

Presentation by Kristie Kilgore to:
PG&E Topock Compressor Station
Consultative Workgroup
Thursday May 20, 2004
Cypress, CA

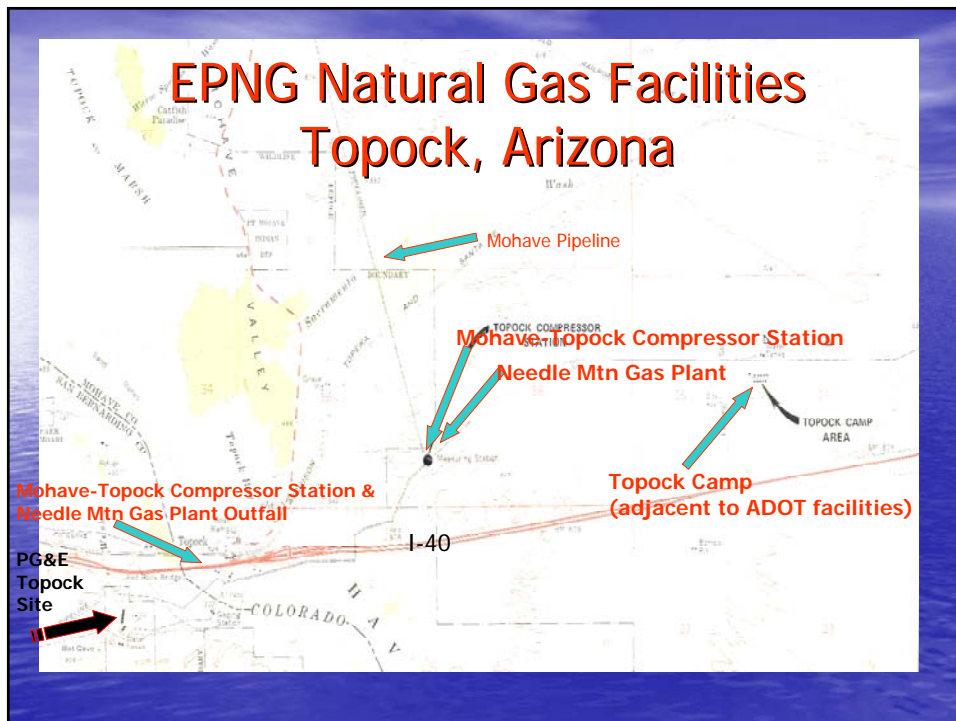


Why is ADEQ here today?

- Describe two Arizona WQD permitting programs pertaining to discharges to the Colorado River
- Share information – two El Paso facilities located on Arizona side of the Colorado River
- Provide Overview of permitting issues and on-going ADEQ data gathering efforts with EPNG
- Share ADEQ perspective - Natural occurrence of Cr^{+6} in groundwater and its affect on two Arizona facilities "What is background?"
- Share results - ADEQ River and Lake Cr^{+6} Sampling
- Continued Participation in Consultative Workgroup – ADEQ role

EPNG Facilities at Topock

- Mohave-Topock Compressor Station
- Needle Mountain Gas Plant/Field Services
- Topock Camp





EPNG Topock Facilities General Information

- Began operations in 1964
- Topock Camp (employee residence camp) – no industrial discharge
- Mohave Topock Compressor Station – discharges to the Colorado River under two Permits (USEPA NPDES and AzPDES)
- Needle Mountain Gas Plant discharged to the Colorado – a new lined impoundment was permitted in July 2003

EPNG Mohave-Topock Compressor Station Outfall 001 Location



EPNG Outfall Location

Railroad Bridge

Interstate I-40



View upstream from Outfall



View downstream from Outfall



Arizona Permitting Programs Water Quality Division ADEQ

Arizona Permitting Programs Discharge to Colorado River

- Aquifer Protection Permit Program 1989
(preceded by the Groundwater Quality Protection Program 1986)

Arizona Revised Statutes A.R.S. 49-241 through 49-252

Arizona Administrative Code (A.A.C.) R18-9-101

Articles 1, 2 and 3

Aquifer Water Quality Standards A.A.C.R18-11-401 through 506

- Arizona Pollutant Discharge Elimination System (AZPDES) (preceded by NPDES)

A.R.S. 49-255 and 255.01

A.A.C. R18-9-A901 (federal NPDES rules by reference at 18-9-A905)

