

Perchlorate Occurrence in the Simi Valley Area

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Executive Officer

State of California

Los Angeles Regional Water Quality Control Board

Thousand Oaks Civic Arts Plaza-Scherr Forum Theater

August 20, 2003

Overview of the Perchlorate Public Advisory Group (PPAG)



Perchlorate Public Advisory Group (PPAG)



- Established by LARWQCB, March 2003
- In response to growing interest in water quality in Los Angeles and Ventura Counties
- Comprised of individuals from government, regulated community, private sector, environmental organizations and area neighborhoods

PPAG's Mission

- Provide an informal forum for the exchange of information about perchlorate, its impact to surface and ground waters and contaminant control and remediation technologies.
- Provide meeting participants with information which will be helpful when developing, coordinating and implementing strategies to prevent, identify, control or remediate surface or ground water pollution.

PPAG Accomplishments

- Authorities from various disciplines have presented presentations on:
 - Development of a Regional Board perchlorate webpage
 - Nature and extent of perchlorate pollution in Los Angeles and Ventura Counties
 - USEPA overview of perchlorate impacts
 - Development of a Public Health Goal (PHG) and Maximum Contaminant Level (MCL) for perchlorate
 - Existing and potential detection
 - Perchlorate treatment technologies
- PPAG presentations can be viewed on the Regional Board's web site

PPAG Participation

- PPAG meetings open to everyone interested in learning about perchlorate, its occurrence and current and future efforts to eliminate its presence in surface and ground waters with the coastal watershed.
- Meetings held quarterly, usually at Regional Board's offices in downtown Los Angeles
- PPAG meeting dates, locations and agendas posted on Regional Board's web site

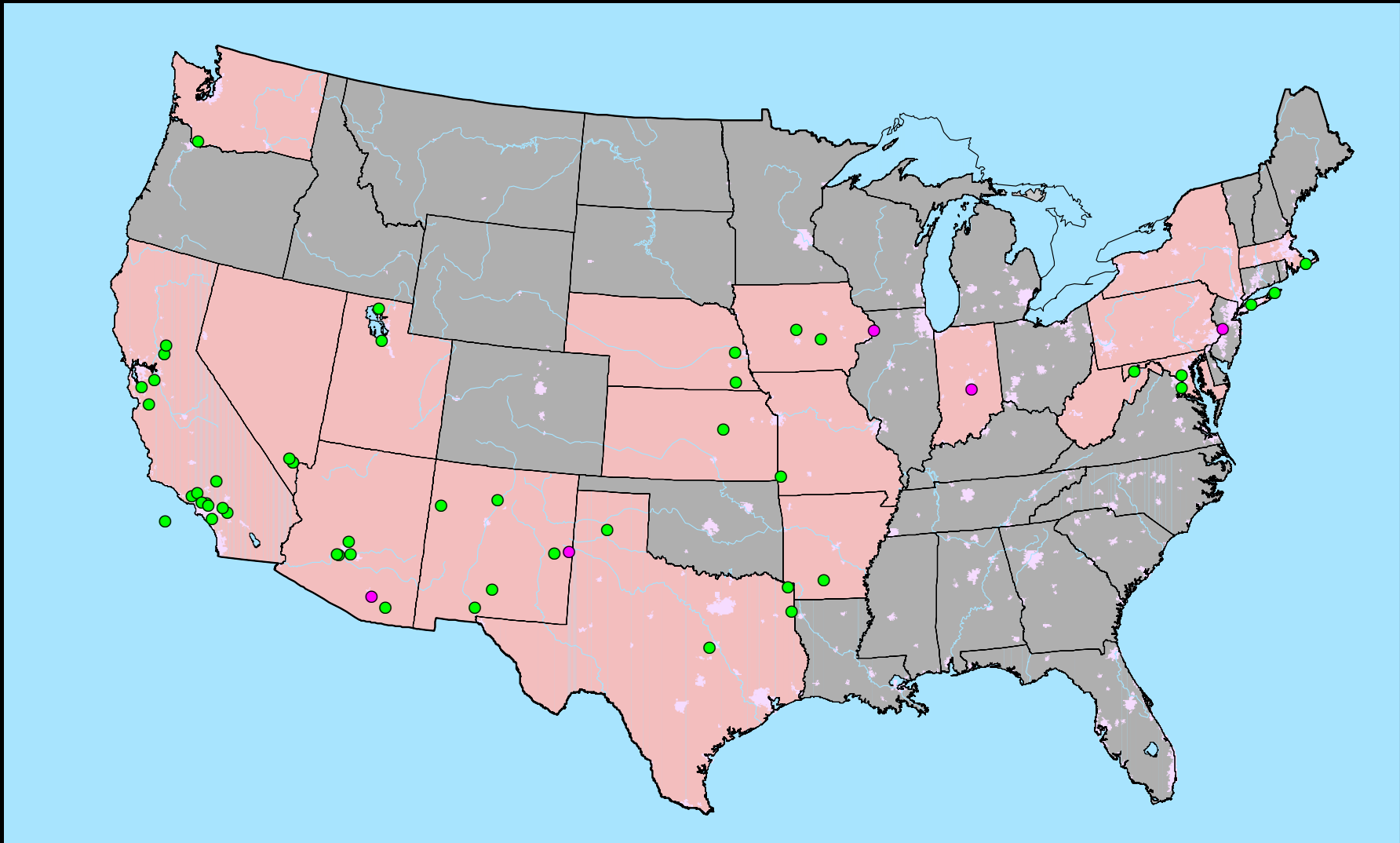
Perchlorate and Its Occurrence



A brief introduction

Perchlorate and Its Occurrence

- Perchlorate has been found in many locations across the United States
- A major source of perchlorate is the Kerr-McGee facility in Henderson, Nevada
 - contamination has found its way to Lake Mead
 - contamination is in Colorado River water



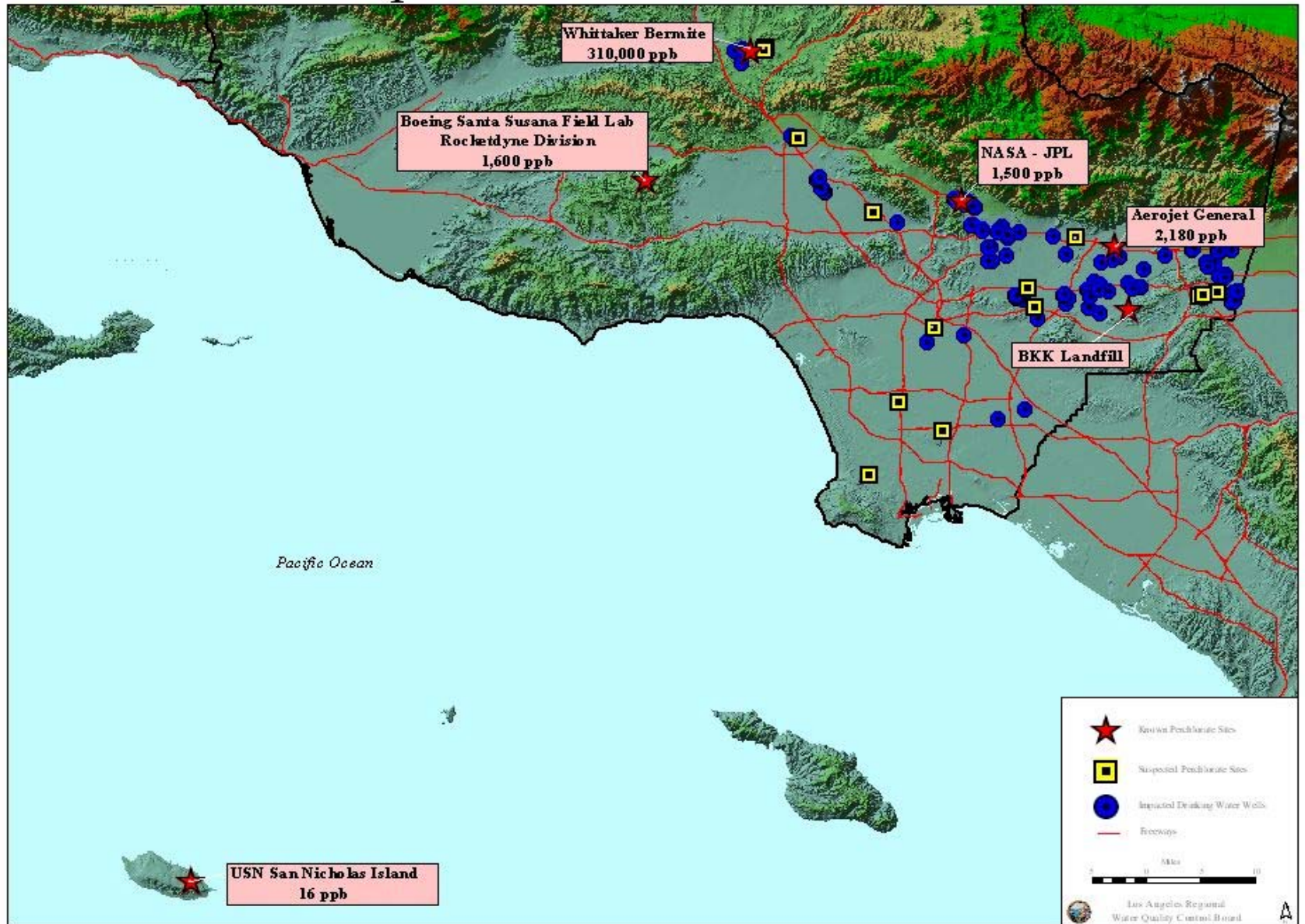
Perchlorate and Its Occurrence

- Possible Perchlorate Sources
 - Occurrence closely associated with aerospace and defense sites
 - Primary contamination most likely from “legacy” sources
 - Incidental and localized contamination may be from a variety of sources (e.g., fireworks, road flares, fertilizers)

