. In addition, we will need to work with the legislature to set aside or collect monies to reasonably cover these unfunded or underfunded liabilities.

Internal Factors

Internal Factor 1) Our mid and executive level management structure, is key to our organizational success. The centralization of power and authority has marginalized Regional staff and devastates Regional moral. This is a deep and fatal flaw that must be fundamentally changed. We need to fundamentally shift to relatively autonomous Regional operations centers, with a new breed of leader-managers, trained and empowered to produce timely and effective outcomes and track the performance of a adaptive and flexible workforce with direct ownership of the project being managed. Peer and staff reviews should be used to winnow-out less effective supervisors and managers, and thereby enrich the talent pool with adaptive Generation X managers ready to lead and manage a 21st century virtual workforce.

Internal Factor 2) The management ratios we use limit Branch Productivity to 65 percent and limit Departmental maximum productivity. Additionally, our overhead may exceed our revenue generating staff. We must change the structure to improve productivity. Now is the time to form a new structure, designed to improve efficiency and ease the transition to Phase III of the environmental movement (collaboration). **Management ratios**

should increase to at least 8/1 for supervisors and 5/1 for Branch Chiefs. Managers should focus on management tasks instead of technical decision making.

Internal Factor3) Our approach to project oversight is so “Process” oriented and punitive that we seem to have lost sight of the fundamental goal of efficiently restoring California’s resources to the benefit of all stakeholders. *We must fundamentally shift from a centrally managed, punitive, control oriented “Process” based approach to a decentralized “Performance” based approach, with reasonable time lines, goals, performance metrics, payment strategy, exit strategy and strict penalties for delays and poor or non-performance. Traditional paper based records left over from the 20th century approach must give way to a cloud based e-meeting, e-collaboration and e-filing.*

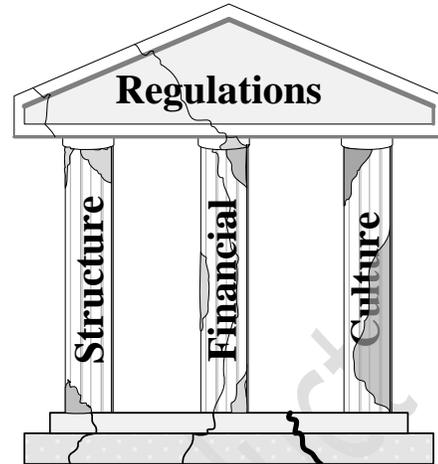
Internal Factor4) We face the retirement of around 40% of our staff within the next decade and this retirement will usher in the transition from the Baby Boomer Generation to Generation X and Generation Y. The proposed 60% retirement cap may accelerate this issue. *We must reposition DTSC for the mobile, transitory e-work force of the future where cubicles and land lines give way to a short term, transitory, remote, web enabled, electronic workforce that will look very different from the current boxes we restrict ourselves to.*

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Attachments

- Attachment 1 Four Waves of the National Environmental Movement
- Attachment 2 Proposed P2dw 5 Step (Goal) Groundwater Cleanup Performance Measure Development Tool (3-8-10)

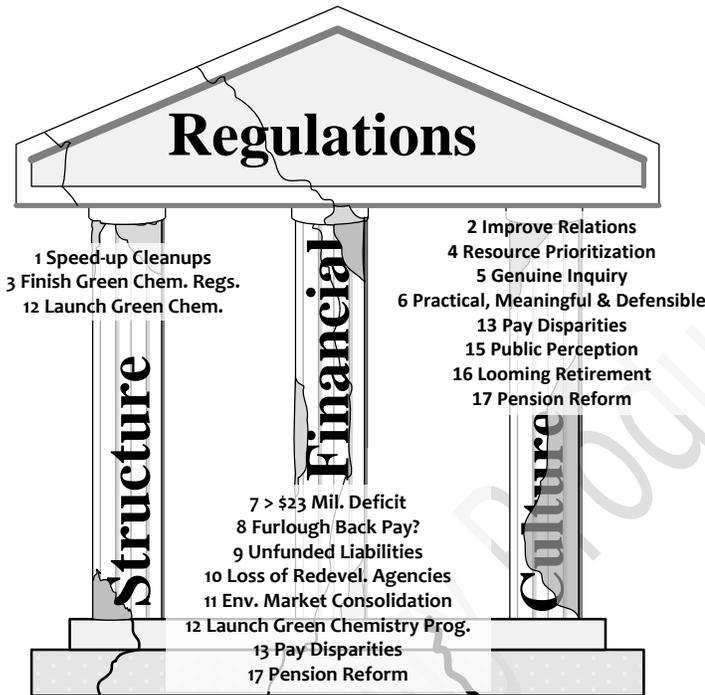


Cracks in Our Foundations

During the January 19th All-Staff meeting, the Director mentioned that DTSC is in a “severe budget deficit” and that we will be required to justify our existence. Data shared indicates the current budget shortfall is over \$23 Million and primarily affects two Core DTSC Programs. Other shortfalls should be expected, but the brunt of the current deficit is in the Toxic Substances Control Account [TSCA (\$15 Million/year, beginning Fiscal Year 2012/2013)] and the Hazardous Waste Control Account [HWCA (\$8 Million/year beginning Fiscal Year 2014/2015)].

In response to the looming deficits, the Director cautioned us that changes are to be expected. She also told us it is time to move beyond past grievances and embrace a new culture. The Director asked for our help examining DTSC’s “*foundation*”.

This Action Plan is based on observations made by myself and others and is provided in response to the Director’s request. It is provided in the hope that it may form the nucleus of a broader approach.



Conditions

In Debbie Raphael's (the Director) first All-Staff meeting (5/26/2011), she laid out the Governors Mandates for DTSC, they include:

- 1) Speed-up Brownfields projects,
- 2) Improve relations with the Attorney General's Office (AG) and
- 3) Complete the Green Chemistry Regulations.

In the second All-Staff meeting (1/19/2012), the Director added the following priorities:

- 4) Resource Prioritization,
- 5) A spirit of Genuine Inquiry in our work, and that our work be
- 6) Practical, Meaningful and Legally Defensible.

Other conditions, we face include:

- 7) Severe \$23 Million structural deficit and additional State Government consolidation should be expected,

- 8) State may have to provide back pay for Furloughs and Bargaining Unit 9 Supervisors,
- 9) Unfunded or underfunded liabilities for Orphan sites, Landfills and Superfund sites exist, are largely unknown, and will cause further stress,
- 10) Redevelopment Agencies - which have driven some DTSC work - are being dismantled with a short window to complete existing tasks,
- 11) The Environmental cleanup market continues to consolidate and funding sources are shrinking, therefore Site Mitigation and Brownfields Reuse , Pollution Prevention and Hazardous Waste Management Programs will shrink unless new scope for government action is found,
- 12) The Green Chemistry Program will be launched and will become a Core Program,
- 13) A large pay disparity remains,
- 14) Morale is low,
- 15) Public perception of State Workers remains poor, adding pressure for change,
- 16) The median age for DTSC employees is between 52 to 56 years of age. A large percentage of our veteran staff is expected to retire in 3 to 8 years. (source: DTSC Work Force Planning/Succession Management, Envisioning the Future, 4/1/2007),
- 17) Looming pension reform will impact new hires and may impact existing staff.

In short, the conditions listed above boil down to these key components:

- 1. The Environmental Market has changed,**
- 2. A Budget Shortfall has resulted,**
- 3. We must shore up our structure, our financial basis and our culture;**
 - a. To be practical and innovative,**
 - b. To change from “process” to “performance”,**
 - c. To embrace constant improvement and change, and**
 - d. To prepare for the future.**

These are tough issues and addressing them while positioning DTSC for the future will require an integrated approach with a sound strategy and leadership. Even with strong external motivational forces bearing down on us, changing the Status Quo and moving people out-of-their-comfort-zones is very difficult. Even small changes in a well-entrenched culture are difficult, and change efforts that are attempted are uncomfortable, unsettling and often provide sub-par results.

The internal and external conditions we face today are not new and were not unforeseen. In 2007, DTSC Workforce Planning, Envisioning the Future Team identified the following issues.

The most significant global consideration we anticipate will impact DTSC is the importation of a large amount of un-regulated materials that may end-up in our homes, businesses and landfills. Additionally, we expect the regulatory process will not be able to keep up with the evolution of new materials that will impact our environment and we believe that consumer pressure for responsible packaging and materials will become the dominant environmental driver in California.

The group anticipates that California will not be able to produce enough new engineers, geologists or scientists to meet its future needs. Therefore we anticipate an increase in the number of foreign born employees. Additionally, as the trend continues to shift from long tenures with one employer, to shorter mini-careers, we anticipate a more transient work force with less inclination to move-up in the Department.

We also anticipate a shift from the Cradle-to-Grave mentality of the 80's to a Cradle-to-Cradle mentality which focuses on reduction of the use of hazardous materials and decreased production of hazardous waste.

Global warming may begin to impact our activities by impacting our surface and groundwater storage systems.

The greatest single threat to our workforce at this time is the impending retirement of the Baby-Boomers over the next 10 to 15 years. (Written in 2007)

Our Strengths are that we continue to attract a highly educated, multi-disciplinary workforce and we are developing a web-based data storage and communication system that can be integrated into a Statewide CalEPA system.

Weaknesses include reliance on an outdated, prescriptive regulatory framework, an inadequate training system and a well entrenched, control oriented, regulatory management structure.

Opportunities abound with the explosion of information sharing age and the emergence of performance based management as the management tool of the future.

Besides funding shifts and shortages, threats appear to be mainly related to an internal culture of command-and-control and an overblown fear-of-failure.

(Executive Summary, DTSC Work Force Planning/Succession Management, Envisioning the Future Report, 4/1/2007)

Structural Setting

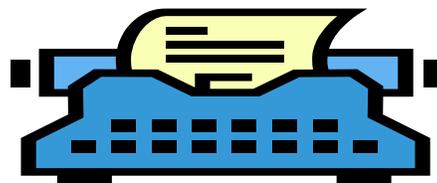


DTSC is a typical government bureaucracy. Policies have been written over the years and as in most bureaucracies, policies are written but few are discarded. Policy updates, if they occur, lag behind the generation of new policies. Policy sunsets occur mainly due to lapsed funding or embarrassment.

Over time, DTSC developed a centrally managed, top-down management structure composed of silos based on funding sources (USEPA, DOD, Schools, and VCAs) and/or regulatory drivers (RCRA vs. CERCLA). The silos were reinforced through the policies and informal networks and eventually became “the-way-we-do-things-around-here”. By their very nature, the Silos were based on command-and-control, information-management and process. Information control was one of the major hurdles Maureen faced as Director.

RCRA and CERCLA grew out of a time when Congress was dealing with the backlash of Three Mile Island, Love Canal and Silent Spring (by Rachael Carson). As a result, they were very prescriptive and largely designed to locate, identify and control environmental contaminants during early stages of the environmental movement.

