

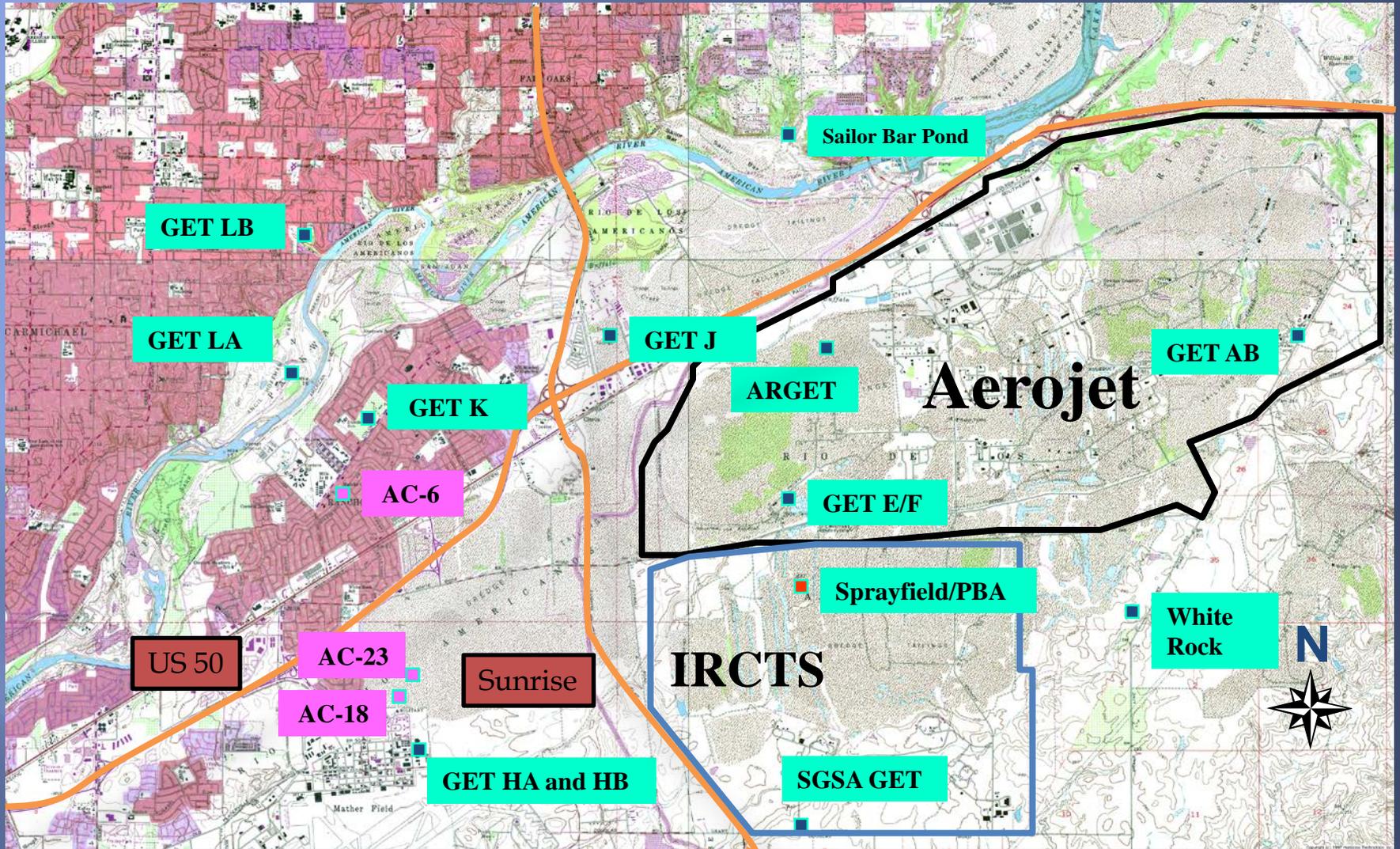
AEROJET UPDATE

21 May 2014

Alexander MacDonald (RWQCB)

