The completed Project will change the visual appearance of the area and the views from three KOPs (KOP-2, KOP-11, and KOP-14) are considered adverse impacts. However, due to the following conditions, overall visual impacts of the Project are less than significant. When viewed from eye level, during most hours of the day, the solar fields would be relatively unobtrusive, with the power block visible above the solar fields. Power block structures, tanks and buildings would have neutral desert colors and non-reflective surfaces to minimize their contrast with the natural background. From elevated locations, because of the movement of the sun and the changing orientation of the mirrors to track the sun's movement, the view would change over time. In afternoon hours when viewed from distant elevated locations to the southwest, the reflective surface of the mirror would be oriented toward the viewer. At these times, on a sunny day, the solar collectors would create a visual impression that more closely resembles a body of water than a power plant or other industrial facility because the collectors would be reflecting the blue sky. On a cloudier day, the visual impression would appear grayer. In the morning hours viewed from the same elevated locations to the southwest, viewers would have the non-reflective backs of the mirrors toward them, in which case the visual contrast with the surrounding environment would be considerably less. The China Lake Naval Weapons Station and associated hanger infrastructure are visible in the background view of northeast facing KOPs and represent significant modifications to the visual environment. Finally, viewers may find visually interesting this facility that will contribute to important societal goals (providing renewable energy and reducing greenhouse gases).

DR-VIS-215

Information Required:

For the benefit of the analysis and readers, please review the visibility analysis presented in the AFC and revise Figure 5.15-1 to show a more accurate depiction of the Project's regional visibility. Map coverage can be expanded up to 25 miles distant from the Project site due to the availability of distant, elevated viewing opportunities. Also, if the assumed viewing height is different than 5.5 feet relative to ground level, please identify what the viewing height is.

Response:

The visibility analysis (using a viewing height of 5.5 feet above ground level), has been extended out to 25 miles from the Project site. Please refer to the revised Figure 5.15-1 in Attachment DR-VIS-Figures at the end of this section.

DR-VIS-216

Information Required:

Please show the location of the transmission line route and substation in both the map area and legend of Figure 5.15-2.

Response:

Please refer to the revised Figure 5.15-2 in Attachment DR-VIS-Figures at the end of this section.

DR-VIS-217

Information Required:

Please establish a new KOP from the hilltop immediately adjacent and to the southwest of the Project site in the vicinity of coordinates – Latitude: 35o 33' 7.14" N, Longitude: 117o 46' 14.36" W, viewing to the east-northeast and provide a new KOP analysis and visual simulation (see Attachment 2 for perspective view guidance).

Response:

The approach to evaluating the visual impacts of the Project is based on views from Key Observation Points (KOPs). KOPs are view receptors that are sensitive and/or considered representative. Views from these locations are the framework for comparing existing visual conditions with photographic simulations of a proposed project.

Based on guidance from the Bureau of Land Management (BLM), ten KOPs were selected to evaluate the Project's existing conditions and potential visual impacts. The CEC staff's data requests identified four additional KOPs.

Due to the reconfiguration of the Project layout, updated KOP analyses and simulations for the original ten KOPs (KOPs 1-10) are presented at the end of this section in Attachment DR-VIS-Figures. The analyses for the four new KOPs are provided in Data Responses DR-VIS-217, VIS-219, VIS-221, and VIS-224; the simulations for the new KOPS are presented in Attachment DR-VIS-Figures.

The 14 KOPs (see Figure 5.15-2) are as follows:

- KOP-1 U.S. Highway 395 Northbound
- KOP-2 U.S. Highway 395 Southbound
- KOP-3 Brown Road
- KOP-4 Northern Residence on Calvert Boulevard
- KOP-5 Middle Residence on Calvert Boulevard
- KOP-6 Residence on Clone Avenue
- KOP-7 BLM Recreation Road
- KOP-8 Railroad Bed Bike Trail (South)
- KOP-9 Railroad Bed Bike Trail (Southeast)
- KOP-10 BLM Recreation Area
- KOP-11 BLM Ridgeline (West)
- KOP-12 Brown Road Westbound
- KOP-13 Brown Road Eastbound
- KOP-14 Railroad Bed Bike Trail (West)

Existing visual conditions of the view from each KOP were evaluated and documented during fieldwork conducted in June and December 2009.

The Project area, including the Project site, was designated as interim Visual Resources Management (VRM) Class III. The BLM management objective of Class III areas is to partially retain the existing character of the landscape, and the permissible level of visual change is moderate (moderate contrast). Management activities may attract attention, but should not dominate the view of the casual observer. The scenic quality, viewer sensitivity ratings and distance zones for the project area are: Scenic Quality: C (Low); Viewer Sensitivity: High; and, Distance Zone: Foreground-middleground.

KOP-11 BLM Ridgeline

KOP-11 is located approximately 0.5 miles west of the Project site, approximately 1.5 miles southwest of the power block, and 0.5 miles west of the transmission line (Figure 5.15-15a). The foreground-middleground views from KOP-11 are typical of the visual character of the natural landscape of the Mojave Desert with the addition of electrical transmission structures. The background view is composed of the valley floor and distant mountain range to the west. The visual quality of this view is moderate; there are no striking or distinctive visual patterns in the view. The visual resources do not form a strong, coherent pattern, and the visual integrity in the natural and human-built landscape is minimal. The cultural and natural features in the view form a discordant pattern, and the visual integrity in the natural landscape is moderate to low. The Project would be visible in the foreground-middleground distance zone at this KOP. Because this view would be experienced by a low number of recreational viewers (hikers) in the foreground-middleground distance zone, the level of visual sensitivity is low to moderate.

Impacts KOP-11 BLM Ridgeline

The simulation of the view of the Project site and facilities from KOP-11 is shown in Figure 5.15-15b; the existing view is shown in Figure 5.15-15a. The view from KOP-11 is elevated as compared to the Project site (the site is at a lower elevation than the KOP). In this foreground-middleground view, the prominent visible features of the Project would be the solar collectors, power block structure and substation. The Project site features would be visible in the foreground-middleground and would present a moderate to high level of dominance in the view. The neutral color and non-reflective surface of the Project structures would reduce their visual contrast with their surroundings and help them to be absorbed into the overall view. Due to their distance and location, the power block would be substantially visible from this KOP. The transmission line structures would also be visible from this distance. The neutral color and non-reflective surface of the transmission line structures would reduce their visual contrast with the background and help them to be absorbed into the overall view to a moderate degree.

Therefore, the effect of the RSPP on the overall character of the view is expected to be moderate to high. The general level of visual quality of the view from KOP-11 would change moderately. The presence of the Project features would increase moderately the vividness of the view, would have a strong effect on the overall intactness of the view, and would have a moderate effect on the visual unity of the composition of the landscape. Due to the magnitude of the project in the view from KOP-11 and its strong contrast as compared with the existing scene, the overall impact on visual resources would be significant when the Project is considered in the context of its surroundings.

The KOP-11 BLM Visual Contrast Rating Form is provided at the end of this section in an Attachment titled Contrast Rating Forms.

DR-VIS-218

Information Required:

> In order to present a simulation that more accurately captures the actual viewing experience from the new Hilltop KOP, please present the existing view photograph and visual simulation as 11” x 17” images at a “life-size scale” when the image is held approximately 18 inches from the eye, so that the landscape and built features in the images match the actual scale of the features in the landscape (when the paper image is viewed at a distance of approximately 18 inches from the eye).

Response:

Please see new Figure 5.15-15a (existing condition) and Figure 5.15-15b (simulated condition), provided in Attachment DR-VIS-Figures at the end of this section.

DR-VIS-219

Information Required:

Please establish a new key viewpoint from westbound Brown Road within the Project site in the vicinity of coordinates – Latitude: 35o 33' 21.47" N, Longitude: 117o 44' 41.82" W, viewing to the west to capture a foreground view of the power block facilities and provide a new KOP analysis and visual simulation (see Attachments 3 and 4 for foreground and perspective view guidance).

Response:

KOP-12 Brown Road Westbound

KOP-12 is located approximately 0.5 miles east of the Project site, approximately 1.4 miles east of the power block, and 1.6 miles east of the transmission line (Figure 5.15-16a). This KOP has been moved to the edge of the project in order to represent the approach to the project by motorists, hikers, and bicyclists. The foreground-middleground views from KOP-12 are typical of the visual character of the natural landscape of the Mojave Desert with addition of electrical transmission structures. The background view is composed of the valley floor and distant mountain range to the west. The visual quality of this view is moderate; there are no striking or distinctive visual patterns in the view. The visual resources do not form a strong, coherent pattern, and the visual integrity in the natural and human-built landscape is minimal. The cultural and natural features in the view form a discordant pattern, and the visual integrity in the natural landscape is moderate to low. The Project would be visible in the foreground-middleground distance zone at this KOP. Because this view would be experienced by a moderate number of recreational viewers (bicyclists, hikers and motorists) in the foreground-middleground distance zone, the level of visual sensitivity is high.

<u>Impacts KOP-12 Brown Road Westbound</u>

The simulation of the view of the Project site and facilities from KOP-12 is shown in Figure 5.15-16b; the existing view is shown in Figure 5.15-16a. The view from KOP-12 is at eye-level as compared to the Project site. In this foreground-middleground view, the prominent visible features of the Project would be the solar collectors, power block structure and substation. The Project site features would be visible in the foreground-middleground and would present a moderate to high level of dominance in the view. The neutral color and non-reflective surface of the Project structures would reduce their visual contrast with their surroundings and help them to be absorbed into the overall view. Due to the distance and location, the power block would be substantially visible from this KOP. The transmission line structures would also be visible from this distance. The neutral color and non-reflective surface of the transmission line structures would reduce their visual contrast with the background and help them to be absorbed into the overall view to a moderate degree.

The effect of the RSPP on the overall character of the view is expected to be moderate. The general level of visual quality of the view from KOP-12 would change moderately. The presence of the Project features would increase moderately the vividness of the view, would have a strong effect on the overall intactness of the view, and would have a moderate effect on the visual unity of the composition of the landscape. The Project's 30-foot high wind screen fence and the presence of existing foreground-middleground transmission structures would help to ameliorate the effects of the RSPP transmission line and solar collectors. Given the dominating effect of the two existing high-voltage steel lattice transmission lines, the form and meaning (for the public) of a new renewable energy facility that uses surface treatments and finishes (colors, textures, non-reflective surfaces, etc.) to minimize visible change and contrast with the existing site environment, and the BLM Interim VRM Class III management objectives (refer to AFC Section 5.15.1.1, Federal LORS), the overall impact on visual resources from KOP-12 would be less than significant when the Project is considered in the context of its surroundings.

The KOP-12 BLM Visual Contrast Rating Form is provided at the end of this section in the Attachment Contrast Rating Forms.

DR-VIS-220

Information Required:

In order to present a simulation that more accurately captures the actual viewing experience from the new Brown Road West KOP, please present the existing view photograph and visual simulation as 11" x 17" images at a "life-size scale" when the image is held approximately 18 inches from the eye, so that the landscape and built features in the images match the actual scale of the features in the landscape (when the paper image is viewed at a distance of approximately 18 inches from the eye).

Response:

Please see Figure 5.16-16a (existing condition) and Figure 5.15-16b (simulated condition), provided in Attachment DR-VIS-Figures at the end of this section.

DR-VIS-221

Information Required:

Please establish a new key viewpoint from eastbound Brown Road within the Project site in the vicinity of coordinates – Latitude: 35o 33' 28.85" N, Longitude: 117o 45' 16.88" W, viewing to the north-northeast to capture a foreground view of the north solar field west wind fence and provide a new KOP analysis and visual simulation.

Response:

KOP-13 Brown Road Eastbound

KOP-13 is located approximately 0.1 miles west of the Project site, approximately 0.8 miles southwest of the power block (not visible from this KOP), 0.2 miles northwest of the Project switchyard, and 0.1 miles west of the RSPP transmission line (Figure 5.15-17a). This KOP has been moved to the edge of the Project in order to represent the approach to the Project by motorists, hikers, and bicyclists. The foreground-middleground views from KOP-13 are typical of the visual character of the natural landscape of the Mojave Desert with addition of electrical transmission structures. The background view is composed of the valley floor and distant mountain range to the west. The visual quality of this view is moderate; there are no striking or distinctive visual patterns in the view. The visual resources do not form a strong, coherent pattern, and the visual integrity in the natural and human-built landscape is minimal. The cultural and natural features in the view form a discordant pattern, and the visual integrity in the natural landscape is moderate to low. The Project would be visible in the foreground-middleground distance zone at this KOP. Because this view would be experienced by a moderate number of recreational viewers (bicyclists, hikers and motorists) in the foreground-middleground distance zone, the level of visual sensitivity is high.

Impacts KOP-13 Brown Road Eastbound.

The simulation of the view of the Project site and facilities from KOP-13 is shown in Figure 5.15-17b; the existing view is shown in Figure 5.15-17a. The view from KOP-13 is at eye-level as compared to the Project site (i.e., the KOP and the Project are at the same elevation). In this near foreground-middleground view, the prominent visible features of the Project would be the transmission line, switchyard, wind fences, solar collectors, and power block structures. The Project site features would be visible in the near foreground-middleground and would present a moderate to high level of dominance in the view. The neutral color and non-reflective surface of the Project structures would reduce their visual contrast with their surroundings and help them to be absorbed into the overall view. As noted above, the power block would not be substantially visible from this KOP. The transmission line structures would be visible from this distance. The neutral color and non-reflective surface of the transmission line structures would reduce their visual contrast with the background and help them to be absorbed into the overall view to a moderate degree. Therefore, the effect of the RSPP on the overall character of the view is expected to be moderate.

The general level of visual quality of the view from KOP-13 would change moderately. The presence of the Project features would increase moderately the vividness of the view, would have a strong effect on the overall intactness of the view, and would have moderate effect on the visual unity of the composition of the landscape. The 30-foot high wind screen fence and presence of existing foreground-middleground transmission structures would help to ameliorate the effects of the transmission line and solar collectors. Given the dominating effect of the two existing high-voltage steel lattice transmission lines, the form and meaning (for the public) of a new renewable energy facility that uses surface treatments and finishes (colors, textures, non-reflective surfaces, etc.) to minimize visible change and contrast with the existing site environment, and the BLM Interim VRM Class III management objectives (refer to AFC Section 5.15.1.1, Federal LORS), the overall impact on visual resources from KOP-13 would be less than significant when the Project is considered in the context of its surroundings.

The KOP-13 BLM Visual Contrast Rating Form is provided at the end of this section in the Attachment titled Contrast Rating Forms.

DR-VIS-222

Information Required:

> In order to present a simulation that more accurately captures the actual viewing experience from the new Brown Road North-Northeast KOP, please present the existing view photograph and visual simulation as 11” x 17” images at a “life-size scale” when the image is held approximately 18 inches from the eye, so that the landscape and built features in the images match the actual scale of the features in the landscape (when the paper image is viewed at a distance of approximately 18 inches from the eye).

Response:

Please see Figure 5.17-a (existing condition) and Figure 5.15-17b (simulated condition), provided in Attachment DR-VIS-Figures at the end of this section.

DR-VIS-223

Information Required:

Please provide a detailed description and diagram of the wind fence including the fence color.

Response:

The wind fences would be installed to protect the solar arrays from high wind loads. The wind fences would be 30 feet tall and would be placed along the east and west boundaries of each solar field. The wind fences would be made of steel A-frames and a screen mesh tarpaulin, black in color, much like that used to screen tennis courts. The fence is separated in 4-meter sections, which is the size of the A-frames supporting the wire mesh. The wire mesh is fixed on horizontal steel ropes.

Figure DR-VIS-223-1, provided at the end of this section, illustrates the framing of the wind fence prior to installation of the horizontal steel ropes and wire mesh. The photograph (DR-VIS-223-2) and diagram (DR-VIS-223-3), also provided at the end of this section, illustrate the appearance of the wind fence.

DR-VIS-224

Information Required:

Please establish a new key viewpoint on the Bike Trail in the immediate vicinity of coordinates – Latitude: 35o 32' 27.86" N, Longitude: 117o 45' 34.38" W, viewing to the northeast and provide a new key viewpoint analysis and visual simulation.

