

Reclamation Rural Water Act: Southwestern Navajo Rural Water Supply Project & Solar Groundwater Desalination Research

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Kevin Black Sr. is a Native American Affairs Specialist with the Bureau of Reclamation's Phoenix Area – Native American Affairs Office. He has been with the Bureau of Reclamation for 27 years and 3 years as a contractor. Kevin received a bachelor's degree in business management from the University of Phoenix and has complete graduate studies in water resource management at Arizona State University.



Mitch Haws is a Water Agreements Planner with the Bureau of Reclamation's Phoenix Area – Program Development Division. He has worked for the Bureau of Reclamation for 29 years in various functions from materials engineering, grants and contracting, and for the past 10 years has been working in water resources development and planning. Mitch received a bachelor's degree in business administration and management from Grand Canyon University.

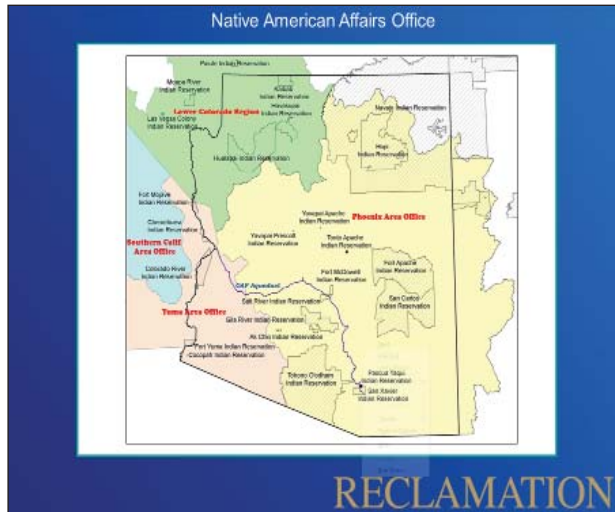
Mitch has been researching various water and energy issues as it relates to real concerns of the Bureau of Reclamation which includes: The Moisture Balance Drought Index (formerly the Hydroclimatic Index); the energy and water nexus in Arizona; renewable energy for water transmission; and is now researching new techniques for using renewable energy for desalination in an off grid setting.

PowerPoint Presentation

<http://wri.nmsu.edu/publish/watcon/proc56/Black-Haws.pdf>

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Desalination Research Roadmap

(PROVIDES GUIDANCE FOR RESEARCH ACTIVITIES)

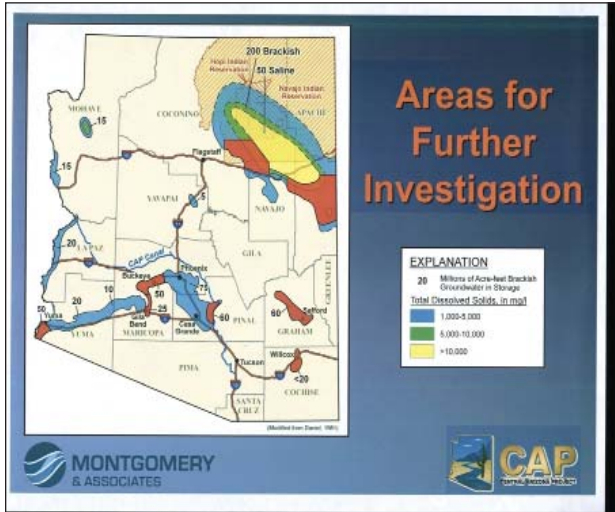
- **Developed** under Partnership between Reclamation and Sandia National Labs
- **Written** by Executive Committee
 - Resource economist, public health expert, head of large utility, political scientist, university professors, desalination consultants
- **Reviewed** by National Research Council

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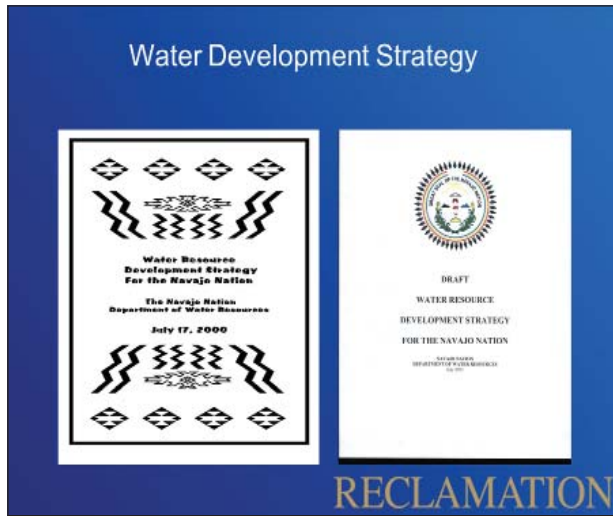
Phoenix Area Objectives

