Keeler Dunes Dust Control Project Update

Great Basin Unified Air Pollution Control District

Project Update – Governing Board Meeting

Bridgeport, May 16, 2016

Oblique aerial view from June 2015
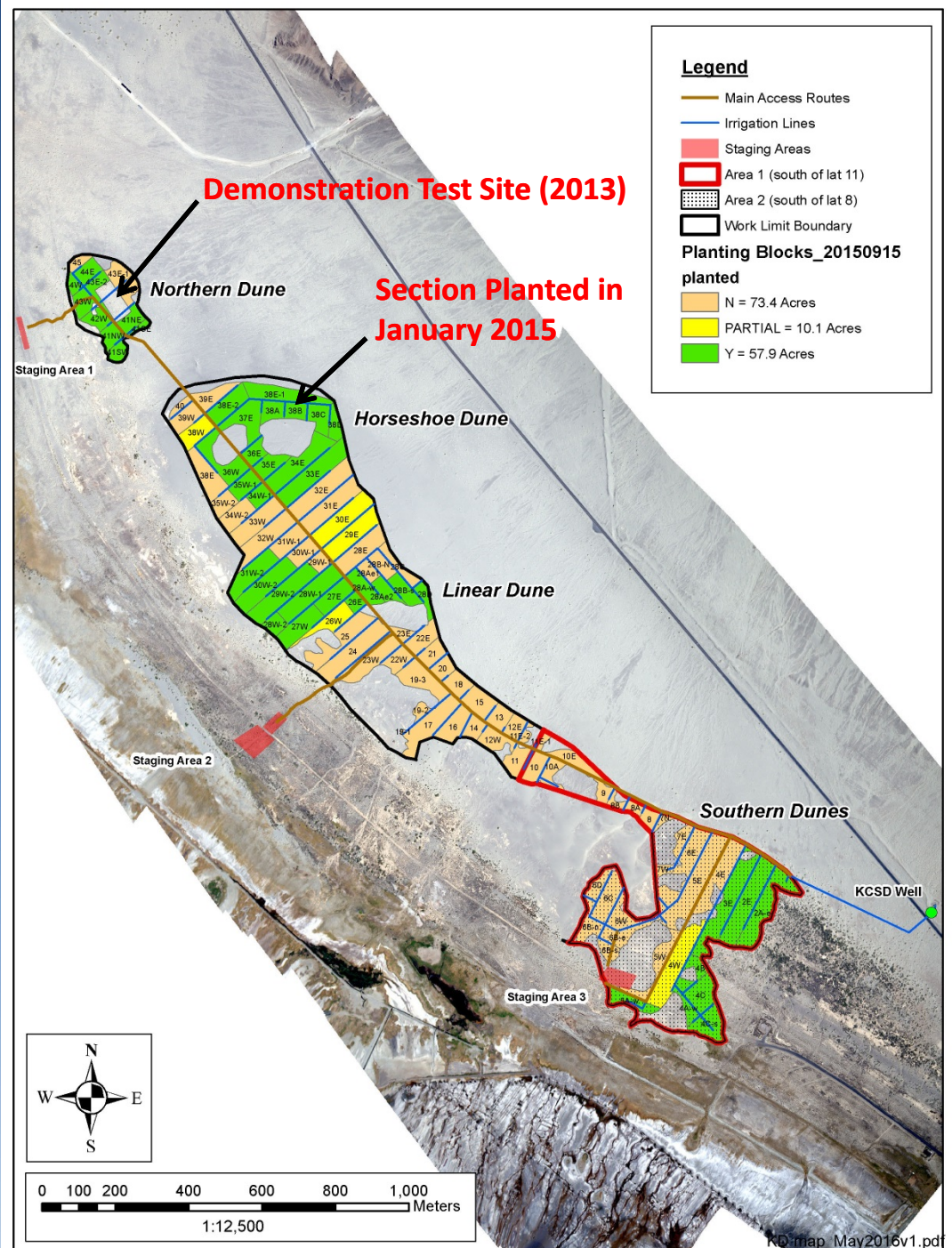
Project Map
May 2016