Response:

KOP-14 Railroad Bed Bike Trail (West)

KOP-14 is located approximately 0.1 miles west of the Project site and 0.3 miles west of the nearest wind fence, approximately 2.4 miles southwest of the power block, and 1.0 miles southeast of the transmission line (Figure 5.15-18a). The foreground-middleground views from KOP-14 are typical of the visual character of the natural landscape of the Mojave Desert with addition of electrical transmission structures. The background view is composed of the valley floor. The visual quality of this view is low; there are no striking or distinctive visual patterns in the view. The visual resources do not form a strong, coherent pattern, and the visual integrity in the natural and human-built landscape is moderate. The Project would be visible in the foreground-middleground distance zone at this KOP. Because this view would be experienced by a moderate number of recreational viewers (bicyclists and hikers) in the foreground-middleground distance zone, the level of visual sensitivity is high.

<u>Impacts KOP-14 Railroad Bed Bike Trail (West).</u>

The simulation of the view of the Project site and facilities from KOP-14 is shown in Figure 5.15-18b; the existing view is shown in Figure 5.15-18a. The view from KOP-14 is slightly elevated as compared to the Project site. In the view from KOP-14, the visible features of the Project would be the transmission line and wind fence, which would be seen in the near foreground-middleground and would present a moderate to high level of dominance in the view, the solar arrays in the foreground-middleground, and the cooling tower at the power block, which would be visible in the foreground-middleground and would present a moderate level of dominance . The neutral color and non-reflective surface of the transmission line structures would reduce their visual contrast with the background and help them to be absorbed into the overall view to a moderate degree.

The effect of the Project on the overall character of the view is expected to be moderate. The presence of existing foreground-middleground transmission line structures would help to ameliorate the visual effects of the Project facilities. Due to the magnitude of the Project in the view from KOP-11 and its strong contrast as compared with the existing scene, the overall impact on visual resources would be significant when the Project is considered in the context of its surroundings.

The KOP-13 BLM Visual Contrast Rating Form is provided at the end of this section in Attachment Contrast Rating Forms.

DR-VIS-225

Information Required:

In order to present a simulation that more accurately captures the actual viewing experience from the new Bike Trail key viewpoint, please present the existing view photograph and visual simulation as 11" x 17" images at a "life-size scale" when the image is held approximately 18 inches from the eye, so that the landscape and built features in the images match the actual scale of the features in the landscape (when the paper image is viewed at a distance of approximately 18 inches from the eye).

Response:

Please see Figure 5.15-18-a (existing condition) and Figure 5.15-18b (simulated condition), provided in Attachment DR-VIS-Figures at the end of this section.

DR-VIS-226

Information Required:

Please provide a site plan at a scale that better identifies the location of the various project components including the wind fences.

Response:

Please see Figure DR-ALT-49-1 and -2 for site plans that identifies the location of the Project components and Figure DR-VIS-226 for a representation of the location of the wind fences on the RSPP.

DR-VIS-227

Information Required:

Please clarify what the horizontal, linear tan feature is that borders most of the simulations (KOPs 2-10). Include a description of its size, composition and purpose. Attachment 3 shows a similar facility without such a feature.

Response:

The horizontal linear tan feature referred to in the Data Request is the wind fence, which borders the solar array areas on the east and west (not north and south). It would consist of black screen mesh tarpaulin (50 percent porosity). The support structures are as shown on Figures DR-223-1 and DR-223-2 at the end of this section

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DR-VIS-228

Information Required:

Please describe in detail the tan surface treatments of other project components that are illustrated in the simulations including color name and manufacturer and texture.

Response:

Project components are painted either during the manufacturing process or in the field. Project components to be painted include:

- Air-cooled Condenser Cooling tower and the small auxiliary cooling tower within the power block (BLM Standard Environmental Color for desert settings: Covert Green 18-0617 TPX (RGB #7D745E) RGB: 125,116,94 – CMYK: 0,7,25,51);
- Buildings and steel support structures within the power block (i.e., buildings– except piping and vessels) (BLM Standard Environmental Color: Covert Green 18-0617 TPX (RGB #7D745E) RGB: 125,116,94 – CMYK: 0,7,25,51);
- Wind fences (black screen mesh tarp); and
- Transmission monopoles (standard, non-specular grey).

Project components that cannot be painted include:

- Electrical substation equipment (standard non-specular grey);
- Transmission lattice structures (standard, nonspecular grey);
- Piping and vessels within the power block (galvanized steel – grey);
- Pedestals of parabolic troughs (galvanized steel - grey);
- The backs of parabolic troughs (white); and
- Heat transfer fluid (HTF) insulation wrap (galvanized cladding - grey).

DR-VIS-229

Information Required:

Please be sure to illustrate these surface treatments in the new simulations requested in Data Requests 3 through 11 above.

Response:

The tan (i.e. Covert Green) surface treatments as described above in DR-VIS-228 are depicted in the new simulations requested in DR-VIS-217 through DR-VIS-225.

DR-VIS-230

Information Required:

Please identify the color surface treatment for each project component listed in Table 5.13-3 including the transmission line.

Response:

Colors surface treatment for those Project components that can be painted would be based on the BLM's standard environment colors publication, which was developed to assist with color selection to minimize the visual contrast of a facility. Certain Project components, such as the electrical substation equipment, transmission lattice structures, parabolic trough backings, pedestals of parabolic troughs, wind fencing, and HTF insulation wrap are either not practical to paint or, if painted,would result in inflated-costs associated with maintaining the painted surface. Project components that can be painted, such as the cooling towers, structures within the power block, and the transmission monopoles, would be painted with colors of the desert as outlined in the BLM's colors publication.

DR-VIS-231

Information Required:

If any of the simulations require revisions as a result of these data requests, please provide revised/updated simulations as necessary.

Response:

Due to the reconfiguration of the Project layout and clarification of colors of Project elements, previous simulations for the original 10 KOPs (KOPs 1-10) have been revised (see revised AFC Figures 5.15-5a through 5.15-14b provided at the end of this section). BLM Visual Contrast Rating Forms for each KOP are provided in Attachment Contrast Rating Forms, at the end of this section. Revised analyses for KOPs 1 through 10 are provided in the following paragraphs. Additionally, a revised oblique figure (Figure 2-3b) is provided at the end of this section.

KOP-1 U.S. Highway 395 Northbound

KOP-1 is located approximately 2.1 miles southeast of the Project site, approximately 3.2 miles southeast of the power block, and 3.4 miles southeast of the transmission line (see Figure 5.15-5a). The foreground views from KOP-1 are typical of the visual character of the highway and natural landscape of the Mojave Desert. The background view is composed of the Scodie Mountain Range. The natural features in the view form a strong, coherent pattern, and the visual integrity in the natural landscape is high. The Project would be visible in the foreground-middleground distance zone at this KOP. Because this view would be experienced by a large number of viewers (motorists) in the foreground-middleground distance zone, the level of visual sensitivity is high.

<u>Impacts KOP-1 U.S. Highway 395 Northbound</u>

The simulation of the view of the Project site and facilities from KOP-1 is shown in Figure 5.15-5b; the existing view is shown in Figure 5.15-5a; the KOP-1 BLM Visual Contrast Rating Form is provided at the end of this section. The view from KOP-1 is elevated compared with the Project site (the KOP is at a higher elevation). In this foreground-middleground view, the prominent visible features of the Project

would be portions of the solar fields and power block structure. The transmission line structures would be minimally apparent from this distance. The neutral color and non-reflective surface of the transmission line structures would reduce their visual contrast with the background and help them to be absorbed into the overall view to a moderate degree. The plant site features would be visible and would present a moderate level of dominance in the view. The neutral color and non-reflective surface of the Project structures would reduce their visual contrast with their surroundings and help them to be absorbed into the overall view. Due to their distance and location in the middle of the Project site, the power block facilities would be moderately visible from this KOP.

The effect of the Project on the overall character of the view is expected to be moderate. The general level of visual quality of the view from KOP-1 would change moderately. The presence of the Project features would increase moderately the vividness of the view, would have moderate effects on the overall intactness of the view, and would have moderate effects on the visual unity of the composition of the landscape. According to the BLM Interim VRM Class III management objectives (see AFC Section 5.15.1.1, Federal LORS), the overall impact on visual resources from KOP-1 would be less than significant when the Project is considered in the context of its surroundings.

KOP-2 U.S. Highway 395 Southbound

KOP-2 is located approximately 0.2 miles northeast of the Project site, approximately 1.5 miles northeast of the power block, and 1.8 miles northeast of the transmission line route (see Figure 5.15-6a). The foreground-middleground views from KOP-2 are typical of the visual character of the natural landscape of the Mojave Desert. The background view is composed of the El Paso Mountain Range. The natural features in the view form a strong, coherent pattern, and the visual integrity in the natural landscape is high. The Project would be visible in the foreground-middleground distance zone at this KOP. Because this view would be experienced by a large number of viewers (motorists) in the foreground-middleground distance zone, the level of visual sensitivity is high.

Impacts KOP-2 U.S. Highway 395 Southbound

The simulation of the view of the Project site and facilities from KOP-2 is shown in Figure 5.15-6b; the existing view is shown in Figure 5.15-6a. The view from KOP-2 is at eye-level with the nearest solar collectors and below the rest of the Project site. In this foreground-middleground view, the prominent visible features of the Project would be the solar collectors and power block structures. The transmission line structures would be moderately apparent from this distance. The neutral color and non-reflective surface of the transmission line structures would reduce their visual contrast with the background and help them to be absorbed into the overall view to a moderate degree. The Project site features would be visible in the foreground-middleground and would present a high level of dominance in the view. The neutral color and non-reflective surface of the Project structures would reduce their visual contrast with their surroundings and help them to be absorbed into the overall view. Due to its location in the middle of the site, the power block would be moderately visible from this KOP. Therefore, the effect of the Project on the overall character of the view is expected to be strong.

The general level of visual quality of the view from KOP-2 would change moderately to strongly. The presence of the Project features would increase moderately the vividness of the view, would have moderate effect on the overall intactness of the view, and would have moderate effect on the visual unity of the composition of the landscape. Due to the magnitude of the project in the view from KOP-11, the overall impact on visual resources would be significant when the Project is considered in the context of its surroundings. Regardless, it is anticipated that viewers may soon see the facility as a landmark and their expectations will be met by the form, meaning, and context of a sensitively designed solar field.

KOP-3 Brown Road

KOP-3 is located approximately 0.9 miles west of the Project site, approximately 1.6 miles west of the power block, 1.0 miles northwest of the switchyard, and 0.9 miles west of the transmission line (Figure 5.15-7a). The foreground-middleground views from KOP-3 are typical of the visual character of the natural landscape of the Mojave Desert with addition of electrical transmission structures. The background view is composed of the foothills of the El Paso Mountain Range. The cultural and natural features in the view form a discordant pattern, and the visual integrity in the natural landscape is moderate to low. The Project would be visible in the foreground-middleground distance zone at this KOP. Because this view would be experienced by a moderate number of recreational viewers (bicyclists, hikers and motorists) in the foreground-middleground distance zone, the level of visual sensitivity is high.

Impacts KOP-3 Brown Road

The simulation of the view of the Project site and facilities from KOP-3 is shown in Figure 5.15-7b; the existing view is shown in Figure 5.15-7a. The view from KOP-3 is at eye-level as compared to the Project site. In this foreground-middleground view, the prominent visible features of the Project would be the solar collectors, power block structure and substation. The Project site features would be visible in the foreground-middleground and would present a moderate to high level of dominance in the view. The neutral color and non-reflective surface of the Project structures would reduce their visual contrast with their surroundings and help them to be absorbed into the overall view. Because of distance and location, the power block would be substantially visible from this KOP. The transmission line structures would also be visible from this distance. The neutral color and non-reflective surface of the transmission line structures would reduce their visual contrast with the background and help them to be absorbed into the overall view to a moderate degree.

The effect of the RSPP on the overall character of the view is expected to be moderate. The general level of visual quality of the view from KOP-3 would change moderately. The presence of the Project features would increase moderately the vividness of the view, would have a strong effect on the overall intactness of the view, and would have moderate effect on the visual unity of the composition of the landscape. The 30-foot high wind screen fence and the presence of existing foreground-middleground transmission structures would help to ameliorate the effects of the transmission line and solar collectors. Given the dominating effect of the two existing high-voltage steel lattice transmission lines, the form and meaning (for the public) of a new renewable energy facility that uses surface treatments and finishes (colors, textures, non-reflective surfaces, etc.) to minimize visible change and contrast with the existing site environment, and the BLM Interim VRM Class III management objectives (refer to AFC Section 5.15.1.1, Federal LORS), the overall impact on visual resources from KOP-3 would be less than significant when the Project is considered in the context of its surroundings.

KOP-4 Northern Residence on Calvert Boulevard

KOP-4 is located approximately 0.3 miles west of the Project site and approximately 1.0 miles northwest of the power block, and 1.3 miles north of the switchyard and transmission line (Figure 5.15-8a). The foreground-middleground and background views from KOP-4 are typical of the visual character of the natural landscape of the Mojave Desert with addition of electrical transmission structures. The background view is composed of the El Paso Mountain Range. The cultural and natural features in the view form a discordant pattern, and the visual integrity in the natural landscape is moderate to low. The Project would be visible in the foreground-middleground at this KOP. Because this view would be experienced by residential viewers in the foreground-middleground, the level of visual sensitivity is moderate to high.

Impacts KOP-4 Northern Residence on Calvert Boulevard

The simulation of the view of the Project site and facilities from KOP-4 is shown in Figure 5.15-8b; the existing view is shown in Figure 5.15-8a. The view from KOP-4 is at eye-level as compared to the Project site. In this foreground-middleground and background view, the prominent visible features of the Project would be the solar collectors and power block structure. The transmission line structures would be apparent from these foreground-middleground distances. The site features would be visible in the background and would present a moderate level of dominance in the view. The neutral color and non-reflective surface of the Project structures would reduce their visual contrast with their surroundings and help them to be absorbed into the overall view. The neutral color and non-reflective surface of the transmission line structures would reduce their visual contrast with the background and help them to be absorbed into the overall view to a moderate degree. Because of distance and location, the power block would be substantially visible from this KOP.

The effect of the RSPP on the overall character of the view is expected to be moderate. The general level of visual quality of the view from KOP-4 would change moderately. The presence of the Project features would increase moderately the vividness of the view, would have moderate effect on the overall intactness of the view, and would have moderate effect on the visual unity of the composition of the landscape. The 30-foot high wind screen fence and presence of existing foreground-middleground transmission structures would help to ameliorate the effects of the transmission line and on-site Project facilities. Given the dominating effect of the two existing high-voltage steel lattice transmission lines, the form and meaning (for the public) of a new renewable energy facility that uses surface treatments and finishes (colors, textures, non-reflective surfaces, etc.) to minimize visible change and contrast with the existing site environment, and the BLM Interim VRM Class III management objectives (refer to AFC Section 5.15.1.1, Federal LORS), the overall impact on visual resources from KOP-4 would be less than significant when the Project is considered in the context of its surroundings.

KOP-5 Middle Residence on Calvert Boulevard

KOP-5 is located approximately 0.4 miles west of the Project site, approximately 0.8 miles northwest of the power block, and 1.1 miles north of the switchyard and transmission line (Figure 5.15-9a). The foreground and middleground views from KOP-5 are typical of the visual character of the natural landscape of the Mojave Desert with addition of electrical transmission structures. The background view is composed of the El Paso Mountain Range. The cultural and natural features in the view form a discordant pattern, and the visual integrity in the natural landscape is moderate to low. The Project would be visible in the foreground-middleground at this KOP. Because this view would be experienced by residential viewers in the foreground-middleground, the level of visual sensitivity is moderate to high.

Impacts KOP-5 Middle Residence on Calvert Boulevard

The simulation of the view of the Project site and facilities from KOP-5 is shown in Figure 5.15-9b; the existing view is shown in Figure 5.15-9a. The view from KOP-5 is at eye-level as compared to the Project site. In this foreground-middleground view, the prominent visible features of the Project would be the solar collectors, power block structure and substation. The Project site features would be visible in the foreground-middleground and would present a moderate to high level of dominance in the view. The neutral color and non-reflective surface of the Project structures would reduce their visual contrast with their surroundings and help them to be absorbed into the overall view. Due to their distance and location, the power block would be substantially visible from this KOP. The transmission line structures would also be visible from this distance. The neutral color and non-reflective surface of the transmission line structures would reduce their visual contrast with the background and help them to be absorbed into the overall view to a moderate degree.

