

Appendix A

Resource Management Plan Amendment Analysis

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Explanation of Proposed Plan Amendment to the Yuma Field Office **Resource Management Plan**

INTRODUCTION

Quartzsite Solar Energy LLC (QSE), a wholly owned subsidiary of SolarReserve LLC, has submitted an application to the Bureau of Land Management (BLM) requesting a right-of-way (ROW) to construct, maintain, operate, and decommission the Quartzsite Solar Energy Project (QSEP or Applicant's Proposed Project), a solar energy facility capable of producing approximately 450 gigawatt-hours of renewable energy annually, with a nominal net generating capacity of 100 megawatts (MW) in La Paz County, Arizona. In addition, QSE has also applied to Western Area Power Administration (Western), an agency of the U.S. Department of Energy (DOE), to interconnect the QSEP to Western's transmission system at the Bouse-Kofa 161-kilovolt transmission line. As explained in Chapter 2 of this EIS, QSE's proprietary concentrating solar thermal technology uses a field of heliostats (elevated mirrors guided by a tracking system) to focus sunlight onto a 653-foot solar collection receiver erected in the center of the solar field. Each heliostat tracks the sun throughout the day and reflects the solar energy to the central receiver. The Project features thermal energy storage that allows solar energy to be captured throughout the day and retained in a liquid salt heat transfer fluid.

In connection with its consideration of the QSEP ROW application, the BLM Yuma Field Office (YFO) is considering amending the YFO Resource Management Plan (RMP). As explained in Section 1.5.3.2 of the Draft EIS, the QSEP is not in conformance with the YFO RMP, Visual Resource Management (VRM) Class III objective, and therefore, an RMP amendment is required by the BLM in order to grant the ROW necessary to construct and operate the Project.

This Appendix: (1) explains BLM's VRM System, (2) identifies the three RMP-amendment alternatives that were analyzed in conjunction with QSE's ROW application for the QSEP, and (3) describes the other plan amendment alternatives that were identified, but not carried forward for further analysis.

The direct, indirect and cumulative effects of the Proposed RMP amendment and alternatives identified below are the same as those for the QSEP, which are already explained in the relevant sections of Chapter 3 and 4 of the Draft EIS, because: (i) the proposed plan amendment only changes the VRM designation for the Project area, and (ii) the change in VRM designation simply allows the QSEP to be built so impacts associated with the proposed amendment are really the impacts associated with construction, operation, maintenance and decommissioning of the QSEP, which are presented in Chapters 3 and 4 of this Draft EIS.

BLM'S VRM SYSTEM

The Federal Land Policy and Management Act of 1976, as amended, (FLPMA) requires that the BLM consider the scenic values of public land as a resource that merits management and protection, as determined through the land use planning process. In response to this mandate, the BLM developed the VRM System, which establishes a visual assessment methodology to inventory and manage scenic values on lands under the BLM's jurisdiction. The BLM manual

M-8400 (Visual Resource Management), Handbook H-8410 (Visual Resource Inventory), Handbook H-8431 (Visual Resource Contrast Rating), and Instruction Memorandum 2009-167 (Application of the VRM Program to Renewable Energy) set forth the policies and procedures for determining visual resource values, establishing management objectives, and evaluating proposed actions for conformance with established objectives for BLM administered public lands, with the overall goal being that visual resource values are considered as part of the resource management process and that surface disturbing resource uses and management activities are consistent with established VRM objectives.

The three primary elements of the BLM’s VRM Policy are: (1) determining resource values, (2) establishing management objectives, and (3) evaluating the conformance of proposed actions with those objectives.

- Determining Resource Values:** The primary means of establishing visual resource values is through a Visual Resource Inventory (VRI) that results in the assignment of one of four VRI Classes (I to IV) to represent the relative visual value of an area. VRI Class I has the highest value and VRI Class IV has the lowest. VRI Class I is reserved for special congressional designations or administrative decisions such as Wilderness Areas, visually sensitive Areas of Critical Environmental Concern (ACECs), or Wild and Scenic Rivers, etc. VRI Classes II through IV are determined through an inventory of scenic values that considers scenic quality, sensitivity level rating units, and distance zones (DZ). Rating units for each of the three factors are mapped individually, evaluated, and then combined through an over-layering analysis to determine the applicable VRI Class for a given area. VRI classes are informational in nature and provide a baseline for existing conditions. They do not establish management direction and should not be used as a basis for constraining or encouraging surface disturbing activities. They provide the baseline data for existing conditions (Handbook H-8410).
- Establishing Management Objectives:** VRM Classes are assigned to all BLM administered land considering the following: (1) inventoried scenic values (i.e., the VRI classes), (2) other land use and resource allocations within a given field office or management unit, and (3) public needs and national priorities for public lands. VRM assignments are land use plan decisions that guide future land management actions. The objectives of the four VRM Classes are as follows:

<u>VRM Class</u>	<u>Objective</u>
Class I	To preserve the existing character of the landscape. The level of change to the characteristic landscape should be very low and must not attract attention.
Class II	To retain the existing character of the landscape. The level of change to the characteristic landscape should be low.
Class III	To partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate.
Class IV	To provide for management activities which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high.

VRI Classes are not intended to automatically become VRM Class designations. VRM Classes may be different than the VRI Classes assigned during the the inventory, as the former should reflect a balance between the protection of visual values and other uses of BLM land to meet public demand or national priorities. For example, an area with a VRI Class II designation may be assigned a VRM Class IV designation, based on its overriding value for mineral resource extraction or its designation as a utility corridor. The current VRM Class designation for the QSEP project area per the YFO RMP is VRM Class III.

- ***Evaluating the Conformance:*** Finally, proposed plans of development, like the QSEP, are evaluated for conformance with the VRM Class objectives through the use of the Visual Resource Contrast Rating process set forth within BLM Handbook H-8431-1, as described below. (Handbook H-8431).

PROJECT CONFORMANCE WITH VRM OBJECTIVES

Per BLM VRM policy (BLM Handbook H-8431-1), an assessment of all major proposed surface-disturbing activities or developments, such as the QSEP, must be conducted using a visual contrast rating process to determine whether the proposed activities will meet the management objectives established for a given area. The visual contrast rating process looks at the level of change to the characteristic landscape associated with the proposed project, which involves comparing the project features with the major features in the existing landscape using the basic design elements of form, line, color, and texture. Using information regarding the design of the proposed action and the relevant VRM objectives, the contrast rating process involves selecting Key Observation Points (KOPs), which are typically the most critical viewpoints (e.g., commonly traveled routes and/or observation points) and then preparing visual simulations from those KOPs that allow the BLM to assess contrast for the proposed action from each KOP. Contrast is documented and disclosed to the public using BLM Worksheet 8400-4 – Visual Contrast Rating Worksheet.

As explained in Section 4-16, with respect to the QSEP, an assessment of contrast from one of the KOPs indicated that the Project would not comply with the current VRM Class III designation for the Project area. Specifically, visual contrast would be strong from State Route 95 (SR 95) and therefore the Project, as proposed, would not comply with the existing VRM Class III objective for the project area in the YFO RMP, which is: *"To partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate."* See section 4.16 for the results of the contrast assessment and Appendix F for the simulation that illustrates the QSEP from SR 95. As a result of this contrast rating, the BLM is considering an amendment to the YFO RMP in regard to visual resources. Specifically, the plan amendment would change lands currently managed as VRM III to VRM Class IV, as described below.

PROPOSED PLAN AMENDMENT

The BLM's proposed plan amendment is to change the current VRM class designation from Class III to Class IV in the portion of the YFO RMP where the QSEP would be located. The management objective for Class IV designated land *"is to provide for management activities which require major modifications of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate*

the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements” (BLM Handbook H-8410-1).

If the proposed plan amendment were adopted, the QSEP would adhere to VRM Class IV objectives and therefore would be in conformance with the YFO RMP. Existing conditions (associated with the plan amendment study area), VRI for the plan amendment area, and plan amendment alternatives, including those not carried for further review, are discussed below.

Existing Conditions

The plan amendment study area is located within the La Posa Plains (elevation approximately 930 feet), which is generally defined by Interstate 10 on the south, the Dome Rock Mountains (elevation approximately 3,000 feet) to the west, the Plomosa Mountains (elevation approximately 2,225 feet) to the east and the boundary of the BLM Lake Havasu and Yuma Field offices to the north (see Figure A-1 – YFO Visual Resource Management). The geographical extent of the plan amendment study area is based on the viewshed within the La Posa Plains north of Quartzsite, Arizona. The plain comprises gently-sloping alluvial fans at the base of the mountains, which gradually trend towards the Colorado River.