Groundwater and Perchlorate: Los Angeles Region

- **Maximum reported concentrations in groundwater associated with aerospace and defense sites**
 - Aerojet (Baldwin Park) 2,180 ppb
 - NASA/JPL (Pasadena) 1,500 ppb
 - Santa Susana Field Lab (Simi Valley) 1,600 ppb
 - US Naval Facility (San Nicholas Island) 16 ppb
 - Whittaker Bermite (Santa Clarita) 310,000 ppb

Known and Suspected Perchlorate Onsite Contamination



Groundwater and Perchlorate: Los Angeles Region



- Central Basin
 - sporadic detections in the Cities of Vernon, Commerce, Norwalk and Bellflower
- San Gabriel Basin
 - basin-wide detections, inside and outside designated Superfund areas
- Pomona Valley
 - detection in 23 production wells in the City of Pomona

*Groundwater and Perchlorate:
Simi Valley*



Groundwater and Perchlorate: Simi Valley



- Simi Valley
 - Drinking water supplies
 - no perchlorate found in any Simi Valley drinking water well or source
 - Groundwater (not used for drinking water)
 - 66 wells sampled

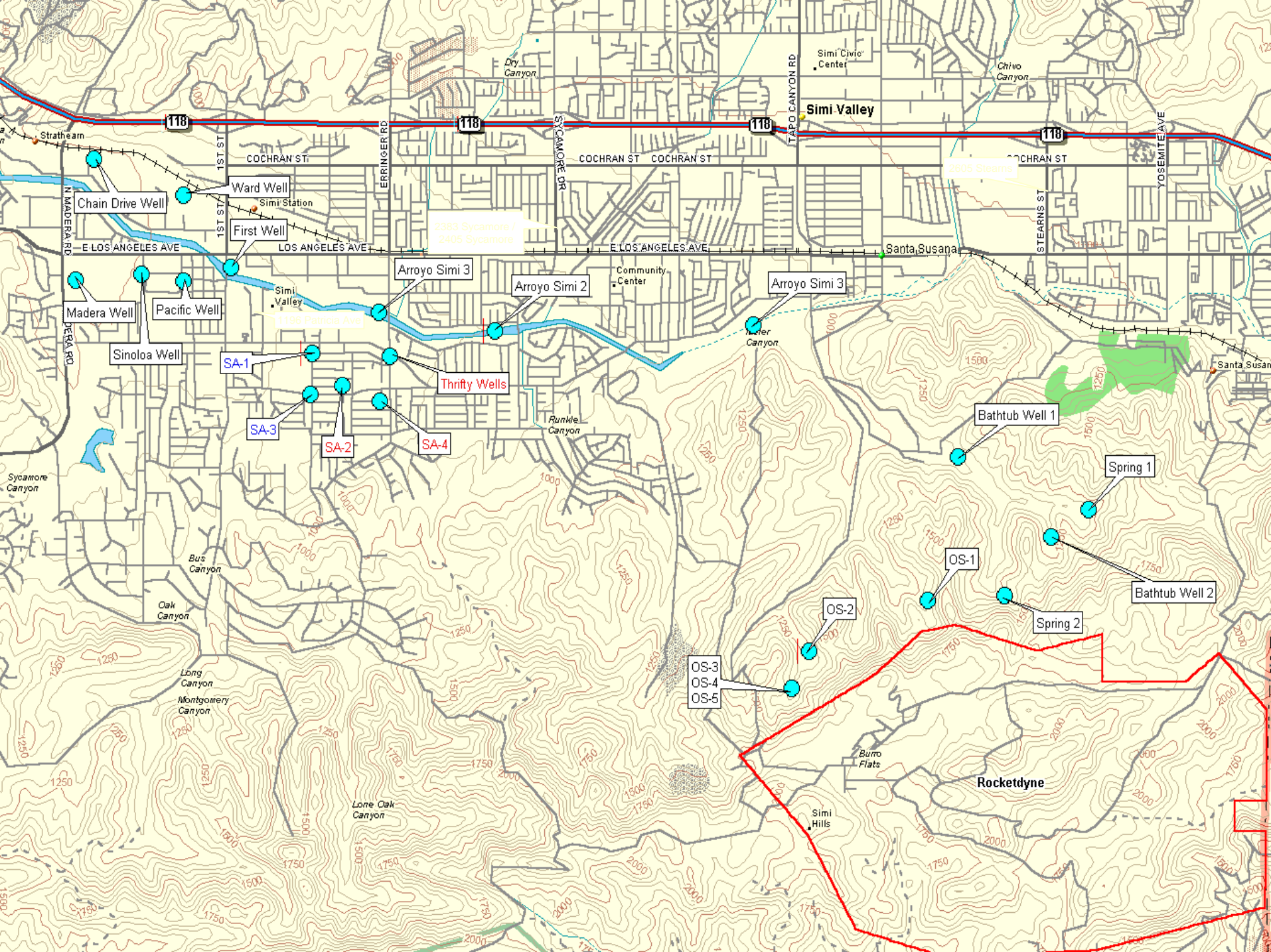
Groundwater and Perchlorate: Simi Valley



- Of the 66 wells sampled
 - perchlorate detected in 17 groundwater samples
 - majority of detections at depths of less than 20 feet
 - all detections less than 20 ppb
 - 7 detections less than 6 ppb
 - California Public Health Goal: 2-6 ppb

Groundwater and Perchlorate: Simi Valley

- Perchlorate is present in groundwater but single or multiple source(s) not confirmed
 - current data show no definable plume of contamination
 - at present, there is no confirmed connection to SSFL as the source
 - SSFL not ruled out as a source
 - supplemental re-sampling of 8 wells at four sites by Regional Board and DTSC (June/July 2003)



Gas Stations Recent Groundwater Results

		Previous and Recent Results	
Gas Station	Monitoring Well	JULY 2002	JULY 2003
76 Station (19) 2605 Stearns Simi Valley, CA	MW-1	ND	ND
	MW-5	ND	ND
	MW-6	4.44	ND
Shell Station (20) 2405 Sycamore Simi Valley CA	MW-1	15.2	16.3
	MW-2	5.9	9.83
	MW-3	12.4	4.83
76 Station (21) 2383 Sycamore Simi Valley, CA	MW-11	ND	Not sampled
	MW-13	ND	Not sampled
	MW-16	ND	Not sampled
	MW-17	13.29	14.4

Gas Stations

Recent Groundwater Results



		Previous and Recent Results	
Gas Station	Monitoring Well	MAY 2002	MAY 2003
Warne Property 1196 Patricia Avenue Simi Valley, CA	MW-1	19.28	ND
	MW-3	ND	ND
	MW-9	ND	ND