The effect of the RSPP on the overall character of the view is expected to be moderate. The general level of visual quality of the view from KOP-3 would change moderately. The presence of the Project features would increase moderately the vividness of the view, would have a strong effect on the overall intactness of the view, and would have moderate effect on the visual unity of the composition of the landscape. The 30-foot high wind screen fence and presence of existing foreground-middleground transmission structures would help to ameliorate the effects of the transmission line and plant site facilities. Given the dominating effect of the two existing high-voltage steel lattice transmission lines, the form and meaning (for the public) of a new renewable energy facility that uses surface treatments and finishes (colors, textures, non-reflective surfaces, etc.) to minimize visible change and contrast with the existing site environment, and the BLM Interim VRM Class III management objectives (refer to AFC Section 5.15.1.1, Federal LORS), the overall impact on visual resources from KOP-5 would be less than significant when the Project is considered in the context of its surroundings.

KOP-6 Residence on Clone Avenue

KOP-6 is located approximately 0.5 miles west of the Project site, approximately 0.7 miles northwest of the power block, and 0.8 miles north of the transmission line (see Figure 5.15-10a). The foreground-middleground views from KOP-6 are typical of the visual character of the natural landscape of the Mojave Desert with addition of electrical transmission structures. The background view is composed of the El Paso Mountain Range. The cultural and natural features in the view form a discordant pattern, and the visual integrity in the natural landscape is moderate to low. The Project would be visible in the foreground-middleground at this KOP. Because this view would be experienced by residential viewers in the foreground-middleground, the level of visual sensitivity is moderate to high.

Impacts KOP-6 Residence on Clone Avenue

The simulation of the view of the Project site and facilities from KOP-6 is shown in Figure 5.15-10b; the existing view is shown in Figure 5.15-10a. The view from KOP-6 is at eye-level as compared to the Project site. In this foreground-middleground view, the prominent visible features of the Project would be the wind fence, solar collectors, power block structures and switchyard. The Project site features would be visible in the foreground-middleground and would present a moderate to high level of dominance in the view. The neutral color and non-reflective surfaces of the Project structures would reduce their visual contrast with their surroundings and help them to be absorbed into the overall view. Because of distance and location, the power block would be substantially visible from this KOP. The transmission line structures would also be visible from this distance. The neutral color and non-reflective surface of the transmission line structures would reduce their visual contrast with the background and help them to be absorbed into the overall view to a moderate degree.

The effect of the RSPP on the overall character of the view is expected to be moderate. The general level of visual quality of the view from KOP-3 would change moderately. The presence of the Project features would increase moderately the vividness of the view, would have a strong effect on the overall intactness of the view, and would have moderate effect on the visual unity of the composition of the landscape. The 30-foot high wind screen fence and presence of existing foreground-middleground transmission structures would help to ameliorate the effects of the transmission line and Project site. Given the dominating effect of the two existing high-voltage steel lattice transmission lines, the form and meaning (for the public) of a new renewable energy facility that uses surface treatments and finishes (colors, textures, non-reflective surfaces, etc.) to minimize visible change and contrast with the existing site environment, and the BLM Interim VRM Class III management objectives (refer to AFC Section 5.15.1.1, Federal LORS), the overall impact on visual resources from KOP-6 would be less than significant when the Project is considered in the context of its surroundings.

KOP-7 BLM Recreation Road

KOP-7 is located approximately 0.8 miles west of the Project site, approximately 2.4 miles southwest of the power block (due to intervening topography, the power block is not visible from this KOP), and 0.8 miles west of the transmission line (Figure 5.15-11a). The foreground-middleground views from KOP-7 are typical of the visual character of the natural landscape of the Mojave Desert with addition of electrical transmission structures. The background view is composed of the mountain ranges to the east and northeast. The visual quality of this view is moderate; there are no striking or distinctive visual patterns in the view. The visual resources do not form a strong, coherent pattern, and the visual integrity in the natural and cultural landscape is moderate. The cultural and natural features in the view form a discordant pattern, and the visual integrity in the natural landscape is moderate to low. The Project would be visible in the foreground-middleground distance zone at this KOP. Because this view would be experienced by a moderate number of recreational viewers (bicyclists, hikers and motorists) in the foreground-middleground distance zone, the level of visual sensitivity is high.

Impacts KOP-7 BLM Road

The simulation of the view of the Project site and facilities from KOP-7 is shown in Figure 5.15-11b; the existing view is shown in Figure 5.15-11a. The view from KOP-7 is elevated as compared to the Project site. In the view from KOP-7, the visible features of the Project would be the solar collectors and transmission line, which would be visible in the foreground-middleground and would present a moderate level of dominance in the view. The neutral color and non-reflective surface of the transmission line structures would reduce their visual contrast with the background and help them to be absorbed into the overall view to a moderate degree.

The effect of the Project on the overall character of the view is expected to be moderate. The presence of existing foreground-middleground transmission structures would help to ameliorate the effects of the Project site. Given the dominating effect of the two existing high-voltage steel lattice transmission lines, the form and meaning (for the public) of a new renewable energy facility that uses surface treatments and finishes (colors, textures, non-reflective surfaces, etc.) to minimize visible change and contrast with the existing site environment, and the BLM Interim VRM Class III management objectives (see AFC Section 5.15.1.1, Federal LORS), the overall impact on visual resources from KOP-7 would be less than significant when the Project is considered in the context of its surroundings.

KOP-8 Railroad Bed Bike Trail (South)

KOP-8 is located approximately 1.4 miles south of the Project site, approximately 2.7 miles south of the power block, and 1.4 miles southeast of the transmission line (Figure 5.15-12a). The foreground-middleground views from KOP-8 are typical of the visual character of the natural landscape of the Mojave Desert with addition of electrical transmission structures. The background view is composed of the valley floor. The visual quality of this view is low; there are no striking or distinctive visual patterns in the view. The visual resources do not form a strong, coherent pattern, and the visual integrity in the natural and human-built landscape is moderate. The Project would be visible in the foreground-middleground distance zone at this KOP. Because this view would be experienced by a moderate number of recreational viewers (bicyclists and hikers) in the foreground-middleground distance zone, the level of visual sensitivity is high.

Impacts KOP-8 Railroad Bed Bike Trail (South)

The simulation of the view of the Project site and facilities from KOP-8 is shown in Figure 5.15-12b; the existing view is shown in Figure 5.15-12a. The view from KOP-8 is elevated as compared to the Project site. In the view from KOP-8, the visible features of the Project would be the transmission line, which would be visible in the foreground-middleground and would present a moderate level of dominance in the

view, and the upper extent of the cooling structures at the power block, which would be visible in the foreground-middleground and background and would present a low level of dominance. The presence of existing foreground and middleground structures would help to ameliorate the effects of the transmission line and plant site features. The neutral color and non-reflective surface of the transmission line structures would reduce their visual contrast with the background and help them to be absorbed into the overall view to a moderate degree.

The effect of the Project on the overall character of the view is expected to be moderate. The presence of existing foreground-middleground structures would help to ameliorate the effects of the transmission line and Project site. Given the dominating effect of the two existing high-voltage steel lattice transmission lines, the form and meaning (for the public) of a new renewable energy facility that uses surface treatments and finishes (colors, textures, non-reflective surfaces, etc.) to minimize visible change and contrast with the existing site environment, and the BLM Interim VRM Class III management objectives (refer to AFC Section 5.15.1.1, Federal LORS), the overall impact on visual resources from KOP-8 would be less than significant when the Project is considered in the context of its surroundings.

KOP-9 Railroad Bed Bike Trail (Southeast)

KOP-9 is located approximately 1.4 miles southeast of the Project site, approximately 2.4 miles southeast of the power block, and 2.4 miles east of the transmission line (Figure 5.15-13a). The foreground-middleground views from KOP-9 are typical of the visual character of the natural landscape of the Mojave Desert with addition of electrical transmission structures and residential development. The background view is composed of the valley floor and distant mountain ranges to the northwest. The visual quality of this view is moderate; there are no striking or distinctive visual patterns in the view. The visual resources do not form a strong, coherent pattern, and the visual integrity in the natural and human-built landscape is moderate. The Project would be visible in the foreground-middleground distance zone at this KOP. Because this view would be experienced by a moderate number of recreational viewers (bicyclists and hikers) in the foreground-middleground distance zone, the level of visual sensitivity is high.

<u>Impacts KOP-9 Railroad Bed Bike Trail (Southeast)</u>

The simulation of the view of the Project site and facilities from KOP-9 is shown in Figure 5.15-13b; the existing view is shown in Figure 5.15-13a. The view from KOP-9 is elevated as compared to the Project site. In the view from KOP-9, the visible features of the Project would be the transmission line, which would be visible in the foreground-middleground and would present a moderate level of dominance in the view, and the upper extent of the cooling structures at the power block, which would be visible in the foreground-middleground and background and would present a low level of dominance. The neutral color and non-reflective surface of the transmission line structures would reduce their visual contrast with the background and help them to be absorbed into the overall view to a moderate degree.

The effect of the Project on the overall character of the view is expected to be moderate. Given the dominating effect of the two existing high-voltage steel lattice transmission lines, the form and meaning (for the public) of a new renewable energy facility that uses surface treatments and finishes (colors, textures, non-reflective surfaces, etc.) to minimize visible change and contrast with the existing site environment, and the BLM Interim VRM Class III management objectives (refer to AFC Section 5.15.1.1, Federal LORS), the overall impact on visual resources from KOP-9 would be less than significant when the Project is considered in the context of its surroundings.

KOP-10 BLM Recreation Area

KOP-10 is located approximately 0.3 miles east of the Project site, approximately 1.1 miles east of the power block, and 1.3 miles east of the transmission line (Figure 5.15-14a). The foreground-middleground views from KOP-10 are typical of the visual character of the natural landscape of the Mojave Desert with

addition of electrical transmission structures. The background view is composed of the valley floor and distant mountain range to the west. The visual quality of this view is moderate; there are no striking or distinctive visual patterns in the view. The visual resources do not form a strong, coherent pattern, and the visual integrity in the natural and human-built landscape is minimal. The cultural and natural features in the view form a discordant pattern, and the visual integrity in the natural landscape is moderate to low. The Project would be visible in the foreground-middleground distance zone at this KOP. Because this view would be experienced by a moderate number of recreational viewers (bicyclists and hikers) in the foreground-middleground distance zone, the level of visual sensitivity is high.

Impacts KOP-10 BLM Recreation Area

The simulation of the view of the Project site and facilities from KOP-10 is shown in Figure 5.15-14b; the existing view is shown in Figure 5.15-14a. The view from KOP-10 is situated among the rock formations within the recreation area and elevated as compared to the Project site. In this foreground-middleground view, the prominent visible features of the Project would be the solar collectors, power block structure and substation. The Project site features would be visible in the foreground-middleground and would present a moderate to high level of dominance in the view. The neutral color and non-reflective surface of the Project structures would reduce their visual contrast with their surroundings and help them to be absorbed into the overall view. Due to their distance and location, the power block would be substantially visible from this KOP. The transmission line structures would also be visible from this distance. The neutral color and non-reflective surface of the transmission line structures would reduce their visual contrast with the background and help them to be absorbed into the overall view to a moderate degree.

The effect of the RSPP on the overall character of the view is expected to be moderate to high. The general level of visual quality of the view from KOP-10 would change moderately. The presence of the Project features would increase moderately the vividness of the view, would have a strong effect on the overall intactness of the view, and would have moderate effect on the visual unity of the composition of the landscape. Given the dominating effect of the two existing high-voltage steel lattice transmission lines, the form and meaning (for the public) of a new sensitively designed renewable energy facility, and the BLM Interim VRM Class III management objectives (refer to AFC Section 5.15.1.1, Federal LORS), the overall impact on visual resources from KOP-10 would be less than significant when the Project is considered in the context of its surroundings.

DR-VIS-232

Information Required:

> Please provide close-up photographs of SCAs of the type proposed for the SM Ridgecrest Project. Please include photographs showing fronts, backs and mounting structures for the SCAs. If SCAs in the photographs differ in detail from those proposed under the SM Ridgecrest Project, please describe the differences.

Response:

Photos of the SCAs of the type proposed for the Project are included as Figures DR-VIS-232-1 and DR-VIS-232-2, provided at the end of this section. They are of the same type of SCAs to be installed on the other California projects; therefore, there are no differences to describe.

DR-VIS-233

Information Required:

Please characterize the maximum potential brightness (luminance) of diffuse and spread reflection from mirrors in candela per square meter.

Response:

The diffuse light and spread reflection coming off the parabolic mirrors from most visible angles during most hours of the day would simply reflect the global irradiation of the sky; clouds would also be visible in these reflections. This leads to a lower intensity of light with respect to the sun itself. The intensity of these reflections would be less than that of the instantaneous global diffuse radiation at the moment of measurement. The diffuse reflections could vary from 200,000 candela per square meter in the morning and afternoon to as much as 700,000 depending on scattering due to cloud patterns. Staring at the diffuse light and spread reflection coming off the parabolic mirrors would be in all cases less intense than staring at the sky away from the sun.

It is possible that the back reflected light or light not absorbed by both the envelope and steel annulus of the Heat Collecting Element (HCE) could be seen in the reflection of the parabolic mirror at certain angles above the horizon (but not visible to someone on the ground. The intensity 11 feet or farther from the front of the vertex of the collector would be fully diverged direct (not diffuse) incident luminance of the sun, but with a worst-case intensity approximately 20 percent less than the direct luminance of the sun. This would be similar to viewing a body of water from the sky.

DR-VIS-234

Information Required:

Please describe the hours in which the mirror surface of a trough could be visible to an off-site viewer on the ground, and the proportion of surface visible in the course of the day.

Response:

At the RSPP, a 30-foot tall wind fence would extend along the entire eastern and western perimeter of the solar field. Consequently, anywhere along the eastern or western border, the wind fence would always block the view of the mirror surface for a person standing off site on the ground. However, a portion of the mirror surface would be visible to an off-site viewer on the ground along the north or south perimeter of the plant. The distance from the collector to a person standing outside the perimeter fence is approximately 30 feet. The collector has an aperture of 22 feet and sits atop a 13-foot pylon.

Depending on where a person is standing and the time of day, different quantities of mirror area would be visible. During daily start up until approximately 9:00 A.M., the majority of the mirror surface would be visible to viewers positioning themselves to see down the length of a row of collectors (i.e., from a location to the north or south of the facility). As the collector continues to track the sun throughout the day, less and less of the mirror surface would be visible. Between 11:00 A.M. to 1:00 P.M., only about 20 percent of the mirror surface would be visible. (The angle of the collector with respect to local time would change throughout the year, these above visibility estimates are for summer months.) As the sun continues to the west, more of the mirror surface would become visible.

DR-VIS-235

Information Required:

Please provide any available anecdotal information on glare effects of the Kramer Junction and existing SEGS projects, including photographs of off-site diffuse or spread glare, and images of the heated HCEs, as seen from public roads/viewpoint.

Response:

Figure DR-VIS-235-1 (at the end of this section), is a photo of the SEGS plants looking at a tracking collector looking from the west side of collector eastward towards the receiver and shows glare that is a result of the spread reflection of the envelope of the HCE tube itself. In the RSPP, a wind fence would be located on the east and west sides of the solar field effectively blocking this view of the collector. The view shown in the Figure DR-VIS-235-2 photo (also at the end of the section), is a viewing angle that would be possible at the Project from public area, i.e. looking north or south down the rows of collectors through the security fence. Spread reflection can be seen from the HCE tubes and metal holders and other metal parts.

The collector that is planned to be utilized for the Project would be much taller with larger mirrors than the collector assemblies depicted in Figures DR-VIS-235-1 and -2, making it difficult to see most of the HCE during the time of the day shown in the photos from the distance between the photo vantage point and the collector. From a greater distance than shown in the two photos, more of the HCE would be visible, but as a viewer moves farther away from the collector, the intensity of any reflections would be diminished.

Additional anecdotal information from an Internet search is provided at the end of this section in Attachment DR-VIS-235.

DR-VIS-236

Information Required:

Please describe whether any portion of the HCEs would be visible to viewers on the ground, either on- or off-site. Please characterize the maximum potential brightness (luminance) of heated HCEs in candela per square meter.

Response:

As with the visibility of the mirror surface or front of the collector discussed in DR-VIS-235, the amount of the HCE tube that is visible to a viewer on the ground changes throughout the day as the collector tilts to follow the sun. The HCE tubes would be most visible during mornings and afternoon to a viewer looking down the length of a row of solar collectors, while during the hours approaching, at and directly after solar noon, only the ends of the tubes would be visible from the ground off or on site. (Again, visibility also would vary according to the time of year.)

