



# BP Texas City Site Report of Findings

Texas City's Protection Performance, Behaviors, Culture,  
Management, and Leadership

21 January 2005

the  
Telos  
group

**CONFIDENTIAL**

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## Introduction

In this introduction, we clarify what this document is, and what it is not. In the course of doing so, we also clarify its intent. We provide the reasons this Assessment was done, the selection basis for what is or is not in the Report, and how we used the data from the Interviews and Surveys. We provide a summary of the interview and survey population, and our approach to learning from the incidents at UU4, AU2 and the UU3. Finally, we provide some guidance in the form of clarity about the structure of the report.

After the tragedy at the UU3 in September of last year, the Site Manager thought it would be in the best interests of the site and the Leadership Team to initiate a practice of regular assessments of 'safety behavior and culture'. Don also wanted to start as soon after the tragedies as was possible. This first assessment would form a baseline against which site leadership could regularly assess its progress toward being a petrochemical site free from injuries and incidents that could cause harm.

From our perspective, the most important aspect of why this Assessment and Report were commissioned is the authentic hunger for bad news that it is asked to address. Starting with, but not limited to the Business Unit Leader, there has been a consistent call for the 'brutal facts', the way that it *really* is around here. "We need to know what it is really like – nothing held back", we were told. There has been a genuine and consistent call for the truth.

In our experience with many companies interested in adopting High Reliability principles and/or being High Reliability Organizations, there is often a request for activities such as these, but no real desire for the actual bad news. Like most audits in those companies, a 'good audit' is one that finds little wrong. In actual HROs a good audit would be one that finds many things wrong; and each successive audit would continue to find more and more wrong – but the problems being discovered would be at weaker and weaker levels of signal strength. We are genuinely impressed with the strength of the desire to know what is not working at Texas City.

Who did we talk to? Each Leadership Team Member suggested specific individuals from their function or manufacturing area as candidates for interviewing. This produced a list of names over one hundred and sixty in number. Nearly all interviews occurred in Texas City between 8 and 30 November 2004; a small handful of interviews occurred by telephone. Of the 'List of One Sixty', one hundred and five were scheduled for an interview with one of the three Telos partners. One hundred showed up for their scheduled interview, and twelve individuals came to us requesting a 'blind interview', that is, an interview with no name and almost no demographic information; this resulted in one hundred twelve interviews. Other than these twelve 'volunteers', we made a strong effort to achieve the agreed representation ratio of 14:30:28:28, that is fourteen Leadership Team members, thirty Tier Two individuals, twenty-eight First Level Leaders, and twenty-eight Hourly employees. The actual ratio was 14:38:31:29. The

nine contractors we interviewed ranged from hourly workers to superintendents. In addition to the interviews, we received over 1,100 surveys filled out by individuals at all levels and from all areas of the site. We continue to receive them even as this Report goes to the printer.

This Report makes no claims to represent the objective ‘truth’ about the Texas City Site’s protection<sup>1</sup> performance, behaviors, culture, management and leadership. This Report *does* claim to be an honest and true representation of the way the people we interviewed and surveyed see the Texas City Site’s protection performance, behaviors, culture, management and leadership. This Report intends to provide a sense and feel for what we encountered in the confidential conversations, interviews and surveys of the members of the Texas City Site working community. We attempt to do this, as much as possible, in the very words they used, rather than in our own. We provide some introductory remarks to each section. These are meant to illuminate how the report approaches protection, as well as to narrow the scope of the report into specific frames through which we can concentrate on specific factors. In addition, we occasionally make assertions regarding what is being said – or what is not being said.

The Report, following this Introduction, is divided into the following sections: Understanding Blame, Punishment, and a Just Culture; Unsafe Acts; Workplace Factors; and Organizational Factors. Each section has an introductory paragraph that explains the scope of the section, as well as a high-level view of the theory that organizes the data within that section. This is often followed by a short paragraph that either further frames the data or makes some assertions about what you are about to read.

What follows each section, comprising over eighty percent of this report, is titled ‘Data from the Interviews and Surveys’. Here you will encounter a series of quotes. These are the voices of the people who work at the Texas City Site. The basis for selecting which quotes made it into the Report, from the near-overwhelming mountain of text data we received, was two things: criticality and typicality. All quotes represent the voice of more than a few people. We have made minor changes to honor the confidentiality of the conversations. However, for many of the stories included, there are two or three stories that could not be told without, in some way, revealing the identity of its source to members of this team.

We also limited repetition in the report, although in some cases, we have purposefully included it. When included, this was done in order to provide you with an experience, as we had at times, of the pervasive commonality of certain views at the site by being exposed to the sheer quantity of those perceptions. Nevertheless, even in each section of the report where we include this kind of repetition, we were forced to cut from one half to one quarter of the quotes we had.

You will also encounter some quotes from the interviews and surveys repeated in more than one section of this report. We have removed as much of this as we could, but we

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<sup>1</sup> We use the term ‘protection’ to capture all of individual safety, process safety, integrity management, and environmental safety. In this way we mean to cover most of the ways active failures and latent conditions at the site can line up to cause injury or the potential for harm.

intentionally left some in. We do this because a quotation or story changes as a function of the context within which it is told. A certain statement about ‘training’, for example, when viewed through the lens of a specific ‘organizational factor’, will mean something very different than when it is viewed through the lens of a specific ‘workplace factor’.

In addition to our work with the interviews, we did review all the data from the surveys. After that review, we chose not to concentrate much attention on the multiple-choice data from the surveys because the text data was so surprisingly rich. We received so much information, in terms of both quantity and quality, from the BP Texas City Site survey. Some people attached two or three handwritten or typed pages to their completed survey.

We did test the answers we received from questions in our interviews against the data from the surveys in order to confirm consistency. In many cases, we also tested both the interview database and the survey database for any substantial internal site differences in perspective. Between manufacturing areas, for example, we found only one substantive difference. Protection performance itself, and the way people spoke about their area’s protection performance and culture, was significantly better in the A&A manufacturing area than it was in any of the Refinery MATs. In addition, when asked about morale, the majority in each salaried category said it “was staying the same”, whereas in both hourly categories (operations and maintenance), the majority in each said that it was declining.

But even in these cases, as with nearly all the multiple-choice questions, the difference in numbers tended to be *less than one, to only a few* percentage points. One exception is the table below. In this question, we asked people to force-rank what they perceive to be the priorities at the Texas City Site from the options we gave them, also appearing in the list below. Their answers were:

Ranking	Priority
#1	Making Money
#2	Cost/Budget
#3	Production
#4	Environmental
#5	Major Incident
#6	Quality
#7	Security
#8	IS/PIP
#9	People

We have studied the survey data in only a preliminary way in terms of race and gender, and we have not studied the data at all in terms of organizational heritage, years at Texas City, or functional area. We are happy to review survey data more specifically with you in the future, but we chose neither to overwhelm nor distract you with numbers, percentages, and negligible internal differences in this report.

We originally intended to include within this report - or as a part of the offsite – an exploration into the human, workplace, and organizational factors perhaps not fully

captured *as failures and causes* in the UU4 fire, the AU2 tragedy, and the UU3 tragedy investigations. The shock, grief, guilt and anger (among other emotions and concerns) about the UU3 were still quite present in the minds and hearts of the entire site community at the time we were interviewing. Important touchstones to that time persist today. Consistent with the intent that these men not die in vain, leadership wanted, and still wants, to honor these deaths with action, learning, and a significantly higher level of commitment and leadership for protection at the BP Texas City site.

Instead of devoting specific sections to these incidents, we chose instead to construct this entire report as an investigation. We investigate the fundamental human, workplace, organizational, and leadership causes for those three events, and any protection failure that the site has recently experienced – or could experience if not addressed.

First we hear from those surveyed and interviewed about the cycle of blame that prevents most organizations from taking any serious action to address much more than ‘operator error’ or ‘non-compliance’. Imagine then that we are investigating an incident – but instead of it being one specific incident we’re investigating, it is the whole BP Texas City Site’s existing potential for incidents and injuries.

We then begin in earnest where all incident investigations begin: at the ‘sharp edge’, at the human/machine interface. This interface is the home of unsafe acts and violations. It is the domain both of human error and the intent to violate a policy or procedure. We then continue to look for causes of the current condition, but we go past the sharp end to investigate upstream workplace conditions. Here we encounter the latent conditions that are already present at the unit or MAT level. These latent conditions can combine with unsafe acts or violations to breach the system’s defenses, causing an injury, a fire, an explosion, or a release. These workplace conditions exist *right now*, even as we sit here, in this room, reading this report.

We end our investigation with what people say about the true ‘parents’ of all the downstream ‘problem children’. That is, workplace conditions and unsafe acts. They are talking about organizational factors, the ‘blunt end’ of the organization. Here we are as far away from the valve as you can get and still stay on site. In this final part of our investigation, we will hear what people say about site leadership’s commitment to protection, cognizance of the actual conditions and risks, and competence to know what action is needed and to take that action.

By taking this approach, we follow the investigator’s path. We reveal to ourselves how people at the Texas City Site honestly see the health and vitality of the site’s system for protection, and those responsible and accountable for its fitness and effectiveness.

## 1. Understanding Blame, Punishment, and a Just Culture

People are generally seen as free agents (having 'free will'), and able to choose between correct and erroneous actions. This builds the case for the notion that most errors, then, must be deliberate. When errors do occur, they are often understood as deliberate actions, and are viewed as blameworthy. These errors are then dealt with by warnings, sanctions, and demands 'to be more careful in the future'.

These measures are ineffective since they never get to the underlying latent conditions that had to be there in nearly all cases for the human error to cause an injury or an incident. The view that the AU2 incident was just a matter of "a choice someone made not to tie off" is a good example.

Therefore errors continue, and the operator continues to be primarily implicated in further bad events. The cycle worsens because these new errors are seen as even more egregious because, obviously, the warnings and sanctions are being ignored. And around we go. This cycle, when tied to 'what gets rewarded around here' form the background of what is good and bad in the culture of protection at Texas City.

For almost all individual injuries, and for all process safety or integrity management incidents, viewing the person at the human/machine (or human/process) interface as the most significant cause is not very fruitful because the underlying conditions never get addressed. While incident investigations include 'system errors', the incidents live as a conversation at the site as one of blame for the individuals. Of course there is always a fair amount of blame for management from some at the human/machine interface (for not having bleeders between every pump and block valve, for example).

It is more fruitful, in terms of fighting 'the safety war' with a sustainable safety and integrity management 'fitness program', to view human error as a *consequence* rather than the *cause*. Even in the quotes below, where individuals acknowledge mistakes they made (our best people can make some of our worst mistakes), the authentic search for workplace and organizational factors is necessary.

### Getting Hurt on the Job

When responding to queries about injuries and incidents on the job and the perception of a just culture and appropriate organizational responses to those incidents and injuries, many acknowledge being injured and have the perception that the organization did not respond appropriately. A few say that personal injury leads to punishment and harassment and this impacts reporting of routine injuries. Some say the injury response by the company is all about managing the numbers versus caring about the employee and managing the injury. An overwhelming number of interviewees say employees are to blame for the incidents. Very few say there are any collective individual or

organizational interventions possible. A few say justice is equitable and some say the company response is appropriate.

The following responses are mostly from the question, "Have you ever been hurt on the job?":

After an incident we add more detail to the procedure and fire the victim.

In the past management did not show proper care. Now they seem to care more, but always after someone has been hurt. A superintendent once told me he judged if it was unsafe by how many people had been hurt by it. He is still here today.

Once a safety incident occurs, Texas City reacts and manages it pretty well; what we do not manage is the circumstance leading up to the event; mostly we do not recognize it.

For the most part investigations are negative as you must be politically correct when they come to interview you; on one hand you can get in trouble with the union leadership and on the other hand you can get in trouble with the refinery leadership. The result is an investigation report stripped of the real issues by Legal. And what you get is not really helpful, at least at my level.

Actions and investigations for root causes are always after some gets hurt.

Finding a way to validate that the incident was the result of human failure or poor decision-making seems to be the objectives of our investigations and after After Action Reviews.

I see very little of the result of BP incidents as a contractor unless that incident was caused by a contractor or the injured party was a contract employee.

Investigations all lead to the conclusion that human error caused the mishap; I find that a little disturbing from the perspective that it provides little insight about a meaningful correction.

Auto accident en route to sister site - unavoidable - but we were treated as if we caused the accident even though the other driver was cited. Forced to come to work via taxi when unable to drive and under pain medication, which causes drowsiness - bad headache - unable to perform a job; management was trying to avoid a lost time from work. Personal concern was felt, but more concern was given to avoid lost time from work!

Had an eye injury - foreign object to eye - from a wind blower. I was given a shift change to avoid a lost workday with no or little communication from the supervisor making these changes, or their basis of these changes. Not once did I get to attend the meeting or engage in the treatment path, work obligation, or even if I needed time off to heal. I was told to show up and sit in the office with no production work assignment. Things have changed some since this occurred.

Hit in the head. Management was all over it and really cared!

Hurt leg. Yes, management did fix a short ladder. (We had to step high to get to the first big step to get off); they extended the ladder.

I have had 4 recordables! All I got each time was negative response to my actions! Only one had any action taken!

I have not been hurt significantly; I did slip and fall on an oil spill once, but did not report it.



## Understanding Blame

No, I have not had any major injuries, but I have been in a near miss incident. Yes, my supervisor showed proper care and took appropriate action to solve the root cause.

No, I run like hell and have ducked and dodged every hazard in this dump.

No, not sure if it is luck or skill.

No. An employee in my group was injured. Management took the time to follow up on employee and insisted on closing the loop to resolution.

No. But, I know someone who was injured in my unit. After the investigation we never heard about the outcome or what we learned from the accident

They said it could not have happened on job, so suddenly it didn't.

Yes - told to get something done; didn't have time or people to get what was needed to do it very safely - my risk was perceived as limited - today it is somewhat better.

Yes - dangerous asphaltting sampling methods at TC-RDU; yes - we eliminated asp sampling and shut down asp station.

Yes - due to an inept engineer's oversight. And I was blamed for it.

Yes - more than once. But I usually don't report it because we don't want to ruin BP's safety record and if you do report it, you will hear about it at safety meetings for the next 3 yrs.

Yes, they took real good care of my family and me.

Yes - unit was in a rush to start up and scaffold was not removed prior to startup. No, we still start up without proper removal of scaffold.

Yes - working short handed. No concern was shown.

Yes, a switchgear flashover. Unreliable equipment still in service. Management blamed us for incident, but did give more training on equipment and policies.

Yes, and they just wanted to find someone to blame.

Yes. I burnt a finger getting lunch out of oven. It would have taken away our days worked without an accident. Now when we get hurt, you drag yourself out the gate, if you're able, and say it happened at home.

Yes, I have been hurt and had management punish me and make a fool of me. Need I say more?

Yes, I have been injured. Management showed concern at the time, but over the years, the same habits are beginning to show up that caused the injury in the first place.

Yes, I have. I committed an unsafe act, and yes, they resolved the cause. My own fault - got in a hurry and took some short cuts.

Yes, I was injured because management chose to hire a contractor that felt our safety rules were too stringent for him. He stated so in court. Management did not remove or discipline the contractor.

Yes, I was: mine was a lack of knowledge of possible engulfment in an area where there was a leak. An investigation was done and recommendations made. A lot was done to help insure the possibility of an accident like mine may somehow be avoided. But over time they are slowly being less and less adhered to.

Yes, if you do a lot of physical work you're going to get hurt eventually.

## Understanding Blame

Yes, styrene loading arm (docks) broke. Management showed concern only after it was shown that it was not my error.

Yes! Safety and law department grossly falsified accident report. Would not make corrections. Claimed it did not matter and nobody would ever read. False report is still in my file.

Yes! I had a lengthy lost-time accident. Nobody did a thing to repair the problem. I was harassed and made to feel I should not have gotten hurt. The problem was repaired 12 years later because a manager had the same accident! Go figure!

Yes, a burned hand. Did not report it, due to new hire probation.

Yes, because the sewers didn't work - backed up with water and trash. Show proper care to who? They still are working on the sewers after 6 years.

Yes, burned on temporary piping was told to be careful; nothing was done to prevent it from happening again.

Yes, drum was improperly placed on pallet, hurt my back trying to fix problem. Reported to supervisor, but never sent to medical.

Yes, I have been hurt but never reported it due to the enormous amount of B.S. that goes with it. Supervisors and superintendents are punished in performance review because someone that works for them gets injured. Hourly workers are punished by loss of bonus money from VPP.

Yes, I reported it and they made me feel like a fool, and they will not make me feel that way again.

Yes, I tried to lift too much weight by myself. No, we are still working jobs short handed.

Yes, I tripped on newly installed walkway that was improperly made. No notice of new change was communicated by supervision. Management made corrections immediately at investigation response.

Yes, I was hurt while working on the job at docks. The personnel at the docks told management the loading hoses were unsafe to work with but they did nothing about until someone had an incident. They took action to solve problem by trying to blame me in being unsafe but others on committee didn't see it that way. The management on the docks were the ones to put the blame on me.

Yes, I was put in a taxi and sent to mainland ER for stitches.