- Fulfill our federal stewardship with respect to existing projects (SRP and CAP oversight)
- Construct Authorized Projects
- Work with stakeholders to facilitate solution of present and future water management issues
- Work with Native American Communities on water related issues
- Provide a positive work environment for our workforce
- Adapt business practices to changing environments

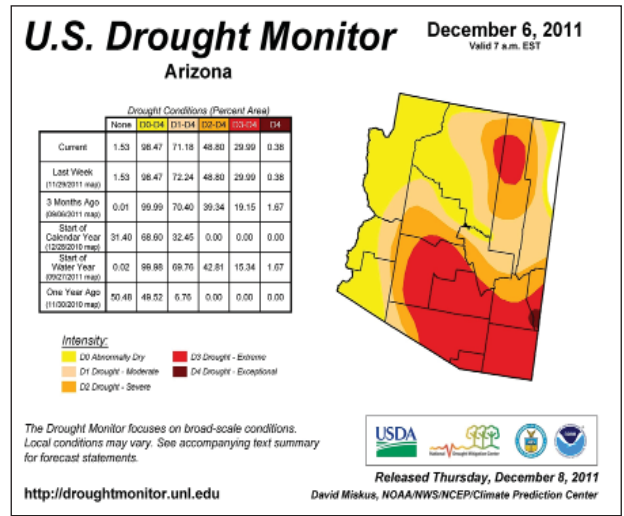
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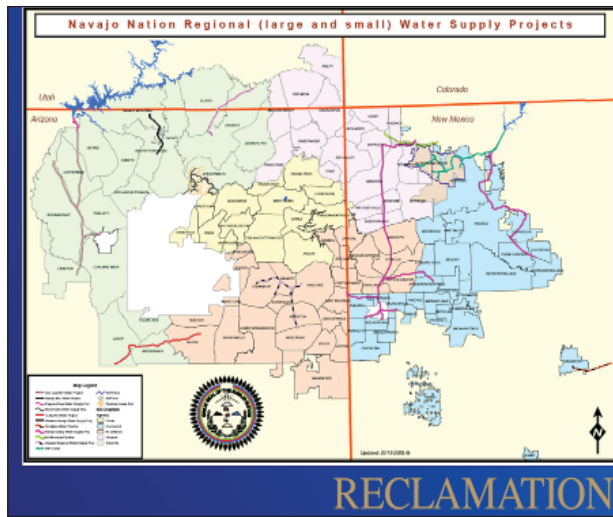
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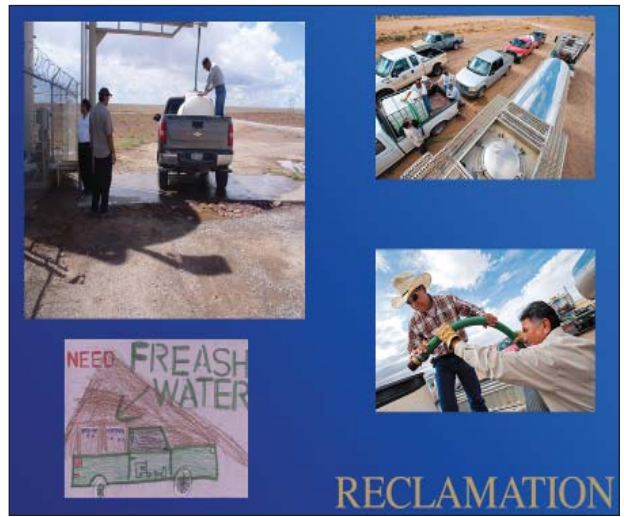
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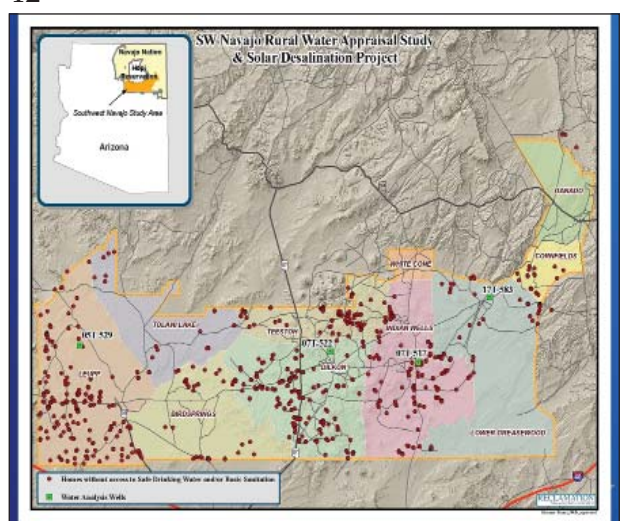
SW Navajo Rural Water Appraisal Study

