

DOCKETED

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Project Title:	Ivanpah Solar Electric Generating System (Compliance)
TN #:	218289
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Description:	N/A
Filer:	Patty Paul
Organization:	NRG Energy Services on behalf of Solar Partners I, II, and VIII, LLCs
Submitter Role:	Applicant
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Docketed Date:	6/13/2017



NRG Ivanpah Solar Electric Generating System
100302 Yates Well Road, HCR1, Box 280 Nipton, CA 92364
Ph: 702-815-2021 Fax: 702-815-2030

January 25, 2017

Mr. Joseph Douglas
Compliance Project Manager
California Energy Commission, Siting, Transportation and Environmental Protection Division
1516 9th Street
Sacramento, CA 95814

Mr. Michael Ahrens
Authorized Officer
Bureau of Land Management, Needles Field Office
1303 U.S. Hwy 95 S.
Needles, CA 92363

RE: Ivanpah Solar Electric Generating System (07-AFC-5C)
Conditions of Certification, COMPLIANCE-4 and COMPLIANCE-7; 2016 Annual Compliance Report

Dear Mr. Douglas and Mr. Ahrens,

Pursuant to the requirements of CEC Conditions of Certification, COMPLIANCE-4 and COMPLIANCE-7, the 2016 Annual Compliance Report for Ivanpah Solar Electric Generating System that covers from January 1, 2016 to December 31, 2016 is being submitted on behalf of Solar Partners I, II, and VIII, LLCs for your review.

Please feel free to contact me with any questions or concerns.

Thank you.

William Dusenbury

General Manager,
NRG Ivanpah Solar Electric Generating System
100302 Yates Well Road, Nipton, CA – 92364

CC: Doug Davis, NRG, Ivanpah
Tim Fisk, NRG, Houston, TX
Paul Zavesoff, NRG, Carlsbad, CA
Mitch Samuelian, NRG, Ivanpah
Tim Sisk, NRG
Document Control Specialist – NRG.



Ivanpah Solar Electric Generating System

**California Energy Commission (07-AFC-5C)
Bureau of Land Management
(CACA-48668, 49502, 49503, and 49504)
Conditions of Certification COMPLIANCE-4 and
COMPLIANCE-7**

Annual Compliance Report

**January 1, 2016 – December 31, 2016
Reporting Period**

January 25, 2017

**Prepared by: NRG Energy Services
on behalf of Solar Partners I, II, and VIII, LLCs**

**100302 Yates Well Road
Nipton, CA 92364**

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Exhibit 1

Annual Compliance Report Summary

2016 Annual Compliance Report

Section 1

**Summary of Current Operating
Status and Changes to Facility
Operations**

(COMP-07 Item 2)

January 10, 2017

Mr. Joseph Douglas
Compliance Project Manager
California Energy Commission, Siting, Transportation and Environmental Protection Division
1516 9th Street
Sacramento, CA 95814

Mr. Michael Ahrens
Authorized Officer
Bureau of Land Management, Needles Field Office
1303 U.S. Hwy 95 S.
Needles, CA 92363

RE: Ivanpah Solar Electric Generating System (07-AFC-5C) Summary of Current Project Operating Status to fulfill California Energy Commission Conditions of Certification, COMPLIANCE-7 Item 2

Dear Mr. Douglas and Mr. Ahrens,

Pursuant to the requirements of Conditions of Certification COMPLIANCE-7 Item 5 of the Commission's approval of the Ivanpah Solar Electric Generating System, we are providing the following summary of current project operating status during the reporting period as a requirement in the Annual Compliance Report:

- Ivanpah received the approved Federal Operating Permit (Title V and Title IV) on May 19, 2016 from Mojave Desert Air Quality Management District (MDAQMD).
- Ivanpah has received two (2) Notices of Violation (NOV) on July 27, 2016 from San Bernardino County CUPA for the issues identified during the May 19, 2016 inspection. The NOV was submitted to CEC and BLM on August 4, 2016 to fulfill the requirement for COMPLIANCE-10. Ivanpah addressed the two issues identified in the NOV, and a response was submitted to SBC CUPA on August 24, 2016. A supplemental response was received from SBC CUPA on August 31, 2016 rescinding one of the NOVs identified on the report. A copy of the CUPA supplemental report is attached.
- An approximately 330 gallons lube oil spill occurred at the Ivanpah 1 Main Boiler Feed Pump Turbine (MBFPT) on July 29, 2016, at approximately 1659 hours PDT, while the unit was transitioning from the normal 115kV station power to the backup 33kV station power in support of Southern California Edison (SCE) maintenance activities. Timely notifications to all relevant agencies including CEC and BLM were made on July 29, 2016, and the Spill Report was submitted to all agencies as required. The spill was properly remediated without impacting any watershed.

- An approximately 385 gallon lube oil spill also occurred at the Ivanpah 3 Main Boiler Feed Pump Turbine (MBFPT) control oil system on October 1, 2016, at approximately 1815 hours PDT, while the unit was offline for the day and the turbine was transitioning to turning gear. The Ivanpah Control Room provided timely verbal notifications to relevant agencies on October 1, 2016. CEC and BLM were notified on October 2, 2016. The Spill Report was submitted to the agencies on October 13, 2016. The spill was properly remediated without impacting any watershed.
- Ivanpah 1 had a forced outage from April 22, 2016 to May 2, 2016 due to a fault on the 115 kV line caused by a grounding rod that punctured the cable insulation during construction. Temporary measures were made to bypass the problem area, and the facility returned to operation on May 3, 2016.
- Ivanpah 2 had a forced outage from April 8, 2016 to June 19, 2016 due to the replacement of Steam Turbine Generator Stator active parts. The active stator parts were shipped from Germany, and were installed on site. Unit 2 went back online on June 20, 2016 after completion of newly installed parts commissioning tests.
- Ivanpah 3 had a forced outage from May 20, 2016 to June 5, 2016 due to a fire incident at Unit 3 tower on May 19, 2016. A brief fire occurred when the Unit 3 heliostats (mirrors) were temporarily locked in place in preparation for a maintenance activity, which resulted in solar flux being directed over a non-designated portion of the Unit 3 boiler tower. The mirrors were subsequently unlocked and moved, to remove the solar flux from the tower. No injuries occurred due to this incident and plant personnel quickly extinguished the fire. The fire which lasted several minutes was primarily limited to wiring and insulation materials.
- MDAQMD conducted an Air Quality audit on August 2, 2016 to verify Ivanpah's compliance with the permits issued to the facility. MDAQMD certified on August 4, 2016 that ISEGS is in compliance with all permit conditions. A copy of the MDAQMD inspection report is attached.
- Natural gas consumption for each power block is below the annual limit of 525 mmscf. Ivanpah 1 used 484 mmscf, Ivanpah 2 used 366 mmscf, and Ivanpah 3 used 445 mmscf.
- Ivanpah used 65% of the allotted 100 acre-feet of ground water extraction/drawn from Well #1 and Well #2, of which, approximately 57% was used by the three (3) units for electricity generation.
- All three units are stable, and able to attain and sustain full load.
- There were no significant changes to the facility operations during the reporting period.



NRG Ivanpah Solar Electric Generating System
100302 Yates Well Road, HCR1, Box 280 Nipton, CA 92364
Ph: 702-815-2021 Fax: 702-815-2030

Please feel free to contact me with any questions.

Thank you.


William Dusenbury

General Manager,
NRG Ivanpah Solar Electric Generating System
100302 Yates Well Road, Nipton, CA – 92364

CC: Doug Davis, NRG
Tim Sisk, NRG
Tim Fisk, NRG
Mitch Samuelian, NRG
Document Control Specialist – NRG.



San Bernardino County CUPA

620 South 'E' Street, San Bernardino, CA 92415-0153 • (909) 386-8401 FAX (909) 386-8460 • www.sbcfire.org

SUPPLEMENTAL INSPECTION REPORT

Page 1 of 1

INSPECTION
DATE: **May 19, 2016**

FACILITY ID FA0014961	FACILITY NAME: NRG O&M Group/Ivanpah Solar Electric Generation	FACILITY LOCATION: 100302 Yates Well Road Nipton, CA 92364
Consent Granted by: ☒ Inspect ☒ Photograph	NAME Tim Higdon	TITLE Environmental Specialist

ADDENDUM:

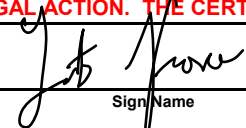
This is an addendum to the Aboveground Petroleum Storage Act (APSA) violation cited on July 8, 2016, final report associated with the inspection conducted on May 19, 2016.

NRG has provided additional information to this Department regarding the oily water observed during the inspection. Certificate of compliance documentation was received via both e-mail and regular mail on August 24 and August 25, 2016. Violation A040-"Failure to promptly correct the causes of leaks that result in accumulations of oil in diked areas"-40 CFR 112.8(c)(10); HSC 6.67 25270.4.5(a) is applicable to bulk storage containers. Per signed statement dated August 23, 2016 the oily water observed during the inspection was not related to bulk storage containers. Operator certifies that the oily water observed during the inspection has been addressed, and that NRG continues to take preventive measures to actively and promptly remove any minor accumulation of oil between routine inspections. Per operator, all areas with oil-filled operational equipment are inspected several times a day. Due the above mentioned information, San Bernardino County Hazardous Materials Division rescinds violation A040.

No further action is required at this time.

Contact Yanet Skrove if necessary at yskrove@sbcfire.org or (909) 386-8401 regarding this report.

☐ **NOTICE OF VIOLATION:** THE VIOLATIONS NOTED ABOVE MUST BE CORRECTED WITHIN N/A DAYS. FAILURE TO COMPLY MAY RESULT IN LEGAL ACTION. THE CERTIFICATE OF COMPLIANCE SHALL BE SUBMITTED WITHIN THE TIME PERIOD NOTED ABOVE.

Inspector: 
Sign Name
YANET SKROVE
Print Name

Received By: **E-MAIL**
Sign Name
N/A
Print Name

Title: **N/A**
Report Date: **08/31/2016**



MOJAVE DESERT AIR QUALITY MANAGEMENT DISTRICT

14306 Park Avenue, Victorville, CA 92392-2310
760.245.1661 -- 800.635.4617 -- FAX 760.245.2022

GENERAL INSPECTION FORM

29639

Start Date: 08/02/2016

End Date: 08/02/2016

Inspector: Catherine Tran

OWNER OR OPERATOR (Co. #1769)

Solar Partners II, LLC
HCR1 Box 280
Nipton, CA, 92364

FACILITY LOCATION (Fac. #3007)

Ivanpah 1
Near Ca/Nev border at Primm
Ivanpah, CA, 92364

SIC: 4911

Location / UTM(Km): 640E/3933N

PERMIT NUMBER: B010375

Issue Date: 10/13/2015

Attached: _____ Copies

Contact: Timothy Higdon

Fee Schedule: 2(f)

SCC: 10300601

Equipment Description: BOILER, Year of Manufacture 2012, Serial Number 2011-07,

Expiration Date: 10/31/2016

Inspection Type: Annual

Title: Environmental Specialist

Rating: 249

Permit Location: on site

Last Inspected: 2015-11-19 00:00:00.000

Facility Type: solar energy

Phone No: 702-815-2015

Permit Status: PTO

Variance No : _____

Process Rate : _____

VEE : N

VEE No : _____

Publications : _____

Existing NTC : none

Existing NOV : none

Existing Variance : none

1. Operation of this equipment must be conducted in compliance with all data and specifications submitted with the application under which this permit is issued unless otherwise noted below. [Rule 204]

Equipment is operated and maintained per permit conditions, unless noted below.

2. The owner/operator (o/o) shall operate this equipment in strict accord with the recommendations of the manufacturer or supplier and/or sound engineering principles and consistent with all information submitted with the application for this permit, which produce the minimum emission of air contaminants. [Rule 1302(C)(2)(a)]

Equipment is operated and maintained per permit condition.

3. This boiler shall use only natural gas as fuel and shall be equipped with a meter measuring fuel consumption. [40 CFR 60 Subpart Db, Section 60.49b]

Only natural gas is fire with this unit

4. The o/o shall maintain a current, on-site (at a central location if necessary) log for this equipment for five (5) years, which shall be provided to District, state or federal personnel upon request. This log shall include calendar year fuel use for this equipment in standard cubic feet, or BTUs, and daily hours of operation. [40 CFR 60 Subpart Db, Section 60.49b]

Operation logs are maintained for 5 years, digitally and hard copy

5. The owner/operator shall perform annual compliance tests in accordance with the District Compliance Test Procedural Manual. Prior to performing these annual tests, the boiler shall be tuned in accord with the manufacturers specified tune-up

procedure, by a qualified technician. Subsequent tests shall demonstrate that this equipment does not exceed the following emission maximums:

Pollutant	ppmv	Lb/MMBTU	**Lb/hr
*NOx	9.0	0.011	2.7 (Per USEPA Methods 7E and 19)
SO2	1.7	0.003	0.7
*CO	25.0	0.018	4.5 (Per USEPA Method 10)
VOC	12.6	0.005	1.3 (Per USEPA Methods 25A and 18)
PM10	n/a	0.007	1.7 (Per USEPA Method 5 or 201A, and 202)

*corrected to 3% oxygen, on a dry basis, averaged over one hour

Flue gas flow rate shall be quantified in dscf per USEPA Methods 1 through 5

**As indicated in the District Compliance Manual, the District may approve alternatives, modifications and/or deviations to the methods specified in this condition.

[Rule 1303(A); BACT]

Verified onsite and Inspector SMS reviewed submitted (05/17/16) copy on 06/21/2016

6. This boiler shall be operated in compliance with all applicable requirements of 40 CFR 60 Subpart Db - Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units (NSPS Db) including but not limited to recordkeeping and reporting requirements. [Rule 204]

O/o is operating this unit per 40 CFR 60 Subpart Db and is maintaining operation records and reporting per permit condition

7. Records of fuel supplier certifications of fuel sulfur content shall be maintained to demonstrate compliance with the sulfur dioxide and particulate matter emission limits; PUC regulated pipeline quality natural gas meets this requirement. [40 CFR 60 Subpart Db, Section 60.48b; Emission monitoring for particulate matter and nitrogen oxides]

PUC regulated pipeline quality natural gas is used.

8. The o/o shall continuously monitor and record fuel flow rate and flue gas oxygen level. [40 CFR 60 Subpart Db, Section 60.49b; Reporting and Recordkeeping Requirements]

O/o is continuously monitor and record fuel flow rate and flue gas oxygen level per permit condition.

9. In lieu of installing CEMs to monitor NOx emissions, and pursuant to 40 CFR 60 Subpart Db, Section 60.49b(c), the owner/operator shall monitor boiler operating conditions and estimate NOx emission rates per a District approved emissions estimation plan. The plan shall be based on the annual source tests required by condition 5. The plan shall include test results, operating parameters, analysis, conclusions and proposed NOx estimating relationship consistent with established emission chemistry and operational effects. Any proposed changes to a District-approved plan shall include subsequent test results, operating parameters, analysis, and any other pertinent information to support the proposed changes. The District must approve any emissions estimation plan or revision for estimated NOx emissions to be considered valid. [40 CFR 60 Subpart Db, Section 60.49b(c)]

Verified onsite and Inspector SMS reviewed submitted (05/17/16) copy on 06/21/2016

10. The combined fuel use from the auxiliary boilers and nighttime preservation boilers shall not exceed 525 MMSCF of natural gas in any calendar year; combined fuel use is the sum total of natural gas combusted from Boilers with MDAQMD permit numbers B010375 and B011544 (Ivanpah 1) and shall not exceed a total of 525 mmscf in any calendar year in that boiler pair, B010376 and B011572 (Ivanpah 2) and shall not exceed a total of 525 mmscf in any calendar year in that boiler pair, B010377 and B011573 (Ivanpah 3) and shall not exceed a total of 525 mmscf in any calendar year in that boiler pair. [Rule 204;Rule 1302(C)(2)(a); CEC Condition Of Certification]

O/o is operating within the MMSCF allowance of natural gas this unit and noted boilers in this permit.

Comments: 08/02/16 Unit and operations record are well maintained per permit conditions.

08/03/16 PIR Complete, TranC w/ May Mamari

Prohibitory Rules:

In Compliance: Y

Warning Issued: N

NTC: N

NOV: N

Reinspect: N

PERMIT NUMBER: B011544

Issue Date: 10/13/2015

Expiration Date: 10/31/2016

Last Inspected: 2015-11-19 00:00:00.000

Attached: _____ Copies

Inspection Type: Annual

Facility Type: Solar Plant

Contact: Timothy Higdon

Title: Environmental Specialist

Phone No: 702-815-2015

Fee Schedule: 2(d)

Rating: 100

Permit Status: PTO

SCC: 10300602

Permit Location: On-Site

Equipment Description: BOILER, NIGHTTIME PRESERVATION

Variance No : _____

Publications : _____

Process Rate : _____

Existing NTC : none

VEE : N

Existing NOV : none

VEE No : _____

Existing Variance : none

1. *Operation of this equipment must be conducted in compliance with all data and specifications submitted with the application under which this permit is issued unless otherwise noted below.[Rule 204]*

Equipment is operated and maintained per permit conditions, unless noted below.

2. *The owner/operator shall operate this equipment in strict accord with the recommendations of the manufacturer or supplier and/or sound engineering principles and consistent with all information submitted with the application for this permit, which produce the minimum emission of air contaminants.[Rule 1302(C)(2)(a)]*

Equipment is operated and maintained per permit condition.

3. *This boiler shall use only natural gas as fuel.[Rule 1302(C)(2)(a)]*

Only natural gas is fire with this unit

4. *The owner/operator shall maintain a current, on-site (at a central location if necessary) log for this equipment for five (5) years, which shall be provided to District, state, or federal personnel upon request. This log shall include calendar year fuel use for this equipment in standard cubic feet, or BTUs, and daily hours of operation.[Rule 204]*

Operation logs are maintained for 5 years, digitally and hard copy for review

5. *The owner/operator shall perform annual tune-ups in accordance with the unit manufacturer's specified tune-up procedure, by a qualified technician.[Rule 204]*

6. Records of fuel supplier certifications of fuel sulfur content shall be maintained to demonstrate compliance with the sulfur dioxide and particulate matter emission limits; PUC regulated pipeline quality natural gas meets this requirement.[Rule 204]

In Compliance. Facility uses PUC regulated pipeline quality gas.

7. The owner/operator shall continuously monitor and record fuel flow rate into this power block known as Ivanpah 1.[Rule 204]

O/o is continuously monitor and record fuel flow rate and flue gas oxygen level per permit condition.

8. The combined fuel use from the auxiliary boilers and nighttime preservation boilers shall not exceed 525 MMSCF of natural gas in any calendar year; combined fuel use is the sum total of natural gas combusted from Boilers with MDAQMD permit numbers B010375 and B011544 (Ivanpah 1) and shall not exceed a total of 525 mmscf in any calendar year in that boiler pair, B010376 and B011572 (Ivanpah 2) and shall not exceed a total of 525 mmscf in any calendar year in that boiler pair, B010377 and B011573 (Ivanpah 3) and shall not exceed a total of 525 mmscf in any calendar year in that boiler pair. [Rule 204; Rule 1302(C)(2)(a); CEC Condition Of Certification]

O/o is operating within the MMSCF allowance of natural gas this unit and noted boilers in this permit.

Comments: 08/02/16 Unit and operations record are well maintained per permit conditions.

08/03/16 PIR Complete, TranC w/ May Mamari

Prohibitory Rules:

In Compliance: Y

Warning Issued: N

NTC: N

NOV: N

Reinspect: N

PERMIT NUMBER: E010378

Issue Date: 02/29/2016

Attached: ____ Copies

Contact: Timothy

Fee Schedule: 7(g)

SCC: 20100102

Equipment Description: DIESEL IC ENGINE, FIRE PUMP

Expiration Date: 10/31/2016

Inspection Type: Annual

Title: Higdon

Rating: 1

Permit Location: On-Site

Last Inspected: 2015-11-19 00:00:00.000

Facility Type: Solar Plant

Phone No: 702-805-2016

Permit Status: PTO

Current Hour Meter Reading: 138.5

Previous Hour Meter Reading: 122.60

1. This engine, certified in accordance with 40 CFR Part 89, and after treatment control device (if any) shall be installed, operated and maintained according to the manufacturer's emission-related written instructions. Further, the owner/operator shall change only those emission-related settings that are permitted by the manufacturer. Unless otherwise noted, this equipment shall also be operated in accordance with all data and specifications submitted with the application for this permit. [40 CFR Part 60 Subparts 60.4205 and 60.4211]

Engine is installed, operated and maintained per permit condition unless noted otherwise in this report

2. This unit shall only be fired on ultra-low sulfur diesel fuel, whose sulfur concentration is less than or equal to 0.0015% (15ppm) on a weight per weight basis per CARB Diesel or equivalent requirements. [17 CCR 93115; 60.4207(b)]

Only ultra-low diesel fuel is fire with this unit

3. A non-resettable hour meter with a minimum display capability of 9,999 hours shall be installed and maintained on this unit to indicate elapsed engine operating time. [Title 17 CCR 93115.10(e)(1); 60.4209(a)]

A non resettable hour meter is installed and maintained per permit condition. Current hr meter reading: 138.5hrs

4. This unit shall be limited to use for emergency purposes, defined as in response to a fire. In addition, this unit shall be operated no more than 1.0 hrs per day for a total of 50 hours per year for testing and maintenance. The 50 hour limit can be exceeded when the emergency fire pump assembly is driven directly by a stationary diesel fueled CI engine operated per and in accord with the National Fire Protection Association (NFPA) 25 - "Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems," 1998 edition. This requirement includes usage during emergencies. [District Rule 1302(C)(2)(a) and Rule 1304 (D)(1)(a)] and 17 CCR 93115.3(n); hours allowed by federal regulation 40 CFR 60.42(f) streamlined out as these permit requirements are more stringent than the federal regulatory requirements.]

O/o is aware of this unit operations limitation per this permit condition and show compliance through operations log

5. The owner/operator shall maintain an operations log for this unit current and on-site (or at a central location) for a minimum of five (5) years, and this log shall be provided to District, State and Federal personnel upon request. The log shall include, at a minimum, the information specified below:

- a. Date of each use and duration of each use (in hours);
- b. Reason for use (testing & maintenance, emergency, required emission testing, etc.);
- c. Monthly and calendar year operation in terms of fuel consumption (in gallons) and total hours [17 CCR 93115]; and,
- d. Fuel sulfur concentration (the o/o may use the supplier's certification of sulfur content if it is maintained as part of this log.) [17 CCR 93115.10]

Operations log are maintained per condition 5., 5.a.-5.d.

6. These engines may operate in response to fire suppression requirements and needs. [Rule 204]

O/o is aware that this unit may operate in response to fire suppression requirements and needs.

7. This unit is subject to the requirements of the Airborne Toxic Control Measure (ATCM) for Stationary Compression Ignition Engines (17 CCR 93115) and 40 CFR Part 60, Subpart IIII (NSPS). In the event of conflict between these conditions and the ATCM or NSPS, the more stringent requirements shall govern. [Rule 204]

O/o is aware that this unit is subject to ATCM and NSPS and in an event of a conflict between the two the more stringent shall govern.

Comments: 08/02/16 Engine and operations records are well maintained per permit conditions.

08/03/16 PIR Completed, TranC w/ May Mamari

Prohibitory Rules:

In Compliance: Y

Warning Issued: N

NTC: N

NOV: N

Reinspect: N

PERMIT NUMBER: E010379

Issue Date: 10/13/2015

Expiration Date: 10/31/2016

Last Inspected: 2015-11-19 00:00:00.000

Attached: _____ Copies

Inspection Type: Annual

Facility Type: Solar Plant

Contact: Timothy Higdon

Title: Environmental Specialist

Phone No: 702-815-2015

Fee Schedule: 7(g)

Rating: 1

Permit Status: PTO

SCC: 20100102

Permit Location: On-Site

Equipment Description: DIESEL IC ENGINE, EMERGENCY GENERATOR

Current Hour Meter Reading: 260

Previous Hour Meter Reading: 51.60

1. *This engine, certified in accordance with 40 CFR Part 89, and after treatment control device (if any) shall be installed, operated and maintained according to the manufacturer's emission-related written instructions. Further, the owner/operator shall change only those emission-related settings that are permitted by the manufacturer. Unless otherwise noted, this equipment shall also be operated in accordance with all data and specifications submitted with the application for this permit. [40 CFR Part 60 Subparts 60.4205, and 60.4211]*

Engine is installed, operated and maintained per permit condition unless noted otherwise in this report

2. *This unit shall only be fired on ultra-low sulfur diesel fuel, whose sulfur concentration is less than or equal to 0.0015% (15ppm) on a weight per weight basis per CARB Diesel or equivalent requirements. [17 CCR 93115; 60.4207(b)]*

Only ultra-low diesel fuel is fire with this unit

3. *A non-resettable hour meter with a minimum display capability of 9,999 hours shall be installed and maintained on this unit to indicate elapsed engine operating time. [Title 17 CCR 93115.10(e)(1); 60.4209(a)]*

A non resettable hour meter is installed and maintained per permit condition. Current hr meter reading: 260hrs

4. *This unit shall not be used to provide power during a voluntary agreed to power outage and/or power reduction initiated under an Interruptible Service Contract (ISC); Demand Response Program (DRP); Load Reduction Program (LRP) and/or similar arrangement(s) with the electrical power supplier. [17 CCR 93115; hours allowed by federal regulation 40 CFR 60.42(f) streamlined out as these permit requirements are more stringent than the federal regulatory requirements]*

O/o is aware of the operations limitation noted in this permit condition and show compliance through operations record.

5. *This unit shall be limited to use for emergency power, defined as in response to a fire or when commercially available power has been interrupted. In addition, this unit shall be operated no more than 1.0 hrs per day for a total of 50 hours per year for testing and maintenance. [NSR and 17 CCR 93115; hours allowed by federal regulation 40 CFR 60.42(f) streamlined out as these permit requirements are more stringent than the federal regulatory requirements]*

O/o is aware of this unit operations limitation per this permit condition and show compliance through operations log

6. *The o/o shall maintain an operations log for this unit current and on-site (or at a central location) for a minimum of five (5) years, and this log shall be provided to District, State and Federal personnel upon request. The log shall include, at a minimum, the information specified below:*

a. Date of each use and duration of each use (in hours);

b. Reason for use (testing & maintenance, emergency, required emission testing);

c. Monthly and calendar year operation in terms of fuel consumption (in gallons) and total hours; and,

d. Fuel sulfur concentration (the o/o may use the supplier's certification of sulfur content if it is maintained as part of this log). [17 CCR 93115.10]

Operations log are maintained per condition 6., 6.a.-6.d.

7. *This genset is subject to the requirements of the Airborne Toxic Control Measure (ATCM) for Stationary Compression Ignition Engines (Title 17 CCR 93115) and 40 CFR Part 60, Subpart IIII (NSPS). In the event of conflict between these conditions and the ATCM, the more stringent requirements shall govern. [Rule 204]*

O/o is aware that this unit is subject to ATCM and NSPS and in an event of a conflict between the two the more stringent shall govern.

Comments: 08/02/16 Engine and operations records are well maintained per permit conditions.

08/03/16 PIR Completed, TranCw/ May Mamari

Prohibitory Rules:

In Compliance: Y

Warning Issued: N

NTC: N

NOV: N

Reinspect: N

PERMIT NUMBER: E011546

Issue Date: 02/29/2016

Expiration Date: 10/31/2016

Last Inspected: 2015-11-19 00:00:00.000

Attached: _____ Copies

Inspection Type: Annual

Facility Type: Solar Plant

Contact: Timothy

Title: Higdon

Phone No: 702-805-2016

Fee Schedule: 7(g)

Rating: 1

Permit Status: PTO

SCC: 20200102

Permit Location: On-Site

Equipment Description: DIESEL IC ENGINE, EMERGENCY GENERATOR

Current Hour Meter Reading: 193.90

Previous Hour Meter Reading: 139.80

1. *This engine, certified in accordance with 40 CFR Part 89, and after treatment control device (if any) shall be installed, operated and maintained according to the manufacturer's emission-related written instructions. Further, the owner/operator shall change only those emission-related settings that are permitted by the manufacturer. Unless otherwise noted, this equipment shall also be operated in accordance with all data and specifications submitted with the application for this permit. [40 CFR Part 60 Subparts 60.4205, and 60.4211]*

Engine is installed, operated and maintained per permit condition unless noted otherwise in this report

2. *This unit shall only be fired on ultra-low sulfur diesel fuel, whose sulfur concentration is less than or equal to 0.0015% (15ppm) on a weight per weight basis per CARB Diesel or equivalent requirements. [17 CCR 93115; 60.4207(b)]*

Only ultra-low diesel fuel is fire with this unit

3. *A non-resettable hour meter with a minimum display capability of 9,999 hours shall be installed and maintained on this unit to indicate elapsed engine operating time. [Title 17 CCR 93115.10(e)(1); 60.4209(a)]*

A non resettable hour meter is installed and maintained per permit condition. Current hr meter reading: 193.90

4. *This unit shall not be used to provide power during a voluntary agreed to power outage and/or power reduction initiated under an Interruptible Service Contract (ISC); Demand Response Program (DRP); Load Reduction Program (LRP) and/or similar arrangement(s) with the electrical power supplier. [17 CCR 93115; hours allowed by federal regulation 40 CFR 60.42(f) streamlined out as these permit requirements are more stringent than the federal regulatory requirements]*

O/o is aware of the operations limitation noted in this permit condition and show compliance through operations record.

5. *This unit shall be limited to use for emergency power, defined as in response to a fire or when commercially available power has been interrupted. In addition, this unit shall be operated no more than 1.0 hrs per day for a total of 50 hours per year for testing and maintenance. [NSR and 17 CCR 93115; hours allowed by federal regulation 40 CFR 60.42(f) streamlined out as these permit requirements are more stringent than the federal regulatory requirements]*

In Compliance. 2014 total hours operated = 25.30 (did not exceed 1 hour per day).

6. *The owner/operator shall maintain an operations log for this unit current and on-site (or at a central location) for a minimum of five (5) years, and this log shall be provided to District, State and Federal personnel upon request.*

The log shall include, at a minimum, the information specified below:

- a. Date of each use and duration of each use (in hours);*
- b. Reason for use (testing & maintenance, emergency, required emission testing, etc.);*
- c. Monthly and calendar year operation in terms of fuel consumption (in gallons) and total hours [17 CCR 93115]; and,*
- d. Fuel sulfur concentration (the o/o may use the supplier's certification of sulfur content if it is maintained as part of this log.) [17 CCR 93115.10]*

Operations log are maintained per condition 6., 6.a.-6.d.

7. *If you are an owner or operator of a stationary CI internal combustion engine equipped with a diesel particulate filter to comply with the emission standards in 60.4204, the diesel particulate filter must be installed with a backpressure monitor that notifies the owner or operator when the high backpressure limit of the engine is approached. [60.4209]*

O/o is aware of this unit operation condition and is maintaining this unit per permit condition

8. *This unit is subject to the requirements of the Airborne Toxic Control Measure (ATCM) for Stationary Compression Ignition Engines (17 CCR 93115) and 40 CFR Part 60, Subpart IIII (NSPS). In the event of conflict between these conditions and the ATCM or NSPS, the more stringent requirements shall govern.[Rule 204]*

O/o is aware that this unit is subject to ATCM and NSPS and in an event of a conflict between the two the more stringent shall govern.

Comments: 08/02/16 Engine and operations records are well maintained per permit conditions.

08/03/16 PIR Completed, TranCw/ May Mamari

Prohibitory Rules:

In Compliance: Y

Warning Issued: N

NTC: N

NOV: N

Reinspect: N

PERMIT NUMBER: E011547

Issue Date: 11/13/2015
Attached: _____ Copies
Contact: Timothy
Fee Schedule: 7(g)
SCC: 20100102
Equipment Description: DIESEL IC ENGINE, FIRE PUMP

Expiration Date: 10/31/2016
Inspection Type: Annual
Title: Higdon
Rating: 1
Permit Location: On-Site

Last Inspected: 2015-11-19 00:00:00.000
Facility Type: Solar Plant
Phone No: 702-805-2016
Permit Status: PTO

Current Hour Meter Reading: 99

Previous Hour Meter Reading: 83.70

1. *This engine, certified in accordance with 40 CFR Part 89, and after treatment control device (if any) shall be installed, operated and maintained according to the manufacturer's emission-related written instructions. Further, the owner/operator shall change only those emission-related settings that are permitted by the manufacturer. Unless otherwise noted, this equipment shall also be operated in accordance with all data and specifications submitted with the application for this permit. [40 CFR Part 60 Subparts 60.4205 and 60.4211]*

Engine is installed, operated and maintained per permit condition unless noted otherwise in this report

2. *This unit shall only be fired on ultra-low sulfur diesel fuel, whose sulfur concentration is less than or equal to 0.0015% (15ppm) on a weight per weight basis per CARB Diesel or equivalent requirements. [17 CCR 93115; 60.4207(b)]*

Only ultra-low diesel fuel is fire with this unit

3. *A non-resettable hour meter with a minimum display capability of 9,999 hours shall be installed and maintained on this unit to indicate elapsed engine operating time. [Title 17 CCR 93115.10(e)(1); 60.4209(a)]*

A non resettable hour meter is installed and maintained per permit condition. Current hr meter reading: 99hrs

4. *This unit shall be limited to use for emergency purposes, defined as in response to a fire. In addition, this unit shall be operated no more than 1.0 hrs per day for a total of 50 hours per year for testing and maintenance. The 50 hour limit can be exceeded when the emergency fire pump assembly is driven directly by a stationary diesel fueled CI engine operated per and in accord with the National Fire Protection Association (NFPA) 25 - "Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems," 1998 edition. This requirement includes usage during emergencies. [District Rule 1302(C)(2)(a) and Rule 1304 (D)(1)(a)] and 17 CCR 93115.3(n); hours allowed by federal regulation 40 CFR 60.42(f) streamlined out as these permit requirements are more stringent than the federal regulatory requirements.]*

O/o is aware of the operations limitation noted in this permit condition and show compliance through operations record.

5. *The owner/operator shall maintain an operations log for this unit current and on-site (or at a central location) for a minimum of five (5) years, and this log shall be provided to District, State and Federal personnel upon request. The log shall include, at a minimum, the information specified below:*

- a. Date of each use and duration of each use (in hours);*
- b. Reason for use (testing & maintenance, emergency, required emission testing, etc.);*
- c. Monthly and calendar year operation in terms of fuel consumption (in gallons) and total hours [17 CCR 93115]; and,*
- d. Fuel sulfur concentration (the o/o may use the supplier's certification of sulfur content if it is maintained as part of this log.) [17 CCR 93115.10]*

Operations log are maintained per condition 5., 5.a.-5.d.

6. *These engines may operate in response to fire suppression requirements and needs. [Rule 204]*

O/o is aware that this unit may operate in response to fire suppression requirements and needs

7. This unit is subject to the requirements of the Airborne Toxic Control Measure (ATCM) for Stationary Compression Ignition Engines (17 CCR 93115) and 40 CFR Part 60, Subpart IIII (NSPS). In the event of conflict between these conditions and the ATCM or NSPS, the more stringent requirements shall govern. [Rule 204]

O/o is aware that this unit is subject to ATCM and NSPS and in an event of a conflict between the two the more stringent shall govern.

Comments: 08/02/16 Engine and operations records are well maintained per permit conditions.

08/03/16 PIR Completed, TranC w/ May Mamari

Prohibitory Rules:

In Compliance: Y

Warning Issued: N

NTC: N

NOV: N

Reinspect: N



MOJAVE DESERT AIR QUALITY MANAGEMENT DISTRICT

14306 Park Avenue, Victorville, CA 92392-2310
760.245.1661 -- 800.635.4617 -- FAX 760.245.2022

GENERAL INSPECTION FORM

29654

Start Date: 08/02/2016

End Date: 08/02/2016

Inspector: Catherine Tran

OWNER OR OPERATOR (Co. #1770)

Solar Partners I, LLC
HCR1 Box 280
Nipton, CA, 92364

FACILITY LOCATION (Fac. #3008)

Ivanpah 2
Ca/Nev border at Primm
Ivanpah, CA, 92364

SIC: 4911

Location / UTM(Km): 644E/3934N

PERMIT NUMBER: B010376

Issue Date: 10/13/2015

Attached: _____ Copies

Contact: Timothy Higdon

Fee Schedule: 2(f)

SCC: 10300601

Equipment Description: BOILER, Year of Manufacture 2012, Serial Number 2011-08,

Expiration Date: 10/31/2016

Inspection Type: Annual

Title: Environmental Specialist

Rating: 249

Permit Location: On-Site

Last Inspected: 2015-11-19 00:00:00.000

Facility Type:

Phone No: 702-815-2016

Permit Status: PTO

Variance No : _____

Process Rate : _____

VEE : N

VEE No : _____

Publications : _____

Existing NTC : none

Existing NOV : none

Existing Variance : none

1. Operation of this equipment must be conducted in compliance with all data and specifications submitted with the application under which this permit is issued unless otherwise noted below.[Rule 204]

Equipment is operated and maintained per permit conditions, unless noted below.

2. The owner/operator (o/o) shall operate this equipment in strict accord with the recommendations of the manufacturer or supplier and/or sound engineering principles and consistent with all information submitted with the application for this permit, which produce the minimum emission of air contaminants.[Rule 1302(C)(2)(a)]

Equipment is operated and maintained per permit condition.

3. This boiler shall use only natural gas as fuel and shall be equipped with a meter measuring fuel consumption.[40 CFR 60 Subpart Db, Section 60.49b]

Only natural gas is fire with this unit

4. The o/o shall maintain a current, on-site (at a central location if necessary) log for this equipment for five (5) years, which shall be provided to District, state or federal personnel upon request. This log shall include calendar year fuel use for this equipment in standard cubic feet, or BTUs, and daily hours of operation.[40 CFR 60 Subpart Db, Section 60.49b]

Operation logs are maintained for 5 years, digitally and hard copy

5. The owner/operator shall perform annual compliance tests in accordance with the District Compliance Test Procedural Manual. Prior to performing these annual tests, the boiler shall be tuned in accord with the manufacturers specified tune-up

procedure, by a qualified technician. Subsequent tests shall demonstrate that this equipment does not exceed the following emission maximums:

Pollutant	ppmv	Lb/MMBTU	**Lb/hr
*NOx	9.0	0.011	2.7 (Per USEPA Methods 7E and 19)
SO2	1.7	0.003	0.7
*CO	25.0	0.018	4.5 (Per USEPA Method 10)
VOC	12.6	0.005	1.3 (Per USEPA Methods 25A and 18)
PM10	n/a	0.007	1.7 (Per USEPA Method 5 or 201A, and 202)

*corrected to 3% oxygen, on a dry basis, averaged over one hour

Flue gas flow rate shall be quantified in dscf per USEPA Methods 1 through 5

**As indicated in the District Compliance Manual, the District may approve alternatives, modifications and/or deviations to the methods specified in this condition. [Rule 1303(A); BACT]

Verified onsite and Inspector SMS reviewed submitted (05/17/16) copy on 06/21/2016

6. This boiler shall be operated in compliance with all applicable requirements of 40 CFR 60 Subpart Db - Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units (NSPS Db) including but not limited to recordkeeping and reporting requirements.[Rule 204]

O/o is operating this unit per 40 CFR 60 Subpart Db and is maintaining operation records and reporting per permit condition

7. Records of fuel supplier certifications of fuel sulfur content shall be maintained to demonstrate compliance with the sulfur dioxide and particulate matter emission limits; PUC regulated pipeline quality natural gas meets this requirement.[40 CFR 60 Subpart Db, Section 60.48b; Emission monitoring for particulate matter and nitrogen oxides]

PUC regulated pipeline quality natural gas is used.

8. The o/o shall continuously monitor and record fuel flow rate and flue gas oxygen level.[40 CFR 60 Subpart Db, Section 60.49b; Reporting and Recordkeeping Requirements]

O/o is continuously monitor and record fuel flow rate and flue gas oxygen level per permit condition.

9. In lieu of installing CEMs to monitor NOx emissions, and pursuant to 40 CFR 60 Subpart Db, Section 60.49b(c), the owner/operator shall monitor boiler operating conditions and estimate NOx emission rates per a District approved emissions estimation plan. The plan shall be based on the annual source tests required by condition 5. The plan shall include test results, operating parameters, analysis, conclusions and proposed NOx estimating relationship consistent with established emission chemistry and operational effects. Any proposed changes to a District-approved plan shall include subsequent test results, operating parameters, analysis, and any other pertinent information to support the proposed changes. The District must approve any emissions estimation plan or revision for estimated NOx emissions to be considered valid.[40 CFR 60 Subpart Db, Section 60.49b(c)]

Verified onsite and Inspector SMS reviewed submitted (05/17/16) copy on 06/21/2016

10. The combined fuel use from the auxiliary boilers and nighttime preservation boilers shall not exceed 525 MMSCF of natural gas in any calendar year; combined fuel use is the sum total of natural gas combusted from Boilers with MDAQMD permit numbers B010375 and B011544 (Ivanpah 1) and shall not exceed a total of 525 mmscf in any calendar year in that boiler pair, B010376 and B011572 (Ivanpah 2) and shall not exceed a total of 525 mmscf in any calendar year in that boiler pair, B010377 and B011573 (Ivanpah 3) and shall not exceed a total of 525 mmscf in any calendar year in that boiler pair. [Rule 204; CEC Condition Of Certification]

O/o is operating within the MMSCF allowance of natural gas this unit and noted boilers in this permit.

Comments: 08/02/16 Unit and operations record are well maintained per permit conditions.

Prohibitory Rules:

In Compliance:	Y
Warning Issued:	N
NTC:	N
NOV:	N
Reinspect:	N

PERMIT NUMBER: B011572

Issue Date: 10/13/2015	Expiration Date: 10/31/2016	Last Inspected: 2015-11-19 00:00:00.000
Attached: _____ Copies	Inspection Type: Annual	Facility Type: Solar Plant
Contact: Timothy Higdon	Title: Environmental Specialist	Phone No: 702-815-2016
Fee Schedule: 2(d)	Rating: 100	Permit Status: PTO
SCC: 10300602	Permit Location: On-Site	
Equipment Description: BOILER, NIGHTTIME PRESERVATION		

Variance No : _____	Publications : _____
Process Rate : _____	Existing NTC : none
VEE : N	Existing NOV : none
VEE No : _____	Existing Variance : none

1. *Operation of this equipment must be conducted in compliance with all data and specifications submitted with the application under which this permit is issued unless otherwise noted below.[Rule 204]*

Equipment is operated and maintained per permit conditions, unless noted below.

2. *The owner/operator shall operate this equipment in strict accord with the recommendations of the manufacturer or supplier and/or sound engineering principles and consistent with all information submitted with the application for this permit, which produce the minimum emission of air contaminants.[Rule 1302(C)(2)(a)]*

Equipment is operated and maintained per permit condition.

3. *This boiler shall use only natural gas as fuel.[Rule 1302(C)(2)(a)]*

Only natural gas is fire with this unit

4. *The owner/operator shall maintain a current, on-site (at a central location if necessary) log for this equipment for five (5) years, which shall be provided to District, state, or federal personnel upon request. This log shall include calendar year fuel use for this equipment in standard cubic feet, or BTUs, and daily hours of operation.[Rule 204]*

Operation logs are maintained for 5 years, digitally and hard copy

5. *The owner/operator shall perform annual tune-ups in accordance with the unit manufacturer's specified tune-up procedure, by a qualified technician.[Rule 204]*

Pending for review.

6. Records of fuel supplier certifications of fuel sulfur content shall be maintained to demonstrate compliance with the sulfur dioxide and particulate matter emission limits; PUC regulated pipeline quality natural gas meets this requirement.[Rule 204]

PUC regulated pipeline quality natural gas is used.

7. The owner/operator shall continuously monitor and record fuel flow rate into this power block known as Ivanpah 2.[Rule 204]

O/o is continuously monitor and record fuel flow rate and flue gas oxygen level per permit condition.

8. The combined fuel use from the auxiliary boilers and nighttime preservation boilers shall not exceed 525 MMSCF of natural gas in any calendar year; combined fuel use is the sum total of natural gas combusted from Boilers with MDAQMD permit numbers B010375 and B011544 (Ivanpah 1) and shall not exceed a total of 525 mmscf in any calendar year in that boiler pair, B010376 and B011572 (Ivanpah 2) and shall not exceed a total of 525 mmscf in any calendar year in that boiler pair, B010377 and B011573 (Ivanpah 3) and shall not exceed a total of 525 mmscf in any calendar year in that boiler pair. [Rule 204; Rule 1302(C)(2)(a); CEC Condition Of Certification]

O/o is operating within the MMSCF allowance of natural gas this unit and noted boilers in this permit.

Comments: 08/02/16 Unit and operations record are well maintained per permit conditions.