Yes, I was reprimanded for not reporting injury right when it happened. As far as solving the root cause, no common sense was used. This incident had no fix needed, but people tried to think of ways to fix a problem that didn't need a fix.

Yes, improper maintenance, always my fault, that's what management said.

Yes, keep it to myself. This is common practice.

Yes, lack of attention to task. Management handled the incident with due concern but, the solution was useless. An action item was created just to satisfy a report requirement.

Yes, lack of attention, rookie mistake, and no root cause to solve.

Yes, lack of training and my lack of experience. I did what 2 other senior operators were doing and got hurt. The equipment failure causing the accident was addressed 5 years later.

## Understanding Blame

Yes, lost part of a thumb. Yes, they fixed problem machine and bought new and safer one.

Yes, mechanical failure; I was blamed in the end. I was not the root cause.

Yes, minor steam burn resulting in FA visit; management encouraged self treatment to avoid OSHA recordable injury.

Yes, it was automatic find fault with the person that got hurt. They are out to take a free ride. I really think BP spends more money getting out of paying on-the-job injuries, than they would if they were just taking care of their employees. The problem with what caused the injury: some fixed, some not. No one wants to get hurt out here and, don't get me wrong, I now work for a superintendent that does honestly care and tries to fix the problem, but in the past when I got hurt, the superintendent could care less - it was just a mark by his name. Let's face it. Some people are only concerned with their advancement and budget.

Yes, and all they did was harass me and fight workmen's comp.

Yes, one time something got in my eye. Management sent me to medical to make sure it was scratched even though I flushed it out.

Yes, only after a trip to the ER, did a change come to have contractors do the risky job task.

Yes, pulled muscle in neck. In fact, they drug me through the process with workman's compensation for years. I will not notify them again.

Yes, received burn to leg. All management cared about was procedures, OSHA, etc.

Yes, sprained lower back, yes, management did show appropriate action.

Yes, they made fun of me.

Yes, they want you back to work as soon as possible regardless of your condition.

Yes, they wanted to give me disciplinary action to me, when it was not my fault.

Yes, told to get the job done, period, no ifs, ands, or buts.

Yes. Acid 90% sprayed on arm, due to thin pipe. The line was replaced, but never checked before that, and never checked after.

Yes, because I took a short cut, which was not the fault of the supervisor -- just so we could keep the job moving and on schedule. Now I pay for my decision every day of my life, and will keep paying until the day I die. For those five minutes back, so that I could think out what I did wrong, I would pay a lot. Again, I took the short cut and not the company.

Yes. Burned with hot H<sub>2</sub>O at WTP #1 late 70's, took several years to correct problem.

Yes. Due to decision makers in supervision not really knowing their jobs. Too many people making decisions based on who they know and not on what they know!!!

Yes. I was unaware of a hazard. Yes, care was good. Concern was weak. Response to fix the problem was ok.

Yes, lack of review of risk of job prior to beginning work. After the fact, we did resolve the root cause and correct the situation.

Yes, it was my own personal failure to follow proper PPE. The root cause was addressed. However, I personally felt that management was more concerned with safety stats rather than my personal welfare.

Yes, but the emphasis was placed more on who was to blame rather than root cause.

Yes. And the employee is always at fault - and required to sign statement that he committed an unsafe act.

Yes, not enough people on the job. This happened many years ago. No, they did not handle it well, instead they made me tell the story over and over in front of people and tried to put the blame on me. There has been some improvement since then.

### What Is Recognized and Rewarded

Most interviewees say that production and budget compliance gets recognized and rewarded before anything else at Texas City. A few say that safety performance is recognized and rewarded, but mostly during TAR periods.

Data from the interviews and surveys:

We are working to produce products and, as such, production is a prime consideration; we are a manufacturing company and we naturally emphasize production; we need to work harder to create a balance in our recognition focus.

People do not get recognized for thinking critically about how they do things. People do not tell their supervisors how they actually do something and get feedback, or cross feedback with those who have the same knowledge base. Everyone acts like they know the job, "I know the job, so I don't ask, and especially new people have nothing to teach me". So curiosity and humility do not get recognized or rewarded at all.

Our rewards system is not right. We don't know how to use it. We don't do enough thank you's. Our reward system sucks. Inconvenience pay, overtime, R and R, they're all messed up. We do not reward people for intervening and being responsible for safety we reward production and cost reduction.

Fixing something without having a shutdown is what gets rewarded; we get rewarded to keep the unit running.

This is dependent on where you are in the organization; at the lowest levels what gets rewarded routinely is completing the job on time; at the highest levels what gets rewarded routinely is getting the job done on budget.

What really gets rewarded are the pleasers. The brutal truth is not even that is what gets rewarded. *Telling the manager what they want to hear*, that gets rewarded. For example, one person who had cut costs, done a lot of Band-Aids with maintenance and had a quit-your-bellyaching, quit-your-complaining attitude was rewarded in the last reorganization. When his replacement was brought into his previous maintenance position, his replacement found that not a single pump was fit for service; air compressors, not one spare was fit for service.

Historically handling crises well and telling a good story about it. I'm not sure that people get rewarded for anticipating problems and preventing them and also not bragging about it either.

Mainly saving money gets rewarded, that is it. There's a little bonus money, and safety is a pat on the back.

The heroes around here are the ones working to the production goals and who complete them early; 80 to 90 per cent of what gets recognized is doing it fast counts.

## Understanding Blame

Positive recognition varies depending on where you are in the plant; this is an issue where leadership could make an impact through field visit and ad hoc recognition.

My boss has actually said 'thank you' a few times. That feels good. Sometimes that happens. I've had peers occasionally say thank you and that feels good too.

Production and making money is really recognized here; we are all aware of our operating budgets and work to live inside them.

The only time we seem to acknowledge safety is during the TAR period or when we do a major capital project.

We do a good job of safety acknowledgement for TAR periods, but I believe this is driven more by the contractors than by BP. This seems to be more embedded in their culture than ours.

Making money is what really gets rewarded, for most this is making the budgets and reducing staff and other costs.

Getting the job done gets recognized around here.

Our heroes are the ones who deliver on time and under budget.

Production, early completion of work.

Management of cost gets recognized here.

Production and budget compliance gets recognized and rewarded.

Like any business, results is rewarded.

Production, getting finished in less time is the ticket here.

What really gets recognized around here is budget compliance; everything fits inside that.

Finishing the job ahead of time.

Like any operating company, production gets recognized.

We put a lot of emphasis on production and reacting to what happens in the operating environment, so I would suggest that this has an impact on people's impression of what we want.

Nothing gets recognized around here.

As operators we are concerned with the continued reductions in staffing and our ability to run the units safely. None of the operator concerns have been addressed since the BP take over; constant reductions of every kind everywhere; constant reductions in benefits, what gets recognized is reductions of any kind.

Going above the requirements gets rewarded around here.

We just do not recognize people's efforts enough around here.

Production, production, and then maybe production: People recognition is very lax, it is getting things done mostly.

I do not believe that critical information gets passed up; but it is not an issue of filtering; it is more an issue of the operators being responsible to communicate and feeling ownership of the issues; we may need to review if they have a voice at the appropriate activities (TAR planning meetings/Maintenance planning meetings/etc); it is an issue of not recognizing people for speaking up on issues or maybe it's being so stretched that they don't feel we have time or we care.

Most recognition is about cost savings, very little about safety or environmental performance.

We do a very poor job of people development; our HR process for personal development and performance assessment is not valued; we do a half-assed job and no one seems to follow up or care.

I just know when I have done a good job; I seldom hear it.

You know when you have done a good job: you get little official feedback.

We do a fair job of letting people know they have done a good job; it's not our job to be babysitters, we need professionals who do what they are told to do and understand the difference between doing it (knowing it's a good job) and shirking off (knowing it's a bad job).

Usually you get an email note from someone thanking you for a cost savings idea.

Just a "thank you", that would be nice to hear once in a while!

Just having someone come to my work area and say 'hey, thank you'.

## II. Unsafe Acts and Violations

### Unsafe Acts

Unsafe acts include errors and violations. Errors originate from information-processing problems and require, as a remedy, the provision of better information in the workplace and/or for the person. This is important because if we understand what kind of error took place (slip, lapse, mistake, etc.) we can supply the appropriate conversation for individual learning. Individuals at the Texas City Site fundamentally see unsafe acts as one category, as is common in most workplaces. The problem with this is there are different kinds of errors which require different kinds of learning.

Many interviewees view site safety performance to be a function of the lack of information-processing time, a lack of sufficient time for job analysis, a lack of adequate staffing, a lack of supervisory staffing, or a lack of resident knowledge of the unit in the supervisory staff.

Data from interviews and surveys:

I am not aware of anything that gets in the way of safety; people just get in a hurry and some, for whatever reason I cannot understand, do not follow the rules

We need to learn from our mistakes; our organizational memory is very short; we seem to mourn for short periods of time and then move back to doing what we have always done and no meaningful changes occur from the incidents we have.

The biggest impact to BP employee improvement is from the Duty of Care concept. This focused on *value* safety versus the behavior based approach.

People in official levels of authority who are reported to not be on board with the leadership team - their actions and conversations are counter productive to the culture we want; they talk a good game, but they do not follow through.

I know about the fire and the fatalities, I do not know about the results of the investigations and I see all the near miss incidents on the unit.

We don't as a team get out there; we tend to get lax with routine operations and we do not do enough JSAs and stand downs on equipment that we have not worked on in a long time.

I know what happens on a day-to-day basis where I work but I am not so knowledgeable around the routine performance at the rest of the refinery.

I can only say that we have the weekly safety meetings and we need to provide information for working safely day to day.

In 1984 I got hit in the mouth and got 22 stitches. The Monday after the Friday surgery, they sent me a cab to bring me into work so as not to have a lost workday. They thought I had lied and I was in a fight. They had me putting notebooks together. The other injury I had was I broke two ribs.

My concerns about Turnarounds is that we do not do all the jobs during the turnaround that we should do, we defer a lot of routine maintenance and this increases the job hazards; the men know this is the trend and they know this is a cost move to reduce the

down time of the unit; it sure makes it hard to work safely when you know something could be done safer when the unit was not running.

I am always concerned with the amount of new people you have to bring in to do a turnaround.

During the TAR periods the number of contract personnel gets so large that the bottom of the barrel is often filled with persons who may not be as qualified as they need to be, this puts a burden on the operators to watch them; time they really do not have in the first place.

Found lots of things on our unit. Will they fix it? That's another thing. Until people running the business understand what's going on in each unit, it won't be safe. Need to come to our Supt. safety meetings. We don't know if what we raise there goes anywhere else.

As I stated, we are consistent in our approach to implementation and we are very reactive on the major incidents; nothing happens till something happens.

The pressure from production is the biggest barrier to working without injuries.

We need to get people to take care of themselves; we need to provide effective training.

We stopped making supervisors into superintendents a while ago. These young guys coming through just don't know the units. They don't know how to fight for what we really need. The reactor is pushed past discard. We keep putting band-aids on it. When it fails, they'll blow it up, and then they fix it. They fixed an old compressor for more money than it would have cost to replace it with a new one. Just about built the whole steam end of that machine. We go to meetings that we get nothing out of. Just not productive. Don't see a lot come out of them. They call the meetings for a project. The tie-ins go on the table then they don't get done. Now they're back on the table ("We're approved!") Then they don't do it again. Then you get pumps like 106J-B without backup. When you lose water, you lose conversion and it corrodes. If we had two pumps we could have worked it through the night and been back up. But down in the field we have no control over it. They'll say you got hurt - it's your fault, but we've got no control over that.

We need to get the staffing right and we need to ensure that we have the right amount of time to complete the assigned work; we are often given a block of things that we are to complete during the day and you have to make decisions about where you can cut corners to get it all done.

The most common thing in the way of maintaining the right productivity-safety balance here is the history of production orientation and the lack of competence in safe practices.

As I stated, the drive to complete the work is the issue.

The short staffing in maintenance and operations is a big issue; we have cut too thin.

For the most part we are crisis management experts; if there is no crisis, wait a few minutes and one will develop; responding to crisis on a daily basis impacts the productivity-safety balance.

We have unrealistic deadlines; in some cases the organization reacts to these deadlines and wants to compromise the values and requirements of our own management of change requirements.

I am not aware of anything that gets in the way of safety; people just get in a hurry and some for whatever reason I cannot understand or do not follow the rules.

We are so under staffed in many areas the right productivity-safety balance suffers.



We have unrealistic deadlines; in some cases the organization reacts to these deadlines and wants to compromise the values and requirements of our own management of change requirements.

Well safety here is divided in two parts: being safe as individuals and running safe from the unit view; working safely is getting harder and harder as things are not being maintained and this leads to more unsafe running conditions; the two are tied together.

### Violations

Violations are deviations from safe operating procedures, standards, or rules. Violations are very different from errors because they involve *intent* – the intent to take a shortcut, not follow a rule or procedure, rush through a job, etc. It is important to distinguish violations from sabotage where the intent is to both break a rule, as well as have a bad outcome. Normal violators do not intend to have a bad outcome from the actions they take. Some violations are actually errors because the person does not know they are violating a rule. These nuances are critical in determining the approach to the violation. In the case where violations are normalized across a unit or the site, it is important to both hold people to account while also understanding that there are either workplace or organizational factors involved in any and all normalized violations. For example, many people told us that LOTO, ATW, and HWP differ, in almost all cases, from unit to unit. If differences between units are a common practice the result is a normalized deviation. The Compliance Delivery Process is aimed at correcting some of these normalized violations.

Violations originate from motivational, attitudinal, group, and cultural factors and require, as a remedy, countermeasures aimed more at the heart than the head.

When addressing unsafe acts most interviewees express a real lack of understanding that would help them explain accidents in the workplace. A few express resignation about unsafe acts, and how to impact them. Some say that the effect of a ‘culture of deviation and variation’ at Texas City creates the relationship of casual compliance to rules and procedures. This results in individuals picking and choosing rules and procedures to follow. Many, however, pointed out that the rules are often long and complex and that they believe individuals are trying the best they can to understand the real intent of the procedure or rule.

Many interviewees say the lack of following the rules is the major cause of unsafe acts.

Others say safe practices and procedures have been normalized over time and this has caused many to lack a core reference for safe execution of assigned tasks. A few say an almost willful intent to neglect the rules and procedures exist. They also assert this is done with the full knowledge and support of the immediate supervisor, and in some cases senior management.

Data from interviews and surveys:

We have too many instances of routine violations of our safe practices by employees that should be noticed and corrected by supervision.

Too many routine variations in the application of safe practices and supervisors and senior managers seem to be the first to stick up for an employee who has blatantly violated a safety or health policy or practice.

I am not aware of any unsafe practices being normalized; many are ignored.

I would say many do not use proper PPE; that is a practice that has been normalized; BP does not hold people to account when a violation is found.

Our blinding practices are a concern regarding for me. We have reduced the BP oversight capability and we have inconsistent interpretations of BP expectations. We have not integrated LOTO and blinding procedures. People do not understand the intentions are similar but that LOTO is the control.

We must get everyone competent to understand what safety really is and trained regarding our procedures and to a point we have a common interpretation of those procedures so that level of competence and understanding of the requirements will allow for them to push back when pressured by time or requested to take a short cut.

The broken window theory-where do you draw the line regarding our requirements? Enforce the small issues. BP is much more serious than Amoco.

We've had some bad incidents. Between the leadership team and the front line leaders, there's a lot to be desired. Management tends to be reactive after an incident. A 'Just Culture' is heard as zero tolerance. "They'll discipline me if my shirt tails were out". That's what I've heard. That's how people hear it. What happened in the West Plant could have happened anywhere. We have thin pipe and below discard pipe all over the plant. It's a touchy subject.

Lots of thin pipe at the Pipestills; at the end of the day we are being asked to manage seat belts but disregard the things that can kill you.

BP is making the safety policies and procedure too complex and we are relying on policies and procedures too much; we need to pay more attention to the people; I just had an operator tell me yesterday that he worries so much about getting the paper work correct that he forgets what he should be doing.

I am concerned about I&E as a craft. We've got people who just won't go near certain stuff.

I have experienced a cowboy attitude around here where most point to the way it has always been and 'why do I have to change what I am expected to do?'

In order to improve we need to get good at getting rid of those who are not willing to change

We need our management to set the tone for accountability and be consistent and quit being so wishy-washy about compliance.

We need a new refinery; we need to get rid of the people with bad attitudes.

We need each and every individual being accountable for their safety and making the right choice to follow the rules.

The LOTO consistency is the biggest barrier and the conflicts between budgets and operating effectively; I mean it's hard to get people to focus on picking up paper cups and tying off when they believe the real threat is more life threatening and they don't believe those issues are being addressed.

BP will need to get their management really committed and not allow the rules to be broken if we are going to improve our safety performance.

We need to have a valid integrity management process; we need to have consistent implementation of our LOTO procedure.

We need to really get serious about compliance; we need to be consistent with our message and our discipline.

We would need to all be on the same page; we need to increase our rigor to follow the procedure we have.

Operators do so much LOTO they each develop their own way of doing it. New operators feel they must adjust to each individual's style LOTO.

We do not consistently follow our own PPE requirements; we grant exceptions; our LT shows up in the units without proper PPE (no steel toed shoes/wearing rings/etc).