Table of Contents	
1. Executive Summary	CHAPTER ONE
2. INTRODUCTION	CHAPTER TWO
3. STUDY AREA	CHAPTER THREE
4. STUDY OBJECTIVES	CHAPTER FOUR
5. STUDY METHODOLOGY	CHAPTER FIVE
6. STUDY RESULTS	CHAPTER SIX
7. STUDY CONCLUSIONS	CHAPTER SEVEN
8. STUDY RECOMMENDATIONS	CHAPTER EIGHT
9. STUDY APPENDICES	CHAPTER NINE
10. STUDY REFERENCES	CHAPTER TEN
11. STUDY CONTACTS	CHAPTER ELEVEN
12. STUDY GLOSSARY	CHAPTER TWELVE
13. STUDY ACRONYMS	CHAPTER THIRTEEN
14. STUDY APPENDIX A	CHAPTER FOURTEEN
15. STUDY APPENDIX B	CHAPTER FIFTEEN
16. STUDY APPENDIX C	CHAPTER SIXTEEN
17. STUDY APPENDIX D	CHAPTER SEVENTEEN
18. STUDY APPENDIX E	CHAPTER EIGHTEEN
19. STUDY APPENDIX F	CHAPTER NINETEEN
20. STUDY APPENDIX G	CHAPTER TWENTY
21. STUDY APPENDIX H	CHAPTER TWENTY ONE
22. STUDY APPENDIX I	CHAPTER TWENTY TWO
23. STUDY APPENDIX J	CHAPTER TWENTY THREE
24. STUDY APPENDIX K	CHAPTER TWENTY FOUR
25. STUDY APPENDIX L	CHAPTER TWENTY FIVE
26. STUDY APPENDIX M	CHAPTER TWENTY SIX
27. STUDY APPENDIX N	CHAPTER TWENTY SEVEN
28. STUDY APPENDIX O	CHAPTER TWENTY EIGHT
29. STUDY APPENDIX P	CHAPTER TWENTY NINE
30. STUDY APPENDIX Q	CHAPTER THIRTY
31. STUDY APPENDIX R	CHAPTER THIRTY ONE
32. STUDY APPENDIX S	CHAPTER THIRTY TWO
33. STUDY APPENDIX T	CHAPTER THIRTY THREE
34. STUDY APPENDIX U	CHAPTER THIRTY FOUR
35. STUDY APPENDIX V	CHAPTER THIRTY FIVE
36. STUDY APPENDIX W	CHAPTER THIRTY SIX
37. STUDY APPENDIX X	CHAPTER THIRTY SEVEN
38. STUDY APPENDIX Y	CHAPTER THIRTY EIGHT
39. STUDY APPENDIX Z	CHAPTER THIRTY NINE
40. STUDY APPENDIX AA	CHAPTER FORTY
41. STUDY APPENDIX AB	CHAPTER FORTY ONE
42. STUDY APPENDIX AC	CHAPTER FORTY TWO
43. STUDY APPENDIX AD	CHAPTER FORTY THREE
44. STUDY APPENDIX AE	CHAPTER FORTY FOUR
45. STUDY APPENDIX AF	CHAPTER FORTY FIVE
46. STUDY APPENDIX AG	CHAPTER FORTY SIX
47. STUDY APPENDIX AH	CHAPTER FORTY SEVEN
48. STUDY APPENDIX AI	CHAPTER FORTY EIGHT
49. STUDY APPENDIX AJ	CHAPTER FORTY NINE
50. STUDY APPENDIX AK	CHAPTER FIFTY
51. STUDY APPENDIX AL	CHAPTER FIFTY ONE
52. STUDY APPENDIX AM	CHAPTER FIFTY TWO
53. STUDY APPENDIX AN	CHAPTER FIFTY THREE
54. STUDY APPENDIX AO	CHAPTER FIFTY FOUR
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58. STUDY APPENDIX AS	CHAPTER FIFTY EIGHT
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73. STUDY APPENDIX BH	CHAPTER SEVENTY THREE
74. STUDY APPENDIX BI	CHAPTER SEVENTY FOUR
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96. STUDY APPENDIX CE	CHAPTER NINETY SIX
97. STUDY APPENDIX CF	CHAPTER NINETY SEVEN
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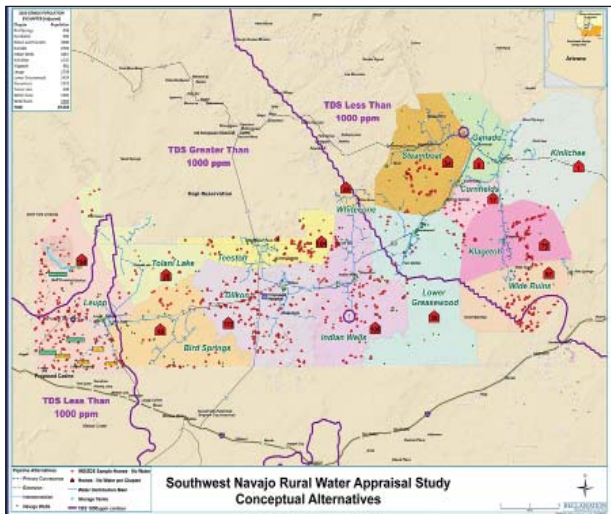
- Memorandum of Understanding 12/2010
- Plan of Study 12/2010
- Technical Advisory Group - Monthly meetings 5/2010
- Public Meetings 2/2011
- Chapter Advisory Group - 3/2011
- Quarterly Meetings
- Draft Appraisal Study - July 2012
- Appraisal Report - August 2012