The metal annulus of the HCE does not glow when heated. Rather, reflections from and illumination within the glass envelope surrounding the annulus makes the HCE appear like it is glowing. Most of the reflection off the HCE is directed toward the mirror surface, shielding most of the reflection from a viewer on the ground. It is possible for an on-site viewer to get close enough to the collector to experience the

reflection at the end of the collector. From such a proximate location, one could theoretically be exposed to a maximum back reflectance of HCE envelope. This worst-case intensity could be 93 percent of the sun's direct incidence radiation concentrated with respect to the HCE envelope (42 times) and not transmitted through the envelope (four percent). During highest radiation levels, around 1,200 watts per square meter, this would lead to a back reflectance of 1,875 watts per square meter, or 1.28 million candela per square meter. While this is deemed not eye-damaging, maintenance workers and visitors to the site who plan to be this close to the the HCE would be required to wear polarized sunglasses.

Viewers standing outside the perimeter fence (at least 30 feet away) could only be exposed to a maximum of one-tenth this luminance, when uniform diffuse scatter is assumed at this distance.

DR-VIS-237

Information Required:

> Please explain whether any portion of the directly reflected solar radiation could pass by the HCEs (the steel tube annulus) due to the total divergence factor of the reflectors. If so, how much? Is this amount sufficient to cause any potential retinal damage or flash blindness? Are there measures that would prevent such inadvertent off-site reflection (such as shielding of the HCEs, etc.)?

Response:

During morning and evening movement of the collector from the stow position to the tracking position, it is possible that some amount of sunlight would diverge from the collector focal point to a point farther in the distance. This divergence also could occur in the event the drive pylon of the collector tracking system malfunctions, essentially freezing in one place as the sun passes over it. This event is unlikely because the collectors would be specifically maintained to avoid any such malfunction. During operation, a constant supervisory system indicates to the operator if a collector is not tracking properly. Depending on the time of day and time of year and the distance from the face of the collector, the level of the divergence or the intensity of luminance can vary greatly.

It has been calculated in previous CEC submittals[1] that beam intensity reaches levels which pose a threat of retinal damage within distances of 100 feet of a collector facing east or west, i.e. the only time at which an observer from the ground could possibly see a divergent beam and very low sun angles. At the RSPP Project, a 30-foot tall wind fence would be erected along the east and west perimeter of the solar field, approximately 70 feet from the collector. The wind fence effectively would act as large privacy fence, blocking the view into the field and attenuating any direct beam light intensity far below safe levels coming from outer most collectors. Moreover, the movement from tracking to stow and vice-versa would move any diverged beam quickly out of view.

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1. San Joaquin Solar 1 & 2 – Application for Certification Volume 2, Appendix L, "Glint and Glare Study," http://www.energy.ca.gov/sitingcases/sjsolar/documents/applicant/afc/AFC_volume_02/

DR-VIS-238

Information Required:

Please clarify what information is supposed to be presented on page 5.15-19 and whether or not any information has been inadvertently omitted.

Response:

Paragraphs were inadvertently omitted from the document. The text preceding the information presented on page 5.15-19 states:

Vapor Plume Analysis

The Project's main cooling load for the turbine generator steam cycle would be provided by a 120-foot tall air-cooled condenser (dry cooled) and is a not potential source of visible water vapor plumes. There would be a 32-foot tall ancillary equipment wet cooling tower which might, under some weather conditions, produce only minor visible water vapor plumes. Accordingly, no analysis was performed to estimate the potential size and frequency of visible plume formation during daylight hours.

Evaluation Against Significance Criteria

Project impacts were evaluated in terms of four questions (CEQA Guidelines, Appendix G), each of which is presented below along with a response:

1) Would the project have a substantial adverse effect on a scenic vista?

   Possibly. According to the BLM Interim VRM Class III management objectives, the Project's contribution to visual resources might be considered significant. The Project would be an industrial facility in a lightly populated area and there would be a substantial change to the view for residents and visitors.

2) Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?

   No. There are no scenic resources in the Project site.

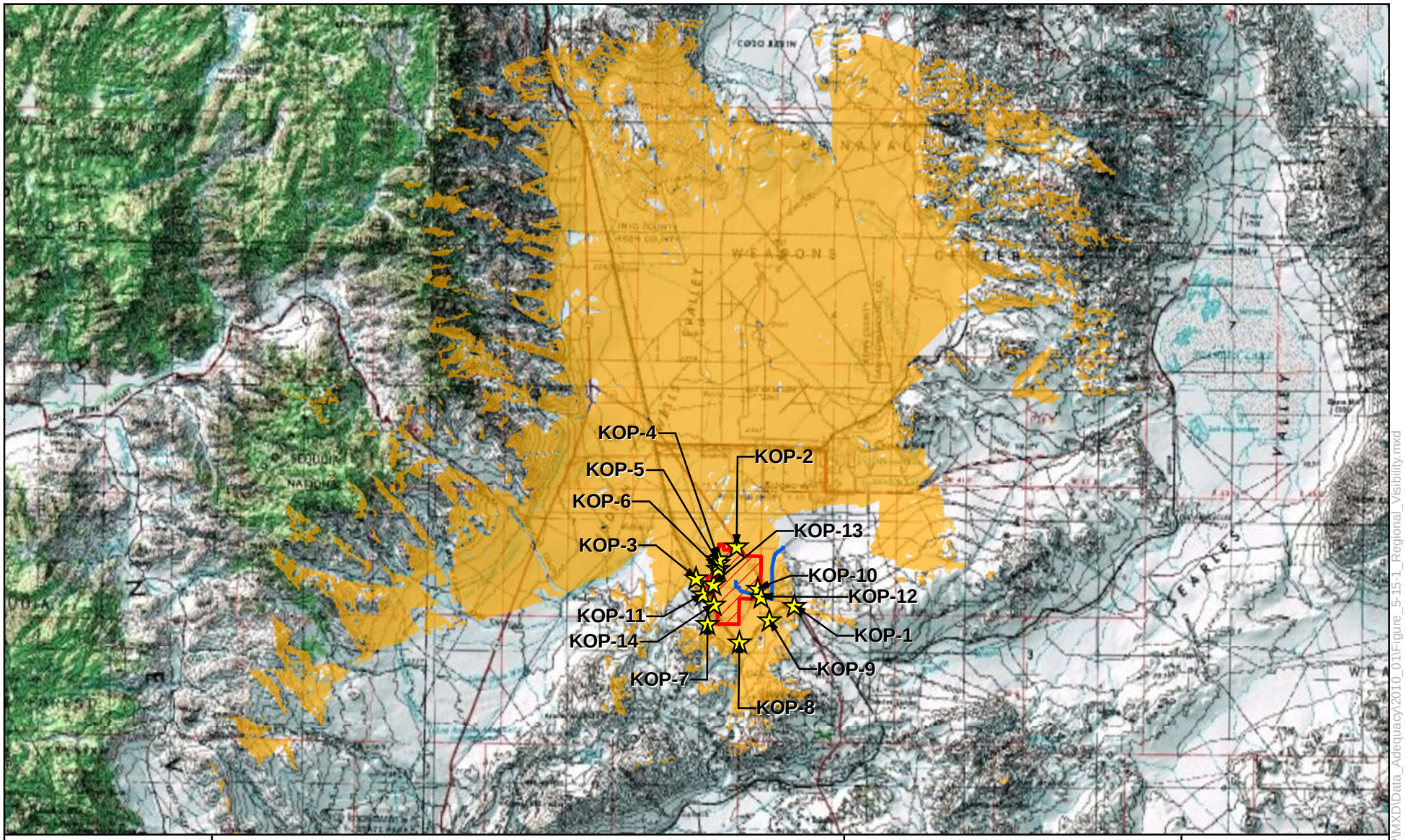
3) Would the project substantially degrade the existing visual character or quality of the site and its surroundings?

   No. The Project site is not in a designated area of natural beauty or scenic recreational area. However, visual resources of the surrounding valley and mountain environment are substantial and overall views would be degraded to a degree. The presence of the Project facilities would create a strong to moderate contrasting change in the visual quality of the overall landscape which could conflict with BLM Interim VRM Class III management objective.

Attachment

Revised and New Figures, KOPs and Simulations

DR-VIS-215:	Revised Figure 5.15-1	Regional Visibility of the Plant Site
DR-VIS-216:	Revised Figure 5.15-2	Project Site and Key Observation Points
DR-VIS-223:	Figure DR-VIS-223-1	Framing of the Wind Fence Prior to Installation of the Horizontal Steel Ropes and Wire Mesh
	Figure DR-VIS-223-2	Close-up of Wind Fence
	Figure DR-VIS-223-3	Diagram of Wind Fence
DR-VIS-226:	Figure DR-VIS-226	Wind Fences
DR-VIS-231:	Revised Figures 5.15-5a through 5.15-18b and Figure 2-3b	
DR-VIS-232:	Figure DR-VIS-232-1	Same SCA to be Installed (View from Front)
	Figure DR-VIS-232-2	Same SCA to be Installed (View from Below)
DR-VIS-235:	Figure DR-VIS-235-1	Same HCE Glare, view from area outside perimeter fence, looking east
	Figure DR-VIS-233-2	HCE Glare, view from area outside perimeter fence, looking northwest



Map Location

Legend

- Project Right-of-Way
- Water Line
- Project Visible

1 inch equals 6.5 miles

0 3.25 6.5 13 Miles

Ridgecrest Solar Power Project
Figure 5.15-1
Regional Visibility of the Plant Site

Solar Millennium

AECOM

Date: January 2010

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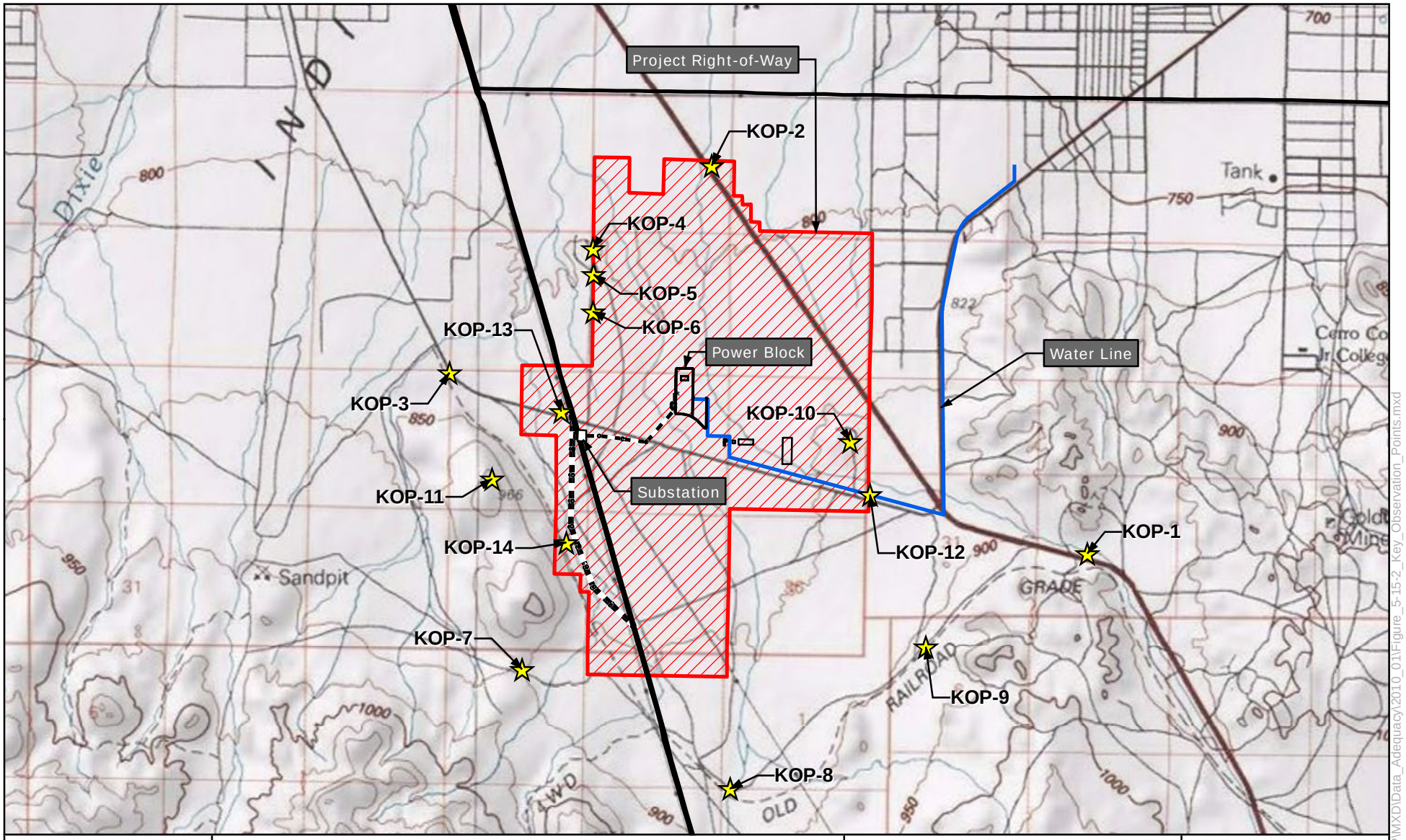

Map Location

Legend

- Key Observation Points
- Project Right-of-Way
- Water Line
- Existing Transmission Lines
- Proposed Transmission Lines

1 inch equals 1 miles 0 0.5 1 2 Mile

Ridgecrest Solar Power Project
Figure 5.15-2
Project Site and
Key Observation Points

