Public Information Meeting
(Public Meeting #5)

SSFL Stormwater Expert Panel Progress Report Outfalls 008 and 009

December 4, 2008

Expert Panel Opening Statement

- Purpose of meeting is to update the public on progress of ENTS implementation in watersheds 008 and 009
- In addition new information has recently come to light that we will mention up front, and we asked Regional Board staff, Boeing, and NASA to address these issues
  - Regional Board Interim Source Removal Action (ISRA)
  - NASA decision regarding ENTS on their property
- Panel supports the Board's action to accelerate source removals

Opening Statements

- Cassandra Owens, Regional Board
- Tom Gallacher, The Boeing Company
- Allen Elliott, NASA

Q&A ON OPENING STATEMENTS

•Please stand, state name and affiliation
•We will bring the microphone to you
•Hold questions to 3 minutes
•Facilitator will direct questions to the appropriate spokesperson
•If the question cannot be answered, we will "park" the question where someone can get back to you at a later date
•Everyone will have the opportunity to ask a question before someone asks a second question
•Facilitator will cut off questions that are off-topic or redundant

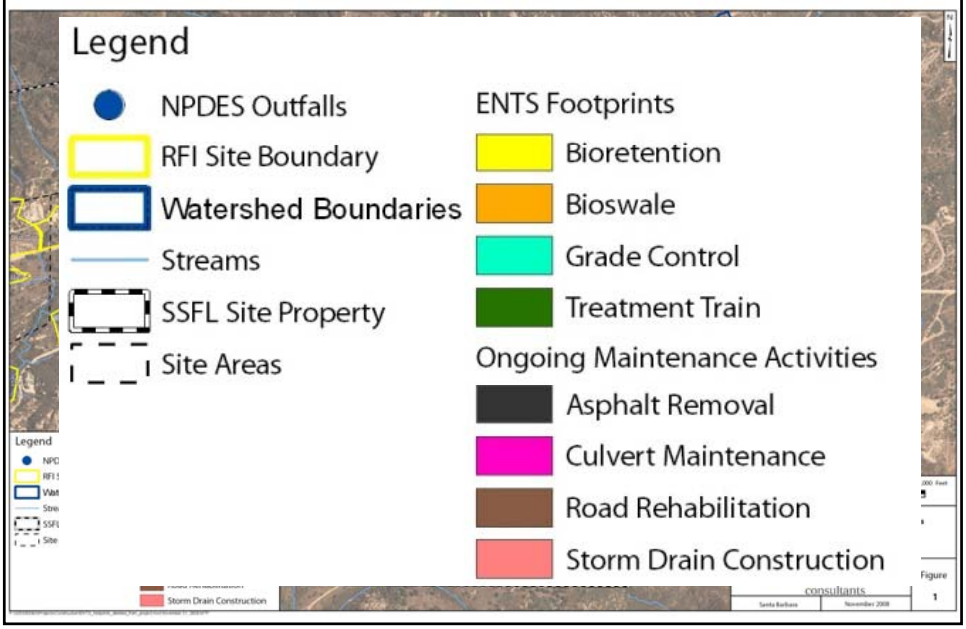
Agenda

- Opening Statements
- Initial Thoughts
- Expert Panel's Scope of Work
- Summary of Past Meetings and Panel Efforts to-Date
- ENTS Progress Report
- NPDES Permit Tasks
- Next Public Meeting

Impacts of NASA Decision on ENTS Project

- NASA has determined that they will not allow construction of ENTS on their property
- NASA is supportive of source removal, channel stabilization, and erosion controls on their property
- Without ENTS on NASA property it is significantly less likely that NPDES permit limits will be met at Outfall 009