The La Posa Plains is typical of the basin and range physiographic province, which encompasses the southwestern portion of Arizona. Vegetation within the Plain comprises even stands of creosote and saltbush. Ocotillo, saguaro, and other upland Sonoran desert vegetation are limited to the canyons and higher elevations of the mountains surrounding the La Posa Plains. The regional landscape character within the plan amendment study has been locally modified by a variety of surface disturbing land uses/activities, including mining, residential development (near the town of Quartzsite), utilities (transmission lines along SR 95), and roads (e.g., undesignated two-track roads and paved highways).

Visual Resource Inventory

As previously described, the VRI comprises three primary components: scenic quality, sensitivity level rating units, and DZs, per BLM VRM policy. These three factors are combined using a geographic information system to define VRI classes, which represent the scenic values of BLM-managed land. Following are descriptions of the VRI for the plan amendment study area, based on information provided by the YFO. Figures A-1 and A-2 depict the VRI class and the VRI within the plan amendment study area, respectively.

Scenic Quality

Scenic quality is a measure of the aesthetic value of a given landscape and is based on the following seven landscape factors: landform, vegetation, water, color, adjacent scenery, scarcity, and cultural modifications. Based on the diversity of landscape factors, the VRM System classifies landscapes as either A, B, or C class landscapes. Class A landscapes are typically mountain ranges with a high diversity of plants, prominent rock outcrops, and topographic features. Class B landscapes are associated with intermediate mountains and rolling terrain and bajadas occupied by saguaro stands and other Sonoran Desert upland vegetation. Class C scenic

quality is typically associated with common landscapes within a particular region and has a lower diversity of landscape features (i.e., creosote flats).

The YFO has determined that the La Posa Plains is a Class C landscape, based on subtle landforms and a lower diversity of vegetation. Landscapes that comprise the Plomosa and Dome Rock Mountains have been inventoried as having both A and B class scenic quality. Class A designations are confined to portions of the mountains that have steep rock outcrops and angular and jagged lines. Class B designations are associated with the rolling to steep landforms that comprise the Plomosa and Dome Rock mountains. Vegetation diversity is higher in the mountains as compared to the La Posa Plain, and includes notable Sonoran Desert species such as ocotillo, saguaro, ironwood, blue paloverde, and velvet mesquite (see Figure A-2 for scenic quality designations within the plan amendment study area).

Sensitivity Levels

Sensitivity levels are a measure of public concern for the maintenance of scenic quality. Public lands are assigned high, medium, or low sensitivity by analyzing the various factors of public concern, including type of user, amount of use, public interest, adjacent land uses, special areas, and other factors that indicate sensitivity. Sensitivity within the plan amendment study area was determined by the YFO as high. Specifically, the public has indicated that this area within the YFO is important from a recreation standpoint (YFO Plan Amendment Scoping Meetings), and is managed as such. Also, the Plomosa Back Country Byway is a BLM-designated scenic route that merits a high sensitivity. In addition, the YFO has indicated that the La Posa Plains is important from a cultural resource standpoint (see Figure A-2 for sensitivity level designations within the plan amendment study area).

Distance Zones

Per BLM guidance, landscapes are subdivided into three DZs, based on relative visibility from travel routes or other public viewing locations. The three zones are foreground-middleground, background, and seldom seen. The foreground-middleground zone includes areas seen from highways, rivers, or other viewing locations that are less than 3 to 5 miles away. Areas viewed beyond the foreground-middleground zone, but usually less than 15 miles away, are in the background zone. Areas not seen as foreground-middleground or background (i.e., hidden from view) are in the seldom seen zone.

Distance zones within the plan amendment study area were based on the following viewing locations: SR 95, Plomosa Back Country Byway (including the Fisherman Intaglio Cultural Resource Site), the Plomosa Mountains, Interstate 10, and the Town of Quartzsite. Based on an assessment of these viewing locations, the plan amendment study area is within the foreground-middle ground DZ.

