

ANTELOPE VALLEY SALT/NUTRIENT MANAGEMENT PLAN STAKEHOLDER MEETING MINUTES

March 20, 2013

Location: City of Palmdale – Larry Chimbole Cultural Center (Sage Room)

1:00 – 2:30 p.m.

Attendees: Dwayne Chisam (AVEK), Erika de Hollan (LACSD), Wanda Deal (Edwards AFB), Susan Haseltine (Edwards AFB), Aracely Jaramillo (LACWD), Bob Large (Lake Town Council), Yvonne Malikowski (Lake LA Park Association), Dave Rydman (Carollo Engineers), Iwen Tseng (LACWD), Chris Vidal (PWD), Cindy Wise (Lahontan RWQCB), Jamshed Yazdani (City of Lancaster), Jan Zimmerman (Lahontan RWQCB)

RWQCB/DWR Updates

Cindy Wise mentioned that at the recent State Water Board meeting, after hearing updates from every region, the Board members realized that the recycled water policy's goal of having the salt and nutrient management plan for every groundwater basin in the state completed by May 2014 is probably unrealistic. Without dedicated funding source to each basin, the regional board staff is having a hard time covering the existing groups, let alone starting new ones (there are three hundred plus basins in the Lahontan region).

Project List

Bob Large brought up that the Antelope Valley Integrated Regional Water Management Plan (AVIRWM) stakeholder group agreed on incorporating Boron Community Services District's (BCSD) arsenic mitigation feasibility study into the 2007 AVIRWM Plan, and he recommended that the project be added to the Antelope Valley Salt and Nutrient Management Plan (SNMP) project list. BCSD will be contacted for well water quality data so that it may be included in the SNMP analysis. After asked how the SNMP list was created, Erika de Hollan explained that the stakeholder group chose water related projects from the 2007 AVIRWM Plan to come up with the initial SNMP project list. During every stakeholder meeting, the group discusses new projects, if any, that should be added to or deleted from the project list.

Bob Large wanted to know how the groundwater basin being replenished would be illustrated in the water balance flow chart in the SNMP. Erika de Hollan explained that the groundwater is recharged, for example, through surface water or stormwater and these inputs will be incorporated into the flow chart. Also, the SNMP will address the potential effects on the groundwater of using all available recycled water in the Antelope Valley. Wanda Deal expressed concern of projects using stormwater and that a watershed assessment may be needed. She mentioned that there may be a future study involving an assessment of the watershed's effects on Rosamond Dry Lake to determine how much water is necessary to maintain the lakebed's health. Dave Rydman explained that the groundwater recharge projects listed on the SNMP project list will be using either imported water or recycled water and not stormwater, so the natural recharge of the creeks or lake beds will not be affected by the projects on the list.

Dwayne Chisam updated the stakeholder group that the stormwater portion of the Amargosa Creek Flood Control Recharge Project is no longer part of the project, and only the banking portion is left. Jan Zimmerman wanted to know how this change would affect the grant awarded to the City of Palmdale. Dave Rydman clarified that the Prop 1E grant funding that the City of Palmdale received was for the flood management component of the project, which has not been changed. Due to the concerns raised by the agencies involved in the groundwater adjudication case, the stormwater diversion component was removed from this project. Dwayne Chisam also explained that the project will now only use imported water, but this change did not affect the grant funding received by the City of Palmdale.

Monitoring Program

Erika de Hollan discussed the draft SNMP's Monitoring and Reporting Program (*See Attachment A*) and the map of monitoring wells that were selected in proximity to the projects by the stakeholder group. Well depth information is needed to determine which aquifer the water samples are taken. If certain well depth information cannot be obtained or determined, assumptions will need to be made.