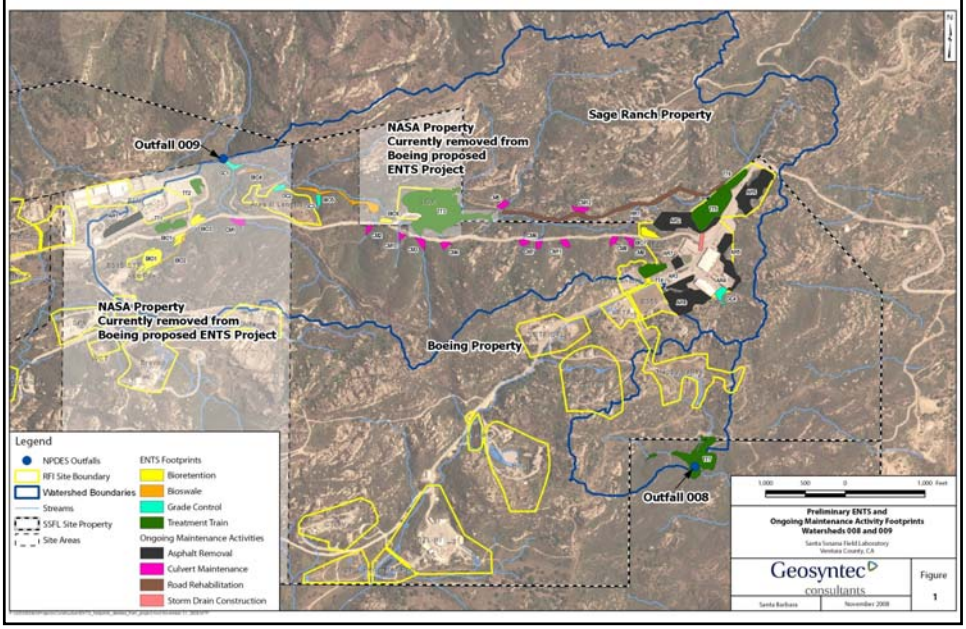
ENTS Status with NASA Sites Removed



Potential Impacts of ISRA on ENTS Project

- We are proceeding on the ENTS project on Boeing property to comply with CDO requirements
- We will coordinate ENTS implementation with the ISRA source removal project team

ENTS Status with NASA Sites Removed



Panel's Follow-up Thoughts

- Panel supports the goal of the ISRA, and has supported accelerated cleanup since the Panel's inception and incorporated source cleanup into the ENTS project itself
- There will be further actions and decisions that result from the ISRA and the Panel expects its continued involvement with that process
- The ISRA is 1 day old and interpretation will take time, so many questions can not be answered at this time

Panel's Follow-up Thoughts

- Watershed 008: ENTS project is expected to be unchanged
  - NASA doesn't own property in 008 watershed
  - ENTS in 008 doesn't overlap RFI area
- Watershed 009: NASA's decision and ISRA represent additional challenges for coordinating ENTS implementation in watershed 009

Panel's Follow-up Thoughts

- ISRA is an addition, not an alternative, to the existing NPDES permit and CDO, which mandate design and implementation of ENTS to meet effluent limits at Outfalls 008 and 009
- The Panel recommends that the ENTS are still necessary to comply with CDO requirements during source removal and site cleanup

Q&A ON PANEL'S THOUGHTS

Expert Panel's Scope of Work

Expert Panel's Scope of Work

- For Outfalls 008 and 009, review site data and recommend natural Engineered Natural Treatment Systems (ENTS) capable of providing the required treatment to meet the final effluent limits
- Recommend to the Board a site-wide design storm
- Public Involvement

Summary of Past Public Meetings and Panel Efforts To-Date

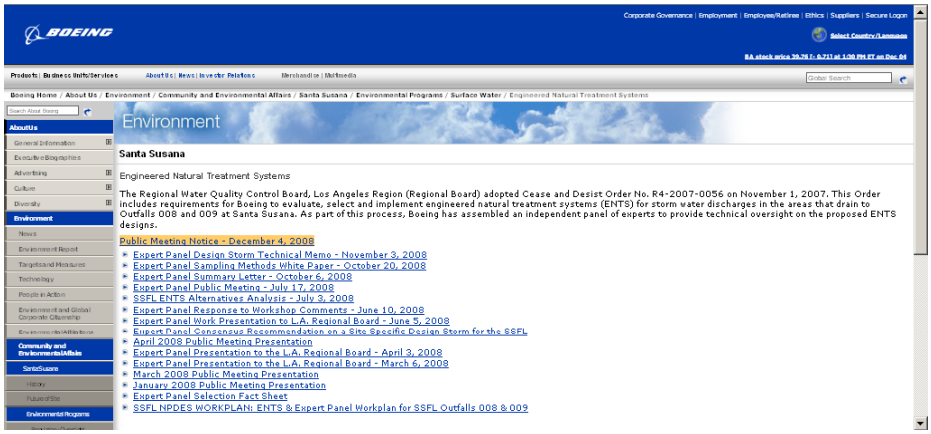
Public Involvement

- January 22, 2008 public meeting
- March 6, 2008 presentation to Regional Board
- March 17, 2008 public meeting
- April 3, 2008 presentation to Regional Board
- April 16, 2008 public field trip
- April 17, 2008 public meeting
- June 5, 2008 Regional Board workshop
- July 17, 2008 public meeting

