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08-AFC-5
DATE JUN 04 2009
RECD. JUN 08 2009

TRANSMITTAL

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PROJECT: Stirling Energy On Call
PROJECT NUMBER: SSQ0802

DATE: June 4, 2009

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SUBJECT: Cultural Resources Site Location and Cultural Content Ground Truth Task Levels I and II Evaluations and Recommendations

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		El Centro Field Office, Bureau of Land Management
		Field Authorization CA670-06-07-FA08
June 4, 2009	1 cd-rom	Cultural Resources Site Location and Cultural Content
		Ground – Truth Task Levels I and II Evaluations and Recommendations

GENERAL REMARKS:

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BY: Mayra Zentner for Fred Lange

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CULTURAL RESOURCES SITE LOCATION AND CULTURAL CONTENT GROUND-TRUTH TASK: LEVELS I AND II EVALUATIONS AND RECOMMENDATIONS

STIRLING ENERGY SYSTEMS SOLAR TWO PROJECT

EL CENTRO FIELD OFFICE, BUREAU OF LAND MANAGEMENT

FIELD AUTHORIZATION CA670-06-07-FA08

LSA

June 4, 2009

CULTURAL RESOURCES SITE LOCATION AND CULTURAL CONTENT GROUND-TRUTH TASK: LEVELS I AND II EVALUATIONS AND RECOMMENDATIONS

STIRLING ENERGY SYSTEMS SOLAR TWO PROJECT

EL CENTRO FIELD OFFICE, BUREAU OF LAND MANAGEMENT

FIELD AUTHORIZATION CA670-06-07-FA08

Prepared for:

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LSA Project No. SSQ0802

LSA

June 4, 2009

EXECUTIVE SUMMARY

LSA Associates, Inc. (LSA) is under contract with Stirling Energy Systems to perform third-party review and National Historic Preservation Act (NHPA) Section 106 compliance support to the Bureau of Land Management (BLM). LSA takes its full direction for this project from the BLM. LSA was tasked by the BLM El Centro Field Office (BLM-El Centro) to conduct ground-truth visits at 60 randomly selected site locations (approximately 20% of the 302 sites recorded by URS, Inc. [URS]) and to evaluate the recordation of the archaeological contents of the cultural resources associated with the 60 sites. These 60 randomly selected locations had previously been identified and recorded within the project's area of potential effects (APE) and evaluated by URS (Mutaw et al. 2009). URS is under contract to Stirling Energy Systems (SES) for the proposed Solar Two Project, approximately 15 miles west of the City of El Centro on BLM land in Imperial County, California.

Over the course of three days from May 20–22, 2009, two teams of LSA archaeologists visited these 60 randomly selected sites. Utilizing printed site forms and Trimble Global Positioning System (GPS) units with Geographic Information Systems (GIS) digital data with each site's boundaries and internal features, LSA conducted the task of verifying the site records, recorded boundaries, feature locations, and artifact classes that were present or absent.

LSA treated a total of 63 sites (60 previously recorded sites and 3 new sites) and 2 previously undocumented loci with significant artifacts or features at 3 previously recorded sites during the three days in the field, as follows:

- LSA placed 10 sites in **Group I**, which consists of sites with a high level of ground truth and acceptable as a basis for potential for National Register of Historic Places (National Register) evaluation with no or only very minor editorial changes.
- Twenty-four (24) sites were placed in **Group II,** which consists of sites displaying inconsistencies between the previously recorded data and LSA's field observations, but that can be made acceptable as a basis for potential for National Register evaluation with the incorporation of data demonstrated to already be in the hands of URS. That is, no more field survey or recordation will be necessary to complete the forms.
- Twenty-six (26) sites were placed in **Group III,** which consists of sites whose descriptions can be made acceptable as a basis for potential for National Register evaluation with additional field survey and recordation.
- Three (3) previously unrecorded sites (LSA-SSQ0802-02, LSA-SSQ-0802-04, and LSA-SSQ0802-5) within the APE were placed in **Group IV.** Of particular interest was a scatter of exotic raw material, i.e., obsidian preforms from a presently undetermined source (Artifacts 1–14) found at LSA-SSQ0802-05.

  LSA emphasizes that the location of the previously unrecorded sites did not represent a "new" survey by LSA, but that these discoveries were incidental and made while transiting from one site in the 60-site URS sample to another in the same area.

- Two (2) previously unrecorded loci with significant artifacts or features were identified within recorded sites within the Area of Potential Effects (APE) while verifying the previous site records for those sites. These artifacts and features were placed in **Group V.** Scientifically, any artifact is significant if it has a recorded context; however, the "significant" artifacts and feature recorded here were ones that were previously unrecorded and are of importance for their ritual implications (a quartz crystal in DRK-009) and issues of cultural sensitivity (possible cremated human remains in DRK-001).

The approved Research Strategy that was attached to the Field Authorization stipulated that by the end of the day on June 4, 2009 LSA would provide recommendations (1) regarding the relative magnitude and significance of any discrepancies in the URS field documentation, and (2) whether the discrepancies in the field documentation could significantly alter the BLM's ability to understand and evaluate these sites.

With regard to the relative magnitude and significance of the discrepancies in the URS field documentation, and as noted above, LSA's report notes that the site forms for the largest group of sites revisited by LSA (26 sites in Group III) can be made acceptable as a basis for potential for National Register evaluation with additional field survey and recordation. These 26 sites represent 43 percent of the 60 site revisit sample. Subtracting the 60 sites revisited from 19–22 May 2009 by LSA from the project total of 302 sites, 242 sites have not been revisited. Applying the same statistical percentage as obtained above, it is possible that the forms for another 104 sites may have errors that require additional survey and recordation to bring their supporting documentation up to standards. Based on the inconsistencies among authors of the forms in the initial 60 site sample, the particular 104 sites that might have been affected cannot be predicted.

In addition, during the three-day period, LSA identified 5 unrecorded resources in the APE that had been subjected to a Class III pedestrian survey utilizing 15-meter intervals. These five sites represented an eight percent equivalent of the 60 randomly selected sites; if the same percentage is applied to the remaining 242 sites, there is a statistical possibility of there being approximately another 20 undocumented resources in the APE, including sites with potential scatters of exotic materials, with the potential of human remains and ceremonial objects. Finally, based on the revisit, LSA has recommended that the classification of the large site DRK-150 in the eastern sector of the APE be reduced to "not an archaeological site" because the previously recorded 22 loci and 8 features could not be relocated. Two other sites (JF-042 and SM-006) were also characterized as not archaeological during the revisits. The previously recorded historic remains were characterized during the revisits as being "…recent and in secondary contexts" but the site forms still need to be revised in terms of the chronology for solder-top cans and other classes of artifacts. These data can be gathered during subsequent site visits.

LSA recommends that the cumulative error regarding the reliability of the sample of 43 percent of the forms for the 60 randomly selected sites (n=26), the statistical potential for 104 of the remaining 242 additional sites to have inadequate documentation, the statistical potential for there to still be 20 undocumented resources in the APE, and the statistical potential that 12 of the remaining 242 sites recorded by URS will turn out to be non-sites provides the BLM with an inadequate database for assessing the potential for National Register qualifications and the cumulative effects for the cultural resources within the Solar Two APE.

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APPENDIX (CONFIDENTIAL, AT END OF REPORT)

INTRODUCTION

PROJECT BACKGROUND

LSA Associates, Inc. (LSA) was tasked by the Bureau of Land Management's El Centro Field Office (BLM-El Centro) to conduct ground-truth visits to 60 site locations (approximately 20% of the 302 sites recorded by URS, Inc. [URS]) within the project Area of Potential Effects (APE) and to evaluate the quality of recordation of the archaeological contents of these cultural resources (Confidential Appendix A). These 60 locations had previously been recorded by URS. (Mutaw et al. 2009) under contract to Stirling Energy Systems (SES) for the proposed Solar Two project, approximately 15 miles west of the City of El Centro in Imperial County, California. LSA was not scoped to resurvey any of the project APE beyond the 60 sites, but under the Field Strategy document attached to the Field Authorization (CA670-06-07-FA08), LSA was scoped to minimally record any unrecorded resources encountered incidentally as the pedestrian survey transited from one site to the next.