Visual Resource Inventory Classes

VRI classes represent the scenic values of the landscape based on scenic quality, sensitivity, and DZs. VRI classes range from Class I to Class IV. Lands that have a Class I designation have high scenic value, whereas Class IV designated lands have a lower scenic value. It is important to note

that VRI classes reflect inventoried visual conditions. VRM classes, also I–IV, reflect how the BLM chooses to manage land based on resource concerns beyond visual.

Based on the scenic quality (Class C), sensitivity levels (high), and distance zones (foreground-middle ground) inventoried within the plan amendment study area, the majority of the plan amendment study area is designated as VRI Class III per the YFO RMP. Portions of the Dome Rock and Plomosa Mountains were designated as VRI Class II, primarily because of the higher quality landscapes (Class A and Class B). Figure A-1 depicts designated VRI classes within the plan amendment study area.

Other Resources and Pertinent BLM Policy Considered within the Plan Amendment Study Area

The following resources and policies occur within, or are pertinent to, the plan amendment study area and were considered for alternative development.

- Sand Dune Habitat – Sand dune habitats are maintained and managed through the Dunes Wildlife Habitat Management Area (WHA). This habitat supports native wildlife and plant species that include but are not limited to Mojave Fringe-toed Lizard (*Uma scoparia*), scaly sand plant (*Pholisma arenarium*), flat-tailed horned lizard (*Phrynosoma mcallii*), and sand food (*Pholisma arenarium*).
- Plomosa Mountains – Per the BLM YFO, the Plomosa Mountains are managed for rock hounding and other dispersed types of recreation. The Lake Havasu Field Office manages the Plomosa Mountains as a Special Recreation Management Area.
- Lands with Wilderness Characteristics – The wilderness characteristics inventory for the proposed Project and land use plan amendment was updated March 2011, pursuant to Section 201 of FLPMA. The Project/plan amendment study area does not contain any land with wilderness characteristics.
- Existing Utility Corridors and Other Land Uses – Existing utilities occur within the central portion of the plan amendment area paralleling SR 95. The Copperstone Mine is located in the northwestern portion of the plan amendment area. Smaller sand and gravel operations occur throughout the state and private land parcels immediately adjacent to BLM-administered lands within the study area.
- Renewable Energy Policy – Secretarial Order 3285A1, signed on March 11, 2009 and amended on February 22, 2010, established the development of renewable energy as a priority of the Department of the Interior. For other mandates related to renewable energy development see section See Section 1.4.2 of the Draft EIS.

Alternatives Analysis

The following sections provide descriptions of the alternatives considered for the plan amendment, including a no action alternative.

RMP Alternative 1: Proposed Plan Amendment and Project Approval

RMP Alternative 1 consists of changing lands that are managed as VRM Class III to VRM Class IV approximately 2 miles north of Plomosa Backcountry Byway, to the east of SR 95 in proximity to the proposed QSEP. Approximately 6,800 acres of VRM Class III would be designated as VRM Class IV (leaving 505,600 acres of VRM Class III designated land within the entire YFO). This alternative responds to the national policy regarding renewable energy in regard to the QSEP proposed action, and also maintains the most acreage of VRM Class III between the Plomosa Mountains (VRM Class II) and the Proposed QSEP. Figure A-3 depicts the geographical extent of RMP Alternative 1.

RMP Alternative 1 addresses BLM's purpose and need to respond to QSE's ROW application as it represents the smallest (in terms of acreage) VRM Class designation change needed to address the non-conformance identified in Section 1.5.3.2. If RMP Alternative 1 were selected, the QSEP would comply with VRM Class IV objectives and would therefore conform with the YFO RMP in regard to VRM. RMP Alternative 1 also maintains a buffer of Class III land between the Plomosa Mountains (VRM Class II) and the QSEP, thereby maintaining more restrictive VRM objectives and mitigation requirements that would reduce effect of future development on visual resources in the La Posa Plain over time. The impact on visual resources associated with RMP Alternative 1 is the same as those described for the QSEP in Section 4-16 of the Draft EIS.