Article 9

Surface Water Quality Standards A.A.C. R18-11-101 through 123

APP and AZPDES Harmonious & Complimentary yet Separate



Aquifer Protection Permit Program (APP) Overview

- Protects all groundwater aquifers in Az as source of drinking water (unless aquifer is reclassified)
- Aquifers cannot be further degraded by "discharges"
- Meet Aquifer Water Quality Standards (mcls) at a Point of Compliance (POC)
- Program regulates discharging facilities (defined by statute A.R.S. 49-241.B)
- Requires use of Best Available Demonstrated Control Technology (BADCT) - *preventative*
- Aquifer Water Quality Standards are established in A.A.C. R18-11-406 (100 ppb total chromium standard)
- AZPDES/NPDES point source discharges to navigable waters are regulated under APP (dual permits required)

Public Participation

- APP and AZPDES both have a public participation requirement during the draft individual permit stage
- Notices are published in local paper with a request for public comment for new permits
- Significant APP permit amendments require public notice during the final draft permit stage
- Permits can be appealed by interested parties up to 30 days after issuance of appeal-able action notice

Permit Amendments

- Several types of amendments exist (significant, minor or other)
- ADEQ may reopen a permit and initiate an amendment
- The permittee may request a permit amendment

Permit Appeals

- To be able to file an appeal as a third party on an ADEQ permit – must have submitted comments on the permit during public participation
- A.R.S.41-1092.03
- Permit appeal must be filed within 30 days of notice of an appeal-able agency action

Revocation of an APP Permit

Cause for ADEQ to revoke a permit are specified in rule:

1. Failure to comply with permit conditions or applicable rule and/or statute.
2. Misrepresentation or omission of fact, information or data related to APP.
3. Director determines that permitted activity is or will cause a violation of an AWQS at a POC.
4. Discharge is causing or will cause imminent and substantial endangerment to public health or the environment

APP History

EPNG Mohave-Topock

- Wastewater discharges to the Colorado River
- Notice of Disposal (NOD) submitted under the Groundwater Quality Protection Permit Program in 1985 (existing facility)
- ADEQ issued permit in 1992 for joint discharge (included Needle Mountain Gas Plant)
- Permit contains discharge monitoring requirements and discharge limits for discharge to Colorado River
- Permit has been amended by EPNG several times (last in 2001)
- No ponds/surface impoundments included in the APP

EPNG Mohave-Topock Compressor Station Outfall Location



Mohave-Topock Discharge Info.

- 40,000 gpyr discharge to Colorado River reported in NOD
- Discharge of Non-contact cooling water from 5 Compressor Units – 2 cycles
- Permit Limit of 144,000 gpd (0.144 mgd)
- Actual average daily flow ranges from 0.0212 to 0.0566 mgd
- Annual flow ranges from 1.9 to 14.1 million gallons per *year* (mgy)
- Flow to river is decreasing – Needle Mountain Gas Plant obtained general APP for a new lined impoundment (July 2003)
- Discharge to new lined pond began early 2004

APP Point of Compliance (POC)

Mohave Topock Compressor Station

- 360 feet downstream of Outfall/Discharge Point to Colorado River (pg.2)
- No groundwater monitoring required in current permit (no discharge to groundwater reported)
- Permit authorizes ADEQ to require monitoring well installation at the POC for discharge limit exceedances (pg.6)

APP Permit Requirements

Mohave Topock

(copy of APP available)

- Quarterly Discharge Monitoring
- Discharge Limit (flow) 144,000 gpd (0.144 mgd)
- Discharge Limit for Total Chromium – 50 ppb
- Discharge Alert Level Total Cr – 46 ppb
- Limits for Fluoride (18 ppm) and pH (6.5-8.5) and misc. other parameters
- Contingency Requirements for exceeding limits and alert levels or Discharge Control System failure
- Facility Closure Requirements

APP History

Needle Mountain Gas Plant

- Owned and Operated by **El Paso Field Services**
- Discharge to Colorado River ceasing (Mohave Topock still discharges to Colorado River at same outfall)
- A General Permit was issued for a new lined impoundment at Needle Mountain Gas Plant (aka Field Services) July 2003
- Design rate (average) 6 gpm and maximum of 10 gpm
- EPNG amended the Mohave Topock APP to reflect the cessation of Needle Mountain discharge to the Colorado River (July 2003)
- Discharge to new impoundment began in early 2004

AZPDES Program

- ADEQ was **authorized** by USEPA for the National Pollutant Discharge Elimination System Program (Section 402 of the Clean Water Act) in Dec. 2002
- Rules were developed in 2001 and a revision was published in the Arizona Administrative Code, effective February 2004

AZPDES and NPDES Update

Mohave Topock Compressor St.