Supply and recycled waters are monitored and reported annually. Public groundwater supply wells are monitored and reported every three years. The agencies submit their water quality results to the State Department of Public Health (DPH) and the results are uploaded into the State Groundwater Ambient Monitoring and Assessment (GAMA) database. The Recycled Water Policy currently states that the SNMP monitoring reports are to be submitted every three years. The stakeholder group discussed who will be responsible for submitting the monitoring reports. Options include, but are not limited to, AVIRWM stakeholder group, a consultant, or rotating agency responsibility, etc. Dwayne Chisam suggested that once the groundwater rights are adjudicated, the responsibility of managing the SNMP monitoring and reporting program could be added to the new Watermaster. Dave Rydman suggested that instead of having multiple databases, we should have databases communicate to each other and utilize the GAMA database. One staff person can pull information and generate a report efficiently, so the reporting process can be streamlined and be more cost effective. Cindy Wise mentioned that an idea was suggested to the State Water Board that maybe a program could be created by taking data from the GAMA database to monitor the salt and nutrient levels automatically. However, there is no funding for such a program right now. Aracely Jaramillo suggested and the stakeholder group agreed that for the interim the SNMP monitoring and reporting shall be the responsibility of the AVIRWM stakeholder group.

Clean-up Site Map

Iwen Tseng explained that the clean-up site map (*see Attachment B*) was generated by mapping the clean-up sites obtained from the State Water Board's GeoTracker database. Out of the total 248 listed clean-up sites in the Antelope Valley, 61 sites are open cases

(see a list of open clean-up sites in Attachment B). Most of the open sites have the potential contaminant of concern listed in the handout. These sites have their own monitoring and reporting programs and are required to submit reports to the Regional Board. There are three types of sites: clean-up program sites, land disposal sites and leaking underground storage tank (LUST) clean-up sites. The wells shown on the map are environmental monitoring wells designated for the clean-up sites only and are not monitoring wells for the SNMP nor are they public supply wells.

Based on the list of open clean-up cases, there is only one site (Sierra SunTower Generating station) with potential concerns of salt and nutrient constituents while most of the other sites have just gasoline or diesel listed as potential contaminants of concern. Since the Regional Board requested the group to research the clean-up sites, Erika de Hollan asked the Regional Board how we can fit the information from the clean-up sites into the SNMP when these sites are not necessarily concerned with the same constituents that are being addressed in the SNMP. Jamshed Yazdani stated that even though Sierra SunTower site was listed as a land disposal site, it was really an evaporation pond. Jan Zimmerman mentioned that there are more dairy sites in the Antelope Valley even though only one is listed as an open clean-up site case. If these dairies are not listed, it is difficult to incorporate them into the SNMP. Dave Rydman suggested using the monitoring well network: if a well has a nitrate spike, for example, then go trace the source of nitrate. The purpose of the SNMP is to allow the use of recycled water. The SNMP monitoring and reporting program should be set up to be as manageable as possible, since it is currently unfunded. Erika de Hollan suggested that since the constituents of concern of these clean-up sites are not the same constituents being addressed in the SNMP, this clean-up site compilation may be included in the SNMP but not necessarily further analyzed.

Management Strategies

Aracely Jaramillo presented a list (see *Attachment C*) of methods of salt and nutrient management strategies and would like the group to brainstorm to list additional methods which may be considered for the Antelope Valley basin and discuss each methods' advantages and disadvantages for implementation. The stakeholder group was encouraged to visit the US Bureau of Reclamation site at www.usbr.gov/lc/socal/planning.html#socalbrine to gain a more thorough understanding of different technologies available for brine management. Erika de Hollan suggested that advantages of implementing certain best management practices (BMPs) or conducting public outreach over some of the other methods listed are potential lower costs and greater feasibility. A question on whether water softeners removal was needed in the AV was raised. Erika de Hollan explained that the chloride levels in the raw SWP water and the influent at the LACSD's treatment plants were not very different, and this consideration would be included in the SNMP. A question on whether industrial wastewater was treated onsite or at the LACSD's treatment plants came up. Bob Large suggested that it might be more cost effective to treat wastewater at the source than at the LACSD plants. Erika de Hollan explained that LACSD had denied service to a potential customer before because their wastewater was too salty, so the company had to contact the Regional Water Board about discharging the wastewater to onsite evaporation ponds.

Jamshed Yazdani mentioned that Morton Manufacturing, a company that manufactures parts for defense equipment, will be moving to the City of Lancaster, and the company has plans to have evaporation ponds onsite for wastewater discharge. Jan Zimmerman explained that not all landfills are lined and the hazardous/industrial waste will have to go to a designated site such as a Class 2 landfill to be disposed, and there are no such sites in the Antelope Valley. Wanda Deal suggested that a wetland may be another method to mitigate nutrient issues in the wastewater.