RMP Alternative 2: Plan Amendment with No Project Approval

Under RMP Alternative 2 (Plan Amendment with No Project Approval), no impacts associated with the QSEP would occur, but the Project area would be available, as a result of the plan amendment, for the development of a project similar to the QSEP in the future. If another solar energy development project were developed using the same technology as the QSEP, similar impacts to visual resources as those described in Section 4-16 would occur. However, no such future solar project (or other project that would require a VRM Class IV designation) on BLM-managed land is reasonably foreseeable at this time. Figure A-3 depicts the geographical extent of RMP Alternative 2.

RMP Alternative 3: No Action Alternative

RMP Alternative 3 is the No Action alternative. Under this alternative, current VRM Class III designations would remain within the plan amendment study area. As a result, no ROW would be issued for the QSEP, because the Project would not be in conformance with the VRM objectives of the YFO RMP. Since there would be no change to the RMP and no ROW issued, no direct, indirect or cumulative effects are anticipated with this alternative. Figure A-3 depicts the existing conditions associated with RMP Alternative 3.

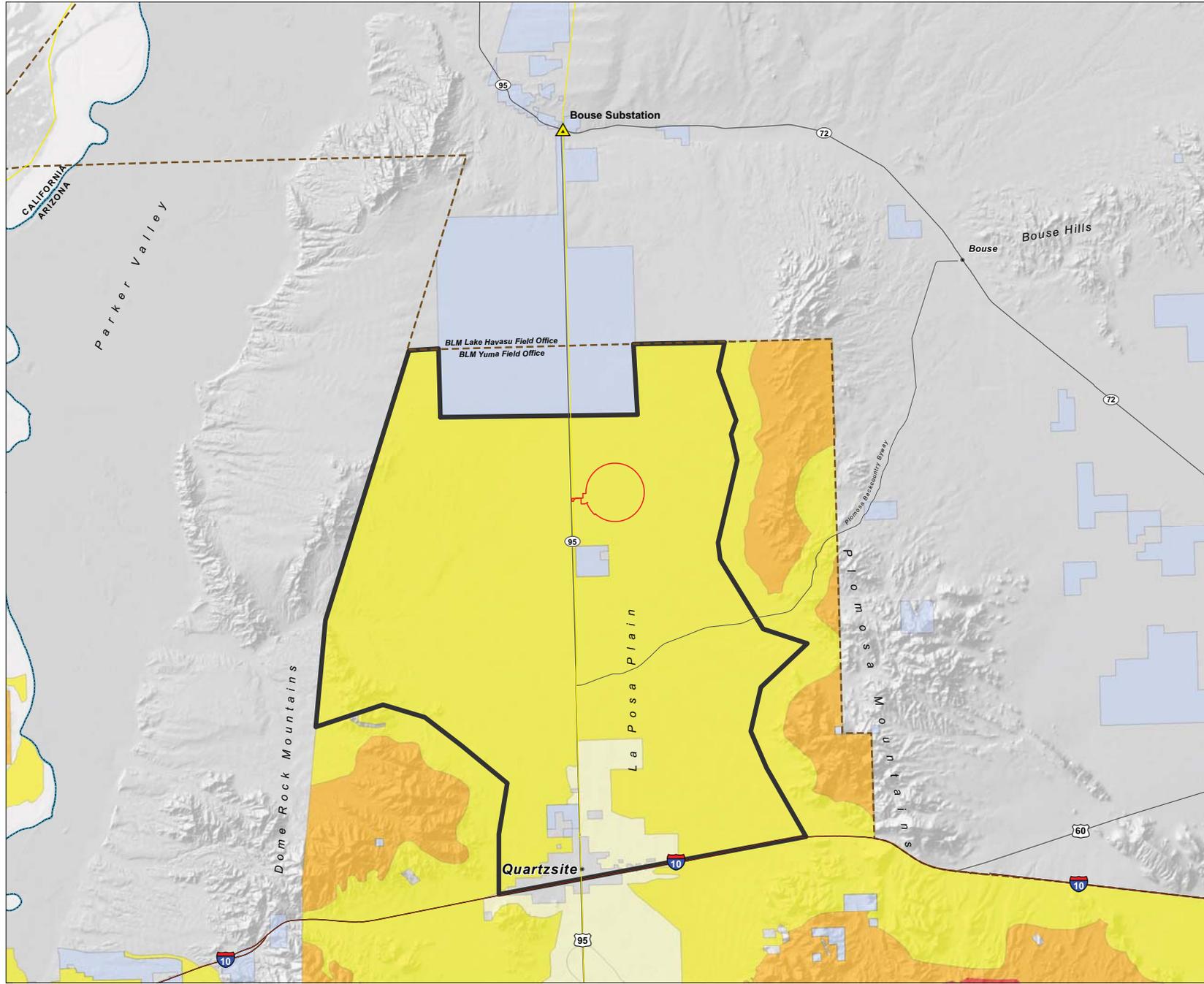
RMP Amendment Alternatives Considered, But Eliminated From Further Analysis