SCOPE

As agreed upon by BLM-El Centro prior to initiation of the ground-truth task, the results of the LSA field studies were to be characterized as follows:

- Level I site form (stands as is with minor editorial changes).
- Level II site form (requires revision, including one or more of the following):
    - Level IIa: The site form and/or sketch map does not adequately reflect the site boundaries that are observed in the field. Broadly interpreted, it was expected that the sketch map for each site would accurately reflect the loci, features, concentrations, and artifacts contained in the site description. It was also expected that the site boundaries would include no more spatial coverage than necessary to protect the indicated resource(s). If these minimal expectations of the correlation of the site contents with the depictions in the sketch map were observed not to have been met, such discrepancies were noted in Column IIa on this summary table. In the Summary and Recommendations section of this report, these discrepancies are dealt with according to their impact on the potential eligibility of a resource on an individual or district level.
    - Level IIb: The artifact concentrations or features described in the narrative and/or sketch map are not observed in the field. If one or more features noted in the narrative or depicted in the sketch map were not observed during the site visit, these discrepancies were noted in Column IIb on the summary table. In the Summary and Recommendations section of this report, these discrepancies are dealt with according to their impact on the potential eligibility of a resource on an individual or district level.
    - Level IIc: One or more classes of artifacts or features were observed in the field but were absent from any site documentation, or vice versa. Furthermore, if individual artifacts were noted in the field but had not been recorded on the site form narrative or recorded on the

sketch map, these discrepancies were noted in Column IIc of the summary table. LSA fully understands that some variation in observation may occur from visit to visit because of weather, lighting, erosion and deposition, or surveyor ability and local experience; therefore, LSA was seeking a general and not a precise concordance between previous survey results and those observed during the most recent site visit. In the Summary and Recommendations section of this report, these discrepancies are dealt with according to their impact on the potential eligibility of a resource on an individual or district level.

- Level IId: If one or more cultural features at the site were misidentified. LSA expected that cultural features such as trails, cairns, and hearths would be accurately identified by the previous survey and that the evaluation of specific identifications would reflect a knowledge the different factors influencing the development of trails (e.g., humans or animals), the placement of cairns (e.g., Native Americans, miners, or Boy Scouts), and preparation and abandonment of hearths (e.g., Native Americans, campers, or illegal immigrants). Such discrepancies were noted in Column IId of the summary table. In the Summary and Recommendations section of this report, these discrepancies are dealt with according to their impact on the potential eligibility of a resource on an individual or district level.

METHODOLOGY

LSA utilized an Internet source (stattrek.com/Tables/Random.aspx) to generate a table of random numbers to pick the 60 sites to be visited. To make sure that the sample adequately covered all site types and landforms, the final sample was not strictly random, but intuitive adjustments were kept to a minimum and affected less than 5 percent of the sample. This final list was attached to the Field Authorization. To facilitate two field crews, the location data for these 60 sites were loaded into two Trimble Global Positioning System (GPS) units and also printed out in hard copy with the various project landforms as background and the WECO road system as adjunct data. URS provided a master set of site forms for the 60 sites and these were photocopied to produce two field sets and placed in 3-ring binders. URS also provided the Geographic Information System (GIS) shape files for the results of its record search for the project, for previously recorded sites (prior to the URS survey), and the complete data for the 302 sites reported by URS. The locational data for past and present studies have been combined into Appendix A for this report. The four-person LSA crew directed by Dr. Frederick Lange including LSA archaeologists Dan Ewers, Mike Pasenko, and Brooks Smith drove to El Centro late in the afternoon of Tuesday May 19, 2009. LSA archaeologist Rory Goodwin joined the field crew for one day, May 22. Field visits to the first of the 60 sites took place beginning on the morning of Wednesday May 20. Using a two-team strategy, the field crew traveled in two vehicles and each had a Trimble GPS with the project location data and site locations and polygons, a set of maps, and the set of the URS site forms. As stated in LSA's Field Authorization (CA670-06-07-FA08), LSA took copies of the site forms for the selected sites into the field and made notations regarding degree of concurrence and necessary updates during each site visit. All sites were to be updated using the necessary California Department of Parks and Recreation 523 series (DPR) forms. Sketch maps also were updated as necessary with particular emphasis on determining if descriptive elements in the site descriptions were also represented on the sketch maps (and vice versa). Revised site forms and sketch maps will be provided to the BLM by June 10, 2009.

Each team was assigned clusters of sites in particular sectors of the project. The WECO road system made it relatively easy to approach within 500 meters of most sites to be visited. Upon arrival at a

particular site, the site form sketch map was reviewed and the electronic version of the site map was brought up on the Trimble. A quick comparison was made to ascertain whether the sketch map in the site form and the Trimble image coincided and then a systematic process of recreating the boundary, re-locating features, and re-locating individual artifacts was undertaken. Re-located resources were noted and previously unrecorded resources within the site boundaries, or necessary shifts in the site boundary to accommodate additional data, also were noted. Where there was a lack of consistency among the site form, the Trimble data, and the field observations, the crew paused to reassess the situation and to make sure that they were not working with an erroneous orientation or dying batteries, and then the survey continued. Where the site form was inaccurate, LSA was not scoped to make detailed corrections in the field. The LSA survey crews maintained daily communication with the BLM El Centro field office throughout the three days.

RESULTS

This section of this report presents the results for the 60 URS sites that were selected for revisit, as well as the 5 previously unrecorded sites or loci identified by LSA. Table A summarizes four groups of sites and one group of loci with significant artifacts. Three of the groups reflect the conclusions for each site drawn from the site revisits to the 60 previously recorded sites, a fourth group lists the three new sites found during the revisit efforts to the other sites, and a fifth group highlights significant artifacts that were found at two of the previously recorded sites. Following Table A is a discussion of these results to assess the magnitude, significance, and ability to evaluate the randomly selected sample of sites, per the Research Strategy attached to the Field Authorization. This discussion employs the heuristic devices of site types and research domains to place these Solar Two project APE sites in a broader context relative to the basin of Ancient Lake Cahuilla and beyond.

Table A: Summary Table

LSA Sample	URS Site	Level I	Level IIa	Level IIb	Level IIc	Level IId
GROUP I. SITES REQUIRING NO OR VERY MINOR EDITORIAL CHANGES						
2	DRK-009		Consider combining with DRK-041	Loci and artifacts reconfirmed during site revisit		
3	DRK-011		Reduce boundary on east and south	Loci and artifacts reconfirmed during site revisit		
6	DRK-020		USGS Survey marker	Loci and artifacts reconfirmed during site revisit		
17	EBR-080		Fan context	Loci and artifacts reconfirmed during site revisit		
33	JM-017		Site is smaller than mapped as shown in Sketch Map	Loci and artifacts reconfirmed during site revisit		
36	JM-039			Loci and artifacts reconfirmed during site revisit		
47	RAN-017			Loci and artifacts reconfirmed during site revisit	Multi-component nature of site reconfirmed during site revisit	

