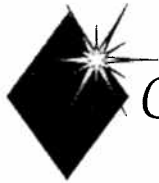


Progress Update SFPP Remediation Efforts

Norwalk Tank Farm Cleanup

*Presented to the Norwalk RAB
October 24th, 1996*



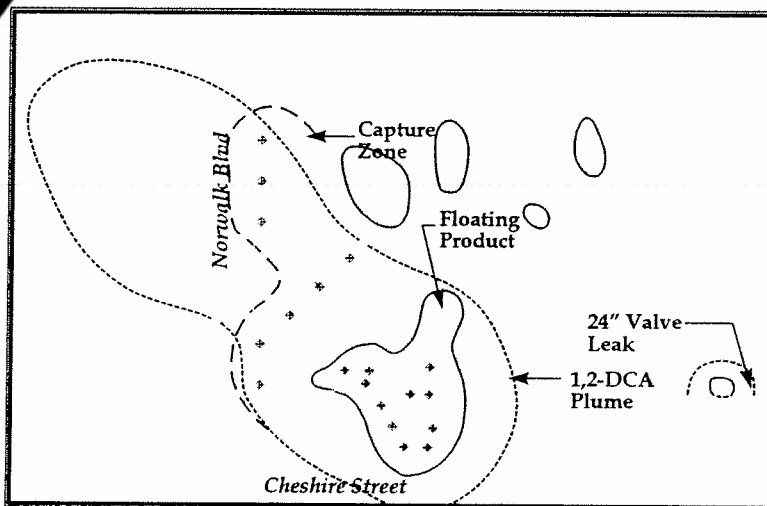
OCCS Update

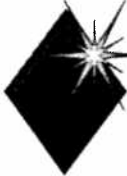
- ◆ *First meeting held in NW on 10/17/96*
- ◆ *Introduced Academia members to group*
- ◆ *Outlined our mission & heard perspectives of all stakeholders*
- ◆ *Finished with site tour*

Mission of OCCS

- ◆ *Cleanup & closure of western offsite DCA & MTBE groundwater plumes*
- ◆ *Use risk based corrective action process (RBCA)*
- ◆ *RBCA process will consider both regulatory & political issues*
- ◆ *Openness, community/regulatory involvement and education along the way will result in "buy-in & buy-off" of OCCS findings & recommendations*

Map of Major Plumes DFSC/SFPP Norwalk Facility





Why Use a RBCA Cleanup Process ?

- ◆ *Infeasible to clean up DCA to MCL of 0.5 ppb*
- ◆ *Most of contamination mass still onsite*
- ◆ *West side barrier system will stop offsite plume mass increase*
- ◆ *RBCA plan approved by RAB in July, 1996*




Why Cant We Clean up DCA to MCL ?

- ◆ *MCL is so low (Detection Level) 0.5 ppb*
- ◆ *Technically infeasible with current technologies*
- ◆ *Base cleanup level on Health Risk, then back calculate acceptable cleanup level*



Proposed RBCA Process

- ◆ *Model DCA plume movement with/without remedial action*
- ◆ *Predict if plume becomes stable or continues to spread*
- ◆ *Conduct additional public health risk assessment*
- ◆ *Define clean up levels*




Proposed RBCA Process (Cont'd)

- ◆ *Risk level drives cleanup level*
- ◆ *Cleanup technologies selected based upon cleanup level & feasibility*
- ◆ *Technologies may include, Intrinsic Bioremediation, horizontal pumping wells, air sparging, oxygen addition, In-Situ Bio or other innovative technologies*
- ◆ *Work may include pilot tests of new/proven technologies*



Ultimate Goals of This RBCA Process

- ◆ *Clean up of off-site DCA plume to an acceptable level*
- ◆ *Receive a “no further action letter” from RWQCB/DTSC*
- ◆ *All parties involved have confidence in methods used & cleanup results*



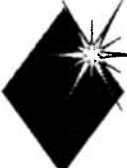
How Will this be Achieved

- ◆ *A joint forum including community, regulators, academia & the RP's*
- ◆ *All parties buy into plan at beginning rather than trying to convince them at the end of the process*
- ◆ *Community involvement will ensure that non-regulatory issues are addressed in the process*
- ◆ *Presents a great opportunity to all parties to overcome the problem via a credible & sound process that will be an example for other sites*



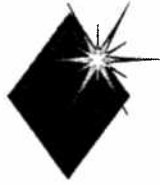
Conceptual Outline of First Major OCCS Task