- USEPA Region 9 issued the *individual* NPDES permit for the EPNG Mohave Topock Compressor Station in 1992 and renewed it in 1999
- The '92 permit had a Total Chromium limit (50 ppb); **EPA removed it from the '99 permit**
- A renewal application was received by ADEQ in September 2003 (180 days before expiration date March 2004)
- The permit is **administratively continued** until a new permit is issued
- The *individual* AZPDES permit is currently being drafted and the file carefully reviewed
- **Discharge of Cr+6 will NOT be allowed in the new permit.**
- There will be a public participation process

Arizona Surface Water Quality Standards (SWQS)

- This part of the Colorado River has designated SWQS uses for Full Body Contact (FBC); Fish Consumption (FC); Drinking Water Source (DWS); Agricultural Livestock (AgL); Agricultural Irrigation (AgI) and Aquatic and Wildlife warm water (A&Ww)
- The AZPDES permit must be drafted to protect for the most stringent applicable SWQS-- for chromium, this is A&Ww
- The chronic SWQS for Cr+6 A&Ww is 11 ppb; the acute A&Ww standard is 16 ppb
- SWQSs are protected under the AZPDES program (not APP)

AZPDES Permit – Addtl Info.

- In the NPDES permit the outfall **mixing zone** for select constituents extends upstream toward Topock Bay (100 feet north of discharge point and 10 west of shoreline)
- Mixing zone constituents may include: total chlorine residual, temperature, selenium, fluoride, and boron
- 0.033 mgd average flow – current applic.
- 0.202 mgd average flow – NPDES permit

Mixing Zone



Public Participation & AZPDES

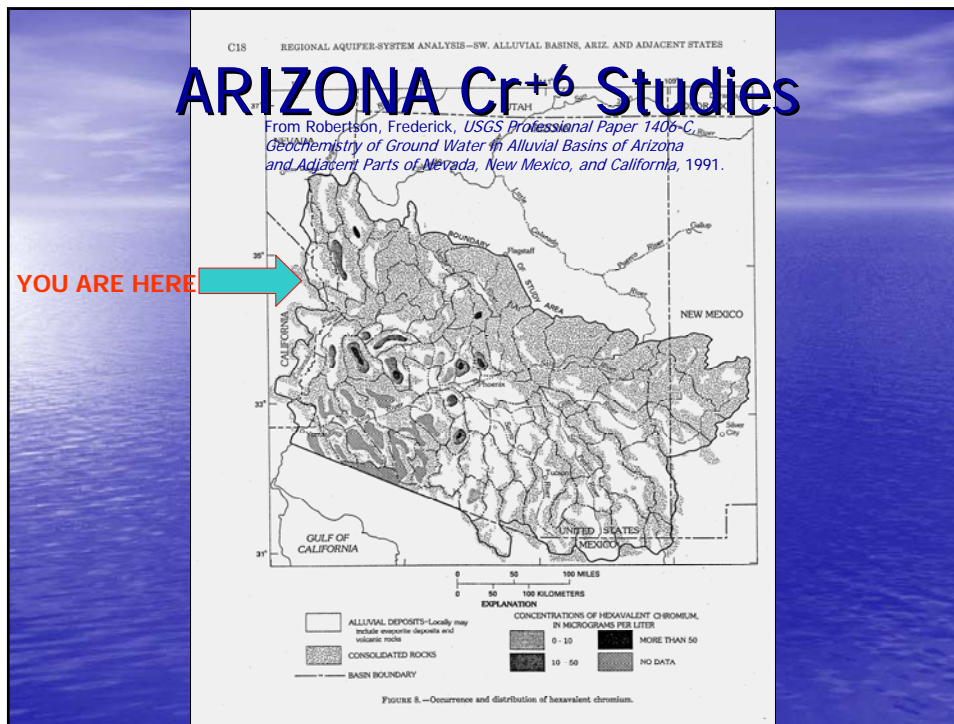
- Publication of notice in local paper
- Draft permit and Fact Sheet/Statement of Basis available for review during 30 day period
- Comments are welcomed and reviewed and considered in preparation of the final permit for issuance
- Must submit comments to file an appeal and appeal must pertain to comments

APP Issues & Cr Studies

- No AWQS for Cr⁺⁶
- One discharge limit exceedance of *total chromium* in 55 rounds (59 ppb compared to D.L. of 50 ppb)
- Exceedance well below AWQS of 100 ppb
- NOD submitted in 1985 reported earthen pits – these have not been addressed or closed under the current APP
- ADEQ addressing this issue with EPNG – response due in June 2004

Summary – Mohave Topock and AZ Permits

- Unknown if Chromium containing compounds were in use at this facility – information requested by ADEQ is due in June 2004
- Appears possible that Background Chromium groundwater concentrations may result in Cr⁺⁶ in discharge



Do we have naturally occurring Cr⁺⁶ in this area?