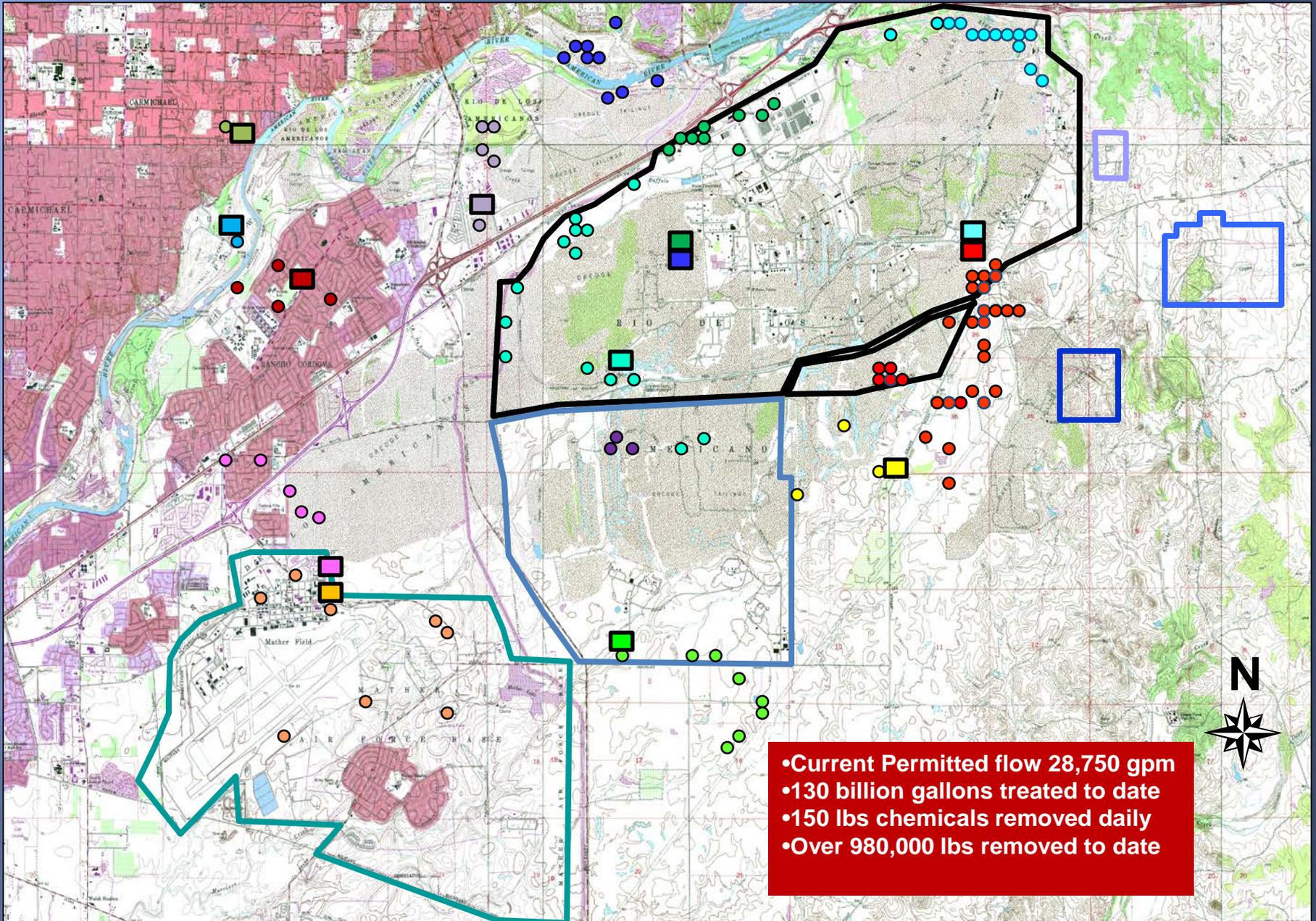
916-464-4625

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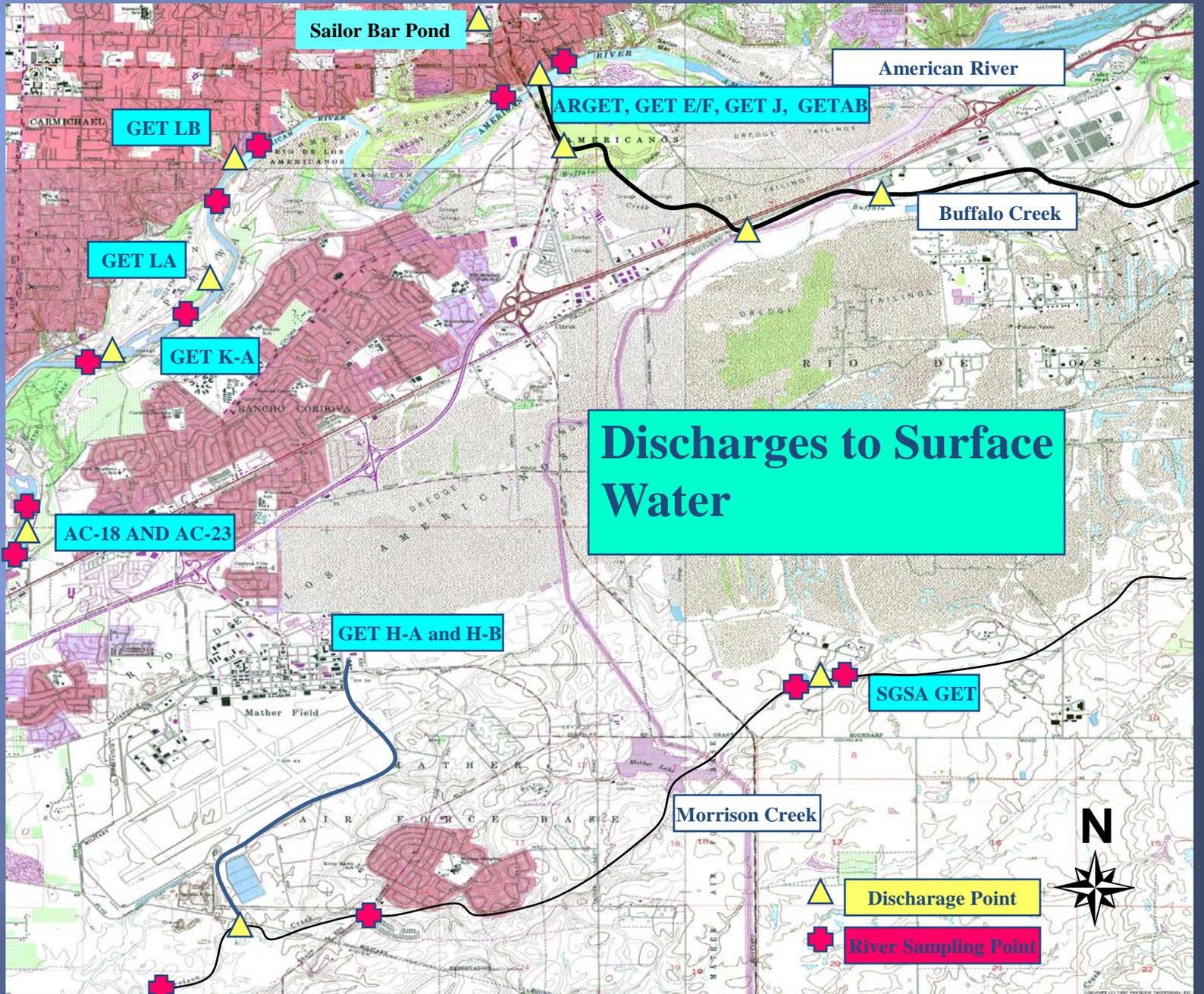


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•Current Permitted flow 28,750 gpm
•130 billion gallons treated to date
•150 lbs chemicals removed daily
•Over 980,000 lbs removed to date