We've got a lot of policies/procedures but we compromise too much. We've got great policies and procedures, great start. But when the shit hits the fan, we compromise. The UU3 – that system should have been shut down. Why didn't we? I don't know. Easier to say we could have hurt some people if we shut it down.

We should undertake the effort to catalogue deviations and review them.

We need a consolidated list of deviations to review.

### Contractor Compliance

Interviewees felt strongly that contractor safety was either better or worse than BP employee safety. We believe this to be a function of whether they were referring to major or minor site contractors. Nearly all contractors interviewed felt they had to rely upon their own policies and procedures to be safe; that to do things the way BP employees did them would be to put themselves at risk.

Data from interviews and surveys:

BP employees have come a long way in the last two or three years relative to safety performance and are now doing better than the contractor community. The contractors are doing much better, but they are not as focused as we would like to see. The contractors are very much dependent on BP for good performance.

I cannot say that we have had any significant improvements over the last two years except maybe that the contractors are now performing better than BP employees.

Just the way we treat our contractors - and our failure to hold our own employees to account for our basic safety rules; we hold our contractors to a higher standard than our own employees; we blow out an 800 lb hydrogen line just weeks after the AU2 and the UU3 events; what kind of message does this send?

Things are not standard around here and you have to learn your way around; rigging rules are different for the Chem side than at the refining side; the application of LOTO and the HWP is different from unit to unit. As a contractor I see the operators are not always assigned to the same projects, so often they are not dedicated to the project and they are not always sure of the exact scope of work so they may miss something; if this is representative of what they do for their own people they have been lucky.

The site reports a RIFR of 0.55 with fatalities; if you take the BP contractor performance out of the formula, our performance would be much worse.

They are beginning to invest in the years of neglect and trying to do the right thing; as a contractor we never accept that the unit we are asked to work in is free of lead or asbestos and we always check it out and if we find some, they do the right thing.

Did the UU3 TAR without any recordables. Well over a million man-hours. Why were we so effective? Because we did it mid-year, instead of in the first quarter and we could get a quality team.

Yes; it is hard to manage BP maintenance and BP contractor compliance in the face of double standards. We have one standard for fall protection for contractors and another for BP; we have many instances where the BP Turnaround Management group does not follow our BP requirements.

Turnarounds do a better job for the most part than routine work because everyone is so focused.

When BP does a piece of work with their own employees, we (contractors) try to move our people out of the way; I mean they have their own way of getting around the rules and as a contractor it is hard to deal with confronting them unless in the moment I see that it is a life threatening deal; when we put our people working with theirs, we always tell our people that they are to follow all the rules no matter what BP does.

We allow contractors to hire people who have no previous experience in a refinery and we expect them to perform safely and we do not spend enough time to properly orient and train them and they have no idea of this environment and they need a buddy system for the first 90 days or so.

### III. Workplace Factors

Local workplace factors are the immediate mental and physical precursors to the overwhelming majority of unsafe acts. They are also the downstream local expressions of the upstream organizational problems. Local workplace factors will likely be fewer in number than the unsafe acts they breed. They are also much more easily managed.

Local workplace factors include: poor workplace design, clumsy automation, inadequate tools and equipment, unworkable procedures, absence of effective supervision, high workload, time pressure, inadequate training and experience, unsociable hours, unsuitable shift patterns, poor job planning, understaffing, poorly calibrated hazard perception and/or assessment, inadequate PPE, poor teamwork, and local leadership (unit/MAT) shortcomings.

Some say that leadership is focused on the wrong things like seat belts and driving while the real hazards are in the operating units from CUI, abandoned asbestos, piping integrity issues, inadequate spare pumps and parts, and other equipment and operating hazards.

Many surveyed and interviewed point to the risk of an operating catastrophe caused by a lack of proper reinvestment. They also say a tolerance for precursor conditions to a major incident is an overwhelming distraction to their ability to focus on routine safe practices at the task level.

#### Conditions of the Kit and Catastrophe

Data from interviews and surveys:

Projects like stainless steel upgrade at RHU; infrastructure PIP, etc. We are willing to shut down the RHU to fix it - or to shut it down when we don't have the data to know if it is safe - that's powerful to the workforce.

This is a typical example of how turnarounds get managed at Texas City. They find ten million dollars worth of thin pipe after they begin a turnaround. Then management says you have to make up \$10m by taking the \$10m out of some other aspect of the turnaround. If the next turnaround of that unit isn't for seven years, then you are forced into compromising safety in some way. This is one of the many examples of how turnarounds are not managed for true integrity. Structural integrity and process integrity gets compromised by saying 'London, you gave us only X dollars, so you'll only get X availability Both definitions of integrity get compromised as well as any other sense of integrity.

Temporary repairs like clamps. That is a big leading indicator of trouble. Upwards of 50 clamps on my unit. Temporary repairs - and the management of them - really concern me. We need a really good process to manage temporary repairs. The other piece: the risk based-inspection program needs to be evaluated for the quality of the data. We need to look at the frequency, methods and data for inspection.

Process Safety Management: our deferred maintenance over the years is now hurting us. Our processes have now changed. We now have much higher corrosion. If we had assessed the associated risks, we might have closed the gaps on inspection, but we have not totally learned what we should have. For example: the Pipestills: there are lines

at discard level. Someone sleeves it, now I clamp it, the clamp is leaking, so I add the weight of ANOTHER clamp – I mitigate? The mentality “if the clamp is holding, why shut it down?”

There are lots of issues about the effectiveness of alarms.

Housekeeping is a constant item; we have very bad change houses, some of the break rooms are deplorable; and some of the control rooms are in very bad repair; although we have started to fix some of the control rooms.

Warning signs are everywhere, but the real ones we have addressed in the concerns about the lack of funding and the application of band aides on top of band aides.

Most of the time our confined space entries are very hazardous and this exposure is not recognized by our operations community.

Corrosion under insulation has scared us a few times, and we are working on a comprehensive program to assess this issue; the other issue is pipe thinning

This corrosion under insulation is a big deal.

The issue is that things may be overlooked due to the lack of quality risk assessments and may be overlooked in terms of picking the right things to do first; I worry that we pick the things we can afford to do, rather than the things that represent the biggest risk to our people or our operation.

I would change the requirements on supervisors so they could spend more time reviewing the work to be done and taking advantage of some of our systems; reports and reporting do little good if the managers do not have time to be trained or have time to really use the tools.

We need to, no kidding, get to a drug free work environment with no cheating; we need to address the labor-management dysfunctionality; and we need to get meaningful accountability throughout the organization.

We have warning signs occur every day; like pipe thinning and such.

The thinning of pipe is the major concern because it is not so obvious.

We have warning signs every year; the last two or three years of Amoco ownership and the current BP practice of under-investing in the operating infrastructure is a warning. How long until the asset begins to deteriorate from lack of investment. We pasted that mark a couple of years ago. Look at the recent fire!

The pipe thinning issue is my biggest worry; I am not sure we know the extent of it or the nature of the risk.

I worry about another fire from a piece of equipment failing or pipe failure.

Pipe thinning worries me the most; its failure could be catastrophic with little warning.

I am most worried that something will be overlooked and I will end up like the guys that were pulling blinds that were killed; especially as I am now being asked to adopt the safety rules of the refinery.

A key concern is our waste water treatment plant and will probably be the next environmental incident; we are very vulnerable to rain.

Since BP has taken over we seem to be running a different crude; we have a lot of conversations about thinning pipe all over since BP has taken over.

We have a lot of nuisance alarms in the control; we must treat each alarm the same; we spend a lot of time checking out the nuisance alarms and reporting back to operations that it is nothing but a malfunctioning E&I issue.

We need about two or three more shift superintendents, they are spread too thin; you cannot get to them.

I believe that supervisors are committed, but they are so overloaded that they have a tendency to skip or overlook things.

The most deficient area is for planning; we do not have enough planners and material expeditors.

After you're here long enough you get to know some people and you learn what to be really scared of and what not to be.

The most frequent complaint is that it is too difficult to get things done; it is hard to get things into the refinery to be fixed; we have so much outsourcing that the time line to get parts and to get key items returned is real long; standard parts are not available; we deal with these shortages and it impacts to our ability to operate reliably without some key bells and whistles. We have become used to this; a lot of this is that key alliances with suppliers are not dependable.

It seems like it all comes down to money. We tell them we need it. They tell us they don't have the money. As soon as it blows up or someone gets hurt there's all sorts of money.

We need to do inspections on a routine basis; we have moved a lot of things into routine maintenance that used to be and should be in turnaround maintenance as a cost reduction move but these tasks are much more hazardous to do when the unit is running.

We tell them what goes down in the trenches and they say, "You don't do that." They call all of it "Risk Management." Hydrogen leaks are "risk management." We've got to go up there and take readings every day working in these conditions. They tell us, "Every accident can be prevented." But how can you when you have to work in conditions you know aren't safe but you have absolutely no control over it?

Units are 90% of the time run to failure, due to postponing turnarounds. So making money or saving money for that particular year looks good on the books. This is a serious safety concern to operating personnel. We do not walk the talk all the time. Costs and budgets are preached to reduce costs.

After 26 years I can write the book on priorities around here, nothing really changes except the words to describe them.

A day after the incident where the employee was killed doing a pump job, we were asked to come and complete the work; we asked for the pump and lines to be blinded and the unit operators got upset and called plant HSSE; HSSE told them to blind the pumps; so even after the incident this was not sinking in!!

Supervisors are very effective in their safety leadership.

I continue to be amazed at situations that crop up that leadership was not aware of until it accidentally surfaced and then they took action; recently at Styrene the air intake for shelter in place had not been tested and when we discovered it we fixed it. The attitude of the operators was that it has been like that forever, so they did not believe it mattered.

Yes, but we are so conditioned to some unsafe conditions that we do not recognize it; chain operator safety cables to prevent allowing a chain operator to fall is often missing and not recognized.

Piping is my major concern. We focus a lot on equipment. Millions of dollars on exchangers, compressors, towers. There's some focus on piping but the money is so big it's overwhelming. We need not just PIP or CUI, but a team who reports to Don Parus. We need someone who can tell Don the brutal facts. UU4, UU3, the pipe stills, we've been lucky. The RHU a couple of years ago. Infrastructure the past ten years. We're not smart enough to prevent everything. I've got a line that's a piece of shit. I'll put a clamp on it, but it would take a unit down to fix it. We don't tell everyone else when we overlook the little things. What does it tell everyone else when we overlook the little things.

Potentially serious conditions. We do not audit by checking the top of the structures, by climbing up above what is easily reached.

Many of the alarms and bells and whistles etc embedded in the original design of units are not functional as originally designed.

One of the problems we have found is that we have added monitors on the board for key areas where we used to depend on an outside operator to monitor an area. We have not been able to get these hooked up as our procurement has reduced the scope of our video camera supplier, or something like that has this be a backlog issue for us.

It is all about "acceptance." There's no outrage when it smells, when people die, when things fail, and when we ask someone to do something, the accident investigation reveals that "they failed to assess the risk." When in fact we failed to make them aware of risks. Those things that are frightening or overwhelming are done because we have such a proud, capable workforce that wants to be a winning team; that ethic contributes to their willingness to do things for us. And finally, this is an incredibly exclusive environment for "contractors".

Drug Testing: put a real one in place that is audited. We just don't do it. We had an individual who abused marijuana and because of some home issues it got worse and finally he admitted he had a problem and now its getting worse. These guys have the drug policy figured out. I was shocked during an outage. We had been doing drug testing. Never had a positive. So I had everyone tested before they went home that night; also the crew that was coming on. I got a 20 to 30% positive rate and a 15% no-show. The testing we do is almost always negative results. The only time we get the positives is when we have a concerned FLL. Listen to the FLL concerns and support them.

### Procedures at Unit/MAT Level

An overwhelming number of interviewees say the quantity and quality of training at Texas City is inadequate, and prohibits the site from having a common understanding of the core HSSE management system. Training is dealt seen as a pervasive shortcoming, organizational factor. We have consolidated people's comments regarding training later, under 'Organizational Factor'.

Procedures were dealt with in the previous section, at the 'Unsafe Acts' level, so we will limit procedural comments to those relevant to the local workplace level not already mentioned there.

Data from interviews and surveys:

The problem is that as they attempt to over-specify more and more detail, this breeds more and more detail, and more and more exceptions. We should not cover every base. We should get the essential principal: "Do your isolation of energy sources to eliminate all



hazards." Get that principle absolute. Don't specify how in every detail. Chocolate's policies have much less detail, much better results. This is part of what we have to do. Currently we cannot evolve our policies deliberately. We deal with irrational or illogical policies with the attitude "I can go get an exception from a supervisor" as opposed to at Chocolate, where exceptions were granted in most cases by the plant manager only. The context at Chocolate was "if I grant this and anything happens, YOU are also fired".

A key concern is that we still grant too many exceptions to our work processes and expectations, mostly in safety and security. A lot of this is from very poor planning and many folks do not understand the reason to comply with our policies, and relative to safety, some of our policies are hard to understand.

The lack of consistency, it leaves our maintenance and contractors at the mercy of personalities as the process fails due to personal preference or interpretation.

Every new group interprets rules differently. They keep changing what is reported. Environmental requirements need to be clearly defined and made as stable as possible and understood as well as possible, or we will have an environmental incident.

### Pressure for Production

Most interviewees at the production level say that the pressure for production, time pressure, and understaffing are the major causes of accidents at Texas City. Many say the inconsistency of application of LOTO and blinding cause the procedures to be unworkable.

Data from interviews and surveys:

The biggest safety challenges are our safety regulations. If a crew is arguing about how to do a job and they go to the regulations to settle their argument, it seems like those regulations are written for lawyers. They are written in words we never use. And even though they're written with a lot of words, you could interpret the words in all different ways. Where we used to have 6 pages, we now have 20 to 30 pages. So people keep arguing and whoever argues the best, wins. This is a major concern.

We need to get back to the basics. We have the same dangers at 20 years ago, but know more about them. The regulations need to be simpler and clearer and they need to be easier to access – they should be sorted by category and not by the number. I know there's a committee that's working on these regulations. I know each unit did LOTO differently. It took aromatics 5 years to finalize their LOTO and they finished just this fall.

There are two guys out of ten from chemicals on this LOTO committee and they are feeling like giving up because the committee is being run by consensus, and even though chemicals' safety results are better, it seems like the committee is reinventing the safety regulations and mostly reinventing it the refining way, so it looks to me like we're going backwards. It seems like even when there are excellent results, like PX1 in September (the turnaround was excellent), the refinery people don't necessarily want to learn from that.

No, most people still believe that we want production over safety; I hear that Cat 3 spent a lot of time being extra safe and they were getting beat up over the schedule; the way we approached Ultraformer after the fire was the way to do it the right way; we all stood back and went very slowly and deliberately and this was putting our money where our mouth is; we need consistency to overcome the historical frame of reference.

The biggest complaint is that people don't walk the talk about safety. Exceptions are made for production pressures as opposed to taking a unit down. For example, the policy is that a crane with people in a basket cannot be operated when the wind is above 15 mph, but consistently they put people in the basket and raise them up with the crane at 20 mph to deal with a flare. There is a lot of normalized deviation. What people say to the trainer is, "You teach us, then our supervisors will tell us 'forget everything you heard in training, because the trainers don't live in the real world' ". Training thus becomes a legality check to protect the company in the event of an incident.

A lot of valid safety concerns. Distrust regarding what is going to happen. We have made huge progress, but there are big penalties for taking anything out of service. Nevertheless, some will stop work for the sake of safety.

Employees often feel pressured to bend the safety rules, but often it is just the consequence of how we push production.

The least pleasant thing about working here is the volume of work that we must get done on a day to day basis.

You have to make a decision in the moment about whether you want to go get some type of PPE which will take you an hour or two to get, versus 30 minutes to just finish the job.

We need to have more time for reviewing the work in the field and having a real discussion about the site and the work and the risk and get away from the "fill in the blank" type risk assessments from check lists to JSA forms.

The challenge of keeping up with the intensity of maintaining our production goals takes some doing.

A lot of the times when supervisors cause or allow compromise they are just trying to wring out as much production as possible; most of the time they do take care of the big safety things.

We work a lot with low discard pipe; we must make money, but are we pushing the envelope.

The equipment is in dangerous condition and this is not taken seriously. At the refinery there's a frame of mind like 'we are the ones that make the money' – they take pride in running on thin air, but if they do it by killing someone every 18 months then you don't have bragging rights about production.

Consistency. We do have some good policies. But you can still ask three or four people out there to read a policy and get three or four honest but different interpretations. The procedures are not black and white. How can you ask for and have relentless compliance when you don't have relentless consistency? We don't routinely have much hourly involvement in policy or procedure writing. They get it to a certain place and circulate it for comments, but the hourly are not normally included in the actual drafting of policy. Policies are thought out some, but in some instances they are addressed differently for different groups. For example - facial hair: the warehouse has a different facial hair policy. Smoking - the chemical side has a different policy. It's the little things. If you don't do the little things, how do you expect to do the big things? Policies should be written such that everyone can understand the policy and not vary from the policy. For example, the law is very clear about driving with children and where the child safety seat goes, which direction it faces, etc.

The company is only worried about profits and not concerned about safety.