Next Meeting

The next SNMP stakeholder meeting will be held on May 15 at the Palmdale Water District.

Attachment A

Antelope Valley Salt/Nutrient Management Plan Monitoring and Reporting Program Summary

The AV SNMP monitoring plan is designed to determine water quality in the basin and focus on the water quality in water supply wells and areas proximate to large water projects. Results will be used to determine whether the concentrations of salt, nutrients, and other identified constituents of concern are consistent with applicable water quality objectives.

Locations:

Groundwater wells located in proximity to projects listed (see Map). If an additional project, that has not been considered in this plan, is to be implemented, the responsible agency shall designate a groundwater well (existing or new), as appropriate, to be included in the SNMP monitoring program.

Frequency:

Supply and recycled waters are monitored annually. Groundwater wells are monitored every three years.

Constituents:

As appropriate and necessary, the program will include monitoring of: total dissolved solids (TDS), nitrogen species (ammonia, nitrate, and nitrite), chloride, arsenic, chromium, fluoride, boron, and constituents of emerging concern (CECs; e.g., endocrine disrupters, personal care products or pharmaceuticals) consistent with the actions by the State Water Resources Control Board (SWRCB) taken pursuant to the Recycled Water Policy.

Reporting:

Public supply wells are monitored and reported to the California Department of Public Health (CDPH). The Groundwater Ambient Monitoring and Assessment (GAMA) Program compiles these monitoring results into a publicly-accessible internet database, GeoTracker GAMA¹. GeoTracker GAMA currently integrates data from SWRCB, Regional Water Quality Control Boards (RWQCB), CDPH, Department of Pesticide Regulation, Department of Water Resources, United States Geological Survey, and Lawrence Livermore National Laboratory.

The AV SNMP Report (Report) to the Lahontan RWQCB shall include relevant monitoring data, comparisons to historical values, comparisons to applicable water quality objectives, and an update of relevant projects and implementation information. The Report shall be submitted to the Lahontan RWQCB every three years.

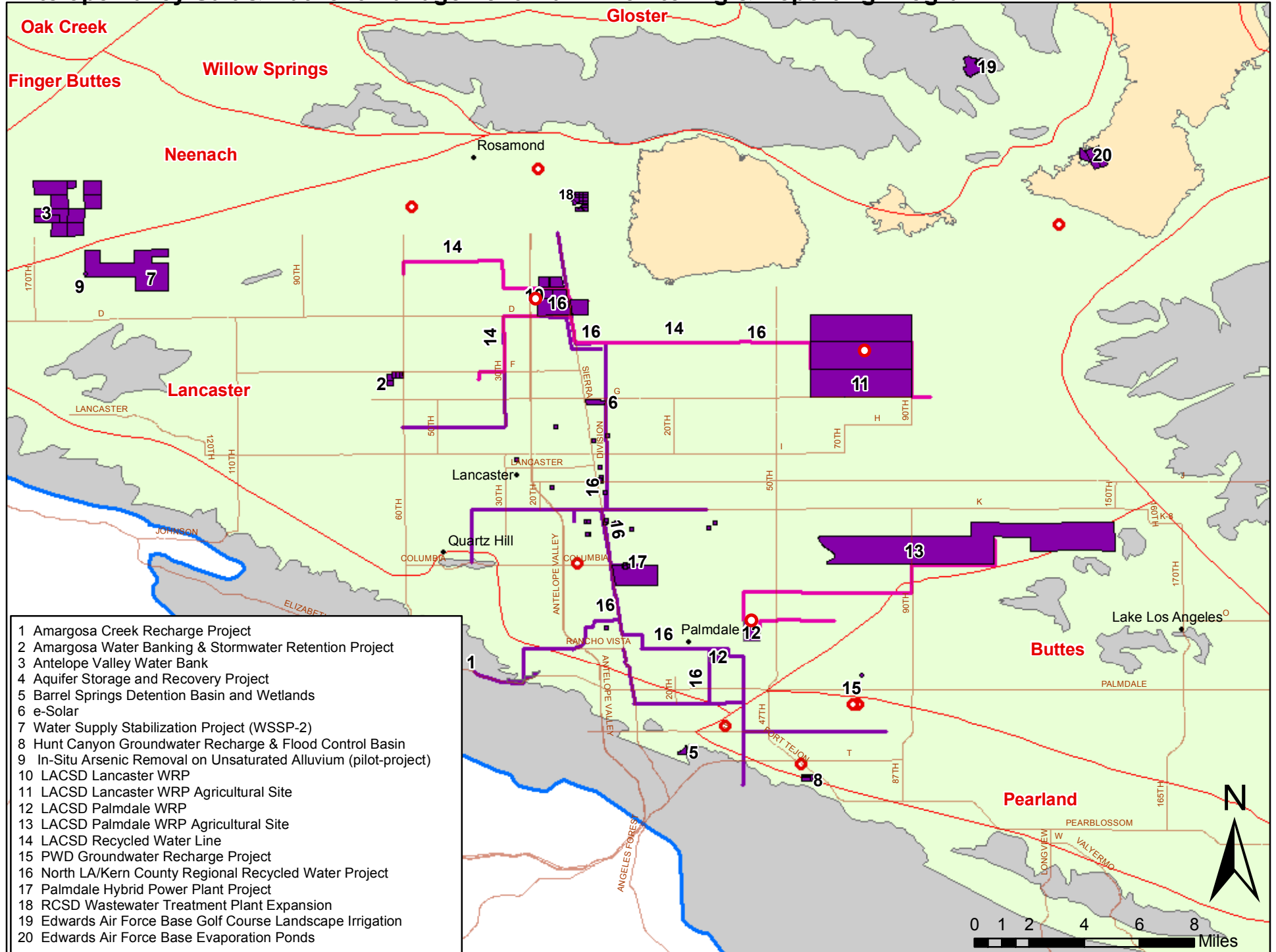
Responsibility:

[Need to identify those stakeholders responsible for conducting, compiling, and reporting the monitoring data. Consultants, rotate through agencies, one agency?]

Last edited: 3/20/2013

¹ Accessible at http://www.waterboards.ca.gov/gama/geotracker_gama.shtml

Antelope Valley Salt & Nutrient Management Plan - Monitoring & Reporting Program

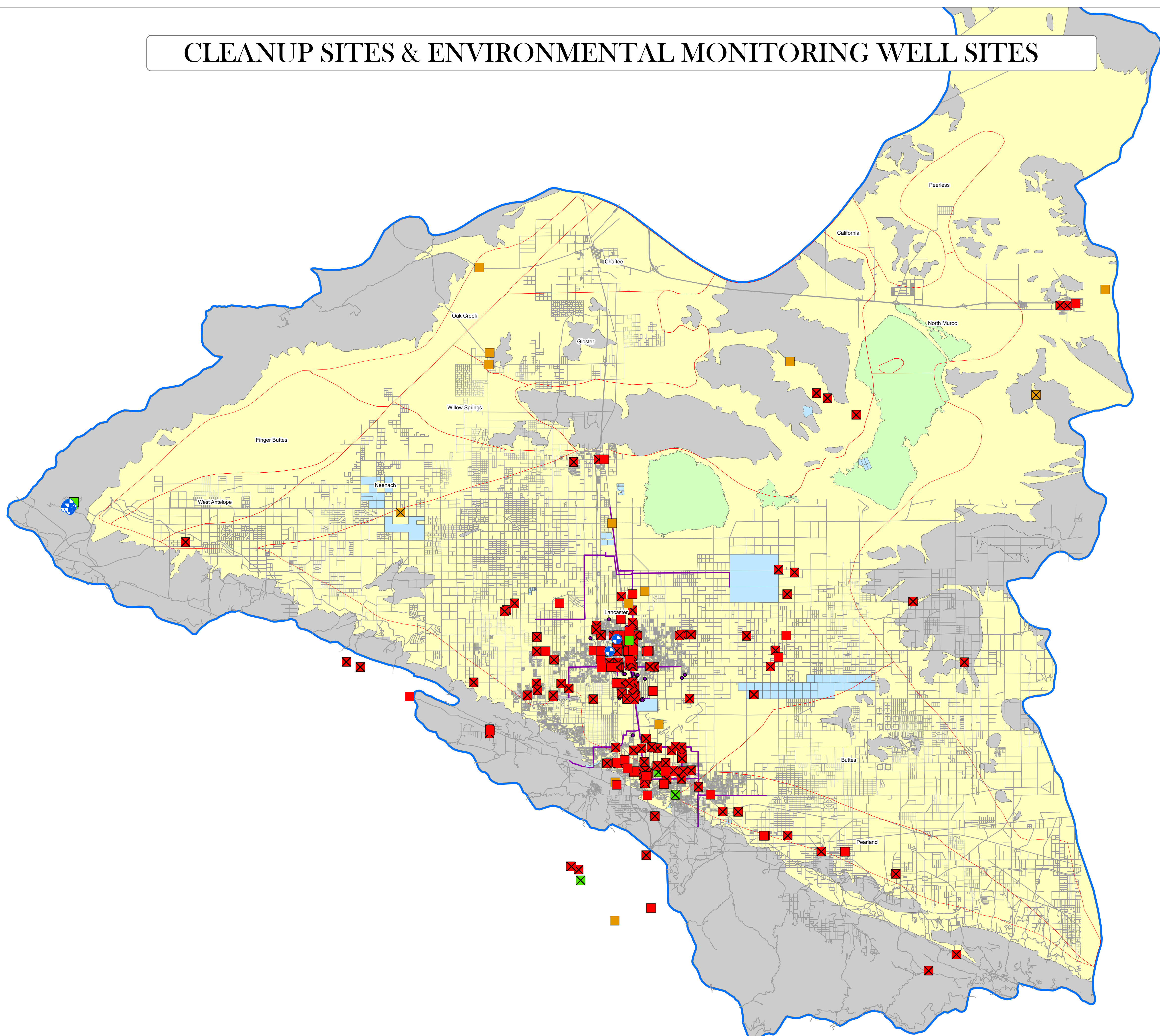


Attachment B

AV CLEANUP SITES (OPEN)