08/03/16 PIR Complete, TranC w/ May Mamari

Prohibitory Rules:

In Compliance: Y

Warning Issued: N

NTC: N

NOV: N

Reinspect: N

PERMIT NUMBER: E010380

Issue Date: 11/13/2015

Expiration Date: 10/31/2016

Last Inspected: 2015-11-19 00:00:00.000

Attached: _____ Copies

Inspection Type: Annual

Facility Type: Solar Plant

Contact: Timothy Higdon

Title: Environmental Specialist

Phone No: 702-815-2016

Fee Schedule: 7(g)

Rating: 1

Permit Status: PTO

SCC: 20100102

Permit Location: On-Site

Equipment Description: DIESEL IC ENGINE, FIRE PUMP

Current Hour Meter Reading: 118.11

Previous Hour Meter Reading: 102.40

1. This engine, certified in accordance with 40 CFR Part 89, and after treatment control device (if any) shall be installed, operated and maintained according to the manufacturer's emission-related written instructions. Further, the owner/operator shall change only those emission-related settings that are permitted by the manufacturer. Unless otherwise noted, this equipment shall also be operated in accordance with all data and specifications submitted with the application for this permit. [40 CFR Part 60 Subparts 60.4205 and 60.4211]

Engine is installed, operated and maintained per permit permit condition unless noted otherwise in this report

2. *This unit shall only be fired on ultra-low sulfur diesel fuel, whose sulfur concentration is less than or equal to 0.0015% (15ppm) on a weight per weight basis per CARB Diesel or equivalent requirements. [17 CCR 93115; 60.4207(b)]*

Only ultra-low diesel fuel is fire with this unit

3. *A non-resettable hour meter with a minimum display capability of 9,999 hours shall be installed and maintained on this unit to indicate elapsed engine operating time. [Title 17 CCR 93115.10(e)(1); 60.4209(a)]*

A non resettable hour meter is installed and maintained per permit condition. Current hr meter reading: 118.11hrs

4. *This unit shall be limited to use for emergency purposes, defined as in response to a fire. In addition, this unit shall be operated no more than 1.0 hrs per day for a total of 50 hours per year for testing and maintenance. The 50 hour limit can be exceeded when the emergency fire pump assembly is driven directly by a stationary diesel fueled CI engine operated per and in accord with the National Fire Protection Association (NFPA) 25 - "Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems," 1998 edition. This requirement includes usage during emergencies. [District Rule 1302(C)(2)(a) and Rule 1304 (D)(1)(a)] and 17 CCR 93115.3(n); hours allowed by federal regulation 40 CFR 60.42(f) streamlined out as these permit requirements are more stringent than the federal regulatory requirements.]*

O/o is aware of the operations limitation noted in this permit condition and show compliance through operations record.

5. *The owner/operator shall maintain an operations log for this unit current and on-site (or at a central location) for a minimum of five (5) years, and this log shall be provided to District, State and Federal personnel upon request. The log shall include, at a minimum, the information specified below:*

- a. Date of each use and duration of each use (in hours);*
- b. Reason for use (testing & maintenance, emergency, required emission testing, etc.);*
- c. Monthly and calendar year operation in terms of fuel consumption (in gallons) and total hours [17 CCR 93115]; and,*
- d. Fuel sulfur concentration (the o/o may use the supplier's certification of sulfur content if it is maintained as part of this log.) [17 CCR 93115.10]*

Operations log are maintained per condition 6., 6.a.-6.d.

6. *These engines may operate in response to fire suppression requirements and needs. [Rule 204]*

O/o is aware that this engine may operate in response to fire suppression requirements and needs.

7. *This unit is subject to the requirements of the Airborne Toxic Control Measure (ATCM) for Stationary Compression Ignition Engines (17 CCR 93115) and 40 CFR Part 60, Subpart IIII (NSPS). In the event of conflict between these conditions and the ATCM or NSPS, the more stringent requirements shall govern. [Rule 204]*

O/o is aware that this unit is subject to ATCM and NSPS and in an event of a conflict between the two the more stringent shall govern.

Comments: 08/02/16 Engine and operations records are well maintained per permit conditions.

08/03/16 PIR Completed, TranC w/ May Mamari

Prohibitory Rules:

In Compliance: Y

Warning Issued: N

NTC: N

NOV: N

Reinspect:

N

PERMIT NUMBER: E010381

Issue Date: 10/13/2015

Expiration Date: 10/31/2016

Last Inspected: 2015-11-19 00:00:00.000

Attached: _____ Copies

Inspection Type: Annual

Facility Type: Solar Plant

Contact: Timothy Higdon

Title: Environmental Specialist

Phone No: 702-815-2016

Fee Schedule: 7(g)

Rating: 1

Permit Status: PTO

SCC: 20100102

Permit Location: On-Site

Equipment Description: DIESEL IC ENGINE, EMERGENCY GENERATOR

Current Hour Meter Reading: 56.40

Previous Hour Meter Reading: 40.90

1. *This engine, certified in accordance with 40 CFR Part 89, and after treatment control device (if any) shall be installed, operated and maintained according to the manufacturer's emission-related written instructions. Further, the owner/operator shall change only those emission-related settings that are permitted by the manufacturer. Unless otherwise noted, this equipment shall also be operated in accordance with all data and specifications submitted with the application for this permit. [40 CFR Part 60 Subparts 60.4205, and 60.4211]*

Engine is installed, operated and maintained per permit condition unless noted otherwise in this report

2. *This unit shall only be fired on ultra-low sulfur diesel fuel, whose sulfur concentration is less than or equal to 0.0015% (15ppm) on a weight per weight basis per CARB Diesel or equivalent requirements. [17 CCR 93115; 60.4207(b)]*

Only ultra-low diesel fuel is fire with this unit

3. *A non-resettable hour meter with a minimum display capability of 9,999 hours shall be installed and maintained on this unit to indicate elapsed engine operating time. [Title 17 CCR 93115.10(e)(1); 60.4209(a)]*

A non resettable hour meter is installed and maintained per permit condition. Current hr meter reading: 65.4hrs

4. *This unit shall not be used to provide power during a voluntary agreed to power outage and/or power reduction initiated under an Interruptible Service Contract (ISC); Demand Response Program (DRP); Load Reduction Program (LRP) and/or similar arrangement(s) with the electrical power supplier. [17 CCR 93115; hours allowed by federal regulation 40 CFR 60.42(f) streamlined out as these permit requirements are more stringent than the federal regulatory requirements]*

O/o is aware of this unit's operation limitations noted in this condition

5. *This unit shall be limited to use for emergency power, defined as in response to a fire or when commercially available power has been interrupted. In addition, this unit shall be operated no more than 1.0 hrs per day for a total of 50 hours per year for testing and maintenance. [NSR and 17 CCR 93115; hours allowed by federal regulation 40 CFR 60.42(f) streamlined out as these permit requirements are more stringent than the federal regulatory requirements.]*

O/o is aware of the operations limitation noted in this permit condition and show compliance through operations record.

6. *The owner/operator shall maintain an operations log for this unit current and on-site (or at a central location) for a minimum of five (5) years, and this log shall be provided to District, State and Federal personnel upon request. The log shall include, at a minimum, the information specified below:*

- a. Date of each use and duration of each use (in hours);*
- b. Reason for use (testing & maintenance, emergency, required emission testing, etc.);*
- c. Monthly and calendar year operation in terms of fuel consumption (in gallons) and total hours [17 CCR 93115]; and,*
- d. Fuel sulfur concentration (the o/o may use the supplier's certification of sulfur content if it is maintained as part of this log.) [17 CCR 93115.10]*

Operations log are maintained per condition 6., 6.a.-6.d.

7. This unit is subject to the requirements of the Airborne Toxic Control Measure (ATCM) for Stationary Compression Ignition Engines (17 CCR 93115) and 40 CFR Part 60, Subpart IIII (NSPS). In the event of conflict between these conditions and the ATCM or NSPS, the more stringent requirements shall govern. [Rule 204]

O/o is aware that this unit is subject to ATCM and NSPS and in an event of a conflict between the two the more stringent shall govern.

Comments: 08/02/16 Engine and operations records are well maintained per permit conditions.

08/03/16 PIR Completed, TranCw/ May Mamari

Prohibitory Rules:

In Compliance:	Y
Warning Issued:	N
NTC:	N
NOV:	N
Reinspect:	N



MOJAVE DESERT AIR QUALITY MANAGEMENT DISTRICT

14306 Park Avenue, Victorville, CA 92392-2310
760.245.1661 -- 800.635.4617 -- FAX 760.245.2022

GENERAL INSPECTION FORM

29655

Start Date: 08/02/2016

End Date: 08/02/2016

Inspector: Catherine Tran

OWNER OR OPERATOR (Co. #1771)

Solar Partners VIII, LLC
HCR1 Box 280
Nipton, CA, 92364

FACILITY LOCATION (Fac. #3009)

Ivanpah 3
Ca/Nev border at Primm
Ivanpah, CA, 92364

SIC: 4911

Location / UTM(Km): 644E/3934N

PERMIT NUMBER: B010377

Issue Date: 10/13/2015

Attached: _____ Copies

Contact: Timothy Higdon

Fee Schedule: 2(f)

SCC: 10300601

Equipment Description: BOILER, Year of Manufacture 2012, Serial Number 2011-09,

Expiration Date: 10/31/2016

Inspection Type: Annual

Title: Environmental Specialist

Rating: 249

Permit Location: On-Site

Last Inspected: 2015-11-19 00:00:00.000

Facility Type: solar energy

Phone No: 702-815-2015

Permit Status: PTO

Variance No : _____

Process Rate : _____

VEE : N

VEE No : _____

Publications : _____

Existing NTC : none

Existing NOV : none

Existing Variance : none

1. Operation of this equipment must be conducted in compliance with all data and specifications submitted with the application under which this permit is issued unless otherwise noted below.[Rule 204]

Equipment is operated and maintained per permit condition.

2. The owner/operator (o/o) shall operate this equipment in strict accord with the recommendations of the manufacturer or supplier and/or sound engineering principles and consistent with all information submitted with the application for this permit, which produce the minimum emission of air contaminants.[Rule 1302(C)(2)(a)]

Equipment is operated and maintained per permit condition.

3. This boiler shall use only natural gas as fuel and shall be equipped with a meter measuring fuel consumption.[40 CFR 60 Subpart Db, Section 60.49b]

Only natural gas is used in this unit.

4. The o/o shall maintain a current, on-site (at a central location if necessary) log for this equipment for five (5) years, which shall be provided to District, state or federal personnel upon request. This log shall include calendar year fuel use for this equipment in standard cubic feet, or BTUs, and daily hours of operation.[40 CFR 60 Subpart Db, Section 60.49b]

Operation logs are maintained for 5 years, digitally and hard copy

5. The owner/operator shall perform annual compliance tests in accordance with the District Compliance Test Procedural Manual. Prior to performing these annual tests, the boiler shall be tuned in accord with the manufacturers specified tune-up

procedure, by a qualified technician. Subsequent tests shall demonstrate that this equipment does not exceed the following emission maximums:

Pollutant	ppmv	Lb/MMBTU	**Lb/hr
*NOx	9.0	0.011	2.7 (Per USEPA Methods 7E and 19)
SO2	1.7	0.003	0.7
*CO	25.0	0.018	4.5 (Per USEPA Method 10)
VOC	12.6	0.005	1.3 (Per USEPA Methods 25A and 18)
PM10	n/a	0.007	1.7 (Per USEPA Method 5 or 201A, and 202)

*corrected to 3% oxygen, on a dry basis, averaged over one hour

Flue gas flow rate shall be quantified in dscf per USEPA Methods 1 through 5

**As indicated in the District Compliance Manual, the District may approve alternatives, modifications and/or deviations to the methods specified in this condition.[Rule 1303(A); BACT]

Verified onsite and Inspector SMS reviewed submitted (05/17/16) copy on 06/21/2016

6. This boiler shall be operated in compliance with all applicable requirements of 40 CFR 60 Subpart Db - Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units (NSPS Db) including but not limited to recordkeeping and reporting requirements.[Rule 204]

In Compliance.

7. Records of fuel supplier certifications of fuel sulfur content shall be maintained to demonstrate compliance with the sulfur dioxide and particulate matter emission limits; PUC regulated pipeline quality natural gas meets this requirement.[40 CFR 60 Subpart Db, Section 60.48b; Emission monitoring for particulate matter and nitrogen oxides]

PUC regulated pipeline quality natural gas is used.

8. The o/o shall continuously monitor and record fuel flow rate and flue gas oxygen level.[40 CFR 60 Subpart Db, Section 60.49b; Reporting and Recordkeeping Requirements]

O/o is continuously monitor and record fuel flow rate and flue gas oxygen level per permit condition.

9. In lieu of installing CEMs to monitor NOx emissions, and pursuant to 40 CFR 60 Subpart Db, Section 60.49b(c), the owner/operator shall monitor boiler operating conditions and estimate NOx emission rates per a District approved emissions estimation plan. The plan shall be based on the annual source tests required by condition 5. The plan shall include test results, operating parameters, analysis, conclusions and proposed NOx estimating relationship consistent with established emission chemistry and operational effects. Any proposed changes to a District-approved plan shall include subsequent test results, operating parameters, analysis, and any other pertinent information to support the proposed changes. The District must approve any emissions estimation plan or revision for estimated NOx emissions to be considered valid.[40 CFR 60 Subpart Db, Section 60.49b(c)]

Verified onsite and Inspector SMS reviewed submitted (05/17/16) copy on 06/21/2016

10. The combined fuel use from the auxiliary boilers and nighttime preservation boilers shall not exceed 525 MMSCF of natural gas in any calendar year; combined fuel use is the sum total of natural gas combusted from Boilers with MDAQMD permit numbers B010375 and B011544 (Ivanpah 1) and shall not exceed a total of 525 mmscf in any calendar year in that boiler pair, B010376 and B011572 (Ivanpah 2) and shall not exceed a total of 525 mmscf in any calendar year in that boiler pair, B010377 and B011573 (Ivanpah 3) and shall not exceed a total of 525 mmscf in any calendar year in that boiler pair. [Rule 204; Rule 1302(C)(2)(a); CEC Condition Of Certification]

O/o is operating within the MMSCF allowance of natural gas this unit and noted boilers in this permit.

Comments: 08/02/2016

Unit and operations record are well maintained per permit conditions.

08/03/16 PIR Complete, May Mamari under the supervision of TranC

Prohibitory Rules:

In Compliance: Y

Warning Issued: N

NTC: N

NOV: N

Reinspect: N

PERMIT NUMBER: B011573

Issue Date: 10/13/2015

Expiration Date: 10/31/2016

Last Inspected: 2015-11-19 00:00:00.000

Attached: _____ Copies

Inspection Type: Annual

Facility Type: Solar Plant

Contact: Timothy Higdon

Title: Environmental Specialist

Phone No: 702-815-2015

Fee Schedule: 2(d)

Rating: 100

Permit Status: PTO

SCC: 10300602

Permit Location: On-Site

Equipment Description: BOILER, NIGHTTIME PRESERVATION

Variance No : _____

Publications : _____

Process Rate : _____

Existing NTC : none

VEE : N

Existing NOV : none

VEE No : _____

Existing Variance : none

1. *Operation of this equipment must be conducted in compliance with all data and specifications submitted with the application under which this permit is issued unless otherwise noted below.[Rule 204]*

Equipment is operated and maintained per permit condition.

2. *The owner/operator shall operate this equipment in strict accord with the recommendations of the manufacturer or supplier and/or sound engineering principles and consistent with all information submitted with the application for this permit, which produce the minimum emission of air contaminants.[Rule 1302(C)(2)(a)]*

Equipment is operated and maintained per permit condition.

3. *This boiler shall use only natural gas as fuel.[Rule 1302(C)(2)(a)]*

Only natural gas is used in this unit

4. *The owner/operator shall maintain a current, on-site (at a central location if necessary) log for this equipment for five (5) years, which shall be provided to District, state, or federal personnel upon request. This log shall include calendar year fuel use for this equipment in standard cubic feet, or BTUs, and daily hours of operation.[Rule 204]*

Operation logs are maintained for 5 years, digitally and hard copy for review

5. *The owner/operator shall perform annual tune-ups in accordance with the unit manufacturer's specified tune-up procedure, by a qualified technician.[Rule 204]*

Pending for review.

6. *Records of fuel supplier certifications of fuel sulfur content shall be maintained to demonstrate compliance with the sulfur dioxide and particulate matter emission limits; PUC regulated pipeline quality natural gas meets this requirement.[Rule 204]*

In Compliance. Facility uses PUC regulated pipeline quality gas.

7. *The owner/operator shall continuously monitor and record fuel flow rate into this power block known as Ivanpah 3.[Rule 204]*

O/o is continuously monitor and record fuel flow rate and flue gas oxygen level per permit condition.

8. *The combined fuel use from the auxiliary boilers and nighttime preservation boilers shall not exceed 525 MMSCF of natural gas in any calendar year; combined fuel use is the sum total of natural gas combusted from Boilers with MDAQMD permit numbers B010375 and B011544 (Ivanpah 1) and shall not exceed a total of 525 mmscf in any calendar year in that boiler pair, B010376 and B011572 (Ivanpah 2) and shall not exceed a total of 525 mmscf in any calendar year in that boiler pair, B010377 and B011573 (Ivanpah 3) and shall not exceed a total of 525 mmscf in any calendar year in that boiler pair. [Rule 204; Rule 1302(C)(2)(a); CEC Condition Of Certification]*

O/o is operating within the MMSCF allowance of natural gas this unit and noted boilers in this permit.

Comments: 08/02/16 Unit and operations record are well maintained per permit conditions.

08/03/16 PIR Completed, May Mamari under the supervision of TranC

Prohibitory Rules:

In Compliance: Y

Warning Issued: N

NTC: N

NOV: N

Reinspect: N

PERMIT NUMBER: E010382

Issue Date: 10/13/2015

Attached: _____ Copies

Contact: Timothy Higdon

Fee Schedule: 7(g)

SCC: 20100102

Equipment Description: DIESEL IC ENGINE, EMERGENCY GENERATOR

Expiration Date: 10/31/2016

Inspection Type: Annual

Title: Environmental Specialist

Rating: 1

Permit Location: On-Site

Last Inspected: 2015-11-19 00:00:00.000

Facility Type: Solar Plant

Phone No: 702-815-2015

Permit Status: PTO

Current Hour Meter Reading: 56.90

Previous Hour Meter Reading: 40.80

1. *This engine, certified in accordance with 40 CFR Part 89, and after treatment control device (if any) shall be installed, operated and maintained according to the manufacturer's emission-related written instructions. Further, the owner/operator shall change only those emission-related settings that are permitted by the manufacturer. Unless otherwise noted, this equipment shall also be operated in accordance with all data and specifications submitted with the application for this permit. [40 CFR Part 60 Subparts 60.4205, and 60.4211]*

Engine is installed, operated and maintained per permit condition unless noted otherwise in this report

2. *This unit shall only be fired on ultra-low sulfur diesel fuel, whose sulfur concentration is less than or equal to 0.0015% (15ppm) on a weight per weight basis per CARB Diesel or equivalent requirements. [17 CCR 93115; 60.4207(b)]*

Only ultra-low diesel fuel is fire with this unit

3. *A non-resettable hour meter with a minimum display capability of 9,999 hours shall be installed and maintained on this unit to indicate elapsed engine operating time. [Title 17 CCR 93115.10(e)(1); 60.4209(a)]*

A non resettable hour meter is installed and maintained per permit condition. Current hr meter reading: 56.90hrs

4. *This unit shall not be used to provide power during a voluntary agreed to power outage and/or power reduction initiated under an Interruptible Service Contract (ISC); Demand Response Program (DRP); Load Reduction Program (LRP) and/or similar arrangement(s) with the electrical power supplier. [17 CCR 93115; hours allowed by federal regulation 40 CFR 60.42(f) streamlined out as these permit requirements are more stringent than the federal regulatory requirements]*

O/o is aware of this unit operations limitation per this permit condition and show compliance through operations log

5. *This unit shall be limited to use for emergency power, defined as in response to a fire or when commercially available power has been interrupted. In addition, this unit shall be operated no more than 1.0 hrs per day for a total of 50 hours per year for testing and maintenance. [NSR and 17 CCR 93115; hours allowed by federal regulation 40 CFR 60.42(f) streamlined out as these permit requirements are more stringent than the federal regulatory requirements]*

In Compliance. Did not exceed 1 hour per day.

6. *The owner/operator shall maintain an operations log for this unit current and on-site (or at a central location) for a minimum of five (5) years, and this log shall be provided to District, State and Federal personnel upon request. The log shall include, at a minimum, the information specified below:*

a. Date of each use and duration of each use (in hours);

b. Reason for use (testing & maintenance, emergency, required emission testing, etc.);

c. Monthly and calendar year operation in terms of fuel consumption (in gallons) and total hours [17 CCR 93115]; and,

d. Fuel sulfur concentration (the o/o may use the supplier's certification of sulfur content if it is maintained as part of this log.) [17 CCR 93115.10]

In Compliance. Verified log is kept.

7. *This unit is subject to the requirements of the Airborne Toxic Control Measure (ATCM) for Stationary Compression Ignition Engines (17 CCR 93115) and 40 CFR Part 60, Subpart IIII (NSPS). In the event of conflict between these conditions and the ATCM or NSPS, the more stringent requirements shall govern. {Rule 204}*

O/o is aware that this unit is subject to ATCM and NSPS and in an event of a conflict between the two the more stringent shall govern.

Comments: 08/02/16 Engine and operations records are well maintained per permit conditions.

08/03/16 PIR Completed, May Mamari under the supervision of TranC

Prohibitory Rules:

In Compliance:

Y

Warning Issued:	N
NTC:	N
NOV:	N
Reinspect:	N

PERMIT NUMBER: E010384

Issue Date: 11/13/2015	Expiration Date: 10/31/2016	Last Inspected: 2015-11-19 00:00:00.000
Attached: _____ Copies	Inspection Type: Annual	Facility Type: Solar Plant
Contact: Timothy Higdon	Title: Environmental Specialist	Phone No: 702-815-2015
Fee Schedule: 7(g)	Rating: 1	Permit Status: PTO
SCC: 20100102	Permit Location: On-Site	
Equipment Description: DIESEL IC ENGINE, FIRE PUMP		

Current Hour Meter Reading: 163.5

Previous Hour Meter Reading: 148.20

1. *This engine, certified in accordance with 40 CFR Part 89, and after treatment control device (if any) shall be installed, operated and maintained according to the manufacturer's emission-related written instructions. Further, the owner/operator shall change only those emission-related settings that are permitted by the manufacturer. Unless otherwise noted, this equipment shall also be operated in accordance with all data and specifications submitted with the application for this permit. [40 CFR Part 60 Subparts 60.4205 and 60.4211]*

Engine is installed, operated and maintained per permit condition unless noted otherwise in this report

2. *This unit shall only be fired on ultra-low sulfur diesel fuel, whose sulfur concentration is less than or equal to 0.0015% (15ppm) on a weight per weight basis per CARB Diesel or equivalent requirements. [17 CCR 93115; 60.4207(b)]*

Only ultra-low diesel fuel is fire with this unit

3. *A non-resettable hour meter with a minimum display capability of 9,999 hours shall be installed and maintained on this unit to indicate elapsed engine operating time. [Title 17 CCR 93115.10(e)(1); 60.4209(a)]*

A non resettable hour meter is installed and maintained per permit condition. Current hr meter reading: 163.5 hrs

4. *This unit shall be limited to use for emergency purposes, defined as in response to a fire. In addition, this unit shall be operated no more than 1.0 hrs per day for a total of 50 hours per year for testing and maintenance. The 50 hour limit can be exceeded when the emergency fire pump assembly is driven directly by a stationary diesel fueled CI engine operated per and in accord with the National Fire Protection Association (NFPA) 25 - "Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems," 1998 edition. This requirement includes usage during emergencies. [District Rule 1302(C)(2)(a) and Rule 1304 (D)(1)(a)] and 17 CCR 93115.3(n); hours allowed by federal regulation 40 CFR 60.42(f) streamlined out as these permit requirements are more stringent than the federal regulatory requirements.]*

In Compliance. No more than 1.0 hour per day.

5. *The owner/operator shall maintain an operations log for this unit current and on-site (or at a central location) for a minimum of five (5) years, and this log shall be provided to District, State and Federal personnel upon request. The log shall include, at a minimum, the information specified below:*

- Date of each use and duration of each use (in hours);*
- Reason for use (testing & maintenance, emergency, required emission testing, etc.);*
- Monthly and calendar year operation in terms of fuel consumption (in gallons) and total hours [17 CCR 93115]; and,*
- Fuel sulfur concentration (the o/o may use the supplier's certification of sulfur content if it is maintained as part of this log.) [17 CCR 93115.10]*

In Compliance. Verified log is kept.

6. *These engines may operate in response to fire suppression requirements and needs. [Rule 204]*

In Compliance.

7. *This unit is subject to the requirements of the Airborne Toxic Control Measure (ATCM) for Stationary Compression Ignition Engines (17 CCR 93115) and 40 CFR Part 60, Subpart IIII (NSPS). In the event of conflict between these conditions and the ATCM or NSPS, the more stringent requirements shall govern. [Rule 204]*

O/o is aware that this unit is subject to ATCM and NSPS and in an event of a conflict between the two the more stringent shall govern.

Comments: 08/02/16 Engine and operations records are well maintained per permit conditions.

08/03/16 PIR Completed, May Mamari under the supervision of TranC

Prohibitory Rules:

In Compliance: Y

Warning Issued: N

NTC: N

NOV: N

Reinspect: N

Section 2

**Post Certification Changes by the
CEC, BLM ROW Grants or Approved
POD by BLM
(COMP-07 Item 4)**



NRG Ivanpah Solar Electric Generating System
100302 Yates Well Road, HCR1, Box 280 Nipton, CA 92364
Ph: 702-815-2021 Fax: 702-815-2030

January 6, 2017

Mr. Joseph Douglas
Compliance Project Manager
California Energy Commission, Siting, Transportation and Environmental Protection Division
1516 9th Street
Sacramento, CA 95814

Mr. Michael Ahrens
Authorized Officer
Bureau of Land Management, Needles Field Office
1303 U.S. Hwy 95 S.
Needles, CA 92363

RE: Ivanpah Solar Electric Generating System (07-AFC-5C) Post-Certification Changes by the CEC or changes to the BLM Right-of-Way Grant or Approved POD by BLM, COMPLIANCE 07 Item 4

Dear Mr. Douglas and Mr. Ahrens,

In accordance with the requirements of Conditions of Certification COMPLIANCE-07 Item 4 of the Commission's approval of the Ivanpah Solar Electric Generating System, we are providing the following statement as a requirement in the Annual Compliance Report:

There are no petitions to amend submitted or post-certification changes approved by the CEC, and there are no changes to the BLM ROW grant or approved plan of development by BLM during the reporting period. The list of previously approved post-certification changes and BLM ROW grants is attached for reference.

William Dusenbury

General Manager,
NRG Ivanpah Solar Electric Generating System
100302 Yates Well Road, Nipton, CA – 92364

CC: Doug Davis, NRG
Tim Sisk, NRG
Document Control Specialist – NRG.

LIST OF POST CERTIFICATION CHANGES BY CEC OR BLM ROW GRANT OR APPROVED POD BY BLM

In accordance with COC COMP-07 Item 4, the following include cumulative listing of all post-certification changes by the Energy Commission or changes to the BLM ROW grant or approved POD by BLM, or cleared by BLM's Authorized Officer and the CPM

PTA No.	Description	Submittal Date	Approval Date
1	Petition To Amend - Equipment Change to Reduce Emissions and modify several Air Quality Conditions of certifications. The Petition to Amend modified, deleted and added several Air Quality Conditions of Certification. The modifications proposed in the petition include several equipment changes to make the project operations more effective and efficient.	3/8/2012	2/13/2013
2	Petition To Amend - Condition of Certification BIO-20. The modifications proposed in the petition would amend Condition of Certification BIO-20 to allow the owner to pay in-lieu fees to the California Department of Fish and Game (DFG) for acquisition and/or restoration of habitat under DFG's Advanced Mitigation Land Acquisition Grants program.	11/26/2012	2/13/2013
3	Petition To Amend - CEC Condition of Certification AQ-12, AQ-34 and AQSC-10. The modifications proposed in the petition would allow ISEGS to increase the maximum allowable annual fuel usage limit for boilers from 328 to 525 million standard cubic feet (MMSCF) per power block. The requested change would require modification of the annual fuel use limits in Air Quality Conditions of Certification AQ-12 and AQ-34. Additionally, the petition requests conforming changes to Air Quality Condition of Certification AQ-SC10, which limits total annual natural gas fuel heat input to each of the three ISEGS power plants to no more than 5 percent of the total heat input from the sun. According to the petition, the proposed revisions to condition AQSC-10 are necessary to make the condition consistent with the proposed changes to conditions AQ-12 and AQ-34.	3/26/2014	9/15/2014
4	Petition To Amend - to modify several Air Quality Conditions of Certifications. The modifications proposed include minor alterations to the ISEGS Air Quality Conditions of Certification to revise the description of engines used for emergency generators and fire pumps to match the existing engines. The Mojave Desert Air Quality Management District (District or MDAQMD) has reviewed the proposed changes and has incorporated the revised descriptions into district permit language. The purpose of this application is to update the equipment descriptions contained in the Air Quality Conditions of Certification to reflect the as-built engine information. Additionally, the District has made minor changes to permit conditions, consolidating redundant conditions, eliminating obsolete conditions, and making minor simplifications and corrections - those changes are reflected in the amended Decision.	3/17/2015	11/19/2015

ISEGS LIST OF BLM ROW GRANTS

Right-of-Way Grant No.	LOCATION	DATE ISSUED	TOTAL ACREAGE
CACA 049502	Construction Logistics Area	07-Oct-2010	245.89
CACA 049504	Ivanpah 1	07-Oct-2010	914.03
CACA 048668	Ivanpah 2	07-Oct-2010	1,076.51
CACA 049503	Ivanpah 3	07-Oct-2010	1,234.93
CACA 049502 Amendment #1	CLA - Modify certain boundaries of the CLA and shared ancillary facilities (Amend. #1)	14-Mar-2011	29.70
CACA 049502 Amendment #2	CLA - Construction of a Tortoise Pen along I-15 (Amend. #2)	09-Mar-2012	9.70
CACA 049502 Amendment #3	CLA - Installation of additional tortoise exclusion fence, two tortoise guards on Yates Well Rd from PVGC to I-15 and 3 tortoise guards along Colosseum Rd. (Amend. #3)	02-May-2012	5.40
CACA 049502 Amendment #4	CLA - Installation of Automated Data Logging Weather Stations (Amend. #4)	26-Mar-2013	0.10
CACA 049502 Amendment #5	CLA - Continued operation, maintain and decommissioning of the heliostat assembly building (HAB) (Amend. #5)	16-Apr-2013	22.50
CACA 055108*	Solar/Ecological Interpretive Center	25-Jul-2014	4.59
CACA 055666**	50 Miles of Desert Tortoise Exclusion Fencing along Interstate 15 and Interstate 40	02-Sep-2015	99.71

NOTES:

* This ROW Grant is a Land-Use permit issued by BLM which allows the use of public land to construct the Solar/Ecological Interpretive Center.

** Right-of-Way Grant for the right to install, monitor and maintain desert tortoise exclusion fence on public lands managed by the Bureau of Land Management.

Section 3

**Explanation for Any Submittal
Deadlines That Were Missed
(COMP-07 Item 5)**



NRG Ivanpah Solar Electric Generating System
100302 Yates Well Road, HCR1, Box 280 Nipton, CA 92364
Ph: 702-815-2021 Fax: 702-815-2030

January 5, 2016

Mr. Joseph Douglas
Compliance Project Manager
California Energy Commission, Siting, Transportation and Environmental Protection Division
1516 9th Street
Sacramento, CA 95814

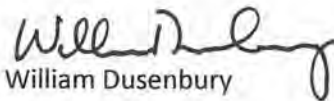
Mr. Michael Ahrens
Authorized Officer
Bureau of Land Management, Needles Field Office
1303 U.S. Hwy 95 S.
Needles, CA 92363

RE: Ivanpah Solar Electric Generating System (07-AFC-5C) Explanation for any Submittal Deadlines that were Missed to fulfill California Energy Commission Conditions of Certification, COMPLIANCE-7 Item 5

Dear Mr. Douglas and Mr. Ahrens,

In accordance with the requirements of Conditions of Certification COMPLIANCE-7 Item 5 of the Commission's approval of the Ivanpah Solar Electric Generating System, we are providing the following statement as a requirement in the Annual Compliance Report:

Ivanpah failed to meet the submittal deadline of March 1, 2016 for the Biennial Hazardous Waste Report to Department of Toxic Substances and Control (DTSC). The facility's status of becoming a Large Quantity Generator was confirmed in late 2015 as a result of broken heliostat accumulation. The report was subsequently submitted to DTSC on July 11, 2016., There has been no subsequent communication to date from the DTSC regarding the biennial report following the submittal. No submission deadlines for CEC Conditions of Certification were missed during the reporting period.



William Dusenbury

General Manager,
NRG Ivanpah Solar Electric Generating System
100302 Yates Well Road, Nipton, CA – 92364

CC: Doug Davis, NRG
Tim Sisk, NRG
Document Control Specialist – NRG.

Section 4

**List of Filings Submitted and
Permits Issued During the
Reporting Year
(COMP-07 Item 6)**

IVANPAH SOLAR ELECTRIC GENERATING FACILITY LIST OF FILINGS & ACTIVE PERMITS

In accordance with CEC Condition of Certification COMP-07 Item 6, the following are listings of filings submitted to, or permits issued by other governmental agencies during the year.

LIST OF FILINGS SUBMITTED DURING THE REPORTING PERIOD

TN #	DESCRIPTION	FILING DATE	SUBMITTED TO
210707	ISEGS Avian & Bat Monitoring Report - Summer 2015	16-Mar-2016	California Energy Commission
211916	Application for Confidential Designation - Root Cause Analysis for Unit 3 Fire Damage	21-Jun-2016	California Energy Commission
212042	ISEGS Avian & Bat Monitoring Plan - 2014-2015 Annual Report	30-Jun-2016	California Energy Commission
212098	2015 Annual Compliance Report	05-Jul-2016	California Energy Commission / Bureau of Land Management
213857	Ivanpah Solar Electric Generating System Avian & Bat Monitoring Plan, Spring 2016 Avian Report	30-Sep-2016	California Energy Commission
213858	Ivanpah Solar Technical Advisory Committee (TAC) April 19, 2016 Meeting Notes	30-Sep-2016	California Energy Commission
213859	Ivanpah Solar Technical Advisory Committee (TAC) July 5, 2016 Meeting Notes	30-Sep-2016	California Energy Commission
213886	Ivanpah Solar Electric Generating System Avian & Bat Monitoring Plan: Ivanpah Avian Report- Winter 2015	04-Oct-2016	California Energy Commission

LIST OF PERMITS ISSUED BY OTHER GOVERNMENTAL AGENCIES

PERMIT NO.	PERMIT NAME	EXPIRATION DATE	ISSUING AGENCY
PT0030636	Potable Water Permit	31-Jan-2017	San Bernardino County - Department of Public Health
07-AFC-05	Certificate of Occupancy	N/A	Department of Building Inspection, Bureau Veritas
FA0014691	Certified Unified Program Agency (CUPA)	28-Feb-2017	San Bernardino County - Fire Protection District (Hazardous Materials Division)
070714550071W	Hazardous Materials Certificate of Registration	30-Jun-2017	U. S. Department of Transportation - Pipeline and Hazardous Materials Safety Administration
CAS 000001	NPDES Industrial General Permit for Storm Water Discharges	30-Jun-2020	State Water Resources Control Board
CAS000001	Storm Water NOI/Annual Fee	02-Feb-2017	State Water Resources Control Board
	DTSC ANNUAL MANIFEST VERIFICATION FEES	31-Jul-2017	USEPA
B010375	Ivanpah 1 Authority to Construct (ATC) Permit B010375 - Auxiliary Boiler	31-Oct-2017	Mojave Desert Air Quality Management District
B011544	Ivanpah 1 Authority to Construct (ATC) Permit B011544 - Nighttime Preservation Boiler	31-Oct-2017	Mojave Desert Air Quality Management District
E010378	Ivanpah 1 Authority To Construct (ATC) Permit E010378 - Diesel IC Engine Fire Pump	31-Oct-2017	Mojave Desert Air Quality Management District
E010379	Ivanpah 1 Authority to Construct (ATC) Permit E010379 - Diesel IC Engine - Emergency Generator	31-Oct-2017	Mojave Desert Air Quality Management District
B010376	Ivanpah 2 Authority to Construct (ATC) Permit B010376 - Auxiliary Boiler	31-Oct-2017	Mojave Desert Air Quality Management District
B011572	Ivanpah 2 Authority to Construct (ATC) Permit B011572 - Nighttime Preservation Boiler	31-Oct-2017	Mojave Desert Air Quality Management District
E010380	Ivanpah 2 Authority To Construct (ATC) Permit E010380 - Diesel IC Engine Fire Pump	31-Oct-2017	Mojave Desert Air Quality Management District
E010381	Ivanpah 2 Authority To Construct (ATC) Permit E010381 - Diesel IC Engine - Emergency Generator	31-Oct-2017	Mojave Desert Air Quality Management District
B010377	Ivanpah 3 Authority to Construct (ATC) Permit B010377 - Auxiliary Boiler)	31-Oct-2017	Mojave Desert Air Quality Management District
B011573	Ivanpah 3 Authority to Construct (ATC) Permit B011573 - Nighttime Preservation Boiler	31-Oct-2017	Mojave Desert Air Quality Management District
E010382	Ivanpah 3 Authority To Construct (ATC) Permit E010382 - Diesel IC Engine - Emergency Generator	31-Oct-2017	Mojave Desert Air Quality Management District
E010384	Ivanpah 3 Authority to Construct (ATC) Permit E010384 - Diesel IC Engine Fire Pump	31-Oct-2017	Mojave Desert Air Quality Management District
E011547	Ivanpah Common Area Authority to Construct (ATC) Permit E011547 - Diesel IC Engine Fire Pump	31-Oct-2017	Mojave Desert Air Quality Management District
E011546	Ivanpah Common Area Authority to Construct (ATC) Permit E011546 - Diesel IC Engine Emergency Gen	31-Oct-2017	Mojave Desert Air Quality Management District
FOP #17693007	Federal Operating Permit (Title IV and Title V)	19-May-2021	Mojave Desert Air Quality Management District

Section 5

**Projection of Project Compliance
Activities Scheduled During the
Next Year – 2017
(COMP-07 Item 7)**

Ivanpah SEGS Operations Projection of Project Compliance Activities for 2017

In accordance with CEC Condition of Certification COMP-07 Item 7, the following is the projection of project compliance activities scheduled during the next year, 2017

TECHNICAL AREA	COC No.	DESCRIPTION	FREQUENCY	TENTATIVE COMPLIANCE DATE	REQUIRED SUBMITTAL DATE
Air Quality Auxilliary Boilers	AQ-01	Equipment operation to be conducted in compliance with all data and specifications submitted with the application. Any non-compliant operations shall be listed in the Annual Compliance Report (COMPLIANCE-7).	Daily	31-Dec-2017	To be submitted with the annual compliance report
Air Quality Auxilliary Boilers	AQ-02	To operate equipment in strict accord with the recommendations of the manufacturer or supplier and/or sound engineering principles and consistent with all information submitted with the application. As part of the Annual Compliance Report (COMPLIANCE-7), the project owner shall include information on the date, time, and duration of any violation of this permit condition.	Daily	31-Dec-2017	Violation of this permit condition shall be reported in the annual compliance test report
Air Quality Auxilliary Boilers	AQ-03	Only natural gas shall be used for the boilers and equipped with a meter measuring fuel consumption. To include proofs that only pipeline quality, or Public Utility Commission regulated gas are used for the boilers. As part of the Annual Compliance Report (COMPLIANCE-7), the project owner shall include proofs that only pipeline quality, or Public Utility Commission regulated natural gas are used for the boilers.	Daily	31-Dec-2017	To be submitted with the annual compliance report
Air Quality Auxilliary Boilers	AQ-04	To maintain log for boilers for 5 years which shall be provided to the District, state or federal personnel upon request.	Monthly	31-Dec-2017	To be submitted with the annual compliance report
Air Quality Auxilliary Boilers	AQ-06	Notify MDAQMD and CEC before execution of annual compliance tests	Annually	09-Jan-2017	30 days prior scheduled performance tests
Air Quality Auxilliary Boilers	AQ-06	Perform boiler tune-up in accord with manufacturer's specified tune-up procedure.	Annually	10-Feb-2017	
Air Quality Auxilliary Boilers	AQ-06	Perform annual compliance tests for auxiliary boilers Ivanpah 1, Ivanpah 2 and Ivanpah 3.	Annually	14-Feb-2017	
Air Quality Auxilliary Boilers	AQ-06	Submit compliance test results to MDAQMD and CEC.	Annually	15-Apr-2017	60 days from the date of the tests
Air Quality Auxilliary Boilers	AQ-07	This boiler (Boilers 1, 2, and 3) shall be operated in compliance with all applicable requirements of 40 CFR 60 Subpart Db - Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units (NSPS Db).	Monthly	31-Dec-2017	
Air Quality Auxilliary Boilers	AQ-08	Records of fuel supplier certifications of fuel sulfur content shall be maintained to demonstrate compliance with the sulfur dioxide and particulate matter emission limits.	Monthly	31-Dec-2017	

TECHNICAL AREA	COC No.	DESCRIPTION	FREQUENCY	TENTATIVE COMPLIANCE DATE	REQUIRED SUBMITTAL DATE
Air Quality Auxilliary Boilers	AQ-09	The owner/operator shall continuously monitor and record fuel flow rate and flue gas oxygen level.	Monthly	31-Dec-2017	
Air Quality Auxilliary Boilers	AQ-12	Monitor and record fuel consumption for each auxiliary boiler and nighttime preservation boiler pair not to exceed 525 mmscf.	Monthly	31-Dec-2017	To be submitted with the annual compliance report
Air Quality Fire Pumps	AQ-14	To ensure that the units shall only be fired on ultra-low sulfur diesel fuel, whose sulfur concentration is less than or equal to 0.0015% (15ppm) on a weight per weight basis.	Monthly	31-Dec-2017	
Air Quality Fire Pumps	AQ-16	To monitor operation of this equipment will not exceed 1.0 hour per day for a total of 50 hours per year for testing and maintenance.	Monthly	31-Dec-2017	
Air Quality Fire Pumps	AQ-17	To maintain operations log for these equipment.	Monthly	31-Dec-2017	
Air Quality Emergency Generators	AQ-21	To ensure that the units shall only be fired on ultra-low sulfur diesel fuel, whose sulfur concentration is less than or equal to 0.0015% (15ppm) on a weight per weight basis.	Monthly	31-Dec-2017	
Air Quality Emergency Generators	AQ-24	To monitor operation of this equipment will not exceed 1.0 hour per day for a total of 50 hours per year for testing and maintenance.	Monthly	31-Dec-2017	
Air Quality Emergency Generators	AQ-25	To maintain operations log for these equipment.	Monthly	31-Dec-2017	
Air Quality - Nighttime Preservation Boilers	AQ-27	Equipment operation to be conducted in compliance with all data and specifications submitted with the application.	Daily	31-Dec-2017	To be submitted with the annual compliance report
Air Quality - Nighttime Preservation Boilers	AQ-28	To operate equipment in strict accord with the recommendations of the manufacturer or supplier and/or sound engineering principles and consistent with all information submitted with the application.	Daily	31-Dec-2017	Violation of this permit condition shall be reported in the annual compliance test report
Air Quality - Nighttime Preservation Boilers	AQ-29	Only natural gas shall be used for the boilers and equipped with a meter measuring fuel consumption. To include proofs that only pipeline quality, or Public Utility Commission regulated gas are used for the boilers.	Daily	31-Dec-2017	To be submitted with the annual compliance report
Air Quality - Nighttime Preservation Boilers	AQ-30	To maintain log for boilers for 5 years.	Monthly	31-Dec-2017	To be submitted with the annual compliance report
Air Quality - Nighttime Preservation Boilers	AQ-31	Perform boiler tune-up in accord with manufacturer's specified tune-up procedure.	Annually	10-Feb-2017	
Air Quality - Nighttime Preservation Boilers	AQ-32	To maintain records of fuel supplier sulfur certification.	Monthly	31-Dec-2017	

TECHNICAL AREA	COC No.	DESCRIPTION	FREQUENCY	TENTATIVE COMPLIANCE DATE	REQUIRED SUBMITTAL DATE
Air Quality - Nighttime Preservation Boilers	AQ-33	The owner/operator shall continuously monitor and record fuel 'flow rate.	Monthly	31-Dec-2017	
Air Quality - Nighttime Preservation Boilers	AQ-34	Monitor and record fuel consumption for each auxiliary boiler and nighttime preservation boiler.	Monthly	31-Dec-2017	To be submitted with the annual compliance report
Air Quality - Common Area Emergency Generator	AQ-36	To ensure that the units shall only be fired on ultra-low sulfur diesel fuel, whose sulfur concentration is less than or equal to 0.0015% (15ppm) on a weight per weight basis.	Monthly	31-Dec-2017	
Air Quality - Common Area Emergency Generator	AQ-39	To monitor operation of this equipment will not exceed 1.0 hour per day for a total of 50 hours per year for testing and maintenance.	Monthly	31-Dec-2017	
Air Quality - Common Area Emergency Generator	AQ-40	To maintain operations log for these equipment.	Monthly	31-Dec-2017	
Air Quality - Common Area Emergency Fire Pump	AQ-43	To ensure that the units shall only be fired on ultra-low sulfur diesel fuel, whose sulfur concentration is less than or equal to 0.0015% (15ppm) on a weight per weight basis.	Monthly	31-Dec-2017	
Air Quality - Common Area Emergency Fire Pump	AQ-45	To monitor operation of this equipment will not exceed 1.0 hour per day for a total of 50 hours per year for testing and maintenance.	Monthly	31-Dec-2017	
Air Quality - Common Area Emergency Fire Pump	AQ-46	To maintain operations log for these equipment.	Monthly	31-Dec-2017	
Air Quality General	AQSC-6	<u>Off-road Vehicles for Mirror Washing:</u> The plan shall be updated every other year and submitted in the Annual Compliance Report (COMPLIANCE-7). The plan was originally submitted on 8/22/2013.	Every other year	23-Aug-2017	To be submitted with the annual compliance report - 1/31/2018.
Air Quality General	AQSC-7	Recordkeeping and annual reporting in association with the Dust Control Plan	Annually	31-Dec-2017	To be submitted with the annual compliance report
Biological Resources	BIO-02	<u>Designated Biologist Duties:</u> The Designated Biologist shall submit record summaries in the Annual Compliance Report unless his/her duties cease, as approved by BLM's Authorized Officer and the CPM.	Annually	31-Dec-2017	To be submitted with the annual compliance report

