Memo

To: Scott Barber
From: Ted Wingfield
Date: June 6th, 2004
Subject: REVIEW OF INFORMATION CONTAINED IN TRANSCRIPTS STEMMING
FROM THE PSEG SAFETY CONSCIOUS WORK ENVIRONMENT (SCWE)
INVESTIGATION

I have completed my review of the information contained in the transcripts stemming from the SCWE investigation at the Salem and Hope Creek nuclear power plants. Below I provide my summary of that review.

My review consisted of reading entire transcripts or reading the summaries of transcripts read by other inspectors in Region I. Key points, issues and comments, both technical and general, were copied or paraphrased into bullets included in a "binning document." The binning document consisted of 5 discrete issue headings referred to as "bins:" 1) Perceived lack of freedom to raise safety concerns to PSEG management, 2) Production over safety issues, 3) Schedule pressure issues, 4) Labor/management issues, and 5) Industrial safety issues. I then read each bullet (343 total) in the binning document and categorized each statement/comment in terms of a) issue type, b) specific issue (if applicable), and c) a root cause.

There were approximately as many general comments as there were specific comments related to discrete incidents (general - 51% & specific - 49%). The perceived freedom category comments were overwhelmingly general in nature (92%). The production emphasis and industrial safety comments tended to be more specific (production emphasis - 62% & industrial safety - 83%). The schedule pressure and labor/management statements were divided evenly between discrete issues and general comments.

Of the specific issue comments, 13% were related to the Hope Creek Stuck Bypass Valve issue, 10% were related to the Hope Creek Emergency Diesel Generator Leaky Exhaust issue, and 7 % were related to the Salem Reactor Feed Pump Steam Isolation Valve Steam Leak issue.

I established 5 root cause categories: 1) General management, leadership and communication deficiencies, 2) Perceived excessive emphasis on production to the detriment of reactor safety, 3) Perceived excessive schedule pressure, 4) Non-conservative decision making, and 5) Problem identification and resolution (PI&R) ineffectiveness. The majority of all comments were general in nature (52%). A perceived excessive emphasis, by PSEG management, on production "at all costs" accounted for 16% of the comments made. Non-conservative decision making by PSEG managers is next with 16% of the comments. 8% of the statements implied a lack of confidence among the staff in the PI & R process. 7% of the comments are rooted in the perceived existence of excessive schedule pressure.

The tables below summarize the statistically significant indicators from the review:

LEGENDS

TYPE OF ISSUE			
S -	Specific Incident	G -	General

SPECIFIC ISSUE OR INCIDENT (IF APPLICABLE)			
BF19 -	Salem Stuck Steam Generator Feed Regulating Valve	MISC -	Various Single Discrete Issues
BPV -	Hope Creek Stuck Open Main Turbine Bypass Valve	MS42 -	Salem Large Steam Leak On A Steam Generator Feed Pump Steam Isolation Valve
CMS -	Hope Creek Loss Of The Core Monitoring System	OG -	Hope Creek Operation With Excessive Off Gas (Beyond The Limit Given In The FSAR)
GRSNG -	Salem Excessive Grassing Incidents	RFP -	Hope Creek Operation With Excessive Vibration On A Reactor Feed Pump
EDG -	Hope Creek Emergency Diesel Generator Jacket Cooling Water Leak	SJV -	Salem Containment Valve Operability Decision
EXH -	Hope Creek Emergency Diesel Generator Exhaust Leak		

ROOT CAUSE			
GMLC -	General Management / Leadership / Communication Ineffectiveness	EPE -	Excessive Production Emphasis
ESP -	Excessive Schedule Pressure	NCD -	Non-Conservative Decision Making
PIR -	Problem Identification & Resolution Deficiency		

TOTAL SUMMARY

CATEGORY "BIN"

Production Emphasis 36%	Perceive Freedom 23%	Labor/Mgt. Issues 20%
Industrial Safety 10%	Schedule Pressure 10%	