Solar Millennium

AECOM

Date: January 2010

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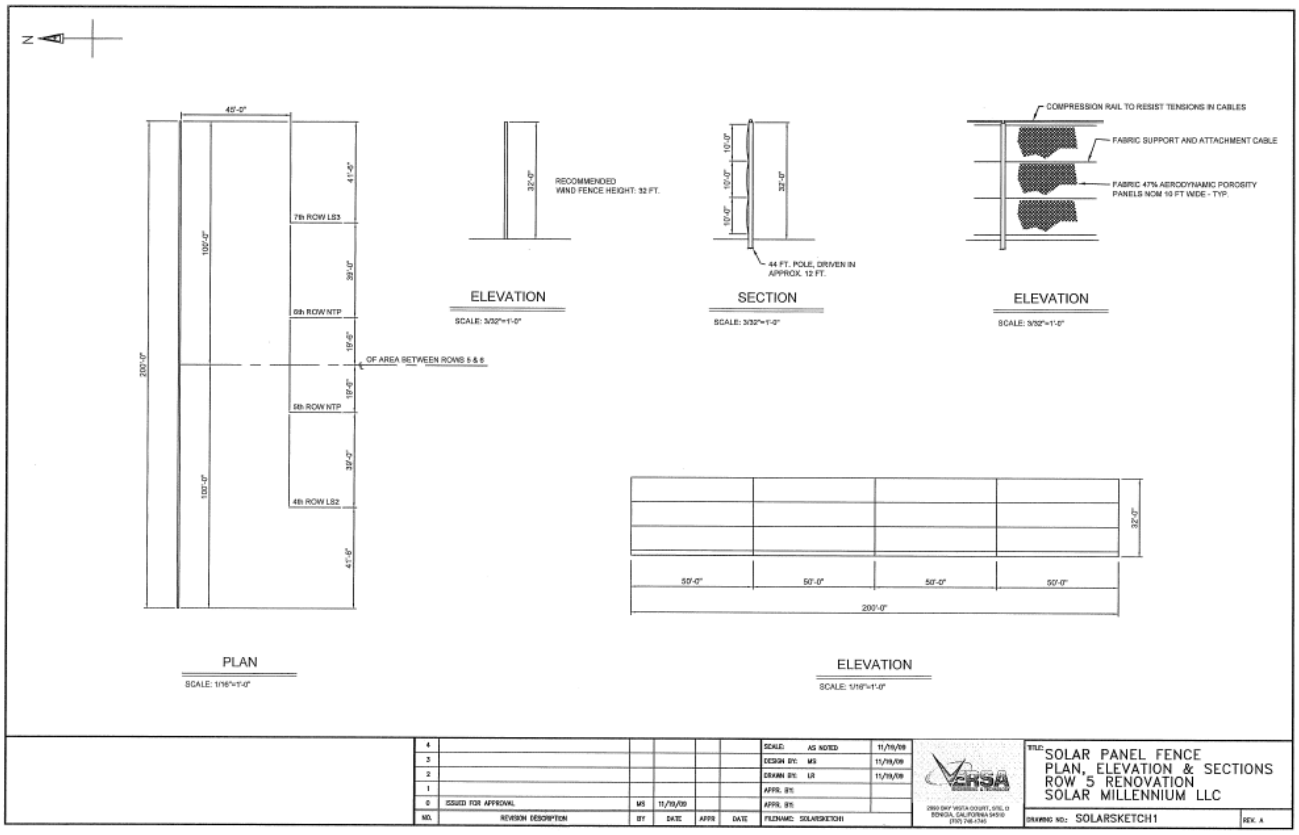
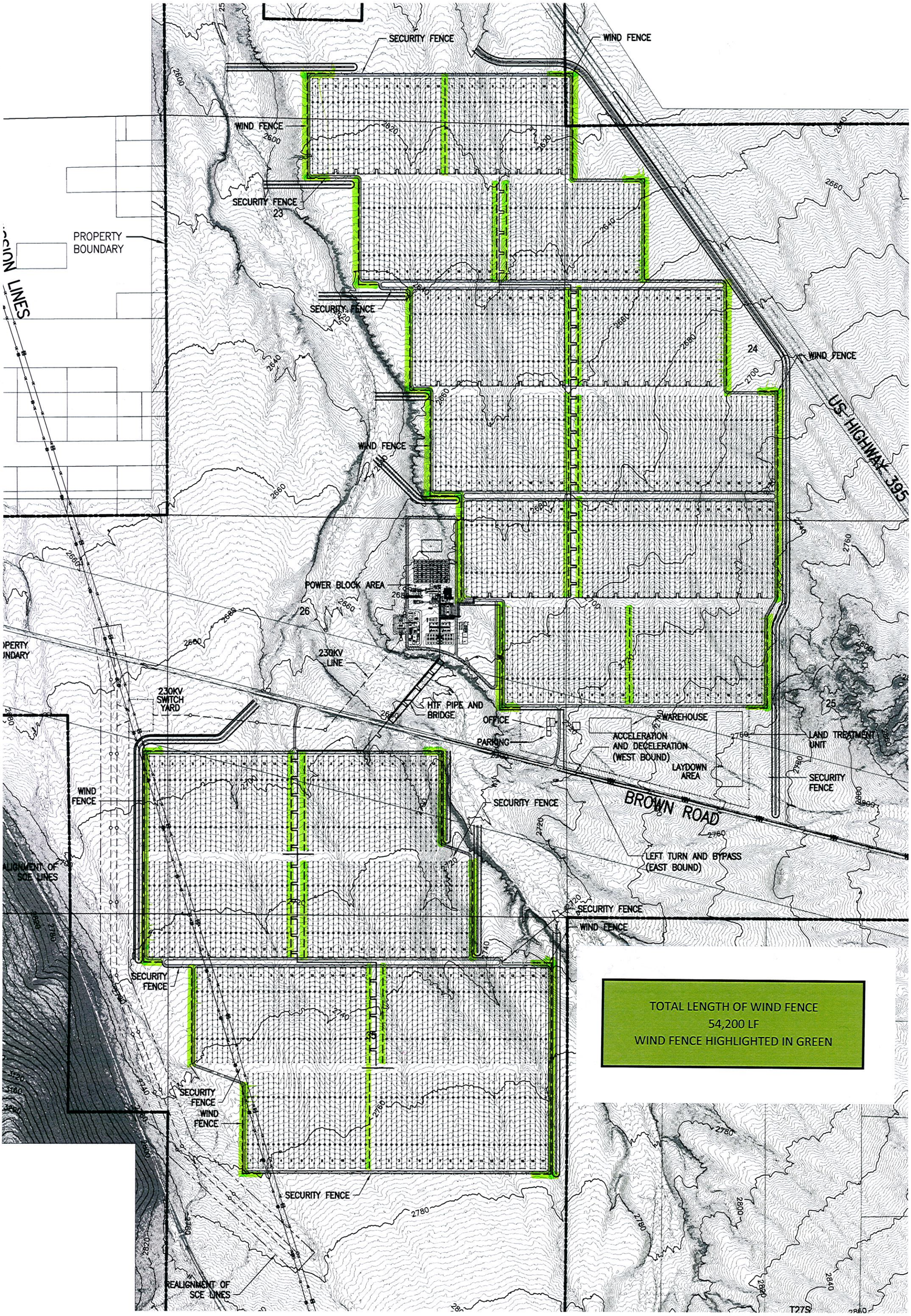
Figure DR-VIS-223-1
Framing of the Wind Fence Prior to Installation of the Horizontal Steel Ropes and Wire Mesh

Figure DR-VIS-223-2
Close-up of Wind Fence

Figure DR-VIS-223-3
Diagram of Wind Fence





TOTAL LENGTH OF WIND FENCE
54,200 LF
WIND FENCE HIGHLIGHTED IN GREEN

Figure 5.15-5a – View from KOP-1 U.S. Highway 395 Northbound of RSPP Site-Existing Condition

Figure 5.15-5b – View from KOP-1 U.S. Highway 395 Northbound of RSPP Site-Simulated Condition

Figure 5.15-6a – View from KOP-2 U.S. Highway 395 Southbound of RSPP Site-Existing Condition

Figure 5.15-6b – View from KOP-2 U.S. Highway 395 Southbound of RSPP Site-Simulated Condition

Figure 5.15-7a – View from KOP-3 Brown Road of RSPP Site-Existing Condition

Figure 5.15-7b – View from KOP-3 Brown Road of RSPP Site-Simulated Condition

Figure 5.15-8a – View from KOP-4 Northern Residence on Calvert Blvd of RSPP Site-Existing Condition

Figure 5.15-8b – View from KOP-4 Northern Residence on Calvert Blvd of RSPP Site-Simulated Condition

Figure 5.15-9a – View from KOP-5 Middle Residence on Calvert Blvd of RSPP Site-Existing Condition

Figure 5.15-9b – View from KOP-5 Middle Residence on Calvert Blvd of RSPP Site-Simulated Condition

Figure 5.15-10a – View from KOP-6 Residence on Clone Avenue of RSPP Site-Existing Condition

Figure 5.15-10b – View from KOP-6 Residence on Clone Avenue of RSPP Site-Simulated Condition

Figure 5.15-11a – View from KOP-7 BLM Recreation Road of RSPP Site-Existing Condition

Figure 5.15-11b – View from KOP-7 BLM Recreation Road of RSPP Site-Simulated Condition

Figure 5.15-12a – View from KOP-8 Railroad Bed Bike Trail (South) of RSPP Site-Existing Condition

Figure 5.15-12b – View from KOP-8 Railroad Bed Bike Trail (South) of RSPP Site-Simulated Condition

Figure 5.15-13a – View from KOP-9 Railroad Bed Bike Trail (Southeast) of RSPP Site-Existing Condition

Figure 5.15-13b – View from KOP-9 Railroad Bed Bike Trail (Southeast) of RSPP Site-Simulated Condition

Figure 5.15-14a – View from KOP-10 BLM Recreation Area of RSPP Site-Existing Condition

Figure 5.15-14b – View from KOP-10 BLM Recreation Area of RSPP Site-Simulated Condition

Figure 5.15-15a – View from KOP-11 BLM Ridgeline (West) of RSPP Site-Existing Condition

Figure 5.15-15b – View from KOP-11 BLM Ridgeline (West) of RSPP Site-Simulated Condition

Figure 5.15-16a – View from KOP-12 Brown Road Westbound of RSPP Site-Existing Condition

Figure 5.15-16b – View from KOP-12 Brown Road Westbound of RSPP Site-Simulated Condition

Figure 5.15-17a – View from KOP-13 Brown Road Eastbound of RSPP Site-Existing Condition

Figure 5.15-17b – View from KOP-13 Brown Road Eastbound of RSPP Site-Simulated Condition

Figure 5.15-18a – View from KOP-14 Railroad Bed Bike Trail (West) of RSPP Site-Existing Condition

Figure 5.15-18b – View from KOP-14 Railroad Bed Bike Trail (West) of RSPP Site-Simulated Condition

Figure DR-VIS-232-1
Same SCA to be Installed (View from Front)

Figure DR-VIS-232-2
Same SCA to be Installed (View from Below)

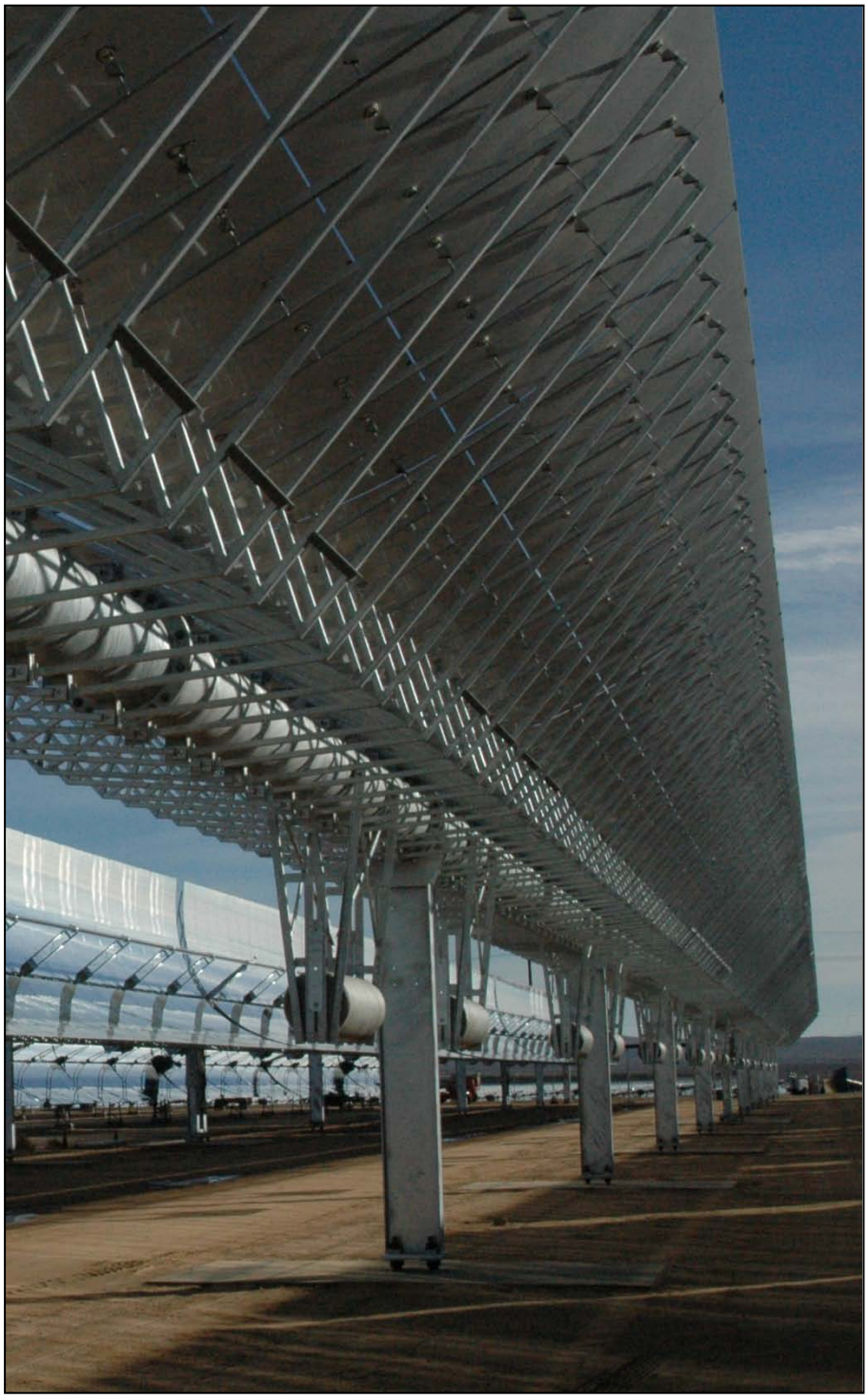


Figure DR-VIS-235-1
HCE Glare, view from area outside perimeter fence, looking east

Figure DR-VIS-235-2
HCE Glare, view from area outside perimeter fence, looking northwest

Attachment

Contrast Rating Forms

Form 8400-4
(September 1985)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date	01/14/2010
District	Ridgecrest
Resource Area	
Activity (program)	Solar arrays, power block transmission lines, roads

SECTION A. PROJECT INFORMATION

1. Project Name	Ridgecrest Solar Power Project	4. Location	5. Location
2. Key Observation Point	KOP#1	Township 27 S Range 39 E Section Multiple	See Figure 5.15-2
3. VRM Class	Class III		

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Flat valley floor, steep-sided, rounded and pyramidal mountain backdrops	Irregular organic mosaics of shrubs and complex irregular patterns of woodland scrub trees and shrubs	Strong planar highway
LINE	Complex horizontal, inclined, angular mix of valley and mountains	Horizontal, curvilinear, inclined angular	Horizontal and vertical
COLOR	Light tans to dark, reddish browns	Light golds and tans to reddish browns and light sage greens	Dark grays, whites and light tans
TEX-TURE	Moderate to fine valley patterns, moderate mountain mosaics	Fine to moderate shrub patterns, moderate scrub shrubs	Fine, smooth

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Graded planar, horizontal	Removed	Planar solar arrays, cubed structures and rectangular t-lines
LINE	Graded horizontal	Removed	Horizontal solar arrays and vertical structures and t-lines
COLOR	Light tans to dark, reddish browns and blacks	Removed	Black wind fences, blue to grey solar arrays, Colvert Green structures and galvanized grey utilities
TEX-TURE	Smooth surfaces	Removed	Smooth arrays, and structures

SECTION D. CONTRAST RATING ☐ SHORT TERM ☒ LONG TERM

1. DEGREE OF CONTRAST

	FEATURES											
	LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None
ELEMENTS: Form	x				x				x			
Line		x			x				x			
Color		x			x				x			
Texture		x			x				x			

2. Does project design meet visual resource management objectives? ☐ Yes ☒ No (Explain on reverse side)

3. Additional mitigating measures recommended ☒ Yes ☐ No (Explain on reverse side)

Evaluator's Names	Date
Merlyn Paulson	01/14/10

Form 8400-4
(September 1985)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date	01/14/2010
District	Ridgecrest
Resource Area	
Activity (program)	Solar arrays, power block transmission lines, roads

SECTION A. PROJECT INFORMATION

1. Project Name	Ridgecrest Solar Power Project	4. Location	5. Location
2. Key Observation Point	KOP#2	Township 27 S Range 39 E Section Multiple	See Figure 5.15-2
3. VRM Class	Class III		

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Flat valley floor, rounded ridges, steep-sided and pyramidal mountain backdrops	Irregular organic mosaics of shrubs and complex irregular patterns of woodland scrub trees and shrubs	Scattered cubes and rectangular blocks
LINE	Complex horizontal, inclined, angular mix of valley and mountains	Horizontal, curvilinear, inclined angular	Horizontal and vertical
COLOR	Light tans to dark, reddish browns	Light golds and tans to reddish browns and light sage greens	Whites and light tans
TEX-TURE	Moderate valley floor, moderate mountain mosaics	Fine to moderate shrub patterns, moderate scrub shrubs	Fine, smooth

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Graded planar, horizontal	Removed	Planar solar arrays, cubed structures and rectangular t-lines
LINE	Graded horizontal	Removed	Horizontal solar arrays and vertical structures and t-lines
COLOR	Light tans to dark, reddish browns and blacks	Removed	Black wind fences, blue to grey solar arrays, Colvert Green structures and galvanized grey utilities
TEX-TURE	Smooth surfaces	Removed	Smooth arrays, and structures

SECTION D. CONTRAST RATING ☐ SHORT TERM ☒ LONG TERM

1. DEGREE OF CONTRAST

		FEATURES											
		LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
		Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None
ELEMENTS	Form	x					x			x			
	Line		x				x				x		
	Color			x			x			x			
	Texture			x			x				x		

2. Does project design meet visual resource management objectives? ☐ Yes ☒ No (Explain on reverse side)

3. Additional mitigating measures recommended ☒ Yes ☐ No (Explain on reverse side)

Evaluator's Names	Date
Merlyn Paulson	01/14/10

Form 8400-4
(September 1985)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date	01/14/2010
District	Ridgecrest
Resource Area	
Activity (program)	Solar arrays, power block transmission lines, roads

