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**Clark County Department of Aviation Comments
on the
Draft Ivanpah Solar Electric Generation System
Environmental Impact Statement
and
Draft California Desert Conservation Area Plan Amendment**

February 9, 2010

Clark County Department of Aviation (CCDOA) owns and operates a system of airports that accommodates commercial service, corporate aviation, general aviation, sport aviation and air cargo demands within southern Nevada. The following comments relate to the interaction between the proposed Ivanpah Solar Electric Generation System (ISEGS) project and the following CCDOA facilities in the South County land use planning area (*See Exhibit A – Area Map*).

- **The Jean Sport Aviation Center.** This airport is located within unincorporated Clark County about 20 miles south of Las Vegas in the town of Jean, Nevada. The airport accommodates primarily sport aviation.

- **The planned Southern Nevada Supplemental Airport (SNSA).** CCDOA is planning a new commercial service airport in the Ivanpah Valley (the Southern Nevada Supplemental Airport, or SNSA) in order to ensure sufficient commercial aviation capacity to the Las Vegas metropolitan area. In accordance with Public Law 106-362, the Bureau of Land Management (BLM) conveyed to Clark County approximately 6,000 acres of land in the Ivanpah Valley between the towns of Jean and Primm and immediately east of interstate highway I-15 (the Airport Site) for the purpose of developing the SNSA and related infrastructure. That land was patented to the County in 2004. Subsequently, in Public Law 107-282, Congress directed that an additional 17,000 acres surrounding the Airport Site (the Airport Environs Overlay District) be transferred to the County upon final approval of the SNSA. FAA and BLM are currently conducting the necessary environmental reviews of the SNSA project and expect to issue Records of Decision (RODs) for the airport in 2013.

CCDOA is committed to ensuring that any new infrastructure in the vicinity of CCDOA-owned facilities is designed in a manner that avoids potential hazards to aviation. Because of the close proximity of the ISEGS project to CCDOA facilities and projects, CCDOA filed comments on the Preliminary Staff Assessment for the ISEGS project with the California Energy Commission (CEC) on four key issues: (1) glare, (2) thermal effects, (3) military training routes, and (4) maintaining consistency with the Ivanpah Lands Act (Pub. L. 106-362). CCDOA appreciates BLM and CEC's collective responses to these comments. The Draft EIS addresses most of CCDOA's concerns. However, as noted below, CCDOA has some additional comments on these issues that merit further consideration by the BLM before issuance of the Final EIS.

1. GLARE

In its January 2009 comments, CCDOA noted that the ISEGS project could adversely affect aviation operations at the SNSA or Jean Airport, and provided an expert report concluding that the ISEGS project would create glare effects that could “potentially blind a pilot during [a] critical phase of flight” (*i.e.*, departure or final approach). Notably, FAA, too, has raised this very concern with BLM, noting, in particular, the proximity of the proposed ISEGS project to the SNSA site.¹

The Draft EIS recognizes that pilots and air carrier passengers may be affected by two types of glare impacts.

a. Energy Intensity

First, with regard to energy intensity, the Draft EIS states that low-altitude aircraft passing over the project or within 1,000 meters of one or more of the heliostats would be exposed to solar radiation at levels that exceed the 1 kw/m² maximum permissible exposure (MPE) limits for reflected sunlight, and that “the potential would exist for a person to experience [retinal] injury if he or she stared directly into the reflected solar radiation without blinking or looking away.” (Draft EIS at 6.10-14). It then concludes that “the brightness of light reflected from heliostats would likely cause observers to avoid looking directly into the light for longer than a fraction of a second” but that “it is not conclusive to staff for observers in aircraft that personal reaction to bright light would adequately mitigate this risk of exposure that could cause retinal injury to one’s eye.” (Draft EIS at 6.10-16). Therefore, the Draft EIS proposes, as a mitigation measure, that the applicant prepare a Heliostat Positioning Plan in coordination with both FAA and CCDOA to avoid potential risk to health and safety.