SITE NAME	SITE TYPE	SITE STATUS	STREET	CITY	ZIP	POTENTIAL_CONTAMINANTS_OF_CO NCERN
7-ELEVEN/SOUTHLAND CORP #19597	LUST CLEANUP SITE	OPEN - SITE ASSESSMENT	844 E AVE J	LANCASTER	93535	MTBE / TBA / Other Fuel Oxygenates
ACTON CLAY QUARRIES	LAND DISPOSAL SITE	OPEN - VERIFICATION MONITORING	31375 ALISO CANYON ROAD	ACTON		
AIR FORCE PLANT 42 FTF	LAND DISPOSAL SITE	OPEN	2503 E AVE P	PALMDALE	93550	
ANTELOPE HILL CENTER	LUST CLEANUP SITE	OPEN - SITE ASSESSMENT	13100 E PEARBLOSSOM HWY	PEARBLOSSOM	93553	Gasoline, MTBE / TBA / Other Fuel Oxygenates, Xylene
ANTELOPE VALLEY AUTO MALL/CARWASH	LUST CLEANUP SITE	OPEN - SITE ASSESSMENT	38935 N 5TH ST WEST	PALMDALE	93550	Gasoline
ANTELOPE VALLEY RECYCLING # 1	LAND DISPOSAL SITE	OPEN	1200 W CITY RANCH RD	PALMDALE	93550	
ANTELOPE VALLEY RECYCLING #2	LAND DISPOSAL SITE	OPEN	1200 CITY RANCH	PALMDALE	93550	
ANTELOPE VALLEY RECYCLING AND DISPOSAL FORMER UST	LUST CLEANUP SITE	OPEN - SITE ASSESSMENT	1200 W CITY RANCH	PALMDALE	93550	
ANTELOPE VALLEY SCH TRANSP AGENCY	LUST CLEANUP SITE	OPEN - SITE ASSESSMENT	670 AVE L-8	LANCASTER	93534	Diesel
ARCO # 1369	LUST CLEANUP SITE	OPEN - SITE ASSESSMENT	411 W PALMDALE BLVD	PALMDALE	93551	Gasoline
ARCO #1917	LUST CLEANUP SITE	OPEN - REMEDIATION	1326 AVE K	LANCASTER	93534	Gasoline
ARCO #3030	LUST CLEANUP SITE	OPEN - REMEDIATION	918 LANCASTER ST W	LANCASTER	93534	Gasoline
ASPHALTO, ALL SUMPS	LAND DISPOSAL SITE	OPEN	NEAR HWY 33	KERN COUNTY		
B-52 MARKET	LUST CLEANUP SITE	OPEN - SITE ASSESSMENT	3000 N SIERRA HWY	ROSAMOND	93560	Diesel, Gasoline
BLACK GOLD SERVICE STATION	LUST CLEANUP SITE	OPEN - SITE ASSESSMENT	8157 PEARBLOSSOM HWY E	LITTLE ROCK	93543	Gasoline
CALTRANS MAINTENANCE STATION	LUST CLEANUP SITE	OPEN - SITE ASSESSMENT	44023 SIERRA HIGHWAY	LANCASTER	93534	
CITY OF LANCASTER	LUST CLEANUP SITE	OPEN - SITE ASSESSMENT	44801 N SIERRA HWY	LANCASTER	93534	
CITY OF LANCASTER FORMER MOBIL	LUST CLEANUP SITE	OPEN - SITE ASSESSMENT	NW CORNER AVENUE J AND SIERRA HIGHWAY	LANCASTER	93534	Gasoline
CITY OF LANCASTER, MAINTENACE CENTER	LUST CLEANUP SITE	OPEN - SITE ASSESSMENT	46008 N 7TH ST WEST	LANCASTER	93534	
CLAY STREET PROPERTIES	LUST CLEANUP SITE	OPEN - VERIFICATION MONITORING	2033 AVE J	LANCASTER	93535	Gasoline