ISSUE TYPE

Specific Issues 49%	General Comments 51%

SPECIFIC INCIDENTS

BPV 13%	EXH 10%	MS42 7%

ROOT CAUSE

GMLC 52%	EPE 16%	NCD 16%
PIR 8%	ESP 7%	

PRODUCTION EMPHASIS SUMMARY

ISSUE TYPE

Specific Issues 62%	General Comments 38%	

SPECIFIC INCIDENTS

MISC. 37%	BPV 18%	

ROOT CAUSE

EPE 34%	NCD 30%	GMLC 23%
PIR 15%		

The comments below and the table above leads me to the following conclusions. First, most (36%) of the negative comments given by PSEG employees concerning their view of the Safety Conscious Work Environment at Artificial Island were related to what they perceive as an excessive emphasis by senior management on production of power to the detriment of reactor safety. Second, most (62%) of the "production-related" comments stem from specific incidents with the Hope Creek stuck open main turbine bypass valve event generating the largest number of statements (18% of the specific incidents). Finally the suspected root cause of the comments were spread relatively evenly among the categories. Mostly there was a "general sense" or perception by the employees, based on the actions of management in specific incidents, that production is more important than maintaining reactor safety. Another significant contributor to the appearance of an excessive production emphasis was the large amount of comments denoting non-conservative decision making on the part of management.

Potential solutions to the above condition may include strengthening of communications between management and staff about the reasoning behind "important" decisions. Pressure to produce is expected in any company in our free market society. These comments may be convenient or logical given that context, but the appearance of a "production over reactor safety" attitude among management must be addressed because the consequences would be too great. Continual emphasis of reactor safety as the "number one priority" (logical since threatening reactor safety will eventually result in an accident or NRC mandated shut down, both of which result in the elimination of all production) and persistent support of conservative decision making by management should improve the employee perception in this area.

EXAMPLE STATEMENTS

BF19 - Sledge hammer to operate the stuck Steam Generator Feed Regulating Valve (FRV), 24BF19 ... "the mentality is don't shut down, stall, do whatever you can to fix it without shutting down"

BF19 - The valve failed to respond ... The NCOs, and at least one Senior Reactor Operator (SRO), on shift believed the valve was mechanically bound ... management didn't want to declare the valve mechanically bound and therefore inoperable because that would require a Limiting Condition for Operation (LCO) 3.0.3. shutdown ... management elected to pursue a controls failure in a willful attempt to avoid the Technical Specification required shutdown ... shutdown was delayed for about 36 hours

BPV - Following the stuck open Main Turbine Bypass Valve (BPV), the operating crew was attempting to depressurize the plant so the valve could be repaired, a senior manager called the control room and directed the shift manager to stop the depressurization ... the original order was said to have come from PSEG corporate ... there was often pressure from senior management, who may not have a full understanding of the situation, to keep the plant at power

BPV - A senior member of management delayed the plant cooldown to hold a discussion to justify the course of action to address the stuck open BPV ... the meeting lasted about 3 hours ... the "economics of the decision" were being emphasized ... the interviewee referred to Hope Creek as "dangerous ... from a nuclear safety standpoint" ... most personnel felt the decision to shutdown & cool down to fix the stuck BPV was straightforward ... the tone and content of the meeting was seen excessive

BPV - The BPV did not go full closed as expected ... some troubleshooting Friday night into Saturday morning ... determined that the valve may be mechanically bound ... decisions were made to shut the unit

down and break vacuum to repair the valve ... shutdown and repair plan developed Saturday and Sunday (including new procedures, training, SORC on Sunday night, etc.) while maintaining the unit at ~20% power ... shutdown commenced Sunday night ... early Monday morning they tripped the main turbine and the valve went full closed ... questions were raised about the necessity to continue shutting [cooling] down to fix the valve given that the valve "seemed to fix itself" ... the cooldown was delayed ... the length of time taken to make what seemed like a very black and white decision caused some angst" ... a lot of discussion, challenging, and consternation ...