Table A: Summary Table

LSA Sample	URS Site	Level I	Level IIa	Level IIb	Level IIc	Level IId
48	RAN-023		Reduce site boundary	Loci and artifacts reconfirmed during site revisit	Historic refuse scatter reconfirmed during site revisit	
12	DRK-146			Loci and artifacts reconfirmed during site revisit	Three historic refuse scatter reconfirmed during site revisit	
32	JM-011		Site is smaller than mapped as shown in Sketch Map	Loci and artifacts reconfirmed during site revisit	In general, the previously recorded artifacts were re-located	
GROUP II. RECORDING ERRORS THAT MAY NOT AFFECT EVALUATION OF POTENTIAL FOR ELIGIBILITY						
4	DRK-017		Reduce site boundary	Loci and artifacts reconfirmed during site revisit	Flakes not plotted and not listed on artifact record	
18	EBR-081		Fan context Sketch Map lacks location of flakes	Loci and artifacts reconfirmed during site revisit	Change hammer Stone ID from quartzite to granitic Flakes are not included in Artifact Record nor are they plotted on the Sketch Map	
20	EBR-207		No site photograph. Not all recorded artifacts plotted on Sketch Map or listed on Artifact Record	Loci and artifacts reconfirmed during site revisit	In general, the previously recorded artifacts were re-located	Historic trash scatters date later than recorded
25	JF-008		Site is much smaller than mapped as shown in Sketch Map	Loci and artifacts reconfirmed during site revisit.	In general, the previously recorded artifacts were relocated	Historic trash scatters date later than recorded
26	JF-031		No historic concentration shown on Sketch Map	Loci and artifacts reconfirmed during site revisit.	No Artifact Record in Site form In general, the previously recorded artifacts were relocated	

Table A: Summary Table

LSA Sample	URS Site	Level I	Level IIa	Level IIb	Level IIc	Level IId
44	LL-022			Loci and artifacts reconfirmed during site revisit.	Chert flake observed, not previously recorded	
15	EBR-065		Context is fan, not Aeolian Revise Sketch Map and Reduce site boundary	Lithic concentration not noted and not listed on artifact record. Not plotted on sketch map.	Additional locus and 11+ flakes	
52	RAN-081			Loci and artifacts reconfirmed during site revisit. Found 2 additional loci.		Surface Quarry Site
53	RAN-084					Surface Quarry Site with 9 work stations/1 hearth Distinction between Loci and artifact concentra-tions is artificial
1	DRK-001		Boundary change required on Sketch Map based on additional data found during site visit	Loci and artifacts reconfirmed during site revisit	Tizon Brown, FAR/mano fragments, possible cremation (numerous small calcined bone fragments) in presently open "lobe" between A94 and Locus 1 (5)	
39	JMR-021			Loci and artifacts reconfirmed during site revisit	No ceramics plotted on Sketch Map; however, Colorado Buff ceramics[1] were identified in revisit One utilized flake was re-located	
14	EBR-022		Reduce site boundaries	No chert flakes as noted on form; not cairns[2] (rock clusters)		Not cairns/ Simple rock clusters

Table A: Summary Table

LSA Sample	URS Site	Level I	Level IIa	Level IIb	Level IIc	Level IId
16	EBR-079		Greatly reduce site boundaries No site photograph, but probably fan context	Not a cairn;[2] rock cluster Loci and artifacts reconfirmed during site revisit		Not a cairn/rock cluster
19	EBR-103		Reduce boundary as shown on Sketch Map	No chert flakes in either loci Flakes not plotted on Sketch Map nor listed on Artifact Record With exception of chert flakes, loci and artifacts reconfirmed during site revisit		
5	DRK-019		Fan deposit, not Aeolian	Loci and artifacts reconfirmed during site revisit		Not a pot drop; simple sherd assemblage; no trail association
7	DRK-030		Expand site boundaries	Loci and artifacts reconfirmed during site revisit		Assemblage slightly later than date range given on form
9	DRK-041			Loci and artifacts reconfirmed during site revisit	Additional lithic locus recorded during revisit	
10	DRK-043		Reduce site boundary. Locus separated from isolate utilized flake by approximately 12 meters on Sketch Map	Loci and artifacts reconfirmed during site revisit	Additional locus with greenstone flakes	Additional historic locus with surface mining test
11	DRK-048			Loci and artifacts reconfirmed during site revisit	Two additional lithic loci not previously noted Flakes not included on Sketch Map or Artifact Record	
27	JF-042			Loci and artifacts reconfirmed during site revisit	Previously reported artifacts were re-located	No prayer circle; vegetation remnant (tree trunk)

Table A: Summary Table

LSA Sample	URS Site	Level I	Level IIa	Level IIb	Level IIc	Level IId
35	JM-027		Site is smaller than mapped as shown in Sketch Map	Loci and artifacts reconfirmed during site revisit	Previously reported artifacts were relocated	
56	RAN-428		Only lithics and historic artifacts were plotted on the Sketch Map and included in the Artifact Record so it was not possible to identify where the ceramics should have been.	Loci and artifacts reconfirmed during site revisit	The site was described as a lithic and ceramic scatter. No ceramics were located during the site revisit	Laminar sandstone fragments may have been confused for ceramics. Surface cobble quarry site
57	RAN-431			Quartzite core is a tractor-fact	Hearth was relocated	Informal quarry Context is not Aeolian
58	RAN-434		Reduce site area in Sketch Map		Surface quarry	Cairns are piles of rocks/hearth Context is not Aeolian
GROUP III. RECORDING ERRORS THAT MAY AFFECT EVALUATION OF POTENTIAL FOR ELIGIBILITY						
45	RAN-006		No Sketch Map present (pagination suggests a Sketch Map and Artifact Record exist)		Historic refuse scatter relocated during site revisit. Refuse scatter dates to later than stated on-site form; probably post-WWII.	
46	RAN-013		No cultural historic refuse artifacts shown inside site boundary on Sketch Map	Loci and artifacts reconfirmed during site revisit		

Table A: Summary Table

LSA Sample	URS Site	Level I	Level IIa	Level IIb	Level IIc	Level IId
38	JMR-011		Shrink site boundaries as shown on Sketch Map		The site form states that "The site is a lithic scatter with one locus." Locus 1 is described as a lithic concentration on the north boundary of the site which contains "one core" and no mention of flakes. During the site revisit, LSA-S-3 Located 15+ green flakes.	
43	LL-021		No Sketch Map; possibly combine with LL-022	Loci and artifacts reconfirmed during site revisit	1 Tizon Brown and 5+ Colorado Buff in area between LL021 and LL022	Deflated hearths were re-located
40	KRM-001		No Sketch Map	Loci and artifacts reconfirmed during site revisit		
8	DRK-032		Nothing on Sketch Map except the boundary. Context is a fan rather than Aeolian	Green andesite metate fragment Not previously noted Loci and other artifacts reconfirmed during site revisit	Over 100 lithic artifacts noted, but not plotted on Sketch Map	
21	EBR-213		Reuse Location	Loci and artifacts reconfirmed during site revisit	Greenstone flake scatter at site not previously recorded. Not all artifacts recorded. General multi-component prehistoric and historic site assemblages reconfirmed during site revisit.	Hearth features may or may not all be prehistoric or historic

Table A: Summary Table

LSA Sample	URS Site	Level I	Level IIa	Level IIb	Level IIc	Level IId
22	EBR-219		Reduce Sketch Map boundary	Loci and artifacts reconfirmed during site revisit	Ceramics not plotted and not included in Artifact Record. General ceramic/ Lithic assemblage confirmed by site revisit	
23	EBR-222		No site photograph; probably fan context Inaccurate Sketch Map. One hearth to extreme west of site polygon. Nothing else in polygon. Locus 2 not re-located Sketch Map boundary should be greatly reduced.	Loci and artifacts reconfirmed during site revisit	Colorado[1] Buffware ceramics present on southern boundary but not noted on site forms	No fire pit/hearth
24	EBR-223		No site photograph Utilized flake not re-located Sketch Map shows nothing else within site boundary. Presence of historic component needs to be added to Sketch Map	Loci and artifacts reconfirmed during site revisit	No historic component shown on Sketch map or included in Artifact Record	
28	JF-043		Sketch Map shows no artifacts or features within site boundary of this multi-component site.		Previously reported prehistoric artifacts could not be re-located Previously reported historic artifacts were re-located	
30	JM-003		Substantially reduce site boundary as shown on Sketch Map; the context is a fan, not Aeolian.	Loci and artifacts reconfirmed during site revisit	Previously reported artifacts were re-located	