RECLAMATION

12



13



16

RECLAMATION
Managing Water in the West

Plan of Study
**Solar Photovoltaic Desalination
Using Distillation**

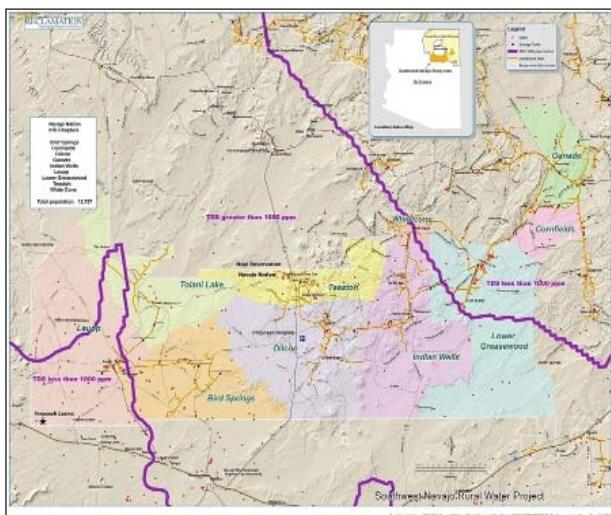
(S&T Proposal ID-4850)

Confidential Information

U.S. Department of the Interior
Bureau of Reclamation
Phoenix, AZ 85002

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14



17

Research Questions

- Are there opportunities to use renewable energy and advanced water treatment systems to develop water sources which are currently unusable, such as high TDS or of marginal quality?
- Are there opportunities to "package" solar photovoltaic and thermal energy systems to provide electricity and support advanced water treatment systems to provide potable water?
- Can renewable energy and advanced water treatment systems meet a substantial part of the water and energy budget for a regional demand where limited or no access to conventional water and power systems exist?