To a large degree, DTSC’s structure evolved to prescribe the RCRA/CERCLA Process while most of us were still using Typewriters. Today we can watch a movie or send a message around the world with our cell phone.



Our former structure [Hazardous Waste Management Program (RCRA) and Cleanup Program (CERCLA)] demonstrated just how deep that influence went. The policies and procedures we follow today are direct descendants of the RCRA/CERCLA parent documents.

The Employee Perspective

In 2007, Meta Dynamic surveyed DTSC staff. The results of the survey ranked systemic issues identified by the staff. The top issues are listed below according to the survey ranking. These issues have not changed appreciably since the survey was first conducted in 2007.

Issues four and five are highlighted because staff was concerned in 2007 and 2008 that they felt their input was overlooked in the planning process. We have a golden opportunity to include their input now.

- 1) *Staff are not kept informed of important decisions that affect duties (#17),*
- 2) *Workload is not manageable (#6),*
- 3) *Inadequate training (#18),*
- 4) ***Insufficient effort is made to use ideas and opinions of staff (#13),***
- 5) ***Staff not allowed to participate in planning (#7).***

But, don't expect candor, at least not at first, because staff is conditioned to avoid controversy and to not disagree with management. However, not including staff input will send a clear message that their opinion isn't valued and little has changed.

After 30 years of prescription, our management and our staff have grown complacent, our structure rigid and our culture punitive. This is not unique to DTSC and is similar to the conditions Chief Braziel described in the Sacramento Police Department during the Leadership Development Forum (<http://dtsc-share/Support/Administration/wdsi/ICO/LDF/Shared%20Documents/Forms/AllItems.aspx?RootFolder=%2fSupport%2fAdministration%2fwdsi%2fICO%2fLDF%2fShared%20Documents%2fLeadership%20Communication%20%2d%201%2e26%2e12&FolderCTID=0x012000343C8A58CE26D84B8BA28ED4F7BD55D&View=%7b1253CF37%2d0148%2d44E6%2dA8CB%2dF4DCEC1013D9%7d>).

The irony is that as control oriented as we've become, accountability has been virtually lost. We've diffused accountability and responsibility such that it is nearly impossible to hold anyone responsible for anything.

The Beginning of Change

Maureen Gorsen tried to help us overcome our deeply entrenched, institutionalized problems. She began by asking basic questions (Genuine Inquiry) such as:

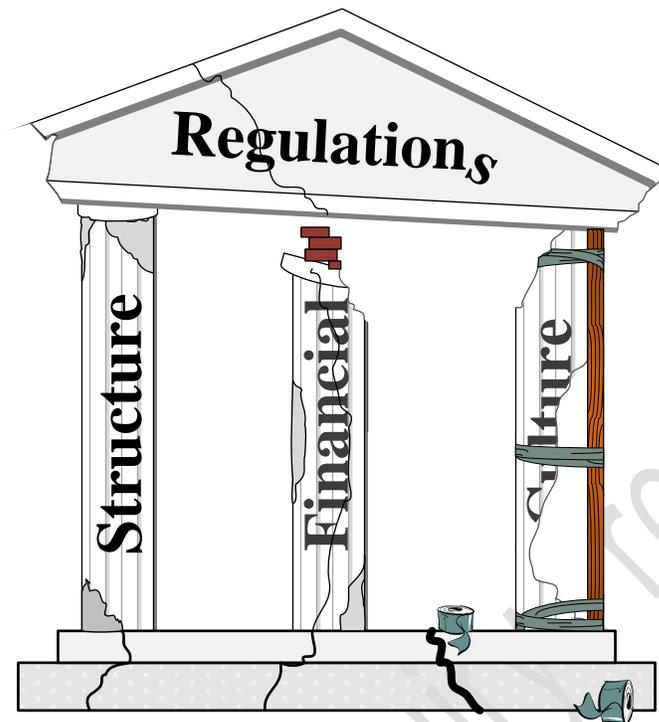
- How long does it take to get a permit?
- How long was the typical cleanup?

No one else had asked those basic questions. And, amazingly no one could answer them. Many hated the changes Maureen introduced, but whether you agree with her approach or not, Maureen began the process of Genuine Inquiry. She began asking basic questions and we have to continue asking fundamental questions like:

- Why haven't we collected monies due for past services?
- What is our recovery rate for payment of overdue funds?
- How has the Water Board handled this payment for services issue?
- How will we launch a new program (Green Chemistry) in desperate times?
- Where will our future funding come from?
- Is the Water Board facing a similar economic shortfall?
- How many projects/year/staff member does the DTSC complete?
- How many projects/year/staff member does the Water Board complete?
- What is the average cost for DTSC oversight on a Project?
- What is the average cost for Water Board oversight on a project?
- Does the Water Board have a backlog of sites? If so, can we work on them?
- What does the future hold for DTSC?
- Can we collaborate with the Water Board? and,
- How do we position ourselves to meet the needs and constraints of the future?

The Leadership Development Forum (LDF) is scratching the surface and is bringing in outside speakers to open our eyes and show us how others adjust to changes in the external environment. And make no mistake about it; the external environment has changed dramatically while we have not. Dozens and dozens of environmental consulting firms consolidated or went out of business in the late 1990s and the early 2000s as the environmental market matured. Regulated businesses left California by the hundreds and now, the consolidation has finally reached a relatively insulated DTSC.

All of those external changes have caught up to DTSC. We are at a point where we have no choice but to change and that will require asking hard questions.



Starting the Repairs

In this Action Plan, I lay out major issues facing DTSC and provide solution starting points based on my perceptions. I'll focus on four Strategic areas (Strategic Themes) where I believe repairs must begin. I'll discuss initial tasks to brace and shore up the existing structure long enough so we can construct a new foundation.

I see the Strategic themes as a roof and pillar structure. The roof in this case is the regulatory drivers that defined our structure (RCRA and CERCLA). The pillars are the primary strategic areas that form the foundation upon which DTSC is constructed. As such, they are the primary areas we need to brace, strengthen and shore for the short term as well as re-engineer for the future. The Pillars are: the Structural pillar, the Financial pillar and the Cultural pillar.

Bracing, strengthening and shoring are short term fixes, designed to keep the roof from falling in, but they are temporary at best and will not prepare the Department for the challenges ahead. We must stabilize the Departments foundation and then begin re-engineering it for the future.

More budget reductions should be anticipated, staffing changes are undoubtedly ahead and our culture must and will change. Change has and always creates an uneasy tension between leadership and management. For us to proceed, a basic understanding of the role of each is critical.

Leadership and Management

According to John Kumble and Nancy Kelly, “Leadership and management are two opposing styles of employee supervision used within today’s business world” (Kumble, 2000, Page 8). Although the lines between management and leadership are blurred, there is a significant difference, and successful organizations need capable managers and inspiring leaders. The blur exists because managers provide leadership and leaders perform management functions, but managers do not perform the unique functions of leadership (Colvard, 2003).

Management

Management is the process of coping with complexities and the development of practices and procedures designed to bring order and consistency. According to Kreitner and Kinicki (2003), ***managers wield authority to implement specific planning, investigating, organizing and controlling tasks to accomplish specific goals.***

Leadership

Leadership, by contrast, is about instigating and implementing change. Leaders may be found on many levels in an organization. On an organizational level they generate change, provide direction and build culture and on a group level they build teams, resolve conflict and generate cohesion.

Leadership Team

Both leadership and management skills are necessary during times of change. Leadership skills drive the change, while the management skills keep the process under control and regulate the rate of change (Kotter, 1996, page 57). Leading change requires a seemingly delicate balance between bold, visionary leadership and capable management adaptation and stabilization. A Leadership Team with good managers but poor leaders will fail.

Approaching the restructuring from a managerial mind-set will ensure the development of plans, controls and structure, not vision. And a management centric culture will vastly under communicate the need for and the direction of change; and

always seeks to control rather than empower. Leadership on the other hand tries to take the organization from where it is, to what it should or can be. Simply put, **Managements role is to make the trains run on time, while Leadership's role is to find something better to ride than a train.** (DM, 3/2012)

Targets for Change

This Action Plan has been drafted in hopes it will be used as a tool to aid in repairing our foundation for the short term and re-engineering for the long term. We begin by examining the Regulatory constraints that dictated our structure and the process that has consumed us for three decades.



1.0 Target 1 Regulatory Constraints

DTSC's culture was largely derived from the RCRA/CERCLA regulatory process, with lesser influence from other laws and regulations. By design RCRA and CERCLA, laws and regulations established highly structured and control oriented processes. The processes were established to provide step-by-step menus to locate and identify polluters and hold them accountable. RCRA and CERCLA are by their very nature, punitive because they are designed to implement control over formerly uncontrolled and egregious operations. This was literally Wave 2 of the Environmental Movement (see attachment 1). Bringing order to chaos often requires a rigid structure in the beginning. But rigid structures have limitations, they are inflexible by design and slow to adapt.

The environmental universe has changed tremendously since RCRA and CERCLA were penned. Large polluters were identified and actions were implemented to clean up sites (Wave 3 of the Environmental Movement). Many of those sites are still in the system, with little hope of getting done any time soon. And now we find ourselves pursuing smaller and financially weaker polluters, less able to pay and much more

vulnerable. Older small businesses, once the economic engine for California struggle with the burden of having to comply with regulations written with larger, deeper pockets in mind. Some of the regulated community moved to less onerous pastures, some adapted and other succumbed.

The number of permitted facilities in California shrank from over 500 facilities in the 1980's to less than 130 facilities by 2007. Some of those that succumbed left Orphan Sites in their wake. Those that remain operational must balance solvency and employment versus insolvency and cleanups based on a cumbersome regulatory process. As a result, the State of California lost revenue, jobs, and fees, and became a foster parent to a burgeoning and as yet undefined Orphan Site population.

The challenges and the economic conditions of the 1980s and 1990s changed and we have no choice but to adapt. We can't change the past but we can change the future. As we enter Wave 4 of the Environmental Movement (see Attachment 1), we must change the way we interpret and apply the regulations. We can change the prevailing mindset from "punish" to "help". Our new role should be that of helping industry comply rather than blindly following a process or looking for opportunities to punish. We really have little choice, the funding we have available to cleanup Orphan Sites and operate Superfund sites is not enough and every business that succumbs becomes another potential unfunded liability for the State.

We all know there will be a fraction that will delay, postpone or ignore us, but they should be handled appropriately, but our mindset on the whole must change. There is not enough and will not be enough funding for the State to pick up all the environmental liabilities out there, we have no choice but to modify our approach.

Even after forming "One Cleanup Program" we are still dealing with two distinct mindsets in DTSC. There is the RCRA mindset and the CERCLA mindset. USEPA has been trying to merge those mindsets for well over a decade, but we will not let go. We are embroiled in lawsuits because we cannot or will not get beyond this issue. The first major crack that we simply have to fix is the RCRA/CERCLA divide and our mindset. Any site, no matter what its heritage, should be handled in the most efficient and most effective way possible. This fractionation is a past grievance and it's time to move beyond it.