Table A: Summary Table

LSA Sample	URS Site	Level I	Level IIa	Level IIb	Level IIc	Level IId
31	JM-009		Substantially reduce site boundary as shown on Sketch Map; better considered as two isolated features. The context is a fan, not Aeolian	Loci and artifacts reconfirmed during site revisit		
34	JM-026		Site is smaller than mapped as shown in Sketch Map	A second locus on the southern boundary was not recorded as a locus on the original form, although the locus was observed during the revisit.		
41	LL-002			Loci and artifacts reconfirmed during site revisit	Artifacts noted on site form were re-located during the site revisit but are not noted on an Artifact Record and are not plotted on the Sketch Map.	
42	LL-018		Sketch Map is blank, no artifacts were plotted.		Artifacts noted on site form were re-located during the site revisit but are not noted on an Artifact Record and are not plotted on the Sketch Map	
37	JMR-005		The site boundary includes almost double the area in which cultural resources were recorded.	The site form begins by stating "This site is a single hearth feature" and then continues to describe multiple features, loci, and concentrations. The data in the form needs to be clarified before the form/site can be confirmed.		Feature 5 may be a rock cluster rather than a collapsed cairn.
49	RAN-025		Site boundary needs to be greatly reduced.		Did not relocate any previously reported artifacts	
50	RAN-035		No locus plotted on Sketch Map			
51	RAN-048		No Sketch Map			

Table A: Summary Table

LSA Sample	URS Site	Level I	Level IIa	Level IIb	Level IIc	Level IId
54	RAN-412F				Could not re-locate a majority of the artifacts Surface cobble quarry	Sandstone laminate that can be mistaken for ceramic sherds
55	RAN-418		Site boundary needs to be greatly reduced.		Could not re-locate a majority of the artifacts Ceramic sherds were identified as to type, but were not plotted on the Sketch Map, entered on the Artifact Record, or noted associated with any of the lithic artifact locations.	Sandstone laminate that can be mistaken for ceramic sherds
59	SM002	Needs revisit[3]	Nothing shown in ellipse on Sketch Map	Found two additional loci		
13	DRK-150		Not a site; dispersed prehistoric and historic isolates	Majority of loci listed on Artifact record were not re-located during the site revisit	Majority of artifacts listed on Artifact record were not re-located during the site revisit.	Possible hearth is doubtful and possibly modern
60	SM006	Not an archaeological site	Nothing shown in Sketch Map polygon		Could not re-locate cultural artifacts	
29	JFB-009	Revisit determined: Not an archaeological site			No cultural artifacts	This is a fan deposit, not aeolian
GROUP IV. NEW SITES IDENTIFIED BY LSA						
LSA-SSQ0802-S-2					Greenstone core, flakes, spokeshave	
LSA-SSQ0802-S-4					Historic Refuse Dump (Fiesta ware, tobacco can)	

Table A: Summary Table

LSA Sample	URS Site	Level I	Level IIa	Level IIb	Level IIc	Level IId
LSA-SSQ0802-S-5		25 m northwest from JM-023 closest newly reported cultural resource 0608235 3628237			6 Obsidian preforms and 8 additional obsidian artifacts	Location does not appear to conflict with any previously recorded site. Also, going through URS report, there is no mention of any obsidian sources near this location.
GROUP V. NEW LOCI WITH SIGNIFICANT ARTIFACTS IDENTIFIED BY LSA						
	DRK-001				Calcined bone	
	DRK-009				Quartz crystal	

SUMMARY OF TABLE A

The cumulative errors from the four columns were evaluated according to their impact on the potential eligibility of a resource on an individual or district level and the 63 sites were then divided into four groups. A fifth group consists of loci with highly significant cultural resources that were unreported at previously recorded sites.

- Group I consists of sites in which the described archaeological patterns and artifact assemblage observed in the field coincided with that recorded on the site recordation forms. Minor editorial requirements did not disqualify a site from being included in Group I.
- Group II consists of sites in which the archaeological patterns and artifact assemblage observed in the field can be comprehended from a combination of the site description, site sketch map, site photograph, and artifact record. All sites in Group II lacked one required data component (for example, historic artifacts in the artifact record were not plotted on the sketch map, or lithic flakes described in the site description were not recorded in the artifact record). However, it was LSA's judgment that such technical shortcomings could be corrected from data on hand and did not require additional field research.
- Group III consists of sites that completely lack a sketch map or some other essential element of the site recordation process. An understanding of the archaeological pattern and artifact assemblage cannot be attained from the data at hand and these sites will require additional field research. Group III also contains three sites that LSA determined to be non-cultural/non-archaeological based on the site visit.
- Group IV sites are resources that were not previously recorded by URS or previous studies. Attaining a reliable understanding of the archaeological pattern and artifact assemblage at these sites will require completion of the recordation process.
- Group V loci are resources that were not previously recorded by URS or previous studies. Attaining a reliable understanding of the archaeological pattern and artifact assemblage at these sites will require completion of the recordation process.

DISCUSSION

This data summary of this report summarizes the 60 sites field-checked by LSA at both the management and interpretative levels and provides a framework for interpreting the archaeological resources in the project and surrounding region. At the management level, sites are the traditional focus of archaeological descriptions, interpretations, and assessments of eligibility for listing in the National Register, while the interpretative level must be founded on concepts appropriate to the Colorado Desert region. To paraphrase Marcy Rockman's characterization of the archaeology of the Western Papagueria (2008:380), for the archaeological record of the area near Ancient Lake Cahuilla, current presentations are imbalanced with respect to the relative importance of isolates. Recent surveys have identified more isolates than sites.

LSA's report was prepared by archaeologists with a solid grounding in anthropology and the report focuses on how the inconsistencies and errors in the URS database present obstacles to both a behavioral classification of the different site types in the project and to a summary of the research domains represented by the project landscape and the different site types. In the first instance, in her

recent case study of the North Tactical Range (NTAC) of the eastern portion of the Barry M. Goldwater Range East (BMGR), Rockman (2008) utilized the following behavioral classificatory terms:

1. **Site.**
2. **Isolated Artifact.**
3. **Isolated Feature.**
4. **Single-Use Location** (Rockman 2008: 393). A single-use location is a single archaeological resource or set of archaeological resources that appears to represent only one past use of the geographic point at which the resources are found.
5. **Intended/Possible Reuse** (Rockman 2008: 394). An intended/possible reuse location is very similar to a single-use location. Ground stone milling equipment is the barometer of this location-use type.
6. **Limited-Reuse Location** (Rockman 2008: 394). The organization of cultural materials suggests reuse of the location but not an unlimited or potentially non-quantifiable number of uses.
7. **Reused Locations** (Rockman 2008: 395). Reused locations are similar to limited-reuse locations but are likely to have more evidence of a longer use span, a greater range of uses, or both.
8. **Reoccupied Locations** (Rockman 2008: 396). A reoccupied location is a composite of archaeological materials representing two or more occupations that appear to be distinct in time, with no spatial congruence between the occupations.
9. **Enduring-Use Locations** (Rockman 2008: 396). An enduring-use location is a single cultural resource or collection of cultural resources that had a persistent function.

The most appropriate behavioral term, or terms, is/are applied to each site in the sample in order to indicate their interpretive potential. Table B summarizes a concordance of the LSA sample number, the URS temporary site number, and the behavioral classification for each site.

It is recognized that all site locations come about because of different types of behavior. For the purposes of assessing the magnitude and significance of URS's errors and inconsistencies, and the ability to evaluate these sites either individually or in a group or district, LSA presents a series of Research Domains that integrate various categories of human behavior with the natural setting and the different site types where populations, large or small, live. These Research Domains are an efficient means of synthesizing and articulating the data resulting from the research, if the data are presented in a consistent and reliable manner.