- ◆ *First work product will be a RBCA Workplan*
- ◆ *Scope of workplan to be developed by RP's*
- ◆ *Draft outline shared with OCCS prior to 1st Draft*
- ◆ *Fist draft prepared for OCCS review & comment*
- ◆ *Revised workplan submitted to RWQCB/DTSC/RAB for official approval*



Tasks to be Completed by Next Meeting

- ◆ *RP's draft RBCA workplan outline*
- ◆ *Outline discussed in conference bi-weekly conf. call*
- ◆ *10/31/96 at 10.00 am to 11.00 am*
- ◆ *Have draft workplan for review by next OCCS Meeting (11/21/96)*
- ◆ *Once draft workplan OK'ed by OCCS & RAB, scope will be defined, can draw up detailed calendar schedule for OCCS*



Questions ??



*Onsite Cleanup-South
Central Plume*

- ◆ *Cleanup system operational Sept. 1995*
- ◆ *Continues to operate very effectively*
- ◆ *System includes vapor extraction & liquids pumping*
- ◆ *Recently upgraded extraction pumps to increase recovery rate*
- ◆ *2-3 X increase in extraction rates*



SUMMARY OF REMEDIATION PROGRESS

Soil Vapor Extraction System Operations Summary

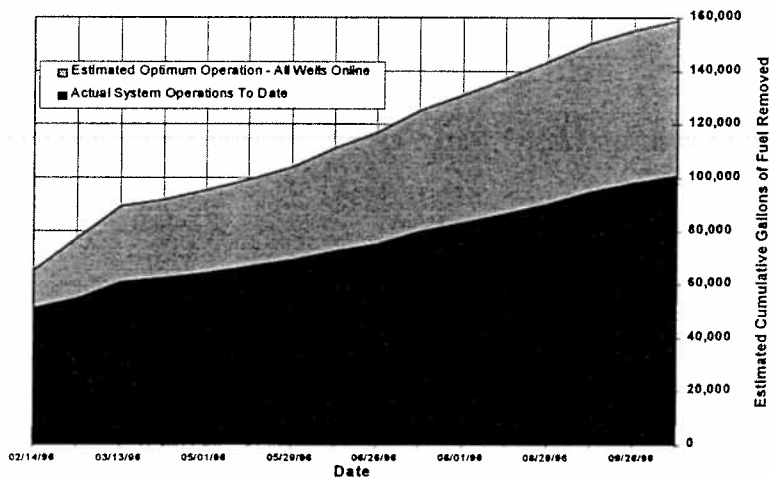
- ◆ 20 Vapor extraction wells online and in use
- ◆ Approximately 100,000 gallons of fuel removed from soil and destroyed
- ◆ Approximately 20,000 gallons of fuel removed since July RAB meeting

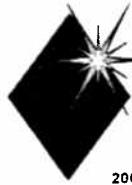
Free Product Recovery System Operations Summary

- ◆ Approximately 760,000 gallons of water pumped and treated
- ◆ Approximately 4,900 gallons of liquid fuel recovered
- ◆ Approximately 300 gallons of liquid fuel recovered since July RAB meeting
- ◆ New pumps installed in all operating wells in August, overall flows increased 2 to 3 times.
- ◆ Westside barrier under construction, due for startup on October 25th