In addition to the plan amendment alternatives described above, the BLM also considered a range of other plan amendment alternatives that took into consideration the Project description provided by QSE and issues and concerns derived from comments received during the plan amendment scoping period. All of these additional alternatives looked at changing the VRM

designation for portions of the YFO RMP greater than the area required to address the VRM nonconformance identified in Section 1.5.3.2. These additional alternatives include:

- Designating lands that are managed as VRM Class III to VRM Class IV, approximately 2 miles north of Plomosa Backcountry Byway on both sides of SR 95. Approximately 22,375 acres of VRM Class III would be converted to VRM Class IV (leaving 490,025 acres of VRM Class III land within the entire BLM Yuma District). This potential alternative recognizes the surface disturbance associated with the Copperstone Mine and the existing utility corridor along SR 95. VRM Class III land would be maintained between the Plomosa Mountains (VRM Class II) and proposed VRM Class IV land associated with this alternative.
- Designating BLM lands that are currently managed as VRM Class III to VRM Class IV, approximately 2 miles north of Plomosa Back Country Byway on the east side of SR 95. Approximately 10,820 acres of VRM Class III would be shifted to VRM Class IV (leaving 501,580 acres of VRM Class III designated land within the entire YFO). This potential alternative recognizes the disturbance associated with the existing utility corridor along SR 95 and responds to the national policy regarding renewable energy. Additionally, this alternative maintains VRM Class III land between the Plomosa Mountains (VRM Class II) and proposed VRM Class IV land associated with this alternative.
- Designating lands that are managed as VRM Class III to VRM Class IV within the entire plan amendment study area (roughly from Interstate 10 to the Lake Havasu Field Office Boundary). Approximately 102,930 acres of VRM Class III would be designated as VRM Class IV (leaving 409,470 acres of VRM Class III designated land within the entire YFO).

In each instance, these additional alternatives were eliminated from further analysis by the BLM because they did not respond to the BLM's specific purpose and need to respond to QSE's FLPMA Title V ROW application for the QSEP, as each involves changing VRM class designations in areas that are not implicated by the QSEP. Furthermore, the alternatives to the QSEP that might have required changes to VRM designations in different areas than those covered by the proposed plan amendment above were not carried forward for further review, as explained in Section 2.3, and therefore were not considered as part of the YFO RMP plan amendment either.

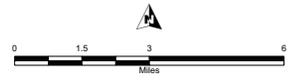


Proposed Amendment to the Yuma Field Office Resource Management Plan

Yuma Field Office Visual Resource Management/
Visual Resource Inventory Classes

Alternative 3
Figure A-1

- LEGEND**
- Project Features**
- Project Footprint
 - Plan Amendment Study Area
- VRM/VRI Classes**
- I
 - II
 - III
 - IV
- Reference Features**
- State Land
 - BLM Field Office Boundary
 - State Boundary
 - City/Town
 - Interstate
 - Highway/Major Road
 - Colorado River



Source: USGS, 2010; BLM, 2010; ALMIS, 2009; WorleyParsons, 2010; Platts, 2009; EPA, 2008

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Proposed Amendment to the Yuma Field Office Resource Management Plan