**Leadership at Unit/MAT Level**

Many say that supervisors and superintendents are committed to safety, and many say they are not. Most note the pressures on local leadership with compassion – some saying that is the very reason they would not want those jobs. Many are concerned about how the organizational factors squeeze the superintendents and supervisors into positions where it appears as though they must compromise safety. Most appreciate the production pressure aspect of that squeeze, while many note the rise in activities like paperwork, initiatives, and other projects that take supervision off focus.

Data from interviews and surveys:

Safety is still not a priority. After I hurt my arm last year, my manager noted that he would expect more out of me in 2004. My first goal was zero OSHA and zero medical. My crew has worked nearly 25 years without ever a medical visit. If safety is number 1 why does management still view it as something less? I have received the poorest raises ever - over the last 5 years!

Safety is number one. But here's what it's about: May-June-July-August-September. It's all about timing. What that means is I get the cream of the crop from the contractors. If we had tried to do it along with a lot of other TARs we'd not have gotten such a good team (like the first quarter TARs). We did 9000 welds and had less than 400 weld rejects!

Don Parus has made a big effort to be sure that the supervisors are in the loop of communication and this has been good for us to represent what the management group is wanting to focus on and it is good for us to be able to represent the real requirements before they get watered down with a bunch of individual interpretations.

The supervisors that work for me are so accustomed to working for so many years in a certain way that I have to be really deliberate to get them to do something different and believe that you will really support them. When they had brought stuff up in the past they had gotten beat down quite a bit. I f fee; I always have to be deliberate or watchful to get them to see it a different way.

The deviations in the lack of experience of job reps on turnarounds. We do not have enough full time job reps on this site. We often bring retired BP employees as job reps and have physical restraints and remember the old Amoco heritage way . We do not understand the current roles and responsibilities and this causes a lot of deviations to our performance during TARS.

Developing a comprehensive plan to involve everyone in the vision to work and operate without incident and injuries; we need to increase substance abuse testing for BP employees; demand compliance from everyone.

There's a concern right now regarding the union, HR, and upper management - there is a feeling that they are being circumvented at upper levels.

If the discipline is going to seem just and fair, the supervisors are going to have to proceed with coaching, verbal warnings, etc. and cannot make the move of "making an example of someone" Many of the supervisors were not really selected for their emotional intelligence, and really need some training in coaching in order for this to succeed.

Texas City is not like any other facility I have ever worked at. This place has way more political issues and union issues than the other facilities I have worked. This makes change very difficult.

The areas where "you're not getting the calls" could likely be the very ones you've got to worry about. Now my eyes are open to what that might mean. "What goes on in the unit stays in the unit."

I would have to point to the senior management group and to the front line and front line superintendents; they are too distracted with many issues.

They are understaffed and they are quick to point out they do not have enough time to supervise the work and do the initiatives and special interest projects they have been assigned.

Cultural pressures and cost/time pressures are the most common barriers to supervisors fulfilling their safety responsibilities; we really have not provided any development regarding how to direct work crews under this type of pressure.

Our DCS control system was initiated in 1983 and we have done some upgrades but we are still in the Stone Age relative to the current technology.

Some of the frontline leaders ought not to be in any lead role. The CDP – compliance delivery process – was put together without us. You can't talk about 100% compliance and talk about 0 tolerance when discipline is involved and you can't do that and not get the union involved. When discipline is involved you just don't ever get to the root cause. They say they're two different investigation, but they're never two separate investigations.

Supervision is more or less committed; I believe they are over worked and make mistakes form overlooking some things.

They are trying to balance safety with other things; they do not knowingly ask you do work unsafe.

Supervision here will often lay out a job knowing that there are some safe practices that you should follow and if you do not know and do not ask they will allow you to do the work and not have all the safety PPE...in some cases against a blocked valve versus blinding, but on the other hand if you call them on it, they will do what is right.

I do not believe our supervisors want to get anyone hurt, they do however, believe that the ultimate choice to work safely is someone else's.

The supervisors I deal with take the time to review the work and normally we do a good job, they do not want anyone hurt on their unit.

Supervisors are constantly looking to work and run the units safely; every day on every shift decisions must be made to find ways to do repairs or work arounds that cause the supervisors to develop safety procedures or training to do the work.

We are just in the communication phase of the compliance delivery process and we need to ensure that we incorporate the union in the path forward.

I do not know what you want me to do with compliance delivery; how do I take it to my employees. I believe it is a great concept, but the delivery of education is not clear.

If the union thinks we're just going through the motions on education so that we can just discipline, we're going to be in a lot of trouble. We're really going to need to win the union over on this education piece and that hasn't been done. If the discipline is going to seem just and fair, the supervisors are going to have to precede with coaching, verbal warnings, etc. and cannot make the move of "making an example of someone" Many of the supervisors were not really selected for their emotional intelligence, and really need some training in coaching in order for this to succeed.

As I mentioned, the maintenance guys are not well managed in my opinion, you seldom see a maintenance supervisor checking on them during the task they are assigned; they

are a planned maintenance outfit and it seems like the only thing a supervisor is concerned about is when you are working on something not in the plan, or they do not start or complete on time.

In order to really influence things around here, you have to be in the right clique of good ole boys and currently you have to be in a position at the refinery versus being a good manager, or a good technician. There are always added increases in scope to your assignment as we cut management and staff.

Management won't get involved until something happens. They want us to be safe but I don't feel like they are truly into safety. Just like the UU4 - They knew they had thin pipe. They put a clamp on it. Inspection found thin pipe on the Ultra cracker and shut it down to repair it - but only after the UU4 fire.

If LOTO was the same - where everyone practiced it and did it every day. Right now one unit will make you LOTO while another won't. They've got to get the whole plant on the same system. People ask me what's wrong with the West Plant and I say there's no difference in the West Plant. It's just like the East Plant from what a contractor sees in terms of unit to unit variations, disdain for contractors, sloppy work practices. I'd also get HSSE out of their offices or wherever they are and out into the field. Usually there's only one person in the field that you can count on.

The BP personnel do not follow the basic safety rules; they drive without seat belts; they drive and talk on the cell phones; they often take short cuts in the LOTO process-so they must find a way to get everyone to appreciate the fact that the little things and the routine rules are the things to work on in order to increase the overall performance.

Most supervisors do not have the time to do safety.

Superintendents as a whole are only interested in completing their assignment here without any major issues and moving on, mostly they are passing through and in some cases are not very knowledgeable of the business.

We are always encouraged to review the safety requirements before and during the job assignments and we ensure that we comply with the safe requirements for the job, often adding requirements that may not be defined in the HWP.

We need to ensure that operations, maintenance, contractors, and inspection do a review of the site before any work begins; sometimes this happens and sometimes it does not unless you insist on it.

In a task assignment, if the job scope changes, the whole thing changes and you have to start all over and document it. That doesn't happen in the refinery.

They put poor quality valves on the turrets of the fire water systems and they fail more than half the time. Every Sunday the fire system is tested and there are failures every single time that stay broken for weeks. Two out ten of these valves definitely won't close. You get drenched as you climb a wet ladder 10 to 15 feet up.

We are not using our money to protect ourselves from catastrophe; we use procedures to pass the red face test, but we willfully discard the warning signs; our butane sheers are an example where the location is marginal, but we cannot get the money to move them.

The supervisors are used to superintendents coming in, making demands, being around for two years, and then they leave; so they see a lot of turnover in their direct managers and this causes a lot of disappointment in many cases; I believe they really want everyone to be safe but sometimes they really struggle to figure out what the new boss really wants.

This is the area we need to shore up; the supervisor and the shift superintendent really determine what the operators do and, at the end of the day, the operators dictate what safe practices are taken care of; for the most part I do not believe anyone wants to hurt someone, but some supervisors and superintendents are more focused on how to implement the safety process than others and are more rigorous in demanding compliance.

The front line leader is overloaded, and this must be addressed; we try to get around too many things with a procedure that is really for understanding who to blame.

The biggest frustration is that certain areas in the inspection group are micro-managed and this impacts attitude; most of us are competent and all we need to really understand is the focus for the day or week or month and then we are capable of lining up the activities to accomplish the objectives.

I would set budgets that are realistic; I would take some of the paper off the front lines.

## IV. Organizational Factors

### Organizational Factors: The Parents of The "Problem Children" of Workplace Factors and Unsafe Acts.

The three interrelated drivers of "protection" are **commitment, cognizance, and competence**. We begin with aspects of commitment: the inner, subjective side: motivation and culture of safety leadership; and the outer, objective side: resources.

#### **Commitment: Motivation**

Regarding "motivation", we ask two questions:

- Do people perceive that the managers of the site are serious about protection?
- Do most people believe that change is possible?

There is a sense that commitment to protection has increased over the past two years, especially to individual safety. Don Parus and a few members of his team are widely perceived to be the source of this different level of commitment.

The biggest challenge for BPTC is the thousand day goals. Primarily the safety and availability goals. I think it is important that we reestablish ourselves as the flagship. When you're one of the top 3 refineries in the world, you should act like it. We were very affected by that presentation that Don did at the all supervisor away days and we realized that every 18 months we kill someone. We go out of those away days like there is light at the end of the tunnel and then we come back to the job and either get back to business as usual or you swim up the stream and try to change things. I would always apologize to anyone who got hurt. Anyone you associate with for the failure on our part in letting someone get hurt. I hear lots of complaining about the level B investigations. They seem to be an everyday occurrence. They should be much less frequent. We should be focused on the bottom of the pyramid. Not shoot from the hip after the incident. We should always look to see how we could work without getting someone hurt. The person who does the job is likely to be the best person to assess the risk of the job. I do believe that without a doubt that my current superintendent is very dedicated to safety and can quote policy and has a passion for it. I should be striving for that same passion. I find myself having to force myself to stop and ask myself what's really important. In next years budget, we need to fund safety as well as profitability and equipment etc. I can recommend the financing of all the safety changes.

I would say that over the course of the year my company (contractor) has been here, the safety support from BP has been more consistent and the overall performance has improved.

It's helped that we've upgraded our washrooms, fixed control rooms; painted. People are happy with what we're doing. We should all be doing things. Buy a dishwasher or kitchen cabinet and they'll put in the labor to put it in on the side. That makes a difference. We

## Organizational Factors: Commitment

shut down the RHU. We're making the right decisions. The feedback I got from the away days in Galveston was "Hey, you guys are real people."

From a contractor's point of view, I would say this has improved a lot over the last two years; the TAR group is very good.

I think as a whole we are really doing a good job, it is a shame that it has taken some fatalities and some big issues to get us off our dead asses, I like to be proactive and I am not sure the entire LT feels that way; Don, his direct reports, and their direct reports (the superintendents) must get on one page; the superintendents are getting it from all sides (make the product, make the money, cut the staff, product safety, etc) I know we have units out there with clamps on and leaks that if we are not very careful, one little misstep will cause another explosion; we have clamps on some pipes knowing we should shut down and fix the pipe; this sends a message to the employees about safety.

At the same time, there are serious doubts about motivation.

I do not believe that the leadership as a body is seriously committed to the elimination of injuries; they set the tone for a culture of variation and tolerance.

What would really make a difference is that the people must FEEL valued. We run units unsafely and it all says we don't value the people. For example, regarding the UU3: the perception of the pipe fitters is "how long since that check valve was PM'ed"?

The biggest challenges facing BPTC are getting into a mindset of long-term commitment to this site in all facets, and making it a distinctive business far into the future. BP tends to bring a short-term focus to the business. In the past this has been almost a month on month focus. Another big challenge we face as a Leadership Team and as a site is that we've been spoken about as "having turned a corner" - and if we are not careful, we will want to make that true, versus being responsible for what needs to get funded, what is needed to build the site. Many celebrations are appropriate - but we have to be careful about not having to retract anything we've said has been accomplished. As we (Refining) become a big business for BP, we get greater responsibility and expectation to deliver the performance. While we are selling the chemical business, the expectation will not be that we lower our delivery, but we won't be comparing apples to apples. We have set ourselves up regarding those goals where we've been unwilling (or afraid) to get back into the conversation about availability and fixed cash costs. In that event we'd reduce our maintenance spend (FCC) by sixteen million in 2005 and sixty-five million in 2006. Don is a guy you'd like to please. We've sung our song of commitment to the Thousand Day Goals, and yet, to make these dreams come true, you need a business planning cycle that checks the trajectory within this new environment of BPTC (no longer BPSH).

The people here are great and have great pride and skill sets that have been repressed so long that it becomes a matter of deepest integrity to give them back a voice. We need to change our relationship with Union Leadership, and to expand the number of voices being heard.

It is all about "acceptance." There's no outrage when it smells, when people die, when things fail, and when we ask someone to do something and the accident investigation reveals, "They failed to assess the risk." When in fact we failed to make them aware of risks. Frightening or overwhelming things are done because we have such a proud, capable workforce that wants to be a winning team; that ethic contributes to their willingness to do things for us.

The people working in the refinery take pride in "making all the money", "running on thin air". They take many more risks that we do in chemicals and it's partly a point of pride.



What would I change? How we get into action. The model we've got for decisions and delegation of authority is too complicated. I would have an Operations Manager, a Maintenance Manager, Technology Manager, HR, HSSE, and Commercial Managers. I'd change the organizational structure and have all the Operations Superintendents report to the Operations Manager. All maintenance would go back to Andy. So then you'd lose all this unnecessary complexity regarding the governance model. I would eliminate all the MDL's and have the Maintenance Superintendents work for Andy, etc. I think we'll struggle in the current model with the Operations Manager and the MDL's.

### **Commitment and longevity**

The real commitment would show in turnover and transition - the longevity of the site leadership team. From a safety and availability perspective those refineries with long-term leadership teams in place tend to have the best performance in availability and safety.

I'd also require some agreement about Site Director jobs with the Refining & Marketing Leadership Team: that you would not move a person for five, six, seven years barring some exceptionally few, very specific things.

I would ensure that management rotation is not less than 3 to 5 years; I would put someone in Rick Hale's position that was very steeped in refinery experience; universally respected, and committed to be for 3 to 5 years.

I would insist that certain levels of management at the site be required to stay in the position for a minimum of three years; a lot of people in these positions are passing through to bigger things and they are only interested in not having anything happen on their watch to derail their career; so they learn to neglect investments for the long-term benefit of BP and the site.

### **The motivation to get what the site needs from the corporation**

I believe that the Bold Goals will be achieved only if someone stands up to London.

I believe that leadership has the choice to make regarding the success of Bold Goals; many of the goals require some level of attention like resources or training to be successful and leadership determines what gets funded at site or not.

Look to leadership; look to London.

### **Demonstrating willingness to shut down when unsafe**

Projects like stainless steel upgrade at RHU; infrastructure PIP, etc. We are willing to shut down the RHU to fix it - or to shut it down when we don't have the data to know if it is safe - that's powerful to the workforce. Focusing on the five stands and not just cost.

The interim policy in the wake of UU3 is that if we cannot blind there must be a signed exception, and if we cannot isolate Don Parus has to be involved. The objection was 'well, we'd have to call you all the time', because he would have to sign the exception. But he stopped the work when there was a situation where they couldn't isolate.

### **Mixed Messages**

Mixed messages occur around here as a matter of just doing business the way we have always done business; Amoco and BP both always say they want you to work safely and they want units that are safe to run and they want no environmental issues, but you know there is more to this safety stuff than just saying you want it; it's like it's "all" on us and the decisions we make individually that cause the safety problems or the environmental issues, they don't look at what we have to work with or the way we have to get the work done as a real influence on what ultimately happens. As long as they are saying the right

## Organizational Factors: Commitment

stuff and have the documents that they said it they won't get it trouble and if you want to do the work what are you going to do it?

Yes, there are mixed messages about the safety vs production balance -- based on the difference in what we discuss and what we fund.

I believe the business model of BP causes a natural mixed message regarding safety and environmental performance; every year we reduce the budgets, reduce staffs, elevate our performance expectations.

The site leadership is committed; but I am not sure that the corporate level really cares.

If they were serious, we would be having a series of meetings to ensure everyone understood what leadership wanted regarding safety and they would be getting feedback from us regarding what it will take to produce the level of safety performance they say they want.

### **Motivation as Accountability**

The real challenge here is to instill a culture of accountability vertically through the organization.

I hear the current conversations and the current passion, the question is the will of the leadership body to no kidding hold themselves to account, to take action at their direct reports, and to cause the organizational accountability to emerge that is necessary to create the future they are currently speaking about.

The leadership team needs to hold the organization to account for implementing our policies and principles and providing the resource to deliver; they really need to manage the BP leadership outside of TC.

### **Motivation as Comprehensive Planning**

Because this is a problem that BP has behaved their way into, they cannot talk their way out of it so it will take time to really assess the effectiveness of the current direction.

The thing that seems to be missing is an overall comprehensive plan to address the gaps in operational reliability and individual safety in a way that everyone can get a sense of the big picture.

The top of the site leadership team seems committed but it is not yet known if they have the will to see the job through to completion;

It's a no brainer that leadership does not allocate the proper resources when you are working to prioritize a list of items that all have the potential to be lethal if not addressed; how you balance that?

We spend money on what we value, and we do not spend money on maintaining the units.

Look at the pipe thinning issue. What is the real plan? Plant management has its head buried in the sand.