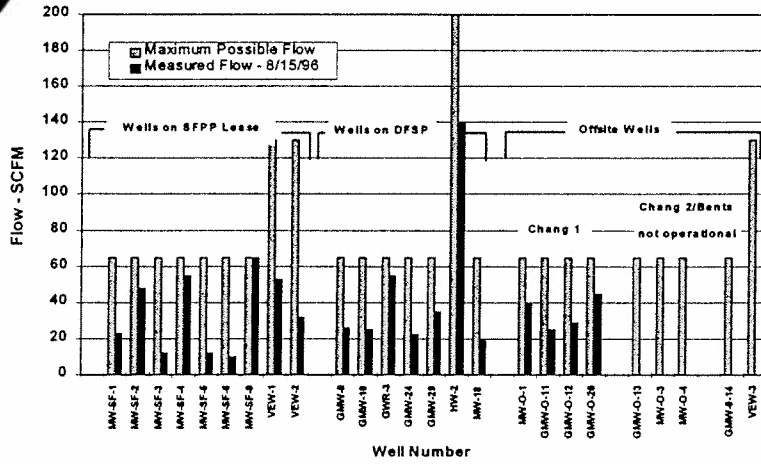


SOUTH CENTRAL PLUME SUMMARY OF VAPOR PHASE EXTRACTION OPERATIONS

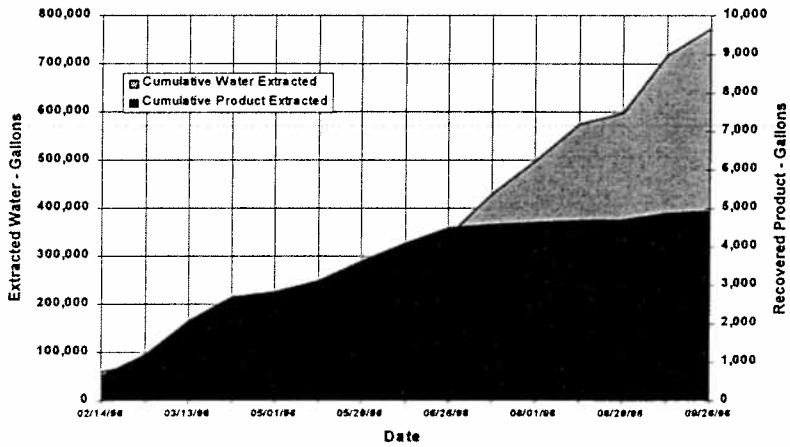




SOUTH CENTRAL PLUME SUMMARY OF VAPOR WELL FLOW

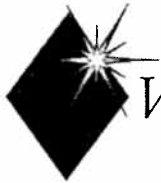
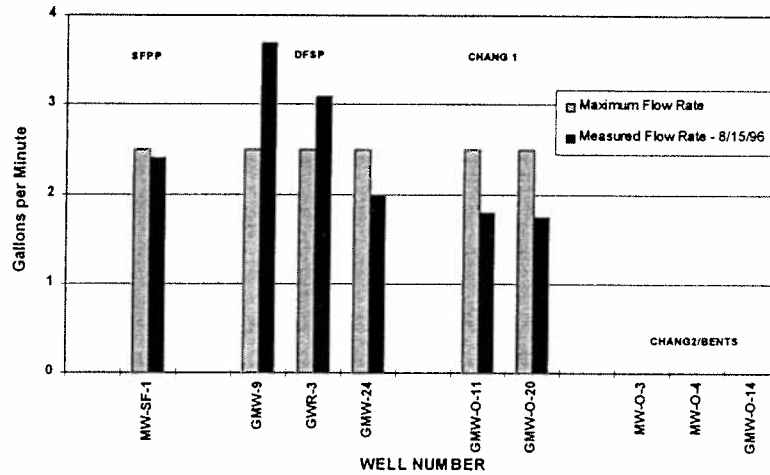


SUMMARY OF LIQUID PHASE PRODUCT RECOVERY SYSTEM OPERATIONS





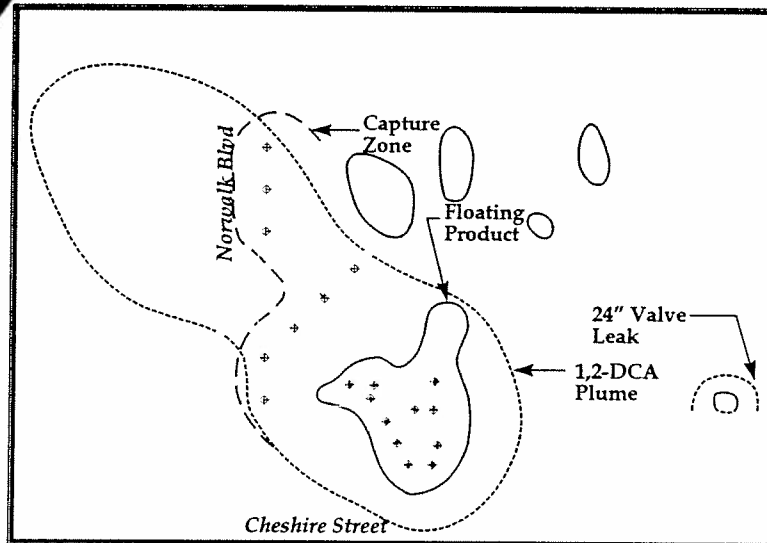
SUMMARY OF PRODUCT PUMP FLOW RATES



West Side Barrier System


- ◆ Promised RAB & City a system to stop further offsite migration of DCA/MTBE
- ◆ Project 99% complete, will turn system on 10/25/96
- ◆ Consists of 11 extraction wells along west property line, probably pump at 40 -60 gpm
- ◆ Will create hydraulic barrier along Norwalk Blvd. stopping further movement of MTBE/DCA off the property
- ◆ Will monitor effectiveness closely