Project Timeline

2013: Demonstration Test

2014-2016: Main Project Construction
- **Year 1** = October 2014 - May 2015
  - ~66,000 bales (80%)
  - ~15,000 plants (5%)

- **Year 2** = Oct 2015 – February 2016
  - ~16,000 bales
  - ~60,000 plants (36% complete)

2016-2017: Future Project Schedule
- Plant remainder of northern portion of project in Fall-Winter 2016/17. (97,000 plants)
- Implement revised project design for Southern Dunes in Fall 2016 with planting in Fall 2017.

Demonstration Test Site (2013)

Section Planted in January 2015

Legend
- Main Access Routes
- Irrigation Lines
- Staging Areas
- Area 1 (south of lat 11)
- Area 2 (south of lat 8)
- Work Limit Boundary

Planting Blocks_20150915 planted
- N = 73.4 Acres
- PARTIAL = 10.1 Acres
- Y = 57.9 Acres

Northern Dune

Staging Area 1

Horseshoe Dune

Linear Dune

Staging Area 2

Southern Dunes

KCSD Well

Staging Area 3

0 100 200 400 600 800 1,000 Meters
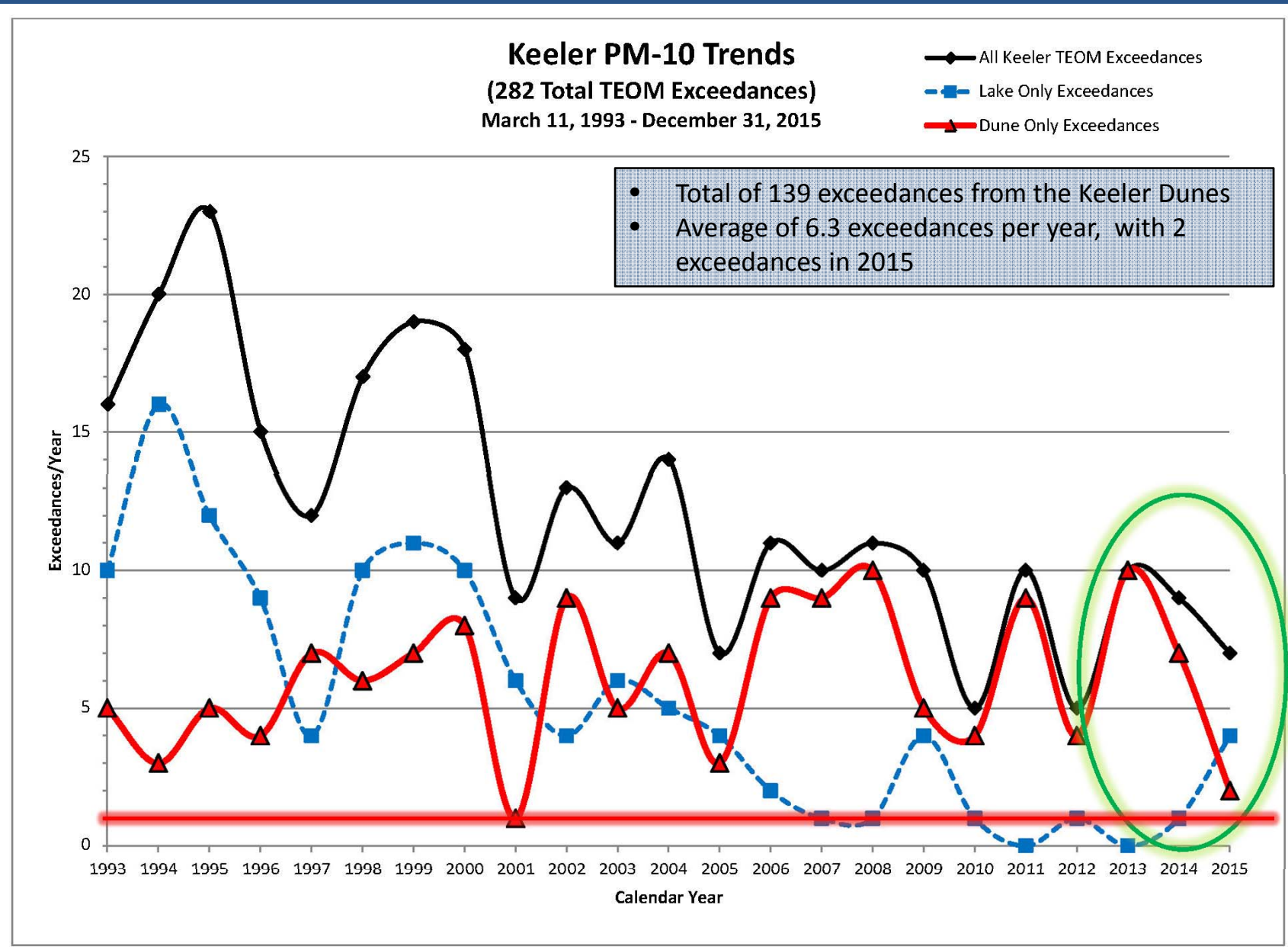
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KD-map_May2016v1.pdf