TECHNICAL AREA	COC No.	DESCRIPTION	FREQUENCY	TENTATIVE COMPLIANCE DATE	REQUIRED SUBMITTAL DATE
Biological Resources	BIO-04	<u>Biological Monitor Duties:</u> The Designated Biologist shall submit record summaries in the Annual Compliance Report unless his/her duties cease, as approved by BLM's Authorized Officer and the CPM.	Annually	31-Dec-2017	To be submitted with the annual compliance report
Biological Resources	BIO-06	<u>Worker Environmental Awareness Program (WEAP):</u> The worker education program shall be repeated annually for permanent employees, and shall be routinely administered within one week of arrival to any new construction personnel, foremen, contractors, subcontractors, and other personnel potentially working within the project area.	Annually	31-Dec-2017	To be submitted with the annual compliance report
Biological Resources	BIO-06	During project operation, signed statements for operational personnel shall be kept on file for six months following the termination of an individual's employment.	Annually	31-Dec-2017	To be submitted with the annual compliance report
Biological Resources	BIO-10	<u>Desert Tortoise Compliance Verification:</u> 6. No later than January 31 of every year the ISEGS facility remains in operation, provide BLM's Authorized Officer and the CPM an annual Listed Species Status Report	Annually	31-Jan-2017	To be submitted with the annual compliance report
Biological Resources	BIO-11	<u>Impact Avoidance and Minimization Measures:</u> The Designated Biologist shall report summarizing all available data (species of carcass, date and location collected, and cause of death) describing bird and other carcasses collected within the project site each year.	Annually	31-Dec-2017	To be submitted with the annual compliance report
Biological Resources	BIO-12	<u>Raven Management Plan:</u> Submit annual monitoring reports to CDFG, BLM, and USFWS no later than December 31st of each raven management year.	Annually	Completed in 2016	This condition of certification has been completed in 2016 based on 2-year monitoring period.
Biological Resources	BIO-13	Submit Weed Management Plan Annual Report in the Annual Compliance Report.	Annually	31-Dec-2017	To be submitted with the annual compliance report
Biological Resources	BIO-14	Submit Revegetation Annual Monitoring Report in the Annual Compliance Report.	Annually	31-Dec-2017	To be submitted with the annual compliance report
Biological Resources	BIO-17	Submit the results of the annual inspection of fencing and rehabilitated routes; a summary of fence repairs and maintenance of reclaimed routes completed during the year; and recommendations and a cost estimate for repairs and maintenance activities needed for the upcoming year. The reports will be submitted in the 2017 Annual Compliance Report.	Annually	31-Dec-2017	To be submitted with the annual compliance report
Biological Resources	BIO-18	<u>Special Status Plant Impact Avoidance and Minimization:</u> On January 31st of each year following construction, the owner's qualified botanist shall submit a report, including CNDDDB field survey forms, describing results of off-site plant surveys for Mojave milkweed and Rusby's desert-mallow to the BLM's authorized officer, the CPM, CDFG, and CNDDDB.	Annually	31-Dec-2017	To be submitted with the annual compliance report

TECHNICAL AREA	COC No.	DESCRIPTION	FREQUENCY	TENTATIVE COMPLIANCE DATE	REQUIRED SUBMITTAL DATE
Biological Resources	BIO-18	During operation, the DB shall submit record summaries in the Annual Compliance Report for a period not < 10 years for the Gas Pipeline Revegetation Plan, and for the life of the project for the SSPP and Monitoring Plan, and the SSP Remedial Action Plan, including funding for the seed storage.	Annually	31-Dec-2017	To be submitted with the annual compliance report
Biological Resources	BIO-19	<u>Nelson's Bighorn Sheep:</u> The SCBC will provide the project owner an annual report no later than January 15th of each year, and the project owner will provide to the CEC and BLM the annual report no later than January 31st of each year.	Annually	15-Jan-2017	To be submitted with the annual compliance report
Biological Resources	BIO-20	Streambed Impact Minimization and Compensation Measure change of condition report. To be submitted in the Annual Compliance Report	As Needed	31-Dec-2017	
Biological Resources	BIO-21	<u>Avian and Bat Monitoring and Management Plan:</u> For one year following the beginning of power plant operation, the Designated Biologist shall submit quarterly reports to the CPM, CDFG, and USFWS. describing the results of monitoring.	Quarterly		
Biological Resources	BIO-21	<u>Avian and Bat Monitoring and Management Plan:</u> Following the completion of the fourth quarter of monitoring, the Designated Biologist shall prepare an Annual Report that summarizes the year's data, analyzes any Project-related bird fatalities or injuries detected, and provides recommendations for future monitoring and any adaptive management actions needed.	Annually	31-Dec-2017	
Biological Resources	BIO-21	<u>Avian and Bat Monitoring and Management Plan:</u> No later than January 31st of every year the Annual Report shall be provided to the CPM, CDFG, and USFWS. Quarterly reporting shall continue until the CPM, in consultation with CDFG and USFWS determine whether more years of monitoring are needed, and whether mitigation and adaptive management measures are necessary.	Annually	31-Dec-2017	
Biological Resources	BIO-21	<u>Avian and Bat Monitoring and Management Plan:</u> After two years of data collection, the project owner or contractor shall prepare a report that describes the study design and monitoring results of the Avian and Bat Monitoring and Management Plan. The report shall be submitted to the CPM, CDFG and USFWS no later than the third year after onset of Project operation.	Annually	31-Dec-2017	
Biological Resources	BIO-23 (BLM)	The applicant shall conduct visual biweekly surveys for bird and bat mortalities throughout the project site. In addition to the photo documentation of bird mortalities (Item #14 in BIO-11), mortalities and injuries to bats and other wildlife shall be photo documented. Additionally, data would document the species affected and any overt signs of injury resulting in death (e.g., scorched feathers). This information would be compiled and provided to the BLM on quarterly intervals for the first three years, then annually thereafter, unless otherwise requested by the BLM.	Quarterly for the first 3 years; then, annually thereafter.		
Compliance Conditions	COMP-04	During Operations, an annual compliance report must be submitted.	Annually	31-Jan-2017	

TECHNICAL AREA	COC No.	DESCRIPTION	FREQUENCY	TENTATIVE COMPLIANCE DATE	REQUIRED SUBMITTAL DATE
Compliance Conditions	COMP-05	<u>Compliance Matrix:</u> A compliance matrix shall be submitted by the project owner to BLM's Authorized Officer and the CPM along with each annual compliance report. The compliance matrix is intended to provide BLM's Authorized Officer and the CPM with the current status of all conditions of certification in a spreadsheet format.	Annually	31-Jan-2017	To be submitted with the annual compliance report
Compliance Conditions	COMP-07	<u>Annual Compliance Report:</u> After construction of each power plant is complete or when a power plant goes into commercial operation, the project owner shall submit Annual Compliance Reports instead of Monthly Compliance Reports.	Annually	31-Jan-2017	
Compliance Conditions	COMP-08	<u>Confidential Information:</u> Any information that the project owner deems confidential shall be submitted to the Energy Commission's Dockets Unit with an application for confidentiality pursuant to Title 20, California Code of Regulations, section 2505(a). Any information that is determined to be confidential shall be kept confidential as provided for in Title 20, California Code of Regulations, section 2501 et. seq. Any information the ROW holder deems confidential shall be submitted to the BLM Authorized Officer with a written request for said confidentiality along with a justification for the request. All confidential submissions to BLM should be clearly stamped "proprietary information" by the holder when submitted.	As Needed	As Needed	
Compliance Conditions	COMP-09	<u>Annual Facility Compliance Fee:</u> Pursuant to the provisions of Section 25806(b) of the Public Resources Code, the project owner is required to pay the Energy Commission an annual compliance fee	Annually	01-Jul-2017	
Compliance Conditions	COMP-10	<u>Reports of Complaints, Notices, and Citations:</u> In addition to the monthly and annual compliance reporting requirements described above, the project owner shall report and provide copies to BLM's Authorized Officer and the CPM of all complaint forms, including noise and lighting complaints, notices of violation, notices of fines, official warnings, and citations, within 10 days of receipt. Complaints shall be logged and numbered. Noise complaints shall be recorded on the form provided in the NOISE conditions of certification. All other complaints shall be recorded on the complaint form (Attachment A).	As Needed	As Needed	
Compliance Conditions	COMP-14	Submit Petition to Amend to CEC	As Needed		
Hazardous Materials	HAZ-1	Provide to BLM's Authorized Officer and the CPM in the Annual Compliance Report, a list of hazardous materials contained at the facility.	Annually	31-Jan-2017	To be submitted with the annual compliance report
Hazardous Materials	HAZ-5	In the Annual Compliance Report, the project owner shall include a statement that all current project employee and appropriate contractor background investigations have been performed, and updated certification statements are appended to the Operations Security Plan. In the Annual Compliance Report, the project owner shall include a statement that the Operations Security Plan includes all current hazardous materials transport vendor certifications for security plans and employee background investigations.	Annually	31-Dec-2017	To be submitted with the annual compliance report

TECHNICAL AREA	COC No.	DESCRIPTION	FREQUENCY	TENTATIVE COMPLIANCE DATE	REQUIRED SUBMITTAL DATE
Land Use	LAND-3	<u>Solar / Ecological Interpretive Center:</u> In each Annual Compliance Report, the project owner shall provide a summary of estimated public use of the Solar / Ecological Interpretive Center and summarize any issues associated with operating and maintenance activities.	Annually	31-Dec-2017	To be submitted with the annual compliance report - 1/31/20168
Recreation	REC-1	<u>Solar / Ecological Interpretive Center:</u> After commercial operation and in each Annual Compliance Report for the life of the ISEGS project, the project owner shall provide a summary of estimated public utilization of the Solar / Ecological Interpretive Center and summarize any issues associated with operating and maintenance activities.	Annually	31-Dec-2017	To be submitted with the annual compliance report - 1/31/20168
Soil & Water	S&W-1	<u>Drainage Erosion and Sediment Control Plan:</u> c. Once operational, the project owner shall provide in the annual compliance report information on the results of storm water BMP monitoring and maintenance activities.	Annually	31-Dec-2017	To be submitted with the annual compliance report
Soil & Water	S&W-2	<u>In accordance with Storm Water Pollution Prevention Plan (SWPPP) Sect. 6.4:</u> • <u>Annual Comprehensive Site Compliance Evaluation:</u> The Environmental Specialist, Environmental Health and Safety Officer, or the Environmental Specialist III, with the assistance of SWPPT team and/or designated contractor, shall perform one comprehensive site evaluation or ACSCE during each report period (July 1-June 30). The evaluation shall be conducted a minimum of 8 months from the previous ACSCE and shall include review of all records, a visual inspection of all potential pollutant sources, review and evaluation of all BMPs, revision of the SWPPP as necessary to revise existing or include additional BMPs, visual inspection of all equipment needed to implement the SWPPP, and preparation of a report of the evaluation. Dischargers shall implement SWPPP revisions resulting from the ACSCE within 90 days of the evaluation.	Annually	01-Jul-2017	
Soil & Water	S&W-2	<u>In accordance with Storm Water Pollution Prevention Plan (SWPPP) Sect. 7:</u> Records of all storm water monitoring information and copies of all reports required by this Permit will be retained for a period of at least 5 years from the date of the sample, observation, measurement or report. The following records will be kept: • SWPPP, • Quarterly Visual Observations – NSWDS, • Monthly Visual Observations – Storm Water Discharges, • Annual Visual Observations – ACSCE, • ACSCE Summary Report, • Personnel Training, • Significant Spills and Leaks, and • Documentation of Dangerous Weather Preventing Inspection or Sampling (Flood conditions, high winds, lightning, dust storms).	Monthly	31-Dec-2017	

TECHNICAL AREA	COC No.	DESCRIPTION	FREQUENCY	TENTATIVE COMPLIANCE DATE	REQUIRED SUBMITTAL DATE
Soil & Water	S&W-2	<u>In accordance with Storm Water Pollution Prevention Plan (SWPPP) Sect. 7.1:</u> The Permit requires an annual report to be submitted to the Lahontan Regional Water Quality Control Board (LRWQCB) on an annual basis. The annual report is to encompass the period of July 1 through June 30 and is due July 1 of each year. A copy of the report must be retained in the SWPPP with for a minimum of 5 years from the date of submittal. The annual report shall include:	Annually	01-Jul-2017	
Soil & Water	S&W-3	<u>Project Groundwater Wells:</u> 8. Annual Monitoring Reports will be submitted which include Quarterly monitoring data as described in the Approved Groundwater Monitoring and Management Plan. The First Annual Report will be a Baseline Report which includes the Well Network and level monitoring report and plan	Annually	31-Dec-2017	
Soil & Water	S&W-4	<u>Operations Water Consumption:</u> The project owner shall prepare an annual summary, which will include daily usage, monthly range and monthly average of daily water usage in gallons per day, and total water used on a monthly and annual basis in acre-feet. For years subsequent to the initial year of operation, the annual summary will also include the yearly range and yearly average water use by source. For calculating the total water use, the term "year" will correspond to the date established for the annual compliance report submittal.	Annually	31-Dec-2017	
Soil & Water	S&W-5	<u>Storm Water Damage Monitoring and Response Plan:</u> The project owner shall prepare an annual summary of the number of heliostats failed, cause of the failure, and cleanup and mitigation performed for each failed heliostat.	Annually	31-Dec-2017	
Soil & Water	S&W-6	<u>Groundwater Monitoring and Reporting Plan:</u> 5. After project construction and during project operations, the project owner shall submit the monitoring data annually to both BLM's Authorized Office and the CPM. The summary shall document water level monitoring methods, the water level data, water level plots, and a comparison between pre- and post-project start-up water level trends. The report shall also include a summary of actual water use conditions, monthly climatic information (temperature and rainfall), and a comparison and assessment of water level data relative to the assumptions and spatial levels simulated by the applicant's groundwater model.	Annually	15-Aug-2017	
Traffic & Transport.	TRANS-3	<u>Heliostat Positioning Plan:</u> 4. The monitoring plan should be coordinated with the FAA, U.S. Department of the Navy, CalTrans, CHP, and Clark County Department of Aviation in relation to the proposed Southern Nevada Supplemental Airport and be updated on an annual basis for the first 5 years, and at 2-year intervals thereafter for the life of the project.	Annually	10-Dec-2017	
Transm. Lines	TLSN-3	During the first 5 years of plant operation, the project owner shall provide a summary of inspection results and any fire prevention activities carried out along the right-of-way and provide such summaries in the Annual Compliance Report to be provided to BLM's Authorized Officer and the CPM.	Annually	31-Dec-2017	To be submitted with the annual compliance report

TECHNICAL AREA	COC No.	DESCRIPTION	FREQUENCY	TENTATIVE COMPLIANCE DATE	REQUIRED SUBMITTAL DATE
Visual Resources	VIS-1	<u>Surface Treatment of Project Structures and Buildings:</u> The project owner shall provide a status report regarding surface treatment maintenance in the Annual Compliance Report.	Annually	31-Dec-2017	To be submitted with the annual compliance report
Visual Resources	VIS-2	<u>Landscape Screening of Golf Course:</u> The project owner shall report landscape maintenance activities, including replacement of dead or dying vegetation, for the previous year of operation in each Annual Compliance Report.	Annually	31-Dec-2017	To be submitted with the annual compliance report
Waste Mgmt	WASTE-6	<u>Operations Waste Management Plan:</u> The project owner shall also document in each Annual Compliance Report the actual volume of wastes generated and the waste management methods used during the year; provide a comparison of the actual waste generation and management methods used to those proposed in the original Operation Waste Management Plan; and update the Operation Waste Management Plan as necessary to address current waste generation and management practices.	Annually	31-Dec-2017	To be submitted with the annual compliance report
Waste Mgmt	WASTE-7	Ensure that all spills or releases of hazardous substances, hazardous materials, or hazardous waste are reported, cleaned up, and remediated as necessary, in accordance with all applicable federal, state, and local requirements.	As Needed	As Needed	
Worker Safety & FP	WS-2	Implement Project Operations and Maintenance Safety Program	Monthly	31-Dec-2017	
Worker Safety & FP	WS-5	The project owner shall ensure that a portable automatic external defibrillator (AED) is located on site during construction and operations and shall implement a program to ensure that workers are properly trained in its use and that the equipment is properly maintained and functioning at all times. During operations, all power plant employees shall be trained in its use.	Annually	31-Dec-2017	

Section 6

**Listing of the years Addition to the
Onsite Compliance File
(COMP-07 Item 8)**



NRG Ivanpah Solar Electric Generating System
100302 Yates Well Road, HCR1, Box 280 Nipton, CA 92364
Ph: 702-815-2021 Fax: 702-815-2030

January 4, 2017

Mr. Joseph Douglas
Compliance Project Manager
California Energy Commission, Siting, Transportation and Environmental Protection Division
1516 9th Street
Sacramento, CA 95814

Mr. Michael Ahrens
Authorized Officer
Bureau of Land Management, Needles Field Office
1303 U.S. Hwy 95 S.
Needles, CA 92363

RE: Ivanpah Solar Electric Generating System (07-AFC-5C) Listing of the Year's Additions to the On-site Compliance File, to fulfill California Energy Commission Conditions of Certification, COMPLIANCE 07 Item 8

Dear Mr. Douglas and Mr. Ahrens,

Pursuant to the requirements of Conditions of Certification COMPLIANCE-07 Item 8 of the Commission's approval of the Ivanpah Solar Electric Generating System, a listing of the year's additions to the on-site compliance file must be provided in the Annual Compliance Report.

The following are the additions to the on-site compliance file on record during the reporting period

- ***Federal Operating Permit #17693007 (Title V) issued by Mojave Desert Air Quality Management District (MDAQMD).***
- ***Acid Rain Monitoring Plan***

A list of all ISEGS compliance files is attached for your reference.

Please feel free to contact me with any questions.

William Dusenbury

General Manager,
NRG Ivanpah Solar Electric Generating System
100302 Yates Well Road, Nipton, CA – 92364



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CC: Doug Davis, NRG
Tim Sisk, NRG
Tim Higdon, NRG
Document Control Specialist – NRG.

ISEGS LIST COMPLIANCE FILES

In accordance with COC COMP-07 Item 8, the Ivanpah SEGS on-site compliance files are maintained at the project site Administration Building. At the end of the reporting period, the onsite compliance files contain the following information:

Ref. No.	Description	Document Date	Revision Date
07-AFC-5C	CEC Final Decision	9/22/2010	2/13/2013; 9/15/2014; 11/19/2015
07-AFC-5C	CEC Notice to Proceed	10/8/2010	
CACA 48668, 49502, 49503, 49504	BLM Record of Decision	10/7/2010	
CACA 48668, 49502, 49503, 49504	BLM ROW Notices to Proceed	Varies	
81440-2010-F- 0096	USFWS Biological Opinion and any Revisions	6/10/2011	
CACA 48668, 49502, 49503, 49504	All approved BLM Verification Change Request Forms	Varies	
Biological Opinion	Animal Husbandry Plan	11/1/2010	11/3/2012
AQSC-02	AQCMP-Air Quality Compliance and Mitigation Plan	7/14/2010	1/27/2011
BIO-02, 04, 10, 11, 18, 20 & 21	Annual Biological Summary Reports	Varies	
BIO-06	WEAP Training Booklet, Training Sheets, and Training Log	6/24/2010	
BIO-07	BRMIMP- Biological Resources Mitigation, Implementation and Monitoring Plan	7/15/2010	Rev. 1: 10/6/2010; Rev. 2: 4/11/2012
BIO-09	Desert Tortoise Translocation Plan	3/19/2009	Rev. 1: 3/2009; Rev. 2C: 9/23/2010; Rev. 3: 10/5/2010; Rev. 4:: 10/13/2010; Rev. 5.1: 10/2011
BIO-09	BIO-9 Compliance Status Reports-included in MCRs	11/29/2010	
BIO-12	Raven Management Plan	July 2010	Rev. 3: 10/4/2010; Rev. 4: 10/17/2012
BIO-13/WS-06	Weed Management Plan	7/12/2010	10/6/2010
BIO-14/BIO-18 /COMP-11	Closure, Rehabilitation, and Revegetation Plan - Includes Gas Pipeline Revegetation and Monitoring Plan		Rev. 3: 7/13/2010; Rev. 4: 9/29/2010
BIO-16	Burrowing Owl Mitigation and Monitoring Plan,	July 2010	Rev. 1: 10/4/2010; Rev. 2: 10/15/2010
BIO-18	Special-status Plant Protection and Monitoring Plan		Rev. 1: 10/26/2010
BIO-18	Special-status Plant Remedial Action Plan	11/9/2010	
BIO-18	Special-Status Plants Annual Reports	January 2012	3/7/2012
BIO-19	Big Horn Sheep Mitigation Plan	1/20/2012	9/27/2012
BIO-21	Avian and Bat Monitoring and Management Plan	September 2010	Rev. 1: 10/21/2010; Rev. 2: 5/23/2011; Rev. 3: 2/24/2012; Rev. 10:: 10/31/2013; Rev. 11: 11/5/2013; Rev. 12: 11/12/2013
COMP-06	All Monthly Compliance Reports	Varies	
	DOE Annual Summary Environmental Compliance Report	Varies	

Ref. No.	Description	Document Date	Revision Date
COMP-12/ COMP-13	On-Site Contingency Plan for Unplanned Temporary or Permanent Closure	1/31/2011	
CUL-03	CRMMP- Cultural Resources Mitigation and Monitoring Plan	8/13/2010	
HAZ-02	Hazardous Materials Business Plan	2/13/2013	
HAZ-03	Safety Management Plan	4/25/2013	
NOISE-03	Noise Control Plan	8/11/2010	
PAL-03	PRMMP- Paleontological Resources Mitigation and Monitoring Plan	August 2010	Rev. 1: 10/4/2010
S&W-02	Storm Water Pollution Prevention Plan (SWPPP)	July 2013	Rev. 1: 10/24/2014; Rev. 2: 6/24/2015; Rev. 3: 9/8/2015; Rev. 4: 8/10/2016 ; Rev. 5: 12/5/2016
S&W-02	SWPPP Annual Reports	Varies	
S&W-04	Semi-Annual Groundwater Usage Reports	Varies	
S&W-06	Groundwater Monitoring and Reporting Plan	7/15/2010	October 2010
S&W-06	Annual Groundwater Monitoring Reports	Varies	
TRANS-01	Traffic Control Plan	6/15/2010	
TRANS-03	Heliostat Positioning Plan-Rev 1	1/14/2013	September 2013
TRANS-04	Power Tower Luminance Plan	9/12/2013	
VIS-01	Surface Treatment Plan	6/29/2010	Rev. 1: 5/24/2011;
VIS-04	Visual Resources Mitigation Plan (Lighting Plan w/Nighttime Amendment)	12/14/2011	
WORKER SAFETY-02	Project Operations and Maintenance Safety and Health Program	Varies	
FA0014961	CUPA (Certified Unified Program Agency) Annual Permit for Facility #FA0014961 from San Bernardino County Fire Protection District	3/1/2015	
	Spill Prevention Control and Countermeasure Plan (SPCC)	10/27/2014	Rev. 1: 5/13/2015; Rev. 2: 9/3/2015; Rev. 3: 8/25/2016
CAL000389737	Hazardous Waste Generation Identification Number issued by Department of Toxic Substances Control	9/23/2013	
WASTE-06	Operations Waste Management Plan	9/23/2013	
S&W-05	Storm Water Damage Monitoring and Response Plan and Reports	8/7/2013	
40 CFR 98	Greenhouse Gas (GHG) Monitoring Plan and Annual Reports	3/10/2014	6/15/2015
Varies	MDAQMD Permits To Operate (changed from ATC to PTO on March 2, 2015.	Varies	11/19/2015
12-3601181-001	Domestic Water Supply Permit No. 14-3601181-001 from San Bernardino County Department of Public Health	1/28/2014	
AQ-06	Annual Compliance Test Reports	10/2/2014; 6/11/2015; 5/16/2016	
COMP-07	Annual Compliance Report (COMP-7)	1/30/2015; 1/29/2016	
40 CFR 75.53(a)	Acid Rain Monitoring Plan	November 2015	
FOP #17693007	Federal Operating Permit (Title IV and Title V)	19-May-2021	

Section 7

Evaluation of the On-site Contingency Plan for Unplanned Facility Closure (COMP-07 Item 9)



NRG Ivanpah Solar Electric Generating System
100302 Yates Well Road, HCR1, Box 280 Nipton, CA 92364
Ph: 702-815-2021 Fax: 702-815-2030

January 4, 2017

Mr. Joseph Douglas
Compliance Project Manager
California Energy Commission, Siting, Transportation and Environmental Protection Division
1516 9th Street
Sacramento, CA 95814

Mr. Michael Ahrens
Authorized Officer
Bureau of Land Management, Needles Field Office
1303 U.S. Hwy 95 S.
Needles, CA 92363

RE: Ivanpah Solar Electric Generating System (07-AFC-5C) Evaluation of On-site Contingency Plan for Unplanned Facility Closure, Including Suggestions for Bringing the Plan up to Date, to fulfill California Energy Commission Conditions of Certification, COMPLIANCE-07 Item 9

Dear Mr. Douglas and Mr. Ahrens,

In accordance with the requirements of Conditions of Certification COMPLIANCE-07 Item 9 of the Commission's approval of the Ivanpah Solar Electric Generating System, we are providing the following statement as a requirement in the Annual Compliance Report:

The On-site Contingency Plan for Unplanned Facility Closure, in accordance with COMPLIANCE-12 and COMPLIANCE-13, is currently in force and no changes were made during the reporting period.

William Dusenbury

General Manager,
NRG Ivanpah Solar Electric Generating System
100302 Yates Well Road, Nipton, CA – 92364

CC: Doug Davis, NRG
Tim Sisk, NRG
Document Control Specialist – NRG.

Section 8

**Listing of Complaints, Notice of
Violations, Official Warnings and
Citations Received During the Year
(COMP-07 Item 10)**

January 5, 2017

Mr. Joseph Douglas
Compliance Project Manager
California Energy Commission, Siting, Transportation and Environmental Protection Division
1516 9th Street
Sacramento, CA 95814

Mr. Michael Ahrens
Authorized Officer
Bureau of Land Management, Needles Field Office
1303 U.S. Hwy 95 S.
Needles, CA 92363

RE: Ivanpah Solar Electric Generating System (07-AFC-5C)

Listing of Complaints, Notices of Violations, Official Warnings and Citations Received during the Year,
to fulfill California Energy Commission Conditions of Certification, COMPLIANCE-7 Item 10

Dear Mr. Douglas and Mr. Ahrens,

In accordance with the requirements of Conditions of Certification COMPLIANCE-7 Item 10 of the Commission's approval of the Ivanpah Solar Electric Generating System (ISEGS), we are providing the following information as a requirement in the Annual Compliance Report:

The California Energy Commission (CEC) Condition of Certification COMPLIANCE-7, Annual Compliance Report requires "A listing of complaints, notices of violation, official warnings, and citations received during the year, a description of the resolution of any resolved matters, and the status of any unresolved matters."

ISEGS received pilot reports of glare emanating from the facility on two occasions in 2016. The pilot reports ACN 1353100 and ACN 1390571 from NASA Aviation Safety Reporting System (ASRS) were provided by CEC on August 4, 2016 and October 28, 2016; respectively. Pursuant to the requirements of the Heliostat Positioning Plan (HPP) that was approved by the Energy Commission on December 10, 2013 and as required by the Condition of Certification TRANS-3, a formal response is required within ten (10) days of the receipt of these reports. The responses to the reports were provided by ISEGS on August 16, 2016 and November 10, 2016 respectively. An update/addendum to the ISEGS Heliostat Positioning Plan was subsequently submitted on December 7, 2016. All stakeholders listed in the HPP including the Energy Commission were informed of the results of the initial investigation of the reports.

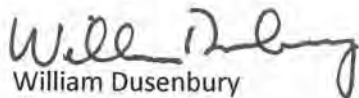
NRG Ivanpah Solar Electric Generating System
100302 Yates Well Road, HCR1, Box 280 Nipton, CA 92364
Ph: 702-815-2021 Fax: 702-815-2030

ISEGS also received a Notice of Violation (NOV) from San Bernardino County CUPA on July 27, 2016 for the issues identified during the May 19, 2016 inspection. The NOV was provided to CEC and BLM on August 4, 2016 pursuant to the requirements of CEC Condition of Certification COMPLIANCE-10 that requires project owners to report and provide copies to BLM's Authorized Officer and the CPM of all complaint forms, including noise and lighting complaints, notices of violation, notices of fines, official warnings, and citations, within 10 days of receipt. A certificate of compliance and signed statement required by the CUPA was submitted on August 24, 2016.

Other than the above complaints and notice of violation, ISEGS did not receive any further complaints, notices of violations, official warnings, and citations during the reporting period.

Please feel free to contact me with any questions.

Thank you.


William Dusenbury

General Manager,
NRG Ivanpah Solar Electric Generating System
100302 Yates Well Road, Nipton, CA – 92364

CC: Doug Davis, NRG
Tim Sisk, NRG
Document Control Specialist – NRG.

Section 9

Table 1 – List of Conditions of Certifications That Were Satisfied During the Reporting Period (COMP-07)

The following **TABLE 1** includes Actions including plan or report submittals that were made up to the end of this reporting period in compliance with the project's **Conditions of Certification**.

TECHNICAL AREA	COC No.	TABLE 1 2016 ACTIONS THAT SATISFIED THE CONDITIONS OF CERTIFICATION	SUBMITTAL DATE
Air Quality Auxilliary Boilers	AQ-01	Equipment operation to be conducted in compliance with all data and specifications submitted with the application. Any non-compliant operations shall be listed in the Annual Compliance Report (COMPLIANCE-7).	Submitted with the annual compliance report - 1/29/2016
Air Quality Auxilliary Boilers	AQ-02	To operate equipment in strict accord with the recommendations of the manufacturer or supplier and/or sound engineering principles and consistent with all information submitted with the application. As part of the Annual Compliance Report (COMPLIANCE-7), the project owner shall include information on the date, time, and duration of any violation of this permit condition.	Submitted with the annual compliance report - 1/29/2016
Air Quality Auxilliary Boilers	AQ-03	Only natural gas shall be used for the boilers and equipped with a meter measuring fuel consumption. To include proofs that only pipeline quality, or Public Utility Commission regulated gas are used for the boilers. As part of the Annual Compliance Report (COMPLIANCE-7), the project owner shall include proofs that only pipeline quality, or Public Utility Commission regulated natural gas are used for the boilers.	Submitted with the annual compliance report - 1/29/2016
Air Quality Auxilliary Boilers	AQ-04	To maintain log for boilers for 5 years which shall be provided to the District, state or federal personnel upon request.	Completed for 2014; Completed for 2015; Completed for 2016
Air Quality Auxilliary Boilers	AQ-06	Submitted 30 days notification prior the annual compliance test for Unit 1, Unit 2 and Unit 3 Auxiliary Boilers.	7/11/2014; 3/13/2015; 2/24/2016
Air Quality Auxilliary Boilers	AQ-06	Performed annual tune-up for Unit 1, Unit 2 and Unit 3 Auxiliary Boilers	4/15/2015; 3/23/2016
Air Quality Auxilliary Boilers	AQ-06	Unit 1 Auxiliary Boiler annual compliance test was completed on 3/30/2016. The test report was submitted on 5/16/2016.	10/3/2014; 6/15/2015; 5/16/2016
Air Quality Auxilliary Boilers	AQ-06	Unit 2 Auxiliary Boiler annual compliance test was completed on 3/31/2016. The test report was submitted on 5/16/2016.	10/3/2014; 6/15/2015; 5/16/2016

TECHNICAL AREA	COC No.	TABLE 1 2016 ACTIONS THAT SATISFIED THE CONDITIONS OF CERTIFICATION	SUBMITTAL DATE
Air Quality Auxilliary Boilers	AQ-06	Unit 3 Auxiliary Boiler annual compliance test was completed on 4/1/2016. The test report was submitted on 5/16/2016.	10/3/2014; 6/15/2015; 5/16/2016
Air Quality Auxilliary Boilers	AQ-07	This boiler (Boilers 1, 2, and 3) shall be operated in compliance with all applicable requirements of 40 CFR 60 Subpart Db - Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units (NSPS Db).	In Compliance for 2014; In Compliance for 2015; In Compliance for 2016
Air Quality Auxilliary Boilers	AQ-08	Records of fuel supplier certifications of fuel sulfur content shall be maintained to demonstrate compliance with the sulfur dioxide and particulate matter emission limits.	Completed for 2014; Completed for 2015; Completed for 2016
Air Quality Auxilliary Boilers	AQ-09	The owner/operator shall continuously monitor and record fuel flow rate and flue gas oxygen level.	Completed for 2014; Completed for 2015; Completed for 2016
Air Quality Auxilliary Boilers	AQ-10	Submitted Petition for Low Mass Emissions Certification to predict NOx emissions. Conducted Low Mass Emissions Testing on 4/4-6/2016 and 5/11-13/2016. The LME report was submitted on 6/16/2016.	11/12/2015; 6/16/2016
Air Quality Auxilliary Boilers	AQ-10	An updated Emissions Estimation Plan was submitted on 6/21/2016. Approval from MDAQMD was received on 6/21/2016	6/21/2016
Air Quality Auxilliary Boilers	AQ-12	Annual fuel use for the Auxiliary Boilers and Nighttime Preservation Boilers was amended from 328 mmscf to 525 mmscf on 9/15/2014. Annual fuel use for each Aux. Boiler and Nighttime Preservation Boiler did not exceed 525 mmscf of natural gas in 2015. Record logs are being kept and monitored. Records are submitted in the 2015 annual compliance report.	1/30/2015; 1/29/2016
Air Quality Fire Pumps	AQ-13	This engine, certified in accordance with 40 Code of Federal Regulations (CFR) part 89, and after treatment control device (if any) shall be installed, operated and maintained according to the manufacturer's emission-related written instructions. Further, the owner/operator shall change only those emission-related settings that are permitted by 40 CFR 60 Subparts 60.4205 and 60.4211. Unless otherwise noted, this equipment shall also be operated in accordance with all data and specifications submitted with the application for this permit.	In Compliance for 2014; In Compliance for 2015; In Compliance for 2016
Air Quality Fire Pumps	AQ-14	This unit shall only be fired on ultra-low sulfur diesel fuel, whose sulfur concentration is less than or equal to 0.0015% (15ppm) on a weight per weight basis per ARB Diesel or equivalent requirements. [17 California Code of Regulations (CCR) 93115; 60.4207(b)]	In Compliance for 2014; In Compliance for 2015; In Compliance for 2016
Air Quality Fire Pumps	AQ-15	This unit shall be limited to use for emergency purposes. In addition, this unit shall be operated no more than 1.0 hours per day for a total of 50 hours per year for testing and maintenance.	MDAQMD verified and certified in compliance during the site audit on 8/2/2016.

TECHNICAL AREA	COC No.	TABLE 1 2016 ACTIONS THAT SATISFIED THE CONDITIONS OF CERTIFICATION	SUBMITTAL DATE
Air Quality Fire Pumps	AQ-16	This unit shall be limited to use for emergency purposes. In addition, this unit shall be operated no more than 1.0 hours per day for a total of 50 hours per year for testing and maintenance. The 50 hour can be exceeded when the emergency fire pump assembly is driven directly by a stationary diesel fueled CI engine when operated per and in accord with the National Fire protection Association (NFPA) 25 - "Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems," 1998 edition. This requirement includes usage during emergencies. [[District Rule 1302(C)(2)(a) and Rule 1304(D)(1)(a)] and 17CCR93115.3(n)] [Hours allowed by federal regulation 40 CFR 60.42(f) streamlined out as these permit requirements are more stringent than the federal regulatory requirements.]	In Compliance for 2014; In Compliance for 2015; In Compliance for 2016
Air Quality Fire Pumps	AQ-17	The owner/operator shall maintain an operations log for this units current and on-site; (either at the engine location or at a on-site location), for a minimum of five (5) years, and this log shall be provided to District, State and Federal personnel upon request. The log shall include, at a minimum, the information specified below: a. Date of each use and duration of each use (in hours); b. Reason for use (testing & maintenance, emergency, required emission testing, etc.); c. Monthly and calendar year operation in terms of fuel consumption (in gallons) and total hours [17 CCR 93115]; and, d. Fuel sulfur concentration (the owner/operator may use the supplier's certification of sulfur content if it is maintained as part of this log. [17 CCR 93115])	Completed for 2014; Completed for 2015; Completed for 2016
Air Quality Fire Pumps	AQ-18	These engines may operate in response to fire suppression requirements and needs. [Rule 204].	In Compliance for 2014; In Compliance for 2015; In Compliance for 2016
Air Quality Fire Pumps	AQ-19	This unit is subject to the requirements of the Airborne Toxic Control Measure (ATCM) for Stationary Compression Ignition Engines (17 CCR § 93115) and 40 Code of Federal Regulations (CFR) Part 60, Subpart III (NSPS). In the event of conflict between these conditions and the ATCM or NSPS, the more stringent requirements shall govern.	In Compliance for 2014; In Compliance for 2015; In Compliance for 2016
Air Quality Emergency Generators	AQ-20	This engine, certified in accordance with 40 CFR Part 89, and after treatment control device (if any) shall be installed, operated and maintained according to the manufacturer's emission-related written instructions. Further, the owner/operator shall change only those emission-related settings that are permitted by the manufacturer. Unless otherwise noted, this equipment shall also be operated in accordance with all data and specifications submitted with the application for this permit. [40 CFR Part 60 Subparts 60.4205, and 60.4211]	In Compliance for 2014; In Compliance for 2015; In Compliance for 2016
Air Quality Emergency Generators	AQ-21	This unit shall only be fired on ultra-low sulfur diesel fuel, whose sulfur concentration is less than or equal to 0.0015% (15ppm) on a weight per weight basis per CARB Diesel or equivalent requirements. [17 CCR 93115; 60.4207(b)]	In Compliance for 2014; In Compliance for 2015; In Compliance for 2016

TECHNICAL AREA	COC No.	TABLE 1 2016 ACTIONS THAT SATISFIED THE CONDITIONS OF CERTIFICATION	SUBMITTAL DATE
Air Quality Emergency Generators	AQ-23	This unit shall not be used to provide power during a voluntary power outage and/or power reduction initiated under an Interruptible Service Contract (ISC), Demand Response Program (DRP), Load Reduction Program (LRP) and/or similar arrangement(s) with the electrical power supplier. [17 CCR 93115] [40 CFR 60 Subpart IIII allowance for DRP streamlined out.]	In Compliance for 2014; In Compliance for 2015; In Compliance for 2016
Air Quality Emergency Generators	AQ-24	This unit shall be limited to use for emergency power, defined as in response to a fire or when commercially available power has been interrupted. In addition, this unit shall be operated no more than 1.0 hours per day of 50 hours per year for testing and maintenance [NSR and 17 CCR 93115] [Hours allowed by 60.42 (f) stremlined out.]	In Compliance for 2014; In Compliance for 2015; In Compliance for 2016
Air Quality Emergency Generators	AQ-25	The owner/operator shall maintain an operations log for this unit current and on-site (or at a central location) for a minimum of five (5) years, and this log shall be provided to District, State and Federal personnel upon request. The log shall include, at a minimum, the information specified below: a. Date of each use and duration of each use (in hours); b. Reason for use (testing & maintenance, emergency, required emission testing, etc.); c. Monthly and calendar year operation in terms of fuel consumption (in gallons) and total hours [17 CCR 93115]; and, d. Fuel sulfur concentration (the owner/operator may use the supplier's certification of sulfur content if it is maintained as part of this log) [17 CCR 93115]	Completed for 2014; Completed for 2015; Completed for 2016
Air Quality Emergency Generators	AQ-26	This unit is subject to the requirements of the Airborne Toxic Control Measure (ATCM) for Stationary Compression Ignition Engines (Title 17 CCR §93115) and 40 CFR 60 Part 60, Subpart III (NSPS). In the event of conflict between these conditions and the ATCM or NSPS, the more stringent requirements shall govern.	In Compliance for 2014; In Compliance for 2015; In Compliance for 2016
Air Quality Nighttime Preservation Boilers	AQ-27	Any non-compliant operations shall be listed in the Annual Compliance report (COMPLIANCE-7).	1/30/2015; 1/29/2016
Air Quality Nighttime Preservation Boilers	AQ-28	As part of the Annual Compliance Report (COMPLIANCE-7), the project owner shall include information on the date, time, and duration of any violation of this permit condition.	1/30/2015; 1/29/2016
Air Quality Nighttime Preservation Boilers	AQ-29	As part of the Annual Compliance Report (COMPLIANCE-7), the project owner shall include proof that only pipeline quality, or Public Utility Commission regulated natural gas is used in these boilers.	1/30/2015; 1/29/2016
Air Quality Nighttime Preservation Boilers	AQ-30	The owner/operator shall maintain a current, on-site (at a central location if necessary) log for this equipment for five (5) years, which shall be provided to District, state, or federal personnel upon request. This log shall include calendar year fuel use for this equipment in standard cubic feet, or BTUs, and daily hours of operation.	Completed for 2014; Completed for 2015; Completed for 2016

TECHNICAL AREA	COC No.	TABLE 1 2016 ACTIONS THAT SATISFIED THE CONDITIONS OF CERTIFICATION	SUBMITTAL DATE
Air Quality Nighttime Preservation Boilers	AQ-31	The owner/operator shall perform annual tune-ups in accordance with the unit manufacturer's specified tune-up procedure, by a qualified technician.	Completed for 2014; Completed for 2015; Completed for 2016
Air Quality Nighttime Preservation Boilers	AQ-32	Records of fuel supplier certifications of fuel sulfur content shall be maintained to demonstrate compliance with the sulfur dioxide and particulate matter emission limits.	Completed for 2014; Completed for 2015; Completed for 2016
Air Quality Nighttime Preservation Boilers	AQ-33	The owner/operator shall continuously monitor and record fuel 'flow rate.	Completed for 2014; Completed for 2015; Completed for 2016
Air Quality Nighttime Preservation Boilers	AQ-34	The combined fuel use from the auxiliary boiler and the nighttime preservation boiler shall not exceed 525 MMSCF of natural gas in any calendar year; combined fuel use is the sum total of natural gas combusted from Boilers with MDAQMD permit numbers; B010375 and B011544 (Ivanpah 1) and shall not exceed a total of 525 mmscf in any calendar year in that boiler pair; B010376 and B011572 (Ivanpah 2) and shall not exceed a total of 525 mmscf in any calendar year in that boiler pair; B01 0377, and B011573 (Ivanpah 3) and shall not exceed a total of 525 mmscf in any calendar year in that boiler pair.	1/30/2015; 1/29/2016
Air Quality Common Area Emergency Generators	AQ-35	This engine, certified in accordance with 40 CFR Part 89, and after treatment control device (if any) shall be installed, operated and maintained according to the manufacturer's emission-related written instructions. Further, the owner/operator shall change only those emission-related settings that are permitted by the manufacturer. Unless otherwise noted, this equipment shall also be operated in accordance with all data and specifications submitted with the application for this permit. [40 CFR Part 60 Subparts 60.4205, and 60.42111	In Compliance for 2014; In Compliance for 2015; In Compliance for 2016
Air Quality Common Area Emergency Generators	AQ-36	This unit shall only be fired on ultra-low sulfur diesel fuel, whose sulfur concentration is less than or equal to 0.0015% (15 ppm) on a weight per weight basis per CARB Diesel or equivalent requirements. [17 CCR 93115;.60.4207(b)]	In Compliance for 2014; In Compliance for 2015; In Compliance for 2016
Air Quality Common Area Emergency Generators	AQ-38	This unit shall not be used to provide power during a voluntary power outage and/or power reduction initiated under an Interruptible Service Contract (ISC), Demand Response Program (ORP), Load Reduction Program (LRP) and/or similar arrangement(s) with the electrical power supplier. [17 CCR 93115] [40 CFR 60 Subpart IIII allowance for DRP streamlined out.]	In Compliance for 2014; In Compliance for 2015; In Compliance for 2016
Air Quality Common Area Emergency Generators	AQ-39	This unit shall be limited to use for emergency power, defined as in response to a fire or when commercially available power has been interrupted. In addition, this unit shall be operated no more than 1.0 hrs per day for a total of 50 hours per year for testing and maintenance. [NSR and 17 CCR 93115] [Hours allowed by 60.42(f) streamlined out.]	In Compliance for 2014; In Compliance for 2015; In Compliance for 2016