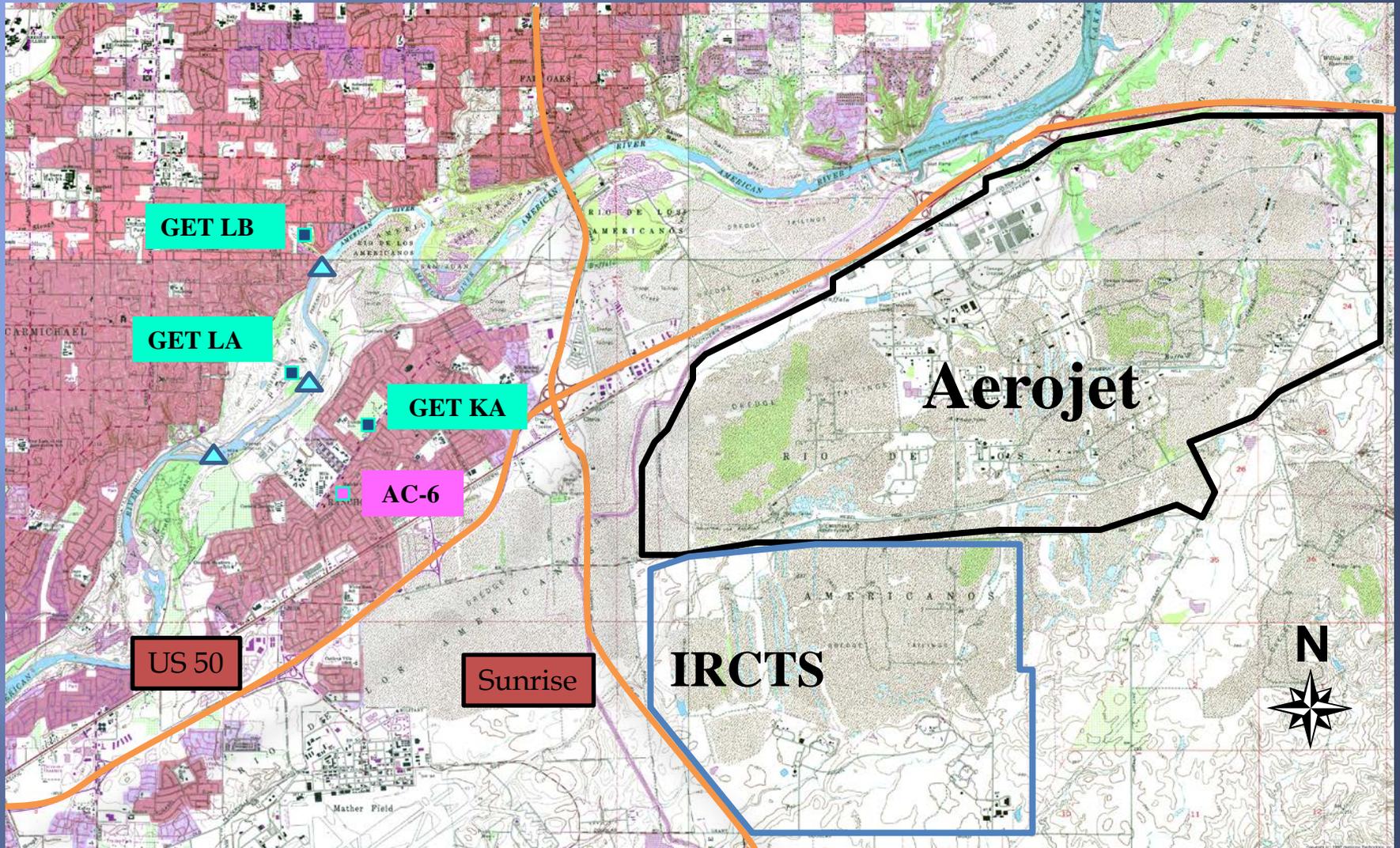


Get LA and GET LB

- ▣ **GET LA permitted flow is 2000 gpm that allows for expansion. Current flow is 800 gpm.**
- ▣ **GET LA discharge is to the Ancil Hoffman Golf Course and when not needed it is to the American River.**
- ▣ **GET LB has a permitted flow of 1000 gpm with a current flow of 800 gpm**
- ▣ **GET LB discharge is the American River**
- ▣ **GET LA uses UV/peroxide to remove NDMA while GET LB only uses UV**

Get KA and AC-6

- ▣ **GET KA permitted flow is 2800 with a current flow of 2300 gpm**
- ▣ **Discharge is to a drainage ditch to American River. Looking to use as part of habitat restoration near Soil Borne Farms.**
- ▣ **NDMA and VOCs treated by UV/peroxide and perchlorate removed by ion-exchange**
- ▣ **AC-6 - flow is around 600-650 gpm with discharge into distribution system. Startup and shutdown flows are to the drainage ditch used by GET KA.**
- ▣ **AC-6 uses ion exchange to remove perchlorate**