I do not believe the senior leadership walks the talk; otherwise they would ensure that the proper training and accountabilities are implemented.

### **Other Perceptions**

If leadership was seriously committed to not hurting people we would have more participation with management in setting up budgets and prioritization of funds.

## Organizational Factors: Commitment

The operations configuration for some units here is inconsistent with the rest of the industry; the CUI and pipe thinning here is alarming and most people are trying to make this a small issue; this place is set up for a catastrophic failure; the level of investment for maintenance of operational integrity has been and continues to be deficient.

Our HSSE staff is not staffed to do analysis or training; most of the reports are those required to address regulatory concerns or license to operate requirements; no one really uses the information and trends or reviews the data for trends; here it is in December and the investigation results from the recent fatalities are not in the system; I do not believe that our management and leadership knows how to manage safety or deal with the operations issues to ensure we have a safe refinery.

The leadership is committed to the elimination of individual injury but not committed to the elimination of process safety injury or integrity management.

BP for the most part has a serious blindness about the management of major hazards. BP has integrity standards coming standards coming out – even if there is SPA at each site, it can turn into mere 'check the box' if people who are key do not really "get it". We could use the document to propel us forward but are not likely to. You can be in compliance with weak requirements that don't have enough definition.

How would I describe BPTC? Lucky; BPTC is very lucky.

### **The Bold Goals**

The Bold Goals are the right focus; We will achieve the Bold Goals but we need to have a couple of folks on the LT get on board with a few of the Bold Goals especially safety; they do not seem to understand what is needed from them in terms of leadership.

Do people believe that all accidents are preventable? Yes, more or less about accidents, but not about incidents of an operating nature; the facility is old and so are the operators.

We aren't going to achieve the Bold Goals because we lack of a comprehensive management plan for the site that will survive the next significant change in leadership.

The Bold Goals are good and will be achieved as long as Don Parus is here; he will drive it.

It is an adventure every day. You don't know if you are going to go home every day you walk into this place. You really don't know. We all feel that way.

### **Commitment: Culture of Safety Leadership**

The other subjective side of commitment is the culture of safety leadership. The "culture of safety leadership" is different from the motivation of key leaders. It is made up of the practices that will outlast any particular personality or management group. They are not just processes, but disciplines that people feel strongly about and do authentically. In a sense, over half of all of all the questions asked in the interviews and survey had to do with "culture", but we will touch some of the recurring themes about the culture of protection and safety leadership here, such as who the heros are, the mind-set about the causes of accidents, what is tolerated, the appetite for learning, and bias for action.

Dan Harris who was over the RUE one or two years ago is real hero in my mind; Dan shut the RUE down to repair a lot of cracks in piping during a time when this was not popular; he maintained his ground and gained a lot trust and respect from me and others.

## Organizational Factors: Commitment

Mostly, we don't shut units down even if they are vibrating like crazy or we know there is pipe that is way too thin.

Don should continue to make safety very personal and this has a big impact and he should continue to do this; Don needs to recognize that we are trying to overcome about 10 years of neglect, and this will require some special considerations in budgets and staffing.

All incident investigations lead to the conclusion that human error caused the mishap; I find that a little disturbing from the perspective that it provides little insight about a meaningful correction.

We need to develop the skill to really understand human error and emphasize the cause of human error or the reasons why human error occurs

Positive recognition varies depending on where you are in the plant; this is an issue where leadership could make an impact through field visit and ad hoc recognition.

I do not believe that our leadership believe that productivity is the focus, but when you spent the time in the field talking to people, you realize that our folks believe that we want production over safety no matter what leadership says the priority is

The most frustration is the small stuff that we are asked to do, they are giving out tickets if you do not have a seat belt on but they elect every day to run a compressor that is on the verge of shutting down and causing some real severe impacts.

(Contractor:) There is no accountability here, from the most senior management team where the accountability for organizational accountability and discipline resides to the operator and maintenance level where tenure and the buddy system insulate you from having to account for your action or lack of action; this is an area where the contractor companies in this industry do a much better job than the operating companies mostly as a result of the double standard created by the owners themselves; we started out doing it to survive in the world of double standards and then realized the value of rigorous accountability and maintain in all phases of our business.

There's so much worry...Piping being clamped instead of being repaired... Overlook of leaks...Enormous worry about piping integrity...A lot of worry about flammable material that is not making it to the flare....Each piece of equipment has a number and when maintenance is needed notification goes to the planning group, which is Fluor, and they set the priorities. Many people believe that safety is not guiding those priorities. People's sense of ownership has been taken away by giving people too many job responsibilities. People used to work at one place and they would clean it and keep it clean. But now there's much more shifting people around. Management decisions are affecting people's attitudes. People don't feel heard, so you get the bare minimum. We are running so thin now, but there's no discretionary effort—there's no time—and there's much less time to think intelligently about what you're doing. We keep being told new equipment is coming in '06, therefore don't invest in maintenance now.

It starts at the top. I worked for a manager who thought that their safety practices were too loose, and he did several things that I would do. He set up a lot of teams. He got maintenance and operations to trust each other. He moved maintenance into particular control rooms. He got maintenance to be much more preventive and proactive because they 'owned' the unit they were assigned to versus having maintenance be random and roving. He made people accountable for safety, spent money on tools, and made people accountable for how they set up the work. All these safety initiatives come and go, but this manager woke people up and he actually finished something.

## Organizational Factors: Commitment

No one comes out and says they want anything at the expense of working or operating safely, but the attention from management is on availability and availability is the topic of most meetings and actions.

There is a lack of any effective outside review by a corporate group to override the leadership culture that drives short sighted strategies.

There is a glaring absence of the local HSSE group's active participation with outside agencies, conferences and technical groups and reviews to ensure that local current business models are tested against the best practices in the industry.

When executives from London come, it's all about us trying to survive their intimidation with our presentations, etc. It never seems to occur to anybody to ask, "What do we need from them? How are they doing with their accountabilities to us?"

BPTC must overcome its history of "how we do it around here" and come to terms with the possibility that the historical approach was not right, was not safe, and was not per the policy or procedure; Yes, many things are in place working to make an impact; we are rewriting the LOTO and developing a meaningful roll out and training plan that will make a big difference.

We need to learn from our mistakes; our organizational memory is very short; we seem to mourn for short periods of time and then move back to doing what we have always done and no meaningful changes occur from the incidents we have.

When people from BP/Texas City participates in turnarounds at Chocolate they kept remarking on how slow people were. Here, at refining, we do not breathe and think. We usually are on schedule or a couple of days late, but we underestimate the job here. When a plant manager at Chocolate, brought in a safety observation program that was driven by an hourly person, there was dramatic change. This is key to what the refinery needs.

People were divided on the question of whether or not intervention in unsafe acts was common, but there were many who said it was, especially in chemicals.

If people see a major life threatening infraction I believe they will intervene, otherwise I am not so sure.

Both the surveys and the interviews pointed to the existence of a stronger safety culture at A&A. Results from last year (zero OSHO's or days away from work) bear that out. The was concern that refinery employees were not open to learning from chemical employees and also that some of the underpinnings of A&A's safety culture are eroding.

### Commitment: Resources

Resources allocated to the accomplishment of safety and integrity management goals must include money, time and attention, and the quality and caliber of people assigned to protection roles.

There is a strong sense that the commitment shown by Don Parus and others is contradicted by the lack of resources, action, or a clear plans to address severe hazards that persist. For most people, there are many unsafe conditions that prove that cost-cutting and production are more important than protection.

Here we will review commitment through the lens of people's perceptions about resources.

### **What are the biggest challenges facing BP Texas City? Are they being effectively addressed?**

The upper level doesn't have ownership of the units in mind - they have the budgets in mind. They say they care about the units. But they take shortcuts, cut budgets, and do not look at the big picture. This year we fabricated twenty to twenty-five pieces that are ready to replace pipe. But we don't ever get the outage we need to replace the pipe.

Overcoming the legacy of under-investment. The chemicals business is different from the refining business in that they invest in the assets on-goingly. The assets are newer because the chemical businesses are newer. Refiners' margins are so tight; however, we are not effectively addressing equipment conditions. We are headed towards a catastrophic lack of availability. We could go out of business as our equipment becomes so compromised we would not be competitive. The opportunity now is there to change people's perception regarding management's willingness to spend what it takes.

Unit reliability is the biggest challenge. The potential for another UU4 kind of incident is huge. Inspection is not strong enough, but that is not the whole problem. "We have cut routine budgets to the point where we are not doing the routine maintenance essential to keeping units up. We cut 10%, cut 10%, cut 10%... without regard for the risk.

The history of investment neglect coupled with the BP culture of lack of leadership accountability from frequent management changes is setting BP Texas City up for a series of catastrophic events similar to what BP experienced at Grangemouth; this place is nearing an investment requirement on the scale of \$450 to \$500 million. BP is not addressing the leadership culture that will permanently reverse the lack of operational integrity and is setting TC up for a series of catastrophic failures; I cannot find anyone who cares around here; I mean who really cares and is willing to take the system on in order to correct the current situation.

Management won't get involved until something happens. They want us to be safe but I don't feel like they are truly into safety. Just like the UU4 - They knew they had thin pipe. They put a clamp on it. Inspection found thin pipe on the Ultra cracker and shut it down to repair it - but only after the UU4 fire.

### **What is the most frequent or biggest complaint you hear?**

It seems like it all comes down to money. We tell them we need it. They tell us they don't have the money. As soon as it blows up or someone gets hurt there's all sorts of money.

The biggest complaint is the lack of money to fix the equipment and do the right thing.

### **What would you change, fix, or improve, if you were a position to make any changes you wanted?**

I would fix the integrity management/PSM issues; we identify the things that are required to maintain the operational integrity of the units, but they go into a black hole and it seems that the determination for investing and fixing is not based on the need to maintain the asset or the risk to causing a catastrophic event, but the impact to someone's budget and what implication that may have on the current administration.

Supervisors need to be able to spend more time reviewing the work to be done and taking advantage of our systems; reports and reporting do little good if the managers do not have time to be trained or have time to really use the tools.

We need to do inspections on a routine basis; we have moved a lot of things into routine maintenance that used to be and should be in turnaround maintenance as a cost reduction move but these tasks are much more hazardous to do when the unit is running.

## Organizational Factors: Commitment

I would allow the operators to get the proper amount of operators on each shift; they are clear that they do not staff for emergencies, but since they are not keeping up the repairs and such we really live from emergency to emergency -- the difference is the nature and impact of the emergency.

In oil movements - for every eighty clamps we're taking off and replacing with pipe, we're putting seventy new ones on. I saw one job -- it started off as a job that required two hundred feet of pipe replaced; went to an eight-foot job. We work surviving what we break. PIP - that's ten million dollars on lines that we can fix because we don't use them that much or because there's no pressure and nothing's moving very fast in them. If the pipe is unit to unit it doesn't get done. You ask me if anything gets overlooked. I wish it was a different word because if it is on a piece of paper or on a board somewhere then, technically, it's not getting "overlooked." If you bring people to do safety audits that don't understand what the work is - what's that? What's that going to do? They understand "goggles" and "welding" but... Oil movements - work with exceptions more than anyone around here.

### **Are there conditions that should be treated as warning signs of potentially serious incidents that are being overlooked in your view?**

We have big issues with piping. PIP has started us down the road. We're just now getting our inspection teams out and the data coming back is very scary. There are some very serious piping issues. We don't see a plan to sustain what we need and what's going to be improved. How are we going to sustain our area? PIP only dents what we've got out here.

We have warning signs every year; the last two or three years of Amoco ownership and the current BP practice of under investing in the operating infrastructure is a warning-how long until the asset begins to deteriorate from lack of investment-we past that mark a couple of years ago-look at the recent fire!

The operations configuration for some units here is inconsistent with the rest of the industry; the CUI and pipe thinning here is alarming and most people are trying to make this a small issue; this place is set up for a catastrophic failure; the level of investment for maintenance of operational integrity has been and continues to be deficient.

Units are 90% of the time run to failure, due to postponing turnarounds. So making money or saving money for that particular year looks good on the books. This is a serious safety concern to operating personnel.

With the recent changes and the constant staff reductions we are doing less and we the operators and maintenance personnel are stretched so thin this has become a safety problem in itself.

### **What important safety problems are not being addressed?**

The whole issue of operating reliability is not really being addressed; we are applying band aides on top of band aides.

We have things that are threats to our health that that are not being worked on a daily basis like old asbestos; they fund a certain amount of money and maybe work during the first quarter of the year, the money runs out and the work stops; we got sewers around here on septic systems and we always have to increase the pump out frequency as it backs up into the showers and we never seem to address the long term fix to hook up to the city sewer system; we have process and storm water sewers under the units that are broken, we know they are broken and not flowing correctly, but we are not fixing them; we have spare pumps and such that are not running, have not been running for a long time and we are not fixing them; the operators believe that BP is currently focusing on

## Organizational Factors: Commitment

safety because that costs them money, but they are not focusing on our health because this does not cause them money.

We have stuff around here that has not run right for years and years and we continue to find ways to work around it and this is the issue.

We need to do site wide inspection of piping!

Well-safety here is divided in two parts being safe as individuals and running safe from the unit view; working safely is getting harder and harder as things are not being maintained and this leads to more unsafe running conditions; the two are kind of tied together.

We have an overall controls system that is from the dark ages and we need to upgrade it and we are really stretched too thin as operators to do what we need to do and this causes a lot of safety issues to go unfixed.

We will have our most profitable period in years, but will not reinvest in the plant.

Commitment to safety hasn't gotten stronger in my area. It is hard to sustain safety commitment without the right funds and staff.

One big problem is the condition of our underground piping. There is a tremendous potential for leaks. There is a lot of un-inspected underground pipe and soil to air interfaces. And there are certain racks that were once sufficient but now the bottoms touch the soil. It's not on the radar for PIP or SHIFT.

This is a typical example of how turnarounds get managed at Texas City: they find ten million dollars worth of thin pipe after they begin a turnaround. Then management says "you have to make up \$10m by taking the \$10m out of some other aspect of the turnaround." If the next turnaround of that unit isn't for seven years, then you are forced into compromising safety in some way. This is one of the many examples of how turnarounds are not managed for true integrity. By saying 'London, give us only X, and then you will only get X amount of availability', the structural integrity and process integrity gets compromised.

We need to do inspections on a routine basis; we have moved a lot of things into routine maintenance that used to be and should be in turnaround maintenance as a cost reduction more (unit down time and TAR costs) but these tasks are much more hazardous to do when the unit is running (RV's are an example),

What pleases managers the most is when you reduce costs. It doesn't matter if you cut corners that shouldn't be cut as long as you reduce cost. The most recent moves reinforce that. The last tier three organization proved that in most people's eyes. For example, one person who had cut costs, done a lot of Band-Aids with maintenance had a 'quit-your-complaining' attitude was rewarded in the last reorganization. When his replacement was brought into his previous maintenance position, his replacement found no pumps fit for service, gagged trips, untested critical alarms, and no spare compressors available for service.

MATS are judged on budgets, etc. not on how good a job they are doing at maintaining the assets for the next guy. Maintenance is driven by schedules – capital projects are driven by cost control – maintenance does a lot of their work in a way that is so focused on meeting schedules they lose sight of the quality of work itself. Maintenance needs to be able to say that we need more time; they are not allowed to say that; this has safety implications as well as availability implications. Welding integrity is neglected. In turnarounds compromising safety occurs because they do not leave hardly any room for discovery work, so they never have reasonable estimates which then simply add to the schedule pressure – UU4 was a symptom.



## Organizational Factors: Commitment

We still have an opportunity to celebrate the actions that assured the correct rebuild of UU4 more widely. Our refusal to compromise safety made a big difference to the people who knew about it.

We were willing to shut down the RHU at the top of the market.

Until they consistently show they are willing to spend money in the form of unscheduled shutdowns, we will never convince anyone about our commitment to safety.

The refining management mixed message is very strong. Cut fixed cash costs and don't ever be over budget, but change the safety culture. The big mixed message is don't be over budget, cut fixed cash costs, but be safe. What we can't say is that at a certain point there's a connection between safety and fixed cash costs.

I think we have a staffing issue at the Number Three Ultra former. We are going to be losing people and we are not prepared for it. It takes about five years to make a great operator and so we should be hiring more operators now. We've been hiring one to two people per year into the unit and it should be more like three to four. We haven't hired as much as we've needed since 1995.

You see constant reductions in staffing and support everywhere but we still have the same plant to run and maintain.

Our budgets are very mechanical in their design-each year we will reduce by 5% regardless of the financial performance of the site; leadership leaves it up to the management team to figure out what to include or exclude from the budget.

There is not sufficient resourcing. There is a philosophy of self-policing, but they don't know what they are looking for. It takes resources to build true self-verification. They want to cut HSC 30% and it is under-resourced right now. The operators do not know who the safety engineers are, and THEY write the policies often without connection to the field. There is no time for hourly input into policy writing.

In our area, we are not. We are under-resourcing our obligation to address our HSSE items, Traction, and PSM database. We have way too many open items in both databases.

No: It is obvious that we are not reinvesting in operating reliability; we struggle to invest in license to operate issues.

If the LT were seriously committed to eliminating worker injury we could really confront the budgeting issues.