TECHNICAL AREA	COC No.	TABLE 1 2016 ACTIONS THAT SATISFIED THE CONDITIONS OF CERTIFICATION	SUBMITTAL DATE
Air Quality Common Area Emergency Generators	AQ-40	The owner/operator shall maintain an operations log for this unit current and on-site (or at a central location) for a minimum of five (5) years, and this log shall be provided to District, State and Federal personnel upon request. The log shall include, at a minimum, the information specified below: a. Date of each use and duration of each use (in hours); b. Reason for use (testing & maintenance, emergency, required emission testing, etc.); c. Monthly and calendar year operation in terms of fuel consumption (in gallons) and total hours [17 CCR 93115]; and, d. Fuel sulfur concentration (the o/o may use the supplier's certification of sulfur content if it is maintained as part of this log.) [17 CCR 93115]	Completed for 2014; Completed for 2015; Completed for 2016
Air Quality Common Area Fire Pumps	AQ-45	This unit shall be limited to use for emergency purposes. In addition, this unit shall be operated no more than 1.0 hours per day for a total of 50 hours per year for testing and maintenance.	MDAQMD verified and certified in compliance during the site audit on 8/2/2016.
Air Quality Common Area Fire Pumps	AQ-42	This engine, certified in accordance with 40 CFR Part 89, and after treatment control device (if any) shall be installed, operated and maintained according to the manufacturer's emission-related written instructions. Further, the owner/operator shall change only those emission-related settings that are permitted by the manufacturer. Unless otherwise noted, this equipment shall also be operated in accordance with all data and specifications submitted with the application for this permit. [40 CFR Part 60 Subparts 60.4205 and 60.4211]	In Compliance for 2014; In Compliance for 2015; In Compliance for 2016
Air Quality Common Area Fire Pumps	AQ-43	This unit shall only be fired on ultra-low sulfur diesel fuel, whose sulfur concentration is less than or equal to 0.0015% (15ppm) on a weight per weight basis per CARB Diesel or equivalent requirements. [17 CCR 93115; 60.4207(b)]	In Compliance for 2014; In Compliance for 2015; In Compliance for 2016
Air Quality Common Area Fire Pumps	AQ-45	This unit shall be limited to use for emergency purposes. In addition, this unit shall be operated no more than 1.0 hrs per day for a total of 50 hours per year for testing and maintenance. The 50 hour limit can be exceeded when the emergency fire pump assembly is driven directly by a stationary diesel fueled CI engine operated per and in accord with the National Fire Protection Association (NFPA) 25 "Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems," 1998 edition. This requirement includes usage during emergencies. [[District Rule 1302(C)(2)(a) and Rule 1304 (D)(1)(a)] and 17 CCR 93115.3(n)] [Hours allowed by federal regulation 40 CFR 60.42(f) streamlined out as these permit requirements are more stringent than the federal regulatory requirements.]	In Compliance for 2014; In Compliance for 2015; In Compliance for 2016

TECHNICAL AREA	COC No.	TABLE 1 2016 ACTIONS THAT SATISFIED THE CONDITIONS OF CERTIFICATION	SUBMITTAL DATE
Air Quality Common Area Fire Pumps	AQ-46	The owner/operator shall maintain an operations log for this unit current and on-site (or at a central location) for a minimum of five (5) years, and this log shall be provided to District, State and Federal personnel upon request. . The log shall include, at a minimum, the information specified below: a. Date of each use and duration of each use (in hours); b. Reason for use (testing & maintenance, emergency, required emission testing, etc.); c. Monthly and calendar year operation in terms of fuel consumption (in gallons) and total hours [17 CCR93115]; and, d. Fuel sulfur concentration (the % may use the supplier's certification of sulfur content if it is maintained as part of this log.) [17 CCR 93115].	Completed for 2014; Completed for 2015; Completed for 2016
Air Quality Common Area Fire Pumps	AQ-47	These engines may operate in response to fire suppression requirements and needs. [Rule 204].	In Compliance for 2014; In Compliance for 2015; In Compliance for 2016
Air Quality General	AQSC-06	Dedicated Off-road Vehicles for Mirror Washing Activities Plan - The Plan shall be updated every other year and submitted in the Annual Compliance Report. The updated Plan was submitted in the 2015 Annual Compliance Report.	1/29/2016
Air Quality General	AQSC-07	Revised Operations Dust Control Plan was submitted to CEC and BLM.	7/30/2014
Air Quality General	AQSC-07	Submit 2015 dust control annual report with the annual compliance report	1/29/2016
Air Quality General	AQSC-08	Submitted copy of all MDAQMD Permits To Operate to CEC and BLM.	12/10/2015
Biological Resources	BIO-02	During project operation, the Designated Biologist shall submit record summaries in the Annual Compliance Report unless his/her duties cease, as approved by BLM's Authorized Officer and the CPM.	1/30/2015; 1/29/2016
Biological Resources	BIO-04	During project operation, the Designated Biologist shall submit record summaries in the Annual Compliance Report unless his/her duties cease, as approved by BLM's Authorized Officer and the CPM.	1/30/2015; 1/29/2016
Biological Resources	BIO-07	Submitted Construction Termination Report (within 30 days after completion of project construction. Project construction officially completed on 5/31/2014.	6/30/2014
Biological Resources	BIO-07	Submitted post-construction Closure, Revegetation and Rehabilitation Plan Report	7/1/2014
Biological Resources	BIO-10	Submitted Annual Listed Species Status Report with the Annual Compliance Report.	1/30/2015; 1/29/2016
Biological Resources	BIO-11	Submitted Construction Termination Report (within 30 days after completion of project construction. Project construction officially completed on 5/31/2014.	6/30/2014
Biological Resources	BIO-11	Submitted post-construction Closure, Revegetation and Rehabilitation Plan Report	7/1/2014

TECHNICAL AREA	COC No.	TABLE 1 2016 ACTIONS THAT SATISFIED THE CONDITIONS OF CERTIFICATION	SUBMITTAL DATE
Biological Resources	BIO-11	The Designated Biologist shall report summarizing all available data (species of carcass, date and location collected, and cause of death) describing bird and other carcasses collected within the project site each year. This report was submitted in the Annual Compliance Report.	1/30/2015; 1/29/2016
Biological Resources	BIO-12	Annual Monitoring Report per the Raven Mangement Plan was submitted on 12/31/2014. Resubmitted on 1/5/2015 with maps. The Raven Management Plan (Rev. 2) Semi-annual Report was submitted on 6/27/2016. The Raven Management Plan has been completed and was closed in October 2016.	12/31/2014; 12/30/2015; 6/27/2016
Biological Resources	BIO-12	Report identifying which items of the Raven Management Plan (Post Construction Raven Management Report) have been completed was submitted to CEC and BLM on 7/31/2014.	7/31/2014
Biological Resources	BIO-13	Submitted Weed Management Plan Annual Report in the Annual Compliance Report.	1/30/2015; 1/29/2016
Biological Resources	BIO-14	Submitted Revegetation Annual Monitoring Report in the Annual Compliance Report.	1/30/2015; 1/29/2016
Biological Resources	BIO-14	Report identifying which items of the Post-construction Closure, Revegetation and Rehabilitation Plan have been completed was submitted to CEC and BLM on 6/30/2014	6/30/2014
Biological Resources	BIO-16	Submitted Construction Termination Report (within 30 days after completion of project construction. Project construction officially completed on 5/31/2014.	6/30/2014
Biological Resources	BIO-16	Submitted post-construction Closure, Revegetation and Rehabilitation Plan Report	7/1/2014
Biological Resources	BIO-17	Submitted post-construction analysis with the final accounting of the amount of habitat disturbed during project construction.	8/29/2014
Biological Resources	BIO-17	Submitted the results of the annual inspection of fencing and rehabilitated routes; a summary of fence repairs and maintenance of reclaimed routes completed during the year; and recommendations and a cost estimate for repairs and maintenance activities needed for the upcoming year. The reports were submitted in the 2015 Annual Compliance Report.	1/29/2016
Biological Resources	BIO-17	The construction of 50 Miles of Tortoise Fencing along Interstates 15 and 40 were completed on 3/18/2016. The post construction report was submitted to BLM and CalTrans on 4/18/2016	4/18/2016
Biological Resources	BIO-18	Submitted Special Status Plants Annual Report in the Annual Compliance Report	1/30/2015; 1/29/2016
Biological Resources	BIO-18	Mojave Milkweed Land Acquisition Annual Report for 2015	1/29/2016
Biological Resources	BIO-18	Submitted Special Status Plants Natural Gas Line Monitoring Report in the Annual Compliance Report.	1/30/2015; 1/29/2016
Biological Resources	BIO-19	SCBS Nelson's Bighorn Sheep Annual Report	1/30/2015; 1/29/2016
Biological Resources	BIO-20	Streambed Impact Minimization and Compensation Measure change of condition report was submitted in the 2015 Annual Compliance Report	1/29/2016

TECHNICAL AREA	COC No.	TABLE 1 2016 ACTIONS THAT SATISFIED THE CONDITIONS OF CERTIFICATION	SUBMITTAL DATE
Biological Resources	BIO-21	Revised Spring Avian and Bat Monitoring and Management Plan quarterly reports were submitted on 12/16/2014.	12/16/2014;
Biological Resources	BIO-21	Submitted Avian & Bat Monitoring Plan - 2015 Summer Report	3/16/2016
Biological Resources	BIO-21	Submitted Avian & Bat Monitoring Plan - 2014-2015 Annual Report	6/30/2016
Biological Resources	BIO-21	Submitted Avian & Bat Monitoring Plan - 2015 Winter Report	10/4/2016
Biological Resources	BIO-21	Submitted Avian & Bat Monitoring Plan - 2016 Spring Report	9/30/2016
Biological Resources	BIO-21	Submitted Avian & Bat Monitoring Plan Revision 13 dated November 2015	12/23/2015
Biological Resources	BIO-22	Submitted post-construction analysis of the amount of habitat disturbed during project construction.	8/29/2014
Biological Resources	BIO-23 (BLM)	Revised Spring and Summer Avian and Bat Monitoring and Management Plan quarterly reports were submitted on 12/16/2014	12/16/2014
Biological Resources	BIO-23 (BLM)	Submitted Avian & Bat Monitoring Plan - 2015 Summer Report	3/16/2016
Biological Resources	BIO-23 (BLM)	Submitted Avian & Bat Monitoring Plan - 2014-2015 Annual Report	6/30/2016
Biological Resources	BIO-23 (BLM)	Submitted Avian & Bat Monitoring Plan - 2015 Winter Report	10/4/2016
Biological Resources	BIO-23 (BLM)	Submitted Avian & Bat Monitoring Plan - 2016 Spring Report	9/30/2016
Compliance Conditions	COMP-2	Compliance Record: As-built drawings are maintained at the ISEGS facility. These files were hand-delivered to CEC on 12/8/2014 by Doug Davis.	12/8/2014
Compliance Conditions	COMP-4/ COMP-7	Submit annual compliance report during project operations.	1/30/2015; 1/29/2016
Compliance Conditions	COMP-05	Compliance Matrix: A compliance matrix shall be submitted by the project owner to BLM's Authorized Officer and the CPM along with each annual compliance report.	1/30/2015; 1/29/2016
Compliance Conditions	COMP-08	Confidential Information: Any information that the project owner deems confidential shall be submitted to the Energy Commission's Dockets Unit with an application for confidentiality pursuant to Title 20, California Code of Regulations, section 2505(a). Any information that is determined to be confidential shall be kept confidential as provided for in Title 20, California Code of Regulations, section 2501 et. seq. Any information the ROW holder deems confidential shall be submitted to the BLM Authorized Officer with a written request for said confidentiality along with a justification for the request. All confidential submissions to BLM should be clearly stamped "proprietary information" by the holder when submitted.	6/16/2016

TECHNICAL AREA	COC No.	TABLE 1 2016 ACTIONS THAT SATISFIED THE CONDITIONS OF CERTIFICATION	SUBMITTAL DATE
Compliance Conditions	COMP-9	Paid annual facility compliance fee to CEC pursuant to the provisions of the Public Resources Code.	7/1/2016
Compliance Conditions	COMP-10	<u>Reports of Complaints, Notices, and Citations:</u> In addition to the monthly and annual compliance reporting requirements described above, the project owner shall report and provide copies to BLM's Authorized Officer and the CPM of all complaint forms, including noise and lighting complaints, notices of violation, notices of fines, official warnings, and citations, within 10 days of receipt. Complaints shall be logged and numbered. Noise complaints shall be recorded on the form provided in the NOISE conditions of certification. All other complaints shall be recorded on the complaint form (Attachment A).	Notice of Violation (NOV) from SBC CUPA was submitted to CEC/BLM on 8/4/2016; Response to Glare complaint Pilot Report ACN 1390751 was submitted to CEC/BLM/FAA on 11/10/2016.
Facility Design	GEN-1	The project owner shall provide BLM's Authorized Officer and the CPM a copy of the certificate of occupancy within 30 days of receipt from the CBO (2007 CBC, Appendix Chapter 1, section 110, Certificate of Occupancy).	1/22/2015
Facility Design	GEN-1	Notified CEC/BLM on 4/27/2016 for repair/replacement of Unit 2 STG Stator Active Parts.	4/27/2016
Facility Design	GEN-8	Electronic copies of the final approved engineering plans were hand-delivered by Doug Davis to CEC on 12/8/2014.	12/8/2014
Hazardous Materials	HAZ-1	A list of hazardous materials contained in the facility was submitted with the annual compliance report.	1/30/2015; 1/29/2016
Hazardous Materials	HAZ-5	Provided statement with the annual compliance report that all employees and contractors have been performed and vendor certifications and employee background investigations were appended in the Operations Security Plan.	1/30/2015; 1/29/2016
Hazardous Materials	HAZ-6	Notified CEC/BLM on 7/29/2016 on the lube oil release on 7/29/2016 at Unit 1. The Spill Report was submitted on 8/15/2016.	7/29/2016; 8/15/2016
Hazardous Materials	HAZ-6	Notified CEC/BLM on 10/2/2016 on the lube oil release at Unit 3. The Spill Report was submitted on 10/13/2016.	10/2/2016; 10/13/2016
Land Use	LAND-3	Upon completion the project owner shall submit notice to BLM and the Energy Commission that it has completed construction of the Solar / Ecological Interpretive Center. The notification was submitted to BLM and CEC and accepted on 5/13/2015 and 5/19/2015 respectively.	5/13/2015; 5/19/2015
Land Use	LAND-3	Submitted Solar Ecological Interpretive Center Post Construction Report on 6/22/2015.	7/16/2015
Land Use	LAND-3	In each Annual Compliance Report, the project owner shall provide a summary of estimated public use of the Solar / Ecological Interpretive Center and summarize any issues associated with operating and maintenance activities.	1/30/2015; 1/29/2016
Land Use	LAND-3	Submitted information kiosk panel design to BLM for review and approval.	12/19/2016
Noise & Vibration	NOISE-5	Submitted noise survey report that was conducted on 10/3/2014	10/23/2014

TECHNICAL AREA	COC No.	TABLE 1 2016 ACTIONS THAT SATISFIED THE CONDITIONS OF CERTIFICATION	SUBMITTAL DATE
Geology & Paleontology	PAL-7	CH2M Hill submitted Paleontological Resources Report.	1/9/2014
Recreation	REC-1	Prior to commercial operation, the project owner shall submit notice to BLM and the Energy Commission that it has completed construction of the Solar / Ecological Interpretive Center and shall request final approval by both BLM's Authorized Officer and the CPM.	5/13/2015; 5/19/2015
Recreation	REC-1	After commercial operation and in each Annual Compliance Report for the life of the ISEGS project, the project owner shall provide a summary of estimated public utilization of the Solar / Ecological Interpretive Center and summarize any issues associated with operating and maintenance activities.	1/30/2015; 1/29/2016
Recreation	REC-1	Submitted information kiosk panel design to BLM for review and approval.	12/19/2016
Soil & Water	S&W-01	Once operational, the project owner shall provide in the annual compliance report information on the results of storm water BMP monitoring and maintenance activities.	1/30/2015; 1/29/2016
Soil & Water	S&W-02	Submitted SWPPP Annual Report electronically to State Water Resources Control Board.	6/30/2014; 6/30/2015; 7/15/2016
Soil & Water	S&W-03	Annual Monitoring Reports will be submitted which include Quarterly monitoring data as described in the Approved Groundwater Monitoring and Management Plan. The First Annual Report will be a Baseline Report which includes the Well Network and level monitoring report and plan	11/17/2014; 8/13/2015; 12/19/2016
Soil & Water	S&W-04	For years subsequent to the initial year of operation, the annual summary will also include the yearly range and yearly average water use by source. For calculating the total water use, the term "year" will correspond to the date established for the annual compliance report submittal.	1/30/2015; 1/29/2016
Soil & Water	S&W-05	The project owner shall prepare an annual summary of the number of heliostats failed, cause of the failure, and cleanup and mitigation performed for each failed heliostat.	1/30/2015; 1/29/2016
Soil & Water	S&W-06	Submitted annual groundwater monitoring report to CEC, BLM and San Bernardino County.	11/17/2014; 8/13/2015; 12/19/2016
Traffic & Transportation	TRANS-2	Solar Partners/NRG coordinated with appropriate agencies to complete the inspections along the ROW to identify sections to be repaired.	7/31/2014
Traffic & Transportation	TRANS-3	Submitted Heliostat Positioning Plan addendum/update to CEC and BLM.	12/10/2014; 12/10/2015; 12/7/2016
Transmission Lines	TLSN-2	Pre and post energization measurement report was submitted to CEC and BLM.	7/31/2014

TECHNICAL AREA	COC No.	TABLE 1 2016 ACTIONS THAT SATISFIED THE CONDITIONS OF CERTIFICATION	SUBMITTAL DATE
Transmission Lines	TLSN-3	During the first 5 years of plant operation, the project owner shall provide a summary of inspection results and any fire prevention activities carried out along the right-of-way and provide such summaries in the Annual Compliance Report to be provided to BLM's Authorized Officer and the CPM.	1/30/2015; 1/29/2016
Visual Resources	VIS-1	The project owner shall provide a status report regarding surface treatment maintenance in the Annual Compliance Report.	1/30/2015; 1/29/2016
Visual Resources	VIS-2	The project owner shall report landscape maintenance activities, including replacement of dead or dying vegetation, for the previous year of operation in each Annual Compliance Report.	1/30/2015; 1/29/2016
Waste Management	WASTE-6	Documentation of actual volume of wastes generated and the waste management methods used during the year. This report is submitted with the annual compliance report.	1/30/2015; 1/29/2016

Exhibit 2

ISEGS Compliance Matrix (COMP-07 Item 1)

Ivanpah SEGS Operations Compliance Matrix rev 01/10/2017

In accordance with CEC Condition of Certification COMP-05 and COMP-07 Item 7, the following is the updated Compliance Matrix showing the status of all conditions of certification during the reporting period.

		Amendment approved by CEC on 2/13/2013 Amendment approved by CEC on 9/15/2014 Amendment approved by CEC on 11/19/2015																														
Technical Area	COC No.	Description	Verification	Compliance Status	Required Submittal Date	Date Submitted	Approval Date	Date of Amendment	NOTES																							
Air Quality Auxiliary Boilers	AQ-01	Operation of this equipment must be conducted in compliance with all data and specifications submitted with the application under which this permit is issued unless otherwise noted below	Any non-compliant operations shall be listed in the Annual Compliance Report (COMPLIANCE-7).	In Progress	Annually	1/30/2015; 1/29/2016;			Submitted in the Annual Compliance Report																							
Air Quality Auxiliary Boilers	AQ-02	The owner/operator shall operate this equipment in strict accord with the recommendations of the manufacturer or supplier and/or sound engineering principles as consistent with all information submitted with the application for this permit, which produce the minimum emission of air contaminants.	As part of the Annual Compliance Report (COMPLIANCE-7), the project owner shall include information on the date, time, and duration of any violation of this permit condition.	On-going	Annually	1/30/2015; 1/29/2016			Submitted in the Annual Compliance Report																							
Air Quality Auxiliary Boilers	AQ-03	This boiler shall use only natural gas as fuel and shall be equipped with a meter measuring fuel consumption in standard cubic feet.	As part of the Annual Compliance Report (COMPLIANCE-7), the project owner shall include proofs that only pipeline quality, or Public Utility Commission regulated natural gas are used for the boilers.	On-going	Annually	1/30/2015; 1/29/2016		11/19/2015	Gas consumption monitoring in progress. NG supply comes from KRG T pipeline that meets this requirement. Submitted in the Annual Compliance Report																							
Air Quality Auxiliary Boilers	AQ-04	The owner owner/operator shall maintain a current, on-site (at a central location if necessary) log for this equipment for five (5) years, which shall be provided to District, state or federal personnel upon request. This log shall include calendar year fuel use for this equipment in standard cubic feet, or BTU's, and daily hours of operation.	During site inspection, the project owner shall make all records and reports available to the District, ARB, U.S. EPA or Energy Commission staff.	On-going	N/A				Operations logs for each Boiler is maintained and up to date.																							
Air Quality Boilers	AQ-06	The owner/operator shall perform Annual Compliance Tests in accordance with the District Compliance Test Procedural Manual. Prior to performing these annual tests, the boiler shall be tuned in accord with the manufacturer's specified tune-up procedure, by a qualified technician. Subsequent tests shall demonstrate that this equipment does not exceed the following emission maximums: <table><thead><tr><th>Pollutant</th><th>ppmvd</th><th>Lb/MMBtu</th><th>Lb/hr</th></tr></thead><tbody><tr><td>*NOx</td><td>9.0</td><td>0.011</td><td>2.5 2.7 (per USEPA Methods 7E and 19 and 20)</td></tr><tr><td>SOx₂</td><td>1.7</td><td>0.003</td><td>0.6 0.7</td></tr><tr><td>*CO</td><td>25.0</td><td>0.018</td><td>4.2 4.6 4.5 (per USEPA Method 10)</td></tr><tr><td>VOC</td><td>12.6</td><td>0.0054</td><td>1.2 1.3 (per USEPA Methods 25A and 18)</td></tr><tr><td>PM10</td><td>n/a</td><td>0.007</td><td>1.7 (per USEPA Method 5.5 or 2014 1.1 and 202 5.5 or CARB Method 5)</td></tr></tbody></table> *corrected to 3% oxygen, on a dry basis, averaged over one hour Opacity shall be conducted per Method 9; Flue gas flow rate shall be quantified in dscf per USEPA Methods 1 through 5.	Pollutant	ppmvd	Lb/MMBtu	Lb/hr	*NOx	9.0	0.011	2.5 2.7 (per USEPA Methods 7E and 19 and 20)	SOx ₂	1.7	0.003	0.6 0.7	*CO	25.0	0.018	4.2 4.6 4.5 (per USEPA Method 10)	VOC	12.6	0.0054	1.2 1.3 (per USEPA Methods 25A and 18)	PM10	n/a	0.007	1.7 (per USEPA Method 5.5 or 2014 1.1 and 202 5.5 or CARB Method 5)	The project owner shall notify the District and the CPM within fifteen (15) working days before the execution of the performance compliance test required in this condition. The test results shall be submitted to the District and to the CPM within 60 days of the date of the tests. The owner or operator of an affected facility shall provide the Administrator at least 30 days prior notice of any performance test, except as specified under other subparts, to afford the Administrator the opportunity to have an observer present [40 CFR 60.8 (d)].	2015 Completed; Upcoming for 2016	ANNUALLY Notification Required 15 working days (30 days) prior compliance tests. Report Submittal within 60 days from the date of tests	Notification prior Annual Compliance Test was submitted on 2/24/2016. Unit 1 Annual Compliance Test was completed on 3/30/2016; Test Result submitted on 5/16/2016. Unit 2 Annual Compliance Test was completed on 3/31/2016; Test Result submitted on 5/16/2016. Unit 3 Annual Compliance Test was completed on 4/01/2016; Test Result submitted on 5/16/2016.	2/13/2013; 11/19/2015	Auxiliary Boilers Annual Tune-up was completed on 3/23/2016.
Pollutant	ppmvd	Lb/MMBtu	Lb/hr																													
*NOx	9.0	0.011	2.5 2.7 (per USEPA Methods 7E and 19 and 20)																													
SOx ₂	1.7	0.003	0.6 0.7																													
*CO	25.0	0.018	4.2 4.6 4.5 (per USEPA Method 10)																													
VOC	12.6	0.0054	1.2 1.3 (per USEPA Methods 25A and 18)																													
PM10	n/a	0.007	1.7 (per USEPA Method 5.5 or 2014 1.1 and 202 5.5 or CARB Method 5)																													
Air Quality Auxiliary Boilers	AQ-07	This boiler (Boilers 1, 2, and 3) shall be operated in compliance with all applicable requirements of 40 CFR 60 Subpart Db - Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units (NSPS Db).	The project owner shall complete and submit to the CPM a COMPLIANCE PLAN that provides a list of the 40 CFR 60 Subpart Db plans, tests, and recordkeeping requirements and their compliance schedule dates as applicable for the ISEGS Boilers 1, 2 and 3 at least 30 days prior to first fire of the boilers or earlier as necessary for compliance with Subpart Db.	COMPLETED (CONSTRUCTION)	30 days prior to First Fire	22-Aug-2012			Plan submitted for Unit 1 8-22-12; First Fire Unit 1 took place 11/18/12; Actual First Fire Notification Dates: 11/28/12 (Unit 1); 1/30/13 (Unit 2) & 4/9/13 (Unit 3)																							
Air Quality Auxiliary Boilers	AQ-08	Records of fuel supplier certifications of fuel sulfur content shall be maintained to demonstrate compliance with the sulfur dioxide and particulate matter emission limits.	Complying with Condition of Certification AQ-3 shall be used to demonstrate compliance with this condition.	On-going	N/A	1/30/2015; 1/29/2016			Natural Gas Sulfur contents are maintained and up to date.																							
Air Quality Boilers	AQ-09	The owner/operator shall continuously monitor and record fuel flow rate and flue gas oxygen level.	At least 120 days prior to construction of the boiler stacks, the project owner shall provide the District for approval, and the CPM for review, a detailed drawing and a plan on how the measurements and recordings, required by this condition, will be performed by the chosen monitoring system	Submitted	120 days prior construction of boiler stacks	28-Aug-2011			Fuel Flow rates and flue gas oxygen level are recorded and monitored. Download from the system occurs every quarter.																							

Technical Area	COC No.	Description	Verification	Compliance Status	Required Submittal Date	Date Submitted	Approval Date	Date of Amendment	NOTES
Air Quality Boilers	AQ-10	In lieu of installing CEMs to monitor NOx emissions, and pursuant to 40 CFR 60 Subpart Db, Section 60.49b(c), the owner/operator shall monitor boiler operating conditions and estimate NOx emission rates per a District approved emissions estimation plan . The plan shall be based on the initial source tests as required by condition AQ-5, and annually pursuant to condition AQ-6. The plan shall include test results, operating parameters, analysis, conclusions and proposed NOx estimating relationship consistent with established emission chemistry and operational effects.	This initial plan shall be submitted to the District for approval, and the CPM for review, within 360 days of the initial startup. Any proposed changes to a District-approved plan shall include subsequent test results operating parameters, analysis, and any other pertinent information to support the proposed changes. The District must approve any emissions estimation plan or revision for estimated NOx emissions to be considered valid.	Submitted	360 days from Initial Start-up	11/18/2013; 11/12/2015; 6/21/2016	21-Jun-2016		Submitted Petition for Low Mass Emissions Certification to predict Nox emissions on 11/12/2015. An updated Emissions Estimation Plan was submitted on 6/21/2016. Approval from MDAQMD was received on 6/21/2016
Air Quality Auxiliary Boilers	AQ-11	The owner/operator shall comply with all applicable recordkeeping and reporting requirements of NSPS-Db.	During site inspection, the project owner shall make all records and reports available to the District, ARB, U.S. EPA or CEC staff.	On-going	N/A			11/19/2015	
Air Quality Auxiliary Boilers	AQ-12	This boiler shall not burn more than 0.9 MMSCF of natural gas in any single day, and no more than The combined fuel use from the auxiliary boilers and nighttime preservation boilers shall not exceed 328 525 MMSCF of natural gas in any calendar year; combined fuel use is the sum total of natural gas combusted from Boilers with MDAQMD permit numbers: B010375, and B011544 (Ivanpah 1) and shall not exceed a total of 525 . mmscf in any calendar year in that boiler pair ; B010376 and B011572 (Ivanpah 2) and shall not exceed a total of 525 mmscf in any calendar year in that boiler pair ; B010377 and B011573 (Ivanpah 3) and shall not exceed a total of 525 mmscf in any calendar year in that boiler pair . a. These limits shall not apply during the facility commissioning period. The commissioning period shall begin the first time fuel is fired in the boiler. The commissioning period shall end when the facility achieves commercial operation, but no later than 180 days after first fire.	During site inspection, the project owner shall make all records and reports available to the District, ARB, U.S. EPA or CEC staff.	Completed for 2015. On-going for 2016	NA	1/31/2014; 1/30/2015; 1/29/2016		2/13/2013; 9/15/2014	AQ amendments approved by CEC on 3/13/2013. Subsequent amendment was approved by CEC on 9/15/2014. Submitted with the Annual Compliance Report
CONDITIONS APPLICABLE TO IVANPAH 1,2, & 3 EMERGENCY FIRE PUMPS. MDAQMD APPLICATION NUMBERS/PERMIT NUMBERS; 0009312 (E010380), 00009315 (E010378) AND 00009319 (E010384)									
Air Quality Fire Pumps	AQ-13	This system engine, certified in accordance with 40 Code of Federal Regulations (CFR) part 89, and after treatment control device (if any) shall be installed, operated and maintained in strict accord with those recommendations of the manufacturer/supplier and/or sound engineering principles which produce the minimum emissions of contaminants according to the manufacturer's emission-related written instructions. Further, the owner/operator shall change only those emission-related settings that are permitted by 40 CFR 60 Subparts 60.4205 and 60.4211. Unless otherwise noted, this equipment shall also be operated in accordance with all data and specifications submitted with the application for this permit. (Note reference to Model 2010 Tier III engine)	During site inspection, the project owner shall make all records and reports available to the District, ARB, EPA or CEC staff.	On-going	N/A			13-Feb-2013	Operations log for each equipment is maintained on site and up to date. MDAQMD verified and certified in compliance during the site audit on 8/2/2016.
Air Quality Fire Pumps	AQ-16 AQ-14	These These units shall only be fired on ultra-low sulfur diesel fuel, whose sulfur concentration is less than or equal to 0.0015% (15ppm) on a weight per weight basis per CARB Diesel or equivalent requirements (17 California Code of Regulations (CCR) 93115, 60.4207(b))	During site inspection, the project owner shall make all records and reports available to the District, ARB, U.S. EPA or CEC staff.	On-going	N/A			13-Feb-2013	Sulfur certifications from diesel supplier are being maintained on site.
Air Quality Fire Pumps	AQ-16 AQ-17	These These units shall be limited to use for emergency purposes, power, defined as in response to a fire or when commercially available power has been interrupted. In addition, this unit shall be operated no more than 5 1.0 hours per day for a total of 50 hours per year for testing and maintenance, excluding compliance source testing. Time required for source testing will not be counted toward the The 50 hour per-year limit. can be exceeded when the emergency fire pump assembly is driven directly by a stationary diesel fueled CI engine when operated per and in accord with the National Fire Protection Association (NFPA) 25 - "Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems," 1998 edition. This requirement includes usage during emergencies (District Rule 1302(C)(2)(a) and Rule 1304(D)(1)(a)) and 17CCR93115.3(n)] (Hours allowed by federal regulation 40 CFR 60.42(f) streamlined out as these permit requirements are more stringent than the federal regulatory requirements.)	During site inspection, the project owner shall make all records and reports available to the District, ARB, U.S. EPA or CEC staff.	On-going	N/A			2/13/2013; 11/19/2015	Operations log for each equipment is maintained on site and up to date. MDAQMD verified and certified in compliance during the site audit on 8/2/2016.
Air Quality Fire Pumps	AQ-29 AQ-17	The owner/operator shall maintain a operations log for these this units current and on-site, (either at the engine location or at a on-site location, for a minimum of two (2) five (5) years, and for another year where it can be made available to the District staff within working days from the District's request, and this log shall be provided to District, State and Federal personnel upon request. The log shall include, at a minimum, the information specified below: a. Date of each use and duration of each use (in hours); b. Reason for use (testing & maintenance, emergency, required emission testing etc.); c. Monthly and C alendar year operation in terms of fuel consumption (in gallons) and total hours (17 CCR 93115); and, d. Fuel sulfur concentration (the owner/operator may use the supplier's certification of sulfur content if it is maintained as part of this log) (17 CCR 93115) e. Documentation of maintenance as per manufacturer's recommendations and good maintenance practices.	During site inspection, the project owner shall make all records and reports available to the District, ARB, U.S. EPA or CEC staff.	On-going	N/A			13-Feb-2013	Operations log for each equipment is maintained on site and up to date. MDAQMD verified and certified in compliance during the site audit on 8/2/2016.

Technical Area	COC No.	Description	Verification	Compliance Status	Required Submittal Date	Date Submitted	Approval Date	Date of Amendment	NOTES
Air Quality Fire Pumps	AQ-18	These engines may operate in response to fire suppression requirements and needs; (Rule 204).	During site inspection, the project owner shall make all records and reports available to the District, ARB, U.S. EPA or CEC staff.	On-going	N/A			13-Feb-2013	Operations log for each equipment is maintained on site and up to date. MDAQMD verified and certified in compliance during the site audit on 8/2/2016.
Air Quality Fire Pumps	AQ-21 AQ-19	These fire protection units are is subject to the requirements of the Airborne Toxic Control Measure (ATCM) for Stationary Compression Ignition Engines (Title 17 CCR § 93115) and 40 Code of Federal Regulations (CFR) Part 60, Subpart III (NPS) in the event of conflict between these conditions and the ATCM or NPS, the more stringent requirements shall govern.	Not necessary. The project owner shall submit to the District and the CPM the engine specifications at least 30 days prior to purchasing the engines for review and approval demonstrating that the engines meet the ATCM and NPS emission limit requirements at the time of engine purchase.	On-going	N/A			13-Feb-2013	Operations log for each equipment is maintained on site and up to date. MDAQMD verified and certified in compliance during the site audit on 8/2/2016.
CONDITIONS APPLICABLE TO IVANPAH 1,2, & 3 EMERGENCY GENERATORS. MDAQMD APPLICATION NUMBERS/PERMIT NUMBERS; 0009313 (E010381), 00009316 (E010379) AND 00009317 (E010382)									
Air Quality Emergency Generators	AQ-22 AQ-20	Engine may operate in response to notification of impending rotating outage if the area utility has ordered rotating outages in the area where the engine is located or expects to order such outages at a particular time, the engine is located in the area subject to the rotating outage, the engine is operated no more than 30 minutes prior to the forecasted outage, and the engine is shut down immediately after the utility advises that the outage no longer imminent or in effect. (Refers to three (3) Model Year 2010, Tier II engines) This engine, certified in accordance with 40 CFR Part 89, and after treatment control device (if any) shall be installed, operated and maintained according to the manufacturer's emission-related written instructions. Further, the owner/operator shall change only those emission-related settings that are permitted by the manufacturer. Unless otherwise noted, this equipment shall also be operated in accordance with all data and specifications submitted with the application for this permit. (40 CFR Part 60 Subparts 60.4205, and 60.4211)	During site inspection, the project owner shall make all records and reports available to the District, ARB, U.S. EPA or CEC staff.	On-going	N/A			13-Feb-2013	AQ amendments approved by CEC on 3/13/13. Operations log for each equipment is maintained on site and up to date. MDAQMD verified and certified in compliance during the site audit on 8/2/2016.
Air Quality Emergency Generators	AQ-24 AQ-21	This unit shall only be fired on ultra-low sulfur diesel fuel, whose sulfur concentration is less than or equal to 0.0015% (15ppm) on a weight per weight basis per CARB Diesel or equivalent requirements. (17 CCR 93115; 60.4207(b))	During site inspection, the project owner shall make all records and reports available to the District, ARB, U.S. EPA or CEC staff.	On-going	N/A			13-Feb-2013	
Air Quality Emergency Generators	AQ-23	This unit shall not be used to provide power during a voluntary power outage and/or power reduction initiated under an Interruptible Service Contract (ISC), Demand Response Program (DRP), Load Reduction Program (LRP) and/or similar arrangement(s) with the electrical power supplier. (17 CCR 93115) (40 CFR 60 Subpart III allowance for DRP streamlined out.)	During site inspection, the project owner shall make all records and reports available to the District, ARB, U.S. EPA or CEC staff.	On-going	N/A			13-Feb-2013	Operations log for each equipment is maintained on site and up to date. MDAQMD verified and certified in compliance during the site audit on 8/2/2016.
Air Quality Emergency Generators	AQ-27 AQ-24	This unit shall be limited to use for emergency power, defined as in response to a fire or when commercially available power has been interrupted. In addition, this unit shall be operated no more than 6.5 1.0 hours per day of 50 hours per year, and no more than 4.5 hours per day for testing and maintenance, excluding compliance source testing. Time required for source testing will not be counted toward the 50-hour-per-year limit. (NSR and 17 CCR 93115) (Hours allowed by 60.42 (f) streamlined out.)	During site inspection, the project owner shall make all records and reports available to the District, ARB, U.S. EPA or CEC staff.	On-going	N/A			2/13/2013; 11/19/2015	Operations log for each equipment is maintained on site and up to date. MDAQMD verified and certified in compliance during the site audit on 8/2/2016.
Air Quality Emergency Generators	AQ-28 AQ-25	The owner/operator shall maintain an operations log for this unit current and on-site (or at a central location) for a minimum of five (5) years, and this log shall be provided to District, State and Federal personnel upon request. The log shall include, at a minimum, the information specified below: a. Date of each use and duration of each use (in hours); b. Reason for use (testing & maintenance, emergency, required emission testing etc.); c. Monthly and calendar year operation in terms of fuel consumption (in gallons) and total hours (17 CCR 93115); and, d. Fuel sulfur concentration (the owner/operator may use the supplier's certification of sulfur content if it is maintained as part of this log) (17 CCR 93115) and, e. Documentation of maintenance as per manufacturer's recommendations and good maintenance practices.	During site inspection, the project owner shall make all records and reports available to the District, ARB, U.S. EPA or CEC staff.	On-going	N/A			13-Feb-2013	Operations log for each equipment is maintained on site and up to date. MDAQMD verified and certified in compliance during the site audit on 8/2/2016.
Air Quality Emergency Generators	AQ-29 AQ-26	This genset unit is subject to the requirements of the Airborne Toxic Control Measure (ATCM) for Stationary Compression Ignition Engines (Title 17 CCR 93115) and 40 CFR 60 Part 60, Subpart III (NPS). In the event of conflict between these conditions and the ATCM or NPS, the more stringent requirements shall govern.	Not necessary. The project owner shall submit to the District and the CPM the engine specifications at least 30 days prior to purchasing the engines for review and approval demonstrating that the engines meet the ATCM and NPS emission limit requirements at the time of engine purchase.	On-going	N/A			13-Feb-2013	
CONDITIONS APPLICABLE TO IVANPAH 1,2, & 3 (Three -3) NIGHTTIME PRESERVATION BOILERS. MDAQMD APPLICATION NUMBERS/PERMIT NUMBERS; MD100000063 (B011544), MD100000064 (B011572) & MD100000065 (B011573)									
Air Quality - Nighttime Preservation Boilers	AQ-27	Operation of this equipment must be conducted in compliance with all data and specifications submitted with the application under which this permit is issued unless otherwise noted below.	Any non-compliant operations shall be listed in the Annual Compliance report (COMPLIANCE-7).	On-going	Annually beginning January 2015	1/30/2015; 1/29/2016		13-Feb-2013	Submitted with the Annual Compliance Report
Air Quality - Nighttime Preservation Boilers	AQ-28	The owner/operator shall operate this equipment in strict accord with the recommendations of the manufacturer or supplier and/or sound engineering principles and consistent with all information submitted with the application for this permit, which produce the minimum emission of air contaminants.	As part of the Annual Compliance Report (COMPLIANCE-7), the project owner shall include information on the date, time, and duration of any violation of this permit condition.	On-going	Annually beginning January 2015	1/30/2015; 1/29/2016		13-Feb-2013	Submitted with the Annual Compliance Report

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Air Quality - Nighttime Preservation on Boilers	AQ-29	This boiler shall use only natural gas as fuel and shall be equipped with a meter measuring fuel consumption in standard cubic feet.	As part of the Annual Compliance Report (COMPLIANCE-7), the project owner shall include proof that only pipeline quality, or Public Utility Commission regulated natural gas is used in these boilers.	On-going	Annually beginning January 2015	1/30/2015; 1/29/2016		13-Feb-2013	Submitted with the Annual Compliance Report NG supply comes from KRG T pipeline that meets this requirement.
Air Quality - Nighttime Preservation on Boilers	AQ-30	The owner/operator shall maintain a current, on-site (at a central location if necessary) log for this equipment for five (5) years, which shall be provided to District, state, or federal personnel upon request. This log shall include calendar year fuel use for this equipment in standard cubic feet, or BTUs, and daily hours of operation.	During site inspection, the project owner shall make all records and reports available to the District, ARB, U.S. EPA or Energy Commission staff.	On-going	N/A			13-Feb-2013	Operations log for each equipment is maintained on site and up to date. MDAQMD verified and certified in compliance during the site audit on 8/2/2016.
Air Quality - Nighttime Preservation on Boilers	AQ-31	The owner/operator shall perform annual tune-ups in accordance with the unit manufacturer's specified tune-up procedure, by a qualified technician.	During site inspection, the project owner shall make all records and reports available to the District, ARB, U.S. EPA or Energy Commission staff.	Completed in 2015. Upcoming in 2016	N/A			13-Feb-2013	Completed in 2015. Completed in 2016; Upcoming in 2017
Air Quality - Nighttime Preservation on Boilers	AQ-32	Records of fuel supplier certifications of fuel sulfur content shall be maintained to demonstrate compliance with the sulfur dioxide and particulate matter emission limits.	Condition of Certification AQ-29 shall be used to demonstrate compliance with this condition.	On-going	N/A			13-Feb-2013	Natural Gas Sulfur contents are maintained and up to date.
Air Quality - Nighttime Preservation on Boilers	AQ-33	The owner/operator shall continuously monitor and record fuel flow rate.	At least 120 days prior to construction of the boiler stacks, the project owner shall provide the District for approval, and the CPM for review, a detailed drawing and a plan on how the measurements and recordings, required by this condition, will be performed by the chosen monitoring system.	On-going	120 day prior construction of the Boiler Stacks	21-Aug-2011		13-Feb-2013	Fuel Flow rates are recorded and monitored. Download from the system occurs every quarter.
Air Quality - Nighttime Preservation on Boilers	AQ-34	The combined fuel use from the auxiliary boiler and the nighttime preservation boiler shall not exceed 328, 525 MMSCF of natural gas in any calendar year, combined fuel use is the sum total of natural gas combusted from Boilers with MDAQMD permit numbers; B010375 and B011544 (Ivanpah 1) and shall not exceed a total of 525 mmscf in any calendar year in that boiler pair ; B010376 and B011572 (Ivanpah 2) and shall not exceed a total of 525 mmscf in any calendar year in that boiler pair ; B01 0377, and B011573 (Ivanpah 3) and shall not exceed a total of 525 mmscf in any calendar year in that boiler pair .	During site inspection, the project owner shall make all records and reports available to the District, ARB, U.S. EPA or CEC staff.	Completed in 2013. On-going for 2014	N/A	1/30/2015; 1/29/2016		2/13/2013; 9/15/2014	Submitted with the Annual Compliance Report in 2016. Gas consumption log for each equipment pair is maintained on site and up to date. MDAQMD verified and certified in compliance during the site audit on 8/2/2016.
CONDITIONS APPLICABLE TO COMMON AREA EMERGENCY GENERATOR, MDAQMD APPLICATION NUMBERS/PERMIT NUMBERS MD100000061 (E011546)									
Air Quality - Common Area Emergency Generator	AQ-35	This engine, certified in accordance with 40 CFR Part 89, and after treatment control device (if any) shall be installed, operated and maintained according to the manufacturer's emission-related written instructions. Further, the owner/operator shall change only those emission-related settings that are permitted by the manufacturer. Unless otherwise noted, this equipment shall also be operated in accordance with all data and specifications submitted with the application for this permit. [40 CFR Part 60 Subparts 60.4205, and 60.4211]	During site inspection, the project owner shall make all records and reports available to the District, ARB, U.S. EPA or CEC staff.	On-going	N/A			13-Feb-2013	
Air Quality - Common Area Emergency Generator	AQ-36	This unit shall only be fired on ultra-low sulfur diesel fuel, whose sulfur concentration is less than or equal to 0.0015% (15 ppm) on a weight per weight basis per CARB Diesel or equivalent requirements. [17 CCR 93115; 60.4207(b)]	During site inspection, the project owner shall make all records and reports available to the District, ARB, U.S. EPA or CEC staff.	On-going	N/A			13-Feb-2013	Sulfur certification from the diesel supplier is maintained on site and up to date. MDAQMD verified and certified in compliance during the site audit on 8/2/2016.
Air Quality - Common Area Emergency Generator	AQ-38	This unit shall not be used to provide power during a voluntary power outage and/or power reduction initiated under an Interruptible Service Contract (ISC), Demand Response Program (DRP), Load Reduction Program (LRP) and/or similar arrangement(s) with the electrical power supplier. [17 CCR 93115] [40 CFR 60 Subpart IIII allowance for DRP streamlined out.]	During site inspection, the project owner shall make all records and reports available to the District, ARB, U.S. EPA or CEC staff.	On-going	N/A			13-Feb-2013	Operations log for each equipment is maintained on site and up to date. MDAQMD verified and certified in compliance during the site audit on 8/2/2016.
Air Quality - Common Area Emergency Generator	AQ-39	This unit shall be limited to use for emergency power, defined as in response to a fire or when commercially available power has been interrupted. In addition, this unit shall be operated no more than 0.5 1.0 hrs per day for a total of 50 hours per year for testing and maintenance. [NSR and 17 CCR 93115] [Hours allowed by 60.420 streamlined out.]	During site inspection, the project owner shall make all records and reports available to the District, ARB, U.S. EPA or CEC staff.	On-going	N/A			2/13/2013; 11/19/2015	Operations log for each equipment is maintained on site and up to date. MDAQMD verified and certified in compliance during the site audit on 8/2/2016.