Table B: Concordance of Site Types with Site Revisit Sample

LSA Sample	URS Site	Level IIa
Group I.	**Sites Requiring No Or Very Minor Editorial Changes**	
2	DRK-009	Alternative interpretation: Limited Reuse Location
3	DRK-011	Limited Reuse Location
6	DRK-020	Enduring Use Location
17	EBR-080	Single-Use Location
33	JM-017	Limited Reuse Location
36	JM-039	Possible Limited Reuse Location
47	RAN-017	Possible Reuse Location
48	RAN-023	Single-Use Location
12	DRK-146	Limited Reuse Location
32	JM-011	Limited Reuse Location
Group II.	**Recording Errors That May Not Affect Evaluation Of Potential For Eligibility**	
4	DRK-017	Single-Use Location
18	EBR-081	Single-Use Location
20	EBR-207	Limited Reuse Location
25	JF-008	Single-Use Location
26	JF-031	
44	LL-022	Limited Reuse Location
15	EBR-065	Single-Use Location
52	RAN-081	Reuse Location
53	RAN-084	Reuse Location
1	DRK-001	Reoccupied Location
39	JMR-021	Single-Use Location
14	EBR-022	Limited Reuse Location
16	EBR-079	Single-Use Location
19	EBR-103	Limited Reuse Location
5	DRK-019	Reuse Location
7	DRK-030	Limited Reuse Location
9	DRK-041	Limited Reuse Location
10	DRK-043	Single-Use Location
11	DRK-048	Limited Reuse Location.
27	JF-042	Single-Use Location
35	JM-027	Six isolated artifacts
56	RAN-428	Reuse Location
57	RAN-431	Limited Reuse Location
58	RAN-434	Reuse location

LSA Sample	URS Site	Level IIa
Group III.	**Recording Errors That May Affect Evaluation Of Potential For Eligibility**	
45	RAN-006	Single-Use Location
46	RAN-013	
38	JMR-011	Single-Use Location
43	LL-021	Limited Reuse Location
40	KRM-001	
8	DRK-032	Possible Reuse location
21	EBR-213	Reuse Location
22	EBR-219	Single-Use Location
23	EBR-222	Single-Use Location
24	EBR-223	Single-Use Location
28	JF-043	
30	JM-003	Single-Use Location
31	JM-009	
34	JM-026	Single-Use Location
41	LL-002	Limited Reuse Location
42	LL-018	
37	JMR-005	Possible Reuse Location
49	RAN-025	
50	RAN-035	
51	RAN-048	
54	RAN-412F	Reuse Location
55	RAN-418	Limited Reuse Location
59	SM002	
13	DRK-150	
60	SM006	
29	JFB-009	
Group IV.	**New Sites Identified By LSA**	
LSA-SSQ0802-S-2		Single Use Location
LSA-SSQ0802-S-4		Limited Reuse Location
LSA-SSQ0802-S-5		Single-Use Location
Group V.	**New Loci With Significant Artifacts Identified By LSA**	
	DRK-001	Limited Reuse Location
	DRK-002	Single-Use Location

Settlement Pattern Domain

Settlement pattern is the term used for a spatially ordered system of land use; depending on the subsistence base of a given group and its relations with neighbors, local environmental variables, plus historical factors, people use and leave patterned distributions on their landscape (Hester et al. 1997). Settlement patterns are similar to site structure and function as described below, but on an inter-site rather than intra-site scale. Settlement patterns are, thus, based upon the relationship between sites rather than the relationship between factors within one site. Recognition of settlement patterns in the archaeological record is difficult and is being constantly reconsidered and reexamined (Willey 1953; Thomas 1983; Kelly 1985; Shackley 1987; Kelly and Todd 1988; Parr and Sutton 1991), with the increased use over the past decade of Geographic Information System (GIS) as a tool in spatial analysis. In the Solar II site verification task, GIS was used to look at the distribution of archaeological sites included in the Class III study previously carried out by URS in conjunction with available information on surrounding site types, landform, soil type, water proximity, vegetation cover, and naturally occurring resources such as source outcrops for tool stone. The use of GIS facilitates the definition of the relationships among known sites within their environmental context and their spatial relationships to particular resources.

With adequate storable resources, such as fish or mesquite beans, the collector strategy may have utilized seeds during the fall and winter months, and focused on other resources during the remainder of the year.

Studies of other hunter-gatherer/optimum forager peoples have demonstrated that group membership is not stable from season to season, and even less so from year to year (McGuire and Hildebrandt 2004; Lange 1980). As we imagine native groups exploiting the diverse and dispersed resources of the project area (and beyond), we may need to visualize habitational groups with fluid memberships, and, thus, with different residual settlement patterns than those that would be left by a more traditionally conceived “family” or “clan.”

Using recent models of human settlement behavior, it may be possible to discern similarities between the current Solar II APE and nearby areas. The theory of Resource Intensification was first formulated by Wallace (1955) as a shift along the coast of southern California from earlier gathering and processing of the Milling Stone Period to the more diversified subsistence of the Intermediate Period. The theory was formally proposed by Raab (1996:66) who stated that this trend shows two hallmarks: (1) the addition of increasingly “marginal” food species to the diet; and (2) increasing investments in the technologies required to exploit the new food items in a cost-effective manner. Resource Intensification theory describes an increased reliance over time on small, often difficult-to-gather and/or process foods. Such intensification may result from population growth, environmental change, or both, and is appropriate to the study of arid areas.

Chronology Domain

Site chronology issues are of basic importance in the framework of archaeological research and interpretation. Understanding the chronology of sites within the proposed Solar II APE is fundamental to examining questions of cultural process and diachronic change in cultural patterns. Precision and accuracy of age determinations are critical to the analytical strategies and research

objectives, since the dating of site occupation and the accompanying artifacts and ecofacts provides the baseline by which all other research topics are addressed.

There are two kinds of dating, or chronometric control, utilized in archaeology: relative and absolute. Prior to 1948 and the archaeological revolution sparked by the application of radiocarbon dating to archaeological contexts, the only absolute chronometric method available was dendrochronology, or tree-ring dating, which is only applicable to parts of the North American Southwest. Thus, prior to 1948, all chronological ordering of sites was based on relative dating (also referred to as cross-dating). Since 1948, radiocarbon measurements have gradually accumulated for southern California, but they are still limited in number when compared with the number of dates from many other cultural areas.

Southern California archaeology, and specifically that of the project area, is heavily dependent on relative and cross-dating and has only a limited number of contexts with absolute dates attributable to temporally diagnostic artifacts. In the case of the Solar II APE, amethyst glass, obsidian, and various ceramic types are essential elements in the cross-dating process. The need to improve chronological control as rapidly as possible is exemplified by Rockman and Lerch's statement (2005:8.2) that "… the record of human occupation of the project area has great time-depth, and has the potential to provide information not only about site-specific activities, but also about long-term human responses to environmental, social, and technological changes." The understanding and interpretation of responses and changes cannot be improved without better chronological control, first absolute and then leading to better use of relative and cross-dating.

Site Structure and Function Domain

Once a site has been located and an attempt has been made to place it in a chronological context, its structure and function can be addressed. Structure and function relate to the spatial manner in which a site was occupied and utilized, both horizontally and vertically, and provide the intra-site context for subsistence and other categories of data. Archaeological patterns of social behavior may be identified through the remains of material discovered at the sites, and this patterning may help to provide information concerning site structure and function. It must be noted that archaeological remains are a distorted and partial remnant of past human behavior. Much of what was discarded in antiquity was not only broken and fragmented but it may be completely missing, eroded away, or disintegrated over the millennia. What is found during excavation is always only a fragment of what originally existed at the site.

The structure and function of all 60 sites revisited and the 6 previously unrecorded sites will be considered within the regional context of the repeated filling and emptying of Ancient Lake Cahuilla. Site structure will be assessed by identifying site size and the existence of visible features. By considering the use wear patterns of what is found at the site, it should be possible to develop ideas concerning site function. For example, at a site that is thought to be a lithic quarry site, if there is an abundance of flaked stone lithic material without visible edge-wear recovered, then the data may help to reinforce the designation of the site type as a lithic quarry.