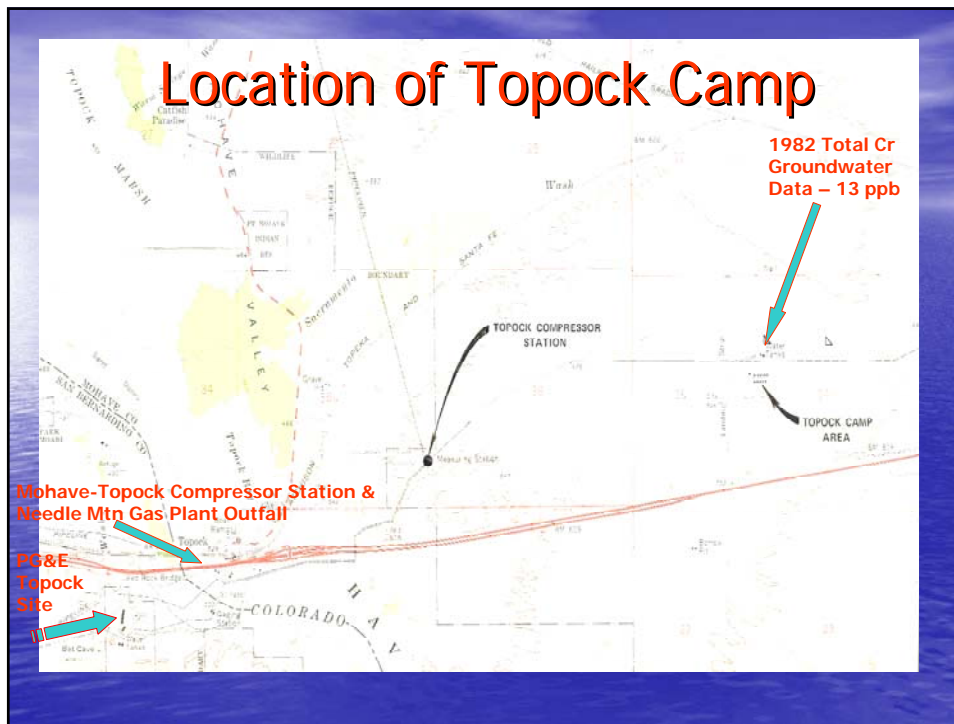
- Focus of Background Study
- Robertson 1991, suggests possibility exists
- Arizona/ADEQ data available for area?
- How can Arizona assist/support this investigation?
- Background Study results pertain to Arizona El Paso sites

Sharing of Available "In-hand" Data Wells in the Background Study Area

- Topock Camp
- Topock Compressor Station

1982 Topock Camp Groundwater Data

- 1982 Data from EPNG Topock Camp
- EPNG Water Supply Wells monitored *quarterly* in 1987
- *Total Chromium* of 13 ppb in groundwater from Topock Camp distribution system (wells No. 1 and No. 2)
- Comparable to 2004 PG&E Data (Wells 600187 and 600189) of 7 to 10.5 ppb *Total Chromium*
- No groundwater data provided for Cr⁺⁶
- Additional Data Requested from EPNG (due June 2004)



2002 – More Cr Groundwater Data Topock Compressor Station Water Supply Well

- Cr⁺⁶ at a concentration 17 ug/L (ppb)
- February 7, 2002 Sample Date
- Well registration number – ADEQ needs to confirm and verify well name and identification number
- DTW in well reported to be 243 feet bgs in 2003



Natural Occurrence of Cr⁺⁶:

- Complicates PG&E Topock investigation
- Affects PG&E Topock clean-up levels and interim and final remedy goals
- Affects Arizona EPNG Mohave Topock Compressor Station water supply used for cooling towers, etc. which is cycled 2 times
- Affects quality of Arizona EPNG Compressor Station discharge to Colorado River