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Air Quality - Common Area Emergency V. Generator	AQ-40	<u>The owner/operator shall maintain an operations log for this unit current and on-site (or at a central location) for a minimum of five (5) years, and this log shall be provided to District, State and Federal personnel upon request. The log shall include, at a minimum, the information specified below:</u> a. <u>Date of each use and duration of each use (in hours);</u> b. <u>Reason for use (testing & maintenance, emergency, required emission testing, etc.);</u> c. <u>Monthly and calendar year operation in terms of fuel consumption (in gallons) and total hours (17 CCR 93115); and,</u> d. <u>Fuel sulfur concentration (the o/o may use the supplier's certification of sulfur content if it is maintained as part of this log.) (17 CCR 93115)</u>	<u>During site inspection, the project owner shall make all records and reports available to the District, ARB, U.S. EPA or CEC staff.</u>	On-going	N/A			13-Feb-2013	Operations log for each equipment is maintained on site and up to date. MDAQMD verified and certified in compliance during the site audit on 8/2/2016.
CONDITIONS APPLICABLE TO THE COMMON AREA EMERGENCY FIRE PUMP, MDAQMD APPLICATION NUMBERS/PERMIT NUMBERS; MD100000062 (E011547)									
Air Quality - Common Area Emergency V Fire Pump	AQ-42	<u>This engine, certified in accordance with 40 CFR Part 89, and after treatment control device (if any) shall be installed, operated and maintained according to the manufacturer's emission-related written instructions. Further, the owner/operator shall change only those emission-related settings that are permitted by the manufacturer. Unless otherwise noted, this equipment shall also be operated in accordance with all data and specifications submitted with the application for this permit. (40 CFR Part 60 Subparts 60.4205 and 60.4211)</u>	<u>During site inspection, the project owner shall make all records and reports available to the District, ARB, U.S. EPA or CEC staff.</u>	On-going	N/A			13-Feb-2013	
Air Quality - Common Area Emergency V Fire Pump	AQ-43	<u>This unit shall only be fired on ultra-low sulfur diesel fuel, whose sulfur concentration is less than or equal to 0.0015% (15ppm) on a weight per weight basis per CARB Diesel or equivalent requirements. (17 CCR 93115; 60.4207(b))</u>	<u>During site inspection, the project owner shall make all records and reports available to the District, ARB, U.S. EPA or CEC staff.</u>	On-going	N/A			13-Feb-2013	Sulfur certification from the diesel supplier is maintained on site and up to date. MDAQMD verified and certified in compliance during the site audit on 8/2/2016.
Air Quality - Common Area Emergency V Fire Pump	AQ-45	<u>This unit shall be limited to use for emergency purposes, power, defined as in response to a fire or when commercially available power has been interrupted. In addition, this unit shall be operated no more than 6.5, 1.0 hrs per day for a total of 50 hours per year for testing and maintenance. The 50 hour limit can be exceeded when the emergency fire pump assembly is driven directly by a stationary diesel fueled CI engine operated per and in accord with the National Fire Protection Association (NFPA) 25 "Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems," 1998 edition. This requirement includes usage during emergencies. (District Rule 1302(C)(2)(a) and Rule 1304 (b)(1) (a)) and 17 CCR 93115.3(n) (Hours allowed by federal regulation 40 CFR 60.42(f) streamlined out as these permit requirements are more stringent than the federal regulatory requirements.)</u>	<u>During site inspection, the project owner shall make all records and reports available to the District, ARB, U.S. EPA or CEC staff.</u>	On-going	N/A			2/13/2013; 11/19/2015	Operations log for each equipment is maintained on site and up to date. MDAQMD verified and certified in compliance during the site audit on 8/2/2016.
Air Quality - Common Area Emergency V Fire Pump	AQ-46	<u>The owner/operator shall maintain an operations log for this unit current and on-site (or at a central location) for a minimum of five (5) years, and this log shall be provided to District, State and Federal personnel upon request. The log shall include, at a minimum, the information specified below:</u> a. <u>Date of each use and duration of each use (in hours);</u> b. <u>Reason for use (testing & maintenance, emergency, required emission testing, etc.);</u> c. <u>Monthly and calendar year operation in terms of fuel consumption (in gallons) and total hours (17 CCR 93115); and,</u> d. <u>Fuel sulfur concentration (the % may use the supplier's certification of sulfur content if it is maintained as part of this log.) (17 CCR 93115)</u>	<u>During site inspection, the project owner shall make all records and reports available to the District, ARB, U.S. EPA or CEC staff.</u>	On-going	N/A			13-Feb-2013	Operations log for each equipment is maintained on site and up to date. MDAQMD verified and certified in compliance during the site audit on 8/2/2016.
Air Quality - Common Area Emergency V Fire Pump	AQ-47	<u>These engines may operate in response to fire suppression requirements and needs. (Rule 204).</u>	<u>During site inspection, the project owner shall make all records and reports available to the District, ARB, U.S. EPA or CEC staff.</u>	On-going	N/A			13-Feb-2013	
Air Quality General	AQSC-06	The project owner, when obtaining dedicated on or off-road vehicles for mirror washing activities and other facility maintenance activities, shall only obtain new model year vehicles that meet California on-road vehicle emission standards or appropriate U.S.EPA/California off-road engine emission standards for the model year when obtained	At least 60 days prior to the start of commercial operation, the project owner shall submit to the CPM a copy of the plan that identifies the size and type of the on-site vehicle and equipment fleet and the vehicle and equipment purchase orders and contracts and/or purchase schedule. The plan shall be updated every other year and submitted in the Annual Compliance Report (COMPLIANCE-7).	Submitted	60 days prior start of commercial operations	8/22/2013; 1/29/2016			Off-road vehicles for mirror washing activities plan submitted to CEC/BLM on 8/22/13; Updated in 2015 and submitted in the ACR on 1/29/2016

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Air Quality General	AQSC-07	The project owner shall provide a <u>site operations dust control plan</u> including all applicable fugitive dust control measures identified in the verification of AQ-SC3 that would be applicable to reducing fugitive dust from ongoing operations; that: A. describes the active operations and wind erosion control techniques such as windbreaks and chemical dust suppressants, including their ongoing maintenance procedures, that shall be used on areas that could be disturbed by vehicles or wind anywhere within the project boundaries; and B. identifies the location of signs throughout the facility that will limit traveling on unpaved portions of roadways to solar equipment maintenance vehicles only. In addition, vehicle speed shall be limited to no more than 10 miles per hour on these unpaved roadways, with the exception that vehicles may travel up to 25 miles per hour on stabilized unpaved roads as long as such speeds do not create visible dust emissions. The site Operations Fugitive Dust Control Plan shall include the use of durable non-toxic soil stabilizers on all regularly used unpaved roads and disturbed off-road areas, or alternative methods for stabilizing disturbed off-road areas, within the project boundaries and shall include the inspection and maintenance procedures that will be undertaken to ensure that the unpaved roads remain stabilized. The soil stabilizer used shall be a non-toxic soil stabilizer or soil weighting agent that can be determined to be both as efficient or more efficient for fugitive dust control as ARB approved soil stabilizers, and shall not increase any other environmental impacts including loss of vegetation. <u>The performance and application of the fugitive dust controls shall also be measured against and meet the performance requirements of condition AQ-SC4. The performance requirements of AQ-SC4 shall also be included in the Operations Dust Control Plan.</u>	At least 60 days prior to start of commercial operation the project owner shall submit to the BLM's Authorized Officer and the CPM for review and approval a copy of the <u>Site Operations Dust Control Plan</u> that identifies the dust and erosion control procedures, including effectiveness and environmental data for the proposed soil stabilizer, that will be used during operation of the project and that identifies all locations of the speed limit signs. Within 60 days after commercial operation the project owner shall provide to the BLM's Authorized Officer and the CPM a report identifying the locations of all speed limit signs, and a copy of the project employee and contractor training manual that clearly identifies that project employees and contractors are required to comply with the dust and erosion control procedures and on-site speed limits.	Submitted	60 days prior start of commercial operations. 60 days after commercial operations	8/27/2013; 7/30/2014; 1/29/2016			<u>Site Operations Dust Control Plan submitted to CEC/BLM on 8/27/13;</u> <u>Revised Operations Dust Control Plan was submitted to CEC/BLM on 7/30/2014.</u> <u>Dust Control Annual Report was submitted in the Annual Compliance Report.</u>
Air Quality General	AQSC-08	The project owner shall provide the CPM copies of all District issued Authority-to-Construct (ATC) and Permit-to-Operate (PTO) for the facility. The project owner shall submit to the CPM for review and approval any modification proposed by the project owner to any project air permit.	The project owner shall submit to the CPM for review and approval any modification proposed by the project owner to any project air permit. The project owner shall submit to the CPM any modification to any permit proposed by the District or U.S. Environmental Protection Agency (U.S. EPA), and any revised permit issued by the District or U.S. EPA, for the project. The project owner shall submit any ATC, PTO, and proposed air permit modification to the CPM within 5 working days of its submittal either by 1) the project owner to an agency, or 2) receipt of proposed modifications from an agency. The project owner shall submit all modified air permits to the CPM within 15 days of receipt.	Submitted	Within 5 days of submittal; Within 15 days of receipt.	11/19/2013; 12/10/2015			MDAQMD ATC Permits - exp. 10/31/14 was submitted to CEC on 11/19/13. 2014 - 2015 Revised ATC/PTO (exp. 10/31/2015) were received from MDAQMD on 12/18/2014. Submittal was hold-off due to impending revisions/submittal of PTA to be consistent with CEC Conditions of Certifications.
Air Quality General	AQSC-10	The ISEGS 1, ISEGS 2, and ISEGS 3 boilers shall not exceed a total annual natural gas fuel heat input that is more than 6 percent of the total annual heat input from the sun for ISEGS1, ISEGS2, and ISEGS 3, respectively.	Annual natural gas fuel heat input data and annual solar heat input data for the ISEGS 1, ISEGS 2, and ISEGS 3 units showing compliance with this condition shall be provided in the Annual Compliance Report (COMPLIANCE-7). The Annual Compliance Report shall include information separately for ISEGS 1, ISEGS 2, and ISEGS 3. The initial Compliance Report shall include documentation of the methodology used to verify compliance with this condition. The documentation shall include a heat balance diagram, engineering analysis, assumptions and supporting data.	Deleted	Annually beginning 2015			9/15/2014	AQ amendment was approved by CEC on 9/15/2014.
Biological Resources	BIO-02	<u>Designated Biologists Duties:</u> The project owner shall ensure that the Designated Biologist performs the following during any site (or related facilities) mobilization, ground disturbance, grading, construction, operation, and closure activities. The Designated Biologist may be assisted by the approved Biological Monitor(s) but remains the contact for the project owner, BLM's Authorized Officer and the CPM. The Designated Biologist Duties shall include the following: 1. Advise the project owner's Construction and Operation Managers on the implementation of the biological resources conditions of certification; 2. Consult on the preparation of the Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP) to be submitted by the project owner; 3. Be available to supervise, conduct and coordinate mitigation, monitoring, and other biological resources compliance efforts, particularly in areas requiring avoidance or containing sensitive biological resources, such as special-status species or their habitat; 4. Clearly mark sensitive biological resource areas and inspect these areas at appropriate intervals for compliance with regulatory terms and conditions;	The Designated Biologist shall submit in the Monthly Compliance Report to BLM's Authorized Officer and the CPM and copies of all written reports and summaries that document biological resources compliance activities. If actions may affect biological resources during operation a Designated Biologist shall be available for monitoring and reporting. <u>During project operation, the Designated Biologist shall submit record summaries in the Annual Compliance Report unless his/her duties cease as approved by BLM's Authorized Officer and the CPM.</u>	Completed at End of Construction (5/31/2014). ONGOING for Operations beginning June 2014.	Annually beginning January 2015	1/30/2015; 1/29/2016			The submittal of the final Monthly Compliance Report was in June 2014 for the month of May 2014. <u>The first Annual Compliance Report was submitted on January 30, 2015.</u> <u>Submitted in the Annual Compliance Report</u>

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Biological Resources	BIO-02 (Continued)	5. Inspect active construction areas where animals may have become trapped prior to construction commencing each day. At the end of the day, inspect for the installation of structures that prevent entrapment or allow escape during periods of construction inactivity. Periodically inspect areas with high vehicle activity (e.g., parking lots) for animals in harm's way; 6. Notify the project owner and BLM's Authorized Officer and the CPM of any non-compliance with any biological resources condition of certification; 7. Respond directly to inquiries of BLM's Authorized Officer and the CPM regarding biological resource issues; 8. Maintain written records of the tasks specified above and those include in the BRMIMP. Summaries of these records shall be submitted in the Monthly Compliance Report and the Annual Compliance Report; 9. Train the Biological Monitors as appropriate, and ensure their familiarity with the BRMIMP, Worker Environmental Awareness Program (WEAP) training, and USFWS guidelines on desert tortoise surveys and handling procedures <www.fws.gov/ventura/speciesinfo/protocols_guidelines>; and 10. Maintain the ability to be in regular, direct communication with representatives of CDFG, USFWS, BLM's Authorized Officer and the CPM, including notifying these agencies of dead or injured listed species and reporting special-status species observations to the California Natural Diversity Data Base.	The Designated Biologist shall submit in the Monthly Compliance Report to BLM's Authorized Officer and the CPM and copies of all written reports and summaries that document biological resources compliance activities and actions that may affect biological resources during operation a Designated Biologist shall be available for monitoring and reporting. <u>During project operation, the Designated Biologist shall submit record summaries in the Annual Compliance Report unless his/her duties cease as approved by BLM's Authorized Officer and the CPM.</u>	Completed at End of Construction (5/31/2014). ONGOING for Operations beginning June 2014.	Annually beginning January 2015	1/30/2015; 1/29/2016			The submittal of the final Monthly Compliance Report was in June 2014 for the month of May 2014. The first Annual Compliance Report was submitted on January 30, 2015. Submitted in the Annual Compliance Report
Biological Resources	BIO-04	<u>Biological Monitor Duties:</u> The Biological Monitors shall assist the Designated Biologist in conducting surveys and in monitoring of mobilization, ground disturbance, grading, construction, operation, and closure activities. The Designated Biologist shall remain the contact for the project owner, BLM's Authorized Officer and the CPM.	The Designated Biologist shall submit in the Monthly Compliance Report to BLM's Authorized Officer and the CPM and copies of all written reports and summaries that document biological resources compliance activities including those conducted by Biological Monitors <u>if actions may affect biological resources during operation a Biological Monitor, under the supervision of the Designated Biologist, shall be available for monitoring and reporting.</u> During project operation, the Designated Biologist shall submit record summaries in the Annual Compliance Report unless their duties cease, as approved by BLM's Authorized Officer and the CPM.	Completed at End of Construction (5/31/2014). ONGOING for Operations beginning June 2014.	Annually beginning January 2015	1/30/2015; 1/29/2016			The submittal of the final Monthly Compliance Report was in June 2014 for the month of May 2014. The first Annual Compliance Report was submitted on January 30, 2015. Submitted in the Annual Compliance Report
Biological Resources	BIO-06	<u>Workers Environmental Awareness Program (WEAP):</u> The project owner shall develop and implement an Ivanpah SEGS-specific Worker Environmental Awareness Program (WEAP) and shall secure approval for the WEAP from BLM's Authorized Officer and the CPM. The USFWS and CDFG shall be provided a copy of the WEAP for review and comment. The WEAP shall be administered to all onsite personnel including surveyors, construction engineers, employees, contractors, contractor's employees, supervisors, inspectors, subcontractors, and delivery personnel. The WEAP shall be implemented during site mobilization, ground disturbance, grading, construction, operation, and closure. The WEAP shall: 1. Be developed by or in consultation with the Designated Biologist and consist of an on-site or training center presentation in which supporting written material and electronic media, including photographs of protected species, is made available to all participants. 2. Discuss the locations and types of sensitive biological resources on the project site and adjacent areas, and explain the reasons for protecting these resources; provide information to participants that Gila monsters are venomous and should not be handled, and that no snakes, reptiles, or other wildlife shall be harmed; 3. Place special emphasis on desert tortoise, including information on physical characteristics, distribution, behavior, ecology, sensitivity to human activities, legal protection, penalties for violations, reporting requirements, and protection measures; 4. Include a discussion of fire prevention measures to be implemented by workers during project activities; request workers dispose of cigarettes and cigars appropriately and not leave them on the ground or buried; 5. Present the meaning of various temporary and permanent habitat protection measures. 6. Identify whom to contact if there are further comments and questions about the material discussed in the program; and 7. Include a training acknowledgment form to be signed by each worker indicating that they received training and shall abide by the guidelines. The specific program can be administered by a competent individual(s) acceptable to the Designated Biologist.	At least 60 days prior to the start of any project-related site disturbance activities, the project owner shall provide to BLM's Authorized Officer and the CPM a copy of the draft WEAP and all supporting written materials and electronic media prepared or reviewed by the Designated Biologist and a resume of the person(s) administering the program. The project owner shall provide in the Monthly Compliance Report the number of persons who have completed the training in the prior month and a running total of all persons who have completed the training to date. At least 10 days prior to site and related facilities mobilization, the project owner shall submit two copies of the BLM- and CPM-approved final WEAP. Training acknowledgement forms signed during construction shall be kept on file by the project owner for at least six months after the start of commercial operation. Throughout the life of the project, the worker education program shall be repeated annually for permanent employees, and shall be routinely administered within one week of arrival to any new construction personnel, foremen, contractors, subcontractors, and other personnel potentially working within the project area. Upon completion of the orientation, employees shall sign a form stating that they attended the program and understand all protection measures. These forms shall be maintained by the project owner and shall be made available to BLM's Authorized Officer and the CPM and upon request. Workers shall receive and be required to visibly display a hardhat sticker or certificate that they have completed the training. During project operation, signed statements for operational personnel shall be kept on file for six months following the termination of an individual's employment.	Approved - COMPLETED (CONSTRUCTION) ONGOING DURING OPERATIONS	60 prior Start of Site Disturbance Activities. ANNUALLY DURING OPERATIONS.	6-Jul-2010	3-Oct-2010	Approved and WEAP reported in the MCR during construction. ONGOING DURING OPERATIONS;	

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Biological Resources	BIO-07	<u>Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP).</u> The project owner shall develop a BRMIMP and submit two copies of the proposed BRMIMP to the BLM-Authorized Officer and the CPM (for review and approval) and shall implement the measures identified in the approved BRMIMP. The BRMIMP shall incorporate avoidance and minimization measures described in final versions of the Desert Tortoise Translocation Plan, the Raven Management Plan, the Closure, Revegetation and Rehabilitation Plan, the Burrowing Owl Mitigation and Monitoring Plan, the Weed Management Plan and the Special Status Plant Remedial Action Plan. The BRMIMP shall be prepared in consultation with the Designated Biologist and include the following: 1. All biological resources mitigation, monitoring, and compliance measures proposed and agreed to by the project owner; 2. All biological resources conditions of certification identified as necessary to avoid or mitigate impacts; 3. All biological resource mitigation, monitoring and compliance measures required in federal agency terms and conditions, such as those provided in the USFWS Biological Opinion; 4. All sensitive biological resources to be impacted, avoided, or mitigated by project construction, operation, and closure; 5. All required mitigation measures for each sensitive biological resource; 6. A detailed description of measures that shall be taken to avoid or mitigate temporary disturbances from construction activities; 7. All locations on a map, at an approved scale, of sensitive biological resource areas subject to disturbance and areas requiring temporary protection and avoidance during construction and operation;	Owner shall submit the BRMIMP to the BLM Authorized Officer and the CPM at least 60 days prior to start of any project-related site disturbance activities. The BRMIMP shall contain all of the required measures included in all biological Conditions of Certification. No ground disturbance may occur prior to approval of the final BRMIMP by BLM's Authorized Officer and the CPM. BLM's Authorized Officer and the CPM, in consultation with other appropriate agencies, will determine the BRMIMP's acceptability within 45 days of receipt. If there are any permits that have not yet been received when the BRMIMP is first submitted, these permits shall be submitted to BLM's Authorized Officer and the CPM within five days of their receipt, and the BRMIMP shall be revised or supplemented to reflect the permit condition within at least 10 days of their receipt by the project owner. Ten days prior to site and related facilities mobilization the revised BRMIMP shall be resubmitted to BLM's Authorized Officer and the CPM.	Approved - COMPLETED (CONSTRUCTION) ONGOING DURING OPERATIONS	60 prior Start of Site Disturbance Activities.	7/16/2010; REVISION 2-UPDATED 4/11/2012 PER CEC REQUEST/ Revised Biological Opinion USFWS 4/22/12 added Re:Translocation			As a living document with many plans, approvals are given as revisions and updates are made to any of the plans, the latest revisions are kept on-site hard copy and electronically
Biological Resources	BIO-07 (continued)	8. Aerial photographs, at an approved scale, of all areas to be disturbed during project construction activities; include one set prior to any site or related facilities mobilization disturbance and one set subsequent to completion of project construction. Provide planned timing of aerial photography and a description of why times were chosen. Provide a final accounting of the before/after acreages and a determination of whether additional habitat compensation is necessary in the Construction Termination Report; 9. Duration for each type of monitoring and a description of monitoring methodologies and frequency; 10. Performance standards to be used to help decide if/when proposed mitigation is or is not successful; 11. All performance standards and remedial measures to be implemented if performance standards are not met; 12. A discussion of biological resources-related facility closure measures including a description of funding mechanism(s); and 13. A process for proposing plan modifications to BLM's Authorized Officer and the CPM and appropriate agencies for review and approval; and	Owner shall notify BLM's Authorized Officer and the CPM and no less than five working days before implementing any modifications to the approved BRMIMP to obtain BLM's Authorized Officer and CPM approval. Any changes to the approved BRMIMP must also be approved by BLM's Authorized Officer and the CPM and in consultation with appropriate agencies to ensure no conflicts exist. Implementation of BRMIMP measures (construction activities that were monitored, species observed) will be reported in the Monthly Compliance Reports by the Designated Biologist.	Approved - COMPLETED (CONSTRUCTION) ONGOING DURING OPERATIONS	Monthly MCR	7/16/2010; REVISION 2-UPDATED 4/11/2012 PER CEC REQUEST/ Revised Biological Opinion USFWS 4/22/12 added Re:Translocation			As a living document with many plans, approvals are given as revisions and updates are made to any of the plans, the latest revisions are kept on-site hard copy and electronically
Biological Resources	BIO-07 (continued-1)	8. Aerial photographs, at an approved scale, of all areas to be disturbed during project construction activities; include one set prior to any site or related facilities mobilization disturbance and one set subsequent to completion of project construction. Provide planned timing of aerial photography and a description of why times were chosen. Provide a final accounting of the before/after acreages and a determination of whether additional habitat compensation is necessary in the Construction Termination Report; 9. Duration for each type of monitoring and a description of monitoring methodologies and frequency; 10. Performance standards to be used to help decide if/when proposed mitigation is or is not successful; 11. All performance standards and remedial measures to be implemented if performance standards are not met; 12. A discussion of biological resources-related facility closure measures including a description of funding mechanism(s); and 13. A process for proposing plan modifications to BLM's Authorized Officer and the CPM and appropriate agencies for review and approval; and	<i>Within 30 days after completion of project construction, the project owner shall provide to BLM's Authorized Officer and the CPM, for review and approval, a written construction termination report identifying which items of the BRMIMP have been completed, a summary of all modifications to mitigation measures made during the project's site mobilization, ground disturbance, grading, and construction phases, and which mitigation and monitoring items are still outstanding.</i>	Submitted	30 days after completion of Project Construction	6/30/2014; 7/1/2014			Project Construction was completed and approved by CEC on 5/31/2014. Construction Termination Report was submitted on 6/30/14. Post-Construction Closure, Revegetation and Rehabilitation Plan Report was submitted on 7/1/2014.
Biological Resources	BIO-09	<u>Desert Tortoise Translocation Plan:</u> The project owner shall develop and implement a final Desert Tortoise Relocation/Translocation Plan (Plan) that is consistent with current USFWS approved guidelines, including the recently released "Translocation of Desert Tortoises (Mojave Population) from Project Sites: Plan Development Guidance, US Fish and Wildlife Service, August 2010" and meets the approval of BLM's Authorized Officer, USFWS, and CPM in consultation with CDFG. The final Plan shall be based on the draft Desert Tortoise Relocation/Translocation Plan prepared by the applicant dated May 2009 and modifications to this plan identified in the BA amendment dated June 21, 2010, and shall include all revisions deemed necessary by BLM's Authorized Officer, USFWS, and the CPM in consultation with the CDFG. Translocation of tortoise into the Mojave National Preserve will require fencing of roads within 10 km (6.2 miles) of receptor sites. Since this fencing is required as part of the translocation, it would not count towards the fencing identified in BIO-17, desert tortoise compensatory mitigation.	Within 60 days of publication of the Energy Commission Decision the project owner shall provide BLM's Authorized Officer and the CPM with the final version of a Desert Tortoise Relocation/Translocation Plan that has been reviewed and approved by BLM's Authorized Officer, USFWS and CPM in consultation with CDFG. BLM's Authorized Officer and the CPM will determine the plan's acceptability within 15 days of receipt of the final plan. All modifications to the approved translocation must be made only after consultation with BLM's Authorized Officer, USFWS, and the CPM, in consultation with CDFG. Within 30 days after initiation of translocation activities, the Designated Biologist shall provide to BLM's Authorized Officer and the CPM for review and approval, a written report identifying which items of the Plan have been completed, and a summary of all modifications to measures made during implementation of the Plan.	Approved - COMPLETED (CONSTRUCTION)	Within 60 days of publication of CEC Decision	9/27/2010; Final DT Translocation Plan was submitted to BLM on 7/29/2016.	11/4/2010 (rev. 4 - BLM); Final DT Translocation Plan approved on 8/2/2016.		Revised Husbandry Plan Rev 1 Submitted Dec 3, 2012. Juvenile Desert Tortoises were translocated on Oct. 4, 2016. Juvenile Tortoises Annual Report was submitted with the Annual Compliance Report.

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Biological Resources	BIO-10 (Continued: 1)	3. Remain onsite daily while vegetation salvage, grubbing, grading and heliostat installation activities are taking place to avoid or minimize take of listed species, to check for compliance with all impact avoidance and minimization measures, and to check all exclusion zones to ensure that signs, stakes, and fencing are intact and that human activities are restricted in these protective zones. 4. Maintain and check desert tortoise exclusion fences on a daily basis to ensure the integrity of the fence is maintained. The Designated Biologist shall be present onsite to monitor construction and determine fence placement during fence installation. 5. Conduct compliance inspections at a minimum of once per month after clearing, grubbing, grading, and heliostat installation activities are completed and submit a monthly compliance report to BLM's Authorized Officer and the CPM ; 6. No later than January 31 of every year the ISEGS facility remains in operation, provide BLM's Authorized Officer and the CPM an annual Listed Species Status Report, which shall include, at a minimum: 1) a general description of the status of the project site and construction activities, including actual or projected completion dates, if known; 2) a copy of the table in the BRMIMP with notes showing the current implementation status of each mitigation measure; and 3) an assessment of the effectiveness of each completed or partially completed mitigation measure in minimizing and compensating for project impacts;	No later than 2 calendar days following the above required notification of a sighting, kill, or relocation of a listed species, the project owner shall deliver to BLM's Authorized Officer, the CPM, CDFG, and USFWS via FAX or electronic communication the written report from the Designated Biologist describing all reported incidents of injury, kill, or relocation of a listed species, identifying who was notified, and explaining when the incidents occurred. In the case of a sighting in an active construction area the project owner shall, at the same time, submit a map (e.g., using Geographic Information Systems) depicting both the limits of construction and sighting location to BLM's Authorized Officer, the CPM, CDFG and USFWS.	ONGOING DURING OPERATIONS	Annually beginning January 2015	1/31/2011: 2011 Special Status Plants Annual Compliance Report submitted January 2012, revised March 7, 2012 and submitted; Annual Compliance Report submitted on 1/30/2015; 1/29/2016			The submittal of the final Monthly Compliance Report was in June 2014 for the month of May 2014. The first Annual Compliance Report was submitted on January 30, 2015. Submitted in the Annual Compliance Report
Biological Resources	BIO-11 (Continued: 3)	11. Avoid Wildlife Pitfalls: a. Backfill Trenches. At the end of each work day, the Designated Biologist shall ensure that all potential wildlife pitfalls (trenches, bores, and other excavations) outside the area fenced with desert tortoise exclusion fencing have been backfilled. If backfilling is not feasible, all trenches, bores, and other excavations shall be sloped at a 3:1 ratio at the ends to provide wildlife escape ramps, or covered completely to prevent wildlife access, or fully enclosed with desert tortoise-exclusion fencing. All trenches, bores, and other excavations outside the areas permanently fenced with desert tortoise exclusion fencing shall be inspected periodically throughout the day and at the end of each workday by the Designated Biologist or a Biological Monitor. Should a tortoise or other wildlife become trapped, the Designated Biologist or Biological Monitor shall remove and relocate the individual as described in the Desert Tortoise Relocation/Translocation Plan. Any wildlife encountered during the course of construction shall be allowed to leave the construction area unharmed. b. Avoid Entrapment of Desert Tortoise. Any construction pipe, culvert, or similar structure with a diameter greater than 3 inches, stored less than 8 inches aboveground and within desert tortoise habitat (i.e., outside the permanently fenced area) for one or more nights, shall be inspected for tortoises before the material is moved, buried or capped. As an alternative, all such structures may be capped before being stored outside the fenced area, or placed on pipe racks. These materials would not need to be inspected or capped if they are stored within the permanently fenced area after the clearance surveys have been completed. c. Cap Heliostat Holes. All holes drilled for heliostats shall be capped the same day they are drilled. Caps shall remain on the holes until heliostats are inserted into the holes, and shall be securely fastened and sufficiently sturdy to cover the heliostat holes indefinitely. The caps shall exclude all wildlife, and shall be inspected weekly by the Designated Biologist or Biological Monitors to ensure that the caps remain in place and that birds and terrestrial wildlife have not become trapped. 12. Minimize Standing Water. Water applied to construction areas and dirt roads for dust abatement shall use the minimal amount needed to meet safety and air quality standards in an effort to prevent the formation of puddles, which could attract desert tortoises, common ravens and coyotes to construction sites.	All mitigation measures and their implementation methods shall be included in the BRMIMP. Implementation of the measures shall be reported in the Monthly Compliance Reports by the Designated Biologist. Within 30 days after completion of project construction, the project owner shall provide to BLM's Authorized Officer and the CPM, for review and approval, a written construction termination report identifying how measures have been completed. The Designated Biologist shall report summarizing all available data (species of carcass, date and location collected, and cause of death) describing bird and other carcasses collected within the project site each year.	Submitted	30 days after completion of Project Construction	6/30/2014; 7/1/2014			Project Construction was completed and approved by CEC on 5/31/2014. Construction Termination Report was submitted on 6/30/14. Post-Construction Closure, Revegetation and Rehabilitation Plan Report was submitted on 7/1/2014.
				ONGOING	Annually beginning January 2015	1/30/2015; 1/29/2016			Submitted in the Annual Compliance Report

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Biological Resources	BIO-11 (Continued-4)	13. Dispose of Road killed Animals. Road killed animals or other carcasses detected in the project area or on roads near the project area shall be picked up immediately and delivered to the Biological Monitor. Within 1 working day of receipt of the carcass the Biological Monitor shall contact CDFG and/or USFWS for guidance on disposal or storage of the carcass. 14. Photographic Documentation of Bird Carcasses. On-site personnel shall photograph and record the location of all bird carcasses encountered and location data to the Designated Biologist. The Designated Biologist shall identify the bird, ascertain a cause of death if possible, maintain a database of this information for all bird carcasses and each year of operation shall provide a report summarizing this information to the CPM, BLM's Authorized Officer, CDFG, and USFWS. 15. Minimize Spills of Hazardous Materials. All vehicles and equipment shall be maintained in proper working condition to minimize the potential for fugitive emissions of motor oil, antifreeze, hydraulic fluid, grease, or other hazardous materials. The Designated Biologist shall be informed of any hazardous spills immediately as directed in the project Hazardous Materials Plan. Hazardous spills shall be immediately cleaned up and the contaminated soil properly disposed of at a licensed facility. Servicing of construction equipment shall take place only at designated area. Service/maintenance vehicles shall carry a bucket and pads to absorb leaks or spills. 16. Worker Guidelines. During construction all trash and food-related waste shall be placed in self-closing containers and removed daily from the site. Workers shall not feed wildlife or bring pets to the project site. Except for law enforcement personnel, no workers or visitors to the site shall bring firearms or weapons. Vehicular traffic shall be confined to existing routes of travel to and from the project site, and cross country vehicle and equipment use outside designated work areas shall be prohibited. The speed limit when traveling on Colosseum Road and other dirt access routes within desert tortoise habitat shall not exceed 20 miles per hour. 17. Monitor Ground Disturbing Activities Prior to Site Mobilization. If ground disturbing activities are required prior to site mobilization, such as for geotechnical borings or hazardous waste evaluations, a Designated Biologist or Biological Monitor shall be present to monitor any actions that could disturb soil, vegetation, or wildlife.	All mitigation measures and their implementation methods shall be included in the BRMIMP. Implementation of the measures shall be reported in the Monthly Compliance Reports by the Designated Biologist. Within 30 days after completion of project construction, the project owner shall provide to BLM's Authorized Officer and the CPM, for review and approval, a written construction termination report identifying how measures have been completed. <i>The Designated Biologist shall report summarizing all available data (species of carcass, date and location collected, and cause of death) describing bird and other carcasses collected within the project site each year.</i>	ONGOING DURING OPERATIONS - ANNUALLY	Annually beginning January 2015	1/30/2015; 1/29/2016			Information to be reported annually in the Annual Compliance Report
Biological Resources	BIO-12	<u>Raven Management Plan:</u> The project owner shall implement a <u>Raven Management Plan</u> that is consistent with the most current USFWS-approved raven management guidelines, and which meets the approval of USFWS, BLM Authorized Officer, and the CPM in consultation with CDFG. The draft Raven Management Plan submitted by The applicant (CH2M Hill 2008) shall provide the basis for the final plan, subject to review and revisions from USFWS, BLM Authorized Officer and the CPM in consultation with CDFG. The project owner shall submit payment to the project sub-account of the REAT Account held by the National Fish and Wildlife Foundation (NFWF) to support the USFWS Regional Raven Management Program. The amount shall be a one-time payment of \$105 per acre of permanent disturbance.	Within 60 days after completion of project construction, the project owner shall provide to the CPM for review and approval, a written report identifying which items of the Raven Management Plan have been completed, a summary of all modifications to mitigation measures made during the project's construction phase, and which items are still outstanding.	Submitted ONGOING REPORTING DURING OPERATIONS	60 days after completion of project construction. Not later than Dec. 31st each Raven Management Year	7/31/2014; 12/31/2014; 1/5/2015; 12/30/2015; 6/27/2016			Report identifying which items of the Raven Management Plan (Post Construction Raven Management Report) have been completed was submitted to CEC and BLM on 7/31/2014. Annual Monitoring Report per the Raven Management Plan was submitted on 12/31/2014. Resubmitted on 1/5/2015 with maps. The implementation of the Raven Management Plan has been completed and awaiting for approval from BLM.

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Biological Resources	BIO-14	<u>Closure, Revegetation and Rehabilitation Plan:</u> The project owner shall develop and implement a revised <u>Closure, Revegetation and Rehabilitation Plan</u>(Plan) in cooperation with BLM and Energy Commission staff, to guide site restoration and closure activities, including methods proposed for revegetation of disturbed areas immediately following construction and rehabilitation and revegetation upon closure of the facility. The plan must address preconstruction salvage and relocation of succulent vegetation from the site to an onsite nursery facility for storage and propagation of material to reclaim disturbed areas. In the case of unexpected closure, the plan assumes restoration activities could possibly take place prior to the anticipated lifespan of the plant. The Plan shall address all issues discussed in Biological Resources Appendix-B: Issues to Address in the <u>Closure, Revegetation and Rehabilitation Plan</u>, and shall include but is not limited to the following elements in the revised plan: 1. Plan Purpose: The plan shall explicitly identify the objective of the revegetation plan to be re-creation of the types of habitats lost during construction and operation of the proposed solar energy facility. The final revegetation plan shall include introduction of m to late-successional species. 2. Standards/Monitoring: Performance standards for success thresholds, weed cover, performance monitoring methods and schedule, and maintenance monitoring in the revised Plan shall be conducted as described in Biological Resources Appendix B. 3. Baseline Surveys – Baseline vegetation surveys for planning restoration efforts shall be conducted as described in Biological Resources Appendix B. 4. Vegetation Clearing: Clearing of vegetation shall be limited to areas for which final maps are provided to BLM before approval of the ROW. Clearing of vegetation will be permitted on roads, utility routes, heliostat maintenance pathways, building and parking areas, and temporary staging areas provided these are specifically documented on a georeferenced construction alignment drawing or aerial photo or shape file, showing the exact locations of soil disturbance. BLM will consider relocating specific installations prior to the beginning of construction and during construction on a case by case basis but will not approve additional acreage beyond that addressed in the current application. 5. Vegetation Mowing: Vegetation mowing shall be limited to areas adjoining vehicle pathways used for heliostat installation to allow installation of the heliostat pylon and allow for tracking clearance under the heliostat. Vegetation mowing may be repeated during the life of the facility to maintain appropriate clearance for heliostat tracking.	Within 30 days after completion of project construction for each phase of development, the project owner shall provide to BLM's Authorized Officer and the CPM for review and approval, a written report identifying which items of the Closure, Revegetation and Rehabilitation Plan have been completed, a summary of all modifications to mitigation measures made during the project's construction phase, and which items are still outstanding.	Submitted; Annually	30 days after completion of construction; Annually beginning 2015	6/30/2014; 1/30/2015; 1/29/2016			Report identifying which items of the Closure, Revegetation and Rehabilitation Plan have been completed was submitted to CEC and BLM on 6/30/2014. Revegetation Annual monitoring Report submitted in the Annual Compliance Report
			At least one year prior to planned closure and decommissioning the project owner shall submit to the BLM-Authorized Officer and the CPM a final Closure Plan for review to determine if revisions are needed. The project owner shall incorporate all required revisions to the final Closure Plan and submit to the BLM-Authorized Officer and the CPM no less than 90 days prior to the start of ground disturbing activities associated with closure and decommissioning activities.	Not Yet Started	1 year prior planned closure and decommissioning of the project				
Biological Resources	BIO-14 (Continued-1)	6. Succulent Salvage: The revised Plan shall include a table that shows proposed succulent salvage by species the number of plants onsite, the lower threshold height for salvage, the number in each size class, and the fate of plants not salvaged. An inventory and map of proposed succulent transplants shall be provided as described in Appendix A. Information gained from succulent transplant experience gained in ISEGS 1 shall be applied to future salvage operations, as described in Biological Resources Appendix B. 7. Seed Handling: Seed collection, testing and application shall be conducted as described in Biological Resources Appendix B, with collection areas within 10 miles of the project boundaries and on similar terrain, soil, exposure, slope, and elevation to the project site. 8. Soil Preparation: Soil descriptions, compaction measurements, mulch application, soil storage, seed farming, mycorrhizal inoculation, and biological crust collection and storage shall be conducted as described in Biological Resources Appendix B. Soil stockpiles shall not be placed on areas that support special-status plant species or other sensitive biological resources. 9. Weed Management. Weed management activities needed to control weeds resulting from mirror washing shall be conducted as described in Biological Resources Appendix B. 10. Final Closure Plan. A Final Closure Plan, which addresses the final revegetation and rehabilitation activities upon closure and decommissioning of the project, shall be completed as part of the revised Plan. The Final Closure Plan shall include a cost estimate, adjusted for inflation, reflecting the costs of the revegetation, rehabilitation, and monitoring for the duration of time estimated to achieve the objective of recreating plant communities impacted by the project 11. The project owner shall implement the Closure, Revegetation, and Rehabilitation Plan Revision 3, dated July 6, 2010, with the following modifications. a. The long-term soil stockpiles, as discussed in Table 5-2 of the Plan, shall be no higher than 6 feet.	See above sections	In Progress					

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Biological Resources	BIO-14 (Continued-2)	b. The Preliminary Seeding Plan for Short-Term Disturbed Areas, and to be used as the basis for the seeding during final project decommissioning, shall be based upon the species list provided in Table 7-1 of the Plan rather than the species list in Table 7-2. The list may be modified at the time of decommissioning based on seed availability. c. Concrete will be removed to a minimum depth of 6 feet unless it is shown that a particular area is prone to flood hazards and a greater depth for concrete removal should be required. All concrete removed shall be hauled off the project site and disposed of in an approved facility. Crushed concrete shall not be used as backfill on the site during decommissioning. d. Succulents salvaged during project construction shall not be sold by the project owner. Should excess succulents be removed that cannot be transplanted in the Succulent Nursery Area, their disposition will be managed by BLM.	See above sections	In Progress					
Biological Resources	BIO-16	5. Submit a Burrowing Owl Mitigation and Monitoring Plan to the CPM and CDFG for review and approval prior to relocation of owls (and incorporate it into the project's BRMIMP) as well as a construction termination report with results to CDFG and CPM 30 days after completing owl relocation and monitoring and at least 30 days prior to the start of commercial operation.	Within 30 days after completion of owl relocation and monitoring, and the start of ground disturbance or at least 30 days prior to the sale of power, the project owner shall provide to the CDFG, CPM and BLM a written construction termination report identifying how measures have been completed.	Submitted	30 days after completion of project construction	6/30/2014; 7/1/2014			Construction Termination Report was submitted to CEC and BLM on 6/30/2014. Post-Construction Closure, Revegetation and Rehabilitation Plan Report was submitted on 7/1/2014.
Biological Resources	BIO-17	<u>Desert Tortoise Compensatory Mitigation:</u> To fully mitigate for habitat loss and potential take of desert tortoise, the project owner shall provide Compensatory Mitigation at a 3:1 ratio for impacts to 3,582 acres or the area disturbed by the final project footprint. At least two thirds of the 3:1 mitigation requirement shall be achieved by acquisition, in fee title or in easement, of no less than 7,146 acres of land suitable for desert tortoise or twice the area disturbed by the final project footprint. The Energy Commission's compensatory mitigation requirement consists of habitat acquisition at a 2:1 ratio as well as the BLM's 1:1 desert tortoise mitigation approach of habitat enhancement. The project owner shall provide financial Security as specified in this condition in an amount sufficient to ensure the entire 3:1 mitigation requirement, including acquisition, initial habitat improvements and long-term management for the compensatory lands to be acquired and the mitigation to be provided through BLM. The 1:1 compensatory mitigation, that will satisfy both the BLM's mitigation requirements and a portion of the Energy Commission's mitigation requirements, shall be developed in accordance with BLM's desert tortoise mitigation requirements as described in the Northern and Eastern Mojave Desert Management Plan (BLM 2002). BLM's compensatory mitigation plan, serving as one third of the 3:1 mitigation ratio consists of desert tortoise habitat enhancement including installation of at least <u>50 miles of desert tortoise exclusion fencing</u> on roadways in the Northeastern Mojave Recovery Unit, and habitat restoration of at least 50 routes within the Desert Wildlife Management Area. The project owner may elect to satisfy the requirements of this condition by depositing funds into the Renewable Energy Action Team (REAT) Account established with the National Fish and Wildlife Foundation (NFWF) [Deposit of Funds to a NFWF Account] as described in #4 of this condition. The Energy Commission requirements for acquisition of 7,164 acres of compensation lands and habitat enhancements through BLM shall include all of the following: BLM's compensatory mitigation plan, serving as one third of the 3:1 mitigation ratio required to satisfy CESA, shall consist of desert tortoise habitat enhancement, including installation of at least 50 miles of desert tortoise exclusion fencing on roadways in the Northeastern Mojave Recovery Unit, and habitat restoration of at least 50 routes within the Desert Wildlife Management Area. Areas identified for fencing include: the boundary of the town	The Project owner shall provide the CPM with written notice prior to the start of ground-disturbing activities on the Project site. If purchase of 7,164 acres of mitigation lands as described in this condition, or as described in BIO-22 (phasing), is not completed prior to the start of ground disturbing activities, the Project owner shall provide the CPM with approved Security prior to the start of ground-disturbing activities. The Security shall be in accordance with Item # 4 of this condition and other requirements of this condition, allowing for either Acquisition of Mitigation Lands by the project owner or use of the NFWF Account to satisfy this condition, and with BIO-22 (phasing) if the project owner elects to use that option. If the project owner elects to Deposit Funds to the NFWF Account, it shall provide documentation of deposit of the required security to the REAT-NFWF Account prior to start of ground-disturbing activities on the project site. Within 6 months of the Energy Commission decision, the project owner shall provide to the CPM for review and approval a Property Analysis Record (PAR) or PAR-like analysis to establish the appropriate amount for the long-term maintenance fee to fund maintenance of the proposed enhancement actions (desert tortoise exclusion fencing and DWMA route restoration). The project owner shall deposit the long-term maintenance fee into the REAT-NFWF account or another third-party recipient acceptable to the CPM in consultation with CDFG and BLM within 18 months of the Energy Commission decision. Starting with the first year following construction and continuing for the duration of project impacts, the project owner shall provide to the CPM, BLM and CDFG an annual report describing: the results of the annual inspection of fencing and rehabilitated routes; a summary of fence repairs and maintenance of reclaimed routes completed during the year; and recommendations and a cost estimate for repairs and maintenance activities needed for the upcoming year.	COMPLETED (CONSTRUCTION)	prior to ground disturbing activities	10/4/2010, Rev 1 June 2011		Under Review, ROW GRANT EXTENSION granted until Oct 7, 2013 ongoing negotiations. BLM granted 1 year extension to 10/07/2013	

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Biological Resources	BIO-17 (Continued: 1)	of Nipton, Nipton Road between the California-Nevada border and the junction of I-15, Ivanpah Road, Interstate 15 from Nipton Road to the Ivanpah Dry Lake, US Highway 95 through Piate Valley from the California-Nevada border to the town of Goffs, or the boundary for the community of Goffs. Some of these roads (e.g. portions of Nipton Road and Ivanpah Road) may require fencing associated with the tortoise translocation plan. Any fencing deemed necessary for tortoise translocation would be above and beyond the 50 miles required by this mitigation measure. In lieu of acquiring lands and implementing habitat enhancement or rehabilitation activities itself, the project owner may satisfy the requirements of this condition by depositing funds into the Renewable Energy Action Team (REAT) Account established with the National Fish and Wildlife Foundation (NFWF) in an amount equivalent to the sum of: 1) BLM's compensatory mitigation cost to cover the cost of fencing and route restoration, calculated using formulas for biological Resource Compensation/Mitigation Cost Estimate Breakdown for use with the REAT- NFWF Mitigation Account Table of Estimated Costs dated July 13, 2010; 2) the Energy Commission's Complementary Mitigation Security for acquisition; and 3) the Long-Term Maintenance of Fencing and Habitat Restoration Fee; and 3) the NFWF administrative fee calculation, as shown in the following table: Biological Resources Mitigation/Compensation Cost Estimate Table - July 13, 20101 corrected Desert Tortoise Compensation Number of Acres 3582 Estimated number of parcels to be acquired, at 40 acres per parcel2 90 Land cost at \$1000/acre3 \$ 3,582,000.00 Level 1 Environmental Site Assessment at \$3000/parcel \$ 270,000.00 Appraisal at no less than \$5,000/parcel \$ 450,000.00 Initial site work - clean-up, restoration or enhancement, at \$250/acre4 \$ 895,500.00 Closing and Escrow Cost at \$5000/parcel5 \$ 450,000.00 Biological survey for determining mitigation value of land (habitat based with species specific augmentation) at \$5000/parcel \$ 450,000.00	A minimum of three months prior to acquisition of the property, the project owner shall submit a formal acquisition proposal to the CPM, CDFG, USFWS and BLM describing the parcels intended for purchase. No later than 18 months following the publication of the Energy Commission Decision the project owner shall provide written verification to the CPM and CDFG that the Energy Commission compensation lands or conservation easements have been acquired and recorded in favor of the approved recipient(s). The project owner, or an approved third party, shall complete and provide written verification of the proposed compensation lands acquisition within 18 months of the start of project ground disturbing activities. If NFWF or another approved third party is being used for the acquisition, the project owner shall ensure that funds needed to accomplish the acquisition are transferred in timely manner to facilitate the planned acquisition and to ensure the land can be acquired and transferred prior to the 18-month deadline. Within six months of the land or easement purchase, as determined by the date on the title, the project owner, or an approved third party, shall provide CDFG and the CPM with a management plan for the Energy Commission compensation lands and associated funds. The CPM shall review and approve the management plan, in consultation with CDFG, BLM and the USFWS. <u>Within 90 days after completion of project construction, the project owner shall provide to the CPM and CDFG an analysis with the final accounting of the amount of habitat disturbed during project construction. If habitat disturbance exceeds 3,582 acres, the project owner shall provide a compensation plan to the CPM and CDFG for their review and approval, in consultation with CDFG, BLM and the USFWS. The compensation plan shall be submitted no later than 90 days from the CPM's receipt of the final accounting, and shall include a description of additional funds required or lands that must be purchased to compensate for the anticipated habitat disturbances, and a schedule for that acquisition or funding inclusive of all associated long-term management and maintenance and enhancement costs.</u>	Submitted	90 days after completion of project construction	29-Aug-2014			
Biological Resources	BIO-17 (Continued: 2)	3rd Party Administrative Costs (Land Cost x 10%)6 \$ 358,200.00 Agency cost to accept land donation7 (Land Cost x 15%) x 1.17 (17% of the 15% for overhead) \$ 628,641.00 SUBTOTAL - Acquisition and Initial Site Work \$ 7,084,341.00 Long-term Management and Maintenance Fund (LTMM) fee at \$1450/acre 8 \$ 5,193,900.00 NFWF Fees Establish Project Specific Account \$ 12,000.00 NFWF Management fee⁹ for Acquisition and Enhancement Actions (Subtotal x 3%) \$ 212,530.23 NFWF Management Fee for LTMM account (LTMM x 1%) \$ 51,939.00 Subtotal of NFWF Fees \$ 276,469.23 TOTAL Estimated cost for deposit in project specific REAT-NFWF Account \$ 12,554,710.23 acquisition of 7,164 acres of compensation lands and maintenance of fencing and habitat enhancements shall include the following: 1. Responsibility for Acquisition of Lands: The project owner may delegate its responsibility for acquisition of compensation lands to a third party, such as a non-governmental organization supportive of Mojave Desert habitat conservation. Such delegation shall be subject to approval in writing by the CPM, in consultation with BLM, CDFG and USFWS, prior to land acquisition, enhancement or management activities. If habitat disturbance exceeds that described in this analysis, the project owner shall be responsible for funding acquisition, habitat improvements and long-term management of additional compensation lands or additional funds required to compensate for any additional habitat disturbances. Additional funds shall be based on the adjusted market value of compensation lands at the time of construction to acquire and manage habitat. Water and mineral rights shall be included as part of the land acquisition. Agreements to delegate land acquisition to CDFG or an approved third party and to manage compensation lands shall be implemented within 18 months of the Energy Commission's decision.	If the project owner elects to satisfy its mitigation obligations by paying an in-lieu fee instead of acquiring compensation lands, pursuant to Fish and Game code sections 2069 and 2099 or any other applicable in-lieu fee provision, the Project owner shall notify the Commission that it would like a determination that the Project's in-lieu fee proposal meets CEQA and CESA requirements. No more than 60 days prior to ground-disturbing project activities, the project owner shall provide to the CPM for review and approval a PAR or PAR-like analysis to establish the appropriate amount for the long-term maintenance fee to fund maintenance of the proposed enhancement actions (desert tortoise exclusion fencing and DWMA route restoration). No more than 30 days prior to ground-disturbing project activities, the project owner shall deposit the long-term maintenance fee to the REAT- NFWF account or another third-party recipient approved by the CPM in consultation with CDFG. <u>Starting with the first year following construction and continuing for the duration of project impacts, the project owner shall provide to the CPM and CDFG an annual report describing: the results of the annual inspection of fencing and rehabilitated routes; a summary of fence repair and maintenance of reclaimed routes completed during the year; and recommendations and a cost estimate for repairs and maintenance activities needed for the upcoming year. If the project owner elects to satisfy its mitigation obligations by paying an in-lieu fee instead of acquiring compensation lands, pursuant to Fish and Game code sections 2069 and 2099 or any other applicable in-lieu fee provision, the Project owner shall notify the Commission that it would like a determination that the Project's in-lieu fee proposal meets CEQA and CESA requirements.</u>	IN PROGRESS	Annually beginning January 2015	1/30/2015; 1/29/2016			Submitted in the Annual Compliance Report. The construction of 50 Miles of Tortoise Fencing along Interstates 15 and 40 were completed on 3/18/2016. Annual inspection report will be submitted with the Annual Compliance Report.