Regulatory Solutions

The RCRA/CERCLA regulatory approach has remained relatively unchanged since the 1970s and the RCRA/CERCLA process has become a limiting factor. We need to evaluate the USEPA's 2020 RCRA plans and ensure we are structured to safely, effectively and efficiently solve 21st century problems rather cling to a rigid step-by-step 20th Century process. Outputs [checking check boxes (i.e. process)] need to be replaced with realistic solutions and outcomes (performance).

Short Term Regulatory Solutions 1-6

- 1) Change the DTSC approach from process to results oriented performance by using the following tactics:
 1. Stop producing prescriptive regulatory guidance,
 - a. Use nationally accepted ASTM procedures,
 - i. Use brief supplements for critical issues
 - b. Focus on the results we need, not the way we think they should do it.
 2. Require minimal submittals,
 - a. Stop being the consultants final review step,
 - b. Reject unsatisfactory documents,
 - c. Focus only on mission critical issues (get out of the weeds, no more 100% reviews. We should only comment on critical issues that can significantly change the outcome).
 3. Replace the submittal, comment, counter comment system with;
 - a. Agree on goals up front (based on the 5 step process (see below),
 - b. Working meetings and agreements in principle,
 - c. TRIAD approach,
 - d. Field modifications and flexibility.
 4. Implement performance tracking based on USEPA 5 step Guidance (see attachment 1).
- 2) Enact and/or implement DTSC required electronic data submittals and RP data uploads into EnviroStor.
- 3) Prepare Regional Action Plans as well as a Statewide Action Plan to mitigate the short term impact that may be caused by dissolution of the Redevelopment Agencies.
- 4) Establish a joint DTSC/Water Board Drinking Water Protection Team to formulate an integrated State response to difficult sites, especially where drinking water is impacted or threatened. The team should be infused with

the regulatory authority of both the DTSC and the Water Board to handle difficult high value or high impact sites.

- 5) The Director has scheduled a World café meeting to discuss implementation of RCRA and the former DTSC Hazardous Waste Program. This process should help DTSC formulate a new 21st Century DTSC RCRA/Hazardous Waste Program which will fundamentally change the way we apply RCRA. If the World café process falls short of streamlining our approach to RCRA and integrating CERCLA with RCRA, then DTSC should use another tool to redesign our approach to RCRA.

The prospect of rapid federal integration of RCRA and CERCLA in the short term is unlikely and the timeframe is beyond our sphere of control. Re-evaluating the way we interpret and apply RCRA and CERCLA is within our sphere of control while working with USEPA to streamline the regulations. The first step is simplifying our approach and focusing every effort on getting to closure with viable RPs.

Intermediate Term Regulatory Solutions 1-2

- 1) Solicit USEPA input on the fundamental application of RCRA and CERCLA and work with USEPA to find the most appropriate and efficient way to apply the laws. USEPA has a 2020 plan to get sites to closure. We must also have a plan, especially if any of these sites can become a financial burden to the State. The State of California can no longer afford to be passive spectators.
- 2) DTSC and the Water Board perform similar oversight roles on oversight cases related to groundwater protection. The Water Board authority is broader than DTSC's, we should expand the existing MOU to allow/require each organization to employ the other's authority. This action could be used to reduce redundancy (both DTSC and Regional Water Boards overseeing the same project), improve consistency between the Water Board and DTSC and it may just open the door to shift back-log work from the Water Board to DTSC.

2.0 Target 2 Structural and Resource Management Constraints

When I came to DTSC in 2000, DTSC programs included: Cleanup, Office of Military Facilities, Hazardous Waste Management, Enforcement, Schools and Pollution Prevention. In 2008 the Cleanup, Office of Military facilities, Hazardous Waste Management and Schools Programs were combined into One Cleanup Program. The intent was to eliminate functional barriers with DTSC.

In addition to the program consolidation mentioned above, DTSC has other significant structural constraints it must face. They include:



- A. According to State Personnel Board estimates (9/30/2005), the median age for DTSC employees is between 45 to 49 years of age. Larger numbers of employees are expected to retire in the next 10 to 15 years. Additionally, an un-quantified number of employees are expected to transfer between departments of State service.
- B. DTSC has an annual budget of approximately 160 million dollars. There is currently a gap between annual revenues and expenditures. DTSC needs a stable funding source and may need to adjust function to fit funding.
- C. The number of permitted facilities has decreased from a total of around 500 in the late 1980's to around 130 permitted/ regulated facilities today. These regulated facilities are an important source of revenue for the Department. Permitted facilities are leaving the State due to NIMBY (Not in My Back Yard), over-regulation, external competition, and high permitting & operating costs. (DTSC Work Force Planning/Succession Management, *Envisioning the Future- Executive Summary*, 4/1/2007.

Short Term Structural Solutions 1-4

- 1) Community Oversight: We typically assign staff to work on projects as they appear on our radar screen. We should regionalize the work and realign it to achieve maximum efficiency by site type, media and location. The sites could be divided by complexity, media and constituents.
- 2) Establish a Toxicological-screen to bridge the gap between CHSSLs and definite Risk to reduce the loading on the toxicological staff. Toxicology is a limited, impacted, and limiting resource (a bottleneck). We can reduce the loading by developing baseline Risk thresholds and triaging (prioritizing) by

- Risk. This will allow us to reduce the bottleneck and focus impacted resources where they are needed most.
- 3) Prioritize and staff projects based on Complexity, Threat, Risk and Need.
 - a. Sites of low complexity may go to less experienced staff while greater complexity goes to senior staff, or low complexity sites could go to experienced staff that carry on without the support of geological, engineering, toxicological or management support. The intent would be to reduce loading on impacted resources and speed-up the process.
 - b. We should be able to transfer sites that meet certain milestones between staff depending on the level and type of technical skill required for the next milestone and the geographic location.
 - 4) Plan for the anticipated Computer Refresh that will be due as the computers age. Plan for greater GIS use and cloud computing capabilities in alignment with the Governors Information Office.

We understand that DTSC is not a for-profit company but we have a fiscal, technical and moral responsibility to provide reasonable oversight, therefore this part of the Action Plan will evaluate structural cracks that impact our financial well being from a business perspective.

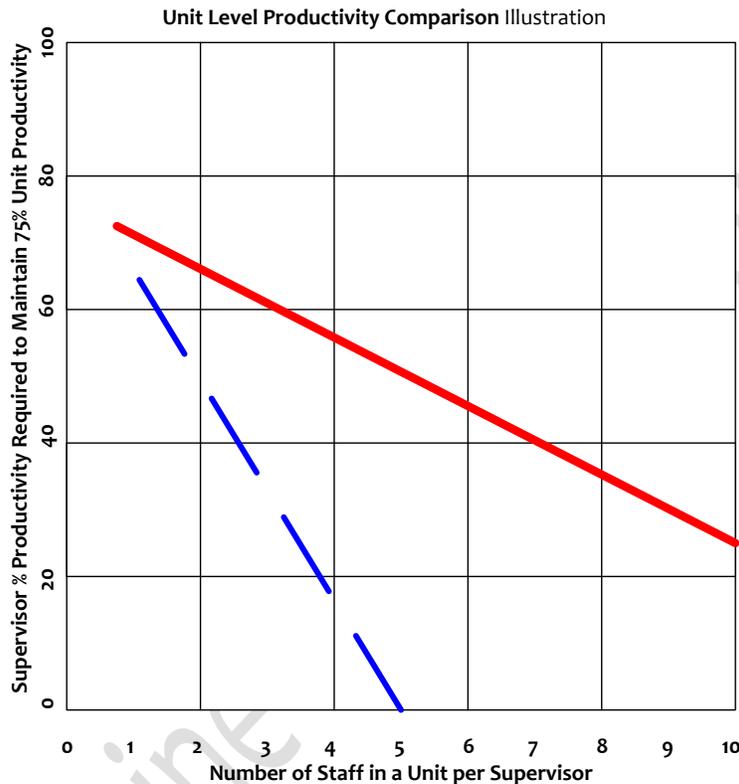
Intermediate Term Structural Solutions 1-7

1. **Unit Productivity.** The figure below (Unit Level productivity Comparison) illustrates the impact of Unit size on Unit Productivity. Productivity in this case is the ratio of direct bill work performed compared to the total usable hours. Annually there are 2080 work hours, but up to 360 hours are lost to vacations, sick leave, holidays and required training; leaving 1720 potentially “productive” hours per year.

In this illustration, the red line represents staff with individual Apparent Productivity rates equal to 80 percent. In this case, the Unit Chief would be required to charge a portion of their time to project work (direct charge) in order to maintain a unit productivity of 75 percent. The amount of direct charge work the Supervisor would need depends on unit strength. Ten staff would require about 25 percent direct charge for the Supervisor. When Unit strength is reduced to four staff per unit, the supervisor must increase their direct charge rate to about 55 percent for the Unit to maintain a Unit productivity of 75 percent. If on the other hand, staff Apparent Productivity increases to 90 percent (meaning each staff member is 90% chargeable), then

the supervisor does not need to charge directly to projects until Unit Strength falls below five staff members (Blue Line).

Graph 1 Unit Level Productivity Comparison Illustration



Red (solid) line represents the percentage of direct bill time a supervisor must incur for Unit Productivity (cumulative direct bill rate) to equal 75% (assuming staff productivity equals 80%). In this example, the supervisors direct bill rate must be 25% when supervising 10 staff to maintain 75% Unit productivity. The Supervisors direct bill rate must increase to roughly 45% when supervising 6 staff, 55% when supervising 4 staff and 65% when supervising 2 staff.

Blue (dashed) Line represents the percentage of direct bill time a supervisor must incur for Unit Productivity (cumulative direct bill rate) to equal 75% (assuming staff productivity equals 90%). In this example, the supervisors direct bill rate could be 0% when supervising 5 or more staff and still maintain $\geq 75\%$ Unit productivity. The Supervisors direct bill rate must increase to roughly 17.5% when supervising 4 staff, 30% when supervising 3 staff and 50% when supervising 2 staff.

[Total available hours equals 2080 hours/year. ~17% (360 hours) is lost to vacation, sick leave, holidays, required training and meetings, leaving 1720 workable hours/year (~83% of 2080 hours). For an employee to maintain 83% productivity, they must be 100% direct bill for 1720 hours/year.]

Apparent Productivity vs. Actual Chargeability Even when a staff member is 100 percent productive (Apparent Productivity = 100%), their Actual Chargeability is lower when vacation time, sick leave, holidays, required training and required meetings (~360 hours/year out of 2080 annual hours)

are factored in. Therefore if a staff members Apparent Productivity equals 100 percent, their Actual Chargeability is less. The following table demonstrates the relationship between Apparent Productivity and Actual Chargeability.

Apparent Productivity	Actual Chargeability
100%	83%
80%	66%
60%	50%
40%	33%
20%	17%

It is virtually impossible for staff to maintain 100% Apparent Productivity for extended period and the actual maximum rate we can expect depends on overhead tasks and meetings we require staff to participate in. It is doubtful they will maintain 90% Apparent Productivity over time, but an initial target of 85% Apparent Productivity (~73% Actual Chargeability) may provide a good starting point.