Sensitivity Levels, Scenic Quality and Distance Zones

Figure A-2

LEGEND

Project Features

-  Project Footprint
-  Plan Amendment Study Area

Sensitivity Levels

-  High
-  Medium
-  Low

Scenic Quality Rating*

-  A
-  B
-  C

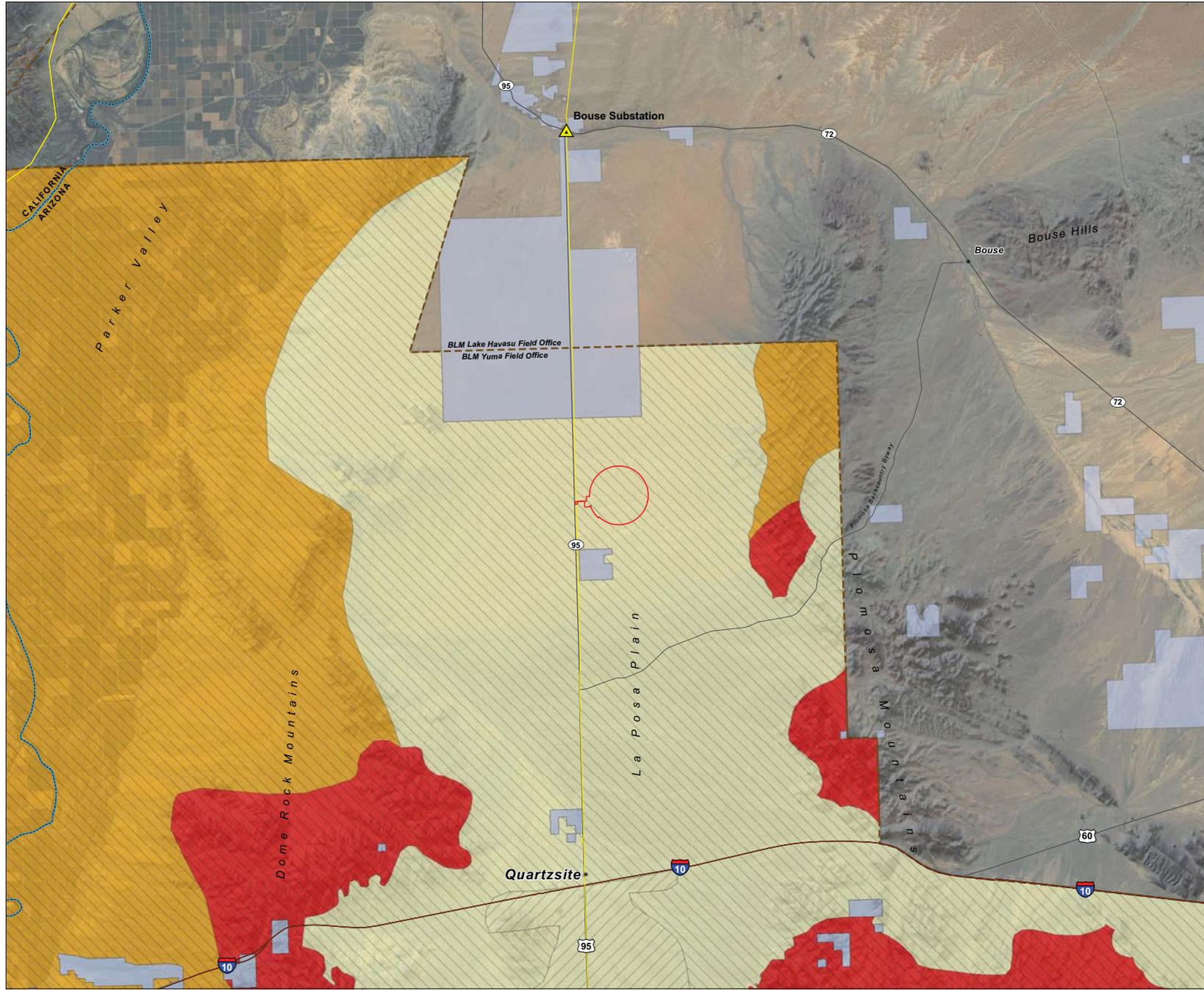
Reference Features

-  State Land
-  BLM Field Office Boundary
-  State Boundary
-  City/Town
-  Interstate
-  Highway/Major Road
-  Colorado River

* All landscapes were identified in the Foreground/ Middle Ground distance zone.