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Biological Resources	BIO-18 (continued-1)	3. Identify and Establish Special-Status Plant Protection Areas The project owner shall identify Special-Status Plant Protection Areas for exclusion from the project footprint and avoidance of project-related impacts of any kind to facilitate achieving the 75 % protection goal. To accurately identify the boundaries of these areas, pre-construction floristic surveys shall be conducted by a qualified botanist at the appropriate time of year for special-status plant identification including both spring and summer/fall blooming periods. Summer/fall surveys will be conducted after rains that are likely to cause plant germination and may be suspended in years where no such rains occurs. The surveys shall encompass at a minimum the three areas totaling 476 acres and labelled "Rare Plant Mitigation Area" in Project Description Figure 13 and shall extend 150 feet on both sides of the proposed gas pipeline alignment and 250 feet out from the project fence line. The locations of the Special-Status Plant Protection Areas shall be clearly depicted on all final maps and project drawings and descriptions for exclusions of all project activities.	On January 31st of each year following construction the owner's qualified botanist shall submit a report, including CNDD field survey forms, describing results of off-site plant surveys for Mojave milkweed and Rusby's desert-mallow to the BLM's authorized officer, the CPM, CDFG, and CNDD. Submittal of survey reports shall continue for a maximum of 10 years until the same number of occurrences in the project area excluding the occurrences of Special-Status Plant Protection Areas.	ONGOING DURING OPERATIONS	Annual Reporting required in the Annual Compliance Report Beginning Jan. 2015	2014 Annual Compliance Report was submitted on 1/30/2015; 1/29/2016			
Biological Resources	BIO-18 (continued-2)	4. Protection of Adjacent Occurrences: The project owner shall identify special-status plants occurrences within 250 feet of the project fence line during the pre-construction plant surveys described above. A qualified botanist shall delineate the boundaries of the special status plant occurrences prior to the initiation of ground disturbing activities. These flagged special status plant occurrences shall be designated as Environmentally Sensitive Areas on plans and specifications, and shall be protected from accidental impacts during construction (e.g. vehicle traffic, temporary placement of soils or vegetation) and from the indirect impacts of project operation (e.g., herbicide spraying, changes in upstream hydrology, etc.).	The project owner's qualified botanist shall submit a completion report documenting fulfillment of target goals & which describe the number of new, previously undiscovered occurrences identified & mapped using GIS techniques for each species. Mapping results shall include GPS coordinates of the plants found. The DB shall maintain written & photographic records of the tasks described above, and summaries of these records shall be submitted along with the MCR to the CPM, BLM AA, and CDFG. During operation, the DB shall submit record summaries in the Annual Compliance Report for a period not < 10 years for the Gas Pipeline Revegetation Plan, and for the life of the project for the SSPP and Monitoring Plan, and the SSP Remedial Action Plan, including funding for the seed storage. No less than 90 days prior to acquisition of the parcel (s) containing or adjacent to a known Mojave milkweed occurrence, the project owner, or a third-party approved by the CPM, in consultation with CDFG, shall submit a formal acquisition proposal to the CPM and CDFG describing the parcel(s) intended for purchase.	Approved ONGOING DURING OPERATIONS	Annually beginning January 2015	7/2/2010 (Gas Pipeline Plan) 11/1/2010 SS Plant Plan 11/10/2010 SS Plant Remedial Action Plan (Seed Collection Plan included) . 2014 Annual Compliance Report was submitted on 1/30/2015; 1/29/2016	Nov 9, 2010 rev 0		6/18/10 Gas Pipeline Plan 11/1/2010 SS Plant Plan 11/10/2010 SS Plant Remedial Action Plan (Seed Collection Plan included) Designated Biologist shall submit record summaries in the ACR beginning January 2015
Biological Resources	BIO-18 (continued-2a)	5. Develop and Implement a Special-Status Plant Protection and Monitoring Plan The project owner shall develop and implement a Special-Status Plant Protection and Monitoring Plan for special-status plants occurring within the Special-Status Plant Protection Areas and on-site areas designated for impact minimization. The goal of the Special-Status Plant Protection and Monitoring Plan shall be to maintain the special-status plant species as healthy, reproductive populations that can be sustained in perpetuity. At minimum, the Special-Status Plant Protection and Monitoring Plan shall: • establish baseline conditions and numbers of the plant occurrences in all protected areas (i.e., those to be excluded from the footprint and on-site areas to be protected) and success standards for protection of special-status plant occurrences; • provide information about microhabitat preferences and fecundity, essential pollinators reproductive biology, and propagation and culture requirements for each special-status species; • describe measures (e.g., fencing, signage) to avoid direct construction and operation impacts to special-status plants within all protected areas • describe measures to avoid or minimize indirect construction and operations impacts to special-status plants within protected areas (e.g., runoff from mirror-washing, use of soil stabilizers/tackifiers, alterations of hydrology from drainage diversions, erosion/sedimentation from disturbed soils upslope, herbicide drift, the spread of non-native plants, etc.). • provide a monitoring schedule and plan for assessing the numbers and condition of special-status plants; and • identify specific triggers for remedial action (e.g., numbers of plants dropping below a threshold);	Draft agreements to delegate land acquisition to CDFG or an approved third party and agreements to manage compensation lands shall be submitted to Energy Commission staff for review and approval (in consultation with CDFG) prior to land acquisition. Such agreements shall be mutually approved and executed at least 60 days prior to start of any project-related ground disturbance activities. The project owner shall provide written verification to the CPM that the compensation lands have been acquired and recorded in favor of the approved recipient(s). Alternatively, before beginning project ground disturbing activities, the project owner shall provide Security in accordance with this condition. Within 90 days after the land purchase, as determined by the date on the title, the project owner shall provide the CPM with a management plan for review and approval, in consultation with CDFG, for the compensation lands and associated funds.	Approved ONGOING DURING OPERATIONS	Annually beginning January 2015	7/2/2010 (Gas Pipeline Plan) 11/1/2010 SS Plant Plan 11/10/2010 SS Plant Remedial Action Plan (Seed Collection Plan included) . 2014 Annual Compliance Report was submitted on 1/30/2015; 1/29/2016	Nov 9, 2010 rev 0		6/18/10 Gas Pipeline Plan 11/1/2010 SS Plant Plan 11/10/2010 SS Plant Remedial Action Plan (Seed Collection Plan included) Designated Biologist shall submit record summaries in the ACR beginning January 2015

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Biological Resources	BIO-18 (continued-3)	6. Develop Special-Status Plant Remedial Action PlanThe project owner shall develop a detailed Special-Status Plant Remedial Action Plan to be implemented if special-status plants within the 476 acres of protected area and on-site minimization "halos" fail to meet success standards described in the Special-Status Plant Protection and Monitoring Plan. The Plant Remedial Action Plan shall include specifications for ex-situ/offsite conservation of seed and other propagules, and the seed bank and other symbionts contained in the topsoil where these plants occur. The remedial measures described in the Plant Remedial Action Plan shall not substitute for plant protection or other mitigation measures. The Special-Status Plant Remedial Action Plan shall include, at a minimum: • guidelines for pre-construction seed collection (and/or other propagules) for each species; • specifications for collecting, storing, and preserving the upper layer of soil containing seed and important soil organisms; • detailed replacement planting program with biologically meaningful quantitative and qualitative success criteria (see Pavlik 1996), monitoring specifications, and triggers for remedial action; and • ecological specifications for suitable planting sites. 7. Seed Collection Implementation of the Special-Status Plant Remedial Action Plan would require a source of local source of seeds/propagules. In addition, seed collection would serve to preserve germplasm in the event that all mitigation fails. The project owner shall develop and implement a Seed Collection Plan to collect and store seed for Mojave milkweed, Rusby's desert-mallow, desert pincushion, nine-awned pappus grass, and Parish's club-cholla. The source of these seeds shall be from plants proposed for removal within the project footprint. The project owner shall engage the services of a qualified contractor approved by the CPM to undertake seed collection and storage.	See above sections	Approved ONGOING DURING OPERATIONS	Annually beginning Jan. 2015	7/2/2010 (Gas Pipeline Plan) 11/1/2010 SS Plant Plan 11/10/2010 SS Plant Remedial Action Plan (Seed Collection Plan included) . 2014 Annual Compliance Report was submitted on 1/30/2015; 1/29/2016	Nov 9, 2010 rev 0		6/18/10 Gas Pipeline Plan 11/1/2010 SS Plant Plan 11/10/2010 SS Plant Remedial Action Plan (Seed Collection Plan included) Designated Biologist shall submit record summaries in the ACR beginning January 2015
Biological Resources	BIO-18 (continued-4)	8. Gas Pipeline Revegetation and Monitoring: In the natural gas pipeline construction corridor where disturbed soils will be revegetated, the topsoil excavated shall be segregated, kept intact, and protected, under conditions shown to sustain seed bank viability. At a minimum, the top 2 cm of the soil shall be separately stored and preserved. Topsoil salvage, storing, and replacement shall be replaced in its original vertical orientation following pipeline installation ensuring the integrity of the top 2 cm in particular. The project owner shall prepare a Gas Pipeline Revegetation and Monitoring Plan targeted at re-establishment of Rusby's desert-mallow, desert pincushion, Mojave milkweed, and potentially other special-status plant species. The Gas Pipeline Revegetation and Monitoring Plan shall identify success criteria for re-establishment and shall continue for a period of no less than 10 years until the defined success criteria are achieved. The Gas Pipeline Revegetation and Monitoring Plan shall include measures for seeding or other remedial actions. If no individuals of Rusby's desert mallow, desert pincushion, or Mojave milkweed, are located during the first year of monitoring, the project owner shall conduct supplemental seeding or other remedial measures in the area disturbed by natural gas pipeline installation.	See above sections	Approved ONGOING DURING OPERATIONS	Annually beginning January 2015	7/2/2010 (Gas Pipeline Plan) 11/1/2010 SS Plant Plan 11/10/2010 SS Plant Remedial Action Plan (Seed Collection Plan included) . 2014 Annual Compliance Report was submitted on 1/30/2015; 1/29/2016	Nov 9, 2010 rev 0		6/18/10 Gas Pipeline Plan 11/1/2010 SS Plant Plan 11/10/2010 SS Plant Remedial Action Plan (Seed Collection Plan included) Designated Biologist shall submit record summaries in the ACR beginning January 2015
Biological Resources	BIO-18 (continued-5)	9. Surveys on Acquired and Public LandsThe project owner shall conduct floristic surveys for Rusby's desert-mallow and Mojave milkweed on all lands that will be acquired as part of the desert tortoise compensatory mitigation requirements (see Condition of Certification BIO-17). The goal of the surveys shall be to identify at least the same number of occurrences on off-site compensation or public lands as the number of occurrences in the project area excluding the occurrences in the Special-Status Plant Protection Areas in Project Description Figure 13. If this goal is not met by surveys on proposed acquisition lands, additional surveys shall be conducted within suitable habitat on public lands. To be counted toward fulfillment of the goal the occurrences must reflect new data not previously documented in other survey efforts. The survey requirements shall include the following: • All surveys shall be conducted by a qualified botanist in accordance with BLM, CDFG, and CNPS plant survey guidelines; • Surveys shall occur the first spring after construction begins and continue each year for a maximum of ten years until the same number of Mojave Milkweed and Rusby's desert-mallow occurrences are identified on acquisition lands and/or public lands as located outside Special-Status Plant Protection Areas; • For each year surveys are conducted yearly survey results shall be provided to the CPM, BLM's Authorized Officer and CDFG, and shall include CNDDDB field survey forms for all special-status plant species encountered during the surveys; and • All field survey forms shall be submitted to the CNDDDB at the time of submittal to the CPM, BLM and CDFG; and	See above sections	Approved ONGOING DURING OPERATIONS	Annually beginning January 2015	7/2/2010 (Gas Pipeline Plan) 11/1/2010 SS Plant Plan 11/10/2010 SS Plant Remedial Action Plan (Seed Collection Plan included) . 2014 Annual Compliance Report was submitted on 1/30/2015; 1/29/2016	Nov 9, 2010 rev 0		6/18/10 Gas Pipeline Plan 11/1/2010 SS Plant Plan 11/10/2010 SS Plant Remedial Action Plan (Seed Collection Plan included) Designated Biologist shall submit record summaries in the ACR beginning January 2015

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Biological Resources	BIO-18 (continued-9)	• The project owner's qualified botanist shall submit a completion report documenting fulfillment of the target goals and which describe the number of new, previously undiscovered occurrences identified and mapped. Locations shall be reported with GPS coordinates compatible with inclusion in a GIS database. 10. Security for Implementation of Plans : The project owner shall provide security adequate to fund implementation of the Special-Status Plant Protection and Monitoring Plan, the the Special-Status Plant Remedial Action Plan for the life of the project, as well as the Seed Collection Plan, and the Gas Pipeline Revegetation Monitoring Plan. 11. Acquire Off-Site Occurrence of Mojave Milkweed or Adjacent Land: The project owner shall acquire, in fee or in easement, a parcel or parcels of land that includes at least 30 acres supporting a viable occurrence of Mojave milkweed (or suitable habitat adjacent to known occurrence). The terms and conditions of this acquisition or easement shall be as described in Condition of Certification BIO-17with the additional criteria that the Mojave milkweed mitigation lands: 1) provide habitat for the special-status plant species that is of similar or better quality (e.g., in terms of native plant composition) than that impacted; 2) contain OR about a know occurrence of Mojave milkweed, ideally with populations that are stable, recovering, or likely to recover, that shares the same watershed as the land; and 3) be adequately sized and buffered to support self-sustaining special-status plant populations. These mitigation lands may be included with the desert tortoise mitigation lands ONLY if the above criteria are met. If sufficient new Mojave milkweed occurrences are discovered on desert tortoise compensation lands (not public lands) in accordance with item 9 above prior to acquiring this land, the associated security shall be refunded to the project owner.	See above sections	Approved ONGOING DURING OPERATIONS	Annually beginning Jan. 2015	7/2/2010 (Gas Pipeline Plan) 11/1/2010 SS Plant Plan 11/10/2010 SS Plant Remedial Action Plan (Seed Collection Plan included) . 2014 Annual Compliance Report was submitted on 1/30/2015; 1/29/2016	Nov 9, 2010 rev 0		6/18/10 Gas Pipeline Plan 11/1/2010 SS Plant Plan 11/10/2010 SS Plant Remedial Action Plan (Seed Collection Plan included) Designated Biologist shall submit record summaries in the ACR beginning January 2015
Biological Resources	BIO-19	<u>Nelson's Bighorn Sheep Mitigation:</u> To compensate for project impacts to Nelson's bighorn sheep the project owner shall finance, construct and manage an artificial water source in the eastern part of the Clark Mountain range or in the State Line Hills outside of designated Wilderness. The project owner shall monitor and control noxious and invasive weeds within 100 feet of the artificial water source. Control of weeds shall be coordinated with the CPM and BLM staff and shall consist of removal by mechanical methods, rather than herbicides. To minimize potential impacts to Nelson bighorn sheep, the project owner shall not use barbed wire fence on the northern perimeter of the Ivanpah 3 site, unless the project owner provides evidence that such fencing is essential for security reasons.	Within 60 days of publication of the Energy Commission Decision the project owner shall submit to the BLM's Authorized Officer, the CPM and CDFG a Draft <u>Bighorn Sheep Mitigation Plan</u> identifying a proposed location for the artificial water source and providing plans for its construction and management. At least 60 days prior to start of any project-related ground disturbance activities, the project owner shall provide BLM's Authorized Officer and the CPM with the final version of the Bighorn Sheep Mitigation Plan that has been reviewed and approved by the CPM, BLM, and CDFG. BLM's Authorized Officer and the CPM will determine the plan's acceptability within 30 days of receipt of the final plan. No later than 18 months following the publication of the Energy Commission Decision, the project owner shall provide written verification to BLM's Authorized Officer and the CPM that the construction of the artificial water source has been completed. At the same time, the project owner shall provide evidence of an agreement (Memorandum of Understanding) and a funding mechanism to provide ongoing maintenance of the water source by CDFG or some other party approved by BLM's Authorized Office and the CPM.	APPROVED ANNUAL REPORTING BY SCBC DURING OPERATIONS	60 days of publication of Energy Commission Decision; 60 days prior start of ground disturbance; 18 months following publication of Energy Commission Decision	7/30/2010; Jan 2012 Rev 1 submitted; 1/30/2015; 1/29/2016	2-Oct-2012		Rev 1 dated January 2012, Approved CEC 10/2/12 email The SCBC will provide the project owner an annual report no later than January 15th of each year, and the project owner will provide to the CEC and BLM the annual report no later than January 31st of each year. ISEGS reached out to SCBS and requested an annual report but no feedback was received from SCBS since 2014.
Biological Resources	BIO-20 (Continued-1)	4. <u>Right of Access and Review for Compliance Monitoring</u> The CPM reserves the right to enter the project site or allow CDFG to enter the project site at any time to ensure compliance with these conditions. The project owner herein grants to the CPM and to CDFG employees and/or their representatives the right to enter the project site at any time, to ensure compliance with the terms and conditions and/or to determine the impact of storm events, maintenance activities, or other actions that might affect the restoration and revegetation efforts. The CPM and CDFG may, at the CPM's discretion, review relevant documents maintained by the operator, interview the operator's employees and agents, inspect the work site, and take other actions to assess compliance with or effectiveness of mitigation measures. 5. <u>Notification:</u> The project owner shall notify the CPM and CDFG, in writing, at least five days prior to initiation of project activities in jurisdictional areas as noted and at least five days prior to completion of project activities in jurisdictional areas. <u>The project owner shall notify the CPM and CDFG of any change of conditions to the project, the jurisdictional impacts, or the mitigation efforts, if the conditions at the site of a proposed project change in a manner which changes risk to biological resources that may be substantially adversely affected by the proposed project.</u> The notifying report shall be provided to the CPM and CDFG no later than seven days after the change of conditions is identified. As used here, change of condition refers to the process, procedures, and methods of operation of a project; the biological and physical characteristics of a project area; or the laws or regulations pertinent to the project as defined below. <u>A copy of the notifying change of conditions report shall be included in the annual reports.</u> a. Biological Conditions: a change in biological conditions includes, but is not limited to, the following: 1) the presence of biological resources within or adjacent to the project area, whether native or non-native, not previously known to occur in the area; or 2) the presence of biological resources within or adjacent to the project area, whether native or nonnative, the status of which has changed to endangered, rare, or threatened, as defined in section 15380 of Title 14 of the California Code of Regulations.	No less than 90 days prior to acquisition of the parcel (s) containing 175 acres of waters of the state, the project owner, or a third-party approved by the CPM, in consultation with CDFG, shall submit a formal acquisition proposal to the CPM and CDFG describing the parcel(s) intended for purchase. Draft agreements to delegate land acquisition to CDFG or an approved third party and agreements to manage compensation lands shall be submitted to Energy Commission staff for review and approval (in consultation with CDFG) prior to land acquisition. Such agreements shall be mutually approved and executed at least 60 days prior to start of any project-related ground disturbance activities. The project owner shall provide written verification to the CPM that the compensation lands have been acquired and recorded in favor of the approved recipient(s). Alternatively, before beginning project ground disturbing activities, the project owner shall provide Security in accordance with this condition. Within 90 days after the land purchase, as determined by the date on the title, the project owner shall provide the CPM with a management plan for review and approval, in consultation with CDFG, for the compensation lands and associated funds. No fewer than 30 days prior to the start of work potentially affecting waters of the state, the project owner shall provide written verification (i.e., through incorporation into the BRMIMP) to the CPM that the above best management practices will be implemented and provide a discussion of work in waters of the state in Compliance Reports for the duration of the project.	ONGOING	90 days prior acquisition of parcels Annual submittal required in the Annual Compliance Report	Submitted JD to CDFG, CEC, RWQCB, and BLM on 6/8/2011; 1/30/2015; 1/29/2016			ongoing negotiations. BLM granted 1 year extension to 10/07/2013; The notifying change of conditions report was submitted in the annual compliance report.

Technical Area	COC No.	Description	Verification	Compliance Status	Required Submittal Date	Date Submitted	Approval Date	Date of Amendment	NOTES
Biological Resources	BIO-21-CEC	<u>Avian and Bat Monitoring and Management Plan:</u> The Project owner shall prepare and implement an <u>Avian and Bat Monitoring and Management Plan</u> (Plan) to monitor death and injury of birds and bats from collisions with facility features including the solar receiver tower and reflective heliostat mirrors, and exposure to bright light and heat from concentrating sunlight. The Project owner shall use the monitoring data to inform and develop an adaptive management program that would avoid and minimize Project-related avian or bat impacts. Any Project-related bird or bat deaths or injuries shall be reported to the CPM, CDFG and USFWS, and then the CPM in consultation with CDFG and USFWS, shall then determine if the Project-related bird or bat deaths or injuries warrant implementation of adaptive management measures contained in the Plan. The study design for the Plan shall be approved by the CPM in consultation with CDFG and USFWS, and, once approved, shall be incorporated into the project's BRMMP and implemented. During construction, bird and bat deaths or injuries shall be reported in the Monthly Compliance Report. For one year following the beginning of power plant operation, the Designated Biologist shall submit quarterly reports to the CPM, CDFG, and USFWS, describing the results of monitoring. The monthly and quarterly reports shall provide a detailed description of any Project-related bird or bat deaths or injuries detected during the monitoring study or at any other time, including describing the dates, species found injured or dead, where found, expected cause of injury or death, other appropriate results of monitoring, and a description of adaptive management measures proposed or implemented in accordance with any applicable CDFG or USFWS guidelines to avoid or minimize deaths or injuries. Following the completion of the fourth quarter of monitoring, the Designated Biologist shall prepare an Annual Report that summarizes the year's data, analyzes any Project-related bird fatalities or injuries detected, and provides recommendations for future monitoring and any adaptive management actions needed.	No later than January 31st of every year the Annual Report shall be provided to the CPM, CDFG, and USFWS. Quarterly reporting shall continue until the CPM, in consultation with CDFG and USFWS determine whether more years of monitoring are needed and whether mitigation and adaptive management measures are necessary.	ONGOING	Annually & Quarterly	Revised Spring & Summer 2014 Reports submitted on 12/16/2014; 1/30/2015; 4/20/2015; 8/14/2015; 12/23/2015; 3/16/2016; 6/30/2016; 9/30/2016; 10/4/2016			Revised Spring & Summer 2014 Reports submitted on 12/16/2014; 2013-2014 Annual Report and 2014 Fall Report submitted on 4/20/2015; 2013-2014 Winter Report submitted on 8/14/2015; 2015 Spring Report submitted on 12/23/2015; ABMP Rev. 13 submitted on 12/23/2015; 2015 Summer Report submitted on 3/16/2016; 2015 Annual Report submitted on 6/30/2016; 2016 Avian Report submitted on 9/30/2016 2015 Winter Report submitted on 10/4/2016
			After two years of data collection, the project owner or contractor shall prepare a report that describes the study design and monitoring results of the Avian and Bat Monitoring and Management Plan. The report shall be submitted to the CPM, CDFG and USFWS no later than the third year after onset of Project operation.	Upcoming	Upcoming in 2016	30-Jun-2016			ISEGS Avian & Bat Monitoring Plan 2014-2015 Annual Report was submitted on 6/30/2016
Biological Resources	BIO-22-CEC (continued-1)	Overview of Project Phases Phase 1 includes the following components (1,282 acres): a. Fence Colosseum Road; b. Fence the Construction Logistics Area (CLA) and Construct Holding Pens in the CLA; c. Fence, Conduct Clearance Surveys, and Construct Ivanpah 1 d. Fence Access Road and Power Block for Ivanpah 2, and Perform Construction Within Ivanpah 2 Power Block. Phase 1 would include 1,282 acres of desert tortoise mitigation, as well as 10 of the 30 acres of rare plant mitigation, and 58 of the 175 acres of state waters mitigation.	The Project Owner shall provide written verification to the CPM, CDFG, BLM and USFWS of the compensation lands acquisition, protection, and transfer requirements and satisfaction of associated funding requirements as set forth in BIO-17, BIO-18 and BIO-20 within the following time frames: (1) For Phase 1 mitigation, verification shall be provided no later than 18 months after the start of construction of Phase 1, and (2) for Phase 2 mitigation, such verification shall be provided no later than 18 months after the start of construction of Phase 2. Other verification, notification and reporting requirements and other deadlines set forth in BIO-17, BIO-18 and BIO-20 that relate to compensation land requirements to the option of funding mitigation through the NFWF account, or to use of approved third parties to carry out mitigation requirements also apply to Phase 1 and to Phase 2. Within 90 days after completion of all project related ground disturbance for each project phase, the project owner shall provide to the CPM, CDFG, BLM and USFWS an analysis, based on aerial photography, with the final accounting of the amount of habitat disturbed during Project construction	Submitted	90 days after Project Completion	29-Aug-2014			
Biological Resources	BIO-22-CEC (continued-1)	Phase 2 includes the following components (2,300 acres): a. Construct Ivanpah 2 -- Consists of the diagonal access roads, perimeter road for fence, channel crossings as needed, and solar field including grading of approximately 90 acres in the southwest and central regions of the solar field area; b. Construct Ivanpah 3 - Consists of the diagonal access roads, perimeter road for fence, channel crossings as needed, power block, and solar field including grading of approximately 120 acres in the southern and western regions of the solar field area; c. Other external features including roads and gas line. Phase 2 would include 2,300 acres of desert tortoise mitigation, as well as 20 of the 30 acres of rare plant mitigation, and 117 of the 175 acres of state waters mitigation. General Requirements At no time may the project owner cause ground-disturbance to any location outside of the area that has been approved for construction according to the phasing plan identified in this Condition of Certification.	The Project Owner shall provide written verification to the CPM, CDFG, BLM and USFWS of the compensation lands acquisition, protection, and transfer requirements and satisfaction of associated funding requirements as set forth in BIO-17, BIO-18 and BIO-20 within the following time frames: (1) For Phase 1 mitigation, verification shall be provided no later than 18 months after the start of construction of Phase 1, and (2) for Phase 2 mitigation, such verification shall be provided no later than 18 months after the start of construction of Phase 2. Other verification, notification and reporting requirements and other deadlines set forth in BIO-17, BIO-18 and BIO-20 that relate to compensation land requirements to the option of funding mitigation through the NFWF account, or to use of approved third parties to carry out mitigation requirements also apply to Phase 1 and to Phase 2. Within 90 days after completion of all project related ground disturbance for each project phase, the project owner shall provide to the CPM, CDFG, BLM and USFWS an analysis, based on aerial photography, with the final accounting of the amount of habitat disturbed during Project construction	Submitted	90 days after Project Completion	29-Aug-2014			Phase 1 and Phase 2 securities paid, Land Acquisition in progress

Technical Area	COC No.	Description	Verification	Compliance Status	Required Submittal Date	Date Submitted	Approval Date	Date of Amendment	NOTES
Biological Resources	BIO-22-CEC (continued-2)	Prior to initiating construction in either phase of the Project, the project owner shall comply with all pre-construction requirements in this and other Conditions of Certification and shall notify the CPM that it has obtained a Notice to Proceed for the particular phase from the BLM. Construction activities, including work on linear and non-linear features, shall not occur outside desert tortoise exclusion areas that have been fenced and cleared in accordance with USFWS protocols and as described in Condition of Certification BIO-6 (Desert Tortoise Clearance and Exclusion Fencing). The project owner shall provide security to ensure implementation of the mitigation requirements in Conditions of Certification BIO-17 (Desert Tortoise Compensatory Mitigation), BIO-18 (Special-Status Plant Impact Avoidance and Minimization) and BIO-20 (Streambed Impact Minimization and Compensation Measures) for each of the two phases prior to any project construction associated with that phase. Phasing of security only applies to security required by the Conditions listed above. If the project owner elects to phase payments of security under either a Project Owner Acquisition or NFWF option and if the commencement of construction is delayed beyond June 1, 2011, the amount of the security (including payments to NFWF if applicable [see definition of security above]) will be adjusted by the CPM in consultation with DFG, BLM and USFWS prior to each phase to reflect the CPM's best estimate at that time of the estimated costs of land acquisition, long-term management and maintenance costs, and other costs that are included in the security computation. Those costs may be greater than the costs identified in the conditions of certification.	See above sections	Phase 1 and Phase 2 securities paid, Land Acquisition in progress	90 days after Project Completion	Rev. 2 submitted 6/28/2011			Phase 1 and Phase 2 securities paid, Land Acquisition in progress
Biological Resources	BIO-22-CEC (continued-3)	Even when security has been provided, the project owner shall complete the acquisition, protection and transfer of all compensation lands required in the conditions of certification listed above, as well as all funding requirements associated with those lands, within the time periods identified in those conditions of certification. Additional requirements within the project's conditions of certification that are not expressly phased in this condition shall be phased as necessary to carry out the purpose of this condition, and to ensure that no project construction occurs in an area for which the project owner has not provided security and obtained permission to begin construction. Examples may include such activities as construction and location of desert tortoise exclusion fencing or timing of preconstruction clearance surveys for other species. The project owner shall first obtain approval from the CPM, acting in consultation with BLM, CDFG and USFWS, for the phasing of any requirements or deadlines that are not expressly phased in conditions of certification. Security for phased construction shall be in the amounts as specified in Conditions of Certification BIO-17, -18 and -20, and may be adjusted by the CPM in consultation with DFG, BLM and USFWS based upon more accurate information provided by the project owner confirming the acreages described in this table, and on updates from the REAT agencies with more current guidance than the Desert Renewable Energy REAT Biological Resource Compensation/Mitigation Cost Estimate Breakdown for use with the REAT-NFWF Mitigation Account, July 23, 2010.	See above sections	Phase 1 and Phase 2 securities paid, Land Acquisition in progress	90 days after Project Completion	Rev. 2 submitted 6/28/2011			Phase 1 and Phase 2 securities paid, Land Acquisition in progress
Biological Resources	BIO-23- BLM	<u>The applicant shall conduct visual biweekly surveys for bird and bat mortalities throughout the project site.</u> In addition to the photo documentation of bird mortalities (Item #14 in BIO-11), mortalities and injuries to bats and other wildlife shall be photo documented. Additionally, data would document the species affected and any overt signs of injury resulting in death (e.g., scorched feathers). <u>This information would be compiled and provided to the BLM on quarterly intervals for the first three years, then annually thereafter, unless otherwise requested by the BLM.</u> This data would add to the understanding of impacts of solar facilities on avian and bat species. BLM would maintain the authority to require additional mitigation of the applicant in the future to reduce collision or heat-related injuries. Effectiveness: This mitigation would be highly effective in documenting avian and bat mortalities associated with the operation of the facility. If sufficient data are gathered to support the need for additional mitigation, the mitigation may ultimately be effective in reducing avian and bat injuries and mortalities if an effective mitigation measure can be identified in the future.	No Verification: see Effectiveness	Ongoing	Quarterly	Revised Spring & Summer 2014 Reports submitted on 12/16/2014; 1/30/2015; 4/20/2015; 8/14/2015; 12/23/2015; 3/16/2016; 6/30/2016; 9/30/2016; 10/4/2016			Revised Spring & Summer 2014 Reports submitted on 12/16/2014; 2013-2014 Annual Report and 2014 Fall Report submitted on 4/20/2015; 2013-2014 Winter Report submitted on 8/14/2015; 2015 Spring Report submitted on 12/23/2015; ABMP Rev. 13 submitted on 12/23/2015; 2015 Summer Report submitted on 3/16/2016; 2015 Annual Report submitted on 6/30/2016; 2016 Avian Report submitted on 9/30/2016 2015 Winter Report submitted on 10/4/2016
Biological Resources	BIO-25-BLM	The applicant shall monitor and control noxious and invasive weeds within 100 feet of the artificial water source. Control of weeds shall be coordinated with the BLM staff and shall consist of removal by mechanical methods, rather than herbicides. Effectiveness: This mitigation measure would be moderately effective in controlling noxious and invasive weeds near the artificial water source, providing better access to the site by big game.	No Verification: see Effectiveness	Ongoing	N/A				
Biological Resources	BIO-26-BLM	The applicant shall implement all mitigation identified by the USFWS in the Biological Opinion. Effectiveness: This measure would be highly effective in ensuring mitigation within the USFWS' Biological Opinion was implemented.	No Verification: see Effectiveness	Ongoing	N/A				

Technical Area	COC No.	Description	Verification	Compliance Status	Required Submittal Date	Date Submitted	Approval Date	Date of Amendment	NOTES
Biological Resources	BIO-27-BLM	The project owner shall implement the Closure, Revegetation, and Rehabilitation Plan, Revision 3, dated July 6, 2010, with the following modifications. 1. The long-term soil stockpiles, as discussed in Table 5-2 of the plan, will be no higher than 6 feet high. 2. The Preliminary Seeding Plan for Short-Term Disturbed Areas, and to be used as the basis for the seeding during final project decommissioning, will be based upon the species list provided in Table 7-1 of the plan, rather than the species list in Table 7-2. The list may be modified at the time of decommissioning based on seed availability. 3. Concrete will be removed to a minimum depth of 6 feet unless it is shown that a particular area is prone to flood hazards and a greater depth for concrete removal should be required. All concrete removed shall be hauled off the project site and disposed of in an approved facility. Crushed concrete will not be used as backfill on the site during decommissioning. 4. Succulents salvaged during project construction will not be sold by the applicant. Should excess succulents be removed that cannot be transplanted in the Succulent Nursery Area, their disposition will be managed by BLM. Effectiveness: This measure modifies Revision 3 of the Closure, Revegetation, and Rehabilitation Plan to incorporate procedures which will increase the probability of successful site rehabilitation.	No Verification: see Effectiveness	In Progress	N/A				
Biological Resources	BIO-28-BLM	Compliance with Eagle Act. USFWS has notified BLM that due to the proximity of known occupied golden eagle territories, and that the effects of power towers on bald and golden eagles is unknown, this project has the potential to take an eagle. Due to the distance of the project site to known eagle territories, available mitigation measures (some of which are already described in other measures identified in this section), and habitat compensation associated with other species (i.e. desert tortoise), USFWS believes that this project can reach the "no net loss" standard for golden eagles identified in the Eagle Act Rule if the applicant submits and implements an Avian Protection Plan. The holder shall submit an Avian Protection Plan for approval of the Authorized Officer within 6 months of the issuance of any ROW grant for the project. The Avian Protection Plan must be implemented within one year from the date of any ROW grant Notice to Proceed.	No Verification: see Avian Protection Plan submittal	Submitted	N/A	Draft Submitted Sept 2010; Revision 1 Submitted October 2010; Revision 2 Submitted May 2011			
Compliance Conditions	COMP-01	Unrestricted Access: BLM's Authorized Officer, responsible BLM staff, the CPM, responsible Energy Commission staff, and delegated agencies or consultants shall be guaranteed and granted unrestricted access to the power plant site, related facilities, project-related staff, and the records maintained on-site, for the purpose of conducting audits, surveys, inspections, or general site visits. Although BLM's Authorized Officer and the CPM will normally schedule site visits on dates and times agreeable to the project owner, BLM's Authorized Officer and the CPM reserve the right to make unannounced visits at anytime.		ONGOING	N/A				
Compliance Conditions	COMP-02	<u>Compliance Record:</u> The project owner shall maintain project files on-site or at an alternative site approved by BLM's Authorized Officer and the CPM for the life of the project, unless a lesser period of time is specified by the conditions of certification. The files shall contain copies of all "as-built" drawings, documents submitted as verification for conditions, and other project-related documents. <u>As-built drawings of all facilities including linear facilities shall be provided to the BLM Authorized Officer for inclusion in the BLM administrative record within 90-days of completion of that portion of the facility or project.</u> <u>BLM and Energy Commission staff and delegate agencies shall, upon request to the project owner, be given unrestricted access to the files maintained pursuant to this condition.</u>		SUBMITTED	90 days of completion of that portion of the facility or project	8-Dec-2014			Electronic copies of the final approved engineering plans were hand-delivered by Doug Davis to CEC on 12/8/2014.

Technical Area	COC No.	Description	Verification	Compliance Status	Required Submittal Date	Date Submitted	Approval Date	Date of Amendment	NOTES		
Compliance Conditions	COMP-03	Compliance Verification Submittals: Each condition of certification is followed by a means of verification. The verification describes the Energy Commission's procedure(s) to ensure post-certification compliance with adopted conditions. The verification procedure, unlike the conditions, may be modified as necessary by BLM's Authorized Officer and the CPM. Verification of compliance with the conditions of certification can be accomplished by the following: 1. Monthly and/or annual compliance reports, timely filed by the project owner or authorized agent, reporting on work done and providing pertinent documentation, as required by the specific conditions of certification; 2. Appropriate letters from delegate agencies verifying compliance; 3. BLM and Energy Commission staff audits of project records; and/or 4. BLM and Energy Commission staff inspections of work, or other evidence that the requirements are satisfied. Verification lead times associated with start of construction may require the project owner to file submittals during the certification process, particularly if construction is planned to commence shortly after certification. A cover letter from the project owner or authorized agent is required for all compliance submittals and correspondence pertaining to compliance matters. The cover letter subject line shall identify the project by AFC number, the appropriate condition(s) of certification by condition number(s), and a brief description of the subject of the submittal. The project owner shall also identify those submittals not required by a condition of certification with a statement such as: "This submittal is for information only and is not required by a specific condition of certification." When submitting supplementary or corrected information, the project owner shall reference the date of the previous submittal and BLM/CEC submittal number.		ONGOING	N/A	1/30/2015; 1/29/2016			Verification of compliance with the conditions of certification are submitted with the Annual Compliance Report.		
Compliance Conditions	COMP-03 (Continued)	The project owner is responsible for the delivery and content of all verification submittals to the BLM's Authorized Officer and CPM, whether such condition was satisfied by work performed by the project owner or an agent of the project owner. All hardcopy submittals shall be addressed to each of the following: <table><tr><td>BLM's Authorized Officer (CACA-48668, 49502, 49503, and 49504) U.S. Bureau of Land Management 1303 South Highway 95 Needles, CA 92363</td><td>Compliance Project Manager (07-AFC-5C) California Energy Commission 1516 Ninth Street (MS-2000) Sacramento, CA 95814</td></tr></table> Those submittals shall be accompanied by a searchable electronic copy, on a CD or by e-mail, as agreed upon by BLM's Authorized Officer and the CPM. If the project owner desires BLM and/or Energy Commission staff action by a specific date, that request shall be made in the submittal cover letter and shall include a detailed explanation of the effects on the project if that date is not met.	BLM's Authorized Officer (CACA-48668, 49502, 49503, and 49504) U.S. Bureau of Land Management 1303 South Highway 95 Needles, CA 92363	Compliance Project Manager (07-AFC-5C) California Energy Commission 1516 Ninth Street (MS-2000) Sacramento, CA 95814		ONGOING	N/A	1/30/2015; 1/29/2016			Verification of compliance with the conditions of certification are submitted with the Annual Compliance Report.
BLM's Authorized Officer (CACA-48668, 49502, 49503, and 49504) U.S. Bureau of Land Management 1303 South Highway 95 Needles, CA 92363	Compliance Project Manager (07-AFC-5C) California Energy Commission 1516 Ninth Street (MS-2000) Sacramento, CA 95814										
Compliance Conditions	COMP-04 (Continued)	If the project owner anticipates commencing project construction as soon as the project is certified, it may be necessary for the project owner to file compliance submittals prior to project certification. Compliance submittals should be completed in advance where the necessary lead time for a required compliance event extends beyond the date anticipated for start of construction. The project owner must understand that the submittal of compliance documents prior to project certification is at the owner's own risk. Any approval by Energy Commission staff is subject to change, based upon BLM's ROW Grant and the Energy Commission Decision. Compliance Reporting There are two different compliance reports that the project owner must submit to assist BLM's Authorized Officer and the CPM in tracking activities and monitoring compliance with the terms and conditions of BLM's ROW Grant and the Energy Commission Decision. <u>During construction, the project owner or authorized agent will submit Monthly Compliance Reports. During operation, an Annual Compliance Report must be submitted.</u> These reports, and the requirement for an accompanying compliance matrix, are described below. The majority of the conditions of certification require that compliance submittals be submitted to BLM's Authorized Officer and the CPM in the monthly or annual compliance reports.		Approved - COMPLETED (CONSTRUCTION) ONGOING DURING OPERATIONS	Annually beginning Jan. 2015	5/14/2010 (draft) 6/4/2010 (final). Annual Compliance Report was submitted on 1/30/2015; 1/29/2016	2-Sep-2010		The first Annual Compliance Report was submitted on January 2015.		