Many sites in the proposed APE are located along ephemeral drainages. Drainages, along with ridge and hill tops, can be viewed as part of the cultural landscape since they were commonly used in order to procure various food, medicinal, and lithic resources, to check for the availability of water, and for

incidental camping purposes (Davis 1961). Prehistoric subsistence behavior resulted in what are now archaeological sites throughout the proposed APE where prehistoric cultures adapted to the local environment. Using the archaeological patterning model presented earlier, the remnant archaeological materials present in cultural deposits can be used to identify patterns of social behavior.

Site Formation Processes Domain

Closely related to the research domains of site structure and function, site formation processes consist of the various forces that create archaeological deposits at a particular location. Many materials are preserved when protected from the weathering effects of ultraviolet sunlight and from the eroding qualities of wind and rain. In certain areas, windblown or waterborne sediment creates a depositional environment that tends to bury surface material over time. In other areas, wind, rain, or other mechanisms can create either a deflationary or depositional environment that removes or adds surface sediment and tends to lower or increase the ground surface over time. In deflationary settings, archaeological remnants are typically situated atop the ground surface, with any original stratigraphic organization completely compacted. In a depositional environment, on the other hand, cultural material will be buried. It is possible that a site can be located in a depositional environment near the edge of a drainage that is eroding into the site, and thus, the environment is both adding and removing sediment. Many of the site formation processes are combined into the study of the geomorphology of a site. The determination of whether or not a certain locale is in a depositional or erosional environment is of paramount importance in determining if an archaeological site has the potential to contain valuable information.

It has been shown that complex formation processes at sites can transform material formally, spatially, quantitatively, and relationally, and will create patterns in the archaeological record that are unrelated to past human behavior (Schiffer 1987:11; Grenda 1997:141). Some of the more problematic sets of formation processes are those that mix the deposits, such as flood episodes and resulting erosion, bioturbation, and varying rates of sedimentation. These factors homogenize and blur distinctions in the stratigraphic profile, the result of which is a mixed deposit that is stratigraphically indistinct.

Subsistence Base Domain

Through time, the consensus view of subsistence has changed to a more generally known pattern of hunters and gatherers, where vegetal resources were used in the amounts that were available by direct access in particular locations, or by moving to areas for direct access. The basis of the subsistence pattern is those vegetal resources that required a minimum of preparation (in comparison with the intensive processing required by acorns) (Basgall 2004). The animal component of the diet was apparently from small animals, with a minimum of large animal hunting.

An effort will also be made to use all cultural materials, artifacts, and ecofacts to determine subsistence base at each site. At milling station sites, this may be difficult to identify, although, in general, it is thought that milling sites are the remnant of primarily plant food processing, and bedrock mortars have been associated with acorn processing (Basgall 2004). In the desert, a similar technology was utilized to process mesquite beans. Nonetheless, an attempt to locate and identify all cultural material from a site will be made, so that the full spectrum of site use can be identified. For

instance, if unifacial flake scrapers are found to the exclusion of any other formal tool type, then analysis at the site will be directed toward discovering the use of the unifacial flake tools. At milling station sites, the same effort will be made using those artifacts, ecofacts, and features that are encountered.

Trade and Economic Exchange Domain

The analysis of raw materials from which artifacts are fashioned can be a useful tool that aids in the identification of the place of origin of that particular artifact (or at the very least, the origin of the raw material). Furthermore, based on the presence of distinctive non-local raw materials at a site, the movement of goods can be investigated and, at times, whole exchange systems can be reconstructed (Renfrew and Bahn 1991:307). California Indians developed sophisticated exchange systems to optimize resource distribution over large areas, and materials such as acorns, salt, fish, shell artifacts, clothing, lithic raw materials such as obsidian, bows and arrows, and baskets were transported over a trail of networks as documented at sites from the Late Prehistoric Period (Moratto 1984:4-5; Davis 1961). Renfrew and Bahn (1991:307) note that "finds of the actual goods exchanged are the most concrete evidence that the archaeologist can hope to have for determining the contact between different societies." Since artifact forms can be imitated, the use of stylistic comparisons to similar artifact forms found in other regions is problematic in discussions of trade and economic exchange, unless there is also an identifiable non-local source material used in conjunction with style.

Comparisons of the lithic materials used most often, and in various levels at sites, will be useful since the preferential use of exotic/imported lithic material will help to identify trade and economic exchange. Chalcedony (including jasper and agate) found in the region is commonly sourced from the Mojave and Colorado deserts. These materials, along with obsidian, appear to have been valued prehistorically because it flakes easily and holds a sharp edge.

Used for knives and projectile points, obsidian was traded from the Coso Range, Fish Springs, Casa Diablo, and Bodie Hills in eastern central California, from Obsidian Butte in eastern southern California (Ericson 1977:114) in the Sierra Nevada, as well as from other sources. According to Hughes and True (1985), trade during the Middle Holocene (Milling Stone Period) was from the north with obsidian sources in the Coso Range. During the late Holocene (Late Prehistoric Period), trade in obsidian was primarily from the south and east with the Obsidian Butte source at the southern end of the Salton Sea used extensively.

Singer and Ericson (1977:181–182) show that the Bodie Hills obsidian quarry was used primarily as a single-activity site devoted exclusively for the production of bifaces and blades for export. The site was used as early as 6000 BC, reached a maximum use during a period about 2,500 years ago, and then underwent a dramatic decline approximately 1,500 years ago. This was approximately the same time that the Obsidian Butte source began to be used and traded, although it is possible that other factors resulted in a dramatic decline in the use of the Bodie Hills quarry. Relative chronological data can be derived from obsidian hydration measurements, which, when combined with obsidian source data, can address the question of whether obsidian source changed through time, how it changed, and how this might reflect patterns of intra-regional exchange.

Ritual and Ceremony Domain

In cultures throughout the world, from birth to death, people's lives are surrounded by ritual and ceremony. Specific rites vary by age and gender, and a good portion of the prayers, songs, and chants that were created (or adapted) on a cyclical or as-needed basis have been lost forever from pre-literate or non-literate societies. Birth, coming of age, and death associated rituals and ceremonies are the most common rituals conducted universally, regardless of cultural affiliation. Archaeology can contribute to the understanding of the importance of ritual and ceremony in the lives of the native peoples who inhabited the region that the Solar II project crosses. At least one ceremonial object, a quartz crystal, was observed on the surface at one location in the project.

Gendered Behaviors Domain

When gender studies became more popular in archaeology approximately two decades ago, the initial efforts were to "catch-up" for lost time and to emphasize the need to pay more attention to feminine presence and behavior in the archaeological record (Joyce and Claassen 1997). With the passage of time, the use of the term "gender" has become more broadly applied to both male and female behaviors in the archaeological record. The study of gender and archaeology has matured to trying to distinguish between behaviors performed by the different genders, or to identify behaviors in which gender assignment was fluid, or not possible to characterize at all.

Studies citing the relationship of gender with specific tools are not common for the project area, although gender-related information for prehistoric California exists as a whole (Kroeber and Barrett 1960:95; Wallace 1978). Willoughby (1963) and Koerper et al. (2002:27–28) state that activities performed primarily by men included those that used tools such as projectile points, fishhooks, cores, flakers (flint-knappers), and biface preforms, while female activities included those that used tools such as ground stone and awls. Koerper et al. (2002:28) state that the Late Holocene Period specialized activity sites appear to be gender-related activity areas, most of which contain projectile points, biface performs, and cores. A second type of gender-based activity area, thought to have been used by women contained ground stone tools and angular hammerstones and abraders used to maintain the ground stone. Projectile points, biface preforms, and cores are entirely absent at these small specialized activity sites.