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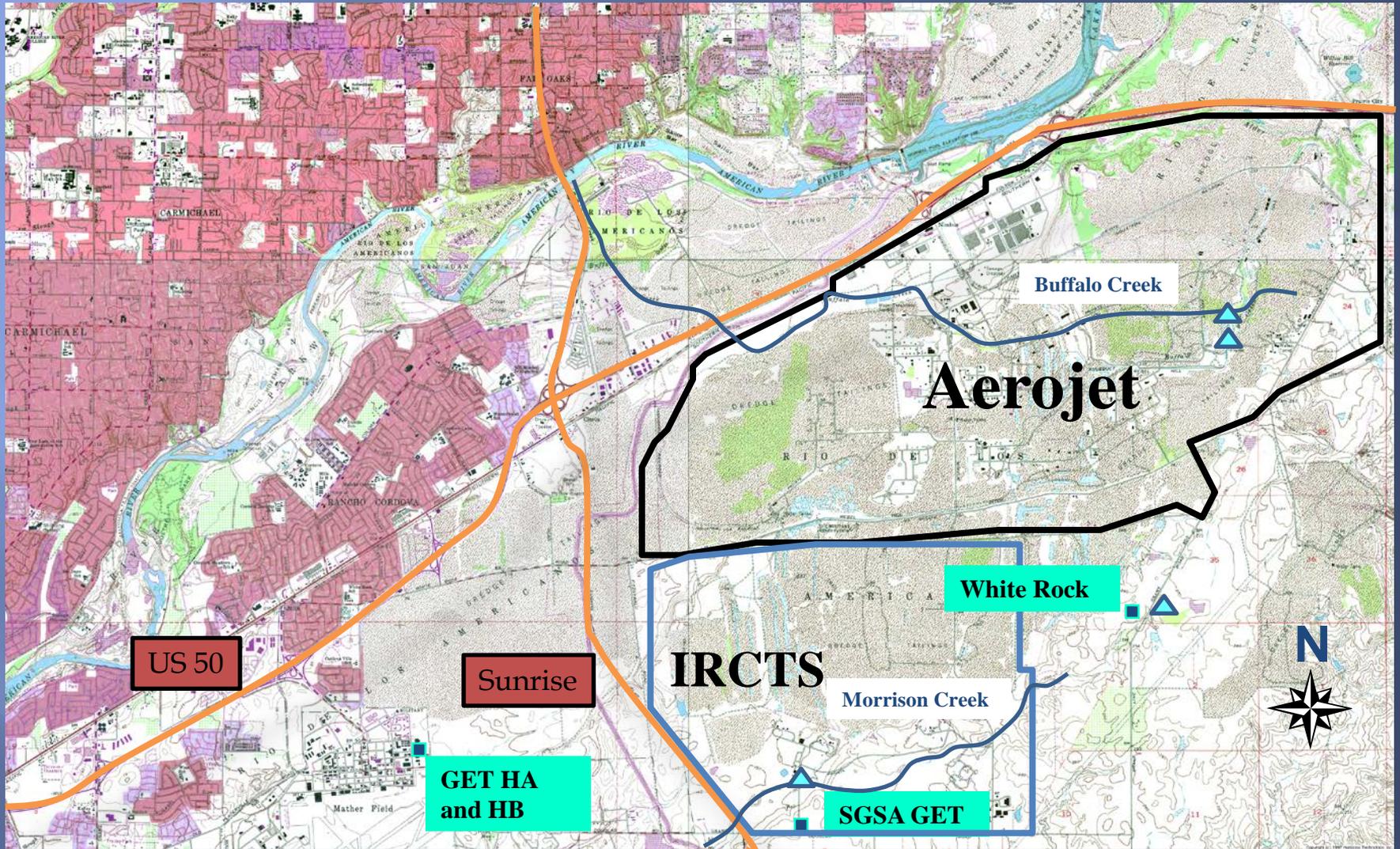


GET HA and GET HB

- ▣ **GET HA has a permitted flow of 2000 with a current flow of 1800 gpm**
- ▣ **GET HB has a permitted flow of 3800 gpm with a current flow of 3000 gpm**
- ▣ **Discharge from both facilities is to a drainage ditch to Morrison Creek**
- ▣ **Both facilities use ion-exchange to remove perchlorate and granular activated carbon to remove volatile organics**
- ▣ **The discharge generally infiltrates into the ground west of Bradshaw Road**