ADEQ On-going Study of EPNG

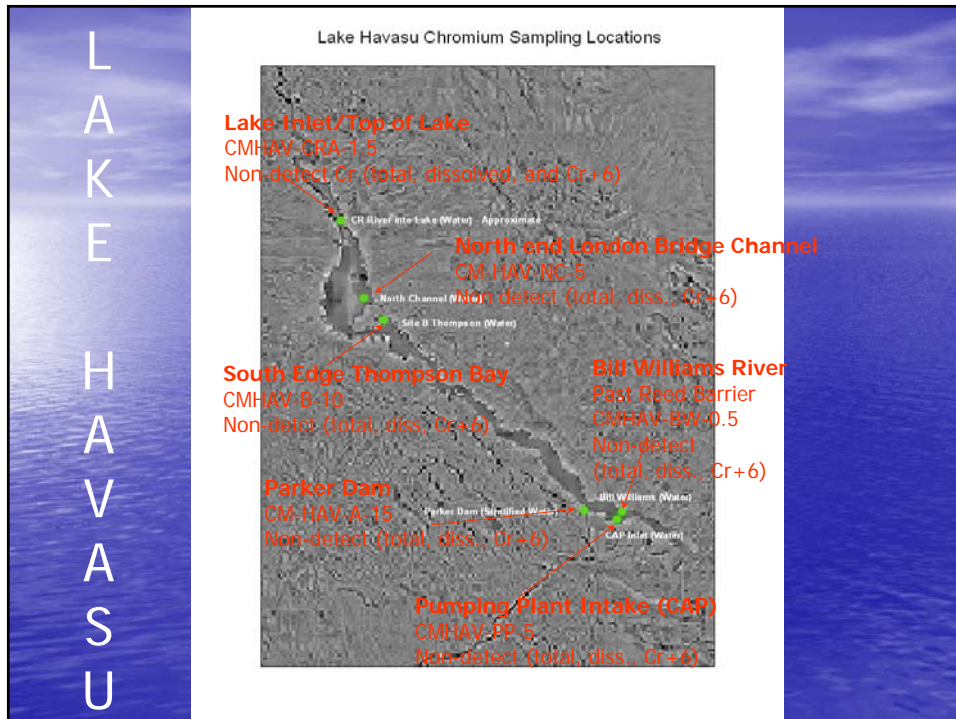
- Due Diligence – ADEQ requested submittal of information under RCRA 280 authority – *all* Arizona Compressor Stations (due June 2004)
- Focusing first on Mohave Topock
- Former earthen pit reported in NOD – status? Was there a pond at this facility in the past?
- Use of chromium compounds in past
- All available Groundwater data
- Is there reason to suspect groundwater impact?
- How does **reasonable probability** (17ppb) of Cr+6 affect AZPDES permit in process and issued APP? **No Cr+6 discharge will be allowed.**

ADEQ Lake and River Sampling

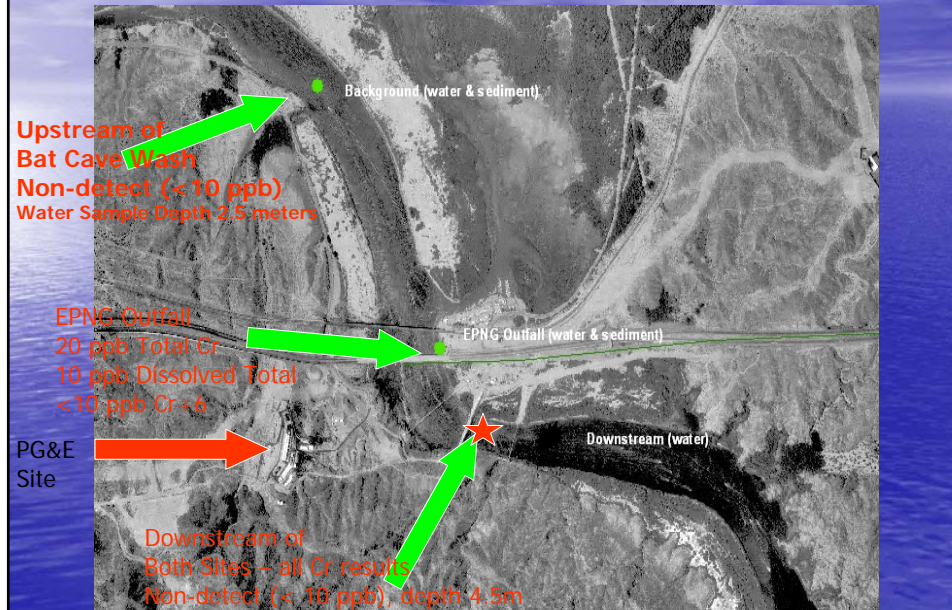
Focusing on Cr⁺⁶
& Total Chromium
10 ppb (ug/L) detection level