The Gendered Behaviors domain is the appropriate summary domain for this research design. Gendered Behavior plays a role in all of the other seven domains presented here. Although, as alluded to in the discussion of Subsistence Base domain, there are traditional views of gender roles, the very limited ethnographic data suggest that the reality is quite different from the "men did this, women did that" model. The existing assumptions need to be re-evaluated with fresh analyses of site loci and artifact complexes. For example, bedrock milling (both slick isolates and complexes) needs to be more closely examined as possible gender-specific loci and co-gender loci. Admittedly, there are few solid data in hand at the moment that speak to gendered behavior, but if we do not begin asking the questions and tailoring our research, testing, and data recovery toward the study of gendered behaviors, we will never improve our understanding on the topic.

INTERPRETATION

Having summarized the data from the revisits in Table A, this section of the report utilizes the behavioral site typology and research domains to bring the project data to bear, in a preliminary fashion, on issues of interpreting and understanding the prehistoric lifeways of the inhabitants of this area of southern California.

BEHAVIORAL CLASSIFICATORY TERMS

1. **Site.** This is the standard format for evaluating archaeological resources for potential nomination to the National Register of Historic Places.
2. **Isolated Artifact.** Isolated artifacts were not included in LSA's sample although they were reported from the project APE in Mutaw et al. (2009).
3. **Isolated Feature.** Isolated features occur in the project APE and in Table A are most frequently referred to as "Single-Use Locations" (see also #4, below).
4. **Single-Use** (Rockman 2008: 393). A single-use location is a single archaeological resource or set of archaeological resources that appear to represent only one past use of the geographic point at which the resources are found. Seventeen of the 60 sites in the LSA sample (approximately 28%) fall into this category.
5. **Intended/Possible Reuse** (Rockman 2008: 394). An intended/possible reuse location is very similar to a single-use location. Ground stone milling equipment is the barometer of this location/use type. None of the 60 sites in the LSA sample were in this category.
6. **Limited Reuse Location** (Rockman 2008: 394). The organization of cultural materials suggests reuse of the location but not an unlimited or potentially non-quantifiable number of uses. Eighteen of the 60 sites in the LSA sample (30%) were placed in this category.
7. **Reused Locations** (Rockman 2008: 395). Reused locations are similar to limited-reuse locations but are likely to have more evidence of a longer use span, a greater range of uses, or both. Ten of the 60 sites in the LSA sample (approximately 16%) were assigned to this category.
8. **Reoccupied Locations** (Rockman 2008: 396). A reoccupied location is a composite of archaeological materials representing two or more occupations that appear to be distinct in time, with no spatial congruence between the occupations. Only one of the 60 sites in the LSA sample (approximately 1%) was assigned to this category.
9. **Enduring-Use Locations** (Rockman 2008: 396). An enduring use location is a single cultural resource or collection of cultural resources that had a persistent function. URS recorded Native American trails in many parts of the project but none were included in the LSA sample, although numerous segments were observed by the LSA field crews. Only one of the 60 sites in the LSA sample (approximately 1%) was assigned to this category. The one site in LSA's sample assigned to this category was a USGS monument.

The remaining 24 percent of the 60 sites was not assigned to any site category. The following sections examine the results of the 60-site ground-truth study within the broader context of the Research Domains discussed earlier.

RESEARCH DOMAIN FINDINGS

Settlement Patterns Domain Findings

There is only one site (DRK001) in the Solar II whose surface configuration and surface assemblage of artifacts suggest it was occupied for more than a fleeting visit. Even given the presence of tabular sandstone slabs and quantities of cobbles and boulders, there is no indication of stone house foundations, such as a found in the Salton Sea area west of Salton City; there tabular sand stone slabs were converted into what some students have referred to as house foundations while this author thinks it more likely that they were storage bins for fish or mesquite beans, or both. Other than the potential of DRK001, there is no evidence for semi-permanent and even less likely permanent habitation anywhere in the project APE.

Most of the project is west of the former shore of Lake Cahuilla, but it is still interesting to contrast the surface archaeology with that of other sectors of the Ancient Lake or the more modest contemporary Salton Sea. In the eastern part of the APE, it would be anticipated to have found some indication of stone habitation foundations or V-shaped fish-traps but none is noted.

Chronology Domain Findings

The site revisits identified a range of both prehistoric and historic artifact classes suitable for cross-dating, including ceramics, obsidian, amethyst glass, solder top cans, and “church key” opened cans. Depending upon the source, obsidian can also be utilized for absolute dating. The obsidian preforms also serve for cross-dating based on their size and form, as well as the fact that it is obsidian since the Obsidian Butte source has been assumed to be inaccessible when Ancient Lake Cahuilla was filled.

Site Structure and Function Domain Findings

The only “structures” found on the sites that were revisited were deflated hearths. The potential sleeping circles, which would fit both structure and function categories, have been characterized as mechanical and off-road vehicle disturbances in this report. There are a number of sites in the sample and the larger URS universe of sites that have clear separation between hearths on opposing ends of fan “fingers” and these may be indications differential gender or economic activities at those particular sites.

Site Formation Processes Domain Findings

Transiting the many shallow washes in the APE, very few artifacts were found in the bed of the wash, indicating that site erosion is not a serious problem in the APE. Conversely, no buried cultural contexts were observed either. The numerous deflated hearths show some surface erosion.

Subsistence Base Domain Findings

Subsistence data from the site revisits was very limited. The frequent presence of cobble-covered hills and ridges, and the frequent registry of "tested cobbles" suggests that the lithic resources in the APE were widely utilized. A number of sites along the transmission line corridor were almost certainly utilized as quarries for the tools used in the ongoing subsistence quest. In comparison with the Salton Sea area to the north, no indications of food storage were observed.

Trade and Economic Exchange Domain Findings

Obsidian, the quartz crystal, and the ceramics that were found are the most obvious indicators of trade and exchange in the APE. There is no indication of ceramic production inside the APE and, until source analysis tests are conducted, we will not know which of the many obsidian sources are represented by the cache recorded by LSA during the site revisit program. Recent studies by Neff et al. (2005) have also shown that the different colors in desert ceramics are less a reflection of typology than of perhaps the use of different clays by the same potters in different locations to make the required pots.

Ritual and Ceremony Domain Findings

The discovery of a quartz crystal prism on the surface of one of the sites indicates that ritual and ceremony followed the ancient inhabitants as they moved about the desert. That it was apparently lost during use, and not interred, indicates the importance of the artifact to its former owner. Trails often had a spiritual dimension for the prehistoric inhabitants and were often marked by pot drops and cairns. No such trail accoutrements were noted on the trail segments observed by the LSA crew while transiting various sectors of the project to the 60 selected sites.

Gendered Behaviors Domain Findings

A very low frequency of grinding tools and a high frequency of flaked stone is part of the limited indication of gender behavior on the project if one follows the traditional model of women grinding and men hunting. As noted in the introduction to the Research Domains, the reality is much more complicated than that, especially in arid zones where seasonal variability and overall scarce resources require a concerted effort from all members of the highly mobile bands that were the most common forms of social adaptation.

Research Domain Overview

When properly described and recorded, any archaeological site has the potential to contribute to our understanding and interpretation of one or more research domains. While the above findings provide a preliminary view of the interpretative potential for the data from the Solar Two APE, the inconsistencies in the data also suggested a level of uncertainty regarding what had already been found, and the potential for expanding the interpretive data-base in the future. Specifically, LSA identified 26 out of the 60 randomly selected sites as being inadequately documented. In addition, during the three-day period, LSA identified 5 unrecorded resources in an APE that had been subjected to a Class III pedestrian survey utilizing 15-meter intervals. During the revisit, LSA archaeologists

located a crystal prism on the surface of one previously recorded (by URS) site, a large scatter of calcined bone (and possible cremation of human remains) associated with previously undocumented ceramics and lithics on the surface of another previously recorded (by URS) site, and an assemblage of 14 obsidian projectile point performs and other obsidian fragments in a previously unrecorded location.