SGSA GET and White Rock GET

- ▣ **SGSA GET has a permitted flow of 1100 gpm with a current flow of 700 gpm**
- ▣ **Discharge is to Morrison Creek**
- ▣ **Treatment uses granular activated carbon for volatile organics and ion exchange for perchlorate**
- ▣ **White Rock GET has a permitted flow of 1000 gpm and flow varies depending upon Teichert demand for water**
- ▣ **Uses air stripping for volatile organics and ion exchange for perchlorate**
- ▣ **Discharge is to Teichert for reuse, to Rebel Hill Ditch for infiltration or to Buffalo Creek**



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GET AB

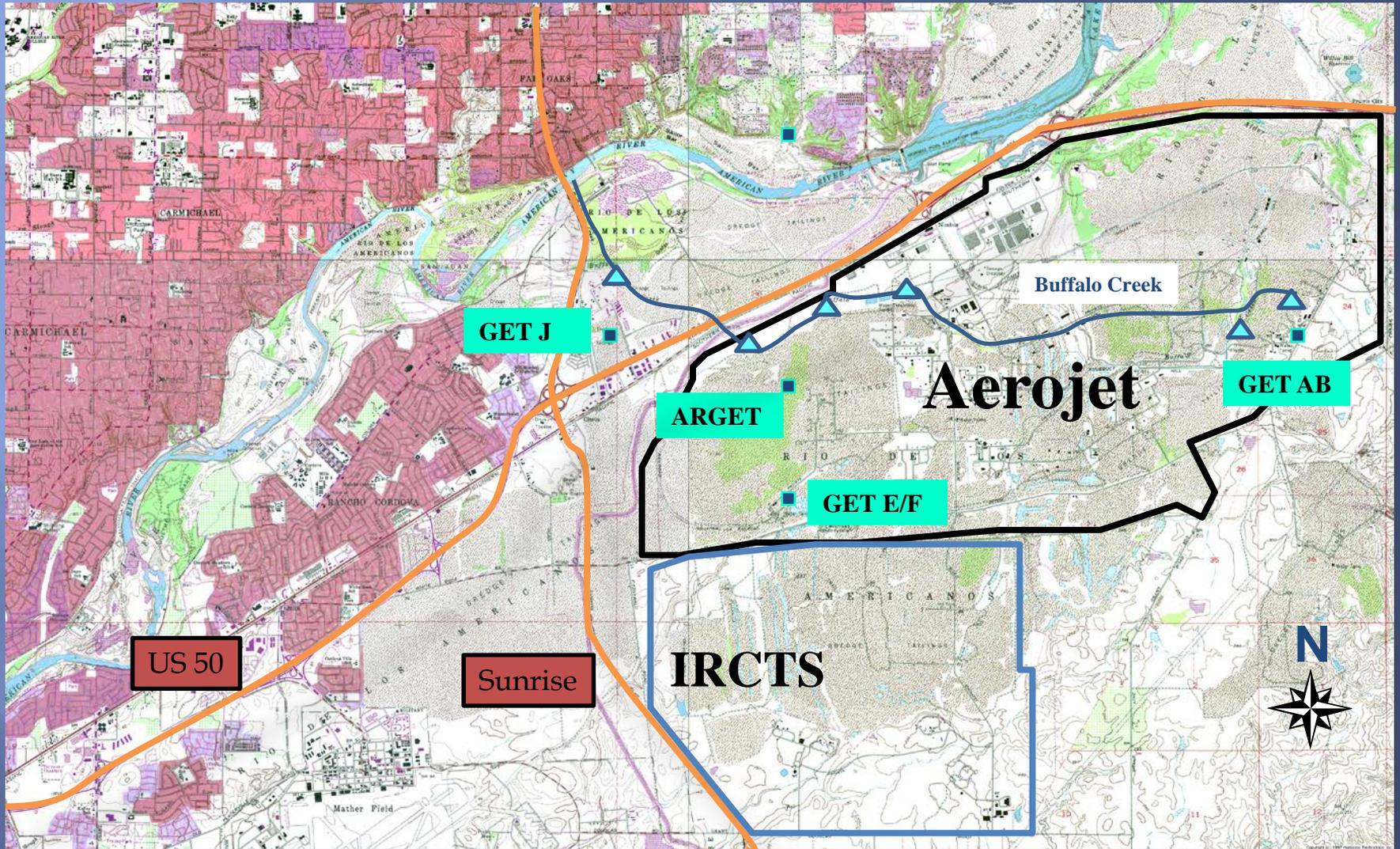
- ▣ **GET AB has been recently expanded with a permitted capacity of 3500 gpm and a current flow of 1600 gpm**
- ▣ **Flow is increasing as more wells are being brought on-line to provide plume capture**
- ▣ **Treatment is provided by UV/peroxide for NDMA and volatile organics, air stripping to remove residual volatiles and ion exchange to remove perchlorate**
- ▣ **Discharge is primarily to Aerojet's industrial water supply, but is also provided to Teichert for use in its processes, and can be discharged to Rebel Hill Ditch or Buffalo Creek**