Gas Stations

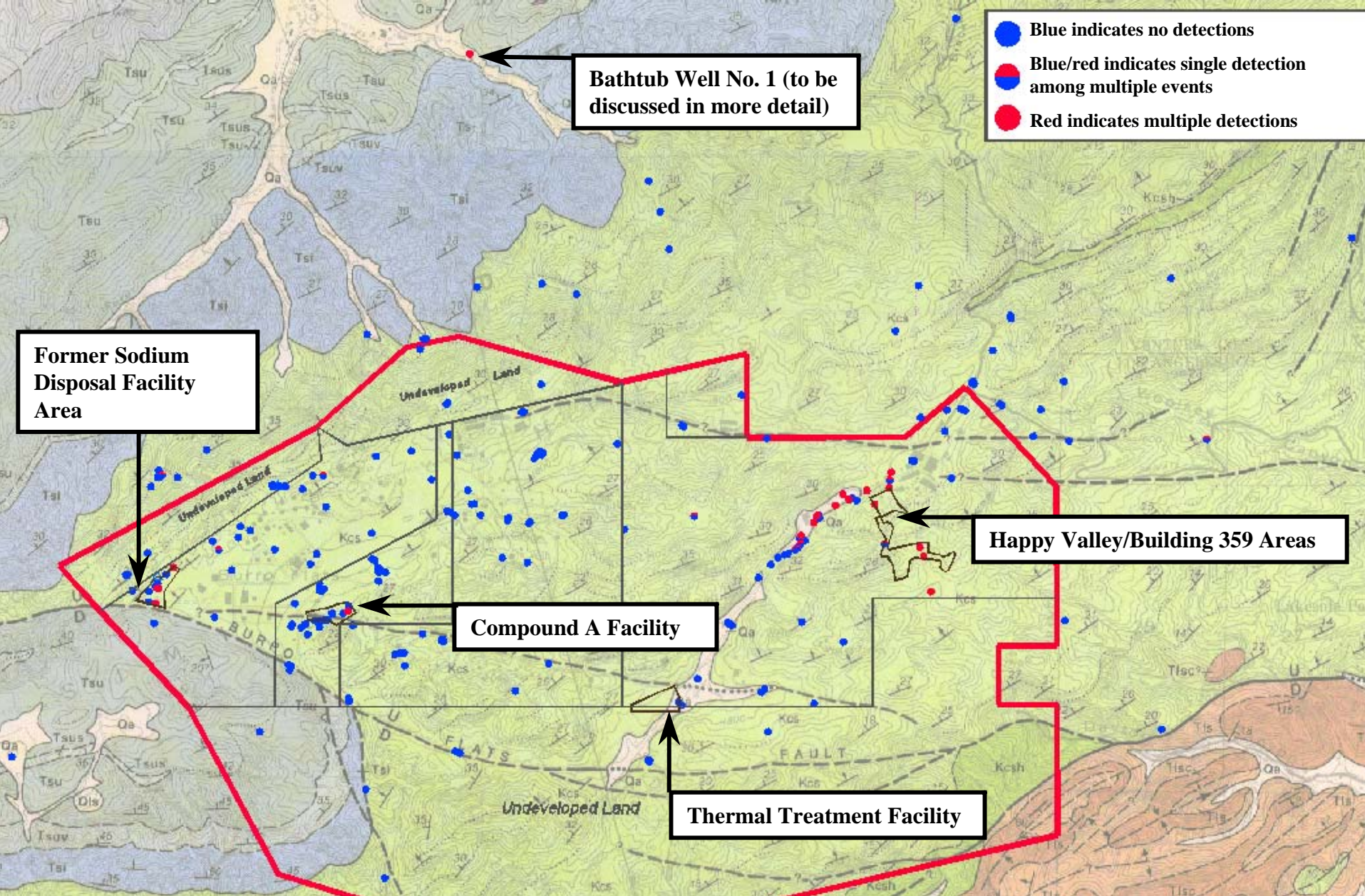
2003 Groundwater Results

- Two gas stations that detected perchlorate in 2002 in one monitoring well did not detect it in the 2003 sampling.
- Perchlorate was again detected at two other gas stations, in four monitoring wells, at levels similar to those detected in 2002.
- The maximum perchlorate concentration was 16.3 ppb in the 2003 groundwater sampling.

*Perchlorate and the
Santa Susana Field Lab (SSFL)*

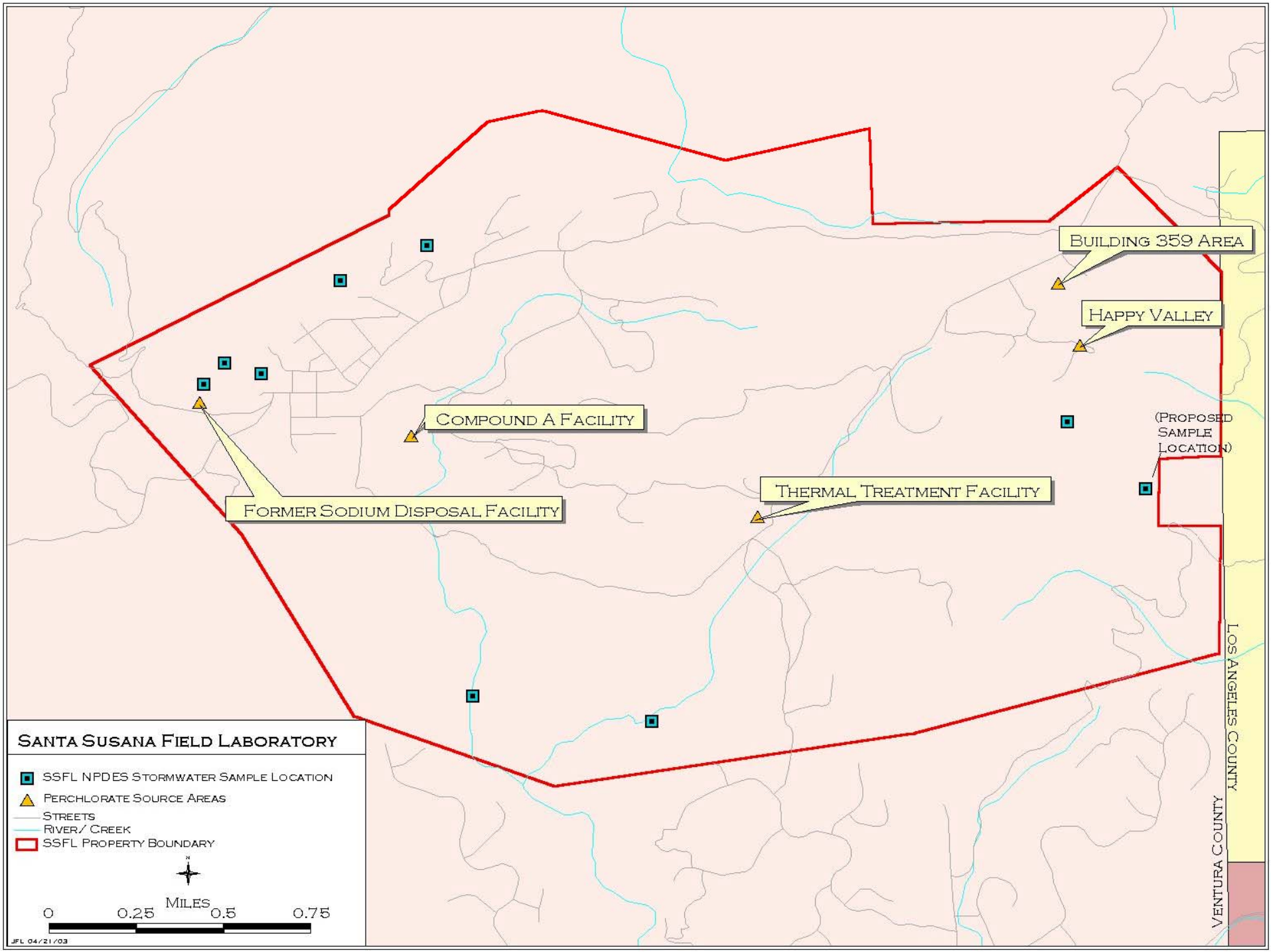


SSFL Groundwater Monitoring Network (wells, springs, seeps)








SSFL Groundwater Contamination

- **Santa Susana Field Laboratory (SSFL) (April 2003)**
 - more than 1100 groundwater samples at or near SSFL
 - approximately 18% of samples detected perchlorate
 - almost all detections located on-site in known areas of perchlorate use/destruction
 - single off-site detection ~ 4 ppb
 - Meier Canyon
 - Woolsey Canyon
 - not detected in on- or off-site seeps or springs
 - Bathtub Well No. 1 (more recent sampling)



SANTA SUSANA FIELD LABORATORY

-  SSFL NPDES STORMWATER SAMPLE LOCATION
-  PERCHLORATE SOURCE AREAS
-  STREETS
-  RIVER/ CREEK
-  SSFL PROPERTY BOUNDARY



Sites of Perchlorate Use With Contamination in Groundwater

- **Contamination Sites and Concentrations (April 2003)**
 - Building 359 area
 - 1,600 ppb
 - Chatsworth Formation Well HAR-16 in discrete-interval
 - Happy Valley area
 - 280 ppb
 - Chatsworth Formation Well RD-10 (231'-241' below ground surface)
 - Former Sodium Disposal Facility area
 - 15 ppb
 - Shallow monitoring well, weathered bedrock, RS-54
 - Chatsworth Formation well RD54A, up to 56 ppb in discrete-interval

Sites of Perchlorate Use with No Contamination in Groundwater

- Compound A Facility (April 2003)
 - Metal forming area using explosives
 - No record of actual perchlorate usage
 - 11 ppb in shallow zone well, ES-24 in weathered bedrock
 - Non-repeatable detections not included
- Thermal Treatment Facility
 - Burning of liquid fuels, solvents and solid propellants in steel basin within steel cage covered with densely woven steel mesh
 - Approximately 1,890 pounds of perchlorate burned (1960-1990)
 - No detection in groundwater

Soils and Perchlorate: SSFL

- Santa Susana Field Laboratory
 - more than 800 soil samples at or near SSFL
 - approximately 25% of samples detected perchlorate
 - almost all located on-site in known areas of perchlorate use/destruction

Soils and Perchlorate: SSFL

- **Contaminated Areas and Maximum Concentrations**
 - Building 359 area
 - 71,290 ppb
 - near bulk material storage and handling facility
 - Happy Valley area
 - 320 ppb
 - near test building 372
 - Former Sodium Disposal Facility area
 - 1,300 ppb (prior to remedial action)
 - not detectable (after remedial action)
 - Compound A facility
 - possible perchlorate use associated with metal forming process
 - 11 ppb detectable (near well ES-24)

Soils and Perchlorate: SSFL

- **Known Areas of Perchlorate Use/Destruction Areas To be Tested**
 - Thermal Treatment Area
 - Eleven samples collected, data preliminary, not yet validated
 - 10 non-detects, 1 detect at 4.3 ppb
 - Additional sampling scheduled during 2003

Soils and Perchlorate: Sampling on Lands Adjacent to SSFL

- Numerous samples from canyons and drainage channels located in the undeveloped areas surrounding SSFL
- One sample collected from Meier Canyon (north side of SSFL) had reported detection of 4.6 ppb
 - Meier Canyon detection could not be duplicated following re-analysis of 60 pounds of soils from same location
- Regional Board soil/sediment samples from Chatsworth Reservoir and Dayton Canyon Creek
 - 2 Chatsworth and 1 Dayton Canyon Creek Samples (March 2003)
 - No perchlorate detected
- A total of 10 wells and one tap water source sampled at the Raytheon site (Fallbrook & Roscoe). Preliminary data all non-detect for perchlorate