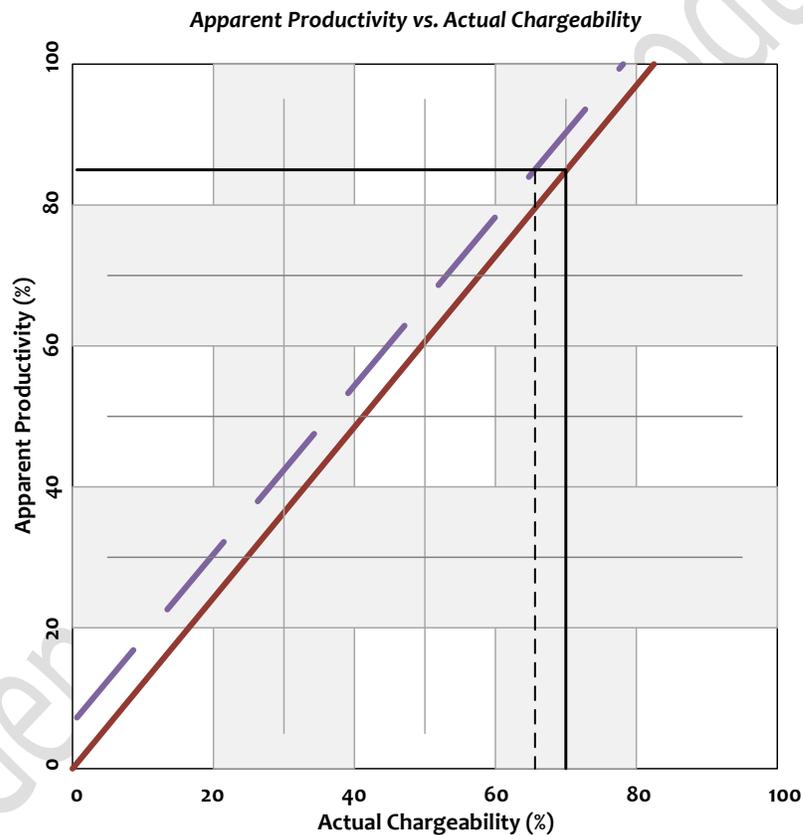
Apparent Productivity vs. Actual Chargeability Corrected for Branch and Unit Meetings If staff attends 12 Branch meetings (12 x 2 hours=24 hours) and 52 Unit meetings (52 x 1.5 hours=78 hours) per year, then 102 additional hours are lost to non productive tasks annually. When these meetings are factored in, the maximum Actual Chargeability dips to 78% [see table below and the subsequent figure (Apparent Productivity vs. Actual Chargeability)].

Apparent Productivity	Actual Chargeability
100%	83% 78%
80%	66% 62%
60%	50% 47%
40%	33% 31%
20%	17% 16%

Obviously this added meeting time (overhead) is expected to be useful, but it results in decreased Actual Chargeability, therefore the value obtained from

meetings must be weighed against lost productivity. On the surface it sounds good to have weekly meetings, but there is a cost to the Department in the form of lost work time. For example, one hour weekly meetings for an average sized unit (5 staff plus the Supervisor) would expend over 300 hours per year. At that rate, 10 units would eat up 2 PYs (Personnel Years) for meetings alone. I'm not saying all meetings are bad, but each comes with a cost.

Graph 2 Apparent Productivity vs. Actual Chargeability



Demonstration of the relationship between Apparent Productivity and Actual Chargeability.

Maroon (solid) Line depicts baseline relationship (person year = 2080 hours - 360 hours (vacation, sick leave, holidays and training). At 85% Apparent Productivity, the Actual chargeability equals ~70%.

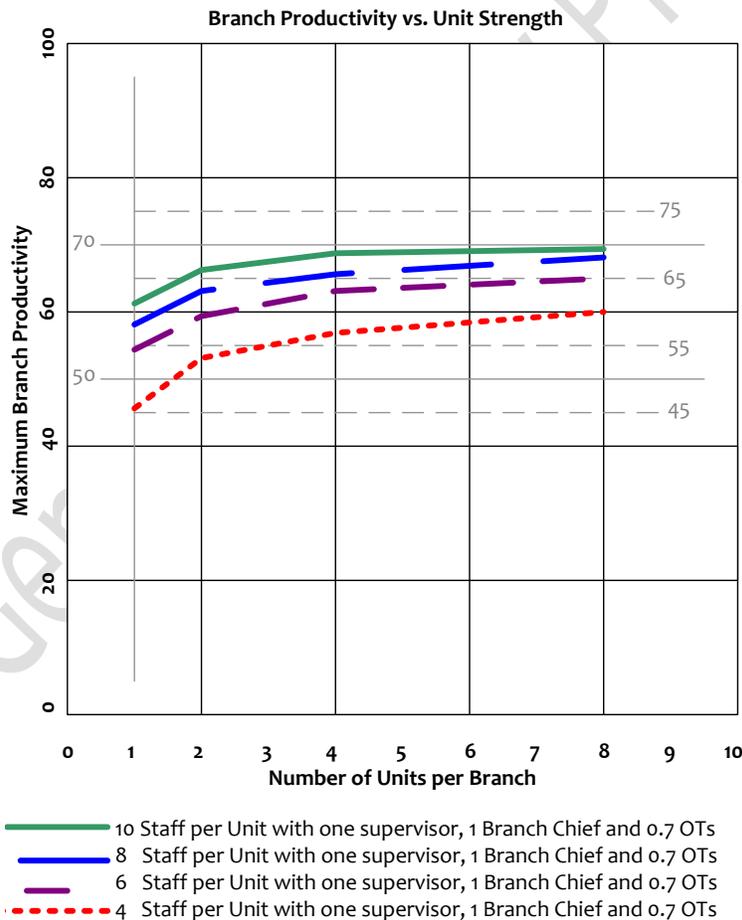
Purple (dashed) line shifts to left due to an additional 102 hours per year spent in Branch and Unit meetings. At 85% Apparent Productivity, the Actual Chargeability equals ~66%.

- 2. Branch Productivity** As shown in the Unit Level Productivity Comparison illustration (above), is dependent on unit strength, Apparent Productivity and

the Units Chiefs ability to perform direct charge work. These factors are entirely dependent on available work load, i.e. the lack of work will detrimentally impact the Apparent Productivity.

Beyond Unit conditions and Unit loading, Branch Loading adds an additional burden to Departmental productivity. For the purposes of this exercise, I've assumed Branch loading to be 1.0 PY for the Branch Chief and 0.7 PY for an OT, resulting in an additional load of 1.7 PY (roughly 3565 hours). Factoring in the Branch Loading, the following figure provides conceptual estimates of

Graph 3 Branch Productivity vs. Unit Strength



Branch Productivity vs. Unit strength. For example, when a Branch consists of four Units with ten staff members and one supervisor, the Maximum Unit

Productivity that can be expected is approximately 68 percent (**green line** at four Units per Branch). Branch productivity remains relatively steady with more than four Units but drops off with less than four Units. Conversely, when a Unit has four or fewer staff members there must be eight or more Units/Branch to reach 60 percent Branch Productivity.

If DTSC Units contain (on average) six or fewer staff members and if each Branch has four or fewer Units per Branch, then the maximum Branch Productivity we can attain is about 63 percent (roughly 13% less than the Unit Productivity). The graph clearly illustrates that Branch Productivity is dependent on Unit strength and the number of Units in a Branch. The following table demonstrates the relationship.

Number of Units	Staff/Unit			
	10 Staff + 1 Sup	8 Staff + 1 Sup	6 Staff + 1 Sup	4 Staff + 1 Sup
8	69%	68%	65%	60%
4	68%	66%	63%	57%
2	66%	63%	59%	53%
1	61%	58%	54%	46%

The Units shown in the Table and Figure above include one Supervisor that is zero percent Direct Charge and staff that are 100% Direct Charge [all of the staffs available working time (1720 hours) is charged to a project]. Maintaining a Direct Charge rate of 100% is highly improbable but is used to illustrate the Maximum Possible Branch Efficiency under these conditions.

By enlarging Units and having more units under a Branch Chief it is possible to raise the Maximum Branch Efficiency to 69%. A slight additional increase can be realized if Unit Chiefs also bill directly to projects, but this rate is not sustainable.

If we have six staff members per Unit and four or fewer Units per Branch, then the maximum Branch Productivity we can attain is roughly 63 percent. Adding in Departmental overhead (i.e. Admin, Executive Staff, Training staff

etc.) brings the maximum possible Departmental productivity to below 50 percent.

3. **Departmental Overhead** Based on a cursory review of Organization Charts posted, there are on the order of 995 DTSC staff or positions. The number of revenue generating positions is unclear based on the organization charts but should be evaluated to understand the ratio of overhead to revenue generating positions. Clearly, we are not a for-profit business, but we must understand where productive (revenue generating) work is performed. If cuts are necessary to reduce costs in the future, and we are required to “speed up Brownfields” we must understand the consequences of cuts in our most productive (revenue generating) areas. As Jim Howland, Emeritus Chairman of Ch2M Hill said in 1982: *There is no more important work in the firm than ~~project management~~ the technical work (substitution). If all the general management people quit for a month, the firm would be hurt but could survive. If all the ~~project managers~~ technical staff (substitution) did the same, we would be out of business.*
4. **Structural Backfilling** Over time, we have backfilled staff level and supervisory level positions to support a Branch Chief level position. I refer to backfilling in this way as “Structural Backfilling”, i.e. backfilling to maintain the existing structure rather filling positions where the work is located (functional backfilling). As a result of years of structural backfilling and changes in the environmental market, our staffing is no longer aligned with the work and some projects are located hundreds of miles away from the office providing oversight, but only minutes away from a local office and our Branch and Unit level productivity is unsustainably low.