It's a no-brainer that leadership does not allocate the proper resources when you are working to prioritize a list of items that all have the potential to be lethal if not addressed.

I can watch what leaders and managers are willing to address in terms of lost production and dollars and it does not add up to a safety commitment.

The company has not allocated nearly enough resources to support a commitment to eliminate worker injury. The leadership team needs to push back upwards from the site to get adequate resources, particularly Don and the MDL's.

Our leadership tries to allocate the proper funds and resources for safety, but the cash restraints are so severe that choices are made; we have done something right as the OSHA recordable rate has declined, but the severity rate has not lessened.

I am told by lots of individuals that the routine operating environment in the units consists of pervasive thinning pipe; missing bull plugs; leaking flanges; dysfunctional devices; does this sound like employees describing a work place of a company that allocates the appropriate resources to eliminate injuries and incidents?

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The operations configuration for some units here is inconsistent with the rest of the industry; the CUI and pipe thinning here is alarming and most people are trying to make this a small issue; this place is set up for a catastrophic failure; the level of investment for maintenance of operational integrity has been and continues to be deficient.

UU4 –Corrosion is probably everywhere. Why aren't we looking at EVERYTHING right NOW?

Managers get scapegoated when something goes wrong, like with inspection or L&D -- after not getting the right resources or direction in the first place.

Our DCS control system was initiated in 1983 and we have done some upgrades but we are still in the Stone Age relative to the current technology

I do not know if practices are normalized, but I know our tolerance for variation is normalized; Over time our failure to budget for reinvestment in our plants has caused a need for variations of a wide range of management practices to the extent that this is now the norm; we tolerate variation.

Our resourcing is limited way beyond where it is safe and we are not prepared for attrition.

We have normalized a lot of our inspection from the perspective that we are not inspecting as rigorously as we used to. At a high level the company seems to support overlooking the types of things that would likely increase our investment in maintaining the facility.

Operating envelopes can be effective, but they're completely under-resourced. For example, you send a request for an update and they don't get a response for 14 days. One person cannot handle all of this alone. They need guidelines for how to change the operating envelopes and then the authority should shift into the line, but there should be sufficient resourcing to enact this monitoring and adjustment and also verify that it's being done.

In the HAZOP process you tend to make projects for people who cannot handle the load. The action items are sent out to maintenance, and given the recent reduction in staffing, this overloads people; HAZOP's have target completion dates and many times they cannot get the work.

**What is your assessment of the existence and effectiveness of corporate (Group) control over the management of major hazards?**

The Group above the site is not in control of management of major hazards. The cost cutting has gotten to an extremely critical stage both in terms of the condition of the equipment and the number of personnel. There's not any slack in the system and that's part of what makes a system safe.

**Is staff redundancy valued as a contributing factor to major incident prevention?**

I understand that business is always looking for efficiencies, but we do not get business efficiency by driving out labor without a compensating technological intervention to reduce the work load or a work process change; we do none of this.

Add to the lack of appropriate investment in operational integrity, the lack of proper follow up on PSM issues, and the complacency of leaders the fact that constant staff reductions have units marginally staffed to handle an upset of a catastrophic nature; once one of these begins the possibility of containing it before it becomes another major fire or critical loss of life is very improbable.

## Organizational Factors: Cognizance

No. The rule is that the unit is staffed for "normal" operations, the issue is based on the age of the unit and recent upgrades and such, what is normal operations, and who makes the call at the end of the day; staffing is driven by the budget numbers and not the real needs to operate from unit to unit.

### Organizational Factors: Cognizance

Cognizance or awareness of risk is determined by several aspects of the organization's systems and culture. The question is do we know what we need to know in order to make the right choices about safety and integrity management? Do we want to know what we need to know? Are we capable of knowing what we need to know? Does our corporate mindset allow us to ask the right questions?

Our cognizance depends in part on our competence: what is the quality of the safety management systems? Do we collect, disseminate, and act upon the right information? We will address these and other management issues below.

Let us first look at one of the most important influences on an organization's awareness and tolerance of risk: management of the "position paradox." The paradox is simply that the people who have the most influence over the decisions that determine the safety and integrity management of a particular site are almost always the most distanced from those conditions. The question is how well does the organization manage through this inevitable paradox, at the senior-most level of the site as well as above the site. Effective organizations assume critical information is not getting through to the top and take actions to "monitor the monitor", and crack the filters directly or indirectly.

### Managing Through the Position Paradox

There's a real severe lack of curiosity in this Refinery. Inspection, Superintendents, MDL's, Don - it costs money to be curious. For me it all goes back to the process of inquiry. Ask, "What's wrong?" Then when we find stuff -- does anyone ask the question, "Where else could this be happening?" We need to be "relentlessly curious" - always asking "Why?" and, "Why not?" Combined with the courage to not back down and to do the right thing. There's a sense of urgency that's really lacking. When issues are found, then people go home. If a thin nipple gets found, we don't ask, "Is a scaffold being built? What are we going to do about it?" I like guys who want to know what's out there.

Hey, you need to get the management types to work my shift and take a real look at this place.

Only critical information that leads to an overt incident (one whose visibility cannot be suppressed) is communicated to higher levels of management.

Our culture does not promote tattle telling on ourselves.

There are still considerable numbers of tests and inspections in mechanical integrity that are overdue, despite some recent improvements over the last couple of years. For example, over 200 relief valves were still not inspected at the end of the year.

I do not believe that critical information is passed up to management.

## Organizational Factors: Cognizance

How come the comments about the crude unit work did not filter up? We do not share leadership mistakes in a way that makes us grow or learn.

There is substantial non-compliance with our MOC policy. Half of the temporary MOC's are open past the start date, and there are even some that were actually commissioned.

Is critical information about safety communicated? This is not difficult to assess, I can say that I know about recent communications regarding integrity concerns that have been sent to members of the leadership team who have accountability for the operational integrity of the units and the response has been Zippo, nil, nothing, silence, apparently not concerned but definitely not responding

I do not believe critical information gets passed up; I am not sure we recognize critical information; in part because of the sheer number of variations we tolerate to our operating requirements.

### **We asked, "Are there any important safety problems not being addressed?"**

The few that answered, "I am not aware of any," were in high management positions. One said "I am not really aware of any, but in some cases I am not satisfied with the speed of our progress," and another said, "if you define 'addressed' as being on someone's list.....well., then yes, most things are 'addressed'. If you mean with attention and funding, then we have some problems." A third said, "we've gotten to pretty good performance; the fatalities are just hard to explain; people were not focusing or became complacent, it's about the individual choices people make."

The overwhelming majority on the survey and in the interviews had several to list.

### **We asked, "Are there conditions that should be treated as warning signs of potentially serious incidents that are being overlooked?"**

No, but again as you review the operator survey data I am sure they will have a different opinion; we know the difference between unsafe and inconvenient.

This response, obviously not from an operator, stands in contrast to the list from the survey (appendix) and the partial list of conditions recounted here in the report of findings in response to this question.

### **We asked about the process for reporting near-misses and their definition, including about whether "critical events" are understood and elevated as a kind of near-miss for catastrophic incidents.**

A critical event is defined as "...any breach, failure, or loss of a critical control measure or failure to meet a monitoring schedule for a critical control measure."

Everyone said "no". When asked about Group control of major hazards, everyone said there is none.

At Amoco we were very proud of our Solomon ranking, but I believe it masked some very significant problems with our business model and our lack of investment back into the refinery coupled with the lack of discussions around what might be occurring that was "out of the ordinary" or not occurring as per our expectations.

## Organizational Factors: Cognizance

What people need to realize is that the way BP works is different from how Amoco worked. The key to making things happen is making a good business case. There was a manager who was fired from BP because he did not make the business case well enough for something that was the right thing to do.

Amoco had a reputation for gold-plating, so you have to get through the possible credibility issue with the business case. On the other hand, we have made a pretty strong case for the risk of real catastrophe here.

It is the accountability of plant management to know what is needed and make the business case for it.

For some people it seems that the connection between key people's assessments of risk and the capital planning process is weak and important issues are not resolved with benchmarks.

We had a fifty million dollar piping integrity project. We had spent thirty million of it, so figured should be roughly 60% safer. We wanted to take the remaining twenty million and spend it on other weak links and continue with piping integrity more gradually. But then we were told the risk profile was no different.

BPTC relies on benchmarks that compare it to other sites which might or might not be comparable in terms of age or condition of the kit.

We should fund based on our actual risks here, not some benchmark.

The Cracker Study – these were Ethylene Crackers translated to refining. Well, that is a pretty big jump of faith to say that's "like for like".

### Managing Through "Check the Box"

A second fundamental influence of an organization's cognizance of risk is how well they manage through the "check the box" tendency that is inevitable. Managing through "check the box" is essential if any actual safety is to result from a safety management system. In other words, there is never a cure for "check the box"- it operates at all levels of organizations, that is the "drift" or default mode. Organizations must have a quality of management that continuously disrupts and thwarts this tendency, and a quality of leadership that continuously brings authenticity of intent and execution to a system.

When HAZOP's are done, they're often done in an hour. There is no 'thinking' built in. There is very little information or no information given in advance. It is a 'check the box' exercise versus a thoughtful exercise. People are rushed and pushed to not slow things down.

Something's really wrong. We're tying it together by the seat of our pants. Pre-startup safety reviews here are non-existent. It's a paper exercise. We are not doing the right thing.

If we moved to more rigorous job walks this would elevate employee involvement and improve our understanding; we are a paper trail refinery and we are missing the boat regarding the impact of walking down the work area.

## Organizational Factors: Cognizance

We need to have more time for reviewing the work in the field and having a real discussion about the site and the work and the risk and get away from the "fill in the blank" type risk assessments from check lists to JSA forms.

I believe we need to improve the quality of employee involvement; I believe we have more or less a check the box approach to participation in hazard identification.

When we do audit we are looking to ensure that we have the correct paper trail.

We have a family of safety audits from third party to those done on the sites; Are they effective? Yes and no; the ISO audits and most third party audits are effective; the internal audits depend; We need to determine why the audits are done; are they done to check the box and please the boss or the HSSE department, or are they done to make a difference and create learning and a safer work site in the unit; I believe when I walk the unit and see so many things you would think an audit would catch and have fixed, that they are due to 'check the box 'and 'please the boss'.

### **Safety is not a negative production process – Is Texas City “preoccupied with failure”, is there critical thinking about indicators, including “weak signals”?**

The third fundamental influence of an organization's cognizance of risk is how the struggle for protection from individual injury and process safety breakdowns is viewed. The drift in this case is toward a mindset that says, "Our numbers are going down - this means we are getting safer"; "less is better"; "quiet is good"; "we are winning the safety war." As has been discussed in BP refining, HRO's disrupt this drift by viewing protection as a long-term fitness program as opposed to a kind of a negative production process where all key numbers are headed to zero.

HRO's invent robust indicators for major hazards, they define and monitor critical events, think critically about the indicators themselves. And organizations that are moving toward protection rather than away from it (let alone HRO's) are reconciled that the war is never won. They are reconciled to "preoccupation with failure", seeking out bad news by relentlessly building a reporting culture; in short, to permanently worrying over and talking about what they might not know about risk. This worrying and talking is an integrated part of all business decisions, as opposed to safety management as a separate, add-on conversation.

The areas where "you're not getting the calls" could likely be the very ones you've got to worry about. Now my eyes are open to what that might mean. "What goes on in the unit stays in the unit."

They are focused on the recordables as that influences the bonus opportunity; and they are not focused on a family of HSSE performance metrics that provides a more realistic view of progress or lack of progress and clarity regarding where improvements are occurring and where opportunities for failure reside; this is the reason why they have the appearance of being safe (some significant period of without fatalities) and then they experience one or several; it is unfortunate if you happen to be the leader on watch at that time as your performance has been influenced by the neglect of previous years and this neglect could be yours or someone else.

If you understand that we have data in any form possible and we have still managed to kill three people this year and have killed 22 over the 30 years of operations, you can

## Organizational Factors: Cognizance

conclude that record keeping is not impacting our performance, the question is why? Are we tracking the right things, or just not paying attention or both?

Small-bore pipe is definitely problematic and to stay on top of it is challenging. We don't have good QA/QC around welding and treatment procedures on small bore pipe. What most impressed me about Fluor was their QA/QC process. Their non-destructive testing of welds, etc.

Inspection: They should be asking more questions. They should inquire into why? - so that they think more about what the findings show. If your Inspector comes with news it is usually treated as bad news. The first question they'll get is: "Are you sure it's real?" The second question they'll get is: "What's the real discard thickness?" The third question they'll get is: "Can't it last until the next turnaround?" We're changing how PCMS discard readings can get changed. We've had a lack of control in that area. Leftover from when we went to the "working team" model. We're re-instituting supervision in Inspection. We had one FLL and two Working Team Leaders. Now each Mat has a Supervisor. The owner of the PCMS system is Inspection. We've got lots of internal problems. We need to get to those and solve them within Inspection. Regarding the CAT 3 a week ago had a leak. It was a very small leak at the orifice meter. Let me go back in time before I continue. Back in November 2002 we had a failure at CAT 3 when a small bore piece of pipe failed. The weld was carbon steel. It should have been nine chrome. It was blocked, so there was no fire. Because of this and another similar find a year prior, we made a decision to do 100% PMI (Positive Material Identification). We needed to find and inspect every weld, every component, every valve, and every flange. We had to test every weld. Well we did that. Or so we thought. This leak a week ago was 304 stainless carbon steel to the valve. An Inspector said to a contractor that we needed to test this all on the ISO. But this pipe wasn't even on the ISO. We just had a failure - crack with no fire. Now we have to redo the PMI. Isn't it frightening to think that you did 100% PMI and then find out that you haven't? One of the roots of that problem is that ISOs are incorrect. Most of the failures (not UU4) has been small bore pipe. Tends to be the source of problems. If a small bore piece of pipe is not on the inspection ISO it won't get picked up. It won't get picked up on PMI or on a regular survey. We tend to concentrate thickness readings at elbows. This can be a problem because straight runs can also corrode. We know that there are no new corrosion mechanisms. We never find a new corrosion mechanism. We do find "I didn't think that would've happened there." In the past we have not put enough thought into determining thickness measuring locations based on the corrosion mechanism involved, as a result we have tended to not be very good at predicting where to measure thickness. " We never find the thinnest spot - the spot that blows." The root of the UU4 fire was a lack of sufficient inquiry into weak signals.

No, I do not believe we are interested in bad news; we are interested in knowing that our processes are in place.

Why isn't the PSM manager part of key management meetings? Texas City needs a PSM voice that Don hears directly. When PSM was part of services we were not proactive about it at all.

After the UU4 fire, the following happened: there was an engineer in a large meeting who was the only one who disagreed with the report of an outside engineering firm's report about UU4 piping fitness. People criticized him for not "being a team player" and pushed him to stop holding things up. He still disagreed. In a subsequent meeting, some of them said they could just overrule him. Then the engineering firm called back and tempered their validation, saying they had not taken into account a variety of conditions under which the pipe would be used. I noticed this engineer's name was taken off distribution lists related to the project after that when I had to forward email to him. Critical thinking does not get rewarded around here.

## Organizational Factors: Cognizance

How does somebody change a system that's so far out of compliance that it would destroy the performance of the unit, if they were honest? So the question becomes how do you make a transition?

A supervisor saw a trail of oil to the sewer. He found and recovered a few barrels, enough for a large recordable incident. So he says to his boss, "Well, we have hundreds of those. You want just a bunch of paperwork?" The superintendent says, "Well, you need to identify, prioritize and clean up and fix these leaks." He sat down with his environmental technician and posed his dilemma: he can't do it by the book, but he can't undermine compliance. They figured out that they would put them all in one traction report. What that allowed is that they would acknowledge the enormous breakdown and the project of cleaning it up, and then start to report from that point forward. Now the tractions are starting and they are starting to report them and clean them up.

What worries me is not knowing what we don't know. I have a degree in Chemical Engineering and I have a huge respect for what we don't know. We are trying to create a set of indicators like what they did in New York City after September 11 to get even better indicators and to continue to build a reporting culture and a learning culture and a learning relationship to those indicators, not a negative failure and blame kind of relationship to the indicators.

An engineer was looking at last month's data. The engineer went to the superintendent and said, "I think we have an environment incident and I think we are not reporting everything." When the engineer probed them for environmental information the supervisors grumbled about it. The superintendent said 'well, how do we fix it? I will be at the meeting and I will let my supervisors know that I expect them report anything and you, the engineer, you give them the tools.' They came back with a certain number of environmental incidents and he said, "well, how many do you think we REALLY had", and they said actually 2 to 3 times that number. He said, "The first thing we have to work on is honestly and accurately reporting what's going on here", and they became receptive to that. We want weak signals and we have to err on the side of reporting.

Until integrity management and process safety has an independent voice at the table, it will always get pushed far back in importance by short term cash and production.

### Other Potential Blind Spots

Commentary about the competence of safety management systems, safety specific factors, technical and policy issues will follow, but first here is a sample of comments about other potential sources of blindness.

