

Drilling Sump Restoration

Santa Maria Valley California

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presented by

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Geographic Location of Santa Maria



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Created by URS Corporation.

Santa Maria Valley Agricultural and Oil Exploration History



Created by URS Corporation. Source of basemap: AirPhotoUSA, 2000. Source of oil well locations: DOGGR Map 312. September 2002.

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Changing Land Use



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Created by URS Corporation. Source of aerial basemaps: PAI-US-101, 1952; USGS 7.5' (1:24,000) DOQQ, 1994; Golden State Aerial, 2005.



Sump Restoration Program Evolution

■ Drivers

- ◆ Land Use Change
- ◆ Proactive Due Diligence
- ◆ Legal Issues

■ Regulatory Oversight

- ◆ State Water Board Delegation to County

■ “Voluntary” Program

Sump Abandonment Practices



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Source of historical photograph: Santa Maria Historical Society Museum. Created by URS Corporation. Source of aerial basemap: PAI-US-101, 1952.

Sump Material Characteristics

- Chemical Components
 - ◆ Total Petroleum Hydrocarbons
 - ◆ C25-C40
- Non-hazardous
 - ◆ Waste Disposal
- Santa Maria Crude – Heavy Oil
 - ◆ API Gravity 10° to 20°



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Sump Remediation Approach

■ Identification

- ◆ Well Documentation
- ◆ Historic Aerial Photographs
- ◆ Georeferencing

■ Delineation

- ◆ Borings, Trenching, Geophysics

■ Remediation

- ◆ Excavation and Disposal



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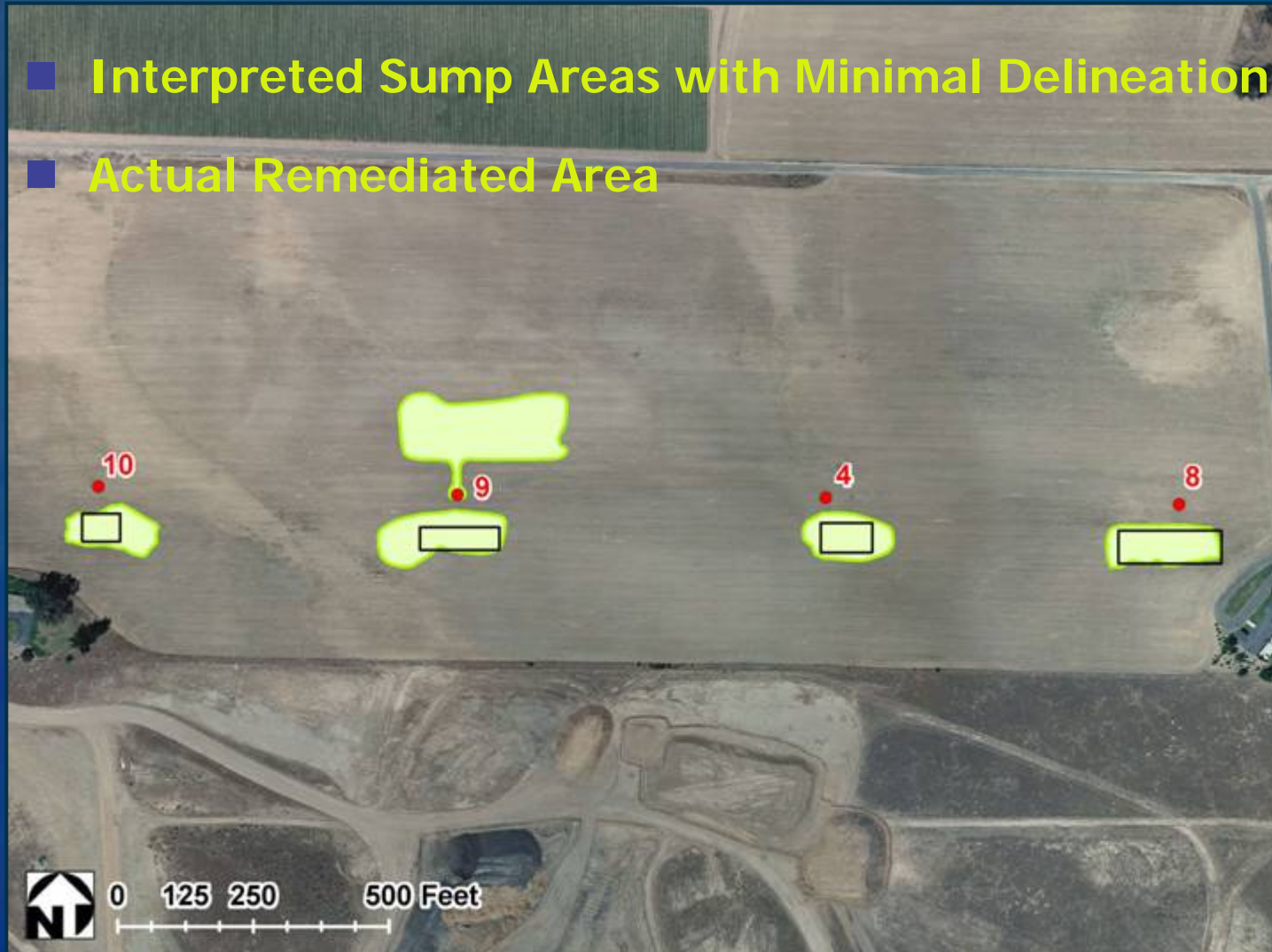
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Assessment Challenges

- Lack of Standard Sump Size and Configuration
- Challenges Associated with Using Standard
 - ◆ Planning
 - ◆ Extent
 - ◆ Access
 - ◆ Cost

Sump Identification and Delineation Challenge

- Interpreted Sump Areas with Minimal Delineation
- Actual Remediated Area



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Georeferencing



- Historic Aerial Review
 - ◆ Sump Evolution
 - ◆ Graded Area
- Overlay with Features in GIS Database
- Current-Day Flights
 - ◆ Documents Development
 - ◆ Opportunity to Evaluate Assessment Locations

Georeferencing Example



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Created by URS Corporation. Source of aerial basemap: Landata Airborne Systems, Inc. October 2002.

Agricultural Work Challenges

- Crop Rotations
- Transportation Competition
- Penalty for Missed Deadlines



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Commercial Work Challenges

- Visibility
- Traffic and Utilities
- Safety and Security
- Disruption to Local Business



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Residential Work Challenges

- Homeowner Notification
- Securing Access Agreements
- Assessment on Private Property
- Negotiations for Home Purchase



Community Concerns

- Health
- Emotional Response
- Concerns of Migration
- Heightened Awareness
- Legal



Homeowner Concerns

- California Property Taxes
- Deed Notifications
- Property Values
- Relocation Alternatives



Conclusions

- Sump Size and Location
 - ◆ Aerial Photo Interpretation Combined with Site Specific Assessment
- Stakeholder Involvement
 - ◆ Communication
 - ◆ Sensitivity to Issues
- Successful Sump Remediation
 - ◆ Proactive Approach