DAIRY, THE	LUST CLEANUP SITE	OPEN - SITE ASSESSMENT	44419 NORTH DIVISION STREET	Lancaster	93534	
DEBORD SEPTAGE PONDS	LAND DISPOSAL SITE	OPEN	2 MI NORTH OF BORON	BORON	93516	
ENDURO PLUMBING CO	LUST CLEANUP SITE	OPEN - SITE ASSESSMENT	1055 W AVE L-12	LANCASTER	93534	Diesel, Gasoline
ERIC'S PLACE	LUST CLEANUP SITE	OPEN - SITE ASSESSMENT	48406 N 90TH ST EAST	Lancaster	93535	
EVEREST ECONOMY GAS, FORMER	LUST CLEANUP SITE	OPEN - REMEDIATION	610 WEST AVENUE I	LANCASTER	93534	Gasoline
GEMCO STORE #521 FORMER	LUST CLEANUP SITE	OPEN - REMEDIATION	1333 AVE K W	LANCASTER	93534	Gasoline
HADDAD MOBIL	LUST CLEANUP SITE	OPEN - SITE ASSESSMENT	505 W. AVE J	Lancaster	93534	
JC FENNEL & SONS	LUST CLEANUP SITE	OPEN - INACTIVE	27401 20 MULE TEAM RD	BORON	93516	Gasoline
K-20 MINI MART	LUST CLEANUP SITE	OPEN - SITE ASSESSMENT	1850 W AVENUE K	LANCASTER	93536	Gasoline, Diesel
LA CO DPW J FOX AIRFIELD	LUST CLEANUP SITE	OPEN - SITE ASSESSMENT	4555 W AVE G	LANCASTER	93536	
LA CO FD FIRE CAMP #014	LUST CLEANUP SITE	OPEN - SITE ASSESSMENT	35100 W SAN FRANCISQUITO CANYON RD	ELIZABETH LAKE	91390	
LA CO FD FIRE CAMP #016	LUST CLEANUP SITE	OPEN - SITE ASSESSMENT	26652 N ANGELES FOREST HWY	PALMDALE	93550	
LA CO SHERIFF LANCASTER STATION	LUST CLEANUP SITE	OPEN - SITE ASSESSMENT	1010 W AVE J	LANCASTER	93534	Gasoline
LANCASTER LANDFILL	LUST CLEANUP SITE	OPEN - SITE ASSESSMENT	600 AVE F E	LANCASTER	93535	Diesel
LANCASTER LF & GW TRTMT DSCHRG	LAND DISPOSAL SITE	OPEN	600 E AVE F	LANCASTER	91325	
LEONA VALLEY GARAGE	LUST CLEANUP SITE	OPEN - INACTIVE	8854 ELIZABETH LAKE RD. W	LEONA VALLEY	93551	Gasoline
LITTLE ROCK MINI & GAS	LUST CLEANUP SITE	OPEN - SITE ASSESSMENT	7225 E PEARBLOSSOM HWY	Littlerock	93543	Diesel, Gasoline
MAIN BASE CLASS III LANDFILL	LAND DISPOSAL SITE	OPEN	W OF EDWARDS MAIN BASE	EDWARDS AFB	93523	
MAINTENANCE SHOP (LEBEC CEMENT PLANT)	CLEANUP PROGRAM SITE	OPEN - REMEDIATION	HWY. 138 APPROX 5 MI E. OF HWY. 5	LEBEC	93243	
MIDDLE BUTTES PROJECT	LAND DISPOSAL SITE	OPEN	8941 W BACKUS RD	MOJAVE	93501	
MINUTE SERVE DAIRY	LUST CLEANUP SITE	OPEN - SITE ASSESSMENT	41940 N 50TH ST WEST	PALMDALE	93550	Gasoline
MINUTE SERVICE DAIRY INC	LUST CLEANUP SITE	OPEN - SITE ASSESSMENT	1159 E AVE I	LANCASTER	93535	