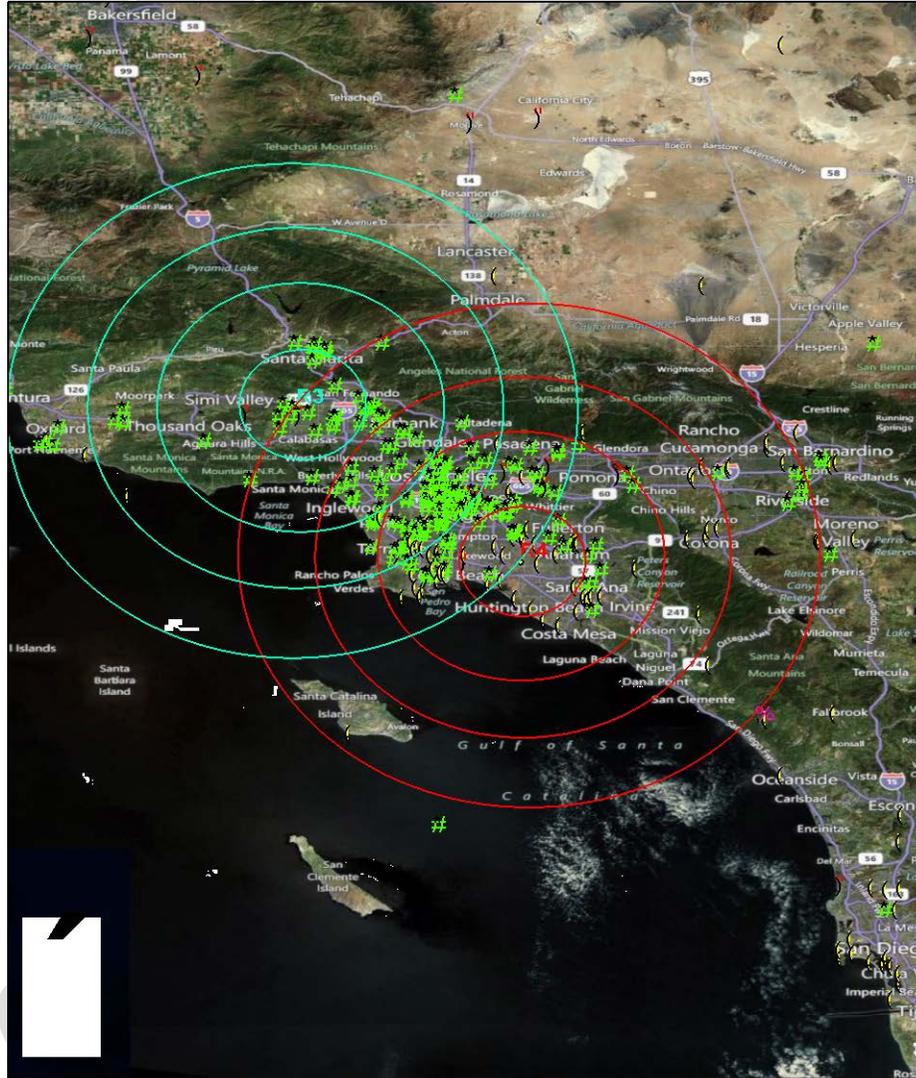
Additionally, overtime we have filled positions with unqualified people because not filling the position can mean losing it. This practice is short sighted and damaging

Figure 1, [Los Angeles Area Resource/Oversight Distribution Map (below)] presents a GIS map based on EnviroStor data that shows which Regional Office provides oversight. Regional Offices providing oversight are designated by different colors and symbols to illustrate the distribution of sites overseen by a particular Regional Office.

The map shows the Los Angeles area but clearly shows oversight by Region 1 [Sacramento (represented by red squares)] in Los Angeles and as far south as San Diego. There is a magenta hexagon site south of San Clemente indicating oversight from Region 2 (Berkeley). Region 3 (Chatsworth) and Region 4 (Cypress) sites overlap. Workload distribution around a Regional Office can be used for future planning. Obviously, travel time increases with distance while communication/ coordination decrease, we should align the resources with the work for efficiency, communication and coordination. **Structural backfilling** (infilling staff in order to support the need for a Supervisor or Branch Chief) **to maintain the current structure detrimentally impacts the bottom line.**

Figure 1 Los Angeles Area Resource/Oversight Distribution Map

Oversight Region



R1 Oversight: Square, R2 Oversight: Hexagon, R3 Oversight: Triangle, R4 Oversight : Circle
Red rings approximately 10, 20, 30 and 40 mile radius from R3 (blue) and R4 (red).

Resources should be re-aligned for efficiency.

- a. Our human resources can be better aligned with the projects. To improve the alignment, we should functionally redistribute our resources based on current and projected needs and discontinue the practice of structural backfilling (hiring to support a manager’s position).

- b. There seems to be a propensity to consolidate high profile projects in Sacramento, for greater control. While it comforts senior management, it is inefficient and devastates moral in the Regional Offices. The local oversight offices should be empowered and charged with oversight of projects in their Region.
 - c. Some project proponents take projects over the heads of local staff. This happens on every level and it not entirely avoidable. But over riding (Trumping) staff decisions by a greater power has a cost that cannot be ignored. The process of Trumping “lower” decisions also devastates moral and decreases productivity. Once again, the local oversight offices should be empowered and charged with oversight of projects in their Region.
5. **Managing staff** in both Northern and Southern California is inefficient and we lose valuable time traveling. We should evaluate potential cost savings as well as pitfalls of a North/South management structure.
6. **Merge EnviroStor**, Hazardous Waste Management EnviroStor and Water Board GeoTracker and GAMA into a seamless database for efficiency, improved function and economy.
7. **GIS Prepare for and begin the integration of GIS into daily activities to improve resource utilization and efficiency. We are on the verge of bringing GIS use to the desk top of project staff, which will revolutionize how we do our work. Although it will take an investment, GIS development and deployment should be a priority, not an afterthought.**
8. **Unfunded Liabilities** Prepare Regional strike teams to handle complex problems, especially when action can greatly reduce future costs (Superfund Site transition, Orphan Site funds and Legacy Landfills.)

Planning for the Future: Structural Solutions 1-2

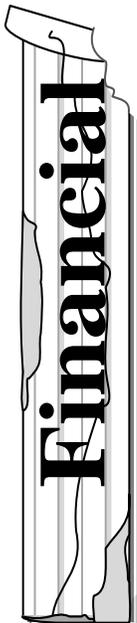
- 1) **Prioritization** Sites that we work-on are prioritized by an RPs ability-to-pay or their desire to proceed. The actual threat (potential negative impact) and potential cost savings is not a part of the equation. We should prioritize actions based on sites that pose the greatest potential threat to our citizens, our citizen resources and the States resources. We should fast-track funded sites while prioritizing threatening sites.
 - a. If there is no way to pay for high threat sites, then we need to find alternative funding mechanisms such as surcharges on water usage.

3.0 Target 3 Financial Constraints

This section focuses on the financial footings we will build our future foundation on. As we have discussed, the traditional TSCA and HWCA footings are eroding. We must stabilize our financial conditions and begin building a 21st century foundation.

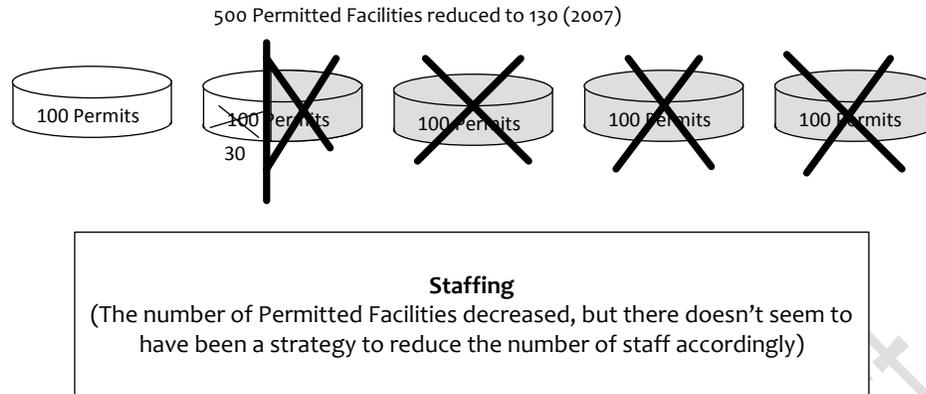
General Revenue Constraints

- 1) DTSC has an annual budget of approximately 200 million dollars. HWCA accounts for about \$50 Million and TSCA accounts for about \$60 Million (Approximately 55% of our annual operating budget). There is currently a \$23 Million gap between annual revenues and expenditures. DTSC must stabilize the funding sources and either find new sources of funding, and/or adjust our function to fit anticipated funding.



- 2) The number of permitted facilities has decreased from a total of around 500 in the late 1980's to around 130 permitted/regulated facilities today (2007). These regulated facilities are an important source of revenue for the Department. Permitted facilities are leaving the State due to NIMBY (Not in My Back Yard), over-regulation, external competition, and higher permitting and operating costs than they may find elsewhere. (*DTSC Work Force Planning/Succession Management, Envisioning the Future- Executive Summary, 4/1/2007*)

The following illustration conceptually shows the reduction in the number of permitted facilities. While the Permitted facilities decreased, DTSC did not reshape oversight (reduce Program size and cost) correspondingly. As a result, our cost structure exceeded revenue. Maureen tried to "right-size" the Program by forming the Permit Renewal Team. Some excess staff was moved to other Programs, exacerbating funding shortages in other areas.



Based on the World café meeting and other actions, DTSC seems to be slowly reconstituting the Hazardous Waste Management Program, which is in direct contrast to One Cleanup Program.

- 3) DTSC should expect to find itself paying staff for forced furlough days. It is not certain the funds will be needed, but recent legal cases imply the possibility exists. The payment could be on the order of a \$24 Million onetime payment.
- 4) Bargaining Unit 9 Supervisors did not receive raises awarded to exempt staff. The possibility exists that a onetime payment on the order of \$3.6 Million (back pay) may be called for, plus a continuing charge as the increase in pay continues.
- 5) Due to lower than expected revenue, the possibility exists that DTSC funding will decrease beyond current expectations in the May revision of the budget.

As indicated above, constraints 1 and 2 above were identified in 2007. The largest imminent funding problem DTSC faces is loss of the Toxic Substances Control Account (TSCA) and Hazardous Waste Control Account (HWCA) funding. The following narrative roughly describes the revenues, expenditures and impact areas.

Toxic Substances Control Account (TSCA)

According to information in the January budget estimates or provided to staff, the TSCA had a surplus on the order of \$50 Million in Fiscal Year (FY) 2008/2009. Revenues exceeded expenditures until FY 2002/2003 (the 2001 recession) when expenditures surpassed revenue. This condition (negative cash flow, if you will) continued until roughly FY 2005/2006 (see TSCA Projected Fund Balance, All-Staff presentation 1/19/2012). Revenue exceeded expenditures from FY 2005/2006 until FY 2008/2009- FY 2009/2010 (the 2008 recession). From FY 2009/2010 on expenditures exceeded revenues and the \$50 Million surplus has been used to “cover” the shortfall. The surplus will be completely expended by FY 2012/2013.

In summary, our expenditures exceed our revenue by approximately \$15 Million/Year. Reducing TSCA expenditures by a minimum of \$15 Million/Year before 2012/2013 is necessary to return to a zero sum condition. The longer we wait, the more we will need to cut.

TSCA is divided between the Site Mitigation and Brownfields Reuse Program (SMBR) and the Science, Pollution Prevention and Technology Program (SPPT). Approximately 68% of the TSCA funds go to the SMBR Program while 32% goes to the SPPT Program. TSCA funds makes up approximately 35% of the SMBR Program funding, and approximately 95% of the SPPT Program funds.

If 2/3 of the TSCA fund shortfall (\$10 Million) is passed on to the SMBR, then the total SMBR annual budget would be reduced from about \$100 Million to \$90 Million (a 10% reduction). If the remaining 1/3 of the shortfall were passed on to the SPPT, then the SPPT budget would be reduced from \$17 Million to \$12 Million (a 30% reduction). We need to assess the regulatory drivers for each program and the value added by each Program to determine how to distribute the shortfall and still provide the best service to the Citizens.

