

## Stantec Consulting Services Inc.

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## **MEMORANDUM**

**To:** Tim Coward – Bureau of Land Management

cc: Sandra Brewer – Bureau of Land Management

Wendy Seley – Bureau of Land Management Tracy Kipke – Nevada Department of Wildlife Nancy Lightfoot – Stantec Consulting Services Inc.

Adam Green – Tonopah Solar Energy, LLC Rob Howe – Tonopah Solar Energy, LLC

Vaughan Johnson – Tonopah Solar Energy, LLC Karla Alarcon – Tonopah Solar Energy, LLC Chris Nicolai – U.S. Fish and Wildlife Service Michael Clark – U.S. Fish and Wildlife Service

**From:** Josh Vittori

**Date:** July 18, 2016

**Project:** Crescent Dunes Project – 2016 Avian Mortality Surveys and Reporting

Stantec Project Number 203703172

**Subject:** July 2016 – Avian Mortality Survey Results

Stantec Consulting Services Inc. (Stantec) is contracted by Tonopah Solar Energy, LLC (TSE) to perform monthly avian mortality surveys for the Crescent Dunes Solar Power Plant as per TSE's Avian and Bat Protection Plan (ABPP). This memorandum reports a summary of the results from the July 2016 avian mortality surveys. As outlined in the ABPP, Stantec wildlife biologists conducted surveys along established transects within the power plant's heliostat field, around the evaporation ponds, and along the overhead transmission line (Figure 1). Surveys were conducted for seven consecutive days from July 9 through 15, 2016. In addition to the summary below, specific mortality details can be found in the attached field survey forms, avian incident form, and figure.

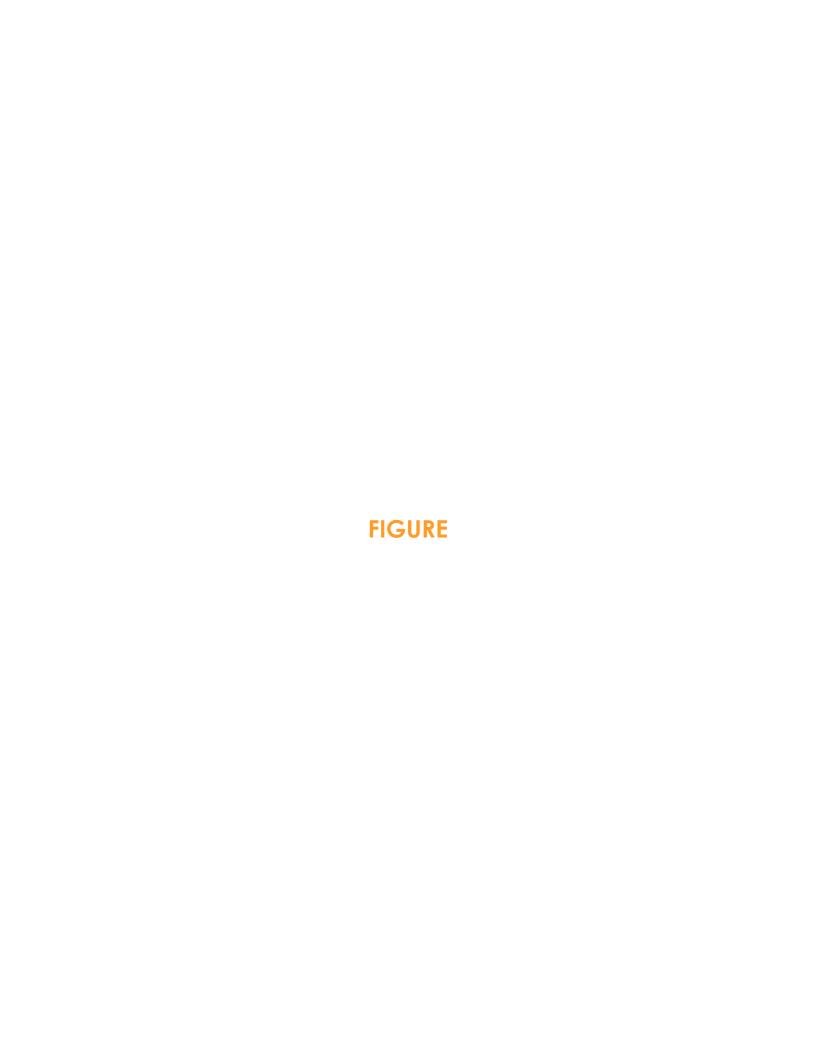
Three mortalities were observed or located by Stantec biologists during the July 2016 surveys. One cliff swallow (Petrochelidan pyrrhanota), one tree swallow (Tachycineta bicolor), and one unknown avian species mortality were reported by Stantec biologists on July 9, 2016. The cliff swallow was found near the cooling fans in the power block. The tree swallow was found near the salt storage tank in the power block. Both of these mortalities were recorded with burned/singed feathers on the carcasses. The unknown species may have been a swallow and was observed flying in to the zone of heated solar flux near the tower (note the location on the attached figure is the location of the observing biologist, not the location of the mortality). The location where the bird appeared to have fallen was searched, but no carcass was found.