Technical Area	COC No.	Description	Verification	Compliance Status	Required Submittal Date	Date Submitted	Approval Date	Date of Amendment	NOTES
Compliance Conditions	COMP-07	Annual Compliance Report: After construction of each power plant is complete or when a power plant goes into commercial operation, the project owner shall submit Annual Compliance Reports instead of Monthly Compliance Reports. The reports are for each year of commercial operation and are due to BLM's Authorized Officer and the CPM each year at a date agreed to by BLM's Authorized Officer and the CPM. Annual Compliance Reports shall be submitted over the life of the project unless otherwise specified by BLM's Authorized Officer and the CPM. Each Annual Compliance Report shall include the AFC number, identify the reporting period and shall contain the following: 1. An updated compliance matrix showing the status of all conditions of certification (fully satisfied conditions do not need to be included in the matrix after they have been reported as completed); 2. A summary of the current project operating status and an explanation of any significant changes to facility operations during the year; 3. Documents required by specific conditions to be submitted along with the Annual Compliance Report. Each of these items must be identified in the transmittal letter, with the condition it satisfies, and submitted as attachments to the Annual Compliance Report. 4. A cumulative listing of all post-certification changes by the Energy Commission or changes to the BLM ROW grant or approved POD by BLM, or cleared by BLM's Authorized Officer and the CPM; 5. An explanation for any submittal deadlines that were missed, accompanied by an estimate of when the information will be provided; 6. A listing of filings submitted to, or permits issued by, other governmental agencies during the year; 7. A projection of project compliance activities scheduled during the next year; 8. A listing of the year's additions to the on-site compliance file; 9. An evaluation of the on-site contingency plan for unplanned facility closure, including any suggestions necessary for bringing the plan up to date [see Compliance Conditions for Facility Closure addressed later in this section]; and 10. A listing of complaints, notices of violation, official warnings, and citations received during the year, a description of the resolution of any resolved matters, and the status of any unresolved matters	After construction of each power plant is complete or when a power plant goes into commercial operation, the project owner shall submit Annual Compliance Reports instead of Monthly Compliance Reports. The reports are for each year of commercial operation and are due to BLM's Authorized Officer and the CPM each year at a date agreed to by BLM's Authorized Officer and the CPM. Annual Compliance Reports shall be submitted over the life of the project unless otherwise specified by BLM's Authorized Officer and the CPM.	IN PROGRESS	Annually Report for Unit 1 System estimated due date April 2014 1 year from start-up scheduled for April 2013; ANNUALLY BEGINNING JAN. 2015	Annual Compliance Report was submitted on 1/30/2015. 1/29/2016			The first Annual Compliance Report was submitted on January 2015.
Compliance Conditions	COMP-08	Confidential Information: Any information that the project owner deems confidential shall be submitted to the Energy Commission's Dockets Unit with an application for confidentiality pursuant to Title 20, California Code of Regulations, section 2505(a). Any information that is determined to be confidential shall be kept confidential as provided for in Title 20, California Code of Regulations, section 2501 et. seq. Any information the ROW holder deems confidential shall be submitted to the BLM Authorized Officer with a written request for said confidentiality along with a justification for the request. All confidential submissions to BLM should be clearly stamped "proprietary information" by the holder when submitted.		IN PROGRESS	As Needed	21-Jun-2016			Application for Confidential Designation - Root Cause Analysis for Unit 3 Fire Damage was submitted on 6/21/2016.
Compliance Conditions	COMP-09	Annual Facility Compliance Fee: Pursuant to the provisions of Section 25806(b) of the Public Resources Code, the project owner is required to pay the Energy Commission an annual compliance fee, which is adjusted annually. The amount of the fee for FY2009-2010 was \$19,823. The initial payment is due on the date the Energy Commission adopts the final decision. You will be notified of the amount due. All subsequent payments are due by July 1 of each year in which the facility retains its certification. The payment instrument shall be made payable to the California Energy Commission and mailed to: Accounting Office MS-02, California Energy Commission, 1516 9th St., Sacramento, CA 95814.		ONGOING	Annually - on or before July 1st	7/1/2014; 7/1/2015; 7/1/2016			Paid annual compliance fee to CEC
Compliance Conditions	COMP-10	Reports of Complaints, Notices, and Citations: Prior to the start of construction, the project owner must send a letter to property owners living within one mile of the project notifying them of a telephone number to contact project representatives with questions, complaints or concerns. If the telephone is not staffed 24 hours per day, it shall include automatic answering with date and time stamp recording. All recorded complaints shall be responded to within 24 hours. The telephone number shall be posted at the project site and made easily visible to passersby during construction and operation. The telephone number shall be provided to BLM's Authorized Officer and the CPM who will post it on the Energy Commission's web page at: http://www.energy.ca.gov/sitingcases/power_plants_contacts.html Any changes to the telephone number shall be submitted immediately to BLM's Authorized Officer and the CPM, who will update the web page. In addition to the monthly and annual compliance reporting requirements described above the project owner shall report and provide copies to BLM's Authorized Officer and the CPM of all complaint forms, including noise and lighting complaints, notices of violation, notices of fines, official warnings, and citations, within 10 days of receipt. Complaints shall be logged and numbered. Noise complaints shall be recorded on the form provided in the NOISE conditions of certification. All other complaints shall be recorded on the complaint form (Attachment A).		Approved - COMPLETED (CONSTRUCTION) IN PROGRESS DURING OPERATIONS	within 10 days of receipt of complaints	10/7/2010; Pilot Report ACN 1238677 was submitted to CEC/BLM on 5/5/2015; Notice of Violation (NOV) from SBC CUPA was submitted to CEC/BLM on 8/4/2016; Response to Glare complaint Pilot Report ACN 1390751 was submitted to CEC/BLM/FAA on 11/10/2016.	10/7/2010; 5/5/2015;		

Technical Area	COC No.	Description	Verification	Compliance Status	Required Submittal Date	Date Submitted	Approval Date	Date of Amendment	NOTES
Compliance Conditions	COMP-10 (Continued)	FACILITY CLOSURE At some point in the future, the project will cease operation and close down. At that time, it will be necessary to implement the Closure, Revegetation and Restoration Plan to ensure that the closure occurs in such a way that public health and safety and the environment are protected from adverse impacts. Although the project setting for this project does not appear, at this time, to present any special or unusual closure problems, it is impossible to foresee what the situation will be in 30 years or more when the project ceases operation. Therefore, provisions must be made that provide the flexibility to deal with the specific situation and project setting that exist at the time of closure. Laws, Ordinances, Regulations and Standards (LORS) pertaining to facility closure are identified in the sections dealing with each technical area. Facility closure will be consistent with LORS in effect at the time of closure. Closure would be conducted in accordance with Condition of Certification BIO-14 that requires the project owner to develop and implement a Closure, Revegetation and Rehabilitation Plan. There are at least three circumstances in which a facility closure can take place: planned closure, unplanned temporary closure and unplanned permanent closure.		Approved - COMPLETED (CONSTRUCTION) IN PROGRESS DURING OPERATIONS	within 10 days of receipt of complaints	7-Oct-2010	7-Oct-2010		
Compliance Conditions	COMP-10 (Continued-1)	CLOSURE DEFINITIONS Planned Closure A planned closure occurs when the facility is closed in an anticipated, orderly manner, at the end of its useful economic or mechanical life, or due to gradual obsolescence. Unplanned Temporary Closure An unplanned temporary closure occurs when the facility is closed suddenly and/or unexpectedly, on a short-term basis, due to unforeseen circumstances such as a natural disaster or an emergency. Short-term is defined as cessation of construction activities or operations of a power plant for a period less than 6 months long. Cessation of construction of operations for a period longer than 6 months in considered a permanent closure. Unplanned Permanent Closure An unplanned permanent closure occurs if the project owner closes the facility suddenly and/or unexpectedly, on a permanent basis. This includes unplanned closure where the owner implements the on-site contingency plan. It can also include unplanned closure where the project owner fails to implement the contingency plan, and the project is essentially abandoned.		Approved - COMPLETED (CONSTRUCTION) IN PROGRESS DURING OPERATIONS	within 10 days of receipt of complaints	7-Oct-2010	7-Oct-2010		
Compliance Conditions	COMP-11	Planned Closure: In order to ensure that a planned facility closure does not create adverse impacts, a closure process that provides for careful consideration of available options and applicable laws, ordinances, regulations, standards, and local/regional plans in existence at the time of closure, will be undertaken. To ensure adequate review of a planned project closure, the project owner shall submit a revision or update to the approved Closure, Revegetation and Rehabilitation Plan to BLM and the Energy Commission for review and approval at least 12 months (or other period of time agreed to by BLM's Authorized Officer and the CPM) prior to commencement of closure activities. The project owner shall file 50 copies and 50 CDs with the Energy Commission and 10 copies and 10 CDs with BLM (or other number of copies agreed upon by BLM's Authorized Officer and the CPM) of a proposed facility closure plan/Closure, Revegetation and Rehabilitation Plan. The plan shall: 1. identify and discuss any impacts and mitigation to address significant adverse impacts associated with proposed closure activities and to address facilities, equipment, or other project related materials that must be removed from the site; 2. identify a schedule of activities for closure of the power plant site, transmission line corridor, and all other appurtenant facilities constructed as part of the project;		Not Yet Started	12 months prior to commencement of closure activities				Submission not required at this time
Compliance Conditions	COMP-11 (Continued-1)	3. address conformance of the plan with all applicable laws, ordinances, regulations, standards, and local/regional plans in existence at the time of facility closure, and applicable conditions of certification; and 4. Address any changes to the site revegetation, rehabilitation, monitoring and long-term maintenance specified in the existing plan that are needed for site revegetation and rehabilitation to be successful. Prior to submittal of an amended or revised Closure, Revegetation and Restoration Plan, a meeting shall be held between the project owner, BLM's Authorized Officer and the Energy Commission CPM for the purpose of discussing the specific contents of the plan. In the event that there are significant issues associated with the proposed facility Closure, Revegetation and Restoration plan's approval, or the desires of local officials or interested parties are inconsistent with the plan, BLM's Authorized Officer the CPM shall hold one or more workshops and/or BLM and the Energy Commission may hold public hearings as part of its approval procedure. As necessary, prior to or during the closure plan process, the project owner shall take appropriate steps to eliminate any immediate threats to public health and safety and the environment, but shall not commence any other closure activities until BLM and the Energy Commission approves the facility Closure, Revegetation and Restoration plan.		Not Yet Started	12 months prior to commencement of closure activities				Submission not required at this time

Technical Area	COC No.	Description	Verification	Compliance Status	Required Submittal Date	Date Submitted	Approval Date	Date of Amendment	NOTES
Compliance Conditions	COMP-12	Unplanned Temporary Closure/On-Site Contingency Plan: In order to ensure that public health and safety and the environment are protected in the event of an unplanned temporary facility closure, it is essential to have an On-Site Contingency Plan in place. The On-Site Contingency Plan will help to ensure that all necessary steps to mitigate public health and safety impacts and environmental impacts are taken in a timely manner. The project owner shall submit an On-Site Contingency Plan for BLM's Authorized Officer and CPM review and approval. The plan shall be submitted no less than 60 days (or other time agreed to by BLM's Authorized Officer and the CPM) after approval of any NTP or letter granting approval to commence construction for each phase of construction. A copy of the approved plan must be in place during commercial operation of the facility and shall be kept at the site at all times. The project owner, in consultation with BLM's Authorized Officer and the CPM, will update the On-Site Contingency Plan as necessary. BLM's Authorized Officer and the CPM may require revisions to the On-Site Contingency Plan over the life of the project. In the annual compliance reports submitted to the Energy Commission, the project owner will review the On-Site Contingency Plan, and recommend changes to bring the plan up to date. Any changes to the plan must be approved by BLM's Authorized Officer and the CPM.		Submitted - COMPLETED (CONSTRUCTION)	60 days after approval of any NTP or letter granting approval to commence work.	31-Jan-2011			
Compliance Conditions	COMP-12 (Continued)	The On-Site Contingency Plan shall provide for taking immediate steps to secure the facility from trespassing or encroachment. In addition, for closures of more than 90 days, unless other arrangements are agreed to by BLM's Authorized Officer and the CPM, the plan shall provide for removal of hazardous materials and hazardous wastes, draining of all chemicals from storage tanks and other equipment, and the safe shutdown of all equipment. (Also see specific conditions of certification for the technical areas of Hazardous Materials Management and Waste Management.) In addition, consistent with requirements under unplanned permanent closure addressed below, the nature and extent of insurance coverage, and major equipment warranties must also be included in the On-Site Contingency Plan. In addition, the status of the insurance coverage and major equipment warranties must be updated in the annual compliance reports. In the event of an unplanned temporary closure, the project owner shall notify BLM's Authorized Officer and the CPM, as well as other responsible agencies, by telephone, fax, or e-mail, within 24 hours and shall take all necessary steps to implement the On-Site Contingency Plan. The project owner shall keep BLM's Authorized Officer and the CPM informed of the circumstances and expected duration of the closure. If BLM's Authorized Officer and the CPM determine that an unplanned temporary closure is likely to be permanent, or for a duration of more than 6 months, a Closure Plan consistent with the requirements for a planned closure shall be developed and submitted to BLM's Authorized Officer and the CPM within 90 days of BLM's Authorized Officer and the CPM's determination (or other period of time agreed to by BLM's Authorized Officer and the CPM).		Submitted - COMPLETED (CONSTRUCTION)	60 days after approval of any NTP or letter granting approval to commence work.	31-Jan-2011			
Compliance Conditions	COMP-14	Post Certification Changes to BLM's ROW Grant and/or the Energy Commission Decision: Amendments, Ownership Changes, Insignificant Project Changes and Verification Changes: The project owner must petition the Energy Commission pursuant to Title 20, California Code of Regulations, section 1769, in order to modify the project (including linear facilities) design, operation or performance requirements, and to transfer ownership or operational control of the facility. The BLM ROW holder must file a written request in the form of an application to the BLM Authorized Officer in order to change the terms and conditions of their ROW grant or POD. Written requests will be in a manner prescribed by the BLM Authorized Officer. It is the responsibility of the project owner to contact BLM's Authorized Officer and the CPM to determine if a proposed project change should be considered a project modification pursuant to section 1769. Implementation of a project modification without first securing BLM and either Energy Commission or Energy Commission staff approval, may result in enforcement action in accordance with section 25534 of the Public Resources Code. A Petition to Amend is required for changes to the project as specified below. For verification changes, a letter from the project owner is sufficient. In all cases, the petition or letter requesting a change should be submitted to BLM's Authorized Officer and the CPM, who will file it with the Energy Commission's Dockets Unit in accordance with Title 20, California Code of Regulations, section 1209. The criteria that determine which type of approval and the process that applies are explained below. They reflect the provisions of Section 1769 at the time this condition was drafted. If the Commission's rules regarding amendments are amended, the rules in effect at the time an amendment is requested shall apply.		As needed	As needed				

Technical Area	COC No.	Description	Verification	Compliance Status	Required Submittal Date	Date Submitted	Approval Date	Date of Amendment	NOTES
Compliance Conditions	COMP-14 (Continued)	Amendment - The project owner shall petition the Energy Commission, pursuant to Title 20, California Code of Regulations, Section 1769(a), when proposing modifications to the project (including linear facilities) design, operation, or performance requirements. If a proposed modification results in deletion or change of a condition of certification, or makes changes that would cause the project not to comply with any applicable laws, ordinances, regulations or standards, the petition will be processed as a formal amendment to the Energy Commission's final decision, which requires public notice and review of the BLM-Energy Commission staff analysis, and approval by the full Energy Commission. The petition shall be in the form of a legal brief and fulfill the requirements of Section 1769(a). Upon request, the CPM will provide you with a sample petition to use as template. The ROW holder shall file an application to amend the BLM ROW grant for any substantial deviation or change in use. The requirements to amend a ROW grant are the same as when filing a new application including paying processing and monitoring fees and rent.		As needed	As needed	See amendments under specific condition			
Compliance Conditions	COMP-14 (Continued-1)	Change of Ownership Change of Ownership - Change of ownership or operational control also requires that the project owner file a petition pursuant to section 1769(b). This process requires public notice and approval by the full Commission and BLM. The petition shall be in the form of a legal brief and fulfill the requirements of Section 1769(b). Upon request, the CPM will provide you with a sample petition to use as a template. The transfer of ownership of a BLM ROW grant must be through the filing of an application for assignment of the grant. Insignificant Project Change - Insignificant Project Change Modifications that do not result in deletions or changes to conditions of certification, and that are compliant with laws, ordinances, regulations and standards may be authorized by BLM's Authorized Officer and the CPM as an insignificant project change pursuant to section 1769(a) (2). This process usually requires minimal time to complete, and it requires a Energy Commission 14-day public review of the Notice of Insignificant Project Change that includes the BLM and Energy Commission staff's intention to approve the modification unless substantive objections are filed. These requests must also be submitted in the form of a "Petition to Amend" as described above. BLM and the Energy Commission intend to integrate a process to jointly approve insignificant project changes to avoid duplication of approval processes and ensure appropriate documentation for the public record. Verification Change - A verification change may be modified by the BLM's Authorized Officer and the without requesting an amendment to the ROW Grant or Energy Commission decision if the change does not conflict with the conditions of certification and provides an effective alternate means of verification.		As needed	As needed	See amendments under specific condition			
Cultural Resources	CUL-10	If fill soils must be acquired from a non-commercial borrow site or disposed of to a non-commercial disposal site, unless less-than-five-year-old surveys of these sites for archaeological resources are documented to and approved by the BLM's Authorized Officer and the CPM, the CRS shall survey the borrow and/or disposal site(s) for cultural resources and record on DPR 523 forms any that are identified. When the survey is completed, the CRS shall convey the results and recommendations for further action to the project owner, the BLM's Authorized Officer, and the CPM, who will determine what, if any, further action is required. If the BLM's Authorized Officer and the CPM determine that significant archaeological resources that cannot be avoided are present at the borrow site, all these conditions of certification shall apply. The CRS shall report on the methods and results of these surveys in the CRR.	1. As soon as the project owner knows that a non-commercial borrow site and/or disposal site will be used, he/she shall notify the CRS and CPM and provide documentation of previous archaeological survey, if any, dating within the past five years, for CPM approval. 2. In the absence of documentation of recent archaeological survey, at least 30 days prior to any soil borrow or disposal activities on the noncommercial borrow and/or disposal sites, the CRS shall survey the site(s) for archaeological resources. The CRS shall notify the project owner, the BLM's Authorized Officer, and the CPM of the results of the cultural resources survey, with recommendations, if any, for further action.	Ongoing	As needed				
Facility Design	GEN-1	The project owner shall design, construct, and inspect the project in accordance with the 2007 California Building Standards Code (CBSC), also known as Title 24, California Code of Regulations, which encompasses the California Building Code (CBC), California Administrative Code, California Electrical Code, California Mechanical Code, California Plumbing Code, California Energy Code, California Fire Code, California Code for Building Conservation, California Reference Standards Code, and all other applicable engineering LORS in effect at the time initial design plans are submitted to the chief building official (CBO) for review and approval (the CBSC in effect is the edition that has been adopted by the California Building Standards Commission and published at least 180 days previously). The project owner shall ensure that all the provisions of the above applicable codes are enforced during the construction, addition, alteration, moving, demolition, repair, or maintenance of the completed facility (2007 CBC, Appendix Chapter 1, section 101.2, Scope). All transmission facilities (lines, switchyards, switching stations, and substations) are covered in the Conditions of Certification in the Transmission System Engineering section of this document. In the event that the initial engineering designs are submitted to the CBO when the successor to the 2007 CBSC is in effect, the 2007 CBSC provisions shall be replaced with the applicable successor provisions. Where, in any specific case, different sections of the code specify different materials, methods of construction, or other requirements, the most restrictive shall govern. Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall govern. The project owner shall ensure that all contracts with contractors, subcontractors, and suppliers clearly specify that all work performed and materials supplied comply with the codes listed above.	Within 30 days following receipt of the certificate of occupancy, the project owner shall submit to BLM's Authorized Officer and the Compliance Project Manager (CPM) a statement of verification, signed by the responsible design engineer, attesting that all designs, construction, installation, and inspection requirements of the applicable LORS and the Energy Commission's decision have been met in the area of facility design. The project owner shall provide BLM's Authorized Officer and the CPM a copy of the certificate of occupancy within 30 days of receipt from the CBO (2007 CBC, Appendix Chapter 1, section 110, Certificate of Occupancy). Once the certificate of occupancy has been issued, the project owner shall inform BLM's Authorized Officer and the CPM at least 30 days prior to any construction, addition, alteration, moving, demolition, repair, or maintenance to be performed on any portion(s) of the completed facility that requires CBO approval for compliance with the above codes BLM's Authorized Officer and the CPM will then determine if the CBO needs to approve the work.	Completed	30 days following receipt of the certificate of occupancy	1/22/2015; Notified CEC/BLM on 4/27/2016 for repair/replacement of Unit 2 STG Stator Active Parts.			The Certificate of Occupancy was issued by CEC/CBO on January 21, 2015. The Certificate of Occupancy was submitted to BLM on 1/22/2015.

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Facility Design	GEN-8	The project owner shall obtain the CBO's final approval of all completed work that has undergone CBO design review and approval. The project owner shall request the CBO to inspect the completed structure and review the submitted documents. The project owner shall notify BLM's Authorized Officer and the CPM after obtaining the CBO's final approval. The project owner shall retain one set of approved engineering plans, specifications, and calculations (including all approved changes) at the project site or at an alternative site approved by BLM's Authorized Officer and the CPM during the operating life of the project (2007 CBC, Appendix Chapter 1, section 106.3.1, Approval of Construction Documents). Electronic copies of the approved plans, specifications, calculations, and marked-up as-builts shall be provided to the CBO for retention by BLM's Authorized Officer and the CPM.	Within 15 days of the completion of any work, the project owner shall submit to the CBO, with a copy to BLM's Authorized Officer and the CPM, in the next monthly compliance report, (a) a written notice that the completed work is ready for final inspection, and (b) a signed statement that the work conforms to the final approved plans. After storing the final approved engineering plans, specifications, and calculations described above, the project owner shall submit to BLM's Authorized Officer and the CPM a letter stating both that the above documents have been stored and the storage location of those documents. Within 90 days of the completion of construction, the project owner shall provide to the CBO three sets of electronic copies of the above documents at the project owner's expense. These are to be provided in the form of "read only" (Adobe .pdf 6.0) files, with restricted (password-protected) printing privileges, on archive quality compact discs.	COMPLETED (CONSTRUCTION) SUBMITTED	within 15 days of completion of any work; within 90 days of completion of construction	8-Dec-2014			Electronic copies of the final approved engineering plans were hand-delivered by Doug Davis to CEC on 12/8/2014.
Hazardous Materials	HAZ-1	The project owner shall not use any hazardous materials not listed in Hazardous Materials Appendix A, below, or in greater quantities than those identified by chemical name in Hazardous Materials Appendix A, unless approved in advance by the BLM's Authorized Officer and Compliance Project Manager (CPM).	The project owner shall provide to BLM's Authorized Officer and the CPM in the Annual Compliance Report, a list of hazardous materials contained at the facility.	ONGOING - ANNUALLY	ANNUALLY - To be submitted with the ACR	1/30/2015; 1/29/2016			Submitted in the Annual Compliance Report
Hazardous Materials	HAZ-2	The project owner shall concurrently provide a Hazardous Materials Business Plan to the Hazardous Materials Division of the County of San Bernardino Fire Department, BLM's Authorized Officer and the CPM for review. After receiving comments from the Hazardous Materials Division of the County of San Bernardino Fire Department, BLM's Authorized Officer and the CPM, the project owner shall reflect all received recommendations in the final documents. If no comments are received from the county within 30 days of submittal the project owner may proceed with preparation of final documents upon receiving comments from BLM's Authorized Officer and the CPM. Copies of the final Hazardous Materials Business Plan shall then be provided to the Hazardous Materials Division of the County of San Bernardino Fire Department for information and to the BLM's Authorized Officer and CPM for approval.	At least 60 days prior to receiving any hazardous material on the site for commissioning or operations, the project owner shall provide a copy of a final Hazardous Materials Business Plan to BLM's Authorized Officer and the CPM for approval.	COMPLETED (CONSTRUCTION) ONGOING COMPLIANCE DURING OPERATIONS	60 days prior receiving any hazardous material on the site	9/26/2012, 11/01/12 & 12/14/12; 2/13/2013			Chem Clean procedures submitted 9/26/12, 11/01/12 and 12/14/12. Submitted Hazardous Materials Business Plan on 2/13/2013.
Hazardous Materials	HAZ-3	The project owner shall develop and implement a Safety Management Plan for delivery of liquid hazardous materials. The plan shall include procedures, protective equipment requirements, training and a checklist. It shall also include a section describing all measures to be implemented to prevent mixing of incompatible hazardous materials. This plan shall be applicable during construction, commissioning, and operation of the power plant.	At least sixty (60) days prior to the delivery of any liquid hazardous material to the facility, the project owner shall provide a Safety Management Plan as described above to BLM's Authorized Officer and the CPM for review and approval	Approved - COMPLETED (CONSTRUCTION) ONGOING COMPLIANCE DURING OPERATIONS	60 days prior to the delivery of any liquid hazardous material to the facility	29-Apr-2013	13-Jun-2013		Safety Management Plan submitted on 4/29/13
Hazardous Materials	HAZ-5	The project owner shall prepare a site-specific Operation Security Plan for the operation phase, which shall be made available to BLM's Authorized Officer and the CPM for review and approval. The project owner shall implement site security measures addressing physical site security and hazardous materials storage.	At least 30 days prior to the initial receipt of hazardous materials onsite, the project owner shall notify BLM's Authorized Officer and the CPM that a site-specific Operations Site Security Plan is available for review and approval. In the Annual Compliance Report the project owner shall include a statement that all current project employee and appropriate contractor background investigations have been performed, and updated certification statements are appended to the Operations Security Plan. In the Annual Compliance Report the project owner shall include a statement that the Operations Security Plan includes all current hazardous materials transport vendor certifications for security plans and employee background investigations. The level of security to be implemented shall not be less than that described below (as per NERC 2002). The Operations Security Plan shall include the following: 1. Permanent full perimeter fence or wall, at least eight feet high around the Solar Field; Ivanpah Solar Electric Generating System Page 15 07-ACF-5 2. Main entrance security gate, either hand operable or motorized; 3. Evacuation procedures; 4. Protocol for contacting law enforcement, BLM's Authorized Officer and the CPM in the event of suspicious activity or emergency or conduct endangering the facility, its employees, or contractors; and 5. Written standard procedures for employees, contractors and vendors when encountering suspicious objects or packages on-site or off-site; a. A statement (refer to sample, attachment "A") signed by the project owner certifying that background investigations have been conducted on all project personnel. Background investigations shall be restricted to ascertain the accuracy of employee identity and employment history, and shall be conducted in accordance with state and federal law regarding security and privacy;	ONGOING	30 days prior to the initial receipt of hazardous materials ANNUALLY beginning 2015	1/30/2015; 1/29/2016			Submitted with the Annual Compliance Report

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Hazardous Materials	HAZ-5 (continued-1)	The project owner shall prepare a site-specific Operation Security Plan for the operations phase, which shall be made available to BLM's Authorized Officer and the CPM for review and approval. The project owner shall implement site security measures addressing physical site security and hazardous materials storage.	b. A statement(s) (refer to sample, attachment "B") signed by the contractor or authorized representative(s) for any permanent contractors or other technical contractors (as determined by BLM's Authorized Officer and the CPM after consultation with the project owner) that are present at any time on the site to repair, maintain, investigate, or conduct any other technical duties involving critical components (as determined by BLM's Authorized Officer and the CPM after consultation with the project owner) certifying that background investigations have been conducted on contractor personnel that visit the project site. Background investigations shall be restricted to ascertain the accuracy of employee identity and employment history, and shall be conducted in accordance with state and federal law regarding security and privacy; 6. a. A statement (refer to sample, attachment "A") signed by the project owner certifying that background investigations have been conducted on all project personnel. Background investigations shall be restricted to ascertain the accuracy of employee identity and employment history, and shall be conducted in accordance with state and federal law regarding security and privacy; 7. Site access controls for employees, contractors, vendors, and visitors;	ONGOING	30 days prior to the initial receipt of hazardous materials ANNUALLY beginning 2015	1/30/2015; 1/29/2016			Submitted with the Annual Compliance Report
Hazardous Materials	HAZ-5 (continued-2)	The project owner shall prepare a site-specific Operation Security Plan for the operations phase, which shall be made available to BLM's Authorized Officer and the CPM for review and approval. The project owner shall implement site security measures addressing physical site security and hazardous materials storage.	8. Closed Circuit TV (CCTV) monitoring system, recordable, and viewable in the power plant control room and security station (if separate from the control room) capable of viewing, at a minimum, the main entrance gate; and 9. Additional measures to ensure adequate perimeter security consisting of either: a. Security guard present 24 hours per day, seven days per week, OR b. Power plant personnel on-site 24 hours per day, seven days per week and all of the following: 1) The CCTV monitoring system required in number 8 above shall include cameras that are able to pan, tilt, and zoom (PTZ), have Ivanpah Solar Electric Generating System Page 16 07-AFC-5 low-light capability, are recordable, and are able to view 100% of the perimeter fence, the outside entrance to the control room, and the front gate from a monitor in the power plant control room; AND 2) Perimeter breach detectors or on-site motion detectors. The project owner shall fully implement the security plans and obtain BLM's Authorized Officer and CPM approval of any substantive modifications to the security plans. BLM's Authorized Officer and the CPM may authorize modifications to these measures, or may require additional measures, such as protective barriers for critical power plant component (e.g., transformers, gas lines, compressors, etc.) depending on circumstances unique to the facility or in response to industry-related standards, security concerns, or additional guidance provided by the U.S. Department of Homeland Security, the U.S. Department of Energy, or the North American Electrical Reliability Council, after consultation with appropriate law enforcement agencies and the project owner.	ONGOING	30 days prior to the initial receipt of hazardous materials ANNUALLY	1/30/2015; 1/29/2016			Submitted with the Annual Compliance Report
Hazardous Materials	HAZ-6	The holder (project owner) shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder(s) shall comply with the Toxic Substances Control Act of 1976, as amended (15 U.S.C. 2601, et seq.) with regard to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR, Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation and Liability Act of 1980, Section 102b	A copy of any report required or requested by any Federal agency or State government entity as a result of a reportable release or spill of any toxic substances shall be furnished to BLM's Authorized Officer and the CPM concurrent with the filing of the reports with the Federal or State governmental entity.	ONGOING	As Needed	8/15/2016; 10/13/2016			Notified CEC/BLM on 7/29/2016 on the lube oil release on 7/29/2016 at Unit 1. The Spill Report was submitted on 8/15/2016. Notified CEC/BLM on 10/2/2016 on the lube oil release at Unit 3. The Spill Report was submitted on 10/13/2016.

Technical Area	COC No.	Description	Verification	Compliance Status	Required Submittal Date	Date Submitted	Approval Date	Date of Amendment	NOTES
Land Use	LAND-1	The project owner shall obtain a Right-of-Way Grant (ROW Grant) from the Bureau of Land Management (BLM). Among the conditions for obtaining the ROW grant, the applicant shall provide the following: A. Prior to issuance of any right of way grant, the project owner shall submit a final Plan(s) of Development that describes in detail the construction, operation, maintenance, and termination of the right-of-way and its associated improvements and/or facilities. The project owner shall construct, operate, and maintain the facilities, improvements, and structures within this right-of-way in strict conformity with the final approved Plan of Development. The degree and scope of these plans will vary depending upon (1) the complexity of the right-of-way or its associated improvements and/or facilities, (2) the anticipated conflicts that require mitigation, and (3) additional technical information required by BLM's Authorized Officer and the CPM. The plans will be reviewed, and if appropriate, modified by the project owner until acceptable, and approved by BLM's Authorized Officer and the CPM. B. A bond, acceptable to BLM's Authorized Officer, shall be furnished by the owner prior to the issuance of a Notice to Proceed with construction or at such earlier date as may be specified by BLM's Authorized Officer. The amount of this bond shall be determined by BLM's Authorized Officer. This bond must be maintained in effect until removal of improvements and restoration of the right-of-way have been accepted by BLM's Authorized Officer and the CPM.	At least 30 days prior to the start of construction and prior to any Notice to Proceed with construction issued by BLM's Authorized Officer and the CPM, the project owner shall provide BLM's Authorized Officer and the CPM with documentation of the following: A. BLM's ROW Grant and final approved Plan of Development; B. The bond satisfactory to BLM's Authorized Officer; C. Certification that the project owner acknowledges that the ISEGS development and all related construction, operation, maintenance and closure activities are to be conducted in conformance with the approved Plan of Development and within the approved ROW boundaries for the life of the project.	COMPLETED (CONSTRUCTION) ONGOING COMPLIANCE DURING OPERATIONS	30 days prior to start of construction	4-Oct-2010	3/14/2012 CLA and Tortoise Pen along I-15; 5/07/12 Yates Well rd;		BLM issued ROW grants: CACA 049502 (CLA) - 10/7/10; CACA 049504 (Unit 1) - 10/7/10; CACA 048668 (Unit 2) - 10/7/10; CACA 049503 (Unit 3) - 10/7/13; CACA 049502 Amend. #1 - 3/14/11; Amend. #2 - 3/9/12; Amend. #3 - 5/2/12; Amend. #4 - 3/26/13 and Amend. #5 - 4/16/13
Land Use	LAND-3	Prior to the start of commercial operations of the first ISEGS power plant to be constructed, the project owner shall prepare plans for a <u>Solar / Ecological Interpretive Center</u> to be developed to in the vicinity of the ISEGS project. The project owner in consultation with the County shall propose a location on-site or off-site that provides a vantage point to observe as many features as is possible of the ISEGS project without compromising safety or security. The project owner's plans for the Solar / Ecological Interpretive Center may be coordinated with San Bernardino County. The Solar / Ecological Interpretive Center shall include or make accessible to the public the following features: 1. surfaced public parking 2. information kiosks describing ISEGS solar energy technology; 3. picnic area with tables, 4. garbage cans; 5. interpretive signs identifying local landmarks and ecological features 6. a contained restroom facility (or reasonable access to a facility with flush toilets and sinks should the Solar / Ecological Interpretive Center be constructed adjacent to another facility having a restroom).	At least 30 days prior to commercial operation of the first power plant of the ISEGS development, the project owner shall submit plans to BLM's Authorized Officer and the CPM for review and approval for a Solar / Ecological Interpretive Center to be developed in the ISEGS vicinity in coordination with San Bernardino County. Within 6 months of approval of the proposed Solar / Ecological Interpretive Center plans (1) by the Commission and the BLM, for an on-site Center, or (2) by the County of San Bernardino, for an off-site Center, being final and no longer subject to administrative or judicial review, the project owner shall commence construction of the Center and shall to the extent feasible complete construction within one year following the start of construction if the Center is located off of the ISEGS site. If located onsite, then construction of the Center shall follow the completion of all ISEGS construction. Upon completion the project owner shall submit notice to BLM and the Energy Commission that it has completed construction of the Solar / Ecological Interpretive Center. <u>In each Annual Compliance Report, the project owner shall provide a summary of estimated public use of the Solar / Ecological Interpretive Center and summarize any issues associated with operating and maintenance activities.</u>	Submitted and Approved - ONGOING DURING PROJECT OPERATIONS	30 days prior to commercial operations. 60 days after completion of construction Annually beginning 2016	9/23/2013; BLM was notified of SEIC completion and accepted on 5/13/2015; CEC was notified of SEIC completion and accepted on 5/19/2015; SEIC Post Construction report was submitted on 7/16/2015; 1/29/2016; Submitted information kiosk panel design to BLM on 12/19/2016	BLM Approved on 9/23/13; BLM accepted on 5/13/2015; CEC accepted on 5/19/2015		<u>9/25/13:</u> Solar/Ecological Interpretive Center Plan was submitted to BLM on 9/23/2013; BLM approved on 9/25/13. The Plan was submitted to CEC on 9/25/13. <u>1/20/2015 to 4/17/2015:</u> Construction period. <u>5/13/2015:</u> BLM inspected and accepted the Solar Ecological Interpretive Center. <u>7/16/2015:</u> Submitted post-construction report for the Solar Ecological Interpretive Center
Noise & Vibration	NOISE-3	The project owner shall submit to BLM's Authorized Officer and the CPM for review and approval a <u>noise control program</u> and a statement, signed by the project owner's project manager, verifying that the noise control program will be implemented throughout construction of the project. The noise control program shall be used to reduce employee exposure to high noise levels during construction and also to comply with applicable OSHA and Cal/OSHA standards.	At least 30 days prior to the start of ground disturbance, the project owner shall submit to BLM's Authorized Officer and the CPM the <u>noise control program</u> and the project owner's project manager's signed statement. The project owner shall make the program available to Cal/OSHA upon request.	Approved - COMPLETED ONGOING COMPLIANCE DURING OPERATIONS	30 days prior to the start of ground disturbance	11-Aug-2010	7-Oct-2010		
Noise & Vibration	NOISE-4	The project design and implementation shall include appropriate noise mitigation measures adequate to ensure that operation of the project will not cause noise complaints from residents of Primm, Nevada, or from the operator of the Primm Valley Golf Course or from visitors from the Mojave National Preserve. If legitimate project-related noise complaints are received from residents of Primm, the project owner shall perform a noise survey to demonstrate that noise levels due to plant operation do not exceed an average of 45 dBA Leq measured at the nearest residence of the community of Primm, Nevada. If legitimate project-related noise complaints are received from the operator of the Primm Valley Golf Course, or the visitors from the Mojave National Preserve, the project owner shall perform a noise survey to demonstrate that noise levels due to plant operation do not exceed an average of 55 dBA Leq measured at the nearest boundary of the golf course, or the nearest boundary of the Mojave National Preserve, respectively. No new project components creating pure-tone noises will be added to the project unless they are balanced by other plant features. No single piece of equipment shall be allowed to stand out as a source of noise that draws legitimate complaints. A. The measurement of power plant noise for the purposes of demonstrating compliance with this condition of certification may alternatively be made at a location, acceptable to BLM's Authorized Officer and the CPM, closer to the plant (e.g., 400 feet from the plant boundary) and this measured level then mathematically extrapolated to determine the plant noise contribution at the affected location. The character of the plant noise shall be evaluated at the affected residential locations to determine the presence of pure tones or other dominant sources of plant noise.	The survey shall take place within 30 days of the receipt of the noise complaint, unless the complaint has been resolved to the complaining party's satisfaction. Within 15 days after completing the survey, the project owner shall submit a summary report of the survey to BLM's Authorized Officer and the CPM. Included in the survey report will be a description of additional mitigation measures (if any) necessary to achieve compliance with the above-listed noise limit and a schedule, subject to BLM's Authorized Officer and CPM approval, for implementing these measures. When these measures are in place, the project owner shall repeat the noise survey. Within 15 days of completion of the new survey, the project owner shall submit to BLM's Authorized Officer and the CPM a summary report of the new noise survey, performed as described above and showing compliance with this condition.	ONGOING DURING OPERATIONS	Within 30 days of the Receipt of noise Complaint				

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Noise & Vibration	NOISE-5	Following each phase (Ivanpah 1, Ivanpah 2, and Ivanpah 3) of the project's first achieving a sustained output of 80 percent or greater of rated capacity, the project owner shall conduct an occupational noise survey to identify the noise hazardous areas in the facility. The surveys shall be conducted by a qualified person in accordance with the provisions of Title 8, California Code of Regulations sections 5095-5099 and Title 29, Code of Federal Regulations section 1910.95. The survey results shall be used to determine the magnitude of employee noise exposure. The project owner shall prepare reports of the survey results, and, if necessary, identify proposed mitigation measures that will be employed to comply with the applicable California and federal regulations.	Within 30 days after completing each survey, the project owner shall submit the noise survey report to BLM's Authorized Officer and the CPM. The project owner shall make the reports available to OSHA and Cal/OSHA upon request.	ONGOING DURING OPERATIONS	Within 30 days after completing each survey	28-Oct-2014			Noise survey was conducted on 10/3/2014. The report was submitted to CEC and BLM on 10/28/2014.
Noise & Vibration	NOISE-6	Noisy construction work or heavy equipment operation that causes offsite annoyance as evidenced by the filing of a legitimate noise complaint shall be restricted to 7:00 am to 7:00 pm time period. Haul trucks shall be operated in accordance with posted speed limits. Truck engine exhaust brake use shall be limited to emergencies.	Prior to ground disturbance, the project owner shall transmit to BLM's Authorized Officer and the CPM a statement acknowledging that the above restrictions will be observed throughout the construction of the project.	Approved - COMPLETED (CONSTRUCTION)	prior to ground disturbance	28-Jul-2010	2-Sep-2010		
Geology & Paleontology	PAL-6	The project owner, through the designated PRS, shall ensure that all components of the PRMMP are adequately performed including collection of fossil materials, preparation of fossil materials for analysis, analysis of fossils, identification and inventory of fossils, the preparation of fossils for curation, and the delivery for curation of all paleontological resource materials encountered and collected during project construction.	The project owner shall maintain in his/her compliance file copies of signed contracts or agreements with the designated PRS and other qualified research specialists. The project owner shall maintain these files for a period of three years after project completion and approval of BLM Authorized Officer- and CPM-approved paleontological resource report (see PAL-7). The project owner shall be responsible for paying any curation fees charged by the museum for fossils collected and curated as a result of paleontological mitigation. A copy of the letter of transmittal submitting the fossils to the curating institution shall be provided to BLM's Authorized Officer and the CPM.	ONGOING	Files are needed to be maintained for 3 years after project completion.				
Geology & Paleontology	PAL-7	The project owner shall ensure preparation of a Paleontological Resources Report (PRR) by the designated PRS. The PRR shall be prepared following completion of the ground-disturbing activities. The PRR shall include an analysis of the collected fossil materials and related information, and submit it to the CPM for review and approval. The report shall include, but is not limited to, a description and inventory of recovered fossil materials; a map showing the location of paleontological resources encountered; determinations of sensitivity and significance; and a statement by the PRS that project impacts to paleontological resources have been mitigated below the level of significance.	Within 90 days after completion of ground-disturbing activities, including landscaping, the project owner shall submit the PRR under confidential cover to BLM's Authorized Officer and the CPM.	SUBMITTED	90 days after completion of ground disturbing activities	9-Jan-2014			<u>1/9/14:</u> Paleontological Resources Report was submitted by CH2M Hill to CEC and BLM on 1/9/2014.
Recreation	REC-1	Prior to the start of construction and in conformance with § 25529 of the Warren-Alquist Act, the project owner shall prepare plans for a Solar / Ecological Interpretive Center to be developed in the ISEGS Construction Logistics Area and submit them to BLM's Authorized Officer and the CPM for review and approval. The plans shall propose a location that if possible provides a vantage point to observe as many features as is possible of the ISEGS project without compromising ISEGS security requirements. The Solar / Ecological Interpretive Center shall include the following features: 1. surfaced public parking for 12 vehicles (4 of which would allow vehicles with trailers); 2. information kiosks describing ISEGS solar energy technology; 3. picnic area with 8 shaded tables; 4. garbage cans; 5. interpretive signs identifying local landmarks and ecological features; 6. a two stall contained restroom facility (or a facility with flush toilets and sinks); 7. a drinking fountain; and 8. native plant landscaping with plant identification labels. Prior to commercial operation of the first constructed power plant of the ISEGS development, the project owner shall complete construction of the Solar / Ecological Interpretive Center and request final approval by both BLM's Authorized Officer and the CPM. The project owner shall operate and maintain the Solar / Ecological Interpretive Center for the life of the ISEGS project.	Verification: At least 30 days prior to completion of construction of the first power plant of the ISEGS development, the project owner shall submit plans for a Solar / Ecological Interpretive Center to be developed in the ISEGS Construction Logistics Area and submit them to BLM's Authorized Officer and the CPM for review and approval. Prior to commercial operation, the project owner shall submit notice to BLM and the Energy Commission that it has completed construction of the Solar / Ecological Interpretive Center and shall request final approval by both BLM's Authorized Officer and the CPM. <u>After commercial operation and in each Annual Compliance Report for the life of the ISEGS project, the project owner shall provide a summary of estimated public utilization of the Solar / Ecological Interpretive Center and summarize any issues associated with operating and maintenance activities.</u>	Submitted and Approved - ONGOING DURING PROJECT OPERATIONS	30 days prior to commercial operations. 60 days after completion of construction Annually beginning 2016	9/23/2013; BLM was notified of SEIC completion and accepted on 5/13/2015; CEC was notified of SEIC completion and accepted on 5/19/2015; SEIC Post Construction report was submitted on 7/16/2015; 1/29/2016	BLM Approved on 9/23/13; BLM accepted on 5/13/2015; CEC accepted on 5/19/2015		<u>9/25/13:</u> Solar/Ecological Interpretive Center Plan was submitted to BLM on 9/23/2013; BLM approved on 9/25/13. The Plan was submitted to CEC on 9/25/13. SEIC has been bid out and construction will start in early 2015. <u>5/13/2015:</u> BLM inspected and accepted the Solar Ecological Interpretive Center. <u>7/16/2015:</u> Submitted post-construction report for the Solar Ecological Interpretive Center Submitted with the Annual Compliance Report
Recreation	REC-2	The applicant shall allow and be required to afford public access to the routes for which BLM grants a right of way, as noted above. Effectiveness: By allowing public access to the routes that are redirected around the project perimeter, the current level of public access to recreational areas would be maintained.	No Verification: see Effectiveness	ONGOING	N/A				