RECLAMATION

15

RECLAMATION
Managing Water in the West

**Solar Desalination
Using Distillation**

S&T Proposal No. 4850

U.S. Department of the Interior
Bureau of Reclamation

18

Concentrated Photovoltaic System

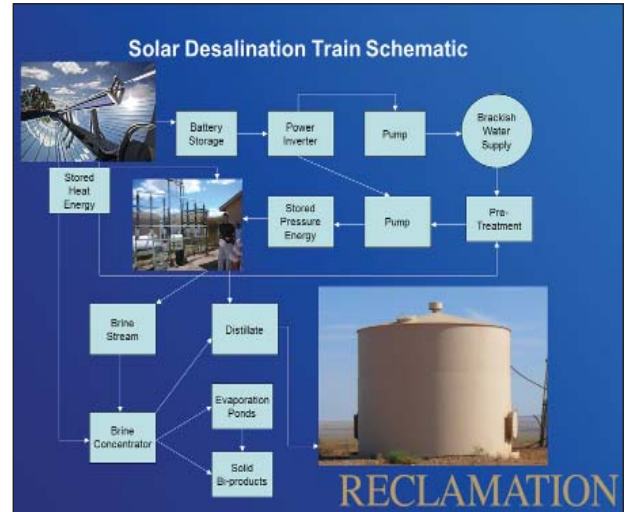
Multi-Effect Distillation

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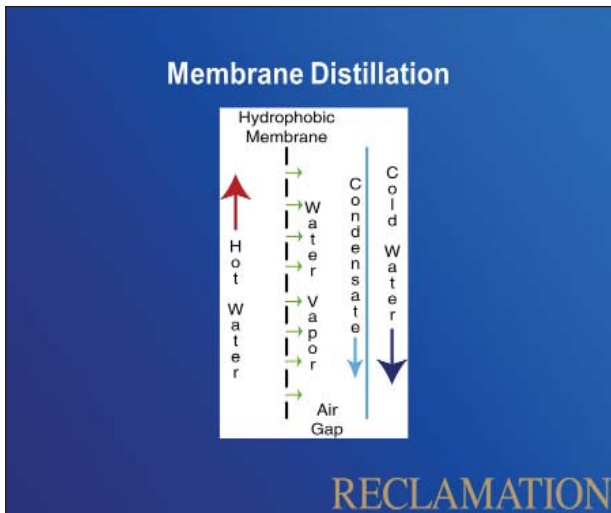
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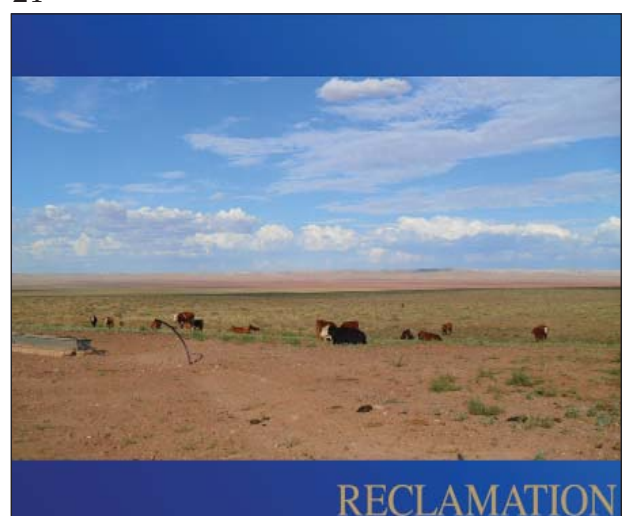
23

- ### SW Navajo Rural Water Study PROBLEMS
- 30% of population haul potable water and fuel for electrical power demand.
 - Access to conventional water supply and power grid infeasible
 - Economically depressed region
 - Water haulers pay an estimated 15 times more for their water and power services.
 - Water users are accessing impaired water
 - Persistent drought in the study area has reduced available water supplies.
- RECLAMATION

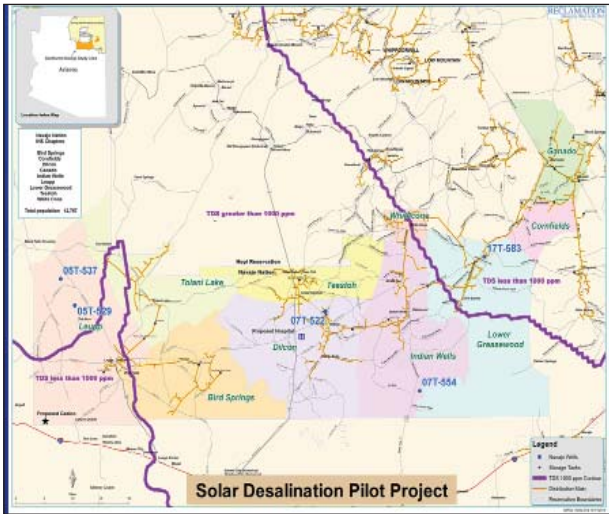
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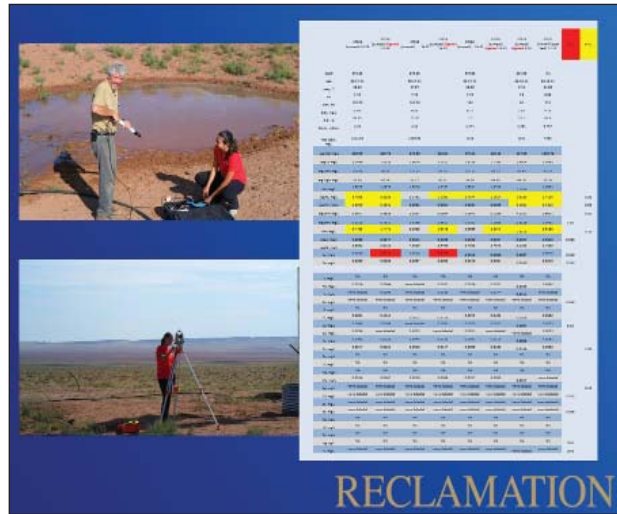
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26