EDG - Following identification of a 150 drop per minute jacket water leak from one of the EDGs an SRO declared the EDG inoperable (based on a past evaluation that gave a limit of 150 dpm for operability) ... the decision to declare the EDG inoperable was criticized by senior management because engineering was not involved to re-analyze for a new allowed leak rate value ... this was given as an example to show that engineering will at times generate any number you want to prevent the plant from having to be shutdown ... this was also provided as an example of PSEG upper management expectation to assume that a piece of equipment is operable until engineering comes in and proves that it is inoperable ... upper management non-conservatively delayed (while awaiting an engineering evaluation) the start of a Technical Specification required shutdown at Hope Creek due to an inoperable Diesel Generator

EDG - With 6 hours left on the time limit to have completed a T.S. required shutdown for the inoperable EDG (jacket water leak), a senior manager pushed operations to keep the unit at current power and continue to try to fix the EDG ... the concern was ensuring that the operating shift had enough time to safely shutdown the unit ... senior manager was trying to convince shift management that shutting down was inappropriate ... senior manager was accused of actually attempting to delay and distract the shift from taking the actions they felt were appropriate.

OG - Hope Creek continued operation while their off gas flow was beyond the limit given in the Final Safety Analysis Report (FSAR). Engineering was contacted to do an emergent evaluation of the condition to allow continued operation ... they were running for "a long time" with elevated off-gas flow before the situation was resolved ... the engineering evaluation used terms like "may be," "assumed," "most likely," and still was accepted by operations shift management ... the NCOs didn't feel that the engineering evaluation was complete ... they basically felt that the unit was being kept online to make money

Salem startup in progress with generator complications causing delays greater than a week ... Site management directed pursuit of bringing the plant up as far as possible to make up for the lost time ... vacuum was established and the plant was heated up to about 100# with the turbine & generator uncoupled and using a special substance to seal the turbine glands (gland sealing steam not in service and using a packing/stuffing material to prevent air in-leakage allowing establishment of vacuum conditions in the main condenser)

Outage management wrote a notification listing the concerns that operations management was making overly conservative decisions costing the company productivity

A senior manager publicly chastised another manager (team leader in charge of addressing a potential total loss of station air) ... "I can't believe you're even thinking about shutting down the unit ... you just need to be getting some $&%!# air compressors in here and keep the units on line"

Current perception is that current senior management team is improving equipment reliability ... focusing the organization on fixing things right the first time ... there is a lot more emphasis on fixing the plant as opposed to deferring to later outages

A member of management was overheard attributing the lack of a raise at the end of 2003 to numerous instances of voicing an opinion in contrast to the 'production mentality' ... its built into their compensation package

New senior operations management is operating in a more safety conscious conservative manner ... "the current organization gives you the wherewithal to make a decision and make comparisons ... it is OK to come down 5% and take the Bravo feed pump out and then figure out [if] you have a problem ... it is easier to make the 'gray' decisions [now] because providing your justification is not a problem [any more] because

you almost don't have to do it ... the plant manager's conversations are gentle but probing ... made a significant [positive] impact within weeks of arriving"

Following an issue where the plant was brought to full power with an incorrect valve lineup (not caught by the operators), a senior manager met with plant personnel (at Salem and Hope Creek) and told them that they did not have the authority to make changes in plant power (except in the case of an imminent significant concern requiring the operators to take immediate actions).

Concern that the plant operators were in a position where if operability of a piece of equipment was in question, it was assumed operable until proven inoperable. The interviewee stated that, while this was not the philosophy in Ops, they were being pushed that way.

The interviewee stated that he believes the plant is moving in a direction toward making more conservative decisions. He gave the example of a steam leak from the turbine in late 2003 where the decision was made to shut down the plant rather than try to fix the leak on-line. "I don't know that we've had a similar decision to make in the past, but I'm not sure that in the past we would have made the same decision."