There are fundamental problems that perpetuate the mechanical integrity issues. We do not have a robust method to adopt engineering technical practices, Amoco used to. Why don't we have a team putting in specifications/lessons learned/auditing? The engineering specifications have not been updated since 1997. Much too much is just left up to non-expert people at the site. The question is are we rewarding engineers to build something that will last for 4 years. And the answer is in the battle between major capitalization and minor capitalization – we don't spend the money often. One of the most important specs is wrong and it just gets called gold plating.

Inspection: regarding UU4, inspection didn't even occur near the place that blew out. Inspectors had been going out when they needed to and doing the minimum.

The key performance indicators conceal a great deal.



## Organizational Factors: Cognizance

Operating envelopes: How do we build this, how do we operate it, how do we assess contaminants, how regularly – those kinds of things - there is not enough complexity in how they're evaluated. In addition for example a superintendent said "but we don't look at this" and somebody said "well, it will cost \$200 to sample it" – so there is a very short – sided mentality about cost that effects any real use of operating envelopes and their development or evolution over time.

I am sure that some operating conditions should be warning signs, but I am not sure that they should be.

We do well on HAZOP's on physical changes, but we do not do HAZOP's on incremental changes, such as bringing in heavier crews, such as taking corrosion into account. Overall, we don't do a good job with considering operating constraints, thinking about different conditions, how often are the operating envelopes reconsidered? My guess is not very often at all.

Our audits are to identify what is not being done according to our operating instructions or our safety procedures, but we do not add commentary about the quality of the operating equipment.

The potential for major hazards is unacceptably high. We need to look with metallurgists and do a complete assessment of this site. Pipestills could be the source of a major incident. "The pipe is good, the elbow is thin." Why not inspect all the elbows? Even generalized corrosion you can protect with paint, etc. but not elbows. The ultra cracker: we've two units out of service at "below discard" value, but how did it get to that point? Inspectors need more help from unit personnel. People get complacent. We need to stop doing reports that do not make a difference. We need experienced, courageous people to do inspections. The relief valve studies: they keep cutting the money for these studies. We are doing better ones than we used to, but at half the rate we need. The units should all have had these done.

I'm concerned about our high voltage area - splices ready to blow up; water in conduits. Things we don't go looking for.

We used to have compliance audits across the site. We have not had that for seven years. The audit would look for systems problems. There is short staffing for auditing across refining. The first priority is auditing regarding fall protection, then LOTO, electrical, H2S, and we are not scared enough of HFS. Do we even have a scaffold policy, let alone audit it?

A big weakness is the staffing of the inspection group, this is vital to our ability to run and avoid major issues and they are too under staffed; for the most part the traditional audit we do on the unit and by the HSSE group will not find the type of things that our BP inspection group will find and once found they are the guys who can really evaluate the risk properly.

Auditing? Well, regarding the AU2, we should have spent the money to put scaffolding inside the tower so that there was no more than an eight to twelve-foot fall. That one should never have come down to someone tying or not tying off.

### Organizational Factors: Competence

In this section, we have grouped comments that address safety management systems (at an organizational level) in terms of:

- The quality of information sought by the systems;
- The effectiveness of the collection of information;
- Action taken in response to SMS information.

We then review typical comments on policies and procedures. The last of the competence section touches on other management factors that influence protection, again, more at an organizational rather than local level.

### Safety Management Systems: Quality of Information Sought

The problem with traction is that we focus on the quantity of items rather than the quality. We don't have any way to evaluate the quality of the item, and we don't have a good definition of what it means to close an item. So, for example, we'll put an item in traction that is something like 'train the contractors to ask questions if they don't understand the job'. That's not actionable stated that way. Or 'upgrade the instrumentation on the entire unit'. That's too general to assess whether or not it's been done. Or "assign someone to monitor pressure during the unit startup". Well, that's the definition of the board operator's job. There's a huge problem with the nature of what's being put into traction. And the PSM database has the exact same problems.

The details and the magnitude of items in traction make the highlighting of safety-critical items hard to find; I am not sure that the routine reporting system provides this; the best source of safety critical information is what is reviewed in the shift meetings.

Traction reports get rewarded by a lottery with no recognition of quality. This is a terrible waste. There should be public acknowledgement of excellent traction reports. The person's boss should copy it to THEIR boss or tell other people about it, etc. No one should ever say something like 'good turnaround' or 'good project outcome' without emphasizing safety. People get acknowledged for 'saving the day' that shouldn't have been messed up to start with. For example, one of the units had a situation where you hold a trip lever down so it doesn't go off when you're trying to check the turbine. The person got acknowledged for figuring out a technical solution to the problem but the risk was not acknowledged, and that's pretty typical.

We need to be able to sort traction by your craft, areas of expertise, or area of accountability so you do not have to wade through several hundred entries to find the ones you should be paying attention to.

It is so hard to just get the information until we get a unit performance scorecard. Who has the time to read traction? All it gets is a glance because if you do more than a glance and scan, it's too much time every day. No one even reads the incident reports because we sanitize them so much that you don't ever get to really know what happened.

A big weakness is that action items are phrased in a very weak way. For example, "consider training for new tools" rather than a strong committed statement of what training should be done and when it will be done. The word "consider...this or that" is used as an action item over and over and over again.

## Organizational Factors: Competence

Temporary repairs like clamps are a big leading indicator of trouble. There are upwards of 50 clamps on my unit. Temporary repairs - and the management of them - really concerns me. We need a really good process to manage temporary repairs. The other piece: the risk based inspection program needs to be evaluated for the quality of the data. We need to look at the frequency, methods and data for inspection.

### SMS: Collecting Information

We do not do enough JSA's and stand downs on equipment that we have not worked on in a long time.

I would say we do an average job; I am not sure I would say there is resistance to reporting as much as people have a different frame of reference for what is valuable to report on.

Risk assessments are completely by people telling managers what they want to hear. This applies to some that were just promoted in maintenance. The idea is tell the next level up as little as possible."

I continue to be amazed at situations that crop up that leadership was not aware of until it accidentally surfaced and then they took action. At Styrene, the air intake for shelter-in-place had not been tested and when we discovered it, we fixed it. The attitude of the operators was "Well, it has been like that forever, so we did not believe it mattered."

We are so conditioned to some unsafe conditions that we do not recognize it; chain operator safety cables to prevent allowing a chain operator to fall is often missing and not recognized.

There are things that don't get put into the logbook that maybe should. For example, tank truck unloading caustic, oil issues on compressors and pumps. Seems like only major things get put into the logbook.

There is definitely not enough near miss reporting - embarrassing or doesn't seem important, I imagine.

Near misses are to be entered in traction by the individual who observed the near miss. We do not have a detailed list of definitions for near misses to my knowledge.

### SMS: Acting on Information (including reacting to incidents with site-wide changes)

I believe in my area we are insulated from what happens across the refinery; the fire and the fatalities did not occur in the units I work in so I have not seen any changes in what we are working on or doing.

HAZOP's are current; but the action items are not; the system is chaos; the action items often lack the clarity to understand the status; the PSM group does a poor job of explaining the decision they make and often they sit on the action item for long periods of time; this is a safety management issues and the PSM group is in denial about their effectiveness and the quality of the overall process;

The weakness of BP TC audits is that we produce a lot of information and it is difficult for most people in the field so that the information from the audits is not viewed as "relevant" by the folks who should benefit from the audits; we do not have good follow-up.

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The leadership team has been doing these tours and they observe lots of unsafe conditions – sometimes something changes, but more often it's seems like they notice the conditions but no one demands a clean-up or fix by a certain date and then follows up. Leadership team members don't all know what's really going on, even in their areas – they don't act.

CDP is not being monitored, people are not being tested.

Traction - it has a place. There's accountability with the state that gets satisfied. Some people read it, many don't. It is there for people to use, if they would use it.

I would like to see the results of the recent investigations on the fire and the two fatalities and not have to use hearsay to determine what really happened.

On the surface HAZOP's, PSM activities and MOC's appear to be active and working, but on further review you will find that recommendations from these activities go into a black hole; many are presented to managers and leaders who have no technical competency or appropriate experience to make the assessment of risk to operational integrity and are guided by the impact to the metric from budgets and annual profit targets and consequently decisions are not in the best interest of the refinery; decisions are made in the best interest of the current administration.

There is not a dedicated person to monitor & follow through on traction. For example, another company I worked at had a safety foreman and at BP, because there's no dedicated person, the safety resource people get consumed by MOC's, HAZOP's, incident reviews, procedure reporting, etc. as opposed to the management of follow-through on the kinds of things you would see in traction. The management of that kind of follow-through gets short-changed.

We have a lot of data in the various processes we have and we do not use it very effectively and then you hear complaints that really are a reflection of people not knowing what is available, or not knowing how to use what is available, or not having the time to use what is available.

They are not paying sufficient attention to PSM. Process Safety Management events in the last 5 years have been frequent and severe by industry standards. For example, there was CAT 13 – a severed gas line. By pure luck, it was not ignited. If it had been ignited, there would have been at least \$500 million worth of damage, and more to the point, many fatalities

The safety work orders are not being addressed; a safety work order is generated from Fluor and how they are generated is not clear.

HAZOP's are current; some action items may not be completed for up to a year; sometimes just because of the workload and the time to investigate.

Lots of obstacles for the FLLs to get things done around here in these arenas. Let's take Benzene. We said, "Houston, we have a problem." Had to do with the reliability of the pump-out systems. Just like the inadequate lighting across the site - the decision never got made to fund it and start it. Another one was CUI - found great recommendations in the Alky 2 investigation, but they never got sorted out. It requires tremendous persistence and perseverance. If you don't get it as a staffed project, it doesn't happen. That's what it comes down to. You have to have a SPA all the way through. Back to benzene - we didn't realize that there had been a change in the regulations that put us way over; it slipped through the cracks. Nobody will be able to get things like this done until we can go back and to who does it where - unit by unit.

They put poor quality valves on the turrets of the fire water systems and they fail more than half the time. Every Sunday the fire system is tested and there are failures every

## Organizational Factors: Competence

single time that stay broken for weeks. Two out ten of these valves definitely won't close. You get drenched as you climb a wet ladder 10 to 15 feet up.

What frustrates me here is this, "What does it take for us to get into action? Does it take a serious incident like the fire or a fatality?" We've had lots of serious near misses. Big chunks of concrete falling. Bolts on the RHU that fell sixty feet. These kinds of things could have been very serious. (I don't think we pay enough attention to the whole issue of falling objects.) We've had people overcome with H2S fumes - they got dizzy and passed out. But they woke up. So soon it was right back to business as usual. We've had Nitrogen fatalities - Texas City, somewhere else in a Hydorcracker, and somewhere else as well. It still bothers me that we went through all that talk in the Manufacturing Council. I remember talking about compliance back then, and it took a fatality three months later to get us to do something about it. It was a huge mistake when we didn't take any action after the March Meeting, or after the April meeting. What it took was the event in May.

The most common response to an incident or accident I have seen since I have been here is to blame the person who was hurt.

BP follows a process for incident investigation as most companies do today, but I have three observations of the BP process: 1) in most cases the root cause is not published or it is whitewashed; 2) the BP salaried management group always escapes being accountable for the incident; and 3) any change as a result of the incident is very short lived, the organizational memory is very short and the tolerance for process and procedure variation slowly allows things to normalize back to the state of operation before the incident.

### Policies & Procedures

We need to get the procedures revised and simplified and current and then get everyone to follow them

Consistency. We do have some good policies. But you can still ask three or four people out there to read a policy and get three or four honest but different interpretations. The procedures are not black and white. How can you ask for and have relentless compliance when you don't have relentless consistency? We don't routinely have much hourly involvement in policy or procedure writing. They get it to a certain place and circulate it for comments, but the hourly are not normally included in the actual drafting of policy. Policies are, in some instances, addressed differently for different groups. It's the little things. If you don't do the little things, how do you expect to do the big things? Policies should be written such that everyone can understand the policy and not vary from the policy. For example, the law is very clear about driving with children and where the child safety seat goes, which direction it faces, etc. The procedures and policies are so incoherent, there are so many internal inconsistencies, even on the big important one, like LOTO, that they're almost impossible to comply with. It used to be that people knew the policies and procedures by heart, but now there is a legacy of the past inability to blend and make coherent all these different policies. The intention for some of this was good. It was to add Best Practices, for example. But the effect is incoherence. OSHA also complicates this. The incoherence of the paperwork is at least as much of an issue as the issue of exceptions.

Currently the process is we can send an email to a policy committee. The new policy is sent out in a draft for many people to comment and then it's finalized. The entire thing takes 6-12 months. The problem is that as they attempt to over-specify more and more detail, this breeds more and more detail, and more and more exceptions. We should not cover every base. We should get the essential principal: "Do your isolation of energy

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sources to eliminate all hazards." Get that principle absolute. Don't specify how in every detail. Chocolate's policies have much less detail with much better results. This is part of what we have to do. Currently we cannot evolve our policies deliberately. Currently, we deal with irrational or illogical policies with the attitude "I can go get an exception from supervisor" as opposed to at Chocolate exceptions were granted in most cases by the plant manager only. The context at Chocolate was "if I grant this and anything happens, YOU are also fired".

Operators are not trained enough. Maintenance guys see it all the time. That's why we need a solid procedure for everyone. The plant is made up of at least ten different companies if you look at it from the policy and procedure point of view.

One of the biggest safety challenges is the Safety regulations. If a crew is arguing about how to do a job and they go to the regulations to settle their argument, it seems like those regulations are written for lawyers. They are written in words we never use. And even though they're written with a lot of words, you could interpret the words in all different ways. Where we used to have 6 pages, we now have 20 to 30 pages. So people keep arguing and whoever argues the best, wins. This is a major concern.

We need to back to the basics. We have the same dangers as 20 years ago, but know more about them. The regulations need to be simpler and clearer and they need to be easier to access – they should be sorted by category and not by the number. I know there's a committee that's working on these regulations. I know each unit did LOTO differently. It took aromatics 5 years to finalize their LOTO and they finished just this fall. Anyway, there were two guys out of ten from chemicals on this committee and they were feeling like giving up because the committee is being run by consensus, and even though chemicals' safety results are better, it seems like the committee is reinventing the safety regulations and mostly reinventing refining's way, so it looks to me like we're going backwards. It seems like even when there are excellent results, like PX1 in September when the turnaround was excellent; the refinery people don't necessarily want to learn from that.

We have silos around there and these silos may cause the interpretation and normalization of our implementation of LOTO, ATW, HWP, and confined space entry. Over time the folks who really run the place (the operators) have developed their own method of doing things in the units they work in and only recently have we seen some significant changes in the rotation of shift supervisors and/or shift superintendents, so they all have their way of doing things and we have no training, so you learn from the individuals you work for. They pass on the interpretations they have of the procedures and if that happens to be a bad habit then it is duplicated by the number of people they influence.

Up-to-Date clear Safety Policies that can be followed and enforced if necessary:

- Simple clear standards understood by all (clear and concise...not 36 page training documents).
- Standards not guidelines
- Keep them separate (Tom Halaska has a suggestion around standards and then a Q&A document for most asked questions).
- Policies owned by someone for constant improvements.
- A policy committee of a cross-section of the work force to develop / agree and improve policies
- also answer questions for clarification. Today this is not done or HSSE Reps are filling this role.

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- Start with our most critical safety Policies (Big 4 and the need for consistency and compliance across the site...Control of Work Audit was my access to this)

### Policies & Procedures - Compliance

We need compliance with Policy and Procedure, but from the perspective of people actually understanding the intent of the policy or the procedure or the practice. I would really like to see that it becomes more like: "this is this way because there's been a lot of thought put into it, and I can explain how we do it and why." I am looking for something that is more principle-guided versus just strict and possibly unthinking adherence to a procedure.

### Other Management Factors

There are senior managers here who have allowed the site to accept a completely inappropriate amount and level of risk, who have allowed criminal levels of non-compliance.

Our biggest challenge has to do with risk awareness, assessment, and mitigation. When I look at our incidents I see that there were defects in our ability to see, assess, and mitigate risk. A significant contribution to this condition is the physical condition of the plant and its appearance. It helps, in people's minds and hearts, to allow risk to blend into the background so that it is not even seen! I am actually very concerned about that.

Certain FLLs have more significant injuries and near misses - what have we done and what are we on top of? Where are we having most of our incidents and injuries by area? Are we approaching some of this systematically to get data?

In the last few years we get little real acknowledgement; sometimes I some extra pay shows up in my check and I have to go ask what it is for and then I find out we did something that earned a little bonus or incentive and I had no idea we were getting it.

There does not seem to be a comprehensive safety plan that lays out the management assessment of the key issues across the refinery and lays out the way they intend to deal with them and this plan provides us all clear understanding of the timing of resolution of some of the age old legacy issues, or provides clear understanding of what will not be addressed.

Maintenance staffing is a function of fitting bodies into the annual budget, it is not a function of a resource plan fitting into a work analysis of what needs to get repaired or fixed; other than TAR's.

I would change the habit of rotating managers so frequently that they are never around to be held accountable for the decision they make. Managers should be required to stay in a job or be accountable for the results for 2 years after they have been rotated out, especially for safety and budget decisions they made during their tenure.

HAZOP's are current, but a lot people do not seem to understand having HAZOP's being current does not necessarily mean we have current operating risk assessments; HAZOP's do not replace daily and routine inspection and maintenance of the operating condition of the unit; as the operating condition deteriorates, the HAZOP may not change.