Scope of Work
Well 5T-529 • Site Assessment
 Solar Desalination Using Distillation Project

S&T Proposal ID-4850

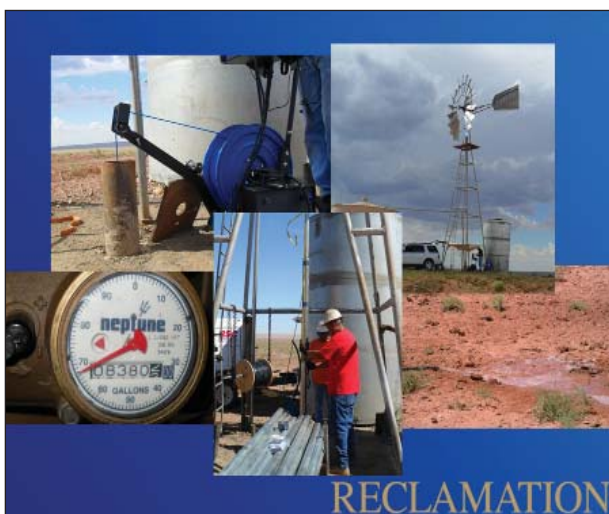
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Next Steps:

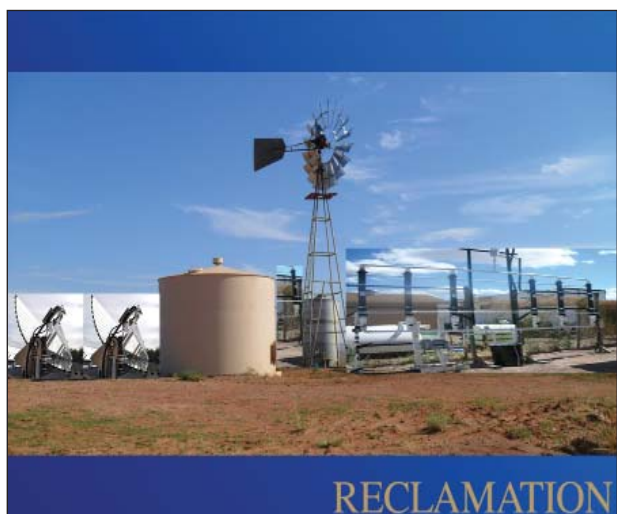
- Compile Design Data
- Develop Design
- Develop Deployable Device
- Install, Operate and Test Device

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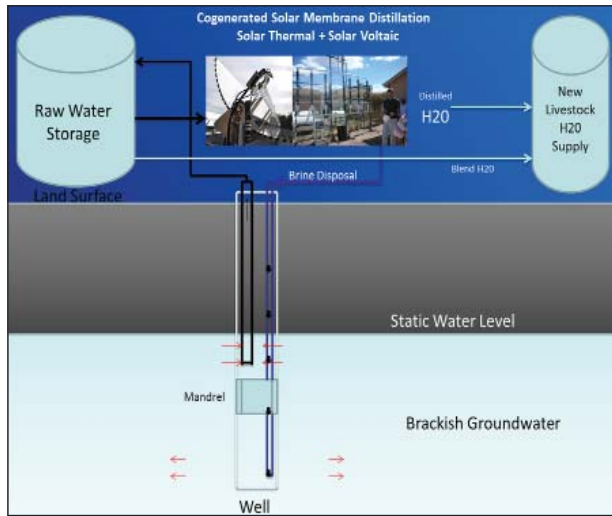
27



30



31



32

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Questions?

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