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Proposed Amendment to the Yuma Field Office Resource Management Plan

Alternatives 1 & 2
Figure A-3

LEGEND

Project Features

-  Alternatives 1 & 2
-  Project Footprint*

VRM Classes

-  I
-  II
-  III
-  IV

Existing Utilities

-  Substation
-  161kV Transmission Line

Reference Features

-  State Land
-  BLM Field Office Boundary
-  State Boundary
-  City/Town
-  Interstate
-  Highway/Major Road
-  Colorado River

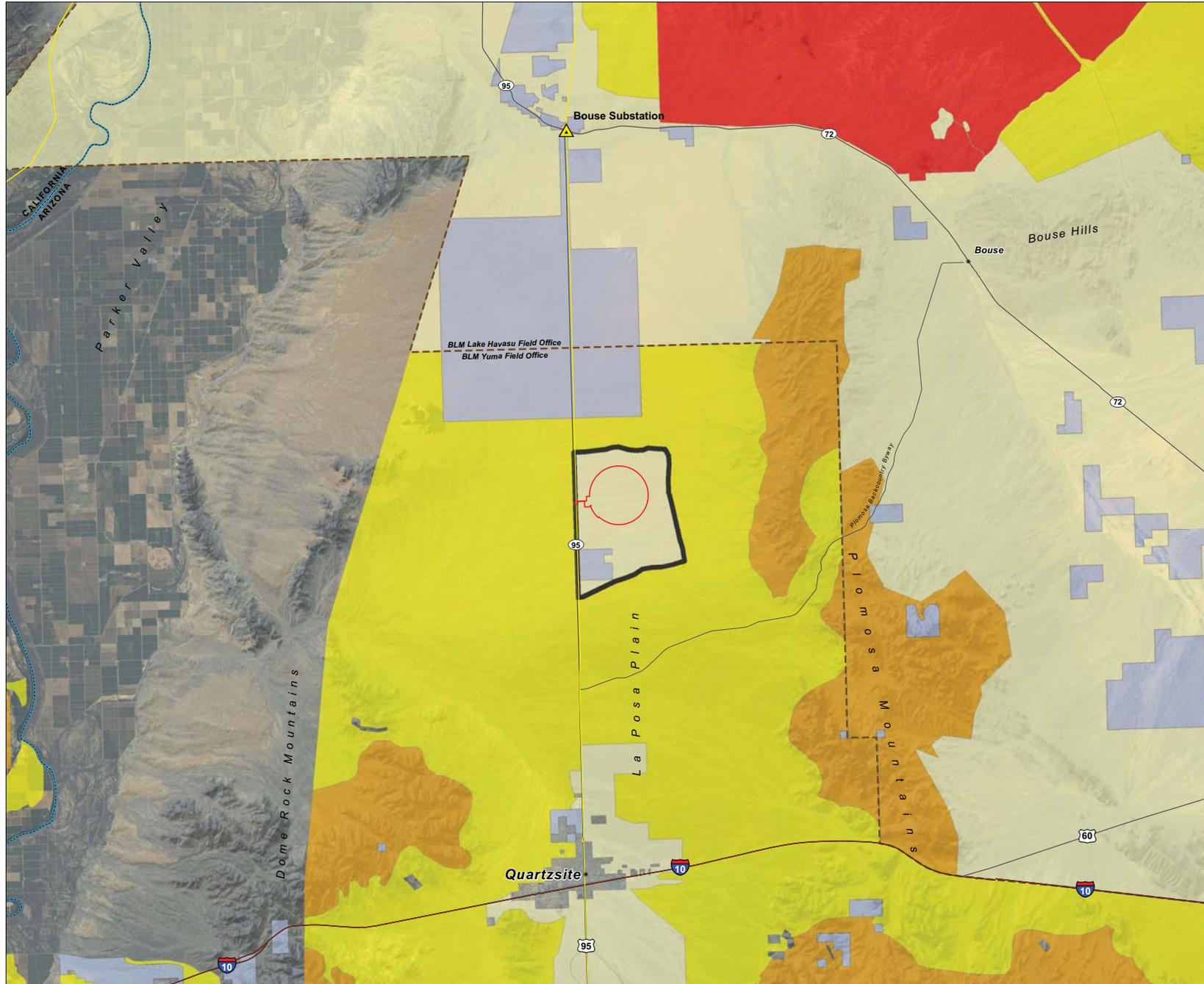
* Alternative 2 is comprised of the same VRM class IV area as compared to Alternative 1. However, the QSEP ROW would not be granted.



July 2011



Source: USGS, 2010; BLM, 2010; ALMIS, 2009; Wetley-Peterson, 2010; Platts, 2009; EPA, 2008



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