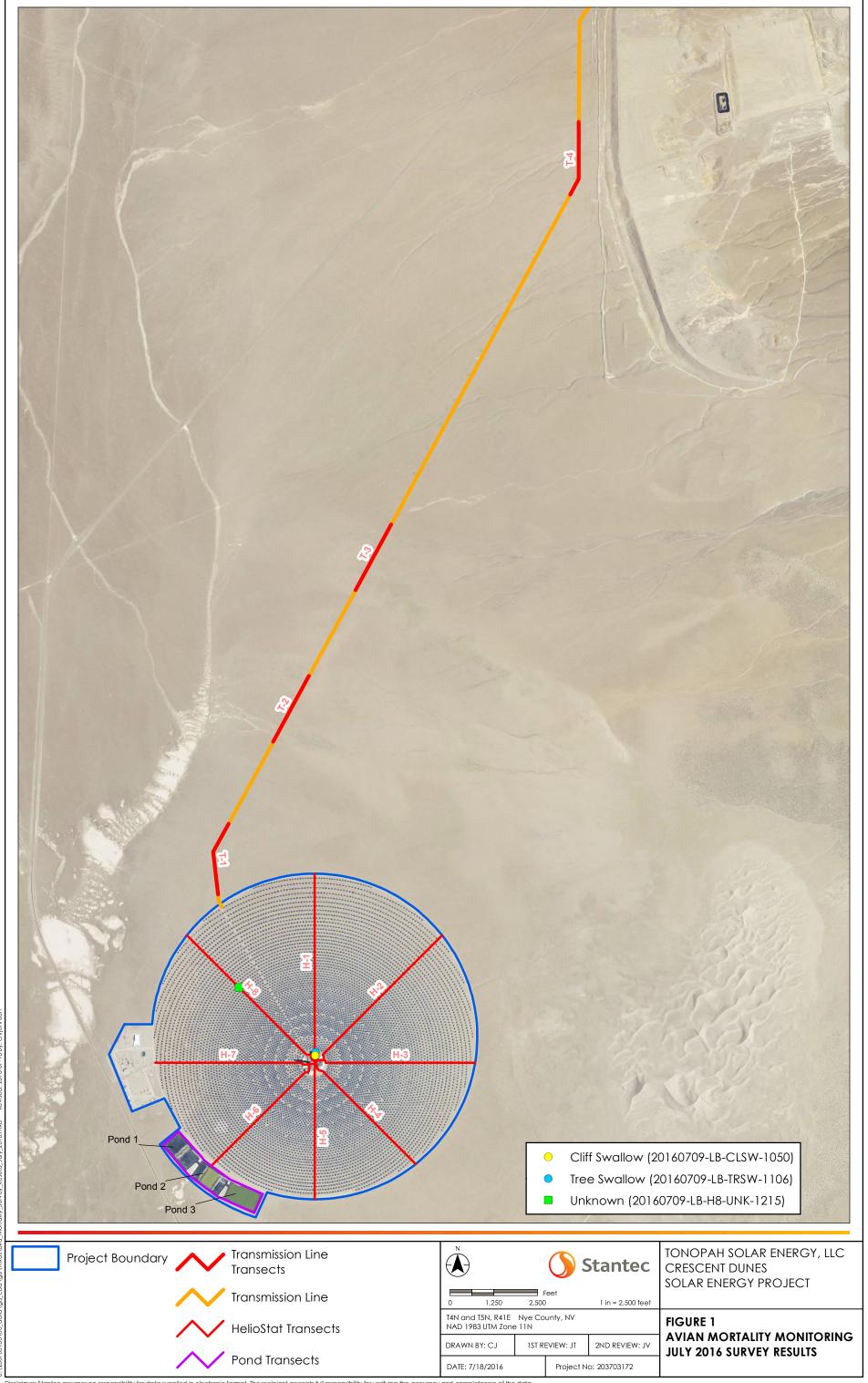
It should be noted that the results transmitted within this memorandum are specific to the seven day survey event in July 2016 and do not include other observations that may have been made outside of these surveys, including those documented by other contractors. As outlined in the



