



Technical Review of Goldfield Ranch Water Reclamation Facility Small Plant Approval Request

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Project Description

Client: Salt River Pima-Maricopa Indian Community
(SRP-MIC)

Consultant: HDR Engineering, Inc. (Engineering)
Hydro Systems, Inc. (Hydrology)

Provide third party technical review of the Small Plant Review and Approval request to the Maricopa Association of Governments (MAG) for The Preserve at Goldfield Ranch proposed water reclamation facility (WRF)

Goldfield WRF Overview (as the Application Presently Exists)

- Serve The Preserve at Goldfield Ranch
- Outside of a Municipal Planning Area
- County island
- Last private land along SR 87 exiting urban core
- Surrounded by the Tonto National Forest and Fort McDowell Yavapai Nation
- Projected population of 3,283 persons, ultimate anticipated wastewater generation of 0.40 MGD
- To be owned and operated by a CID or DWID

Water Quality Review

- Class A+ reclaimed water is for *non-potable* reuse
- Aquifer Water Quality Standards are for the protection of groundwater for drinking water purposes.
- Surface Water Quality Standards are for:
 - Aquatic and Wildlife cold water
 - Aquatic and Wildlife warm water
 - Aquatic and Wildlife ephemeral
 - Aquatic and Wildlife effluent dependent water
 - Full-body Contact
 - Partial-body Contact
 - Domestic Water Source
 - Fish Consumption
 - Agricultural Irrigation
 - Agricultural Livestock Watering

Class A+ Water

Requirements:

- Before disinfection:
 - 24 hour turbidity ≤ 2 NTU
 - Instantaneous turbidity ≤ 5 NTU
- After disinfection:
 - Fecal coliform is ND in 4/7 samples
 - Single sample fecal coliform is $< 23/100$ mL
- 5 sample geometric mean for total nitrogen < 10 mg/L

Applicant Proposes:

- Activated sludge process
- Class A+ reclaimed water
- No nitrogen removal process
- UV disinfection after clarification, but before filtration