*SSFL Surface Water Runoff
Discharge Permit*



Surface Water Runoff: Current Permit Requirement for SSFL

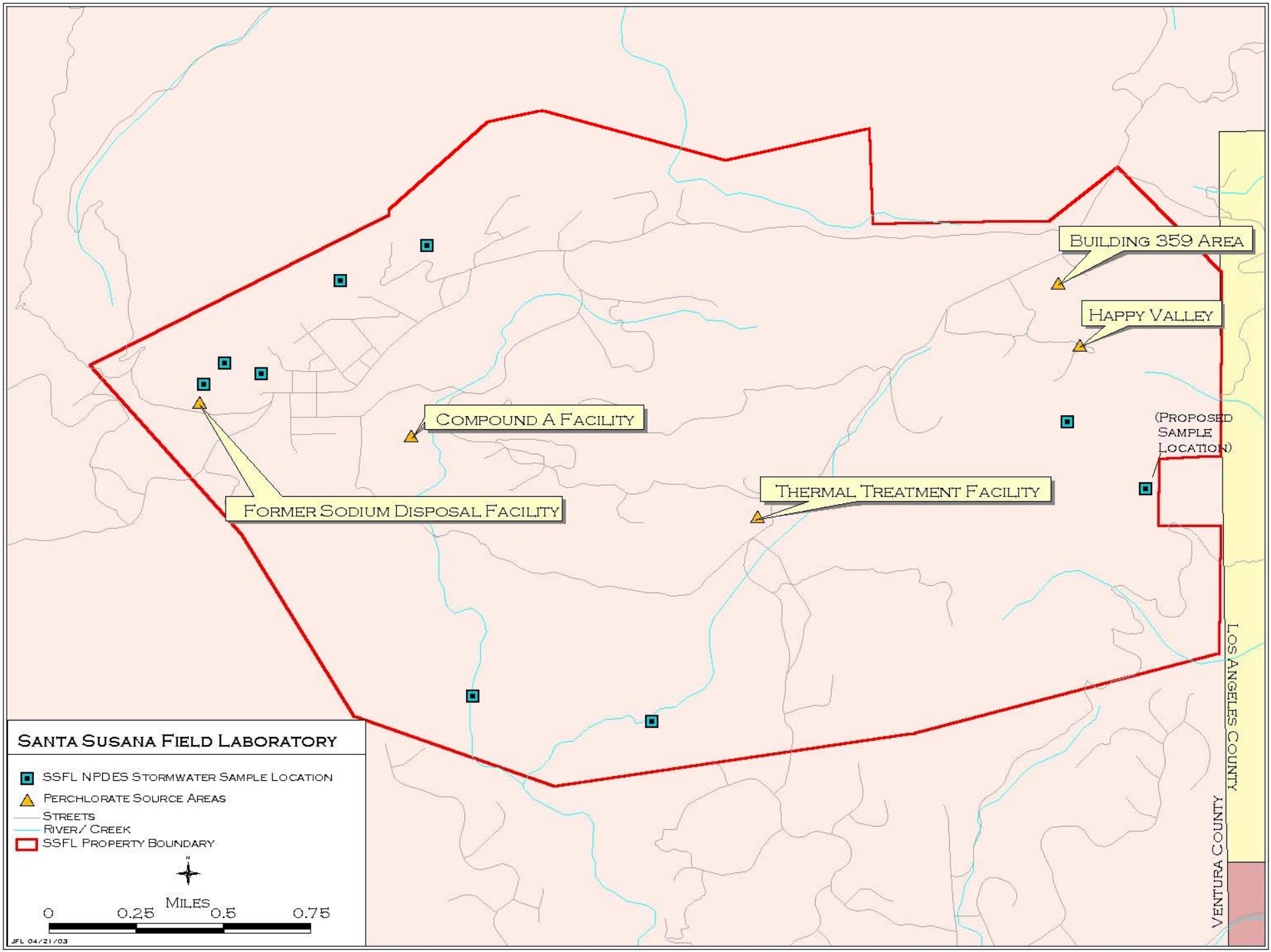
- ◆ Permit applies to discharges of surface water from SSFL
 - ◆ Current provisions of 1996 permit
 - ◆ Effluent limits for chemicals of concern in wastewater and storm water discharges
 - ◆ No current effluent limits for perchlorate (1996)
 - ◆ Monitoring for priority pollutants in wastewater
 - ◆ Monitor storm water discharges for perchlorate.

Surface Water Runoff: Tentative Permit Requirements for SSFL






- All discharges from a facility are required to be regulated under a permit issued by the Regional Board
 - storm water runoff/wastewater
 - current SSFL permit is to be renewed shortly, scheduled for Regional Board consideration tentatively set for October 2, 2003
 - proposed permit will include requirements for perchlorate monitoring and discharge limits
 - exact limits to be set by the Regional Board after a public hearing

Surface Water Runoff: Tentative Permit Requirements for SSFL

- ◆ Tentative Permit
- ◆ Likely provisions will include:
 - ◆ California Toxics Rule (CTR)-based effluent limits for waste water discharges
 - ◆ CTR-based daily maximum effluent limits for storm water only
 - ◆ New effluent limit for perchlorate based on the most recent DHS Action Level
 - ◆ A requirement for monitoring of “emerging” chemicals



SANTA SUSANA FIELD LABORATORY

-  SSFL NPDES STORMWATER SAMPLE LOCATION
-  PERCHLORATE SOURCE AREAS
-  STREETS
-  RIVER/ CREEK
-  SSFL PROPERTY BOUNDARY



Surface Water Runoff: Concentrations in Storm Water at SSFL

<u>Date</u>	<u>Outfall</u>					<u>Happy Valley</u>
	<u>003</u>	<u>004</u>	<u>005</u>	<u>006</u>	<u>007</u>	
3/25/98	<0.7	<0.7	<0.7	<0.7	<0.7	20 µg/L
5/5/98	<4	<4	<4	4.26	<4	---
2/21/00	---	---	---	---	---	16
2/23/00	---	---	---	---	---	13
3/9/00	---	---	---	---	---	17
3/11/00	---	---	---	---	---	8.2
4/18/00	---	---	---	---	---	9.4

Note: No perchlorate detected in samples from any other outfalls in Happy Valley except on 5/5/98 at outfall 006 at 4.26 ppb

Surface Water Runoff: Concentrations in Storm Water at Happy Valley

<u>Date</u>	Happy <u>Valley</u>	<u>Date</u>	Happy <u>Valley</u>
1/12/01	8 µg/L	2/12/03	4.7 µg/L
2/13/01	5.5	2/14/03	<4
2/26/01	4.2	2/25/03	12
3/5/01	5.3	3/15/03	5.3 (HV #1)
3/7/01	4.9	3/15/03	<4 (HV #2)
3/8/01	5.2	<i>5/3/03</i>	<i><4 (HV #1)</i>
3/9/01	4.8	<i>5/3/03</i>	<i>4.6 (HV #2)</i>

Santa Susana Field Laboratory ***Perchlorate Update – Interim Measure***

Happy Valley/Building 359 are on site sources that need to be cleaned up

Interim Measure Workplan Submitted June 16

- Biodegradation and/or excavation with off-site disposal
- RWQCB and DTSC comment on Workplan (July)
- Workplan amendments have been received (August 18)
- Interim cleanup efforts underway
- Cleanup scheduled during September/October

Building Demolition in Support of Happy Valley/Building 359 Interim Measures



- Approximately 10 buildings/foundations removed
- Building debris sent to Kettleman Hills landfill
- Demolition activities facilitate clean up

SSFL Perchlorate Status

- 90 Day Look Ahead.....
 - Continuing data validation of off-site samples
 - Initiate perchlorate Clean up in Happy Valley/Building 359 area
 - Implement perchlorate characterization workplan (August)
 - Continue on and off site groundwater monitoring and sampling
 - Conduct on-site landfill investigations

C-1 Pumping Test

- Pump Test for Aquifer Characterization
 - six week duration
 - 60 gpm discharge to Bell Cyn (001) watershed
 - Required DTSC Permit Modification
 - Facilitate Corrective Actions for Groundwater
 - Requires Additional Treatment Module