SECTION A. PROJECT INFORMATION

1. Project Name	Ridgecrest Solar Power Project	4. Location	5. Location
2. Key Observation Point	KOP#3	Township 27 S Range 39 E Section Multiple	See Figure 5.15-2
3. VRM Class	Class III		

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Flat valley floor, steep-sided, rounded and pyramidal mountain backdrops	Irregular organic mosaics of shrubs and complex irregular patterns of woodland scrub trees and shrubs	Strong planar highway
LINE	Complex horizontal, inclined, angular mix of valley and mountains	Horizontal, curvilinear, inclined angular	Horizontal and vertical
COLOR	Light tans to dark, reddish browns	Light golds and tans to reddish browns and light sage greens	Dark grays, whites and light tans
TEX-TURE	Moderate to fine valley patterns, moderate mountain mosaics	Fine to moderate shrub patterns, moderate scrub shrubs	Fine, smooth

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Graded planar, horizontal	Removed	Planar solar arrays, cubed structures and rectangular t-lines
LINE	Graded horizontal	Removed	Horizontal solar arrays and vertical structures and t-lines
COLOR	Light tans to dark, reddish browns and blacks	Removed	Black wind fences, blue to grey solar arrays, Colvert Green structures and galvanized grey utilities
TEX-TURE	Smooth surfaces	Removed	Smooth arrays, and structures

SECTION D. CONTRAST RATING ☐ SHORT TERM ☒ LONG TERM

1. DEGREE OF CONTRAST

		FEATURES											
		LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
		Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None
ELEMENTS	Form	x				x				x			
	Line		x			x				x			
	Color	x				x				x			
	Texture		x			x				x			

2. Does project design meet visual resource management objectives? ☐ Yes ☒ No (Explain on reverse side)

3. Additional mitigating measures recommended ☒ Yes ☐ No (Explain on reverse side)

Evaluator's Names	Date
Merlyn Paulson	01/14/10

Form 8400-4
(September 1985)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date	01/15/2010
District	Ridgecrest
Resource Area	
Activity (program)	Solar arrays, power block transmission lines, roads

SECTION A. PROJECT INFORMATION

1. Project Name	Ridgecrest Solar Power Project	4. Location	5. Location
2. Key Observation Point	KOP#4	Township 27 S Range 39 E Section Multiple	See Figure 5.15-2
3. VRM Class	Class III		

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Flat valley floor, steep-sided, rounded and pyramidal mountain backdrops	Irregular organic mosaics of shrubs and complex irregular patterns of woodland scrub trees and shrubs	Strong planar highway
LINE	Complex horizontal, inclined, angular mix of valley and mountains	Horizontal, curvilinear, inclined angular	Horizontal and vertical
COLOR	Light tans to dark, reddish browns	Light golds and tans to reddish browns and light sage greens	Dark grays, whites and light tans
TEX-TURE	Moderate to fine valley patterns, moderate mountain mosaics	Fine to moderate shrub patterns, moderate scrub shrubs	Fine, smooth

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Graded planar, horizontal	Removed	Planar solar arrays, cubed structures and rectangular t-lines
LINE	Graded horizontal	Removed	Horizontal solar arrays and vertical structures and t-lines
COLOR	Light tans to dark, reddish browns and blacks	Removed	Black wind fences, blue to grey solar arrays, Colvert Green structures and galvanized grey utilities
TEX-TURE	Smooth surfaces	Removed	Smooth arrays, and structures

SECTION D. CONTRAST RATING ☐ SHORT TERM ☒ LONG TERM

1. DEGREE OF CONTRAST

		FEATURES											
		LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
		Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None
ELEMENTS	Form	x				x				x			
	Line		x			x				x			
	Color	x				x				x			
	Texture		x			x				x			

2. Does project design meet visual resource management objectives? ☐ Yes ☒ No (Explain on reverse side)

3. Additional mitigating measures recommended ☒ Yes ☐ No (Explain on reverse side)

Evaluator's Names	Date
Merlyn Paulson	01/15/10

Form 8400-4
(September 1985)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date	01/15/2010
District	Ridgecrest
Resource Area	
Activity (program)	Solar arrays, power block transmission lines, roads

SECTION A. PROJECT INFORMATION

1. Project Name	Ridgecrest Solar Power Project	4. Location	5. Location
2. Key Observation Point	KOP#5	Township 27 S Range 39 E Section Multiple	See Figure 5.15-2
3. VRM Class	Class III		

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Flat valley floor, steep-sided, rounded and pyramidal mountain backdrops	Irregular organic mosaics of shrubs and complex irregular patterns of woodland scrub trees and shrubs	Strong planar highway
LINE	Complex horizontal, inclined, angular mix of valley and mountains	Horizontal, curvilinear, inclined angular	Horizontal and vertical
COLOR	Light tans to dark, reddish browns	Light golds and tans to reddish browns and light sage greens	Dark grays, whites and light tans
TEX-TURE	Moderate to fine valley patterns, moderate mountain mosaics	Fine to moderate shrub patterns, moderate scrub shrubs	Fine, smooth

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Graded planar, horizontal	Removed	Planar solar arrays, cubed structures and rectangular t-lines
LINE	Graded horizontal	Removed	Horizontal solar arrays and vertical structures and t-lines
COLOR	Light tans to dark, reddish browns and blacks	Removed	Black wind fences, blue to grey solar arrays, Colvert Green structures and galvanized grey utilities
TEX-TURE	Smooth surfaces	Removed	Smooth arrays, and structures

SECTION D. CONTRAST RATING ☐ SHORT TERM ☒ LONG TERM

1. DEGREE OF CONTRAST

		FEATURES											
		LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
		Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None
ELEMENTS	Form	x				x				x			
	Line		x			x				x			
	Color	x				x				x			
	Texture		x			x				x			

2. Does project design meet visual resource management objectives? ☐ Yes ☒ No (Explain on reverse side)

3. Additional mitigating measures recommended ☒ Yes ☐ No (Explain on reverse side)

Evaluator's Names	Date
Merlyn Paulson	01/15/10

Form 8400-4
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UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date	01/15/2010
District	Ridgecrest
Resource Area	
Activity (program)	Solar arrays, power block transmission lines, roads

SECTION A. PROJECT INFORMATION

1. Project Name	Ridgecrest Solar Power Project	4. Location	5. Location
2. Key Observation Point	KOP#6	Township 27 S Range 39 E Section Multiple	See Figure 5.15-2
3. VRM Class	Class III		

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Flat valley floor, steep-sided, rounded and pyramidal mountain backdrops	Irregular organic mosaics of shrubs and complex irregular patterns of woodland scrub trees and shrubs	Strong planar highway
LINE	Complex horizontal, inclined, angular mix of valley and mountains	Horizontal, curvilinear, inclined angular	Horizontal and vertical
COLOR	Light tans to dark, reddish browns	Light golds and tans to reddish browns and light sage greens	Dark grays, whites and light tans
TEX-TURE	Moderate to fine valley patterns, moderate mountain mosaics	Fine to moderate shrub patterns, moderate scrub shrubs	Fine, smooth

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Graded planar, horizontal	Removed	Planar solar arrays, cubed structures and rectangular t-lines
LINE	Graded horizontal	Removed	Horizontal solar arrays and vertical structures and t-lines
COLOR	Light tans to dark, reddish browns and blacks	Removed	Black wind fences, blue to grey solar arrays, Colvert Green structures and galvanized grey utilities
TEX-TURE	Smooth surfaces	Removed	Smooth arrays, and structures

SECTION D. CONTRAST RATING ☐ SHORT TERM ☒ LONG TERM

1. DEGREE OF CONTRAST

		FEATURES											
		LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
		Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None
ELEMENTS	Form	x				x				x			
	Line		x			x				x			
	Color	x				x				x			
	Texture		x			x				x			

2. Does project design meet visual resource management objectives? ☐ Yes ☒ No (Explain on reverse side)

3. Additional mitigating measures recommended ☒ Yes ☐ No (Explain on reverse side)

Evaluator's Names	Date
Merlyn Paulson	01/15/10

Form 8400-4
(September 1985)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date	01/15/2010
District	Ridgecrest
Resource Area	
Activity (program)	Solar arrays, power block transmission lines, roads

SECTION A. PROJECT INFORMATION

1. Project Name	Ridgecrest Solar Power Project	4. Location	5. Location
2. Key Observation Point	KOP#7	Township 27 S Range 39 E Section Multiple	See Figure 5.15-2
3. VRM Class	Class III		

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Flat valley floor, rounded ridges, steep-sided and pyramidal mountain backdrops	Irregular organic mosaics of shrubs and complex irregular patterns of woodland scrub trees and shrubs	Scattered cubes and rectangular blocks
LINE	Complex horizontal, inclined, angular mix of valley and mountains	Horizontal, curvilinear, inclined angular	Horizontal and vertical
COLOR	Light tans to dark, reddish browns	Light golds and tans to reddish browns and light sage greens	Whites and light tans
TEX-TURE	Moderate valley floor, moderate mountain mosaics	Fine to moderate shrub patterns, moderate scrub shrubs	Fine, smooth

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Graded planar, horizontal	Removed	Planar solar arrays and rectangular t-lines
LINE	Graded horizontal	Removed	Horizontal solar arrays and vertical structures and t-lines
COLOR	Light tans to dark, reddish browns and blacks	Removed	Black wind fences, blue to grey solar arrays and galvanized grey utilities
TEX-TURE	Smooth surfaces	Removed	Smooth arrays, and structures

SECTION D. CONTRAST RATING ☐ SHORT TERM ☒ LONG TERM

1. DEGREE OF CONTRAST

ELEMENTS	FEATURES: LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None
Form	x				x				x			
Line		x			x				x			
Color			x		x				x			
Texture			x		x				x			

2. Does project design meet visual resource management objectives? ☐ Yes ☒ No (Explain on reverse side)

3. Additional mitigating measures recommended ☒ Yes ☐ No (Explain on reverse side)

Evaluator's Names	Date
Merlyn Paulson	01/15/10

Form 8400-4
(September 1985)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date	01/15/2010
District	Ridgecrest
Resource Area	
Activity (program)	Solar arrays, power block transmission lines, roads

SECTION A. PROJECT INFORMATION

1. Project Name	Ridgecrest Solar Power Project	4. Location	5. Location
2. Key Observation Point	KOP#8	Township 27S Range 39E Section Multiple	See Figure 5.15-2
3. VRM Class	Class III		

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Flat valley floor, rounded ridges, steep-sided and pyramidal mountain backdrops	Irregular organic mosaics of shrubs and complex irregular patterns of woodland scrub trees and shrubs	Scattered cubes and rectangular blocks
LINE	Complex horizontal, inclined, angular mix of valley and mountains	Horizontal, curvilinear, inclined angular	Horizontal and vertical
COLOR	Light tans to dark, reddish browns	Light golds and tans to reddish browns and light sage greens	Whites and light tans
TEX-TURE	Moderate valley floor, moderate mountain mosaics	Fine to moderate shrub patterns, moderate scrub shrubs	Fine, smooth

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Graded planar, horizontal	Removed	Planar solar arrays, cubed structures and rectangular t-lines
LINE	Graded horizontal	Removed	Horizontal solar arrays and vertical structures and t-lines
COLOR	Light tans to dark, reddish browns and blacks	Removed	Black wind fences, blue to grey solar arrays, Colvert Green structures and galvanized grey utilities
TEX-TURE	Smooth surfaces	Removed	Smooth arrays, and structures

SECTION D. CONTRAST RATING ☐ SHORT TERM ☒ LONG TERM

1. DEGREE OF CONTRAST

	FEATURES											
	LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None
ELEMENTS: Form	x				x				x			
Line		x			x				x			
Color	x				x				x			
Texture		x			x				x			

2. Does project design meet visual resource management objectives? ☐ Yes ☒ No (Explain on reverse side)

3. Additional mitigating measures recommended ☒ Yes ☐ No (Explain on reverse side)

Evaluator's Names	Date
Merlyn Paulson	01/15/10

Form 8400-4
(September 1985)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date	01/15/2010
District	Ridgecrest
Resource Area	
Activity (program)	Solar arrays, power block transmission lines, roads

SECTION A. PROJECT INFORMATION

1. Project Name	Ridgecrest Solar Power Project	4. Location	5. Location
2. Key Observation Point	KOP#9	Township 27 S Range 39 E Section Multiple	See Figure 5.15-2
3. VRM Class	Class III		

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Flat valley floor, rounded ridges, steep-sided and pyramidal mountain backdrops	Irregular organic mosaics of shrubs and complex irregular patterns of woodland scrub trees and shrubs	Scattered cubes and rectangular blocks
LINE	Complex horizontal, inclined, angular mix of valley and mountains	Horizontal, curvilinear, inclined angular	Horizontal and vertical
COLOR	Light tans to dark, reddish browns	Light golds and tans to reddish browns and light sage greens	Whites and light tans
TEX-TURE	Moderate valley floor, moderate mountain mosaics	Fine to moderate shrub patterns, moderate scrub shrubs	Fine, smooth

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Graded planar, horizontal	Removed	Planar solar arrays, cubed structures and rectangular t-lines
LINE	Graded horizontal	Removed	Horizontal solar arrays and vertical structures and t-lines
COLOR	Light tans to dark, reddish browns and blacks	Removed	Black wind fences, blue to grey solar arrays, Colvert Green structures and galvanized grey utilities
TEX-TURE	Smooth surfaces	Removed	Smooth arrays, and structures

SECTION D. CONTRAST RATING ☐ SHORT TERM ☒ LONG TERM

1. DEGREE OF CONTRAST

	FEATURES											
	LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None
ELEMENTS: Form	x				x				x			
Line		x			x				x			
Color	x				x				x			
Texture		x			x				x			

2. Does project design meet visual resource management objectives? ☐ Yes ☒ No (Explain on reverse side)

3. Additional mitigating measures recommended ☒ Yes ☐ No (Explain on reverse side)

Evaluator's Names	Date
Merlyn Paulson	01/15/10

Form 8400-4
(September 1985)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date	01/15/2010
District	Ridgecrest
Resource Area	
Activity (program)	Solar arrays, power block transmission lines, roads

SECTION A. PROJECT INFORMATION

1. Project Name	Ridgecrest Solar Power Project	4. Location	5. Location
2. Key Observation Point	KOP#10	Township 27 S Range 39 E Section Multiple	See Figure 5.15-2
3. VRM Class	Class III		

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Flat valley floor, rounded ridges, steep-sided and pyramidal mountain backdrops	Irregular organic mosaics of shrubs and complex irregular patterns of woodland scrub trees and shrubs	Scattered cubes and rectangular blocks
LINE	Complex horizontal, inclined, angular mix of valley and mountains	Horizontal, curvilinear, inclined angular	Horizontal and vertical
COLOR	Light tans to dark, reddish browns	Light golds and tans to reddish browns and light sage greens	Whites and light tans
TEX-TURE	Moderate valley floor, moderate mountain mosaics	Fine to moderate shrub patterns, moderate scrub shrubs	Fine, smooth

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Graded planar, horizontal	Removed	Planar solar arrays, cubed structures and rectangular t-lines
LINE	Graded horizontal	Removed	Horizontal solar arrays and vertical structures and t-lines
COLOR	Light tans to dark, reddish browns and blacks	Removed	Blue to crey solar arrays, light tan structures and t-lines
TEX-TURE	Smooth surfaces	Removed	Smooth arrays, and structures

SECTION D. CONTRAST RATING ☐ SHORT TERM ☒ LONG TERM

1. DEGREE OF CONTRAST

	FEATURES											
	LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None
ELEMENTS: Form	x				x				x			
Line	x				x				x			
Color	x				x				x			
Texture	x				x				x			

2. Does project design meet visual resource management objectives? ☐ Yes ☒ No (Explain on reverse side)

3. Additional mitigating measures recommended ☒ Yes ☐ No (Explain on reverse side)

Evaluator's Names	Date
Merlyn Paulson	01/15/10

Form 8400-4
(September 1985)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date	01/15/2010
District	Ridgecrest
Resource Area	
Activity (program)	Solar arrays, power block transmission lines, roads

SECTION A. PROJECT INFORMATION

1. Project Name	Ridgecrest Solar Power Project	4. Location	5. Location
2. Key Observation Point	KOP#11	Township 27 S Range 39 E Section Multiple	See Figure 5.15-2
3. VRM Class	Class III		