Representative Tasks and Work Products

Expert Panel Tasks
Design Storm Recommendation
ENTS Conceptual Designs
ENTS Alternatives Analysis
Evaluation of ENTS Designs with NASA
Compliance Sampling Recommendation
Background Concentration Analysis (pending)
Comments on Other Technical Reports
ENTS Plant Selection and Nursery Layout
ENTS Bioretention Filter Media Testing Workplan

ENTS Project Information



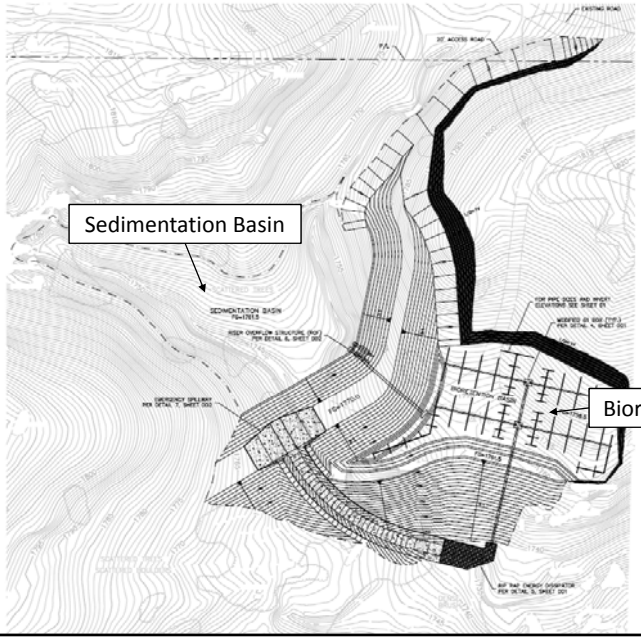
http://www.boeing.com/aboutus/environment/santa_susana/ents/index.html

Expert Panel
ENTS Progress Report

ENTS Progress Report

- Design
- Soil Management Plan & Data Gap Sampling
- Northern Drainage Cleanup
- Permitting
- Construction
- Plant Nursery
- Media Testing Study
- Performance Monitoring Plan

ENTS Designs – TT7 Example



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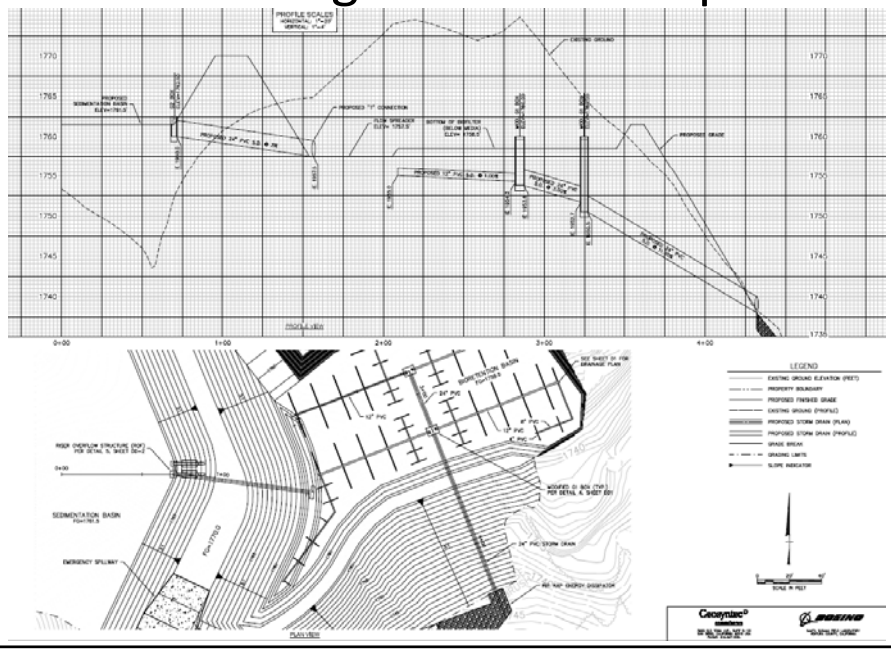