Proactive Sampling Program: in Response to Public Inquiries

- The ADEQ Lakes and Rivers Sampling Team conducted two separate sampling events
- April 5, 2004, surface water samples were collected at Lake Havasu (see figure)
- April 13, 2004, surface water and sediment samples were collected at Topock on the Colorado River (see Figure)



TOPOCK SAMPLING LOCATIONS



Sample Analysis

- Certified laboratory report still pending from Aquatic Consulting Testing, Inc.
- Preliminary rush results obtained for all Chromium analysis
- All samples analyzed for total, dissolved and Cr⁺⁶
- Chromium Detection level was 10 ppb
- Outfall and Topock upstream samples were also analyzed for total fluoride, selenium, cadmium, boron, chloride, hardness, TDS, and sulfide
- Results will be posted on ADEQ website

Discussion of Results

- A preliminary sampling effort that could be expanded if results suggested the need
- *All samples* were non-detect for Cr+6 (<10 ppb)
- ADEQ Colorado River sampling results support PG&E's results – Cr+6 not detected in the River
- Total Chromium detected in the Outfall sample at EPNG Mohave Topock (20 ppb) was well below the permit discharge limit of 50 ppb.

ADEQ Participation

- Continue to participate in meetings as needed to stay current on progress at PG&E Compressor Station
- Background Study Findings pertain to Arizona sites
- Sharing Arizona data as it becomes available
- Participate in Consultative Workgroup to ensure that Arizona Water Resources remain protected
- Keep workgroup apprised of AzPDES permit progress
- Advise workgroup regarding findings at EPNG Mohave Topock site (use of Cr compounds, groundwater data, etc.) after review of June 2004 submittal

ADEQ Commitment

- We are aware of issues at EPNG facilities in Arizona that have permits to discharge to the Colorado River.
- ADEQ is gathering information and taking a close look at Topock facilities and both permits (APP and AZPDES application).
- With all information in-hand, ADEQ will take appropriate steps to ensure that the resources of the Colorado River are protected.



Working together to protect OUR resources!



Surface Water and Sediment Sample Collection Methods

- Beta bottle used to collect water samples below water surface (trip open at sample depth)
- Outfall grab sample was collected directly from the discharge pipe
- Field measurements were collected for pH, EC, TDS and DO
- Sediment samples were collected with sterile teflon sampler and samples placed in glass jar

Factors Affecting Natural Occurrence of Cr⁺⁶ in Groundwater

- Cr⁺³ can oxidize to Cr⁺⁶ under oxidizing conditions and higher pH values (redox potential in groundwater)
- pH-Fluoride dependent exchange control
- Process relates to geochemical and hydrologic environment
- Basins bounded by volcanics and intrusive rocks
- Basins receiving low recharge
- Tends to concentrate toward center of basin

From Robertson, Frederick, *USGS Professional Paper 1406-C, Geochemistry of Ground Water in Alluvial Basins of Arizona and Adjacent Parts of Nevada, New Mexico, and California*, 1991.

Robertson Report (1991)

- 436 samples collected within study area
- 5% contained Cr+6 > 50 ppb (ug/L)
- Range 0-300 ppb
- Mean 10.3 ppb

Topock Camp Information

- EPNG Topock Camp located 2.5 miles east of Colorado River
- EPNG *Employee Residence Camp* where 5-10 families lived
- 500,000 gallons per year of domestic wastewater to leach field
- No industrial wastewater discharge
- Reported DTW of 250 feet bgs (1983)

Fluoride
Exceeded D.L. in APP
>18 mg/L in 3 of 56 rounds

Date	Result (mg/L)
April 9, 2002	2190
October 2, 2002	2460
January 7, 2003	2580

Selenium
Exceeded D.L. in APP
> 0.015 mg/L in 5 of 55 rounds

Date	Result (mg/L)
September 4, 1997	0.025
October 4, 2001	<0.05
April 9, 2002	0.021
October 2, 2002	0.081
January 7, 2003	0.049

Cadmium
Exceeded D.L. in App
>0.018 mg/L in 3 of 56 rounds

Date	Result (mg/L)
April 9, 2002	7.5
October 4, 2002	23
January 7, 2003	7.6

