

DOCKETED

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**Ivanpah Solar Electric Generating System (Ivanpah)
Avian & Bat Technical Advisory Committee (TAC) Meeting**
Nipton, California. May 20, 2014 – Meeting Notes

TAC Members Present: Co-Chair, Roger Johnson – CA Energy Commission (CEC)
 Co-Chair, Larry LaPre – BLM
 Amedee Brickey – US Fish and Wildlife Service (USFWS)
 Magdalena Rodriquez – CA Dept. Fish and Wildlife (CDFW)
 Mitch Samuelian – Ivanpah Operations (Ivanpah)
 Ray Kelly – Solar Partners LLC (SP)

Invited Guests: Brian Boroski, Ph.D. – HT Harvey & Associates (HTH)
 Dave Johnston, Ph.D. – HT Harvey & Associates (HTH)
 Doug Davis, Ivanpah Operations

Introductions - Solar Partners/Ivanpah Operations

- Safety Overview
- Attendee Introductions (TAC members and invited guests)

Procedural Issues

- Reviewed and finalized meeting notes from Feb 6th meeting
 - Members agreed final meeting notes would be posted on CEC and BLM website
- Reviewed current meeting agenda
- Discussed TAC meeting content and future participants
 - Members agreed no need for formal appointment of alternates
- Discussed standing agenda
 - Members agreed the agenda may change for future meetings
- Discussed and agreed that some future meetings can be done via WebEx
 - Ivanpah agreed to provide WebEx for use by TAC

ABMMP Monitoring Efforts

- HTH presentation on monitoring efforts to date
 - HTH discussed how the total survey crew time was calculated
 - HTH agreed to calculate the total survey hours as hours in the field only (excluding minor amounts of administrative time)
 - Discussed questions regarding whether birds that are singed are flying off-site
 - HTH presented locations of singed birds found on-site (see discussion below)
 - Discussed how to ensure reporting provides off-site information
 - Only recovered deceased birds are noted in the SPUT
 - Birds found in off-site survey control areas that do not show signs of project related injury are not required to be recovered
 - Members agreed that incidental finds off-site, including in control areas, would be compiled on separate list, but with same detail as SPUT table
 - HTH confirmed that they make note of raptor observations regardless if from point counts and raptor and large bird monitoring or not
 - HTH reported on incidences of roadrunners found at fence lines
 - HTH provided a summary of the Canine Search Trials
 - Dogs were trained to alert when scenting feathers, avian and bat carcasses
 - Dogs were trained to stay with a carcass until the trainer arrives
 - Trials were conducted March 18-28, 2014
 - The canine trial resulted in searcher efficiency rates greater than the plan goal
 - HTH recommended commencing canine use during the summer survey period

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- HTH projected that 3 arc plots per day could be surveyed by the handler and dog during summer months
- The TAC discussed marking carcasses by placing a cone such that dogs could continue searching and other team members could record search data
- TAC agreed that using dogs will increase search efficiency and effectiveness

TAC Action Taken:

- TAC agreed that incidental observations of deceased or injured birds/bats would be compiled on a separate spreadsheet from systematic survey observations and records will be concordant with survey records
- Ivanpah/HTH requested and received TAC agreement and USFWS authorization to integrate canine teams into the avian fatality surveys

Report on Previous TAC Meeting Action Items

- TAC Request: HTH examined if marking survey plots adversely affects or biases survey results
 - HTH states that to maintain the statistical integrity of the surveys all carcasses found must be reported by site visitors and contractors in accordance with Ivanpah protocols
 - All carcasses are documented, processed and collected in accordance with SPUT permit requirements
 - HTH completed all survey plot staking
- TAC Request: SP to report on the potential for bat deterrence for the Air Cooled Condenser (ACC)
 - Ivanpah reported on the progress toward installing screening or sonic deterrent system on an ACC for Bat Exclusion
 - Very few bat fatalities (total of 8) have been found
 - For the bat screening, if warranted, SP identified 4-5 inch mesh size screen to skirt the fan cowling to prevent bats from entering the ACC; completing analysis to ensure that if the screens are installed on the ACC no air flow restriction will occur and degrade performance
 - SP has been in contact with sonic deterrent system (SDS) vendors to evaluate installation of a SDS instead of the mesh screen

Follow-up Action Item: Ivanpah will report on the status of potential measure at the next TAC meeting.

- TAC Request: USGS performed a study on the site and the TAC noted that the equipment being tested may add to the understanding of the source of light flashes observed in the flux field. The TAC members agreed it was important to allow USGS to complete their tests and discussion of imagery techniques was tabled until the USGS tests the applicability of equipment and provides a summary of their results.
 - SP reported that the USGS employees were on the site and in the middle of their Spring 2014 study period
 - USGS will be back on the site in Fall 2014
- TAC Request: SP to investigate the availability of a secure website
 - Ivanpah has contracted with a provider and has a secure web portal for the TAC. Site security features include unique logins for users; ability to track users access includes: Location, Time, Computer ID; all uploaded information will have a water mark embedded
 - All data will go through Quality Control (QC) review before being posted to website
 - CEC would like to have data on website linked to their GIS file

Follow-up Action Item: Ivanpah to look into connecting data in TAC website with CEC GIS file

- TAC Request: HTH to present spatial distribution of avian detections that were effected by flux
 - HTH presented information showing the spatial distribution of bird singeing found throughout the three units
 - During the winter 2013-2014 period 85.2% of singed bird remains were found within 260 meters of the tower base