PREDICTIVE MODELING

LSA's experience with previous large-scale surveys in Imperial County (Mesquite Regional Landfill and Superstition Solar I in the Salton Sea) and now the Solar II ground-check leads to preliminary predictive modeling to guide future studies and resource evaluation.

With the completely contradictory results from the revisit to URS site DRK-150 (a site described as multi-component with 22 loci and 8 features was field-checked as a very dispersed surface scatter of prehistoric and historic materials and this report concludes that it is not a site), it is possible that other large sites in the eastern end of the APE (such as URS's LL-005, RAN085a, and EBR-010) may also not be as large or have the integrity suggested by the field survey results.

It is also predicted that there will be no "cairns" of Native American origin in the project. The cairn sites that were revisited by LSA encountered only small piles of rock that could have come from any number of cultural sources and are almost certainly not Native American in origin. Of the trail segments that LSA observed, there were no associated cairns or pot drops.

LSA also predicts that no Native American sleeping circles or prayer circles are within the project APE. Although one prayer circle (JF-042) was reported by URS, the revisit designated the site as "non-archaeological." Mechanized disturbances associated with mining activities and off-road vehicle traffic create the kind of surface patterns that can lead to erroneous identifications of sleeping circle and other cultural features.

RECOMMENDATIONS

Over the course of three days from May 20–22, 2009, two teams of LSA archaeologists revisited 60 URS-recorded sites. Utilizing printed site forms and Trimble GPS units with digital data with each site's boundaries and internal features, LSA completed the task of verifying the reliability of the site records and recorded boundaries and feature locations.

As noted above, LSA treated a total of 65 sites during the three days in the field as follows:

- LSA placed 10 sites in **Group I**, which comprises forms with a high level of ground truth and acceptable as a basis for potential for National Register of Historic Places (National Register) evaluation with no or only very minor editorial changes.
- Twenty-four (24) sites were placed in **Group II,** comprising forms displaying inconsistencies between the previously recorded data and LSA's field observations, but that can be made acceptable as a basis for potential for National Register evaluation with the incorporation of data demonstrated to already be in the hands of URS. That is, no more field survey or recordation will be necessary to complete the forms.

- Twenty-six (26) sites were placed in **Group III,** which consists of those forms that can be made acceptable as a basis for potential for National Register evaluation with additional field survey and recordation.
- Three (3) previously unrecorded sites (LSA-SSQ0802-02, LSA-SSQ-0802-04, and LSA-SSQ0802-5) within the APE were placed in **Group IV.** Of particular interest was a scatter of exotic raw material, i.e., obsidian preforms from a presently undetermined source (Artifacts 1–14) found at LSA-SSQ0802-05.

  LSA emphasizes that the location of the previously unrecorded sites did not represent a "new" survey by LSA, but that these discoveries were incidental and made while transiting from one site in the 60-site URS sample to another in the same area.
- Finally, two (2) previously unrecorded loci with significant artifacts or features were identified within recorded sites within the APE while verifying the previous site records for those sites. These artifacts and features were placed in **Group V.** Scientifically, any artifact is significant if it has a recorded context; however, the "significant" artifacts and feature recorded here were ones that were previously unrecorded and are of importance for their ritual implications (a quartz crystal in DRK-009) and issues of cultural sensitivity (possible cremated human remains in DRK-001).

The approved Research Strategy attached to the Field Authorization stipulated that by June 4, 2009, LSA would provide recommendations regarding the relative magnitude and significance of any discrepancies in the URS field documentation and whether the discrepancies in the field documentation could significantly alter our ability to understand and evaluate these sites.

MAGNITUDE

With regard to the relative magnitude and significance of the discrepancies in the URS field documentation, LSA's report notes that the site forms for largest group of sites revisited by LSA (26 sites in Group III) can be made acceptable as a basis for potential for National Register evaluation with additional field survey and recordation. These 26 sites represent 43 percent of the 60 site revisit sample. Of the project total of 302 sites, there are 242 sites that still have not been revisited.

Applying the same percentage as obtained above, it is statistically possible that the forms for approximately 104 sites may have errors that require additional survey and recordation to bring their supporting documentation up to standards. Based on the inconsistencies among authors of the forms in the initial 60 site sample, the approximately 104 sites that may be affected cannot be predicted.

SIGNIFICANCE

LSA emphasizes that LSA-SSQ0802-05 (the site with the obsidian preforms) and the location of four additional previously unrecorded resources did not represent a "new" survey by LSA, but that these discoveries were incidental and made while transiting from one site in the 60-site URS sample to another in the same area. These five resources represented an 8 percent equivalent of the 60 randomly selected sites; if the same percentage is applied to the remaining 242 sites, there is a statistical

possibility of there being approximately another 20 undocumented resources in the APE, including sites with potential scatters of exotic materials, with the potential of human remains, and with the potential of ceremonial objects. Finally, based on the revisit, LSA has recommended that the classification of the large site DRK-150 in the eastern sector of the APE be reduced to "not an archaeological site" because the previously recorded 22 loci and 8 features could not be relocated. Two other sites (JF-042 and SM-006) were also characterized as not archaeological during the revisits. The previously recorded historic remains were characterized during the revisits as being "…recent and in secondary contexts" but requiring additional recordation to firmly establish their chronological range.

ABILITY TO IMPLEMENT EVALUATONS

LSA has documented the cumulative error regarding the reliability of the sample of 43 percent of the forms for the 60 randomly selected sites (n=26), and the statistical potential for approximately 104 of the remaining 242 additional sites to have inadequate documentation, the statistical potential for there to still be approximately 20 undocumented resources in the APE, and the statistical potential that 12 of the remaining 242 sites recorded by URS will turn out to be non-sites. These actual and projected figures provide the BLM with an inadequate data-base for documenting the presence of cultural resources and for assessing the potential for National Register qualification for the cultural resources within the Solar Two APE.

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APPENDIX A

RECORD SEARCH SITES, URS SITES, SITE REVISITED BY LSA, AND NEW RESOURCES LOCATED BY LSA

(CONFIDENTIAL)

BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT
COMMISSION OF THE STATE OF CALIFORNIA
1516 NINTH STREET, SACRAMENTO, CA 95814
1-800-822-6228 – WWW.ENERGY.CA.GOV

APPLICATION FOR CERTIFICATION
For the SES SOLAR TWO PROJECT

Docket No. 08-AFC-5

PROOF OF SERVICE
(Revised 5/26/09)

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DECLARATION OF SERVICE

I, Mineka Foggie, declare that June 09, 2009, I served and filed copies of the attached Cultural Resources Site Location and Cultural Content Ground- truth task: Levels 1 and 2 Evaluations and Recommendations- The original document, filed with the Docket Unit, is accompanied by a copy of the most recent Proof of Service list, located on the web page for this project at: **[www.energy.ca.gov/sitingcases/solartwo]**. The document has been sent to both the other parties in this proceeding (as shown on the Proof of Service list) and to the Commission's Docket Unit, in the following manner:

(Check all that Apply)

FOR SERVICE TO ALL OTHER PARTIES:

__X__ sent electronically to all email addresses on the Proof of Service list;

__X__ by personal delivery or by depositing in the United States mail at Sacramento, CA _____ with first-class postage thereon fully prepaid and addressed as provided on the Proof of Service list above to those addresses **NOT** marked "email preferred."

AND

FOR FILING WITH THE ENERGY COMMISSION:

__X__ sending an original paper copy and one electronic copy, mailed and emailed respectively, to the address below (***preferred method***);

OR

____ depositing in the mail an original and 12 paper copies, as follows:

CALIFORNIA ENERGY COMMISSION
Attn: Docket No. _____
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512

docket@energy.state.ca.us

I declare under penalty of perjury that the foregoing is true and correct.

MINEKA FOGGIE