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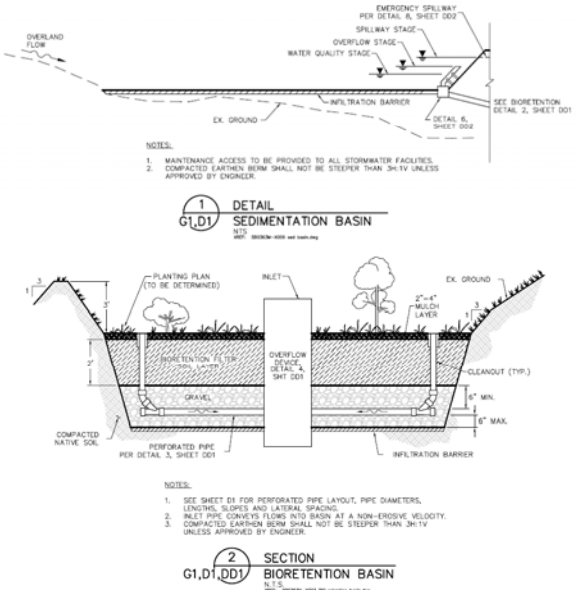
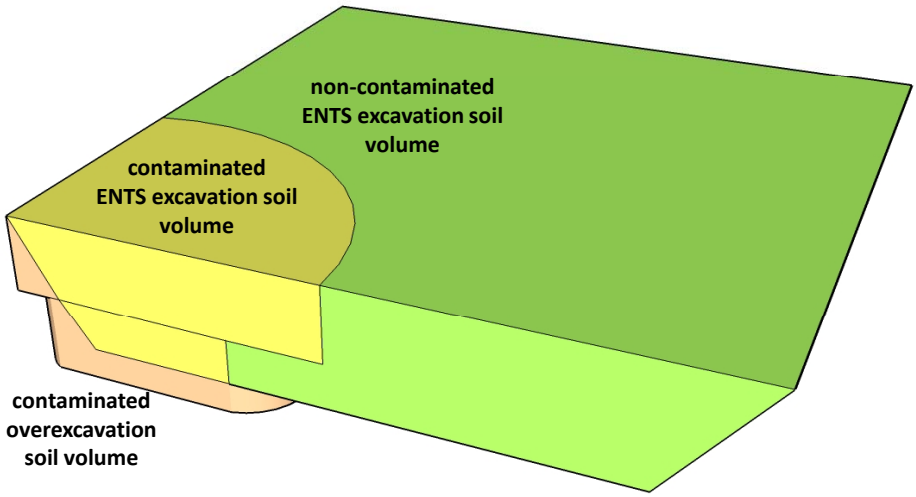


Soil Management Plan

- SMP was developed and submitted to LARWQCB and DTSC prior to issuance of ISRA
- SMP addresses how contamination will be dealt with during ENTS design and construction
- ENTS construction does not circumvent DTSC's RCRA cleanup (2017 target closure date)
- ENTS construction will be coordinated with ISRA
  - Interim source removal action plan due May 1, 2009

ENTS Excavation Concept



ENTS Soil Sampling

- Data gaps were identified based on evaluation of existing soil concentration data set
- Additional soil sampling has been conducted within ENTS footprints and data are currently being evaluated
- Additional sampling will occur during stockpiling to characterize for management purposes

Northern Drainage Cleanup

- Northern drainage cleanup (triggered by CAO) ongoing
- Expert Panel site visit with Regional Board staff occurred yesterday December 3

Northern Drainage – In Stream Removal

Northern Drainage – In Stream Removal

Northern Drainage – In Stream Removal

ENTS Permitting – County Permit

- Special Use Permit application to be submitted to Ventura County in December, and will undergo public review. Application includes ENTS construction plan and CEQA technical reports including:
  - Cultural resources
  - Biological resources
  - Geotechnical
  - Water Quality
  - Hydrology
  - Traffic
  - Air Quality
  - Noise
  - Climate Change

ENTS Permitting Schedule

ENTS Project Milestone	Status
CDFG Streambed Alteration Agreement	Submit application in Feb '09
ACOE Nationwide 404 Permit	Submit application in Feb '09
RWQCB 401 Cert.	Submit application in Feb '09
County Grading Permit	Submit application in Mar '09
County Watercourse Permit	Submit application in Mar '09
County Oak Tree Permit	Submit applications in Summer '09

