

Strategic Salt Accumulation Land and Transportation Study (SSALTS)

Task 1.4 & Phase I Draft TM

Roger Reynolds –Summers
Engineering

Richard Meyerhoff – CDM Smith

Tom Quasebarth – CDM Smith

Joe LeClaire – CDM Smith

CV-SALTS TAC

October 15, 2013

**CDM
Smith**

SSALTS Objectives

- Phase 1, Characterize Existing Salt Accumulation Study Areas
 - Identify Representative Study Areas
 - Characterize study areas to establish baseline information
 - **Perform Screening-Level Analysis of Sustainability**
- Phase 2, Develop Potential Long-term Salt Management Strategies
 - In-Valley alternatives
 - Out-of-Valley alternatives, and
 - Hybrid alternatives
- Phase 3, Evaluate Potential Salt Disposal Implementation Alternatives
 - Develop and apply feasibility criteria (e.g., regulatory, institutional, economic, technological, etc.)
 - Identify and prioritize acceptable salt disposal alternatives for potential incorporation into Central Valley SNMP

Study Area Salt Mitigation

- Salt Mitigation Components
 - Source Control
 - Treatment for Salt Removal
 - Disposal
- Task 1.4 focused on comparisons of disposal alternatives. We will incorporate elements of source control and treatment when developing Phase 2 alternatives
- Task 1.4 helps drive the Alternatives Development.
 - Mitigation components will be aggregated programmatically into alternatives in Phase 2
 - Alternatives evaluation on a regional basis in Phase 3.

Study Area Sustainability Analysis

- Primarily Qualitative - numerical scores intended for specific archetype study areas.
 - What is important about the Phase 1.4 Study Area analysis is what it reveals about obstacles and opportunities for Phase 2 (Alternative Development).
 - Absolute scores are not as important as the relative scores – which tells us what’s working and what’s not working.
- Phase 2 alternatives will be analyzed by sector (municipal, industrial, irrigated agriculture, other agriculture) and will be regional in concept.

Sustainability Factors

- **Implementability** of the salt disposal method
 - 4 = utilizes proven technologies and is readily implementable
 - 1 = salt disposal method is not working or utilizes unproven technologies
- Salt **capacity** of the disposal method
 - 4 = the project's salt disposal load was not limited by the disposal method
 - 1 = salt disposal method has a capacity less than the salt disposal load

| Factor | City of Dixon | City of Tracy | Industrial Food Processing | Tulare Lake Bed | San Luis Unit Ocean Disposal | Hilmar Cheese – Trucking to WWTP | Grassland Water District – Real Time Management | Red Rock Ranch | Westside Regional Drainage Plan | Hilmar Cheese – Deep Well Injection |
|--------------------------------|---------------|---------------|----------------------------|-----------------|------------------------------|----------------------------------|---|----------------|---------------------------------|-------------------------------------|
| <i>Implementability</i> | 4 | 4 | 4 | 4 | 4 | 3 | 3 | 2 | 2 | 1 |
| Capacity | 1 | 1 | 2 | 3 | 4 | 3 | 3 | 1 | 1 | 4 |
| Regulatory | 2 | 1 | 1 | 3 | 1 | 3 | 2 | 2 | 2 | 3 |
| Institutional | 4 | 4 | 2 | 3 | 2 | 4 | 2 | 2 | 3 | 4 |
| Costs | 1 | 1 | 1 | 3 | 1 | 1 | 2 | 1 | 1 | 3 |
| Environmental Issues | 3 | 2 | 2 | 2 | 1 | 3 | 2 | 1 | 1 | 3 |
| Public Acceptance | 3 | 2 | 3 | 2 | 1 | 3 | 3 | 2 | 2 | 1 |