Verde River Designated Uses in This Reach



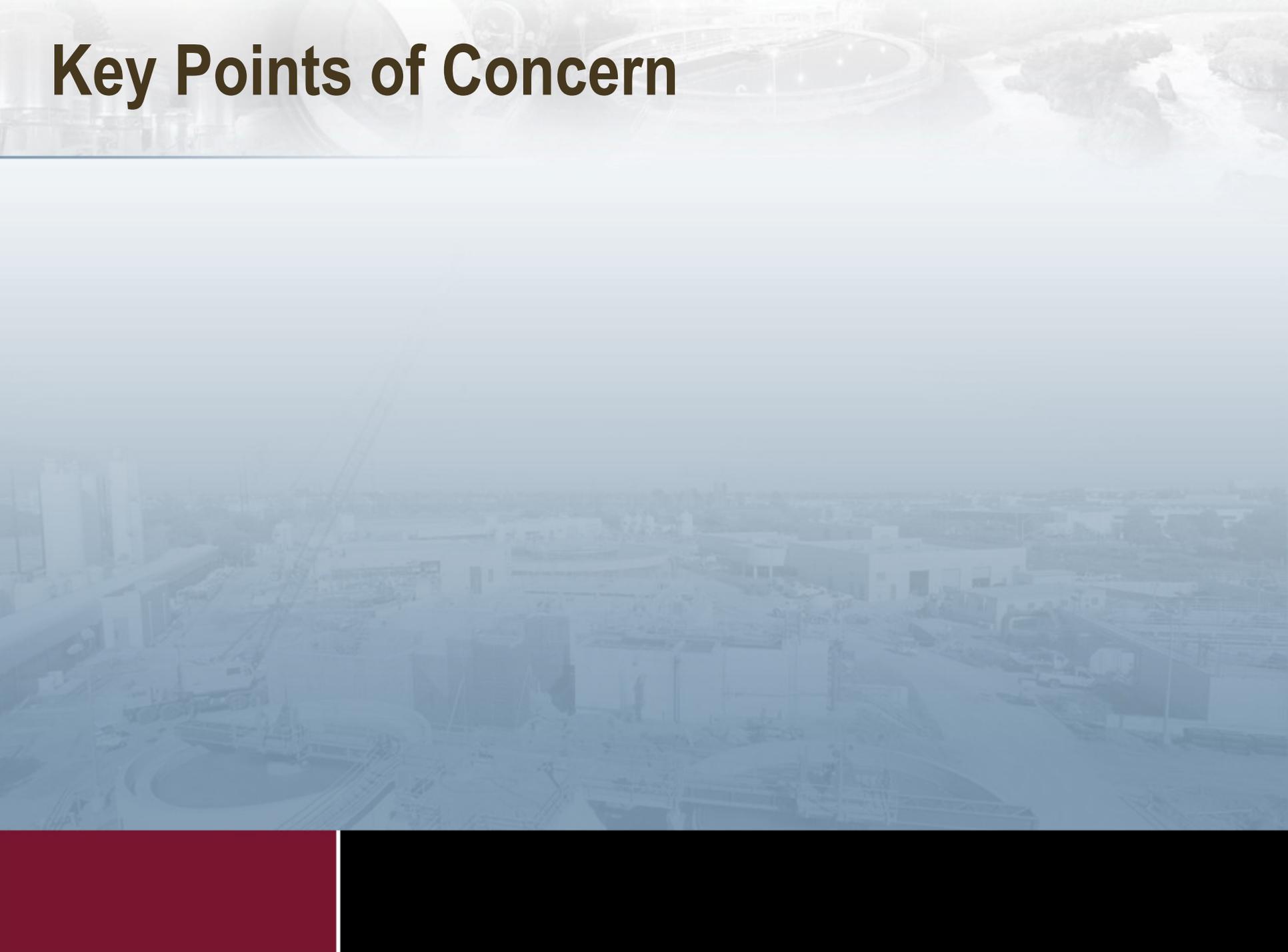
www.jackpotranch.org/images/vrgna3.jpg

- Aquatic and Wildlife, Warm Water
- Full Body Contact
- Domestic Water Source
- Fish Consumption
- Agricultural Irrigation
- Agricultural Watering

Aquifer Water Quality Criteria

- All aquifers in the state are classified for drinking water protected use except for aquifers which are reclassified to a non-drinking water protected use
- A discharge shall not cause:
 - a pollutant to be present in an aquifer classified for a drinking water protected use in a concentration which endangers human health
 - or contribute to a violation of a water quality standard established for a navigable water of the state
 - a pollutant to be present in an aquifer which impairs existing or reasonably foreseeable uses of water in an aquifer

Key Points of Concern

The background of the slide is a faded, light blue-tinted aerial photograph of a large-scale construction project. In the upper portion, a circular stadium with a running track is visible, surrounded by greenery. The lower portion shows a dense area of industrial or commercial buildings under construction, with a prominent crane on the left side. The overall scene suggests a major infrastructure or sports facility project.

Key Points of Concern

1. Plant Location and Local Features
2. Service Area
3. On-Site Treatment
4. Potential Surface Water Quality Impacts from Injection
5. Owner/Operator Financial Capability

Presentation Format

- HDR report completed and delivered to MAG on May 15, 2008
- Applicant response received by SRP-MIC on May 20, 2008, addressing Key Points
- Key Points Presented
- Applicant Response
- Remaining Unresolved Concerns

Plant Location and Local Features



- Verde River
- Surrounding topography
- Risk to surface water quality standards

Service failure could result in unimpeded wastewater traveling the 2.5 miles and 210 feet down gradient reaching the Verde River in 6 to 18 hours. Sensitive reach of the Verde River

Plant Location and Local Features – Applicant Response

- Commitment to include redundant power supply and retention for lift stations and WRF
- Commitment to include emergency holding capacity at the WRF equivalent to 2 times the operating capacity.

Plant Location and Local Features – Remaining Concerns

- Commitments must be incorporated into the Small Plant Review and Approval application, and re-evaluated by the MAG 208 WQA Committee
- Complex wastewater collection, treatment, and reclaimed water management system that will be owned and operated by a relatively small County Improvement District or Domestic Water Improvement District.
- MAG has never approved a similar facility to be operated by a CID in a County island in an area this close to a perennial stream with the associated designated uses.
- This circumstance represents the risk to water quality the MAG 208 WQMP was established to prevent and mitigate.

Service Area

- Limited area served within a larger, completely enveloped county island
- Grayhawk (80 acres surrounded on three sides by The Preserve)
- Parcels C and D on septic systems
- Offsite Parcels 1-5 included in sewer calculations
 - Newly purchased land between Parcels A and B
- Existing and future lots using septic systems



CMX, LLC. The Preserve at Goldfield Ranch Water Reclamation Facility. February 2008.

Service Area

Not providing sewer service to the entire area encourages the proliferation of Small Plants and septic systems, increasing risk to regional water quality, which is contrary to the MAG 208 process and intent.