Project Successes

- Reduction in PM10 levels in Keeler
- Increase in wildlife in the dunes
- Natural recruitment of native shrubs in the dunes

Project Goal: Reduce PM10 in Keeler by trying to re-establish a natural stable self-sustaining dune system. This process takes time.

Keeler PM10 Update Through 2015

Keeler PM-10 Trends
(282 Total TEOM Exceedances)
March 11, 1993 - December 31, 2015

Legend:
- All Keeler TEOM Exceedances
- Lake Only Exceedances
- Dune Only Exceedances

- Total of 139 exceedances from the Keeler Dunes
- Average of 6.3 exceedances per year, with 2 exceedances in 2015

Y-axis: Exceedances/Year
X-axis: Calendar Year

Wildlife in the Dunes

Critter Cameras and Tracks

- Kangaroo rat
- Black-tailed jackrabbit
- Common Raven
- Savannah sparrow
- Le Conte's thrasher
- Kit fox
- Lesser Goldfinch
- Coyote

- Loggerhead shrike
- Western side-blotched lizard
- Southern Desert horned lizard
- White tailed antelope squirrel
- Great Basin whiptail lizard
- Dune weevil
- Ringtail cat

Photo Summary
- 511 days of operation
- 789 wildlife photos
- 695 night photos
- 94 day photos

Video Summary
- 258 days of operation
- 371 wildlife videos
- 352 night videos
- 19 day videos

Critter Cam Photos

GBCRITTER3   46°F 7 °C   12-09-2015 22:06:16

GBCRITTER3   41°F 5 °C   02-23-2016 05:52:46

GBCRITTER4   32°F 0 °C   01-16-2016 22:22:20

GBCRITTER4   39°F 3 °C   03-10-2016 03:00:34

Natural Plant Recruitment

Cleome sparsifolia

Atriplex parryi

Keeler Dunes Plants

- **5 species of native shrubs**
- **Planting Phases**
    1. Demonstration Test Project (2013 - 2014) *Successful!*
    2. Northern portion of main project (January 2015) *Successful!*
    3. 4 areas of main project (Fall and Winter 2015/16). *Successful in Northern Project!*
    4. *Fall 2016 – grow-out of 97,000 plants for northern project area (in progress).*
    5. *Fall 2017 – Southern Dunes??*

Keeler Dunes Plants
(2 ½ - 3 year old plants – Demonstration Test site)

(Photo taken of Demonstration Test plants)

(Photo from April 14, 2016)

Keeler Dunes Plants
(15 month old plants)

(Photo taken in Horseshoe Dune Area)

(Photo from March 18, 2016)

Keeler Dunes Plants
## (15 month old plants)

(Photo taken in Horseshoe Dune Area)

(Photo from March 18, 2016)

Dust Control of Southern Dunes

- Original control strategy is not meeting project goals.