ARGET and GET J

- ▣ **ARGET permitted flow is 3500 gpm and the current flow is 2400 gpm**
- ▣ **Uses air-stripping, and hydrogen peroxide to treat for volatile organics and 1,4-dioxane, and ion exchange for perchlorate**
- ▣ **GET J permitted flow is 4150 gpm with a current flow of 3800 gpm**
- ▣ **Uses UV/ozone to remove volatile organics and NDMA, granular activated carbon to removed residual volatiles, and ion exchange for perchlorate**
- ▣ **Discharge for both is to Buffalo Creek**

GET EF

- ▣ **Permitted Flow is 8000 gpm – recently expanded, with a current flow of 4500 gpm**
- ▣ **Treatment using biological reduction and ion exchange to remove perchlorate, UV/peroxide to remove NDMA and volatile organics, and air stripping to remove residual volatiles**
- ▣ **Discharge is to Buffalo Creek**

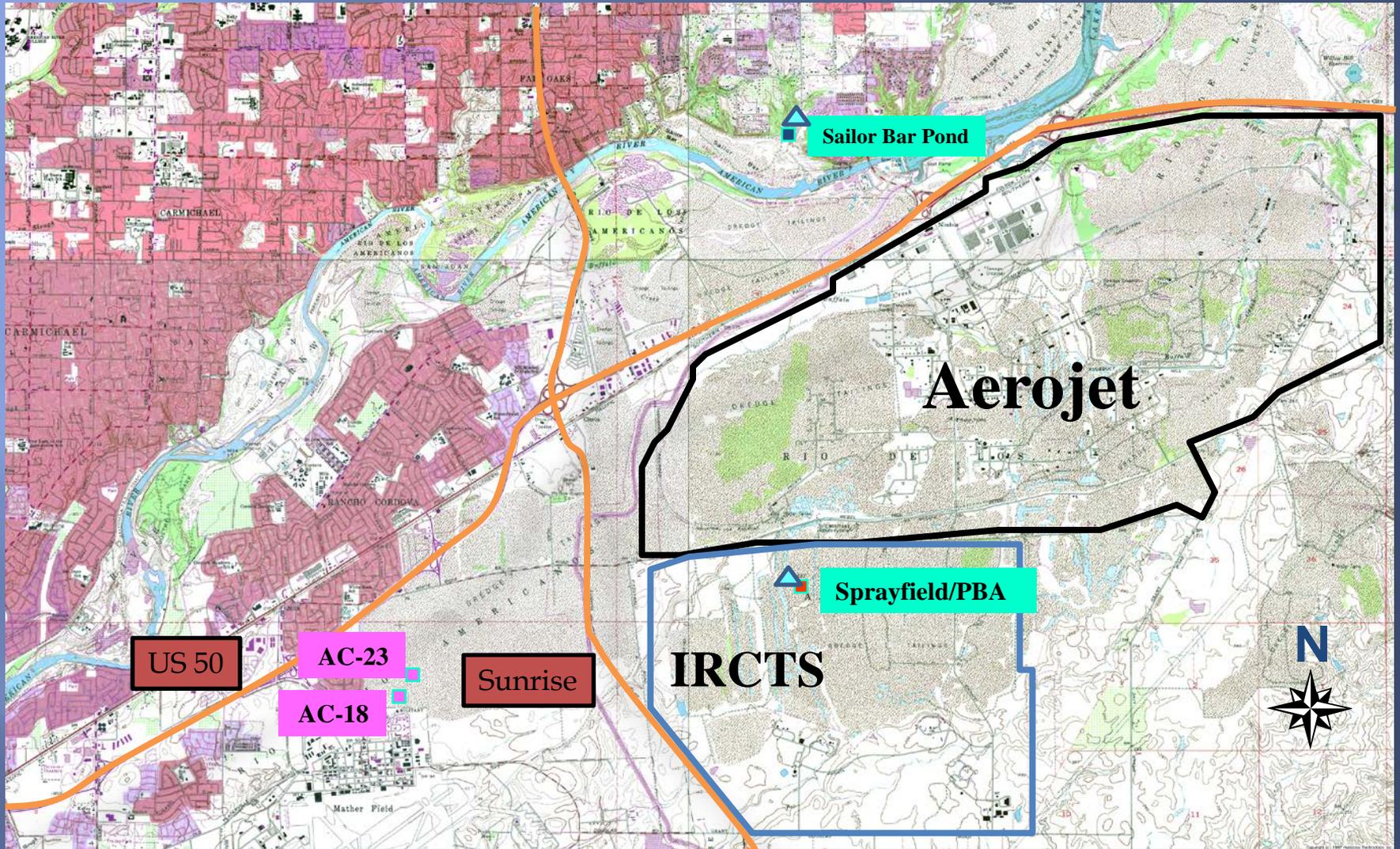


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MISCELLENOUS

- ▣ **Sailor Bar System has a permitted discharge of 400 gpm with a current flow of 300 gpm**
- ▣ **Granular activated carbon is used to treat for volatile organics**
- ▣ **Discharge is to a pond in Sailor Bar Park**
- ▣ **AC-18 and AC-23 have wellhead treatment systems using ion exchange to remove perchlorate prior to placement in the distribution system**
- ▣ **Sprayfield/PBA – system discharges 40 gpm to ground with treatment by air stripping for volatile organics and biological reduction for perchlorate. Will be going to GET EF**



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EPA Cleanup Standards

- ▣ EPA uses risk assessment to evaluate human and ecological impacts from pollutants
- ▣ Risks at Cleanup Standards generally fall within the risk range of one in 10,000 to 1 in one million excess cancer risk and hazard index less than 1 (non-cancer risk)
- ▣ If there is a Maximum Contaminant Level (Primary Drinking Water Standard) then the Cleanup Standard is the Drinking Water Standard
- ▣ Risk to water quality is assessed in the same manner
- ▣ Cumulative risk cannot exceed 1 in 10,000 excess cancer risk
- ▣ Screening Levels usually set a 1 in a million excess cancer risk

Regional Water Board Cleanup Standards

- **Resolution 68-16 – Maintaining High Quality of Waters in California – where water is higher than that established by adopted policies, such higher quality shall be maintained to the maximum extent possible**