C-1 Pumping Test Effluent Analyses

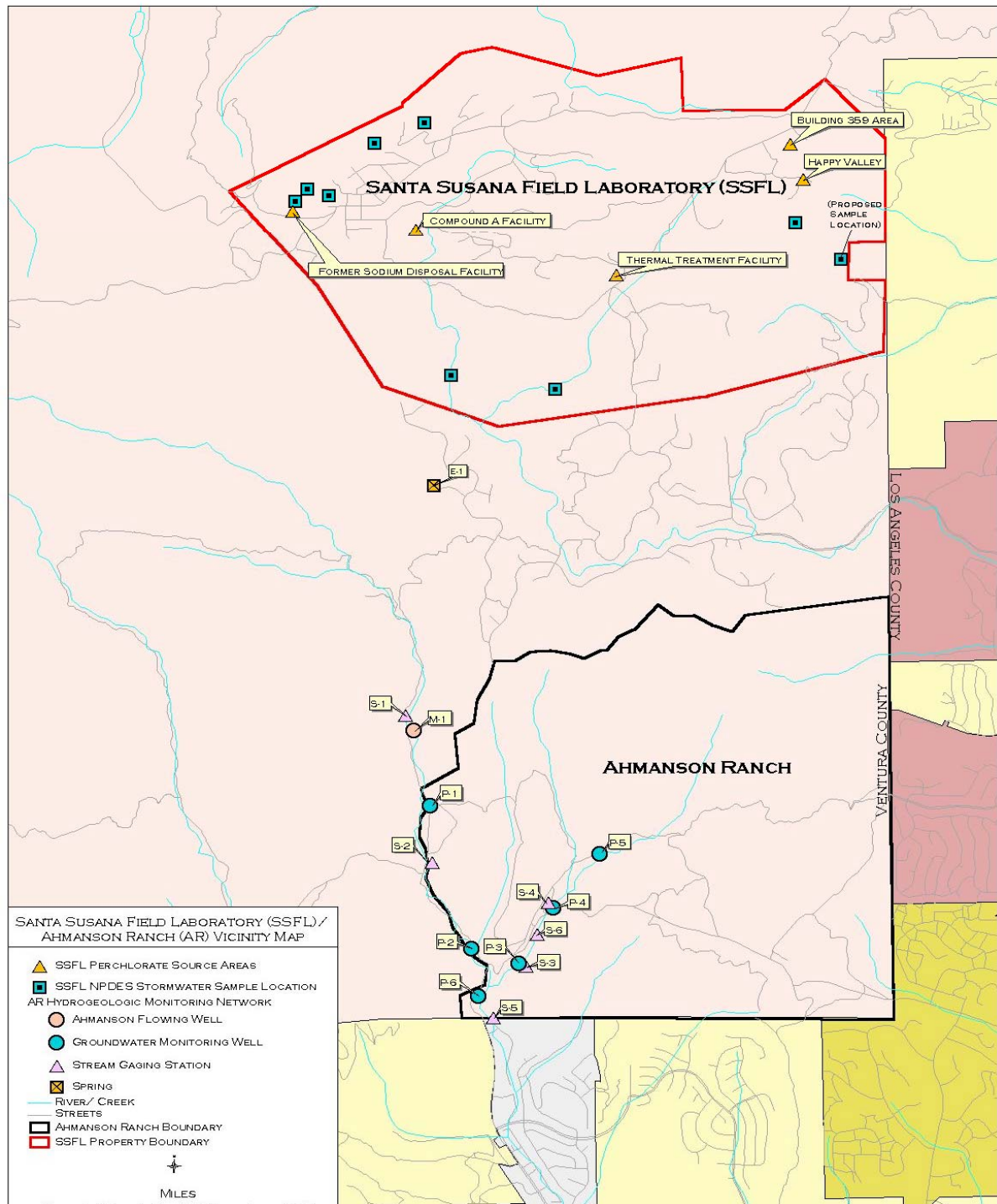
- Two sample events evaluating the influent and the effluent
- Analysis for all priority pollutants except asbestos
- Analysis for emergent chemicals:
 - ammonium perchlorate
 - n-nitrodimethylamine
 - 1,4-dioxane
 - 1,2,3-trichloropropane

Ahmanson Ranch MW-1



Ahmanson Ranch Water Quality Sampling

- Shallow Groundwater and Surface Water Sampling
 - November 2002
 - 6 shallow wells samples (P-1 through P-6)
 - 4 surface water samples (S-1 S-2 S-4 and S-6)
 - perchlorate *not* detected in any sample and no chlorinated VOC's detected
 - March 2003 and June 2003
 - 6 shallow well samples (P-1 through P-6)
 - 6 surface water samples (S-1 through S-6)
 - perchlorate *not* detected in any sample and no chlorinated VOC's detected

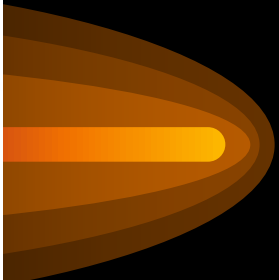


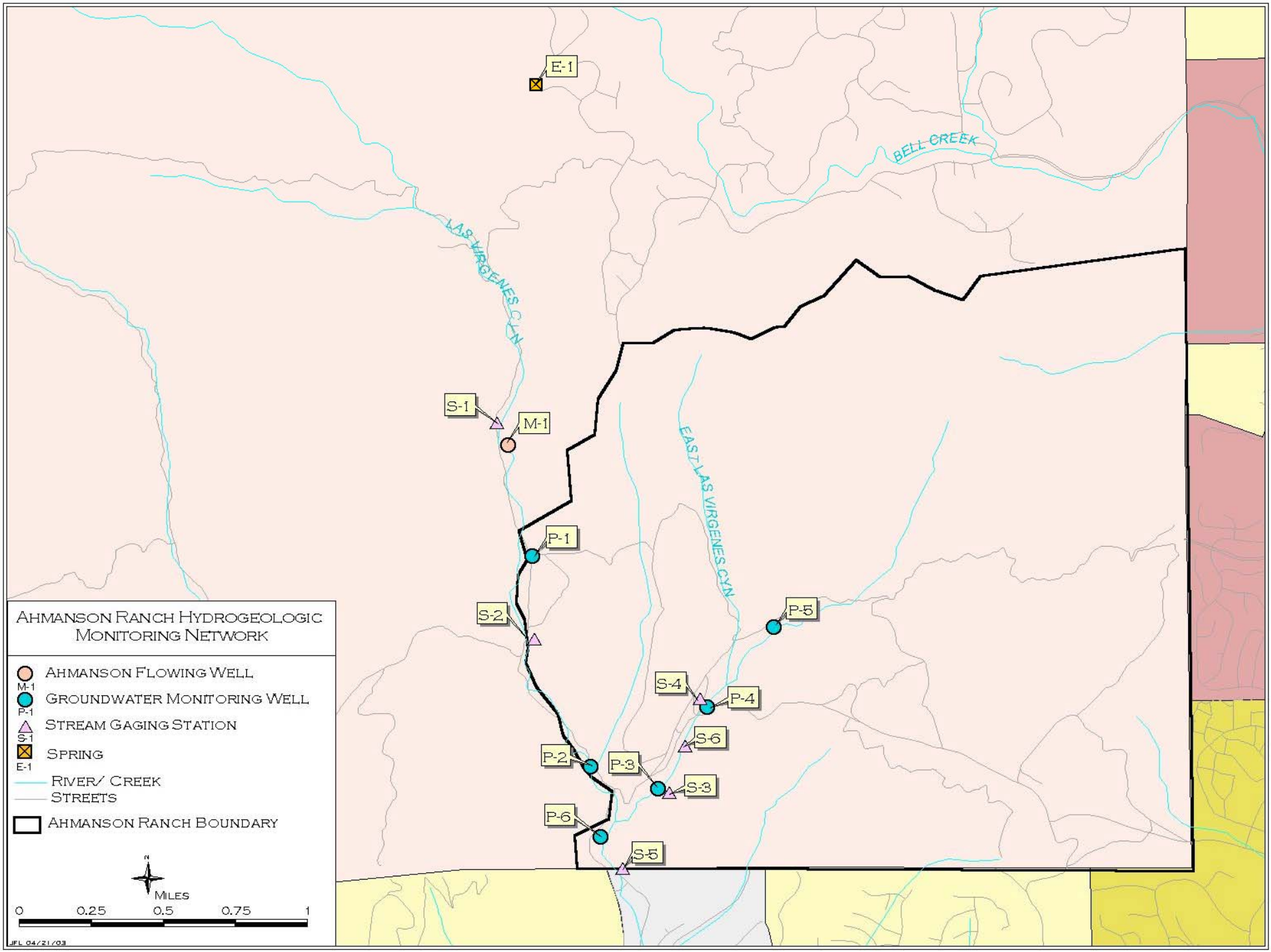
SANTA SUSANA FIELD LABORATORY (SSFL) / AHMANSON RANCH (AR) VICINITY MAP

- SSFL PERCHLORATE SOURCE AREAS
- SSFL NPDES STORMWATER SAMPLE LOCATION
- AR HYDROGEOLOGIC MONITORING NETWORK
- AHMANSON FLOWING WELL
- GROUNDWATER MONITORING WELL
- STREAM GAGING STATION
- SPRING
- RIVER / CREEK
- STREETS
- AHMANSON RANCH BOUNDARY
- SSFL PROPERTY BOUNDARY