MISSION LINEN SUPPLY	CLEANUP PROGRAM SITE	OPEN - SITE ASSESSMENT	44926 NORTH YUCCA AVENUE	Lancaster	93535	Tetrachloroethylene (PCE), Trichloroethylene (TCE)
MOBIL MINI MART	LUST CLEANUP SITE	OPEN - ASSESSMENT & INTERIM REMEDIAL ACTION	101 EAST AVENUE J	LANCASTER	93535	MTBE / TBA / Other Fuel Oxygenates, Gasoline
MOBIL OIL CORP S/S #18-DX9	LUST CLEANUP SITE	OPEN - SITE ASSESSMENT	2343 W AVE J	LANCASTER	93536	
MOJAVE PLANT-CALIF PORTLAND	LAND DISPOSAL SITE	OPEN	9350 OAK CREEK RD	MOJAVE	93501	
MONTE VISTA ALTA DENA DAIRY	LUST CLEANUP SITE	OPEN - VERIFICATION MONITORING	44949 N 10TH STREET WEST	LANCASTER	93534	Benzene, Gasoline
OLD INDUSTRIAL LANDFILL (LEBEC CEMENT PLANT)	CLEANUP PROGRAM SITE	OPEN - REMEDIATION	HWY. 138 APPROX 5 MI E. OF HWY. 5	LEBEC	93243	Other Chlorinated Hydrocarbons, Tetrachloroethylene (PCE), Trichloroethylene (TCE)
PETRO LOCK, MAIN BULK FACILITY	LUST CLEANUP SITE	OPEN - REMEDIATION	45315 N TREVOR AVENUE	LANCASTER	93534	Gasoline, Diesel
PETRO-LOCK INC	LUST CLEANUP SITE	OPEN - SITE ASSESSMENT	38206 SIERRA HWY N	PALMDALE	93534	Gasoline
SHELL SERVICE STATION	LUST CLEANUP SITE	OPEN - ELIGIBLE FOR CLOSURE	1853 PALMDALE BOULEVARD, EAST	PALMDALE	93550	Gasoline
SHELL SERVICE STATION	LUST CLEANUP SITE	OPEN - ELIGIBLE FOR CLOSURE	44015 20TH STREET	LANCASTER	93534	Benzene, Diesel, Gasoline
SHELL SERVICE STATION	LUST CLEANUP SITE	OPEN - SITE ASSESSMENT	37204 E. 47TH STREET	PALMDALE		Diesel
SHELL STATION	LUST CLEANUP SITE	OPEN - ELIGIBLE FOR CLOSURE	866 AVE I W	LANCASTER	93534	Gasoline
SHUMAKE PROJECT	LAND DISPOSAL SITE	OPEN	8941 W BACKUS RD	MOJAVE	93501	
SIERRA HWY & AVE S	LUST CLEANUP SITE	OPEN - VERIFICATION MONITORING	37205 SIERRA HWY	PALMDALE	93550	Waste Oil / Motor / Hydraulic / Lubricating
SIERRA SUNTOWER LLC SIERRA SUNTOWER GENERATING STATION	LAND DISPOSAL SITE	OPEN - INACTIVE	405 WEST AVENUE G	Lancaster	93534	Nitrate, Other inorganic / salt, Arsenic, Chromium, Other Metal
SMITH & THOMPSON WTF	LAND DISPOSAL SITE	OPEN	230 WEST AVE J-9	LANCASTER		
SOUTHERN CALIFORNIA GAS COMPANY	LUST CLEANUP SITE	OPEN - SITE ASSESSMENT	44416 N DIVISION ST	LANCASTER	93534	Gasoline
US GAS & MINI MART	LUST CLEANUP SITE	OPEN - SITE ASSESSMENT	105 E PALMDALE BLVD	PALMDALE	93550	Gasoline
USA GASOLINE CORP #186	LUST CLEANUP SITE	OPEN - SITE ASSESSMENT	38821 N 10TH ST WEST	PALMDALE	93551	Gasoline