- **Resolution 92-49: Requires discharges to cleanup and abate the effects of discharges in a manner that promotes attainment of either background water quality or the best water quality which is reasonable if background levels of water quality cannot be restored**
- **In addition the cleanup level shall be consistent with maximum benefit to the people of the state; not unreasonably affect present and anticipated beneficial use of such water; and, not result in water quality less than that prescribed in the Water Quality Control Plans and Policies adopted by the State and Regional Water Boards**
- **For a corrective action program, the regional board shall establish a concentration limit for a constituent of concern that is greater than the background value of that constituent only if the regional board finds that it is technologically or economically infeasible to achieve the background value for that constituent and that the constituent will not pose a substantial present or potential hazard to human health or the environment as long as the concentration limit greater than background is not exceeded**

Regional Water Board Cleanup Standards

▣ Basin Plan Objectives:

Numerical: Primary and Secondary Drinking Water Standards

Specific Standard for Specific Beneficial Use

Protection of Aquatic Species and Habitat

Protection for use in Agriculture and Industry

Narrative: All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal or aquatic life

Regional Water Board Cleanup Standards

(Alex MacDonald's unofficial process)

- ▣ **Initial Screening Levels for Soils and Groundwater – background concentrations**
- ▣ **Second Tier Screening Level – Soils: Concentrations when modeled will not enter groundwater at concentrations exceeding background concentrations in groundwater**
- ▣ **Third Tier Screening Level – Soils: Concentrations when modeled will not enter groundwater concentrations exceeding incremental one-in-a-million excess cancer risk values or a Hazard Index of 1 or Water Quality Objective (no mixing)**
- ▣ **Fourth Tier Screening Level – Soils: Concentrations when modeled will not cause groundwater to exceed Water Quality Objectives (mixing allowed)**

QUESTIONS?