MILES





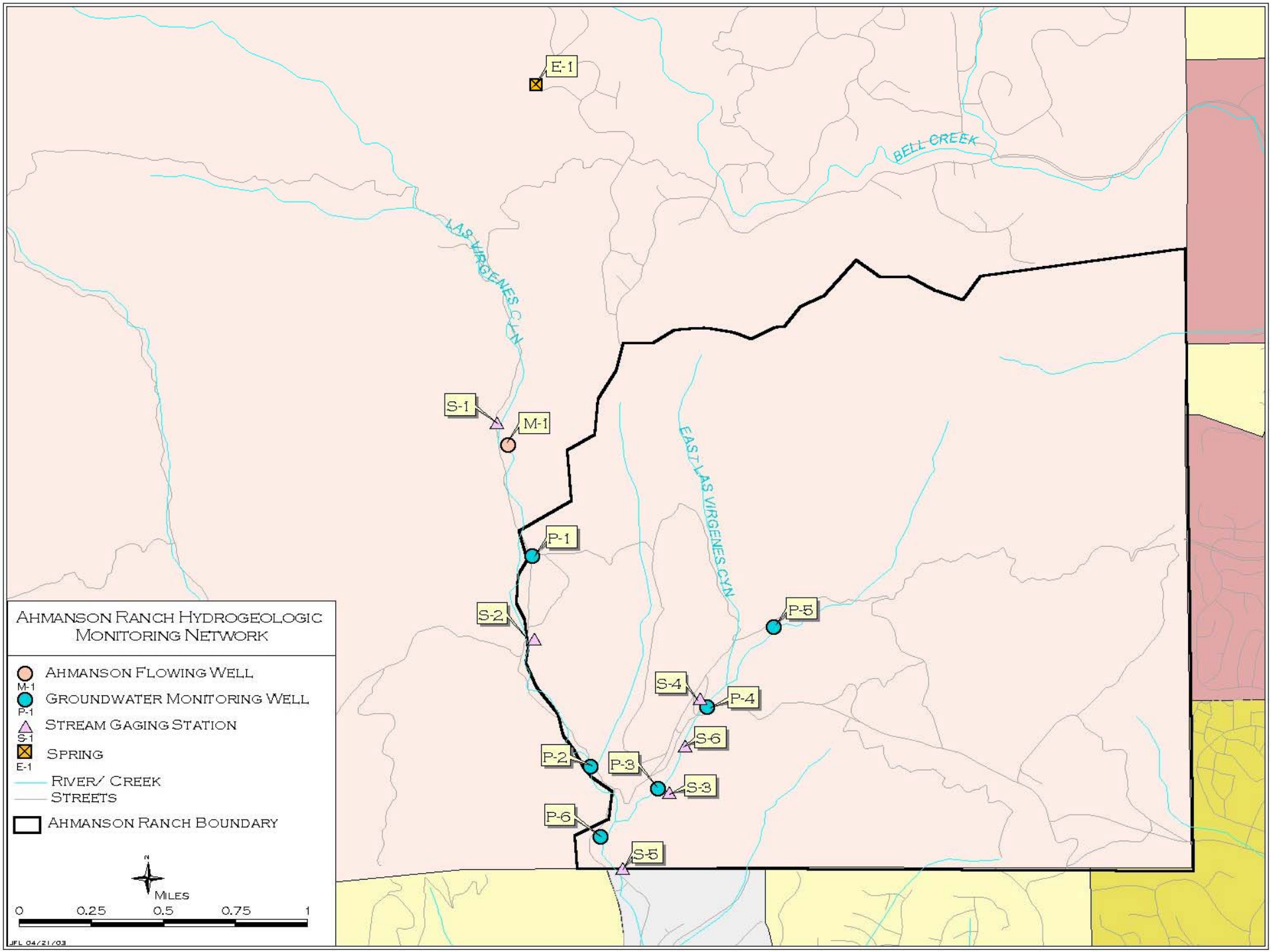
AHMANSON RANCH HYDROGEOLOGIC MONITORING NETWORK

-  AHMANSON FLOWING WELL
-  M-1 GROUNDWATER MONITORING WELL
-  P-1 STREAM GAGING STATION
-  S-1 SPRING
-  E-1
-  RIVER/ CREEK
-  STREETS
-  AHMANSON RANCH BOUNDARY



Ahmanson Ranch Well MW-1

- Deep Groundwater Sampling (MW-1)
 - July 3, 2002 at 550 feet (Ahmanson Ranch Company)
 - perchlorate and VOC's non-detect
 - August 1, 2002 at 450 and 550 feet (Ahmanson Ranch Company)
 - perchlorate and VOC's non-detect
 - August 1, 2002 at 50, 450 and 550 feet (Ventura Co. Planning Department)
 - Single detection at 550 feet (28 ppb)
 - Ventura Co. Planning Department
 - Separate sample taken same day/depth showed non-detect for perchlorate



AHMANSON RANCH HYDROGEOLOGIC MONITORING NETWORK

- M-1 AHMANSON FLOWING WELL
- P-1 GROUNDWATER MONITORING WELL
- S-1 STREAM GAGING STATION
- E-1 SPRING
- RIVER/ CREEK
- STREETS
- AHMANSON RANCH BOUNDARY



Ahmanson Well (MW-1) Re-Testing

- Regional Board staff approved workplan to retest Ahmanson Well #1 (April 23, 2003)
 - Purpose was to validate the presence of perchlorate under similar conditions where perchlorate was previously detected
 - Blind spiked samples at two concentrations used
 - “Library” samples used
 - Three independent certified testing laboratories used for each sampling event

Ahmanson Ranch MW-1



**Photo Documentation of Sampling Procedure
at Ahmanson Ranch
Well No. 1
June 17, 2003**

Ahmanson Well (MW-1) Re-Testing

- Results of re-testing of Ahmanson Well #1
 - Initial testing June 17, 2003, at 450' and 550' depths, all non-detect for perchlorate and VOC's (TCE/PCE, etc.)
 - Second testing July 16, 2003, non-detect for Perchlorate and VOC's

Ahmanson Well M-1

Groundwater Perchlorate Results (ppb)

(updated August 18, 2003)

Date	Sample Depth	Sampled By	Weck Lab	HML Lab	Del Mar Lab
July 3, 02	550'	Ahmanson			ND
August 1, 02	50'	Ventura Co.	ND		
August 1, 02	450'	Ventura Co.	ND		
August 1, 02	550'	Ventura Co.	28		
August 1, 02	50'	Ahmanson			ND
August 1, 02	450'	Ahmanson			ND
August 1, 02	550'	Ahmanson			ND
June 17, 03	450'	Regional Board		ND	
June 17, 03	550'	Regional Board		ND	
June 17, 03	450'	DTSC		ND	
June 17, 03	550'	DTSC		ND	
June 17, 03	450'	Ventura Co.	ND		
June 17, 03	550'	Ventura Co.	ND		
June 17, 03	450'	Ahmanson			ND
June 17, 03	550'	Ahmanson			ND

Ahmanson Well M-1

Groundwater Perchlorate Results (ppb)

(updated August 18, 2003)

Date	Sample Depth	Sampled By	Weck Lab	HML Lab	Del Mar Lab
July 16, 03	450'	Regional Board		ND	
July 16, 03	550'	Regional Board		ND	
July 16, 03	450'	Ventura Co.	Pending		
July 16, 03	550'	Ventura Co.	Pending		
July 16, 03	450'	Ahmanson			ND
July 16, 03	550'	Ahmanson			ND

Ahmanson Surface Water and Piezometer Perchlorate Results (ppb)

(updated August 18, 2003)

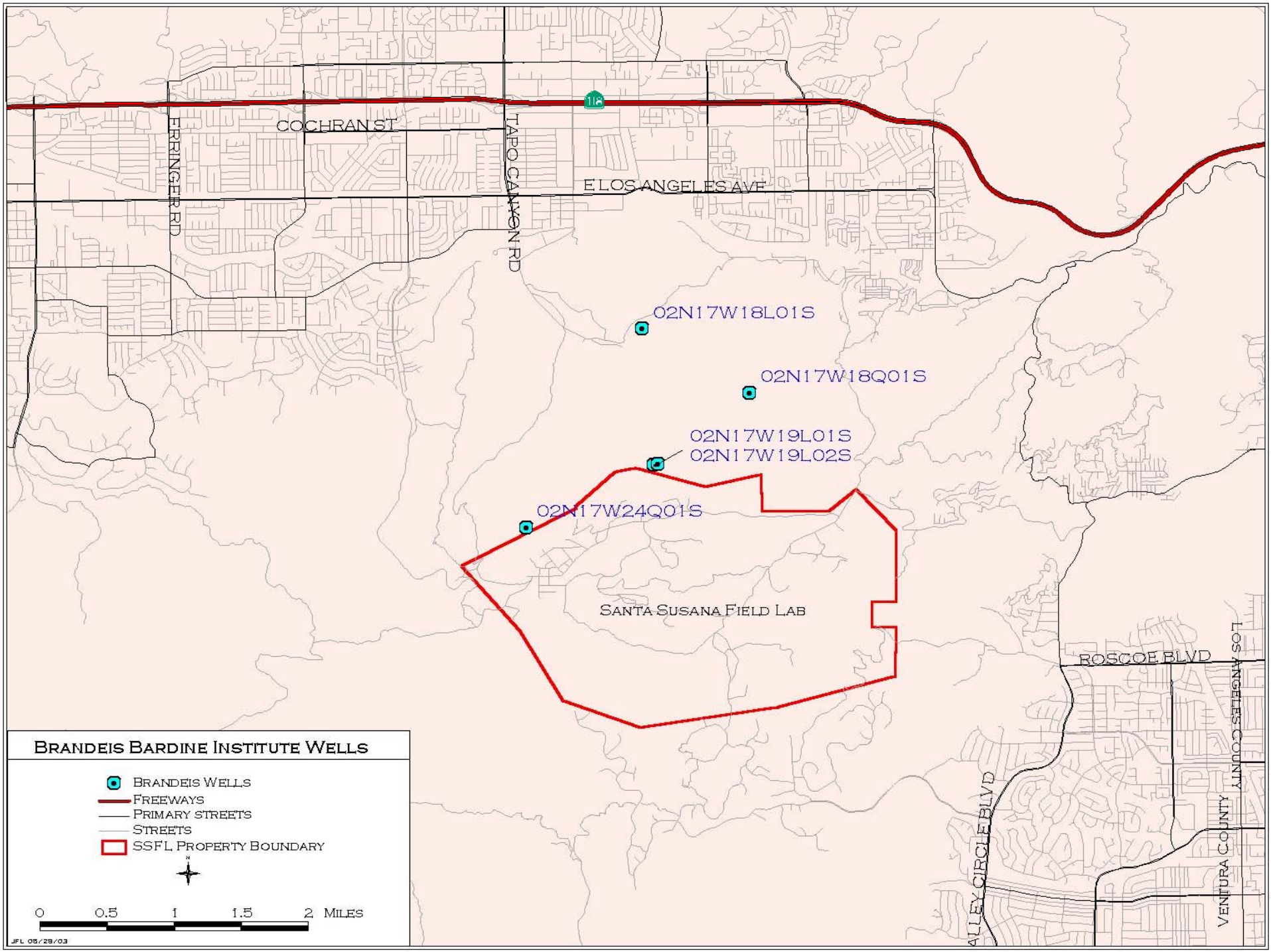
Date	Sample Location	Sampled By	Results
June 25, 03	S-1	Ahmanson	ND
June 25, 03	S-2	Ahmanson	ND
June 25, 03	S-4	Ahmanson	ND
June 25, 03	S-5	Ahmanson	ND
June 25, 03	S-6	Ahmanson	ND
June 25, 03	P-1	Ahmanson	ND
June 25, 03	P-2	Ahmanson	ND
June 25, 03	P-3	Ahmanson	ND
June 25, 03	P-4	Ahmanson	ND
June 25, 03	P-5	Ahmanson	ND
June 25, 03	P-6	Ahmanson	ND