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- HTH reviewed data collected around the towers for the time period 27 November 2011 to 21 March 2014 and found 94.8% of singed casualties were within 260 meters of the towers
 - Distribution of singed birds indicates a low probability of observing off-site singed carcasses through systematic ground surveys
 - **TAC Request:** USFWS recommended reviewing the USGS study and the spring monitoring reports
 - Still waiting on information about cameras from USGS.
- Follow-up Action Item:** TAC will contact USGS to request available information

USFWS - Avian Mortality at Solar Energy Facilities in Southern California: A Preliminary Analysis (“Forensic Report”) and Pacific Southwest Region: Agency Review of the Forensic Report Discussion

- TAC discussed the Forensics Report and the recommendations and observations made in that report
- USFWS led the discussion based on the Pacific Southwest Region Recommendation Review memo dated April 11, 2014. This memo describes the review and recommendations that USFWS Migratory Birds, Ecological Services and OLE have agreed to endorse for solar facilities. The TAC reviewed and discussed each Monitoring/Detection and Bird Mortality Avoidance Measure listed in the memo. The TAC then discussed if and how Ivanpah is implementing each of these measures:
 - **Monitoring/Detection Measures:**
 1. Install video cameras – Under review: TAC decided to allow the USGS study to inform the type of cameras that would be effective
 2. Conduct daily carcass surveys at the base of towers – TAC agreed this is not required at this time; current data does not support implementing this measure
 3. Use dogs to detect dead and injured birds – Ivanpah completed Canine Trials, presented data to TAC, TAC has agreed that canine surveys should be phased in and HTH will be implementing during summer season.
 4. Implement raven deterrent actions – Ivanpah presented how it is implementing the requirements of the approved Raven Management Plan. TAC agreed this is underway.
 - **Bird Mortality Avoidance Measures**
 1. Increase cleared area around tower at Ivanpah – TAC agreed that the current data does not support clearing more vegetation at Ivanpah
 2. Retrofit existing panels with visual cues – TAC agreed this is not applicable to Ivanpah.
 3. Suspend power tower operation during peak migration times – TAC agreed that the current data does not support implementing this measure at this time.
 4. Avoid vertical orientation of mirrors – The TAC discussed this issue and agreed that since the mirrors (heliostats) are stowed in the horizontal position; only small numbers of them are placed in the vertical position during short times for cleaning and that the project is subject to an approved Glint and Glare Plan. Thus, no further action related to this measure is necessary at this time
 5. Properly net ponds – Ivanpah has no ponds, so this measure is not applicable
 6. Place perch deterrent devices where indicated – Ivanpah described how they are working with a vendor to identify the best way to deter birds from perching on various rails, lights, equipment, etc. around the towers and that Ivanpah will report on the status of this effort at the next TAC meeting. The TAC agreed that this is a measure to be implemented at Ivanpah and look forward to future status reports.
 7. Employ exclusionary measures to prevent bats from roosting in and around the ACC. TAC agreed that the presentation made by Ivanpah addresses this issue and looks forward to netting or bat sonic deterrent system being installed at the facility. Ivanpah will report on the status of this evaluation at the next TAC meeting.

Follow-up Action Items:

- Ivanpah to integrate canine searches into systematic surveys.
- Ivanpah to report on the status of perch deterrence planning effort at the next TAC meeting.

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- Ivanpah to report on the status of ACC screening or bat sonic deterrent system

Insects

- TAC discussed insect issues presented in the Forensic Report and reported by Agency Staff
- USFWS indicated that understanding Monarch Butterfly impacts is important as the species may become protected
- Discussed what information is presently being recorded on insects
 - HTH does not formally survey or record insect information
 - Biologists do informally observe insects to help determine if their presence coincides with avian mortality
 - TAC requested HTH to examine the relationship between milkweed presence at the facility and monarch butterflies and whether there is significant mortality at the facility
 - The TAC requested a discussion of whether the luminance from the power tower is attracting insects
 - HTH indicated that they do not believe this is happening as they do not see increasing buildup of insects over the day when flux is produced. They see the insects swarming around the towers as sporadic but they have not determined if these events are unique to the towers
 - The towers likely act as wind breaks which might cause insects to gather in the lee of the tower.
 - Ivanpah is looking into replacing the existing outside lights with yellow LED fixtures. This would lessen the attraction of insects to the facility at night.

Follow-up Action Items:

- HTH to determine what efforts are necessary to provide an incidental list of insect species found near the base of the towers and what efforts may be necessary to determine the densities of insects at the towers in comparison to nearby offsite locations. HTH to report at next TAC meeting.
- HTH to prepare an informal examination of potential Monarch Butterfly occurrences at Ivanpah. HTH to present status of this work at next TAC meeting.
- Ivanpah to report on status of light replacements to LED

Additional BMPs

- Ivanpah Operations, Deterrence System Investigation - A formal RFP will go out mid-June to obtain contractor quotes for a test to evaluate potential active avian deterrence systems.
 - Merlin Avian Deterrence System - Use directional acoustics to deter birds from areas with elevated flux concentrations
 - BirdsVision Avian Deterrence System - Use UV as a deterrent to discourage birds from entering areas with elevated solar flux
- Software change to the solar field control system will lower the flux densities while operating.
 - Timeline is 4 weeks to implement once budget is approved.
 - Will be completed before next TAC Meeting.
 - Implementation of this change will result in some reduction of the plant's ability to maintain production during cloudy weather events.
- LED Lighting – Using NER Engineering to tailor solution

Follow-up Action Items:

- Ivanpah to report back to TAC on additional BMP investigations

Next Steps

- Next Meeting Date
 - Next meeting location was discussed and it was suggested that the meeting location be in Sacramento in July.