Short Term TSCA Financial Solutions – Organize, Rank and Prioritize

- 1) **Faster, Cheaper, Simpler** We must simplify our approach to make it faster, less onerous and cheaper to employ and oversee.
 - a. We should move from slow process based management to faster performance and results based oversight.
 - b. We should look for ways to reduce cost by more than the 30% required above.
 - c. We should move beyond the old Report Review, Comment and counter comment culture to interactive problem solving.
 - d. We should incorporate TRIAD (beginning with the end in mind and flexible field sampling that adjusts to field conditions) and the RCRA five step Short Term (*Protect Human Health & Control Plume Migration*), Intermediate Term (*Remove/secure Source & Source/mass Removal*) and Long Term (*Eliminate or reduce risk to an acceptable level in an acceptable timeframe*) approach into the planning for every project (see Attachment 1).
 - e. We should minimize time spent preparing all but critical guidance.
 - f. We should reappportion our resources to be fast, and solution oriented.

Hazardous Waste Control Account (HWCA)

According to information in the January budget estimates provided to staff, the HWCA had a surplus on the order of \$32 Million in Fiscal Year (FY) 2010/2011. Historically, revenues exceeded expenditures until FY 2003/2004 when expenditures surpassed revenue. This condition (negative cash flow) continued until roughly FY 2007/2008- FY 2008/2009 [see HWCA Projected Fund Balance, All-Staff presentation 1/19/2012 (attached)]. Revenue exceeded expenditures from FY 2008/2009 until FY 2010/2011- FY 2011/2012 (the 2008 recession). From approximately FY 2011/2012 on, expenditures exceeded revenues and the \$32 Million surplus has been used to “cover” the shortfall. The surplus will be completely expended by FY 2014/2015.

In summary, Hazardous Waste Management Program (HWM) expenditures exceed revenue by approximately \$8 Million/Year. Reducing HWCA expenditures by a minimum of \$8 Million/Year before 2014/2015 is necessary to return to a zero sum condition. HWCA is used solely by the HWM and makes up approximately 80% of the HWM funding. Reducing expenditures by \$8 Million per year would equal a reduction of approximately 15% in the overall funds available.

We should reformulate the HWM program now to accommodate reduced funding and to accommodate near term and intermediate term changes in the RCRA program. Re-engineering the HWMP is beginning with a World café style intervention in March 2012.

Short Term HWCA Financial Solutions – Organize, Rank and Prioritize

- 2) **Organize, Rank & Prioritize** We need to adjust the staffing to reflect current and future need.
 - 1) We should examine the outcomes and implementability of the Permitting Team to determine if the Team structure still adds value.
 - i. If it still provides value, we should evaluate its functioning and optimize performance.
 - ii. If the Team approach has lost effectiveness, but the service still adds value, we should convert the Team into a service area within a Program.
 - 2) We absolutely must identify ways to reduce cost by more than the 15% short fall above.
 - 3) Implement lessons learned from World café; if they can add value, improve efficiency and/or improve effectiveness.
 - 4) Align our activities with USEPA’s RCRA implementation vision.

Furloughs and Back Pay for Bargaining Unit 9 Supervisors

Furlough back pay could create one time financial constraint that may at least temporarily impact our structure. It may impact our ability to meet the Governor's mandate to cleanup Brownfields more quickly. The actual shortfall is grossly estimated to be on the order of ~70 days x 950 staff x \$300/day ~ \$24 Million onetime furlough payment. Since this mandate did not originate within DTSC, we should request General Fund money to pay the cost, but plan for an additional \$24 Million shortfall.

PEG Supervisory back pay could create one time (back pay) and a continuing financial constraint that could impact our structure. The back pay shortfall is grossly estimated to be on the order of ~ 10 Supervisors x 36 months x \$10,000 ~ \$3.6 Million back pay plus continuing pay on the order of ~\$100,000 per month. Again, this mandate did not originate within DTSC, and we should request General Fund money to pay the cost, however we must plan for an additional \$3.6 Million shortfall with a recurring \$1.2 Million shortfall.

Step 1 Organizational Right-sizing

Based on the shortfalls described above, DTSC faces up to a \$51 Million shortfall in 2012-2013 and a continuing annual shortfall >\$27 Million, which equals 17% of total budget. It is fiscally irresponsible not to plan for the anticipated work load and funding conditions. We should consider:

- a. Water Board may have back log of sites that DTSC could work on in the short term to soften the blow of the budget shortfall.
- b. The proposed 60% retirement cap may accelerate DTSC staff retirement.
- c. We should consider structural designs that allow us the flexibility to consolidate as we lose staff. This will include capturing institutional knowledge and reformulating our approach to project oversight. The times are dictating a change in how we provide oversight and the old model of PMs supported by a comprehensive support structure must adapt.
- d. Additional revenue shortages should be anticipated.

Step 2 Revenues and Expenditures

Based on the information provided, DTSC is facing a > \$27 Million annual shortfall from these two funds alone, which would result in a reduction of 10% in the SMBR Program, 30% in the SPPT Program and 15% in the HWM Program. Returning vacant positions may help one year but the cost savings is relatively small. Additionally, the Governor may ask for greater reductions if revenues fail to meet current

expectations. For example using \$100K per position would require 270 vacancies to cover the shortfall. We are currently working with reduced staffing. Staffing changes should be anticipated.

Short Term Cost Recovery Solution

Fixing the Broken Billing/Collection Process

Reportedly we have ~\$150 Million in uncollected past due charges. Collecting past due charges for work already performed should be priority one for management and accounting staff. I do not know that we would directly benefit from funds collected (would the funds come to and stay within DTSC or go to General Fund coffers). Regardless, the following key tasks should be performed or managed by Performance Managers Branch Chiefs and Supervisors instead of making site specific technical decisions:

- 1) Establishing a formal procedure for notifying Responsible Parties of past charges, and a tracking system to ensure payment is received.
- 2) Establish a process where project tracking is updated on the second day of every month for every project and Bills are forwarded to the Project Manager every 90 days for approval.
- 3) Bill the clients every 90- days and track payment/non-payment.
- 4) Establish a followed-up process including notices, penalties and legal actions.
- 5) Assign a recovery Team to negotiate and collect past due bills within 180 days,
- 6) Establish a formal procedure for notifying Responsible Parties of pending charges, and a tracking system to ensure payment is received on time and followed-up
- 7) If bills are not paid, discontinue working without payment.
- 8) If we stop work for non-payment etc. we should move directly to issuing an Order.
- 9) Track every aspect of charges, billing and actions taken monthly. (This may require Administrative Support to provide real time accounting data).
- 10) At the completion of a project, no final action approval, letter, permit, or closure should be issued if Cost Recovery is not complete. These documents are really what the regulated community is 'buying' from us, and like a merchant selling a product, we should expect payment in advance, or concurrent with delivery of the product (this is the way the Regional Water Boards ensure payment).
- 11) Put Financial Management requirements into the Job Descriptions for Performance Managers Branch Chiefs, Supervisors and Project Managers.

Intermediate Term Past Cost Recovery Solutions

- 1) Collecting as much of the past due bills as possible is imperative. The unpaid bills go back for years, and the chance of collecting 100% of past due bills is low. For estimation purposes, presume a collection rate of 40%. Forty percent would be \$60 Million, which would help cover the TSCA/HWCA shortfall for 1-2 years, without giving up vacancies. (However we also must understand if collecting the past due accounts will come to DTSC or simply go to General fund). A combination of giving up vacancies and recovered accounts receivable would be best, especially considering it will take time for past costs to be recovered. Giving up the vacancies provides some of the needed time.
- 2) Assess the accounts and group according to perceived ability to pay, amount, elapsed time, willingness to pay and set collection goals and timelines so DTSC can plan future structural modifications. Establish anticipated receivables' and advise the Governor's office of actual receivable expected.
- 3) Collecting past due accounts: Focus on most likely collections, deep pockets, recent bills, motivated RPs, don't be afraid to negotiate, estimate dollars now vs. future dollars, must collect x percent this year and x percent next year.
- 4) Establish a process to close unrecoverable accounts or refer them to AG. Tactics may include public notice for failure to pay and penalties.

Intermediate Term Future Cost Recovery

Track Project Charges vs. Accounts Actually Paid

Another issue to understand and perhaps resolve is the ratio of billed hours vs. collected hours. We pressure staff to bill to projects and maintain a desired level of "Chargeability". So staff charges to the project. We need to understand the relationship between the recovery rate, (i. e. the percentage of charges collected vs. those charged)? Staff performance and supervisor's performance should in part be based on percent recoverable rather than hours charged on staff time sheets. Chargeability alone is an output, not an outcome, for example a staff member may be 100% chargeable, but we may only recover 40% of the hours charged to a project. They may look like stars on paper, but in reality the recovery rate may be much lower than other staff that appear to be lower performers. If we are only tracking chargeability, we are tracking the wrong indicator.

Long Term Cost Recovery Solutions

Identify Superfund Liabilities

Another huge underfunded liability involves State assumption of Operation and Maintenance costs for Superfund Sites. We have an idea of sites that may come to the State but we must understand which sites, when and how much money they will require for how long. Understanding this outstanding financial liability as soon as possible is crucial for us to understand the future financial health of DTSC.

The State must evaluate all of the Superfund Sites, Orphan Sites and failing Landfills, and calculate the potential State liability for overseeing those sites, a timeline for when they may become a burden and the potential financial burden they may present over time and how long they may be a burden. We must also look for ways to reduce that burden to the extent possible and to arrange funding into the future.

Identify Orphan Site Liabilities

Beyond the Superfund liabilities, we need to assess the potential liabilities facing the Orphan Site program. I am in the process of collecting data to rank and prioritize Orphan Sites, based on funds expended, annual funding, anticipated future funding requirements and risk or threat. I have asked for support from Executive Staff to get the data.

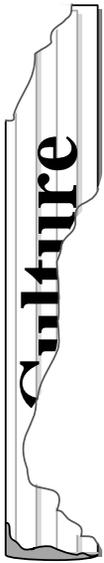
Step 3: Initiate Legislative Process to Establish a Drinking Water Protection Fund

Clearly, the funding we have available through orphan Site Funding will not be sufficient to pay for the potentially huge liabilities ahead. We will need to secure a stable source of funding for the future operation and management of the cost centers. The State will need a staff to oversee the operation, maintenance and monitoring of the systems for the foreseeable future. Long term funding will also be needed.

This is clearly beyond the scope of DTSC work at present, although Stringfellow provides a model we can use to scope out the shape for such a Program. We absolutely must estimate the scope of the issue over time and establish a secure funding mechanism now.

Legislation will be required and we should identify important stakeholders now, notify them of the expected financial impact and begin the process of securing support.