Laboratory Testing for Perchlorate in Groundwater

- **Limitations of US EPA Test Method 314.0 used to Determine Perchlorate Contamination**
 - **Matrix interference from common anions (e.g. chloride, sulfate, and carbonate) in water samples.**
 - **Interference due to matrix differences and testing equipment can occur and result in higher detection limits, above 4 ppb, and potentially false positive in test results .**
 - **Samples that contain high levels of conductivity require pretreatment and dilution.**

Brandies-Bardin Institute
(Bathtub Well No. 1)





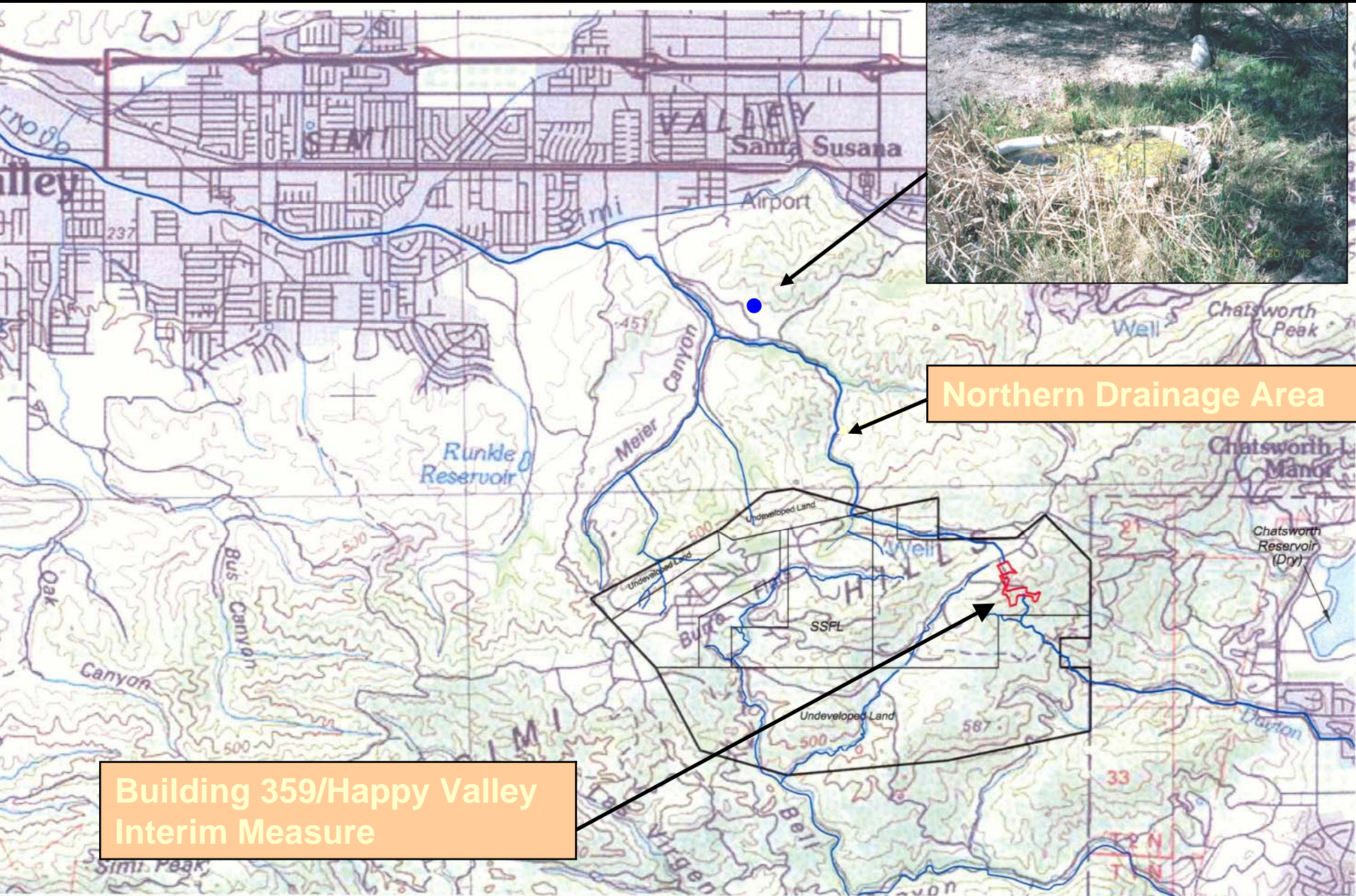
BRANDEIS BARDINE INSTITUTE WELLS

- BRANDEIS WELLS
- FREEWAYS
- PRIMARY STREETS
- STREETS
- SSFL PROPERTY BOUNDARY



0 0.5 1 1.5 2 MILES

“Bathtub Well No. 1” Location



Northern Drainage Area

Building 359/Happy Valley Interim Measure

Bathtub Well 1 (OS-9)

Groundwater Perchlorate Results (ppb)

(updated August 18, 2003)

Date	Sampled by	Weck Lab	ASL Lab (DTSC)	HML Lab (DTSC)	Del Mar (Primary Lab)	Ceimic/American (Backup Lab)
3/20/02	DTSC			ND		
2/21/03	Ventura County	ND*				
5/30/03	DTSC		140, 150 **			
6/11/03	DTSC		36, 39 **	ND/ND		
7/2/03	Boeing				ND	ND
7/10/03	Boeing				ND	ND
7/17/03	Boeing				ND	ND
7/24/03	DTSC/Boeing		ND, ND **	Pending	ND	ND
7/31/03	DTSC/Boeing		ND, ND **	Pending	ND	ND/ND
8/7/03	DTSC/Boeing		Pending	Pending	ND	ND
8/12/03	DTSC/Boeing		Pending	Pending	ND	ND

Note: * Sample result originally reported at 82 ppb

** Indicates co-located samples

Brandeis Bardin Well Investigation



- Groundwater Sampling Results:
 - Ventura County sample (2/21/03) result of 82ppb
 - has been revised to “non-detect” due to reported lab error
 - DTSC co-located samples (5/30/03) report perchlorate at 140 and 150 ppb
 - DTSC co-located samples (6/11/03) report perchlorate at 36 and 39 ppb
 - at one lab, however, other lab does not detect perchlorate
 - DTSC-HML Berkley Lab confirmed perchlorate in sample from 6/11/03
 - Perchlorate reported as non-detect in 7 subsequent sampling events completed by Boeing during July/August 2003

Techniques used during re-sampling to limit sample error



- **32 GROUNDWATER SAMPLES & DUPLICATES -**
To determine perchlorate concentration.
- **16 FIELD & LAB MATRIX SPIKES –**
To determine potential for perchlorate degradation.
- **10 REAGENT SPIKES & DUPLICATES-**
To confirm laboratory accuracy
- **21 FIELD & REAGENT BLANKS-**
To determine the presence of field or laboratory contamination
- **14 ANALYSES FOR TWO MATRIX MDL STUDIES-**
To determine the potential for matrix interference

Santa Susana Field Laboratory

Perchlorate Update – Characterization



- Work Plan Required by DTSC Identify Perchlorate
 - Characterization Workplan submitted on August 18th
 - Characterization work initiated by Boeing in “Northern Drainage” during July
 - 17 seeps and springs sampled
 - Approximately 100 soil and sediment samples collected
 - Weekly groundwater monitoring initiated at Bathtub Well No. 1 (with DTSC also sampling)

Brandeis Bardin Investigation

Summary:

- Lab incorrectly reported perchlorate February 2003
- Both detection and non-detection reported on essentially the same groundwater samples
- No perchlorate detected during July and August 2003 sampling
- Data indicates that perchlorate can not be consistently shown to be present or absent from the well
- Absence of repeatability of perchlorate results leads to uncertainty
 - need for continuing monitoring and investigation