CCDOA supports the concept of a Heliostat Positioning Plan but requests additional information in the Final EIS that documents how this mitigation measure will effectively address potential glare impacts. For example, the Final EIS should address the following:

- *How will the Plan capture available expertise on glare impacts?* CCDOA recommends that the Plan be coordinated with appropriate experts such as academics with expertise in the area, and relevant user and professional groups, such as the Air Transport Association, Airline Pilots Association and/or the Aircraft Owners and Pilots Association.
- *Who will be responsible for implementing the Plan?* It is not clear from the Draft EIS who will be in charge of the Plan and how it will be implemented and enforced. If the Plan is simply drafted but never effectively employed, it will not serve any mitigating purpose. CCDOA urges that the Final EIS include implementation of the Plan as mandatory mitigation.
- *How will the Plan respond to airspace changes?* CCDOA recommends several reviews in addition to the scheduled updates: (1) an additional update should occur whenever FAA adopts any airspace changes in the region; (2) additional updates should occur

¹ See Letter from M. Ratcliff (FAA) to G. Meckfessel (BLM) dated Jan. 2, 2008 (attached as **Exhibit B**).

annually for the first five years after the SNSA opens because of contemplated modifications in airspace procedures based upon actual operations at this new airport.

In addition, CCDOA questions the threshold adopted by BLM when considering the potential impacts of a project that will be located only 8 miles away from a planned major commercial airport. The proximity between the ISEGS project and SNSA is particularly relevant: at a distance of 8 miles, pilots will be either in final approach or the initial stages of departure from the airport. These are the two stages of flight that are most critical for aircraft safety and where the greatest potential exists for complications from external distractions. In this context, retinal injury is simply too rigid a standard. Long before a pilot suffers retinal injury, he or she will suffer temporary distraction or impaired vision that could compromise the ability to control the aircraft safely. As a result, CCDOA recommends that the proposed MPEs in the Heliostat Positioning Plan be adjusted and engineered with the advice and input from experts to ensure that the potential glare effects are reduced or mitigated to a degree that pilots do not risk *distraction or temporarily impaired vision* (and not just retinal injury).

b. Luminance/Brightness

Second, the Draft EIS recognizes that pilots may be affected by the luminance/brightness of the heliostats. Specifically, the Draft states that:

the luminance of light reflected from a single heliostat as seen by an aircraft flying over the site at a distance of at least 370 meters would be as high as 35 million cd/m². ... This level of brightness would be extremely bright and would be temporarily blinding when viewed directly. (Draft EIS at 6.10-18).

The Draft EIS then proceeds to state that:

On the one hand, staff could rationalize that the potential for glare from heliostats to pose a significant hazard to ... air traffic flying above or adjacent to the site would not be significant, because:

- Viewers of such glare would instinctively divert their eyes from the source;
- The duration of exposure may be very short because light would be reflected at a constant stationary angle and the viewer (motorist or pilot) would be traveling at a high rate of speed ...; and
- Glare that is bright enough to temporarily impair vision and cause viewers to look away is a common occurrence from other objects in the built and natural environment. (Draft EIS at 6.10-18 – 6.10-19).

In response to this data, the Draft EIS concludes that “it is not conclusive to staff that personal reaction to bright light would adequately mitigate this risk of exposure that could cause

temporary blindness and compromise safety of an observer who may be responsible to navigate an aircraft or vehicle.” Therefore, the Draft EIS recommends that the Heliostat Positioning Plan be prepared to address potential luminance/brightness concerns. (Draft EIS at 6.10-19).

While CCDOA supports the concept of a Heliostat Positioning Plan, CCDOA questions the threshold adopted by the BLM. Like retinal injury, temporary blindness is also an inappropriately high standard to use for this project. Rather, the Plan should consider the point at which the luminance/brightness of the heliostats could cause any unsafe distraction to pilots.

2. THERMAL EFFECTS

In its January 2009 comments, CCDOA noted that thermal plumes from the ISEGS project could create hazards to air navigation if the concentrated heat from the project produced enough rising hot air to cause turbulence to overflying aircraft, which might impact Visual Flight Rule (VFR) traffic in the area that currently tracks along the I-15 corridor en route to Jean Airport.²

The Draft EIS concludes that:

... aircraft flying directly over the Ivanpah 3 [air cooled condenser (ACC)] would have the potential to experience turbulence at an altitude of 1,350 feet or less and aircraft flying directly over either of the Ivanpah 1 or 2 ACCs would have the potential to experience turbulence at an altitude of 900 feet or less. (Draft EIS at 6.10-22).