ENTS Construction Progress

- Phase 1: In Progress
- Phase 2: July – October 2009 (date dependent on ISRA activities)

Culvert Modification – CM-3

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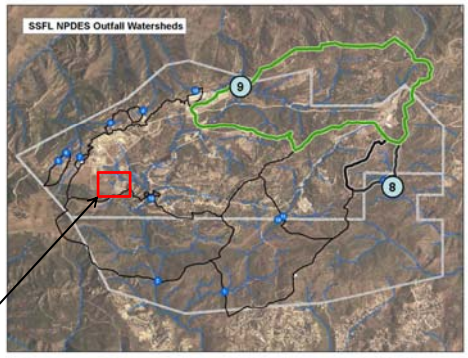
Culvert Maintenance – New Headwall/Weir

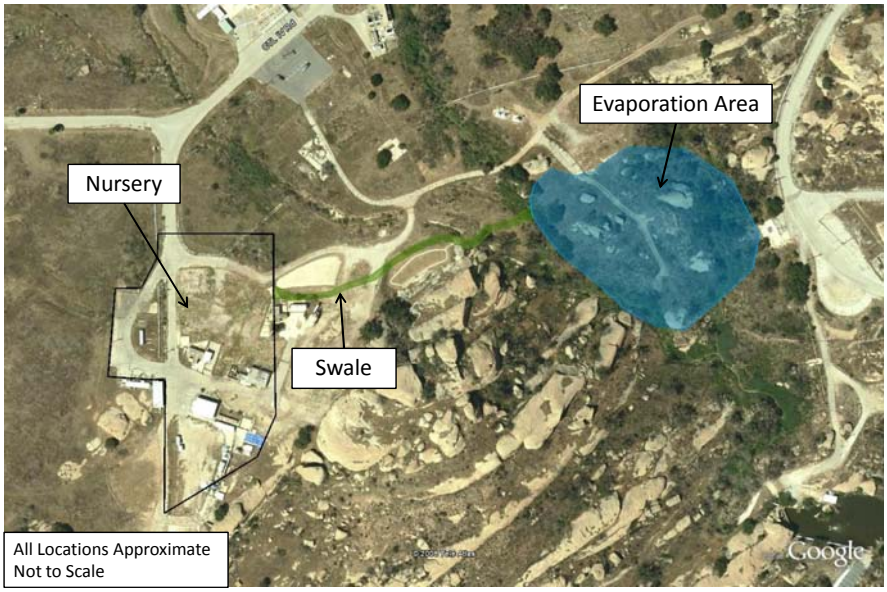
Nursery Design

- On-site nursery to cultivate native plants for ENTS
- 3-acre site, 25,000 plants
- Potted plants with spray irrigation
- Start-up anticipated Spring ’09
- To be planted in ENTS in late Summer ‘09



To be located in western region of SSFL

Nursery Design and BMPs



Media Testing Study

- Workplan Elements
  - Phase 1: Filtration Media Review and Initial Screening
  - Phase 2: Filtration Media WQ and Longevity Testing
  - Phase 3: Bioretention Media Constructability Evaluation
  - Phase 4: Bioretention Hydraulic Optimization
  - Phase 5: Bioretention Agronomic Evaluation