Landfill Sampling

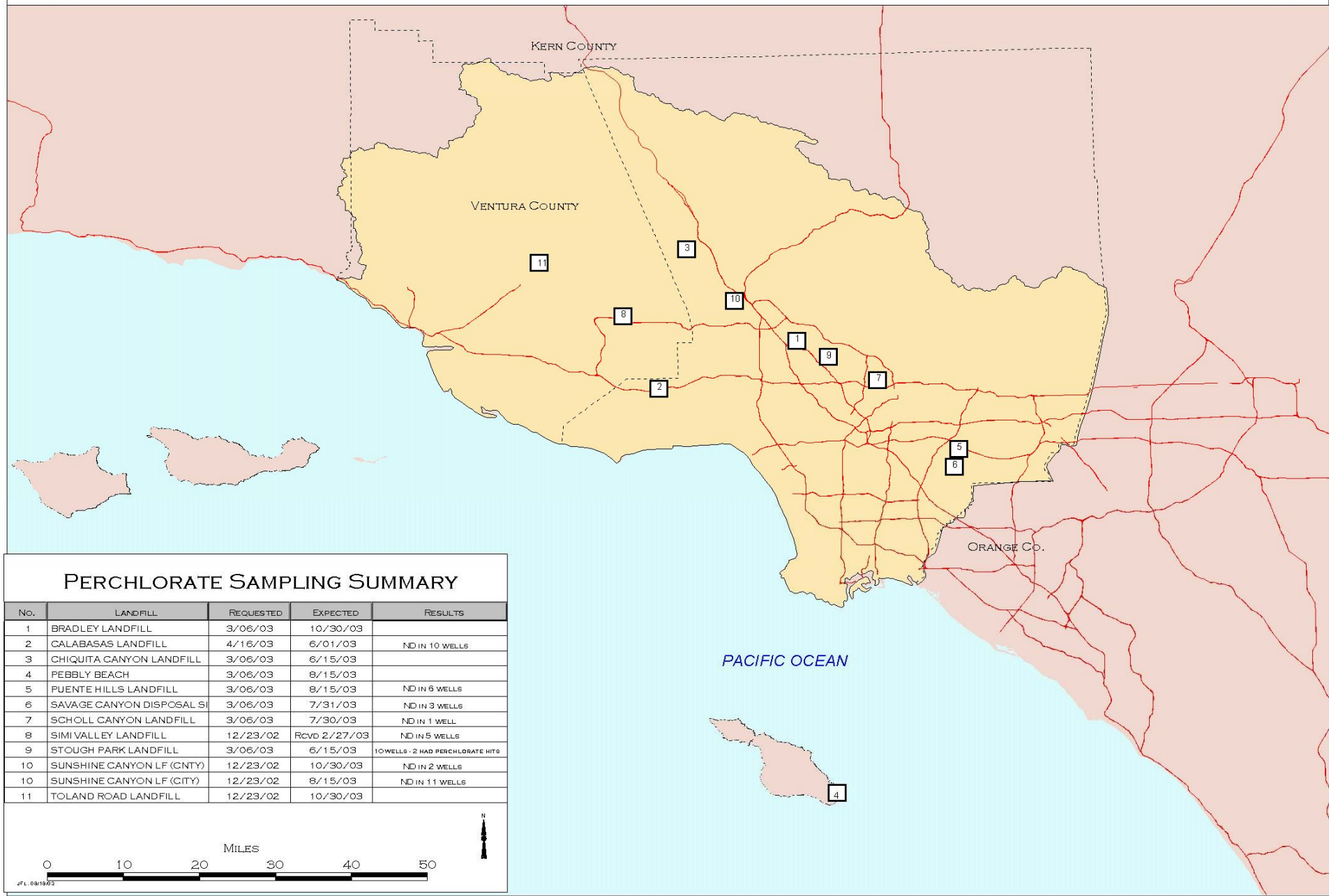


Detection of Perchlorate at Landfills

- **Simi Valley Landfill and Recycling Center**
 - Sampling Completed
 - Non-detect for Perchlorate
- **Calabasas Landfill**
 - Sampling Completed
 - Non-detect for Perchlorate
- **Bradley Landfill**
 - Sampling to be conducted at next quarterly sampling
 - Results due October 2003
- **Burbank Landfill**
 - Sampling Completed
 - Perchlorate detected in 2 of 5 wells tested (2.5 and 15 ppb)



PERCHLORATE SAMPLING AT LANDFILLS IN THE LOS ANGELES REGION



PERCHLORATE SAMPLING SUMMARY

No.	LANDFILL	REQUESTED	EXPECTED	RESULTS
1	BRADLEY LANDFILL	3/06/03	10/30/03	
2	CALABASAS LANDFILL	4/16/03	6/01/03	ND IN 10 WELLS
3	CHIQUITA CANYON LANDFILL	3/06/03	6/15/03	
4	PEBBLY BEACH	3/06/03	8/15/03	
5	PUENTE HILLS LANDFILL	3/06/03	8/15/03	ND IN 6 WELLS
6	SAVAGE CANYON DISPOSAL SI	3/06/03	7/31/03	ND IN 3 WELLS
7	SCHOLL CANYON LANDFILL	3/06/03	7/30/03	ND IN 1 WELL
8	SIMI VALLEY LANDFILL	12/23/02	Rcvd 2/27/03	ND IN 5 WELLS
9	STOUGH PARK LANDFILL	3/06/03	6/15/03	10 WELLS - 2 HAD PERCHLORATE HITS
10	SUNSHINE CANYON LF (CNTY)	12/23/02	10/30/03	ND IN 2 WELLS
10	SUNSHINE CANYON LF (CITY)	12/23/02	8/15/03	ND IN 11 WELLS
11	TOLAND ROAD LANDFILL	12/23/02	10/30/03	

MILES



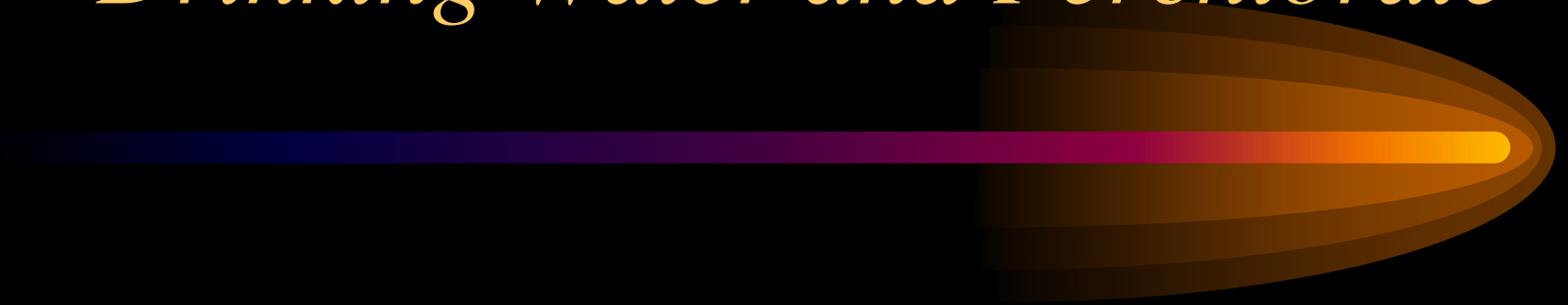
Radionuclides in Groundwater

- Gross alpha
 - naturally occurring values in LA area groundwater vary widely (2 - 2,000 pCi/L)
 - Ahmanson well MW-1 (15 pCi/L)
 - SSFL RD-07 (14.4 pCi/L) February 2003

Landfill Radioactivity Sampling Results

Species	MCL	Landfill	Up Gradient	Leachate	Down Gradient
Gross Alpha	15	Bradley	6.5	4.18	10.03
		Calabasas	40.7	52.6	24.1
		Sunshine Canyon	1.98	1.7	3.45
Gross Beta	50	Bradley	5.9	500	5.9
		Calabasas	34.4	50.4	15.5
		Sunshine Canyon	6.3	83.4	21.8
Tritium	20,000	Bradley	ND	6,250	ND
		Calabasas	ND	1,060	160
		Sunshine Canyon	ND	29,255	ND

Drinking Water and Perchlorate



Drinking Water Wells and Perchlorate: State of California

- No Federal or State Maximum Contaminant Level (MCL)
- CA Dept. of Health Services
 - to adopt State MCL by January 2004
- CA Dept. of Health Services Action Level
 - 4ppb
- CA Dept of Health Services Detection (Reporting) Limit
 - 4ppb
- No drinking water supplied from affected wells

*Summary of
Regional Board Actions*



Regional Board Actions: Source Identification

- ***December 2002*** Regional Board issued investigation directive letter to Boeing (Santa Susana Field Lab)
- ***December 2002*** Regional Board issued investigation directive letter to Ahmanson Ranch to retest Well MW-1 (Workplan approved April 23, 2003)
 - Initial testing June 17, 2003 non-detect for perchlorate and VOC's
 - Second testing July 16, 2003 preliminary data non-detect for perchlorate and VOC's
- ***January 2003*** Regional Board issued investigation directive letter to the City of Simi Valley (landfill/recycling center and dewatering wells)
 - Landfill/ recycling center non-detect for perchlorate
 - Dewatering wells 5 wells tested one perchlorate detect at 3.8 ppb

Regional Board Actions: Source Identification

- *March 2003*
 - Board issued investigation directive letter to ten remaining active landfills in the Region
 - Calabasas Landfill-10 wells tested all non-detect for perchlorate
 - Sunshine Canyon (County)-2 wells tested all non-detect for perchlorate
 - Sunshine Canyon (City)-11 wells tested all non-detect for perchlorate
- *June 23, 2003*
 - Regional Board issued information request letter to Brandies-Bardin Institute
- *June/August 2003-*
 - Supplemental sampling at 4 gasoline service stations, Pacific Ave. and Stearns Ave. sites non-detect for perchlorate. Perchlorate detected at the two Sycamore Ave. sites.
- *Other sites to be evaluated as appropriate*

Regional Board Actions: Current Action



- **Current Focus is on Investigation**
 - orders issued to determine extent of contamination
 - data still coming in and being reviewed and evaluated
- **Drafting surface runoff permit for Regional Board consideration**
 - scheduled for Board action at a public hearing: October 2, 2003

Regional Board Action: Future Actions



- **Future Actions (planned)**
 - renew and update Boeing surface water runoff permit (October 2003)
 - continue source identification efforts
 - continue coordination with US/EPA and DTSC
- **Future Actions (potential)**
 - issue Cleanup and Abatement Orders if warranted
 - of significant contamination sources
 - if off-site groundwater contamination and cleanup is deemed necessary
 - enforce permit effluent limits if violations occur

*Perchlorate Occurrence in the
Simi Valley Area*



Public Comment/Questions