To mitigate against these potential safety hazards, the Draft EIS recommends Condition of Certification TRANS-6, which would require the *applicant* to coordinate with the FAA to: (1) notify all pilots using the airspace above ISEGS of potential turbulence from thermal plumes, (2) update all applicable airspace charts to indicate that plume hazards could exist up to an altitude of 1,350 feet above the ground surface, and (3) require pilots to avoid direct overflights of the ISEGS site at or below this altitude during daylight hours. (Draft EIS at 6.10-22).

It is not clear in the Draft EIS whether FAA has been consulted on, or concurs with, these proposed measures. The only evidence of any involvement by FAA to date is its Determinations of No Hazard for the power towers. (Draft EIS at 6.10-21, Table 10). Those determinations only address the potential hazards caused by the *height* of the proposed power towers.³ There is no evidence in the Draft EIS that FAA has reached any determination about the effect of the thermal plumes from the air cooled condensers on air navigation and on the potential turbulence hazards. Given that BLM and CEC have explicitly recognized that in certain conditions, aircraft *may* experience turbulence as a result of the thermal plumes from the air cooled condensers, CCDOA recommends that BLM coordinate with FAA before issuance of the Final EIS to ensure that the federal agency with expertise on aviation safety concurs that BLM’s conclusions are reasonable and that BLM’s proposed mitigation is feasible. Only by engaging FAA directly on this matter can BLM meet its mandate to properly evaluate the degree to which the proposed

² FAA also raised concerns regarding potential thermal plume effects in its January 2, 2008 letter to Mr. Meckfessel.

³ 14 C.F.R. Part 77.

action affects public health or safety.⁴ For example, BLM could require the applicant to file additional FAA Form 7460s (Notices of Proposed Construction or Alteration) for the air cooled condensers as a means of triggering FAA review of the potential hazards caused by thermal effects. While Form 7460s are traditionally used to examine height obstructions, FAA recognizes that the form is also an appropriate method of informing the agency of other potential hazards.⁵

3. MILITARY TRAINING ROUTES

The responses provided by BLM (Draft EIS at 6.10-32) adequately address CCDOA's comments.

4. IVANPAH LANDS ACT (PUB. L. 106-362)

In its January 2009 comments, CCDOA noted that under the Ivanpah Valley Airport Public Lands Transfer Act (Pub. L. 106-362), Congress concluded that the shortage in airspace in the Las Vegas region was so critical that, before any land in the Ivanpah Valley could be transferred to Clark County for the purposes of constructing the SNSA, CCDOA must develop an airspace management plan that minimizes impacts to the Mojave National Preserve, and ensures aircraft access to the Las Vegas Basin under visual flight rules at a level that is equal to or better than existing access. CCDOA prepared, and the FAA Administrator certified, an Airspace Feasibility Study, accordingly. In its January 2009 comments, CCDOA requested that the BLM examine the degree to which the ISEGS project may undermine these statutory conditions.

In response, the Draft EIS notes that Public Law 106-362 creates no legal obligations on the BLM, and that "none of the lands involved in the project would be used for air traffic and are not subject to the Ivanpah Lands Act." (Draft EIS at 6.10-32). While the Ivanpah Lands Act may not be a direct source of the agencies' legal obligations, it is illustrative of the problem that must be addressed and reflects the explicit Congressional direction on the importance of protecting airspace in the vicinity of the SNSA. As noted above, the Draft EIS acknowledges that the ISEGS project *will* have impacts on existing and proposed aviation traffic. BLM itself acknowledges that thermal effects will affect certain flights and that pilots will experience some glare effects. Given that fact, and given Congress' expressed concern that there is limited airspace available for new flight tracks,⁶ BLM is obligated under the Federal Land Policy and Management Act to coordinate with FAA about the ISEGS project to ensure that the Congressional mandate for the SNSA Airport is not inadvertently thwarted by components of the ISEGS project.⁷ The fact that FAA evaluated the potential for the ISEGS project to result in

⁴ BLM must evaluate the degree to which the proposed action affects public health or safety, and the degree to which effects are likely to be highly controversial. (Draft EIS at 2-16, *citing* 40 CFR § 1508.27); *see also*, 43 U.S.C. §§ 1763, 1764 & 1765 (Department of Interior must consider impacts to public safety when issuing rights-of-way).