Map of Major Plumes DFSC/SFPP Norwalk Facility




24" Valve Leak Cleanup

- ◆ *Bid package prepared, bid out next week*
- ◆ *Start Construction after WSB*
- ◆ *System will include air sparging, vapor extraction & liquids pumping*
- ◆ *Would like to work with City on getting access to SW corner of park to install cleanup wells.*
- ◆ *Access pending, operating in December, 1996*




Semi-Annual Monitoring

- ◆ *Work conducted in May/June 1996*
- ◆ *RAB input on sampling, first time ever*
- ◆ *Will seek RAB input in upcoming event too*
- ◆ *Total of 112 wells monitored.*
- ◆ *Samples from 82 were analyzed*
- ◆ *4 wells could not be located*




Semi-annual Monitoring (cont'd)

- ◆ *Of 112 wells, LNAPL in 27 (24%)*
- ◆ *Groundwater in upper aquifer flows NW*
- ◆ *Groundwater in lower aquifer flows SE*
- ◆ *Lower aquifer water levels risen 2.5 feet
since last event*




Semi-annual Monitoring (cont'd)

- ◆ *Product detection anomaly in GMW-4*
- ◆ *GMW-12 in North Central plume had LNAPL for first time*
- ◆ *55 samples analyzed for TPH*
- ◆ *TPH Detected in 36 (65%)*




Semi-annual Monitoring (cont'd)

- ◆ *82 samples analyzed for BTEX*
- ◆ *BTEX Detected in 29 (35%)*
- ◆ *BTEX Plume limits relatively unchanged since last event*



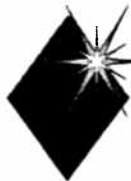
Semi-annual Monitoring (cont'd)

- ◆ *64 samples analyzed for DCA*
- ◆ *DCA Detected in 22 (34%)*
- ◆ *DCA Plume limits relatively unchanged since last event*
- ◆ *Western DCA concentrations almost the same as last event*



Semi-annual Monitoring (cont'd)


- ◆ *50 samples analyzed for MTBE*
- ◆ *MTBE Detected in 12 (24%)*
- ◆ *Will discuss apparent MTBE trends*



*Semi-annual Monitoring
(cont'd)*

MTBE Trends in 24" valve area


- ◆ *MTBE conc. increased in 2 wells, decr. in 1*
- ◆ *unchanged in 5 others (ND)*
- ◆ *Manual product removal continues, cleanup system in operation 12/96*



*Semi-annual Monitoring
(cont'd)*


MTBE Trends in SC plume area

- ◆ *MTBE conc. increased in 6 wells, decr. in 2*
- ◆ *Unchanged in 1 other*
- ◆ *25 wells non detect, Incl. all western offsite but WCV-6*



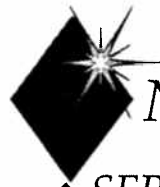
Semi-annual Monitoring (cont'd)

- ◆ *May look a little alarming*
- ◆ *However, Plume maps to show 3 encouraging trends*
- ◆ *1-MTBE in 24" valve leak area is decreasing to south (towards Cerritos)*
- ◆ *2- MTBE in SC area is also non-detect (decreasing) to south also*
- ◆ *Movement of MTBE in SC area is toward West Side Barrier as we predicted*
- ◆ *It will be captured here & removed.*



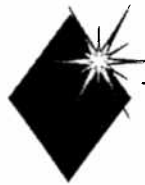
Semi-annual Monitoring (cont'd)

- ◆ *Next event scheduled to start November*
- ◆ *Will prepare sampling list for RAB review & approval*
- ◆ *sampling to start 11/19/96*



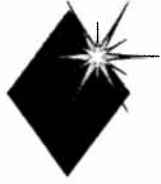
Noise Reduction Efforts

- ◆ *SFPP has performed additional noise testing both on & off the property.*
- ◆ *Testing included a week-long survey at a residents home*
- ◆ *3 Major Noise Sources*
 - ◆ *-Thermal oxidizer for Cleanup*
 - ◆ *Golden West Stripping Valve*
 - ◆ *2 Mainline SFPP Pumps*



Noise Reduction Efforts (con't)

- ◆ *Changed out gearing on thermal oxidizer, measured noise reduction of 33 %*
- ◆ *Put noise dampening shroud around Golden West Valve, measured reduction of 50%, will add one more piece to reduce further*
- ◆ *Week-long monitoring of pumps gave us the information we need to design an efficient noise barrier. Will bid out & install soon.*
- ◆ *Will re-measure to verify predicted results*



◆ *Questions ??*