ABPP for this project, Stantec will compile an annual report of avian and mortality survey results and data analysis. This report will include the results of each month's surveys as well as detection analysis and annual estimates of mortality for the entire project area as required by the ABPP.









Avian/Bat Incident and Nest Assessment Form Operations Area (circle one): Transmission Line Heliostat Field Buffer Zone **Evaporation Pond** Power Block Carcass ID: 20160709-LB-H8-UNK-1215 Dead Species (circle one and list species): or Nest (circle one) Crow/magpie/raven Eagle Active Hawk/falcon/osprey Owl Species (if known): Small bird/Song bird Waterfowl Inactive Species: possible suallow sp. Unknown Other Bat (list species if possible) HA Bird/Bat Count Date Found 💍 🖰 t Time Found 12:15 UTM of Carcass NA UTM of Observer 0467527 4233039 (if different from carcass) Cause/Indicators of death (circle one) Collision Electrocution (Burn) Unknown Other Finders Name Luke Barrett Finders Phone/Contact 775-544-4041 Pole Identification Number (if applicable) NA Nearest Pole to Transmission Line (if applicable) NA Carcass Description & Other Notes/Comments: Walking transect H8 a single bird, Possibly a smallow species, the Heatel flux around the bright, bird become the smoke and Falling ! Barrett bird the mortality. L. Bar found.

Avian/Bat Incident and Nest Assessment Form
Operations Area (circle one):
Heliostat Field Transmission Line Evaporation Pond Buffer Zone Power Block
Carcass ID: 20160709-LB-H1-CLSW-1050
Dead Species (circle one and list species): or Nest (circle one)  Crow/magpie/raven Eagle Active  Hawk/falcon/osprey Owl Species (if known):  Small bird/Song bird Waterfowl  Species: Cliff Swallow Unknown  Other
Bat (list species if possible) NA
Bird/Bat Count
Finders Name Loke Barrett
Finders Phone/Contact 775-544-4041
Pole Identification Number (if applicable) NA
Nearest Pole to Transmission Line (if applicable) MA
Carcass Description & Other Notes/Comments:  Carcass found Mear cooling Fans. Burt/Singed feathers  observed over entire Carcass. Carcass is a female  cliff Swallow. Carcass was cold with ants present.