- Revised project design is being developed.

- Current redesign concept uses larger roughness elements (<u>bale mounds</u> vs single bales).
  - Small test started in January 2016.
  - Working with BLM to get permission for expanded bales mound test.
  - Considering planting larger plants within mound array.

Natural Vegetation Mounds in Stable Keeler Dunes
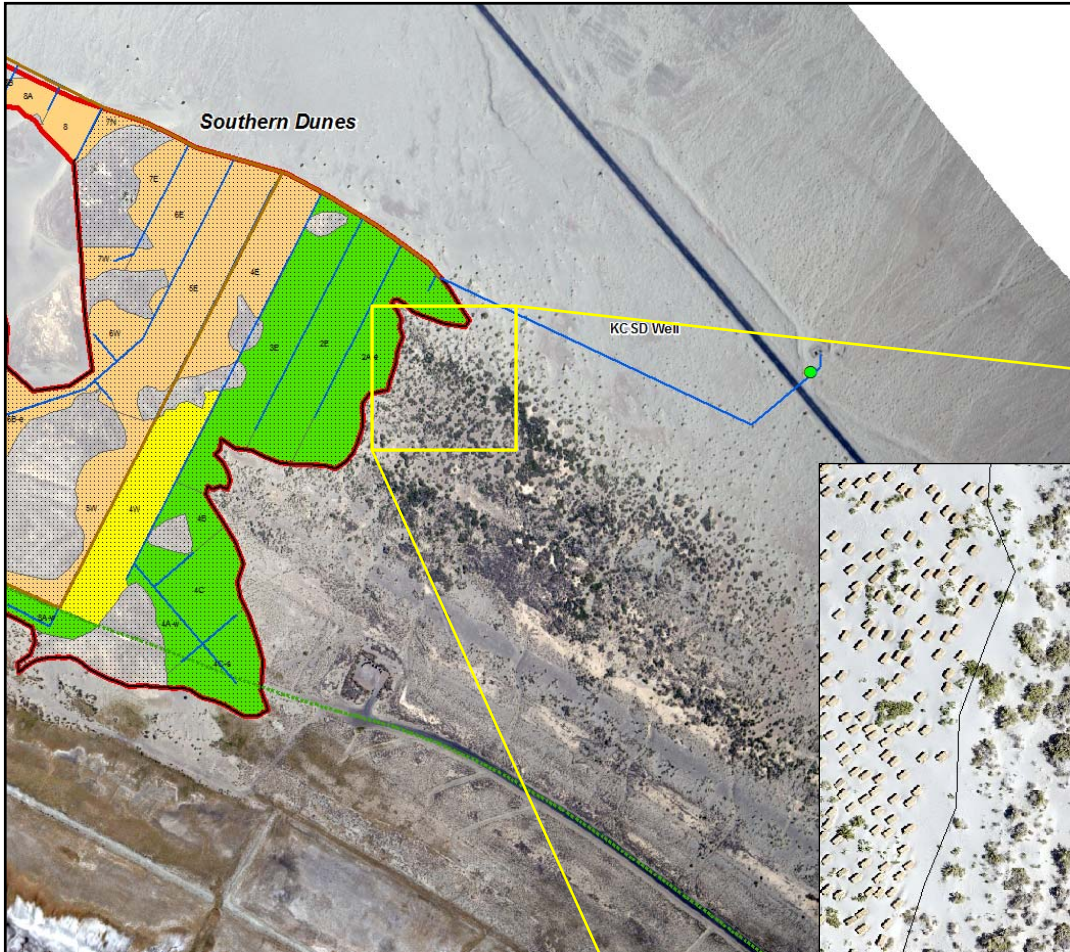
Bale mound concept modeled after natural morphology of stable Keeler Dunes.

Air Photo, Aug 2015

Bale Mound Test

(air photos April 18, 2016)

Bale Mound Test

(ground photo April 18, 2016)