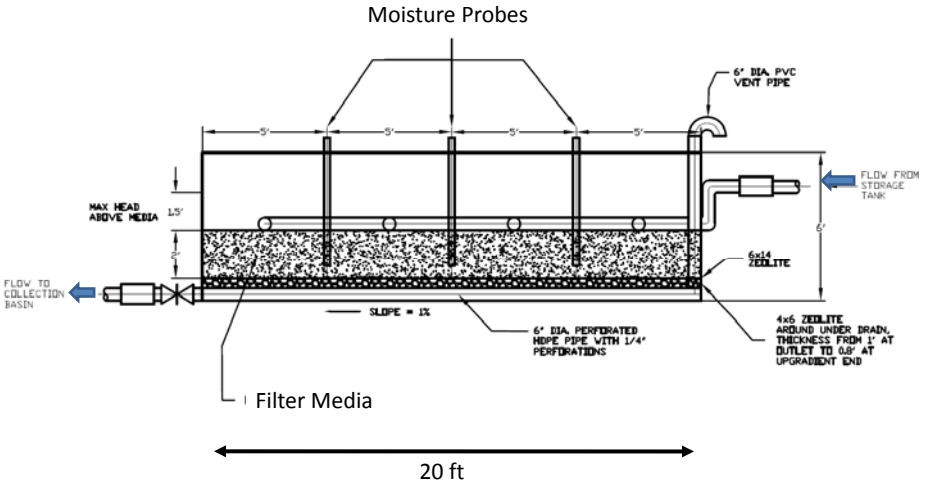
Media Testing Study

- Goal: To optimize performance of the bioretention filter media
- Lab testing soon to begin at Penn State-Harrisburg
- Pilot-scale field testing soon to begin on-site

Test columns:

Media Testing Study: Pilot Scale Test Cells

Profile: Media Test Unit



Full Scale ENTS Performance Monitoring Plan

- Influent and effluent samples will be collected during storm events to assess performance once ENTS are constructed
- Monitoring plan completion anticipated in Spring 2009
- Purpose: verify performance and improve ENTS as necessary

Q&A ON ENTS PROGRESS REPORT

Expert Panel
NPDES Permit-Related Tasks

Responses to Board Requests for Information

- Design storm technical memo submitted to Board staff on November 5, 2008
- Compliance sampling white paper submitted to Board staff on November 5, 2008
- Background concentration white paper pending

Compliance Sampling White Paper

National Research Council (NRC), Committee on Reducing Stormwater Discharge Contributions to Water Pollution, *Urban Stormwater Management in the United States* (NRC 2008).

This recently published report states a strong preference for flow weighted composite sampling as opposed to grab sampling:

> ***Continuous, flow-weighted sampling methods should replace the traditional collection of stormwater data using grab samples.*** *Data obtained from too few grab samples are highly variable, particularly for industrial monitoring programs, and subject to greater uncertainly because of experimenter error and poor data-collection practices. In order to use stormwater data for decision making in a scientifically defensible fashion, grab sampling should be abandoned as a credible stormwater sampling approach for virtually all applications. It should be replaced by more accurate and frequent continuous sampling methods that are flow weighted. Flow-weighted composite monitoring should continue for the duration of the rain event. Emerging sensor systems that provide high temporal resolution and real-time estimates for specific pollutants should be further investigated, with the aim of providing lower costs and more extensive monitoring systems to sample both stream flow and constituent loads.*

Compliance Sampling White Paper

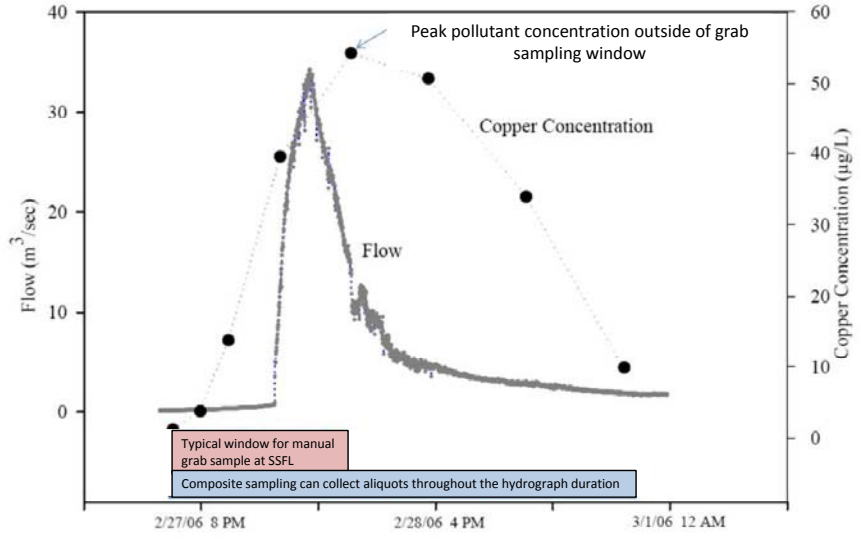


Figure 1. Hydrograph and Pollutograph with Sampling Windows for Manual Grab and Composite Sampling (Piru Creek Data, Southern California February 27 – March 1, 2006 from SCCWRP [Stein and Yoon 2007])

Q&A ON NPDES PERMIT-RELATED TASKS

THE END

Next Public Information Meeting – Spring 2009