Piping is my major concern. We focus a lot on equipment. Millions of dollars on exchangers, compressors, towers. There's some focus on piping but the money is so big it's overwhelming. We need not just PIP or CUI, but a team who reports to Don Parus. We need someone who can tell Don the brutal facts. UU4, UU3, the pipe stills, we've

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been lucky. The RHU a couple of years ago. Infrastructure the past ten years. We're not smart enough to prevent everything. I've got a line that's a piece of sh\*\*. I'll put a clamp on it, but it would take a unit down to fix it. We don't tell everyone else when we overlook the little things. What does it tell everyone else when we overlook the little things.

Having the maintenance manager have accountability for fixed cash costs – that's wrong.

We are not where we need to be with MOC's. We start them and we're not good at getting them complete prior to commissioning.

HAZOP's are current but the action items may not be implemented for some time.

HAZOP's are rigorously followed in the Chemical side where I work; the leadership team is very active in getting the action completed and gaps resolved.

### Process Safety Management

Three years ago, after getting the PSM actions in the database up to a 93% resolution rate, site management let it go off of the variable pay program and the resolutions rate plummeted to the 50's and 60's. It's no longer mandated as a performance objective.

PSM needs a lot of work. It is not resourced and we don't even think about that work. We need a complete review and overhaul of how we are going about PSM, the work process. What do we mean by PSM? At the end of the day, it's a results-based process. Our PSM strategy should be extremely robust. We inject so many defects into our system but we never do anything about it. After the UU4 we said, "If we have a feedstock change, we'd MOC it across the whole site." Six months later we got high sulfur crude, did the MOC in the crude unit, but not for the products of the crude unit! The Incident Investigation turned it into an action item and six months later we break that promise. Compliance Delivery scares me because, well, four people can audit forty percent of the work? That's ten audits a day. Title Five (the amalgamation of all the air quality standards) scares me. If you asked operators today about this - you get what? They are the agents of the integrity management tasks .

PSM: our deferred maintenance over the years is now hurting us. Our processes have now changed. Plus, we now have much higher corrosion. If we had assessed the associated risks, we might have closed the gaps, but we have not totally learned what we should have. For example: the Pipe stills: there are lines at discard level. Someone sleeves it, now I clamp it, the clamp is leaking, so I add the weight of ANOTHER clamp – I mitigate, replace the section in 2 - 3 days to a month if we don't have the materials. We do not shut it down. Even now, for the 2 days. Even if the pipe is here now. The mentality "if the clamp is holding, why shut it down?"

Ten years ago, the PSM incompletions and HAZOP's were logged but not closed. There were literally thousands and thousands. It wasn't even treated like management data. The plant manager put pressure on the leadership and the chemical groups. They incentivized results related to cleaning up this backlog. They put safety into their bonuses, but also people talked about people who got injured at the senior executive table. They committed to tracking and also analyzing data. They used the quality approaches. They resourced environmental training and so on. We built safety into how we did business. We reviewed PSM results weekly. The point is at refining we need to build the experience of what "good" looks like.

There is very little - in terms of early indicators for major hazard prevention – and again this is the number 1 concern. The resources on the units are geared to operations as opposed to mechanical integrity/availability. There are lots of optimization engineers – it's way out of balance. How many people are we putting on the mechanical aspect of running a unit? We design, build, run, maintain and inspect units and parts of units. But



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we don't have enough resources to do sufficient inspection and/or we contract inspection and we don't have controls that allow us to measure enough real time. We need to demonstrate that we will shut unsafe operations down.

People get frustrated by the lack of response to raising concerns, and then give up....

Twelve years ago the ALKY 2 CAT 3 explosion occurred. It was caused by a failure that was 3 inches above where they quit inspecting. And at least until very recently we don't inspect where we can't reach.

We need to explain the reinvestment plan for the future. "Broken windows" are token at best. Current dismantling is adding to the backlog – this contradicts a "great place to work" and break our commitment to not add "broken windows."

The BP maintenance workforce especially disregards safety rules, with heavy equipment especially. Cranes and cherry pickers – there is still a macho attitude that it is manly to disregard safety with that equipment – it angers the contractors because of especially high visibility. We need to enforce zero tolerance with cranes and cherry pickers – a good example where shutting work down would make a dramatic impact.

### Accountability Issues

We lack the will to hold people accountable, maybe we even lack the time, but for some reason the issue of accountability seems to be missing.

Andy Fiedler and Susan Dio and Don Parus don't realize that the ambiguity about where funding comes from for one-time expenses and the arguments about whether those one-time expenses are to be treated as turnarounds, routines, or capital spend... that ambiguity is causing important things to fall through the cracks and it's not clear who's accountable for things related to that ambiguity.

We need to hold people accountable; we are always being held up to the Dupont model, but our management seems to lack the will to hold individuals and the organization to account for following the rules; our tolerance level is incredible-why would we allow 6 months to comply with using seat belts?

We have every deviation from what we would expect to see in a normal operation; the problem is we are not sure the normal reference is anymore we have so much bailing wire on everything.

I do not believe anyone really monitors traction.

There is no corporate control over management of major hazards.

You only have to look at the lack of a comprehensive inspection strategy, appropriate levels of funding for preventative activities, and the lack of response to items identified by the PSM activities.

From my experience and in discussing this with others, follow up is non-existence or it may occur via email, which will contain no explanation as the reason for the delay or deferral.

We shut down UU4 and we pulled out the maintenance backlog. We did .5 million hours of work that should have been regular maintenance. It should have been in the backlog of the unit and wasn't for whatever reason. Then we stumbled upon it as we went to isolate and turnaround the unit.

I do not believe that management really reviews operator's logs. I cannot tell if anyone reviews operations logs.

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In oil movements - for every eighty clamps we're taking off and replacing with pipe, we're putting seventy new ones on. I saw one job; it started off as a job that required two hundred feet of pipe replaced; went to an eight-foot job. We work surviving what we break. PIP - that's dollars on lines that we can fix because we don't use them that much or because there's no pressure and nothing's moving very fast in them. If the pipe is unit to unit it doesn't get done. You ask me if anything gets overlooked. I wish it was a different word because if it is on a piece of paper or on a board somewhere then, technically, it's not getting "overlooked." If you bring people to do safety audits that don't understand what the work is - what's that? What's that going to do? They understand "goggles" and "welding" but... Oil movements - work with exceptions more than anyone around here; work without exceptions also.

You've got to have more manpower. Involve analyzers early in capital projects. For example, flares: they put some kind of instrumentation right under the flares so that the analyzers cannot work on those instruments and flaring wrecks them. So the workability and accessibility are huge issues. If they had been involved in the capital projects design it wouldn't have been an issue. There are many, many examples like that.

### Positive Signs

In this chemical plant there's a program called CATS (Changing Attitudes Towards Safety) and it's a safety observation program and it's driven by the hourly level, and it's made a huge difference in involving people more in safety. It was the basis for some of the design team ideas and the refinery should strengthen the implementation of something similar but not lose the hourly control and quality of the chemical plant's version of this program. The union will get upset about some issue and pull out of everything. At the Carson Refinery the union's ability to participate in the variable pay program is contingent on their participating in these committees. We must get over barriers to increase the inclusion of the union and the union will challenge us if they are on projects or teams so we need to be ready for that.

Keep CATS. The reason it's effective is it's hourly run. They follow up. They set up observations. No names. No blame.

A couple of years ago my units started by having a unit safety champion. I met with the champions regularly and they passed safety concerns to me. I obtained the right resources to address the concern and reviewed the outcome with the safety champion. My operators requested to expand the champion into a safety committee. We were one of the first units with an all hourly safety committee that focused on unit safety concerns. I feel an obligation to act on all concerns that committees bring to me.

An example from Cat 1: The safety champion talked to me about an open sewer vent. We reviewed the purpose of the vent and found that we could seal it. A concrete plug was made and the vent eliminated. The safety committee has recently prepared an asbestos abatement plan for me. We will begin executing their abatement plan next month.

At Cat 2, the safety committee has requested that we clear sewers and eliminate storm water run-off that was flooding the switchgear building.

I have found that if management is responsive and responsible operators will bring issues and concerns forward. I prefer to work one-on-one with operations and pull them into the decision making and priorities setting process rather than having a system on some computer that generates action items in cyber space. Safety issues are about people and are best addressed person to person.

I think that the size of the site presents a challenge to get a consistent message across through the complexity of this organization. That is a big hurdle itself. Both ways - including feedback back to the Leadership Team. There is also 20 years of inertia - tremendous inertia - to get a culture that has enormous organizational inertia to overcome in this regard. I think that the face to face meetings between Don and the FDLL's is very effective and powerful and a huge positive tackling the complexity/size issue. We've been hearing the same basic strategy for the same two years. The key here is that a million times we will have to demonstrate a consistent message. The past two years is a big step in overcoming that inertia.

### Training, Development and Organizational Learning

We have given training its own section because it cuts across commitment, cognizance and competence. James Reason's work is considered to be the foundation of HRO. He says that training should be viewed as a universal feature or domain, one that affects all other organizational factors - training and development are the medium of all knowledge transfer. When he evaluates the role of training in "protection" he looks at:

- Formal and informal training
- The presence, talent and reputation of the training department
- The clean identification of competencies required to perform tasks
- Clarity of the leadership teams' view of and management of sustaining competence
- Supervisory training as well as operator, maintenance and safety training
- Quality of orientation experience
- Leadership development

Our VTA training needs to be bombed; it is not effective, as it does not account for the fact that people learn in different ways; the VTA testing is a joke and we are fooling ourselves if we believe we are teaching with this method.

We need to think about how we are going to capture unit knowledge - It cannot be done as someone's hobby. It will take a dedicated set of resources. Training has been focused on OSHA compliance and availability.

There is a lot of normalized deviation. What people say to the trainers is, "You teach us, then our supervisors will tell us 'forget everything you heard in training, because the trainers don't live in the real world'." Training becomes just a legality check to protect the company in the event of an incident.

People are not adequately trained in HAZOP's. HAZOP training should include a much more thorough training in risk assessment than is done. There's not enough staff to get enough participation.

AAR's are supposed to start within 30 minutes. Best case, they start by the end of the shift. The problem with the AAR's is they have devolved so that there is no learning. For example, a typical AAR reads as follows: "Line blew out. Line should not have blow out. Take steps to have line no blow out." We need to train people how to do AAR's. We need to get bad AAR's reissued and show their absurdity and then have them rewritten and visibly celebrated or the whole effort is ruined. The AAR's must get to real root

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causes. We must have a policy that someone in the work area must head up incident investigations.

There are no opportunities to talk to the leadership team as a group about safety as an individual. If there is not a good venue to tell stories or to express what happened to whom when, our Leadership Team is missing an opportunity to learn. That should be part of our commitment: to learn as much as we can and to be as good as we can about safety and integrity management. The Leadership Team has the appetite for the numbers - but not for developing the leadership.

There were 20 trainers a few years ago, now there are 4. Unit trainers get used to fill in. However, the unit trainers end up doing all kinds of other work besides training, so training suffers. Outside contractors are too generic. Corporate knowledge is not being managed, and there's no succession plan.

"Duty of Care": It was implemented two and a half years ago but without training in how to do it. Therefore, some people communicate to their coworkers with a negative, critical edge, and people get irritated. Instead of "Stop. Thank the person. Think" you get "Don't kiss up" or "Leave me alone".

Contractors are the most unsafe people because they are untrained. There used to be a lot of cross training. Now people read modules, take a test, and just sign off, but they don't actually have any real depth, and, because of short staffing, it could be 15 months between the times that they rotate between different units. There is no way that they are going to remember the technical details over that length of time, so it's going to jeopardize safety. The training is completely rewarded for speed, not depth. So, for example, every single training module is supposed to take 4 days to complete and then you take a test. People are doing 1 or 2 modules in one day!

The quality and adequacy of operator and maintenance training here is really poor; the VTA (Virtual Training Assistant) training concept has not worked at this site for many reasons; VTA may provide the necessary record that an individual went through the user interface screens, but it provides little real impact to learning especially in knowledge of work versus task instruction; the difference is critical to understand regarding impacting behavior from a knowledge perspective; having knowledge of the steps required to accomplish a task or perform an assignment does not mean you have the depth of understanding you need to make adjustments as the environment may require.

We allow contractors to hire people who have no previous experience in a refinery and we expect them to perform safely and we do not spend enough time to properly orient and train them and they have no idea of this environment. They need a buddy system for the first 90 days or so.

Training here is not effective and really nonexistent; we no longer do the type of training that is effective; mostly because class room training would be overtime pay for the operators and the maintenance personnel who attended, so we are managing the budgets I guess and training is always the first thing to go; we used to do a lot of good training; we would have like UOP come in here and go over the UOP process or we would have the pump supplier in here and really understand the equipment functions; you would do some classroom and some field reviews-it was very informative and we learned a lot, it was hands on and you could see what was meant to happen.

The VTA is not designed to create learning. It is to record that a document has been opened and closed and record the test score.

Training is real poor here compared to other companies I work for; we do a very poor job;

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Our VTA training was designed to the culture of the site, it is non-confrontational designed to allow someone to pass and not focused on confronting gaps in knowledge; we need to change this.

We have no skills training for I & E crafts here, this is a real issue

We monitor the training requirements on an annual basis, but not the effectiveness.

I have been a pipe fitter for years here and I cannot read blue prints, I have not been trained to bend tubing; and have only been trained to operate a fork lift and a droid, so I would say training is pretty poor; I rely on my fellow craftsmen or my supervisor to read my prints when this is required.

In 28 years I cannot remember receiving any training in a step up or a transfer.

We must get everyone competent to understand what "safe" really is and trained regarding our procedures and to a point we have a common interpretation of those procedures so that they have the level of competence and understanding of the requirements that will allow for them to push back when pressured by time or request to take a short cut.

The current method of training is too much computer based and we need more hands on; the VTA training is a joke; it will not let you fail; what are we really trying to do here?

George Carter cut training and said, "Until you tell me I could go to jail, I won't change anything as long as the paper covers us". We haven't recovered from that. Whether the training force is held as a separate staff where it's dedicated or distributed into the line, the issue is the percent utilization. I think utilization... Is about 50% year to date, trainers get used in HAZOP's, turnarounds, and other things instead. The point is unless the LT makes this a priority one way or the other they're not going to get where they need to go.

Virtual training assistant (VTA) is terrible! Terrible! It locks up. It's unrelated to learning. For example: HAZMAT. I can't tell you about it, even though I got 100% on the tests. OSHA mandated stuff is being added. Before, we had classroom instruction and pencil and paper tests. Now, people don't have to do any classroom work. We must get back to practical training.

Training is critically bad for operators and maintenance! Oh yes, we have the documents to cover OSHA and say we did the training. But it is not designed to locate gaps of knowledge! For example, tests are used that reinforce knowledge as opposed to real experiential field-testing. We need an industry test to evaluate maintenance competence, especially given the mix we have of BP employees and contractors. We have people with no experience getting OJT for maintenance.

Many shift supervisors and shift superintendents are not experienced in the process of the units they are accountable for supervising; they have no fundamental understanding of the process risks resident in the unit and therefore lack a frame of reference for assessing and directing activities on the unit; couple this lack of fundamental process knowledge with the absolute absence of any effective training for operators or supervisors and you have a recipe for poor decision-making and the potential for a hazardous situation.

A flaw in training in the chemical site is there is a shortage of I & E technicians. Because of the shortage of the I & E technicians they never get released to go to classes. They are fully used all the time just to keep the units running and are "excluded" from training. We are very understaffed for training relative to other refineries. We have much more of a burden on our current trainers.

## Organizational Factors: Training

We do a very poor job of people development; our HR process for personal development and performance assessment is not valued; we do a half assed job and no one seems to follow up or care.

We need to get at the personal and individual side of safety. We have to provide HRO leadership training to get anywhere near our goals.

The Manufacturing Game gave us a taste of what it would feel like to be in a proactive culture eliminating defects both from an availability side and safety side. Availability performance touches everything we do and in my mind is the "key enabler" of cost, environmental, safety, both process and individual, feeling good about working here, etc.

We have got to follow-up on some of the "Culture Team" recommendations from the Strategy work that didn't get enough emphasis in the implementation stage.

### **Training – New Policy**

The education phase of the compliance delivery process is one of our successes; we have allowed enough time and resources to roll this out right, so it should be very impactful. *[Interviewer's note: however, well over half of the people we asked had not heard of the Compliance Delivery Process.]*

If the union thinks we're just going through the motions on education so that we can just discipline, we're going to be in a lot of trouble. We're really going to need to win the union over on this education piece and that hasn't been done. If the discipline is going to seem just and fair, the supervisors are going to have to precede with coaching, verbal warnings, etc. and cannot make the move of "making an example of someone" Many of the supervisors were not really selected for their emotional intelligence, and really need some training in coaching in order for this to succeed.

I am an environmental coordinator and I don't know what the plan is for compliance delivery system education. I asked many people "Do you know about CDS?" And they would say, "Yes." I would ask, "What does it mean?" They knew what the letters stand for and said it had to do with being in compliance and I said "with what?" and no one seemed to know. I haven't seen a plan for this. The training is not coordinated together across different areas.