PERCEIVED LACK OF FREEDOM TO RAISE SAFETY CONCERNS SUMMARY

ISSUE TYPE

Specific Issues 9%	General Comments 91%

SPECIFIC INCIDENTS

Not Statistically Significant

ROOT CAUSE

GMLC 86%

The comments below and the table above leads me to the following conclusions. The vast majority (91%) of the negative comments given by PSEG employees concerning their perceived lack of freedom to raise safety concerns to management at Artificial Island were general in nature. These general comments are based on a wide variety of historical incidents as well as an overall sense of "how things operate" at Salem and Hope Creek. Most of the statements below indicate a general mistrust of management and a fear of retaliation for raising issues.

EXAMPLE STATEMENTS

With respect to an unexplained power increase at Hope Creek during the shutdown following the stuck main turbine bypass valve (BPV) ... the crew didn't readily inform management or write a notification interviewee thought this was due to plant "cultural issues" - specifically people were afraid of the repercussions of informing management

There was excessive pressure to start up Hope Creek following the stuck BPV issue ... "went beyond questioning and challenging ... it was more like interrogation ... it was coming up against a hard mechanical stop, and they knew there was a problem ... did considerable testing" ... after the valve intermittently went closed ... a senior manager repeatedly questioned why the unit could not be restarted (because it was not a safety related valve and was working fine at the time) ... "a lot of discussion ... challenging" ... a senior manager was perceived to be challenging members of the operations department in "an intimidating manner ... to me the questioning was out of line ... do that ... individuals aren't going to speak up again ... a number of instances where ... individuals basically clammed up"

An interviewee spent a lot of time pushing to get an issue resolved ... eventually ... "my thought process was that I have two children ... I have a house ... I guess it's not going anywhere anyway, what's the use of me pushing it any further? ... so I stopped"

There was an interaction between a senior manager and a manager surrounding a decision about the number of Circulating Water Pumps required for a plant start-up ... the manager was perceived as having left the meeting "because of frustration ... he did not feel like he was being listened to"

An individual raised an issue about service water valves being installed incorrectly (therefore potentially not operating as designed) ... the person was told not to write a notification about it ... the person had to involve outside organizations (including Quality Assurance) before their own management agreed to the generation of the notification

With respect to a Salem loss (or at least extreme degradation) of station service air ... during an early TARP team meeting (a team established to determine the best course of action to restore as much reliability as possible to the station's air system) ... something caused a senior manager to respond in a very angry manner ... "he became unglued at one point ... starting bashing [the TARP] leader ... what are you doing, and why are you in here having this meeting ... you can't ... publicly trash the team leader in front of his team ... there are ways to provide feedback ... and this [was] not one" ... Another accounting of the incident - "I can't believe you're even thinking about shutting down the unit. You just need to be getting some $&%!# air compressors in here, and keep the units on line"

Lack of confidence in the notification process ... "if I write something up, I should have confidence that it works through the process and I really don't."

Environment is believed to be intentionally cumbersome to discourage the identification and resolution of issues

Management is perceived as responding negatively when issues are raised (types of 'negative' responses: inequitable distribution of work, negative performance appraisals, withholding of pay raises, etc.)

The management approach to the notification process was described as having "an excellent procedure ... an excellent policy ... they don't enforce it ... management ... [is] not supportive. ... they would not tell you not to [write a notification], but then I had notifications closed an hour later"

"You can't rat out a Union brother or they can press charges against you at the Union ... if you want your time here [at PSEG] to be normal ... you'd play along or your life's going to be miserable"

Interviewee reluctant to use the Employee Concerns Program ... not sure that they could protect identities ... someone from ECP stated that based on the issue raised, it wouldn't be hard for management to figure out who had initiated the complaint

There is a belief that lower level managers take direction from above that they are not comfortable with because they have to

One specific employee is harassed by his supervisors ... "they hound him hard" ... because he raises issues

"I felt like there was no future for me there because I was the one that spoke up often and they really don't care for that."