Service Area – Applicant Response

- Commitment to include parcels C and D in wastewater service area.
- Commitment to allow additional property owners to connect into the system, at that owners cost.

Service Area – Remaining Concerns

- Commitments must be incorporated into the Small Plant Review and Approval application, and re-evaluated by the MAG 208 WQA Committee
- Request commitment from the County that land uses in parcels C & D will not be allowed to be changed from rural residential
- Much is still unknown about the strength and flow associated with commercial land use; uncertainty associated with recently purchased parcels
- The purpose of regional planning is to plan for and be inclusive of the additional growth within an area. Applicant is still only planning for the Preserve, and nothing else.

On-Site Treatment

- Parcels C and D served by septic systems
- Consumer demand to make Parcels C and D commercial

Septic systems do not provide sound regional water quality protection, but the inclusion of commercial wastewater may challenge the treatment capability of the proposed plant

On-Site Treatment – Applicant Response

- Commitment that parcels C and D will not be on septic tanks.

On-Site Treatment – Remaining Concerns

- Commitments must be incorporated into the Small Plant Review and Approval application, and re-evaluated by the MAG 208 WQA Committee
- Request commitment from the County that land uses in parcels C & D will not be allowed to be changed from rural residential
- As pointed out by Applicant, amendments to the DMP to change land uses to commercial are possible. Special use permits can be used to effectively change land uses (outside of the MAG 208 process).

Potential Surface Water Quality Impacts from Injection

- Inconclusive evidence of a continuous clay layer
 - Supported by Salt River Project data
 - Supported by Hydrosystems, Inc. hydrologic data evaluation (Appendix A)
- Verde River subflow
- Insufficiency of Class A+ reclaimed water
- APP, AZPDES permits (or surface water quality standards)

Determination should be made if the Goldfield WRF meets all the requirements of the MAG 208 Small Plant designation

Potential Surface Water Quality Impacts from Injection – Applicant Response

- Commitment to meet surface water quality standards for the respective reach of the Verde River.

Potential Surface Water Quality Impacts from Injection – Remaining Concerns

- Applicant commitments must be incorporated into the Small Plant Review and Approval application, and re-evaluated by the MAG 208 WQA Committee
- The WRF treatment process needs to be adequately described to demonstrate that all applicable water quality standards will be met:
 - Class A+ Reclaimed Water: Denitrification & placement of UV disinfection
 - Groundwater Quality: Denitrification required
 - Surface Water Quality: How will standards be met?

Owner/Operator Financial Capability

- Financial burden on CID or DWID
 - Annual cost likely in the range of \$450 to \$485 per lot
 - Approximately 2 to 4 times what you would pay in an MPA
 - Does not include amortization of capital
 - Does not include provision of a repair and replacement fund
 - Initially, very few rate payers
 - Build out several years away
- Supplemented by the developer, but for how long?

Financial responsibility must be adequately addressed as there is potential for significant financial burden on CID

Owner/Operator Financial Capability – Applicant Response

- Commitment to provide financial assurances
- Indicates that Maricopa County Board of Supervisors will be ultimately responsible as Board of Directors for the CID
- Commitment to recruit and hire qualified operator

Owner/Operator Financial Capability – Remaining Concerns

- Applicant and County commitments must be incorporated into the Small Plant Review and Approval application, and re-evaluated by the MAG 208 WQA Committee
- Transfer of financial and water quality risk to all of Maricopa County is both precedent setting and inequitable.
- R18-5-104 and R18-5-114 only require a Grade 2 on-site operator, based upon treatment process. However, given the complexity of the overall system and the unique features of the facility, a Grade 3 on-site operator is preferred.

Summary of Concerns

1. Plant Location and Local Features

- Unique location, complex system, inequitable accountability

2. Service Area

- Not a regional plant

3. On-Site Treatment

- All areas outside of the Preserve will be on septic

4. Potential Surface Water Quality Impacts from Injection

- Focus has been on Class A+ water, but not even meeting those criteria

5. Owner/Operator Financial Capability

- Relatively high cost of service
- Transfer of risk to all of Maricopa County

Conclusions

- The MAG 208 process exists to mitigate risk to water quality and serve as first line of defense
- In this case, responsibility is left to a CID whose representation largely does not exist.
- The Applicant's recent commitments, and response to remaining unresolved issues, should be included in a revised application for consideration by MAG.
- The application is not consistent with the MAG 208 Water Quality Management Plan.

Sludge Generation

- Anywhere from 600-1100 lbs generated each day
- Truck load taken every 30-60 days
- Up to 12 truck loads taken each year