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Flat valley floor, rounded ridges, steep-sided and pyramidal mountain backdrops	Irregular organic mosaics of shrubs and complex irregular patterns of woodland scrub trees and shrubs	Scattered cubes and rectangular blocks
LINE	Complex horizontal, inclined, angular mix of valley and mountains	Horizontal, curvilinear, inclined angular	Horizontal and vertical
COLOR	Light tans to dark, reddish browns	Light golds and tans to reddish browns and light sage greens	Whites and light tans
TEX-TURE	Moderate valley floor, moderate mountain mosaics	Fine to moderate shrub patterns, moderate scrub shrubs	Fine, smooth

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Graded planar, horizontal	Removed	Planar solar arrays, cubed structures and rectangular t-lines
LINE	Graded horizontal	Removed	Horizontal solar arrays and vertical structures and t-lines
COLOR	Light tans to dark, reddish browns and blacks	Removed	Black wind fences, blue to grey solar arrays, Colvert Green structures and galvanized grey utilities
TEX-TURE	Smooth surfaces	Removed	Smooth arrays, and structures

SECTION D. CONTRAST RATING ☐ SHORT TERM ☒ LONG TERM

1. DEGREE OF CONTRAST

ELEMENTS	FEATURES: LAND/WATER BODY (1) Strong	Moderate	Weak	None	VEGETATION (2) Strong	Moderate	Weak	None	STRUCTURES (3) Strong	Moderate	Weak	None
Form	x				x				x			
Line	x				x				x			
Color	x				x				x			
Texture	x				x				x			

2. Does project design meet visual resource management objectives? ☐ Yes ☒ No (Explain on reverse side)

3. Additional mitigating measures recommended ☒ Yes ☐ No (Explain on reverse side)

Evaluator's Names	Date
Merlyn Paulson	01/15/10

Form 8400-4
(September 1985)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date	01/15/2010
District	Ridgecrest
Resource Area	
Activity (program)	Solar arrays, power block transmission lines, roads

SECTION A. PROJECT INFORMATION

1. Project Name	Ridgecrest Solar Power Project	4. Location	5. Location
2. Key Observation Point	KOP#12	Township 27 S Range 39 E Section Multiple	See Figure 5.15-2
3. VRM Class	Class III		

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Flat valley floor, rounded ridges, steep-sided and pyramidal mountain backdrops	Irregular organic mosaics of shrubs and complex irregular patterns of woodland scrub trees and shrubs	Scattered cubes and rectangular blocks
LINE	Complex horizontal, inclined, angular mix of valley and mountains	Horizontal, curvilinear, inclined angular	Horizontal and vertical
COLOR	Light tans to dark, reddish browns	Light golds and tans to reddish browns and light sage greens	Whites and light tans
TEX-TURE	Moderate valley floor, moderate mountain mosaics	Fine to moderate shrub patterns, moderate scrub shrubs	Fine, smooth

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Graded planar, horizontal	Removed	Planar solar arrays, cubed structures and rectangular t-lines
LINE	Graded horizontal	Removed	Horizontal solar arrays and vertical structures and t-lines
COLOR	Light tans to dark, reddish browns and blacks	Removed	Black wind fences, blue to grey solar arrays, Colvert Green structures and galvanized grey utilities
TEX-TURE	Smooth surfaces	Removed	Smooth arrays, and structures

SECTION D. CONTRAST RATING ☐ SHORT TERM ☒ LONG TERM

1. DEGREE OF CONTRAST

		FEATURES											
		LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
		Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None
ELEMENTS	Form	x				x				x			
	Line	x				x				x			
	Color	x				x				x			
	Texture	x				x				x			

2. Does project design meet visual resource management objectives? ☐ Yes ☒ No (Explain on reverse side)

3. Additional mitigating measures recommended ☒ Yes ☐ No (Explain on reverse side)

Evaluator's Names	Date
Merlyn Paulson	01/15/10

Form 8400-4
(September 1985)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date	01/15/2010
District	Ridgecrest
Resource Area	
Activity (program)	Solar arrays, power block transmission lines, roads

SECTION A. PROJECT INFORMATION

1. Project Name	Ridgecrest Solar Power Project	4. Location	5. Location
2. Key Observation Point	KOP#13	Township 27 S Range 39 E Section Multiple	See Figure 5.15-2
3. VRM Class	Class III		

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Flat valley floor, rounded ridges, steep-sided and pyramidal mountain backdrops	Irregular organic mosaics of shrubs and complex irregular patterns of woodland scrub trees and shrubs	Scattered cubes and rectangular blocks
LINE	Complex horizontal, inclined, angular mix of valley and mountains	Horizontal, curvilinear, inclined angular	Horizontal and vertical
COLOR	Light tans to dark, reddish browns	Light golds and tans to reddish browns and light sage greens	Whites and light tans
TEX-TURE	Moderate valley floor, moderate mountain mosaics	Fine to moderate shrub patterns, moderate scrub shrubs	Fine, smooth

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Graded planar, horizontal	Removed	Planar solar arrays, cubed structures and rectangular t-lines
LINE	Graded horizontal	Removed	Horizontal solar arrays and vertical structures and t-lines
COLOR	Light tans to dark, reddish browns and blacks	Removed	Black wind fences, blue to grey solar arrays, Colvert Green structures and galvanized grey utilities
TEX-TURE	Smooth surfaces	Removed	Smooth arrays, and structures

SECTION D. CONTRAST RATING ☐ SHORT TERM ☒ LONG TERM

1. DEGREE OF CONTRAST

	FEATURES											
	LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None
ELEMENTS: Form	x				x				x			
Line	x				x				x			
Color	x				x				x			
Texture	x				x				x			

2. Does project design meet visual resource management objectives? ☐ Yes ☒ No (Explain on reverse side)

3. Additional mitigating measures recommended ☒ Yes ☐ No (Explain on reverse side)

Evaluator's Names	Date
Merlyn Paulson	01/15/10

Form 8400-4
(September 1985)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date	01/15/2010
District	Ridgecrest
Resource Area	
Activity (program)	Solar arrays, power block transmission lines, roads

SECTION A. PROJECT INFORMATION

1. Project Name	Ridgecrest Solar Power Project	4. Location	5. Location
2. Key Observation Point	KOP#14	Township 27 S Range 39 E Section Multiple	See Figure 5.15-2
3. VRM Class	Class III		

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Flat valley floor, rounded ridges, steep-sided and pyramidal mountain backdrops	Irregular organic mosaics of shrubs and complex irregular patterns of woodland scrub trees and shrubs	Scattered cubes and rectangular blocks
LINE	Complex horizontal, inclined, angular mix of valley and mountains	Horizontal, curvilinear, inclined angular	Horizontal and vertical
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TEX-TURE	Moderate valley floor, moderate mountain mosaics	Fine to moderate shrub patterns, moderate scrub shrubs	Fine, smooth

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Graded planar, horizontal	Removed	Planar solar arrays, cubed structures and rectangular t-lines
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TEX-TURE	Smooth surfaces	Removed	Smooth arrays, and structures

SECTION D. CONTRAST RATING ☐ SHORT TERM ☒ LONG TERM

1. DEGREE OF CONTRAST

ELEMENTS	FEATURES: LAND/WATER BODY (1) Strong	Moderate	Weak	None	VEGETATION (2) Strong	Moderate	Weak	None	STRUCTURES (3) Strong	Moderate	Weak	None
Form	x				x				x			
Line	x				x				x			
Color	x				x				x			
Texture	x				x				x			

2. Does project design meet visual resource management objectives? ☐ Yes ☒ No (Explain on reverse side)

3. Additional mitigating measures recommended ☒ Yes ☐ No (Explain on reverse side)

Evaluator's Names	Date
Merlyn Paulson	01/15/10

Attachment DR-VIS-235

Anecdotal Information on Glare Effects

650 Town Center Drive, 20th Floor
Costa Mesa, California 92626-1925
Tel: (714) 540-1235 Fax: (714) 755-8290
www.lw.com

LATHAM&WATKINS LLP

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October 9, 2007

File No. 039610-0001

DOCKET
07-AFC-1
DATE OCT 0 9 2007
RECD. OCT 0 9 2007

VIA FEDEX

CALIFORNIA ENERGY COMMISSION
Attn: Docket No. 07-AFC-1
1516 Ninth Street, MS-4
Sacramento, California 95814-5512

Re: Victorville 2 Hybrid Power Project: Docket No. 07-AFC-1

Dear Sir/Madam:

Pursuant to California Code of Regulations, title 20, sections 1209, 1209.5, and 1210, enclosed herewith for filing please find a document entitled, "Parabolic Trough Mirror Design Prevents Escape of Reflected Incident Rays."

Please note that the enclosed submittal was filed today via electronic mail to your attention and to all parties on the CEC's current electronic proof of service list.

Very truly yours,

Paul E. Kihm
Senior Paralegal

Enclosure

cc: CEC 07-AFC-1 Proof of Service List (w/encl. via e-mail)
Michael J. Carroll, Esq. (w/encl.)

OC\913281.1

Parabolic Trough Mirror Design

Prevents Escape of Reflected Incident Rays

The design of VV2's single axis solar collector essentially prevents the escape of incident rays that directly strike the surface of the mirror. This is accomplished by the fundamental physics of the parabolic reflector as shown at Figure A in EXHIBIT 1 (attached). All rays entering the parabolic reflector are concentrated at single point (the focal point), located ½ the distance of the arc's radius, shown as Fp in Figure A. A Parabolic Trough Mirror type solar array is engineered so as to place the Heat Collection Element (HCE) precisely at the Fp (see also Figure B, on the attached EXHIBIT 1).

The solar array will track the East to West movement of the sun with an accuracy of 0.1 degrees. The concentrated area of the sun's reflected incident rays will be magnitudes smaller than the 70MM diameter of the HCE. The HCE positioned in this direct line of sight with the sun will block or absorb all entering direct incident or reflected incident rays. As a result, aircraft flying over the array will generally not be exposed to reflected incident rays of sunlight -- in other words, the sun itself (or any portions thereof) will not appear to pilots as a reflection in a mirror.

It is important to note that the HCE is encased in glass and will be a minor source of reflection as described below (this is generally what accounts for the "glittering" effect of parabolic trough solar arrays, often described as similar to flying over a body of water):

1) The HCE is designed to absorb and collect incident rays reflecting off the parabolic mirror but, of course, some incident rays will strike the HCE directly as it is located in front of the mirror. As a result, there will be some reflections from the glass coating the HCE; however, these reflections will be minor as the HCEs are designed to absorb sunlight, not reflect it.

2) The reflected incident rays of the sun will generally be directed to the lower portion of the HCE glass encasement by design and will produce a glow from the reflected scattered beams as they enter the collector. If an aircraft were positioned at exactly the right angle above the array, this "glow" phenomenon could be visible along the entire length of the collector element for an individual row of mirrors. However, there are no reflected incident rays of sunlight associated with this glow and the brilliance/intensity of the light is much less by comparison to reflected sunlight.

In summary

Based on practical experience and the laws of physics, solar arrays using the parabolic trough mirror design do not produce significant glare or reflection that would pose a distraction to aviation. The fundamental reason for this conclusioncan be found in the design of the parabolic trough mirror. The focal point created by the parabolic mirror will not allow any concentrated rays to escape the solar field. As a result, descriptions by pilots over flying a solar thermal facility (SEGS) indicate that, with regard to reflective glare, the general appearance of the array from the air is similar to flying over a body of water (see for example, the attached e-mail from Peter Soderquist of SCLA describing a recent overflight of the existing SEGS plants).

EXHIBIT 1: Parabolic reflectivity

Fp = Focal Point = A point located ½ the distance of the arc's radius

C = Center of Arc

Incident Ray = Separate and continuous bombardment of sunlight

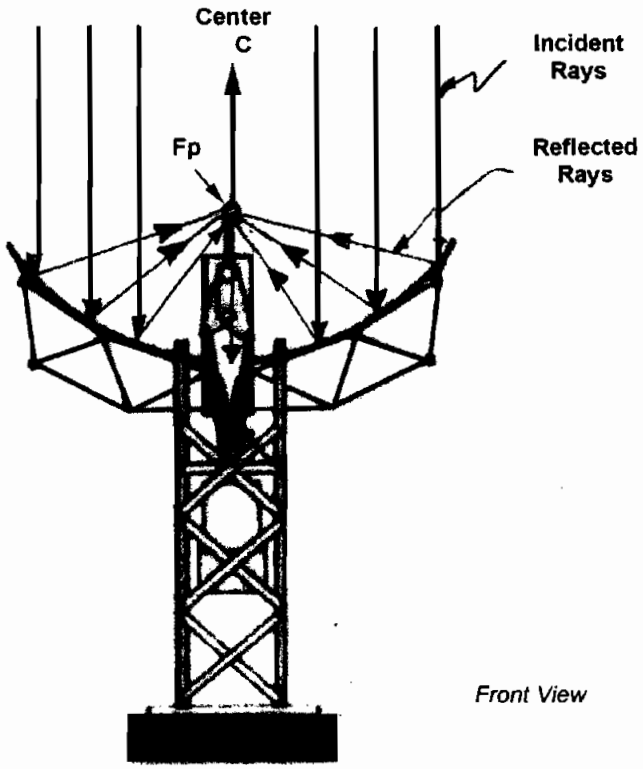

Figure A

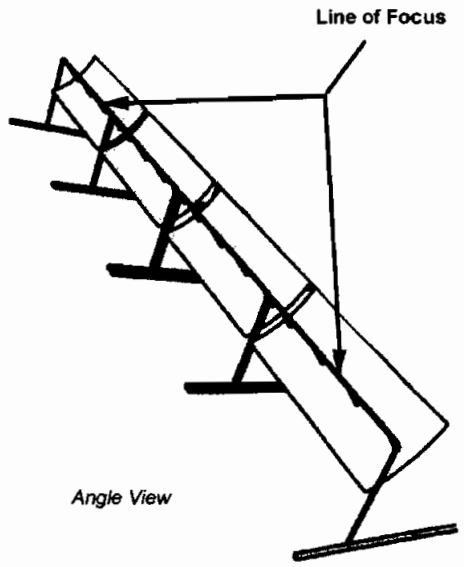

Figure B

A parabolic reflective surface (Figure A) will precisely direct an Incident Ray of light (Ir) to a focal point (Fp) ½ the distance from the center (C) of the arc. There is a "line of focus" (Figure B) created by the parabolic trough that will travel the full length of the mirror.

STATE OF CALIFORNIA
ENERGY RESOURCES
CONSERVATION AND DEVELOPMENT COMMISSION

In the Matter of:	)	Docket No. 07-AFC-1
	)	
Application for Certification,	)	**ELECTRONIC PROOF OF SERVICE**
for the VICTORVILLE 2	)	**LIST**
HYBRID POWER PROJECT	)	
by the City of Victorville	)	**(revised August 22, 2007)**
	)	
	)	

☒ Transmission via electronic mail and by depositing one original signed document with FedEx overnight mail delivery service at Costa Mesa, California with delivery fees thereon fully prepaid and addressed to the following:

DOCKET UNIT

CALIFORNIA ENERGY COMMISSION
Attn: DOCKET NO. 07-AFC-1
1516 Ninth Street, MS-4
Sacramento, California 95814-5512
docket@energy.state.ca.us

☒ Transmission via electronic mail addressed to the following:

APPLICANT

Jon B. Roberts
City Manager
City of Victorville
14343 Civic Drive
P.O. Box 5001
Victorville, CA 92393-5001
JRoberts@ci.victorville.ca.us

APPLICANT'S CONSULTANTS

Thomas M. Barnett
Inland Energy, Inc.
South Tower, Suite 606
3501 Jamboree Road
Newport Beach, CA 92660
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Sara Head
Environmental Manager
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1220 Avenida Acaso
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SHead@ensr.aecom.com

INTERESTED AGENCIES

Electricity Oversight Board
770 L Street, Suite 1250
Sacramento, CA 95814
esaltmarsh@eob.ca.gov

INTERVENORS

California Unions for Reliable Energy (CURE)
c/o Gloria D. Smith
Adams Broadwell Joseph & Cardozo
601 Gateway Boulevard, Suite 1000
South San Francisco, CA 94080
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CHolmes@energy.state.ca.us

Mike Monasmith
Public Adviser
pao@energy.state.ca.us

DECLARATION OF SERVICE

I, Paul Kihm, declare that on October 9, 2007, I deposited a copy of the attached:

PARABOLIC TROUGH MIRROR DESIGN PREVENTS ESCAPE OF REFLECTED INCIDENT RAYS

with FedEx overnight mail delivery service at Costa Mesa, California with delivery fees thereon fully prepaid and addressed to the California Energy Commission. I further declare that transmission via electronic mail was consistent with the requirements of California Code of Regulations, title 20, sections 1209, 1209.5, and 1210. All electronic copies were sent to all those identified on the Proof of Service List above.