"The point I feel is the safety aspect is ... that people don't want to get involved. It's easier just to stay out of it because there won't be any retaliation"

People find others who will "champion" issues because they have or have had "a fear of the possibility of the supervisor being mad, and taking some kind of retribution at some point ... it has happened"

"I probably have received negative ... performance appraisals as a result of the way I vocalize concerns ... it's a catch-22 ... if it says in [the] appraisal that [I'm] argumentative ... [contentious, I can't be contentious about my performance appraisal] ... I mildly voiced my disappointment and went on"

Employees say "I'm not going to tell management about that ... why should I bring it up if they're not going to do anything about it"

"With some types of verbal responses ... people were decreased in value ... [and therefore may be] reluctant to speak ... when a person is yelled at, screamed at, belittled ... they would feel reluctant to say anything after awhile ... I think that the people ... are broken in spirit [because of their treatment and they are not] inclined to bring anything up ... there [were] VPs, superintendents, [and] managers, all levels that had that style ... I think that style was expected ... intimidation tactics"

First line supervisors may not feel "as free to express what their opinions are because they're members of the management team"

About one month after and individual raise a concern, the person was rotated ... other employees may see that and say - look at him, he opened his mouth and got chopped off at the knees" ... the environment is perceived as being set so that people will be less willing to raise concerns ... "It sets up an atmosphere where people think twice before they even say something"

An individual, asked if they feared reprisal for comments made during their interview with NRC investigators stated: "Do I have concerns that there might be repercussions? Yes"

An interviewee stated that raising concerns can cause the perception that an employee is not "with the program ... I mean, if I express some concern and I'm perceived as not being with the program ... do I think that there's a possibility that as a result of it I wouldn't be considered for future promotions? Absolutely I think that's true. I would not be considered for future promotions"

The following comments were made in reference to one specific senior manager: "His engagement in understanding what we are doing was relatively high ... He can be very blunt and he can be very asserting ... may have caused ... people more discomfort ... the way he talks to people ... I see it now as potentially challenging and stifling ... loud challenging voice and the words that he used ... could very easily train you to keep your mouth shut"

There were "meetings where I felt some of my senior management team were out of line with regard to the way they spoke to individuals ... if an individual is [subjected to] a verbal attack like that, how often or how free does he feel going in there and telling this guy something is wrong because he knows that's not what [the senior manager] wants to hear"

"Management people are fearful of raising issues for their jobs, because ... [they don't] know who's next to go [in the next round of layoffs] ... fear of bringing issues to their leaders in fear of retribution for their jobs ... that's not conducive to [a] safety conscious work environment"

A supervisor told an employee "If you bring that up as a safety issue, I'm going to discipline you"

Bringing up issues ... resulted in an employee being viewed a 'non-team player'

"When you can't trust the people in charge, it doesn't make a difference whether it's a safety issue ... a family issue ... a compensation issue ... you are not going to speak up"

The interviewee stated that he and others might be unwilling to raise concerns because management was unwilling to listen to them ... "part of the reason I might be reluctant to raise a concern is because I don't believe that the management that I have is willing to listen to and understand the concern that I have" ... this was seen as being most evident with respect to fixing non-Technical Specification equipment problems

LABOR/MANAGEMENT ISSUES		
ISSUE TYPE		
Specific Issues 51%	General Comments 49%	
SPECIFIC INCIDENTS		
MISC 71%	BPV 12%	
ROOT CAUSE		
GMLC 82%		

EXCESSIVE SCHEDULE PRESSURE

ISSUE TYPE

Specific Issues 50%	General Comments 50%

SPECIFIC INCIDENTS

MISC. 72%	GRSNG 17%	BPV 11%

ROOT CAUSE

ESP 56%	GMLC 19%

INDUSTRIAL SAFETY ISSUES

ISSUE TYPE

Specific Issues 83%	General Comments 17%

SPECIFIC INCIDENTS

MISC. 53%	EXH 33%	MS42 13%

ROOT CAUSE

GMLC 58%	EPE 19%