| Factor | San Luis Unit Ocean Disposal | Hilmar Cheese – Deep Well Injection | Tulare Lake Bed | Hilmar Cheese – Trucking to WWTP | Grassland Water District – Real Time Management | Industrial Food Processing | City of Dixon | City of Tracy | Red Rock Ranch | Westside Regional Drainage Plan |
|----------------------|------------------------------|-------------------------------------|-----------------|----------------------------------|---|----------------------------|---------------|---------------|----------------|---------------------------------|
| Implementability | 4 | 1 | 4 | 3 | 3 | 4 | 4 | 4 | 2 | 2 |
| Capacity | 4 | 4 | 3 | 3 | 3 | 2 | 1 | 1 | 1 | 1 |
| Regulatory | 1 | 3 | 3 | 3 | 2 | 1 | 2 | 1 | 2 | 2 |
| Institutional | 2 | 4 | 3 | 4 | 2 | 2 | 4 | 4 | 2 | 3 |
| Costs | 1 | 3 | 3 | 1 | 2 | 1 | 1 | 1 | 1 | 1 |
| Environmental Issues | 1 | 3 | 2 | 3 | 2 | 2 | 3 | 2 | 1 | 1 |
| Public Acceptance | 1 | 1 | 2 | 3 | 3 | 3 | 3 | 2 | 2 | 2 |

Sustainability Factors

– **Regulatory** challenges

- 4 = the project is readily permitable and is able to meet current regulatory requirements
- 1 = project faces considerable regulatory challenges now or in the 50-year planning horizon

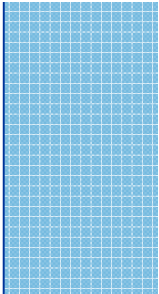
– **Institutional** requirements

- 4 = bias toward fewer entities involved – unless they are part of a group with a strong governance structure; bias also given toward, in some cases, public sector project proponents with known or secure funding sources
- 1 = group of small, underfunded individual stakeholders

Sustainability Factors

- Capital and operation and maintenance **costs**
 - 4 = projects with lower anticipated costs
 - 1 = projects with higher anticipated costs
- Potential **environmental** issues
 - 4 = little to no anticipated environmental issues
 - 1 = reasonable potential for significant environmental issues to arise
- **Public acceptance**
 - 4 = reasonable public acceptance
 - 1 = little to no public acceptance

Optional Slides – Time Permitting



| Factor | Hilmar Cheese - Deep Well Injection | Tulare Lake Bed | Hilmar Cheese - Trucking to WWTP | Grassland Water District - Real Time Management | City of Dixon | Red Rock Ranch | Westside Regional Drainage Plan | San Luis Unit Ocean Disposal | Industrial Food Processing | City of Tracy |
|----------------------|-------------------------------------|-----------------|----------------------------------|---|---------------|----------------|---------------------------------|------------------------------|----------------------------|---------------|
| Implementability | 1 | 4 | 3 | 3 | 4 | 2 | 2 | 4 | 4 | 4 |
| Capacity | 4 | 3 | 3 | 3 | 1 | 1 | 1 | 4 | 2 | 1 |
| Regulatory | 3 | 3 | 3 | 2 | 2 | 2 | 2 | 1 | 1 | 1 |
| Institutional | 4 | 3 | 4 | 2 | 4 | 2 | 3 | 2 | 2 | 4 |
| Costs | 3 | 3 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 |
| Environmental Issues | 3 | 2 | 3 | 2 | 3 | 1 | 1 | 1 | 2 | 2 |
| Public Acceptance | 1 | 2 | 3 | 3 | 3 | 2 | 2 | 1 | 3 | 2 |

| Factor | Hilmar Cheese - Deep Well Injection | Hilmar Cheese - Trucking to WWTP | City of Dixon | City of Tracy | Tulare Lake Bed | Westside Regional Drainage Plan | Grassland Water District - Real Time Management | Red Rock Ranch | San Luis Unit Ocean Disposal | Industrial Food Processing |
|-----------------------------|-------------------------------------|----------------------------------|---------------|---------------|-----------------|---------------------------------|---|----------------|------------------------------|----------------------------|
| Implementability | 1 | 3 | 4 | 4 | 4 | 2 | 3 | 2 | 4 | 4 |
| Capacity | 4 | 3 | 1 | 1 | 3 | 1 | 3 | 1 | 4 | 2 |
| Regulatory | 3 | 3 | 2 | 1 | 3 | 2 | 2 | 2 | 1 | 1 |
| <i>Institutional</i> | 4 | 4 | 4 | 4 | 3 | 3 | 2 | 2 | 2 | 2 |
| Costs | 3 | 1 | 1 | 1 | 3 | 1 | 2 | 1 | 1 | 1 |
| Environmental Issues | 3 | 3 | 3 | 2 | 2 | 1 | 2 | 1 | 1 | 2 |
| Public Acceptance | 1 | 3 | 3 | 2 | 2 | 2 | 3 | 2 | 1 | 3 |