4.0 Target 4 Cultural Obstacles



Organizational Culture is very complex even in the simplest of organizations, and it will single handedly make or break an organization. Organizational, Group and Personal culture is time and location specific and each of us comes to DTSC with our own programming and culture tapestry, which defines how we perceive and approach our world. Groups develop their own culture as well and group cultures (compounded by underlying personal cultures) have a huge influence on how work gets done.

Informal networks (which are generally how work actually gets done) are shaped by group culture. What motivates one group may not motivate another, depending on group and personal cultures. Every group will have its own relatively distinct group culture, making blanket “fixes” poor.

As we reshape DTSC’s destiny, it’s critical that we understand or at the very least acknowledge the influences these different cultural artifacts wield, especially as the torch passes from one generation to the next (Baby Boomers to Generation X).

A Punitive Culture

Over time, the punitive approach (catch polluters and hold them responsible) was turned inside and infiltrated our culture. Instead of rewarding staff and focusing on solutions, we punished staff that stepped outside of established bounds (the establishment). Managers and staff with a propensity for command-and-control were promoted and we institutionalized command and control oriented Organizational Culture. There are exceptions, but DTSC’s Organizational Culture is punitive and it is reinforced through control oriented policies and procedures. One might say we’ve punished and demoralized the many instead of correcting the undesirable behavior of a few.

The tendency to punish staff is complex and may in part result from a perceived inability to punish polluters. We can punish polluters, but there is a threat they will strike back politically or with a team of lawyers that cost us huge amounts of time and make life uncomfortable. It’s much easier to avoid the issue altogether. But this

avoidance along with a propensity to punish staff has greatly demoralized staff. Staff feels that polluters are overlooked while they've become punitive targets.

For example in last 5 years 3 staff have been targeted and dismissed in one Region that I know of. No Orders have been issues or enforced in that same Region to my knowledge. It may be just, the staff deserved to be let go and there may have not been any recalcitrant polluters, but the perception is that staff are punished while polluters are not. The message to staff is that the polluters have lawyers, but staff does not; so beware. It's the bully syndrome and it devastates morale.

Accountability

Over time, staff and management learned to defer decisions and keep their heads down. Staff has learned that management will overrule their decisions so they simply do not make decisions. In essence, we trained our staff to do the minimum, which then requires that Supervisors and Managers perform staff level tasks instead of management tasks.

To try and combat this enabler/enabled culture, Executive Staff provided delegation tables designed to pull management out of day-to-day activities and empower staff. The desire was to push decision making to the lowest common denominator. Staff were ill prepared and unsupported and management was insecure, so over the last two years, we've crept back to the same old enabler/enabled culture.

Maureen attempted to turn Branch Chiefs into accountable Performance Managers charged with improving systems and performance. But after Maureen left, the Performance Managers Branch Chiefs returned to the old ways and the same old name (Branch Chiefs) where accountability is hard to pin down and managers make technical decisions rather than track performance. In relatively short order, we returned to the old, familiar ways.

Because of programs Maureen introduced, DTSC was recognized in 2011 by the California Little Hoover Commission's Performance Management Council as a Best Practice among state agencies. The Department completed an internal Baldrige Criteria for Performance Excellence assessment, which was reviewed by the California Council for Excellence and was recognized with CCEs California Prospector-level award. DTSC is one of only three California state agencies to be recognized in the history of the award. CCE recognized DTSC for:

- *Developing measures to track the effectiveness of our core programs,*

- *Using measurement tools to improve our cost recovery capabilities,*
- *Meeting our goals for ensuring that waste management facilities are operated safely,*
- *Developing a strategic plan process that includes opportunities for stakeholder involvement,*
- *Making ourselves transparent to the public,*
- *Moving toward a team-based approach to manage projects,*
- *Working with staff members and stakeholders to develop and evaluate our performance,*
- *Developing feedback tools,*

On the surface it may look like some change remained, but by-and-large, the informal process is like it was before. Performance Managers were shed as the old and familiar Branch Chiefs were resurrected, the Delegation Tables are a distant memory, and we are largely back to “Process” as usual.

But this reliance on “Process” and old ways has resulted in a series of unintended internal consequences including:

1. A rigid “process” based **Culture** reluctant, unable or unwilling to change,
2. A **Culture** where leadership and innovation is systematically expunged and conformity is promoted,
3. A **Culture** where staff focus on following a process, rather than solving the problem,
4. A **Culture** where staff defer decisions to supervisors and managers,
5. A **Culture** where managers make site decisions rather than identify and resolve systemic issues,
6. A **Culture** where Information Control is used to hide issues.

The Paradox

Paradoxically, as I discussed before, the “Process” lays out well defined steps and punitive actions for failure to follow steps; but management has become complacent about issuing and enforcing orders. Orders if issued are poorly followed-up on and enforcement may linger for decades. Ironically our hyper-punitive process is reluctant to use our strongest punitive tools.

These enforcement tools should be used to show recalcitrant Responsible Parties that they-can-run-but-they-can’t-hide. It’s so ironic that we are quick to punish staff for missteps, but very timid about using our enforcement powers externally. We must provide timelines and track “Orders” issued, action performed or not and

enforcement. We should celebrate staff and managers who protect California by using appropriate State power appropriately.

We stand to benefit by promoting action over inaction and we will demonstrate to staff that their work is valuable and their action will lead to a safer environment. While money is a motivator, purpose is by far a larger purpose, it is the “Why” we come to work (<http://www.youtube.com/watch?v=qpoHIF3Sfl4>). Inaction will only reinforce the view that management really doesn’t care about the environment, or about doing the right thing. In essence, it appears to staff that management has lost sight of the why.

Technical Constraints

A few Technical stumbling blocks that hold us back and show staff their work is not of value are outlined below.

- 1) Some proponent work products turned in for review are of such poor quality that it takes extraordinary effort to respond. Some of this is due to inexperienced consultants and some is a strategy of delay and diversions, making us identify site requirements when we only have part of the picture (essentially a shell game). But the result is that we have to invest more time and effort than we should. Reluctance on management’s part to reject such work products means DTSC does not value staff time enough to require professional work submittals. Inferior work products should be rejected.
- 2) We have little control over project timelines (or at least we fail to take charge of timelines). Delays between submittals of a year or two or more cost us time and money because our staff has to essentially relearn the project or new staff may have to be assigned. This affects project timelines and DTSC costs, especially if costs are not fully recovered. It also sends the message to staff that there is no urgency about the work. As a result, staff feels no urgency and projects languish for years or decades.
- 3) Some technical staff go way too deep into projects and get lost in the weeds. As it’s been told to me, there may be cases where our review time exceeds the consultants’ time preparing a report. This may be due to poor submittals, but it is equally because we look too deep. We are an oversight agency; our role is to ensure critical tasks are acceptable. Non-critical tasks require only cursory review and comment. ***The Director instructed us to use Genuine Inquiry; that means focusing our efforts on the real issues, the critical few that must be managed or performed to solve the problem.***

- 4) Project charges should be in-line with project complexity. A performance review of each Project, Project Manager and support staff should be performed to evaluate the level of effort applied vs. project complexity and need. Especially since we are facing budget cutbacks, reduced project work and less staff (due to lack of rehiring) we must understand the level of effort that should be applied and resource allocation. Simply put, **we are unable to continue doing our work the way we have done thus far.**
- 5) Over time, we've locked ourselves into a Written Comment-Written Rebuttal-rebuttal-to-rebuttal, etc. etc. cycle that is costly and time consuming. Moving away from this cycle and using working meetings or other creative approaches such as net meetings can shave years off of many projects. This is in line with the Governors Mandate Number 1; Speeding up Brownfields.
- 6) It makes no sense for staff or management to be able to override opinions of licensed staff. Our approach of using scientists to manage projects and using Geologists, Engineers and Toxicologists as support adds to project costs and delays and may contribute to staff reluctance to make decisions.

The Water Board assigns one staff person to a project. That person is qualified and empowered to make most of the technical decisions, making them faster and cheaper. If specific assistance is needed, they can get specific support. **As long as DTSC uses four times as many staff on a project as the Water Board, we will be slower and more expensive.**

Resistance to Change

Almost any change brings some form of resistance and the amount of resistance depends on how comfortable we are where we are. It also depends on your mindset. Managers overseeing the same tasks year in and year out see consistency as a product of good management. If the world were static, maintaining consistency would be great, but the world, our world is not static, it changed and it is continuing to change. The day the world stops changing for us is when we are gone (literally).

We are facing a change, we don't have the money we once did and we won't have the staff we once did. Some people will take to change much more readily than others. People that have been on this track a long time will find change the hardest while those that are newer will be more likely to embrace the change. Some that feel particularly threatened will overtly or covertly, knowingly or unknowingly try and sabotage the change. Managers will inevitably seek to return to the tried-and-true

even when they can see that the world around them has changed. Change is uncomfortable, especially for the ones that have tried for so long to make this train run on time.

Short Term Cultural Action

The Mission – Good Start, We Must Build on What You Have Done

The Mission and Goals you developed with Executive Staff late last year are a great start. The Mission is: *“The mission of DTSC is to protect California’s people and environment from harmful effects of toxic substances through the restoration of contaminated resources, enforcement, regulation and pollution prevention.”* **Applied to Cleanup, our Mission is to protect California’s people and environment through the restoration of contaminated resources.** That’s a great start, but we need more.

Applying the Mission – Unit Us in Common Understandings and Common Goals

The Mission does not provide enough detail for all staff to implement it. How do we protect the people and the environment? We need more answers from Executive staff on fundamental questions such as;

- 1) Is it ok to leave contamination in place if exposure pathways are cut off?
- 2) Is cleanup necessary if surface receptors are not being exposed and water is protected?
- 3) Do we have to remove any and all contamination? (Which of course brings us to the proverbial question of how-clean-is-clean?) and
- 4) If surface receptors are protected, where does groundwater consumer protection have to occur?
 - a. At the site boundary?
 - b. An arbitrary compliance point? or
 - c. At the point of consumption)
- 5) As a contrarian point, why should we allow any detectable contaminants to remain in the soil and water of California without compensation for the people whose State this is? Should we not seek legislation to charge a fee for storage of such toxins in our soil and water?

Right now, I guarantee, we are not all on the same page on these five basic questions (I’m sure there are more fundamental questions needing clarification). Staff needs clear direction on at least the first four key questions because they are the basis for every decision we make. We may not be able to develop answers, but we really should come-up with criteria that staff can consistently apply. Perhaps the Leadership Development Forum (LDF) can tackle these questions or as you mentioned, World Café, but we need creative thinkers in the room.

The Goals – We Must Live and Breathe the Goals

The Goals are great, but I have not heard them uttered by one person since they were laid out months ago. The LDF should be talking about them monthly, you should be talking about them every time we see you and Executive staff should talk about them every time we see them, Branch Chiefs should talk of them daily, Unit Chiefs hourly, and they should be in the DTSC news every month in some form or another. None of that happens, so for staff, they have no meaning at all. Executive Staff doesn't speak of them, no one does. This is a **huge missed opportunity**.