⁵ *See* FAA Advisory Circular 150/5200-33B at § 4-3 (project proponents can notify FAA of land use practice changes by filing FAA Form 7460).

⁶ *See, e.g.*, S. REP. NO. 106-394 at 2 (2000) (recognizing that CCDOA's extensive review concluded that the Ivanpah Valley is "the only option that can accommodate the growing air traffic needs of the region"); *see also* H.R. REP. NO. 106-471 at 3 (1999) ("the Ivanpah Valley is an ideal place to build a new airport").

⁷ 43 U.S.C. § 1711(c) (when revising land management plans, BLM must coordinate land use planning and management activities with the relevant programs of other Federal departments and agencies)

height hazards to air navigation (Draft EIS at 6.10-32) is not enough. As noted above, FAA has not yet opined on the potential impacts of the ISEGS project to existing and planned flight tracks.

5. GENERAL COMMENT

The Final EIS should include FAA in the list of regulatory agencies that administer laws, ordinances, regulations or standards “that may be applicable to the proposed project.” (*Compare*, Draft EIS at 2-17 – 2-19). In addition, FAA’s 2008 letter to Mr. George Meckfessel (attached as **Exhibit B**) should be included in the Table of scoping comments received. (*Compare*, Draft EIS at Introduction Table 1).

* * *

EXHIBIT B
to
CCDOA Comments on
Ivanpah Solar Electric Generation System Draft EIS

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U.S. Department
of Transportation
Federal Aviation
Administration

Western-Pacific Region
Airports Division

P.O. Box 92007
Los Angeles, CA 90009-2007

January 2, 2008

George R. Meckfessel
Planning and Environmental Coordinator
Needles Field Office
Bureau of Land Management
1303 South U.S. Highway 95
Needles, California 92363

RECEIVED
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Dear Mr. Meckfessel:

Subject: Proposed Ivanpah Solar Electric Generating System

This letter is in response to your Notice of Intent to prepare an Environmental Impact Statement for three concentrating solar-powered steam, electricity generating plants and related facilities in San Bernardino County, 4.5 miles southwest of Primm Nevada. Under the *National Environmental Policy Act of 1969*, the Federal Aviation Administration (FAA) and the Bureau of Land Management (BLM) are in the process of preparing an Environmental Impact Statement (EIS) for a supplemental commercial service airport in the Ivanpah Valley, alongside Interstate 15 near Jean Nevada. The *Ivanpah Valley Airports Land Transfer Act of 2000*, (*Public Law 106-362*) requires the FAA and the BLM to jointly prepare the EIS. The project proponent is Clark County, Department of Aviation.

FAA is concerned about the potential glare and thermal plume effects from the proposed project on aircraft using the airports at or around Jean, Searchlight, and Pahrump Nevada. Further, FAA is concerned about the proposed project's affects to the proposed Southern Nevada Supplemental Airport, just northeast of the proposed facility in Nevada.

Please be advised that the FAA requires information on the heights of the proposed towers to determine if the proposed towers are a hazard to air navigation. We are providing you a copy of FAA Form 7460-1, Notice of Proposed Construction or Alteration for the proponent to complete and submit to the FAA. We recommend this form be completed and filed with FAA immediately so we can evaluate the proposed facility's effect on the safe and efficient use of navigable airspace. Please provide information on how individual mirrors will be positioned when not in use or when being serviced. FAA requires this information to determine if the proposed facility would be a hazard to air navigation.