| Factor | Hilmar Cheese - Deep Well Injection | Tulare Lake Bed | Grassland Water District - Real Time Management | Hilmar Cheese - Trucking to WWTP | City of Dixon | Red Rock Ranch | Westside Regional Drainage Plan | San Luis Unit Ocean Disposal | Industrial Food Processing | City of Tracy |
|----------------------|-------------------------------------|-----------------|---|----------------------------------|---------------|----------------|---------------------------------|------------------------------|----------------------------|---------------|
| Implementability | 1 | 4 | 3 | 3 | 4 | 2 | 2 | 4 | 4 | 4 |
| Capacity | 4 | 3 | 3 | 3 | 1 | 1 | 1 | 4 | 2 | 1 |
| Regulatory | 3 | 3 | 2 | 3 | 2 | 2 | 2 | 1 | 1 | 1 |
| Institutional | 4 | 3 | 2 | 4 | 4 | 2 | 3 | 2 | 2 | 4 |
| Costs | 3 | 3 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Environmental Issues | 3 | 2 | 2 | 3 | 3 | 1 | 1 | 1 | 2 | 2 |
| Public Acceptance | 1 | 2 | 3 | 3 | 3 | 2 | 2 | 1 | 3 | 2 |

| Factor | Hilmar Cheese - Deep Well Injection | Hilmar Cheese - Trucking to WWTP | City of Dixon | Tulare Lake Bed | Grassland Water District - Real Time Management | Industrial Food Processing | City of Tracy | Red Rock Ranch | Westside Regional Drainage Plan | San Luis Unit Ocean Disposal |
|------------------------------------|-------------------------------------|----------------------------------|---------------|-----------------|---|----------------------------|---------------|----------------|---------------------------------|------------------------------|
| Implementability | 1 | 3 | 4 | 4 | 3 | 4 | 4 | 2 | 2 | 4 |
| Capacity | 4 | 3 | 1 | 3 | 3 | 2 | 1 | 1 | 1 | 4 |
| Regulatory | 3 | 3 | 2 | 3 | 2 | 1 | 1 | 2 | 2 | 1 |
| Institutional | 4 | 4 | 4 | 3 | 2 | 2 | 4 | 2 | 3 | 2 |
| Costs | 3 | 1 | 1 | 3 | 2 | 1 | 1 | 1 | 1 | 1 |
| <i>Environmental Issues</i> | 3 | 3 | 3 | 2 | 2 | 2 | 2 | 1 | 1 | 1 |
| Public Acceptance | 1 | 3 | 3 | 2 | 3 | 3 | 2 | 2 | 2 | 1 |

| Factor | Hilmar Cheese - Trucking to WWTP | Grassland Water District - Real Time Management | City of Dixon | Industrial Food Processing | Tulare Lake Bed | Red Rock Ranch | Westside Regional Drainage Plan | City of Tracy | Hilmar Cheese - Deep Well Injection | San Luis Unit Ocean Disposal |
|---------------------------------|----------------------------------|---|---------------|----------------------------|-----------------|----------------|---------------------------------|---------------|-------------------------------------|------------------------------|
| Implementability | 3 | 3 | 4 | 4 | 4 | 2 | 2 | 4 | 1 | 4 |
| Capacity | 3 | 3 | 1 | 2 | 3 | 1 | 1 | 1 | 4 | 4 |
| Regulatory | 3 | 2 | 2 | 1 | 3 | 2 | 2 | 1 | 3 | 1 |
| Institutional | 4 | 2 | 4 | 2 | 3 | 2 | 3 | 4 | 4 | 2 |
| Costs | 1 | 2 | 1 | 1 | 3 | 1 | 1 | 1 | 3 | 1 |
| Environmental Issues | 3 | 2 | 3 | 2 | 2 | 1 | 1 | 2 | 3 | 1 |
| <i>Public Acceptance</i> | 3 | 3 | 3 | 3 | 2 | 2 | 2 | 2 | 1 | 1 |