Some great work has begun, but its set aside and never looked at again (ok they're in the Strategic Plan, but how often does staff look at the Strategic Plan?). The DTSC Goals need to permeate everything we do, we need to understand and embrace them. The Goals are:

1. *Protect California from toxic harm to improve the quality of life for communities, businesses, and consumers and preserve the environment.*
2. *Restore land and water to protect human health and the environment, and to facilitate efficient reuse and redevelopment.*
3. *Strengthen our effectiveness, efficiencies, and capabilities to better serve stakeholders.*

Paint Room Concept

Managers that do not support the change detrimentally impact the Department in at least two ways. They do nothing to support the change and may even do things to derail the change. They also send a strong message to staff that Executive staff really doesn't mean what it says. So, Executive staff has to either remove the impediment (the non-supporter) or lose the support of staff. These impediments must be moved, lack of action sends the message that Executive Staff is not walking-the-talk.

Chief Braziel used what he called, the Paint Room. He saw the damage a few non-supporters could do, so he moved them into positions where they could do less harm, as he said it, he put them in a room to watch the paint dry. It showed the impediment (the manager) that the Chief was serious and it showed staff that he was serious; a far reaching and very important action.

Intermediate Term Cultural Action

Removing Structural Impediments

Right now, “The System” requires input from Project Managers, Geologists, Engineers and Toxicologists for most every project. We’ve reached a point where this entire cadre is thrown at nearly every project and it is very inefficient. Oddly enough, we require input from the technical professionals, but Project Managers can over-rule their input.

Legally, we must use Professional Geologists and Professional Civil Engineers to oversee geological or engineering tasks. Therefore, I recommend projects be ranked by need and complexity and then some of the more complex sites assigned to a professional group. Geology heavy projects should be led by geologists and when engineering roles dominate, they should be transferred to engineering. And projects requiring less input could be led by scientists with minimal geological or engineering input. Toxicology should only be used when a minimum Risk threshold is reached.

Structural changes must be accompanied by performance management (measurement and tracking) of short term, intermediate and long term remediation goals that are integrated with Genuine Inquiry and the TRIAD approach of understanding the Goals and Exit Strategy before you start a project. Following these steps will result in time savings and help keep the project oriented towards the goal of cleanup and closure rather than following a drawn out process.

Co-locating Resources with Problems

Notable cost savings may well come from applying the right resources and by grouping sites according to location and contaminant type. The greatest impact to the bottom line may come from having Managers and Supervisors refocus on the financial aspects of the project. Project Managers should focus on finances, timeline, deliverables and tracking as well as technical project aspects.

Ranking and Prioritizing

Ranking, prioritizing and acting on sites based on the threat they pose to the public and/or to public resources, specifically drinking water must be incorporated into the way we work. Action will require new funding sources which may be raised through charging a fee for drinking water. These sites are critical and present one of the largest unfunded liabilities in the State.

Long Term Cultural Action

Remolding the Culture – The Holy Grail

Changing an Organizational Culture is probably the most difficult task any Director will ever attempt. Maureen tried and was met with overt and covert internal and external resistance. It is not for the weak or the faint hearted but it is one of the most important aspects of organizational life.

Southwest Airlines employee satisfaction levels are so high that at some of its operating locations, turnover rates are lower than 5% per year (*Putting the Service-Profit chain to Work, James L Heskett, Thomas O. Jones, Gary W. Loveman, W. Earl Sasser, Jr. and Leonard A. Schlesinger, Harvard Business Review July-August 2008*). DTSC's turnover rate between March 1, 2011 and March 19, 2012, is just under 14% (DTSC lost 81 staff and gained 42 staff) (http://dtsenet.dtsc.ca.gov/database/employees/new_and_separated_employees.cfm). If we can improve the turnover rate we can reduce cost and improve our productivity by reducing our general training expenditures.

Culture Change

Changing our culture is huge, because as I said before, the punitive, command-and-control and complacent culture is intertwined with everything we do and it is integrated into every manager, supervisor and staff person we have. Whether they like it or not, they are accustomed to it and it is less uncomfortable than change. That said, to begin changing our culture, we must start by embodying our Mission, Goals, Guiding Principles and Vision into everything we do. It must be modeled by Executive Staff and you. It must be demonstrated by every Branch Chief and Supervisor, they are the windows to DTSC's soul. If staff can't see it in their eyes, they will never buy-in to the change.

Long Term Culture Change for DTSC must be based on solving environmental problems, accountability, performance and outcomes. Simply cleaning the site to pre-set standards in any timeframe without any consideration of cost is no longer viable. If we want to keep Californians employed and move faster, we have to change our approach. Change requires **Leadership** and the existing management staff will not be ready unless they are relentlessly trained. Even then, most will not drink-the-lemonade. You will need a strong, respected, guiding coalition with a few existing credible leaders and a new breed of leaders. The guiding coalition must bring a new vision, futuristic goals and integrity.

As I mentioned before, as the “Baby Boomer Generation” retires, we need to begin shaping our structure to accommodate Generation X and Y.

Basic Steps for Moving from a Process Orientation to Outcome Based Performance

Change the goals

- Coordinate with USEPA and Water Board to change the regulations or to change our approach to managing the regulations.
- Determine what is necessary and when and where it is really necessary.
- Train to attain the new goals.

Change the structure

- Train managers, supervisors and staff to work in the new structure and reward those that do.
- Remove the managers, supervisors and staff that cannot or will not adjust.

Change the tools

- Replace outdated process based guidance with new performance and outcome based guidance
- Train staff to use the new approach and reward those that do.
- Remove the managers, supervisors and staff that cannot or will not adjust.

Change the culture

- Incrementally move from Process to Performance and reward the achievers.
- Implement Performance Based management (ITRC document lays it out)
- Exec staff must walk the talk and reinforce it through every action. If the action does not support the new approach, don't do it...

Where Do We Go From Here

The proposed “Fixes” discussed throughout this document and outlined above are sequenced according to level of effort. I’ve tried to provide estimates of: short term (weeks to months) and intermediate term (months to years) fixes. Many of the “Problems” and “Fixes” are intertwined and difficult to separate, and fixing a few will have little measurable impact on the whole, but they may help motivate staff. At any rate, this is the beginning of the discussion. The Short Term Fixes may be viewed as low hanging fruit; relatively small investments may generate rapid returns.

This is not an exhaustive review but it does provide a well thought out nucleus from which to begin. I’ve identified “cracks” and solutions as I see them. The problems outlined in this Action Plan are not insurmountable, but some will require great sophistication. There will be internal and external supporters, but there will be far more detractors. It is very difficult to push people from their comfort zones and their willingness to move out of that comfort zone will be proportional to how threatened

they feel. The inherent inertia is substantial, but not insurmountable. Planning and a deep commitment by you and your executive Staff will be pivotal.

Management should begin implementing these and other relevant steps to stabilize the “Cracks in the Foundation” immediately. However, stabilization is only an interim step. The Department must go beyond stabilization, which will require real leadership. While management stabilizes, leadership should be re-engineering DTSC for the future.

I’ve already begun working on a DTSC RE-Engineering Plan outline that will help guide the way to DTSC 2020. I look forward to sharing this plan and others as we move forward.

Attachment 1

Four Waves of National Environmental Activity

- Wave 1: Started with a period of **conservation** and responsible resource use and generally lasted from the mid-1800s to 1960.
- Wave 2: Began with the **identification of environmental degradation** from industrial activities and spanned 1960s to 1980s and saw the establishment of the USEPA and the passage of the National Environmental Policy Act and other assorted environmental bills.
- Wave 3: Ushered in a period of co-optation, or **mainstreaming** environmentalism, which ran from the 1990's to the present.
- Wave 4: Environmentalism is now a part of the mainstream and the challenge before us is to **manage** the successes of the past decade and a half. New competencies for environmental leadership are needed in five areas; (1) Professional Administration, (2) Collaboration among groups with related values, (3) political action skills, (4) scientific and technical assessment and (5) public education towards positive solutions.

Wave 1, 2 and 3 adapted from: *Environmentalism for a New Millennium: The Challenge of Coevolution*, by [Leslie Paul Thiele](#)

Wave 4 adapted from *The Future of the Environmental Movement* by Stuart Langton.

Attachment 2

Proposed P2_{dw} 5 Step (Goal)

Groundwater Cleanup Performance Measure Development Tool (3-8-10)

Regardless of the regulatory setting (RCRA or CERCLA), groundwater protection and cleanup strategies should:

1. Focus resources on the sites and sources that warrant action in the near term;
2. Control short term threats;
3. Prioritize actions to address the greatest risks and threats first;
4. Make measurable progress towards the goal of returning contaminated groundwater to its maximum beneficial use. (*pg 1.1)

When groundwater quality is threatened, it may be necessary to implement **Interim Measures** to reduce the impact while long term solutions are being weighed. Interim Measures should be designed and implemented as rapidly as possible to stop the risk to human health and to ensure the threat to the environment is not allowed to continue increasing. Interim Measures consist of short term protection goals, intermediate performance goals and long term optimization goals.

Interim measures

Protection	Performance	Optimization
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To be effective, Interim Measures must be accompanied by performance measures (goals and objectives) that can be tracked to demonstrate progress is being made in a reasonable time frame. USEPA recommends (*) the following short term *Protection* Goals, intermediate *Performance* Goals and long term *Optimization* Goals.

1. Short Term **Protection** Goals

Short term measures should be put in place as soon as possible to protect human health and be sure contaminated groundwater is not migrating beyond its current extent (*pg 1-3). Short Term Protection Goals should ensure:

a. Health exposures are controlled

- i. Indicators do not detect a risk to human health or the environment.

b. Plume migration is controlled

- i. *The lateral and vertical extent of the plume is known and the plume is not increasing in size.*

2. Intermediate Performance Goals

Intermediate *Performance* Goals are a bridge between the Short Term *Protection* Goals and the Final *Optimization* Goals (*pg 3.1). Intermediate *Performance* Goals are designed to remove/secure the source and maximize mass removal by:

a. Focusing resources

- i. *Prioritizing work and focusing resources on the areas with the greatest “mass flux” potential.*

b. Improving environmental conditions

- i. *Cleaning up offsite plumes*

c. Enhancing performance

Final Cleanup Measures

3. Final or Long Term Optimization Goals

Final Cleanup Measures are best described as long term optimization goals, designed to eliminate or reduce risk to an acceptable level within an acceptable time frame in the optimum (most efficient and most cost effective) way possible. Final cleanup goals should: (*pg

4.1)

a. Be protective of human health and the environment

b. Achieve media cleanup objectives by establishing

- i. *Protective cleanup goals for all impacted media,*
ii. *Points of compliance,*
iii. *Timelines for compliance.*

c. Control the source(s) and reduce or eliminate the risk to human health and the threat to the environment to the extent practical

- i. *Conformance with the cleanup goals must be measured and tracked.*

* Based on the “*Handbook of Groundwater Protection and Cleanup Policies for RCRA Corrective Action* developed by USEPA”.