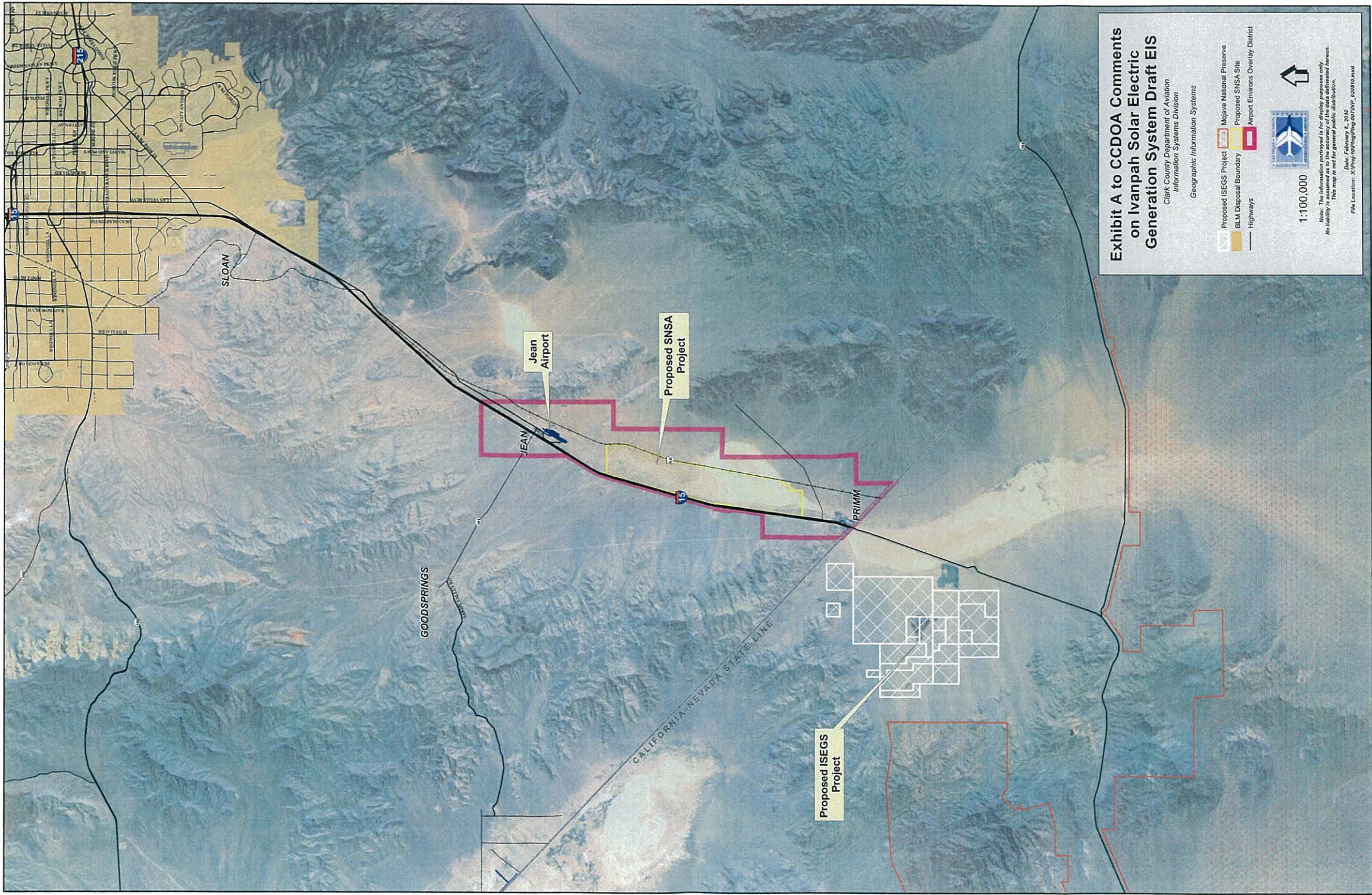
If you have any questions, please contact Mr. David B. Kessler, Environmental Protection Specialist at 310-725-3615.

Sincerely,

**ORIGINAL SIGNED BY
MIA PAREDES RATCLIFF**

Mia P. Ratcliff
Manager, Planning & Programming Branch

cc: Jeffrey G. Steinmetz, BLM, Las Vegas Field Office



**Exhibit A to CCDOA Comments
on Ivanpah Solar Electric
Generation System Draft EIS**

Clark County Department of Aviation
Information Systems Division
Geographic Information Systems

- Proposed ISEGS Project
- BLM Disposal boundary
- Mojave National Preserve
- Proposed SNSA Site
- Airport Environs Overlay District
- Highways

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Note: The information portrayed is for display purposes only.
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Clark County, NV
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