CLEANUP SITES & ENVIRONMENTAL MONITORING WELL SITES



Legend

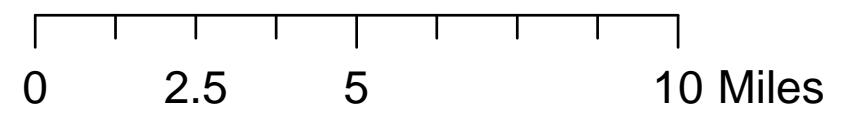
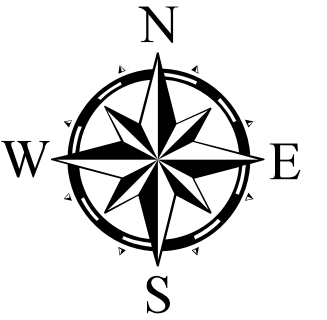
- Environmental Monitoring Wells

Cleanup Sites

SITE TYPE AND STATUS

- CLEANUP PROGRAM SITE, CLOSED
- CLEANUP PROGRAM SITE, OPEN
- LAND DISPOSAL SITE, CLOSED
- LAND DISPOSAL SITE, OPEN
- LUST CLEANUP SITE, CLOSED
- LUST CLEANUP SITE, OPEN

- Antelope Valley Sub Basins
- Projects
- Recycled Watermains
- Alluvium
- Bedrock
- Playa
- SMP Study Area



Source: State Water Resources Control Board Geotracker
 Data extraction date: 02/07/2013
 Last revised date: 04/16/2013
 Revised to include data source and symbol indication

Attachment C

SNMP Strategies¹

WATER QUALITY

- BMPs
- Public Outreach
- Crop Management Guidelines
- Source water treatment
- Increased WWTP retention time

VOLUME REDUCING²

- Electrodialysis/Electrodialysis Reversal
- Vibratory Shear-Enhanced Processing
- Precipitative Softening and Reverse Osmosis
- Enhanced Membrane System
- Brine Concentrator
- Natural Treatment Systems

ZERO-LIQUID DISCHARGE²

Solid precipitate salts that need to be transferred to an appropriate disposal site.

- Combination Thermal Process with ZLD
- Mechanical and Thermal Evaporation ZLD
- Enhanced Membrane and Thermal ZLD
- Evaporation Ponds
- Wind-Aided Intensified Evaporation (WAIV)
- Dewvaporation
- Salt Solidification and Sequestration

FINAL DISPOSAL²

- Ocean Discharge
- Deep Well Injection
- Discharge to dry lake beds
- Discharge to landfill
- Sales of brine

Reference: <http://www.usbr.gov/lc/socal/planning.html#SoCalBrine>

¹ The list has been revised since the stakeholder meeting to incorporate stakeholder suggestions.

² These are strategies of handling brine waste as a result of treatment such as reverse osmosis.