I declare under penalty of perjury that the foregoing is true and correct. Executed on October 9, 2007, at Costa Mesa, California.

Paul Kihm

ABENGOA SOLAR INC
13911 Park Avenue, Suite 206, Victorville, California 92392

Jan. 24, 2008

DOCKET
07-AFC-1
DATE JAN 24 2008
RECD. JAN 31 2008

Mr. Thomas Barnett
Inland Energy, Inc.
3501 Jamboree Road
Newport Beach, CA 92660

Dear Mr. Barnett:

At the CEC Workshop held on December 11, 2007 in Victorville, Mr. Jim Adams of the CEC raised some issues relating to photographs describing what was categorized as "glare" from the parabolic trough mirror array at the CSP generating plant(s) at Kramer Junction. As the former COO of KJC Operating Company, the company that owned and operated those SEGS for more than 14 years, I was requested to provide some further clarification to the comments I made at the Workshop. My comments follow, referencing the photos that are attached designated: **Photo A:** *"Back" of KJ Solar Field – Ground Level*; **Photo B**: *Ground Level Shot of KJ Array*, and; **Photo C**: *Aerial Shot of KJ Array*.

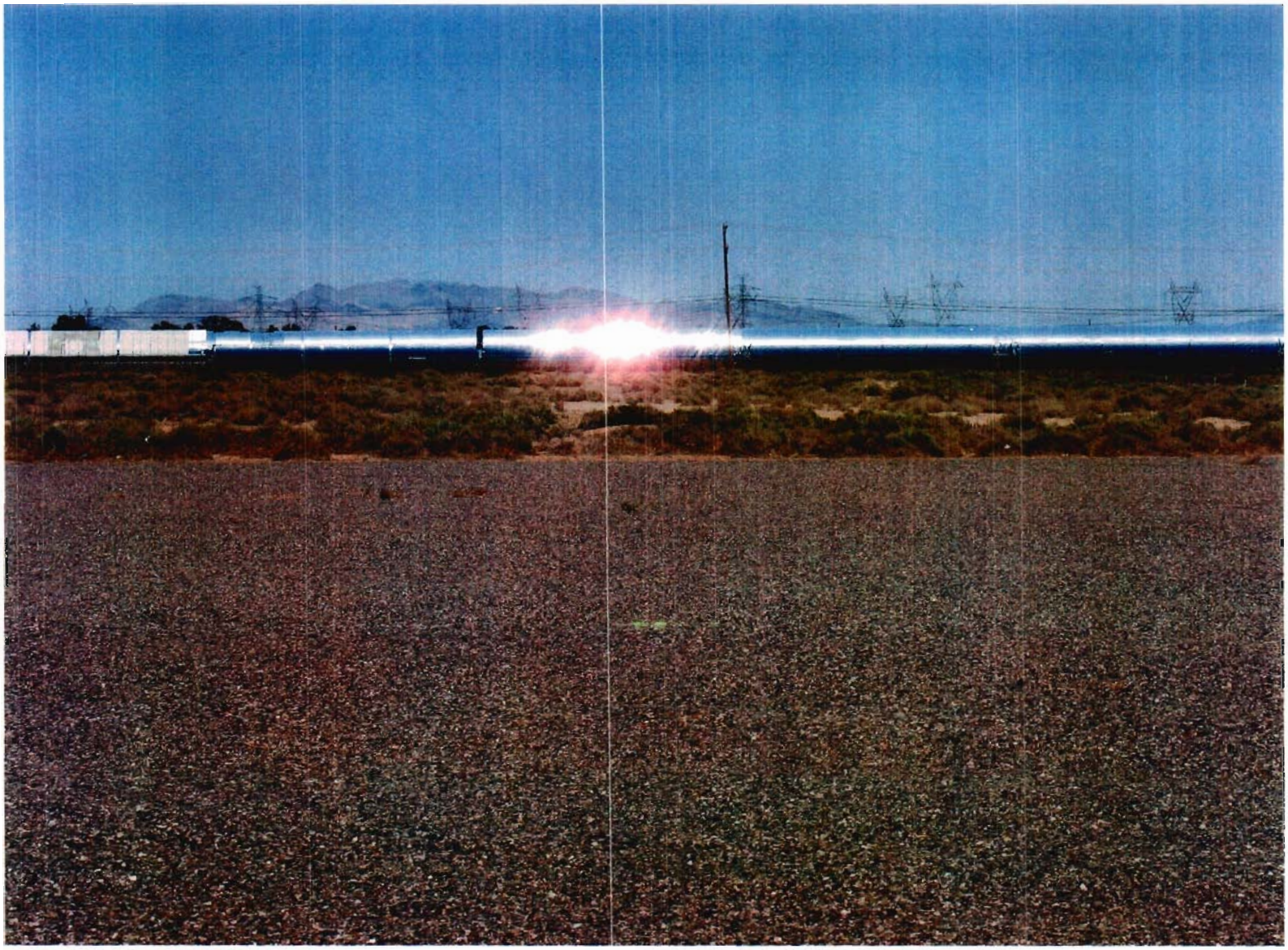
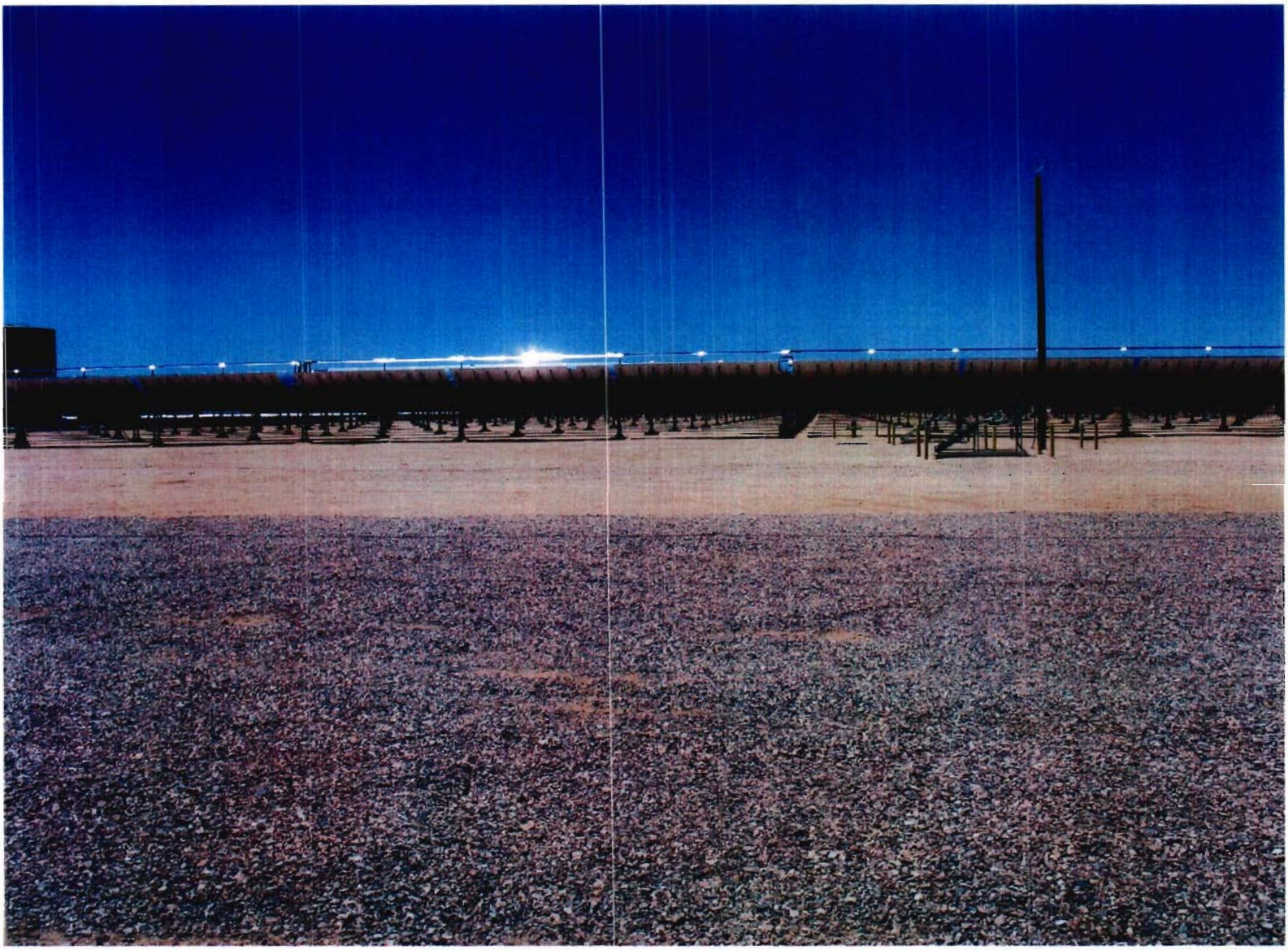
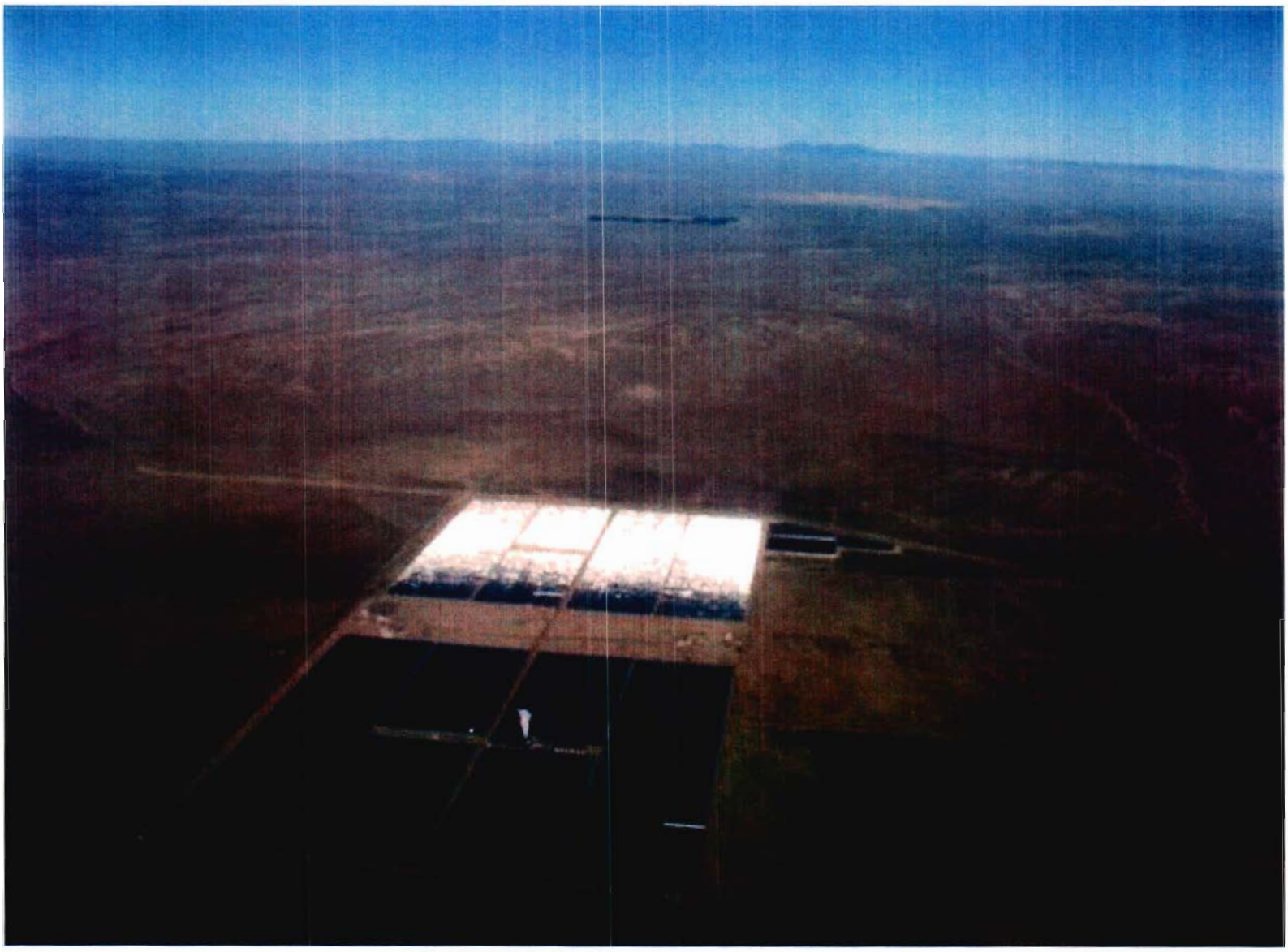
Photo A shows the back of several rows of mirrors in the left hand portion of the shot – the backs of the mirrors are not reflective. The reflections visible in the middle of the photo are from mirrors that are generally facing the photographer (I.e., the fronts). These reflections are from the glass-encased metal receiver tubes containing the heat transfer fluid (Receiver tubes) and <u>not</u> the mirrored surfaces themselves. As such the reflections are greatly diminished in intensity from those that would be associated with a reflection of the sun in a mirror. These reflections are similar to the reflections one would observe from a body of water with waves on it – if the viewer is in the right spot, incident rays from the sun will reflect directly off the curved glass surface of the receiver tube where the vertex of the incidental and reflected rays hits the tiny spot that is momentarily exactly perpendicular to the viewer's eye. In the photo, the three apparent areas of glare bursts or concentrations are the result of the metal receiver tube joint assemblies creating additional reflective surfaces which augment the glare. Again, in this case, no direct reflection of the sun from a mirror is involved.

This phenomenon is further demonstrated in Photo B: If you look to the left hand side of the photo (where the building provides a backdrop), you can see that the position of the mirror is nearly straight up (i.e., such as might be expected at mid-day when tracking the sun) – this is indicated by the fact that the receiver tube is plainly visible above the edges of the mirrors. Then, if you look to the

source of the reflected light in the photo, it is easy to see that it results entirely from the receiver tube and does not involve the mirrors at all.

With regard to the glare shown in Photo C, this phenomenon is what we refer to as Columnar Illumination (CI); it too is related to reflections from the receiver tube and not reflections of direct incident rays of the sun. The glass envelope covering the receiver tube glows as direct incident and reflected rays of sunlight strike it and are diffused and refracted by the numerous curved glass and metal surfaces of the tube apparatus; this glowing tube acts somewhat like the filament in a car headlight, and a portion of the glowing light strikes the mirrored surface of the parabolic mirror and is reflected back out into space, like an elongated headlight. Since the mirrors are in long rows, an elongated rectangle of light generated from the glowing receiver tube is produced in columns so that if (and only if) the observer passes through one of the columns (i.e., if the mirrors are pointed at the observer – the sun would therefore be more or less directly behind the viewer), it will be visible. If the observer passes overhead in a parallel direction, the illumination will remain visible for the length of the row; if the direction of the observer is perpendicular to the alignment of mirrors, the rows will illuminate one by one as they are traversed. As with a group of side by side headlights, the light from more than one row of mirrors at a time can be seen from a given vantage point, but the intensity will diminish the further the row is from the one that the observer is directly in the path of. Again, this light is <u>not</u> from direct reflection of the sun, but from the greatly diminished reflected light from the illuminated receiver tube.

In summary, just as the CEC representative observed himself when flying over the Kramer Junction facility, the glare is not a distraction to pilots; this fact has been verified over the nearly 20 years the Kramer Junction and Harper Lake facilities have been in operation. As mentioned above – I ran the Kramer SEGS facility, maintained long-term relationships with Edwards Air Force Base command and public relations personnel and the crop dusting service who maintains and air strip adjacent to the Kramer site, and I would have been the first to know if there were any complaints or problems.

Best regards,

Scott Frier
COO, ABENGOA SOLAR INC.
(760) 617-2570