Avian/Bat Incident and l	Nest Assessment Form
Operations Area (circle one):	
Heliostat Field Transmission Line Evapor	ration Pond Buffer Zone Power Block
Carcass ID: 20160709-LB-H1-TRS	SW-1106
Dead Species (circle one and list species):  Crow/magpie/raven  Eagle  Hawk/falcon/osprey  Owl  Small bird/Song bird  Species:  Other  Other	Nest (circle one) Active Species (if known): Inactive
Bat (list species if possible)	
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Date Found 2016 07 09	Time Found 10:50
UTM of Carcass <u>046 8194 4232473</u> Cause/Indicators of death (circle one)  Collision Electrocution Burn	UTM of Observer
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Crescent Dunes Solar Facility ABPP Mortality Monitoring Date: C7/の4/16 Observer: Seth マロダルがへ

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Heliostat 8			

Total Number of

Carcasses

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Crescent	Crescent Dunes Solar Facility ABPP Mortality Monitoring	Mortality Moni	toring		tiol cacliday)		
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Crescent Dunes Solar Facility ABPP Mortality Monitoring Date: 7/10/2016
Observer: C. Borreth

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Distance from Transect (feet) Cause of Death DATA SHEET (use a different sheet for each day) **UTM Coordinates Carcass Condition** Crescent Dunes Solar Facility ABPP Mortality Monitoring Date: ヴカハノンのもののbserver: しろったが Plant Operation Times (list start/stop times during survey period): ハイ Species Unique Carcass ID DAILY SUMMARY Transect #

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DATA SHEET (use a different sheet for each day) Crescent Dunes Solar Facility ABPP Mortality Monitoring Date:  $\eta(\iota \psi_{\mathcal{L}})$  Observer:  $\iota_{\mathcal{L}}$ 

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Distance from Transect (feet) Cause of Death DATA SHEET (use a different sheet for each day) **UTM Coordinates Carcass Condition** Observer: L. Berreth
Plant Operation Times (list start/stop times during survey period): 144 Crescent Dunes Solar Facility ABPP Mortality Monitoring Date: 07/13/2.016Species 240 Unique Carcass ID DAILY SUMMARY Transect#

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Crescent Dunes Solar Facility ABPP Mortality Monitoring Date: OT | 14/20|6 Observer: L. Borrett

Plant Operation Times (list start/st

	Distance from Transect	(feet)							***************************************								
	Cause of Death														AND THE PROPERTY OF THE PROPER		
	UTM Coordinates					The second control of											
iod); N (A	Carcass Condition									\							
s during survey per	Species										1	// 21					
Plant Operation Times (list start/stop times during survey period):	Unique Carcass ID	The state of the s														ADV	
Plant Opera	Transect #	338	Z Z	67.6	3											DAILY SHARAADY	Care Colvin

Total Number of	Cal casses	۷. ×	X	X X	34	Je Je	<b>3</b>	* *
Stop	1							
Start								
Observer Initials	×	×	CP.	5	2	<u>LB</u>	×	X
Transect	Heliostat 1	Heliostat 2	Heliostat 3	Heliostat 4	Heliostat 5	Heliostat 6	Heliostat 7	Heliostat 8

Transcon	Observer	Start	Stop	
וופוופרו	Initials	Time	Time	Total Number of Carcasses
Evaporation Pond Perimeter	CB			8
Transmission Line 1	×			×
Transmission Line 2 $\angle B$	75			8
Transmission Line 3	X			×
Transmission Line 4	50			2 8
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**Total Number of Carcasses** Distance from Transect (feet) Ø X Stop Time Cause of Death Start Time Observer Initials SJ SJ X DATA SHEET (use a different sheet for each day) **UTM** Coordinates Transmission Line 2 Transmission Line 3 Transmission Line 1 Transmission Line 4 **Evaporation Pond** Transect Perimeter Carcass Condition Plant Operation Times (list start/stop times during survey period):  $\mathcal{M}/\mathcal{M}$ Total Number of Crescent Dunes Solar Facility ABPP Mortality Monitoring Carcasses XXXX Ø Species 3:1 Stop Time **Unique Carcass ID** Start Time Observer: C. Bara Date: @7/15/2016 Observer Initials 9 XX X DAILY SUMMARY Transect # Transect Heliostat 1 Heliostat 2 Heliostat 4 Heliostat 6 Heliostat 5 Heliostat 8 Heliostat 3 Heliostat 7