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Soil & Water	S&W-1	Prior to site mobilization, the project owner shall obtain both BLM's Authorized Officer and the CPM's approval for a site specific <u>DRAINAGE EROSION AND SEDIMENT CONTROL PLAN (DESCP)</u> that ensures protection of water quality and soil resources of the project site and all linear facilities for both the construction and operation phases of the project. This plan shall address appropriate methods and actions, both temporary and permanent, for the protection of water quality and soil resources, demonstrate no increase in off-site flooding potential, and identify all monitoring and maintenance activities. The project owner shall complete all engineering plans, reports, and documents necessary for both LM's Authorized Officer and the CPM to conduct a review of the proposed project and provide a written evaluation as to whether the proposed grading, drainage improvements, and flood management activities comply with all requirements presented herein. The plan shall be consistent with the grading and drainage plan as required by Condition of Certification CIVIL-1 and shall contain the following elements: Vicinity Map: A map shall be provided indicating the location of all project elements with depictions of all major geographic features to include watercourses, washes, irrigation and canals, major utilities, roads, and drainage facilities. Adjacent property owners shall be identified on the plan maps. All maps shall be presented at a legible scale. Site Delineation: The site and all project elements shall be delineated showing boundary lines of all construction areas and the location of all existing and proposed structures, underground utilities, roads, and drainage facilities. Adjacent property owners shall be identified on the plan maps. All maps shall be presented at a legible scale. Drainage: The DESCP shall include the following elements: a. Topography. Topography for offsite areas are required to define the existing upstream tributary areas to the site and downstream to provide enough definition to map the existing storm water flow and flood hazard. Spot elevations shall be required where relatively flat conditions exist. b. Proposed Grade. Proposed grade contours shall be shown at a scale appropriate for delineation of onsite ephemeral washes, drainage ditches, and tie-ins to the existing topography. c. Hydrology. Existing and proposed hydrologic calculations for onsite areas and offsite areas that drain to the site; include maps showing the drainage area boundaries and sizes in acres, topography and typical overland flow directions, and show all existing, interim, and proposed drainage infrastructure and their intended direction of flow. d. Hydraulics. Provide hydraulic calculations to support the selection and sizing of the onsite drainage network, diversion facilities and BMPs. Watercourses and Critical Areas: The DESCP shall show the location of all onsite and nearby watercourses including washes, irrigation and drainage canals, and drainage ditches, and shall indicate the proximity of those features to the construction site. Maps shall identify high hazard flood prone areas.	The DESCP shall be consistent with the grading and drainage plan as required by Condition of Certification CIVIL-1, and relevant portions of the DESCP shall be submitted to the chief building official (CBO) for review and approval. In addition, the project owner shall do all of the following: a. No later than ninety (90) days prior to start of site mobilization, the project owner shall submit a copy of the DESCP to the County of San Bernardino and the RWQCB for review and comment. Both BLM's Authorized Officer and the CPM shall consider comments received from San Bernardino County and RWQCB and approve the DESCP. b. During construction, the project owner shall provide an analysis in the monthly compliance report on the effectiveness of the drainage, erosion and sediment control measures and the results of monitoring and maintenance activities. c. Once operational, the project owner shall provide in the annual compliance report information on the results of storm water BMP monitoring and maintenance activities. d. Provide BLM's Authorized Officer and the CPM with two (2) copies each of all monitoring or compliance reports.	DESCP was submitted and approved IN PROGRESS / ONGOING DURING OPERATIONS	90 days prior to the start of site mobilization, Annually Beginning 2015	DESCP (Phase 1) 6/15/2010; (Phase 2) 1/28/2011; (Phase 3) 4/8/2011. Submitted with the Annual Compliance Report on 1/30/2015.; 1/29/2016	DESCP (Phase 1) 10/4/2010		Ongoing reporting in the monthly compliance report, Annual SWPP submitted 8/31/12 DESCP (Phase 1) - Approved; (Phase 2) - Submitted; (Phase 3) - Submitted; Submitted in the Annual Compliance Report
Soil & Water	S&W-1 (continued-1)	Site Delineation: The site and all project elements shall be delineated showing boundary lines of all construction areas and the location of all existing and proposed structures, underground utilities, roads, and drainage facilities. Adjacent property owners shall be identified on the plan maps. All maps shall be presented at a legible scale. Drainage: The DESCP shall include the following elements: a. Topography. Topography for offsite areas are required to define the existing upstream tributary areas to the site and downstream to provide enough definition to map the existing storm water flow and flood hazard. Spot elevations shall be required where relatively flat conditions exist. b. Proposed Grade. Proposed grade contours shall be shown at a scale appropriate for delineation of onsite ephemeral washes, drainage ditches, and tie-ins to the existing topography. c. Hydrology. Existing and proposed hydrologic calculations for onsite areas and offsite areas that drain to the site; include maps showing the drainage area boundaries and sizes in acres, topography and typical overland flow directions, and show all existing, interim, and proposed drainage infrastructure and their intended direction of flow. d. Hydraulics. Provide hydraulic calculations to support the selection and sizing of the onsite drainage network, diversion facilities and BMPs. Watercourses and Critical Areas: The DESCP shall show the location of all onsite and nearby watercourses including washes, irrigation and drainage canals, and drainage ditches, and shall indicate the proximity of those features to the construction site. Maps shall identify high hazard flood prone areas.	The DESCP shall be consistent with the grading and drainage plan as required by Condition of Certification CIVIL-1, and relevant portions of the DESCP shall be submitted to the chief building official (CBO) for review and approval. In addition, the project owner shall do all of the following: a. No later than ninety (90) days prior to start of site mobilization, the project owner shall submit a copy of the DESCP to the County of San Bernardino and the RWQCB for review and comment. Both BLM's Authorized Officer and the CPM shall consider comments received from San Bernardino County and RWQCB and approve the DESCP. b. During construction, the project owner shall provide an analysis in the monthly compliance report on the effectiveness of the drainage, erosion and sediment control measures and the results of monitoring and maintenance activities. c. Once operational, the project owner shall provide in the annual compliance report information on the results of storm water BMP monitoring and maintenance activities. d. Provide BLM's Authorized Officer and the CPM with two (2) copies each of all monitoring or compliance reports.	DESCP was submitted and approved IN PROGRESS / ONGOING DURING OPERATIONS	90 days prior to the start of site mobilization, Annually Beginning 2015	DESCP (Phase 1) 6/15/2010; (Phase 2) 1/28/2011; (Phase 3) 4/8/2011. Submitted with the Annual Compliance Report on 1/30/2015.; 1/29/2016	DESCP (Phase 1) 10/4/2010		Ongoing reporting in the monthly compliance report, Annual SWPP submitted 8/31/12 DESCP (Phase 1) - Approved; (Phase 2) - Submitted; (Phase 3) - Submitted; Submitted in the Annual Compliance Report

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Soil & Water (Continued)	S&W-1 (continued-2)	Clearing and Grading: The plan shall provide a delineation of all areas to be cleared of vegetation, areas to be preserved, and areas where vegetation would be cut to allow clear movement of the heliostats. The plan shall provide elevations, slopes, locations, and extent of all proposed grading as shown by contours, cross-sections, cutfill depths or other means. The locations of any disposal areas, fills, or other special features shall also be shown. Existing and proposed topography tying in proposed contours with existing topography shall be illustrated. The DESC shall include a statement of the quantities of material excavated at the site, whether such excavations or fill is temporary or permanent and the amount of such material to be imported or exported or a statement explaining that there would be no clearing and/or grading conducted for each element of the project. Areas of no disturbance shall be properly identified and delineated on the plan maps. Soil Wind and Water Erosion Control: The plan shall address exposed soil treatments to be used during construction and operation of the proposed project for both road and non-road surfaces including specifically identifying all chemical based dust palliatives, soil bonding, and weighting agents appropriate for use at the proposed project site that would not cause adverse effects to vegetation; BMPs shall include measures designed to prevent wind and water erosion including application of chemical dust palliatives after rough grading to limit water use. All dust palliatives, soil binders, and weighting agents shall be approved by both BLM's Authorized Officer and the CPM prior to use. Project Schedule: The DESC shall identify on the topographic site map the location of site-specific BMPs to be employed during each phase of construction (initial grading, project element construction, and final grading/stabilization). BMP implementation schedules shall be provided for each project element for each phase of construction.	The DESC shall be consistent with the grading and drainage plan as required by Condition of Certification CIVIL-1, and relevant portions of the DESC shall be submitted to the chief building official (CBO) for review and approval. In addition, the project owner shall do all of the following: a. No later than ninety (90) days prior to start of site mobilization, the project owner shall submit a copy of the DESC to the County of San Bernardino and the RWQCB for review and comment. Both BLM's Authorized Officer and the CPM shall consider comments received from San Bernardino County and RWQCB and approve the DESC. b. During construction, the project owner shall provide an analysis in the monthly compliance report on the effectiveness of the drainage-, erosion- and sediment control measures and the results of monitoring and maintenance activities. c. Once operational, the project owner shall provide in the annual compliance report information on the results of storm water BMP monitoring and maintenance activities. d. Provide BLM's Authorized Officer and the CPM with two (2) copies each of all monitoring or compliance reports.	DESCP was submitted and approved IN PROGRESS / ONGOING DURING OPERATIONS	90 days prior to the start of site mobilization, Annually Beginning 2015	DESCP (Phase 1) 6/15/2010; (Phase 2) 1/28/2011; (Phase 3) 4/8/2011. Submitted with the Annual Compliance Report on 1/30/2015.; 1/29/2016	DESCP (Phase 1) 10/4/2010		Ongoing reporting in the monthly compliance report, Annual SWPP submitted 8/31/12 DESCP (Phase 1) - Approved; (Phase 2) - Submitted; (Phase 3) - Submitted; Submitted in the Annual Compliance Report
Soil & Water	S&W-1 (continued-3)	Best Management Practices: The DESC shall show the location, timing, and maintenance schedule of all erosion- and sediment-control BMPs to be used prior to initial grading, during project element excavation and construction, during final grading/stabilization, and after construction. BMPs shall include measures designed to control dust and stabilize construction access roads and entrances. The maintenance schedule shall include post-construction maintenance of treatment-control BMPs applied to disturbed areas following construction. Erosion Control Drawings: The erosion-control drawings and narrative shall be designed, stamped and sealed by a professional engineer or erosion control specialist. Agency Comments: The DESC shall include copies of recommendations from the County of San Bernardino, California Department of Fish and Game (CDFG), and Lahontan Regional Water Quality Control Board (RWQCB). Monitoring Plan: Monitoring activities shall include routine measurement of the volume of accumulated sediment in the onsite drainage ditches, and storm water diversions and the requirements specified in Appendix B, C, and D.	The DESC shall be consistent with the grading and drainage plan as required by Condition of Certification CIVIL-1, and relevant portions of the DESC shall be submitted to the chief building official (CBO) for review and approval. In addition, the project owner shall do all of the following: a. No later than ninety (90) days prior to start of site mobilization, the project owner shall submit a copy of the DESC to the County of San Bernardino and the RWQCB for review and comment. Both BLM's Authorized Officer and the CPM shall consider comments received from San Bernardino County and RWQCB and approve the DESC. b. During construction, the project owner shall provide an analysis in the monthly compliance report on the effectiveness of the drainage-, erosion- and sediment control measures and the results of monitoring and maintenance activities. c. Once operational, the project owner shall provide in the annual compliance report information on the results of storm water BMP monitoring and maintenance activities. d. Provide BLM's Authorized Officer and the CPM with two (2) copies each of all monitoring or compliance reports.	DESCP was submitted and approved IN PROGRESS / ONGOING DURING OPERATIONS	90 days prior to the start of site mobilization, Annually Beginning 2015	DESCP (Phase 1) 6/15/2010; (Phase 2) 1/28/2011; (Phase 3) 4/8/2011. Submitted with the Annual Compliance Report on 1/30/2015.; 1/29/2016	DESCP (Phase 1) 10/4/2010		Ongoing reporting in the monthly compliance report, Annual SWPP submitted 8/31/12 DESCP (Phase 1) - Approved; (Phase 2) - Submitted; (Phase 3) - Submitted; Submitted in the Annual Compliance Report
Soil & Water	S&W-2	The project owner shall comply with the requirements specified in Appendix B, C, and D for dredge and fill, wastewater, and storm water discharges associated with construction and industrial activity. These requirements relate to discharges, or potential discharges, of waste that could affect the quality of waters of the state, and were developed in consultation with staff of the State Water Resources Control Board and/or the applicable California Regional Water Quality Control Board (hereafter "Water Boards"). It is the Commission's intent that these requirements be enforceable by both the Commission and the Water Boards. In furtherance of that objective, the Commission hereby delegates the enforcement of these requirements, and associated monitoring, inspection and annual fee collection authority, to the Water Boards. Accordingly, the Commission and the Water Board shall confer with each other and coordinate, as needed, in the enforcement of the requirements. The project owner shall pay the annual waste discharge permit fee associated with this facility to the Water Boards. In addition, the Water Boards may "prescribe" these requirements as waste discharge requirements pursuant to Water Code Section 13263 solely for the purposes of enforcement, monitoring, inspection, and the assessment of annual fees, consistent with Public Resources Code Section 25331, subdivision (c). <u>The project owner shall develop, obtain both BLM's Authorized Officer and CPM approval of, and implement a construction Storm Water Pollution Prevention Plan (SWPPP) for the construction of the project and an Industrial SWPPP for operation of the project.</u>	At least sixty (60) days prior to commercial operation the project owner shall submit to both BLM's Authorized Officer and the CPM a copy of the Industrial SWPPP for operation of the project for review and approval prior to commercial operation. The project owner shall retain a copy on site. <u>The project owner shall submit copies to both BLM's Authorized Officer and the CPM of all correspondence between the project owner and the Lahontan RWQCB regarding the WDRs for discharge of storm water associated with construction and industrial activity within ten (10) days of its receipt or submittal.</u>	ONGOING DURING OPERATIONS	60 days Prior to Commercial Operations	8/27/2013; 6/30/2014; 6/30/2015; 1/29/2016			Industrial SWPPP for Operations submitted to CEC/BLM on 8/27/13 SWPPP Annual Reports submitted to SWRCB - 6/30/2014; 6/30/2015; Submitted in the Annual Compliance Report

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Soil & Water	S&W-3	The project owner shall ensure the Well Completion Reports are submitted and shall ensure compliance with all county water well standards and requirements for the life of the wells. The project owner shall do all of the following: 1. No later than 180 days prior to the construction of the onsite groundwater wells, the project owner shall submit a<u>Groundwater Monitoring and Management Plan</u> to the County of San Bernardino for review and comment (see Condition of Certification Soil & Water - 6) 2. No later than sixty (60) days prior to the construction of the onsite groundwater wells, the project owner shall submit to both BLM's Authorized Officer and the CPM a copy of the water well construction packet submitted to the County of San Bernardino for review and comment. 3. No later than thirty (30) days prior to the construction of the onsite water supply wells, the project owner shall submit a copy of any written comments received from the County of San Bernardino indicating whether the proposed well construction activities comply with all county well requirements and meet the requirements established by the county's water well permit program. 4. No later than sixty (60) days after installation of each well at the project site, the project owner shall provide to both BLM's Authorized Officer and the CPM copies of the Well Completion Reports submitted to the DWR by the well driller. The project owner shall submit to the CPM with the Well Completion Report a copy of well drilling logs, water quality analyses, and any inspection reports. 5. <u>During well construction and for the operational life of the well, the project owner shall submit two (2) copies each to BLM's Authorized Officer and the CPM for review and approval any proposed well construction or operation changes.</u> 6. The project owner shall provide BLM's authorized officer and the CPM with (2) two copies each of all monitoring and other reports required for compliance with the County of San Bernardino water well standards and operation requirements. 7. No later than fifteen (15) days after completion of the onsite water supply wells, the project owner shall submit documentation to BLM's Authorized Officer and the CPM, confirming that well drilling activities were conducted in compliance with Title 23, California Code of Regulations, Chapter 15, Discharges of Hazardous Wastes to Land, (23 CCR, sections 2510 et seq.) requirements and that any onsite drilling sumps used for project drilling activities were removed in compliance with 23 CCR section 2511(c). 8. Annual Monitoring Reports will be submitted which include Quarterly monitoring data as described in the Approved Groundwater Monitoring and Management Plan. The First Annual Report will be a Baseline Report which includes the Well Network and level monitoring report and plan Pre-Well Installation. The project owner shall construct and operate up to two onsite groundwater wells that produce water from the IVGB. The project owner shall ensure that the wells are completed in accordance with all applicable state and local water well construction permits and requirements, including the San Bernardino County's Desert Groundwater Management Ordinance. Prior to initiation of well construction activities, the project owner shall submit for review and comment a well construction packet to the County of San Bernardino, in accordance with the County of San Bernardino Code Title 2 Division 3, Chapter 6, Article 5, containing the documentation, plans, and fees normally required for the county's well permit, with copies to both BLM's Authorized Officer and the CPM. The project shall not construct a well or extract and use groundwater until both BLM's Authorized Officer and the CPM provides approval to construct and operate the well. Post-Well Installation. The project owner shall provide documentation to both BLM's Authorized Officer and the CPM that the well has been properly completed. In accordance with California's Water Code section 13754, the driller of the well shall submit to the DWR a<u>Well Completion Report</u> for each well installed. No later than 180 days prior to the construction of the onsite groundwater wells, the project owner shall submit a<u>Groundwater Monitoring and Management Plan</u> to the County of San Bernardino for review and comment (see Condition of Certification Soil & Water - 6)	The project owner shall ensure the Well Completion Reports are submitted and shall ensure compliance with all county water well standards and requirements for the life of the wells. The project owner shall do all of the following: 1. No later than 180 days prior to the construction of the onsite groundwater wells, the project owner shall submit a<u>Groundwater Monitoring and Management Plan</u> to the County of San Bernardino for review and comment (see Condition of Certification Soil & Water - 6) 2. No later than sixty (60) days prior to the construction of the onsite groundwater wells, the project owner shall submit to both BLM's Authorized Officer and the CPM a copy of the water well construction packet submitted to the County of San Bernardino for review and comment. 3. No later than thirty (30) days prior to the construction of the onsite water supply wells, the project owner shall submit a copy of any written comments received from the County of San Bernardino indicating whether the proposed well construction activities comply with all county well requirements and meet the requirements established by the county's water well permit program. 4. No later than sixty (60) days after installation of each well at the project site, the project owner shall provide to both BLM's Authorized Officer and the CPM copies of the Well Completion Reports submitted to the DWR by the well driller. The project owner shall submit to the CPM with the Well Completion Report a copy of well drilling logs, water quality analyses, and any inspection reports. 5. <u>During well construction and for the operational life of the well, the project owner shall submit two (2) copies each to BLM's Authorized Officer and the CPM for review and approval any proposed well construction or operation changes.</u> 6. The project owner shall provide BLM's authorized officer and the CPM with (2) two copies each of all monitoring and other reports required for compliance with the County of San Bernardino water well standards and operation requirements. 7. No later than fifteen (15) days after completion of the onsite water supply wells, the project owner shall submit documentation to BLM's Authorized Officer and the CPM, confirming that well drilling activities were conducted in compliance with Title 23, California Code of Regulations, Chapter 15, Discharges of Hazardous Wastes to Land, (23 CCR, sections 2510 et seq.) requirements and that any onsite drilling sumps used for project drilling activities were removed in compliance with 23 CCR section 2511(c). 8. Annual Monitoring Reports will be submitted which include Quarterly monitoring data as described in the Approved Groundwater Monitoring and Management Plan. The First Annual Report will be a Baseline Report which includes the Well Network and level monitoring report and plan	GWMMP Approved 11/03/10; Well Completion Reports Filed for PW-1 PW-2 MW-1(3/03/11) , Baseline First Annual Monitoring Report submitted on August 10, 2012 ANNUAL MONITORING REPORT ONGOING	9/23/2010(GWMMP); Baseline Report 8/1/12, 2nd Annual report 1/31/13 ANNUALLY	11/2/2010 Addendum to GWMMP submitted to San Bernardino Co and CEC; First Annual Report(Baseline) submitted on 8/10/12, 2nd annual Report to be submitted January 31, 2013 for 2012 data	GWMMP 11/3/2010	GWMMP Approved 11/03/10; Well Completion Reports Filed for PW-1 PW-2 MW-1(3/03/11) , Baseline First Annual Monitoring Report submitted on August 10, 2012. 9/23/2010(GWMMP); Baseline Report 8/1/12, 2nd Annual report 1/31/13	
Soil & Water	S&W-4	The proposed project's use of groundwater during each year of construction shall not exceed an average of 200 acre-feet per year over the forty-three (43) month construction period. Groundwater use for operations activities shall not exceed 100 acre-feet per year. Prior to the use of groundwater for construction, the project owner shall install and maintain metering devices as part of the water supply and distribution system to document project water use and to monitor and record in gallons per day the total volume(s) of water supplied to the project from this water source. The metering devices shall be operational for the life of the project.	Beginning six (6) months after the start of construction, the project owner shall prepare a semi-annual summary of amount of water used for construction purposes. The summary shall include the monthly range and monthly average of daily water usage in gallons per day. At least sixty (60) days prior to the start of construction of the proposed project, the project owner shall submit to both BLM's Authorized Officer and the CPM a copy of evidence that metering devices have been installed and are operational. The project owner shall prepare an annual summary, which will include daily usage, monthly range and monthly average of daily water usage in gallons per day, and total water used on a monthly and annual basis in acre-feet. For years subsequent to the initial year of operation, the annual summary will also include the yearly range and yearly average water use by source. For calculating the total water use, the term "year" will correspond to the date established for the annual compliance report submittal.	Semi-annual reporting in MCR Completed. ONGOING ANNUAL REPORTING	2011, 2012, 2013. Operations annual report due on January 31st ANNUALLY	Semi Annual Water Usage Calcs filed on 5/9/2011; 10/7/2011; 4/20/2012, 10/20/12 1/30/2015; 1/29/2016			Submitted with the Annual Compliance Report

Technical Area	COC No.	Description	Verification	Compliance Status	Required Submittal Date	Date Submitted	Approval Date	Date of Amendment	NOTES
Soil & Water	S&W-5 (Continued-1b)	The project owner shall ensure that the heliostats are designed and installed to withstand storm water scour as a result of a 100-year storm event. The analysis of the storm event and resulting heliostat stability will be provided within a Pylon Insertion Depth and Heliostat Stability Report to be completed by the applicant. This analysis will incorporate results from site-specific geotechnical stability testing, as well as hydrologic and hydraulic stormwater modeling performed by the applicant. The modeling will be completed using methodology and assumptions approved by the CPM and BLM's Authorized Officer.	The Storm Water Damage Monitoring and Response Plan shall be submitted to both the BLM's authorized office and CPM for review and approval and shall include the following: - Detailed maps showing the installed location of all heliostats within each project phase; - Description of the method of removing all soil spoils should any be generated; - Each heliostat should be identified by a unique ID number marked to show initial ground surface at its base, and the depth of the pylon below ground; - Minimum Depth Stability Threshold to be maintained of pylons to meet long-term stability for applicable wind, water and debris loading effects; - Above and below ground construction details of a typical installed heliostat; - BMP's to be employed to minimize the potential impact of broken mirrors to soil resources; - Methods and response time of mirror cleanup and measures that may be used to mitigate further impact to soil resources from broken mirror fragments; and - Monitoring, documenting, and restoring the Ivanpah playa surface when impacted by sedimentation or broken mirror shards. A plan to monitor and inspect periodically, before first seasonal and after every storm event: - Security and Tortoise Exclusion Fence: Inspect for damage and buildup of sediment or debris - Heliostats within Drainages or subject to drainage overflow: Inspect for tilting, mirror damage, depth of scour compared to pylon depth below ground and the Minimum Depth Stability Threshold, collapse, and downstream transport. - Drainage Channels: Inspect for substantial migration or changes in depth, and transport of broken glass. - Constructed Diversion Channels: Inspect for scour and structural integrity issues caused by erosion, and for sediment and debris buildup. - Ivanpah Playa Surface: Inspect for changes in the surface texture and quality from sediment buildup, erosion, or broken glass. Short-Term Incident-Based Response: - Security and Tortoise Exclusion Fence: repair damage, and remove built-up of sediment and debris. - Heliostats: Remove broken glass, damaged structure, and wiring from the ground, and for pylons no longer meeting the Minimum Depth Stability Threshold, either replace/reinforce or remove the mirrors to avoid exposure for broken glass.	Submitted ONGOING REPORTING DURING OPERATIONS	60 days Prior to Commercial Operations ANNUALLY	8/27/2013; 1/30/2015; 1/29/2016			Storm Water Damage Monitoring & Response Plan for Operations submitted to CEC/BLM on 8/27/13" Submitted with the Annual Compliance Report
Soil & Water	S&W-5 (Continued-1c)	The project owner shall ensure that the heliostats are designed and installed to withstand storm water scour as a result of a 100-year storm event. The analysis of the storm event and resulting heliostat stability will be provided within a Pylon Insertion Depth and Heliostat Stability Report to be completed by the applicant. This analysis will incorporate results from site-specific geotechnical stability testing, as well as hydrologic and hydraulic stormwater modeling performed by the applicant. The modeling will be completed using methodology and assumptions approved by the CPM and BLM's Authorized Officer.	The Storm Water Damage Monitoring and Response Plan shall be submitted to both the BLM's authorized office and CPM for review and approval and shall include the following: - Detailed maps showing the installed location of all heliostats within each project phase; - Description of the method of removing all soil spoils should any be generated; - Each heliostat should be identified by a unique ID number marked to show initial ground surface at its base, and the depth of the pylon below ground; - Minimum Depth Stability Threshold to be maintained of pylons to meet long-term stability for applicable wind, water and debris loading effects; - Above and below ground construction details of a typical installed heliostat; - BMP's to be employed to minimize the potential impact of broken mirrors to soil resources; - Methods and response time of mirror cleanup and measures that may be used to mitigate further impact to soil resources from broken mirror fragments; and	Submitted ONGOING REPORTING DURING OPERATIONS	60 days Prior to Commercial Operations ANNUALLY	8/27/2013; 1/30/2015; 1/29/2016			Storm Water Damage Monitoring & Response Plan for Operations submitted to CEC/BLM on 8/27/13" Submitted with the Annual Compliance Report
Soil & Water	S&W-5 (Continued-1d)	The project owner shall ensure that the heliostats are designed and installed to withstand storm water scour as a result of a 100-year storm event. The analysis of the storm event and resulting heliostat stability will be provided within a Pylon Insertion Depth and Heliostat Stability Report to be completed by the applicant. This analysis will incorporate results from site-specific geotechnical stability testing, as well as hydrologic and hydraulic stormwater modeling performed by the applicant. The modeling will be completed using methodology and assumptions approved by the CPM and BLM's Authorized Officer.	- Monitoring, documenting, and restoring the Ivanpah playa surface when impacted by sedimentation or broken mirror shards. - A plan to monitor and inspect periodically, before first seasonal and after every storm event. - Security and Tortoise Exclusion Fence: Inspect for damage and buildup of sediment or debris - Heliostats within Drainages or subject to drainage overflow: Inspect for tilting, mirror damage, depth of scour compared to pylon depth below ground and the Minimum Depth Stability Threshold, collapse, and downstream transport. - Drainage Channels: Inspect for substantial migration or changes in depth, and transport of broken glass. - Constructed Diversion Channels: Inspect for scour and structural integrity issues caused by erosion, and for sediment and debris buildup. - Ivanpah Playa Surface: Inspect for changes in the surface texture and quality from sediment buildup, erosion, or broken glass. Short-Term Incident-Based Response: - Security and Tortoise Exclusion Fence: repair damage, and remove built-up of sediment and debris. - Heliostats: Remove broken glass, damaged structure, and wiring from the ground, and for pylons no longer meeting the Minimum Depth Stability Threshold, either replace/reinforce or remove the mirrors to avoid exposure for broken glass.	Submitted ONGOING REPORTING DURING OPERATIONS	60 days Prior to Commercial Operations ANNUALLY	8/27/2013; 1/30/2015; 1/29/2016			Storm Water Damage Monitoring & Response Plan for Operations submitted to CEC/BLM on 8/27/13" Submitted with the Annual Compliance Report
Soil & Water	S&W-5 (Continued-2)	The project owner shall ensure that the heliostats are designed and installed to withstand storm water scour as a result of a 100-year storm event. The analysis of the storm event and resulting heliostat stability will be provided within a Pylon Insertion Depth and Heliostat Stability Report to be completed by the applicant. This analysis will incorporate results from site-specific geotechnical stability testing, as well as hydrologic and hydraulic stormwater modeling performed by the applicant. The modeling will be completed using methodology and assumptions approved by the CPM and BLM's Authorized Officer.	At least sixty (60) days prior to construction, the project owner shall submit to both BLM's Authorized Officer and the CPM a copy of the Pylon Insertion Depth and Heliostat Stability Report for review and approval prior to construction. At least sixty (60) days prior to commercial operation, the project owner shall submit to both BLM's Authorized Officer and the CPM a copy of the Storm Water Damage Monitoring and Response Plan for review and approval prior to commercial operation. The project owner shall retain a copy of this plan onsite at the power plant at all times. <i>The project owner shall prepare an annual summary of the number of heliostats failed, cause of the failure, and cleanup and mitigation performed for each failed heliostat.</i>	Submitted ONGOING REPORTING DURING OPERATIONS	60 days Prior to Commercial Operations ANNUALLY	8/27/2013; 1/30/2015; 1/29/2016			Storm Water Damage Monitoring & Response Plan for Operations submitted to CEC/BLM on 8/27/13" Submitted with the Annual Compliance Report

Technical Area	COC No.	Description	Verification	Compliance Status	Required Submittal Date	Date Submitted	Approval Date	Date of Amendment	NOTES
Soil & Water	S&W-6 (continued-2)	The project owner shall submit a <u>Groundwater Monitoring and Reporting Plan</u> to both BLM's Authorized Officer and the CPM for review and approval and to San Bernardino County for review and comment regarding consistency with the County of San Bernardino Code Title 2, Division 3, Chapter 6, Article 5 (Desert Groundwater Management Ordinance). The Groundwater Level Monitoring and Reporting Plan shall provide a description of the methodology for monitoring background and site groundwater levels. Monitoring shall include pre-construction, construction, and project operation water use. The primary objective for the monitoring is to establish pre-construction and project related groundwater level that can be quantitatively compared against observed and simulated levels near the project pumping well and near potentially impacted existing wells. Prior to project construction, monitoring shall commence to establish preconstruction base-line conditions and shall incorporate the existing monitoring and reporting data collected for the Primm Valley Golf Club. The monitoring network shall be designed to incorporate the ongoing monitoring and reporting program established for the Primm Valley Golf Course. The monitoring plan and network may make use of existing wells in the basin that would satisfy the requirements for the monitoring program.	4. At least two (2) months prior to project construction, all water level monitoring data shall be provided to both BLM's Authorized Officer and the CPM. The data transmitted shall include an assessment of pre-project water level trends, a summary of available climatic information (monthly average temperature and rainfall records from the nearest weather station), and a comparison and assessment of water level data relative to the assumptions and spatial levels simulated by the applicant's groundwater model. 5. <u>After project construction and during project operations, the project owner shall submit the monitoring data annually to both BLM's Authorized Office and the CPM. The summary shall document water level monitoring methods, the water level data, water level plots, and a comparison between pre- and post-project start-up water level trends. The report shall also include a summary of actual water use conditions, monthly climatic information (temperature and rainfall), and a comparison and assessment of water level data relative to the assumptions and spatial levels simulated by the applicant's groundwater model.</u>	ONGOING	ANNUALLY DURING PROJECT OPERATIONS	11/17/2014; 2014 GWMR was submitted on 8/13/2015; 2015 Five-Year GWMR submitted on 12/19/2016			8/18/2010(GWMMP); First Annual Baseline Report inch Well Monitoring, Installation & GW Level Network Report Submitted 8/10/12 ANNUAL REPORT FOR 2012 was submitted on 5/1/2013; ANNUAL REPORT FOR 2013 was submitted on 11/17/2014;
Soil & Water	S&W-7	The project owner shall recycle and reuse all process wastewater streams to the extent practicable. Prior to transport and disposal of any facility operation wastewaters that are not suitable for treatment and reuse onsite, the project owner shall test and classify the stored wastewater to determine proper management and disposal requirements. The project manager shall ensure that the wastewater is transported and disposed of in accordance with the wastewater's characteristics and classification and all applicable LORS (including any CCR Title 22 Hazardous Waste and Title 23 Waste Discharges to Land requirements).	Prior to transport and disposal of any facility operation wastewaters that are not suitable for treatment and reuse onsite, the project owner shall test and classify the stored wastewater to determine proper management and disposal requirements. The project manager shall ensure that the wastewater is transported and disposed of in accordance with the wastewater's characteristics and classification and all applicable LORS (including any CCR Title 22 Hazardous Waste and Title 23 Waste Discharges to Land requirements).	ONGOING	prior to transport and disposal of any facility operation wastewater				
Soil & Water	S&W-8	Prior to the start of construction of the sanitary waste system, the project owner shall submit to the County of San Bernardino for review and approval, plans for the construction and operation of the project's proposed sanitary waste septic system and leach field. These plans shall comply with the requirements set forth in County of San Bernardino codes and Appendices B, C, and D. Project construction shall not proceed until both BLM's Authorized Officer and the CPM have approved the plans. The project owner shall remain in compliance with the San Bernardino County code requirements for the life of the project.	Sixty (60) days prior to the start of commercial operations, the project owner shall submit to the County of San Bernardino appropriate fees and plans for review and comment for the construction and operation of the project's sanitary waste septic system and leach field. A copy of these plans shall be submitted to both the BLM's authorized officer and CPM for review and approval. The plans shall demonstrate compliance with the sanitary waste disposal facility requirements of County of San Bernardino and Appendices B, C, and D.	Submitted	60 days prior to start of commercial operations	25-Mar-2013			Sanitary Waste System Plan Submitted on 3/25/13
Traffic & Transport.	TRANS-2 (continued)	The project owner shall restore all public roads, easements, and rights-of-way that have been damaged due to project-related construction activities to original or near-original condition in a timely manner, as directed by the BLM's Authorized Officer and CPM. The project owner's use of Yates Well Road shall not diminish the rights or use of the road by other BLM authorized users. Repairs and restoration of access roads may be required at any time during the construction phase of the project to assure safe ingress and egress. Prior to the start of site mobilization, the project owner shall consult with the County of San Bernardino and Caltrans District 8 and notify them of the proposed schedule for project construction. The purpose of this notification is to request that the County of San Bernardino and Caltrans consider postponement of public right-of-way repair or improvement activities in areas affected by project construction until construction is completed and to coordinate with the project owner regarding any concurrent construction related activities that are planned or in progress and cannot be postponed.	Within 60 calendar days after completion of construction, the project owner shall meet with BLM's Authorized Officer and the CPM, the County of San Bernardino and Caltrans District 8 to identify sections of public right-of-way to be repaired. At that time, the project owner shall establish a schedule to complete the repairs and to receive approval for the action(s). Following completion of any public right-of-way repairs, the project owner shall provide a letter signed by the County of San Bernardino and Caltrans District 8 stating their satisfaction with the repairs to BLM's Authorized Officer and the CPM.	Approved; ONGOING	10-Aug-2010	24-Jun-2010	2-Sep-2010		7/31/2014: Solar Partners/NRG is coordinating with appropriate agencies to complete the ROW inspections for repairs.

Technical Area	COC No.	Description	Verification	Compliance Status	Required Submittal Date	Date Submitted	Approval Date	Date of Amendment	NOTES
Traffic & Transport.	TRANS-3 (continued)	The project owner shall prepare a Heliostat Positioning Plan that would avoid potential for human health and safety hazards from solar radiation exposure.	2. Describe within the HPP how programmed heliostat operation would avoid potential for human health and safety hazards at locations of observers as attributable to momentary solar radiation exposure greater than the Maximum Permissible Exposure of 10 kw/m² (for a period of 0.25 second or less). 3. Prepare a monitoring plan that would: a) obtain field measurements in response to legitimate complaints; b) verify that the Heliostat Positioning Plan would avoid potential for human health and safety hazards including temporary and permanent blindness at locations of observers; and c) provide requirements and procedures to document, investigate and resolve legitimate complaints regarding glare. 4. The monitoring plan should be coordinated with the FAA, U.S. Department of the Navy, CalTrans, CHP, and Clark County Department of Aviation in relation to the proposed Southern Nevada Supplemental Airport and be updated on an annual basis for the first 5 years, and at 2-year intervals thereafter for the life of the project.	Approved - ONGOING	ANNUALLY FOR THE FIRST 5 YEARS	Heliostat Positioning Plan was submitted on 1/14/2013. Revision 1 was submitted on 4/19/2013. Approved by BLM on 6/13/13. Revision 1 was resubmitted on 9/13/13. Approved by CEC on 12/10/13 Submitted HPP Report 2nd Flyover on 8/29/2014 HPP Addendum/Update was submitted on 12/10/2014; HPP addendum/update submitted on 12/10/2015; Response to Glare complaint Pilot Report ACN 1353100 was submitted to CEC/BLM/FAA on 8/16/2016. Response to Glare complaint Pilot Report ACN 1390751 was submitted to CEC/BLM/FAA on 11/10/2016; HPP addendum/update submitted on 12/7/2016	6/13/2013 12/10/13;		Heliostat Positioning Plan Addendum / Update was submitted to BLM and CEC on 12/10/2014; Also submitted in the Annual Compliance Reports
Traffic & Transport.	TRANS-4	The project owner shall prepare a Power Tower Luminance Monitoring Plan to provide procedures to conduct periodic monitoring and to document, investigate and resolve complaints regarding distraction effects to aviation, vehicular and pedestrian traffic associated with the power towers.	Within 60 days prior to commercial operation of the first ISEGS power plant to become operational, the project owner shall provide a Power Tower Luminance Monitoring Plan applicable for the ISEGS Project for review and approval by BLM's Authorized Officer and the CPM. The plan shall specify procedures to document, investigate and resolve complaints regarding glare, and report these to BLM's Authorized Officer and the CPM within 10 days of receiving a complaint. The project owner shall evaluate the effects of the intensity of the luminance of light reflected from the power tower receivers for the following scenarios: A. Within 90 days following commercial operation; B. After the initial 5 years of operation; C. If a major design change is implemented that results in an increase of the reflective luminance of the power towers for each of the three ISEGS power plants (Ivanpah 1, 2 and 3); and D. After receiving a legitimate complaint regarding a distraction associated with the power towers.	Submitted and Approved - ONGOING DURING PROJECT OPERATIONS	60 days Prior Commercial Operations. 90 days Following Commercial Operations. After the Initial 5 years of Operation	4/18/13: Power Tower Luminance Monitoring Plan Submitted on 4/5/2013. Approved by BLM on 6/13/13. Revision 1 was resubmitted on 9/13/13. Approved by CEC on 12/10/13; Response to Glare complaint Pilot Report ACN 1353100 was submitted to CEC/BLM/FAA on 8/16/2016. Response to Glare complaint Pilot Report ACN 1390751 was submitted to CEC/BLM/FAA on 11/10/2016.	6/13/2013 12/10/13		ISEGS received Pilot Report ACN 1353100 and ACN 1390751 during the reporting period.

Technical Area	COC No.	Description	Verification	Compliance Status	Required Submittal Date	Date Submitted	Approval Date	Date of Amendment	NOTES
Traffic & Transport.	TRANS-4 (continued-1)	The project owner shall prepare a Power Tower Luminance Monitoring Plan to provide procedures to conduct periodic monitoring and to document, investigate and resolve complaints regarding distraction effects to aviation, vehicular and pedestrian traffic associated with the power towers.	The Power Tower Luminance Monitoring Plan shall include provisions for the following: 1. Coordination of luminance evaluations with the FAA, U.S. Department of the Navy, CalTrans, CHP, and with Clark County Department of Aviation in relation to the proposed Southern Nevada Supplemental Airport; 2. Reporting within 30 days after completing luminance measurements required under this plan; the project owner shall submit a summary report to FAA, U.S. Department of the Navy, CalTrans, San Bernardino County, SANBAG, CHP and Clark County Department of Aviation for review and comment, and to BLM's Authorized Officer and the CPM for review and approval. 3. Measurement of luminance at the locations where any distraction effects have been reported and at the locations nearest the power towers from the four sides of the power plant boundaries, and the nearest public road, which may be substituted for one of the sides of the power tower of each of the three power plants during the time of day when values would be highest; 4. Measurement of luminance using an illuminance meter, photometer, or similar device and reporting of data in photometric units; the measurements are intended to provide a relative and quantifiable measure of luminance that can be associated with any observed and reported distraction effect from the power tower receivers that may support anticipation and investigation of any future effects	Approved - COMPLETED ONGOING DURING PROJECT OPERATIONS	60 days Prior Commercial Operations. 90 days Following Commercial Operations. After the Initial 5 years of Operation	4/18/13: Power Tower Luminance Monitoring Plan Submitted on 4/5/2013. Approved by BLM on 6/13/13. Revision 1 was resubmitted on 9/13/13. Approved by CEC on 12/10/13; Response to Glare complaint Pilot Report ACN 1353100 was submitted to CEC/BLM/FAA on 8/16/2016. Response to Glare complaint Pilot Report ACN 1390751 was submitted to CEC/BLM/FAA on 11/10/2016.	6/13/2013 12/10/13		ISEGS received Pilot Report ACN 1353100 and ACN 1390751 during the reporting period.
Traffic & Transport.	TRANS-4 (continued-2)	The project owner shall prepare a Power Tower Luminance Monitoring Plan to provide procedures to conduct periodic monitoring and to document, investigate and resolve complaints regarding distraction effects to aviation, vehicular and pedestrian traffic associated with the power towers.	5. Provisions for identifying and implementing appropriate mitigation measures if reported distraction is determined to be legitimate and if power tower luminance is determined to be causing a safety concern; The project owner shall consider and propose any reasonable mitigation measures that are technically and financially feasible. The mitigation measures may include surface treatment or material changes to increase absorption and reduce reflectivity of the power tower receivers, road signage, screening or other reasonable measures. 6. Post-mitigation verification; Within 30 days following the implementation of mitigation measures designed to reduce reflectivity of the power towers, the project owner shall repeat the luminance measurements to demonstrate the effectiveness of mitigation measures and prepare a supplemental survey report for review and comment by FAA, U.S. Department of the Navy, CalTrans, San Bernardino County, SANBAG, CHP and Clark County Department of Aviation, and for review and approval by BLM's Authorized Officer and the CPM.	Approved - COMPLETED	Post Mitigation Verification - within 30 days following implementation of Mitigation Measures	4/18/13: Power Tower Luminance Monitoring Plan Submitted on 4/5/2013. Approved by BLM on 6/13/13. Revision 1 was resubmitted on 9/13/13. Approved by CEC on 12/10/13; Response to Glare complaint Pilot Report ACN 1353100 was submitted to CEC/BLM/FAA on 8/16/2016. Response to Glare complaint Pilot Report ACN 1390751 was submitted to CEC/BLM/FAA on 11/10/2016.	6/13/2013 12/10/13		ISEGS received Pilot Report ACN 1353100 and ACN 1390751 during the reporting period.

Technical Area	COC No.	Description	Verification	Compliance Status	Required Submittal Date	Date Submitted	Approval Date	Date of Amendment	NOTES
Transmission System Engineering	TSE-7	The project owner shall be responsible for the inspection of the transmission facilities during and after project construction, and any subsequent BLM authorized officer, CPM and CBO approved changes thereto, to ensure conformance with CPUC GO-95 or NESC; Title 8, CCR, Articles 35, 36 and 37 of the "High Voltage Electric Safety Orders"; applicable interconnection standards; NEC; and related industry standards. In case of non-conformance, the project owner shall inform BLM's Authorized Officer, the CPM and CBO in writing, within 10 days of discovering such non-conformance and describe the corrective actions to be taken.	Within 60 days after first synchronization of the project, the project owner shall transmit to BLM's Authorized Officer, the CPM and CBO 1. "As built" engineering description(s) and one-line drawings of the electrical portion of the facilities signed and sealed by the registered electrical engineer in responsible charge. A statement attesting to conformance with CPUC GO-95 or NESC; Title 8, California Code of Regulations, Articles 35, 36 and 37 of the "High Voltage Electric Safety Orders"; applicable interconnection standards; NEC; and related industry standards, and these conditions shall be provided concurrently. 2. An "as built" engineering description of the mechanical, structural, and civil portion of the transmission facilities signed and sealed by the registered engineer in responsible charge or acceptable alternative verification. "As built" drawings of the electrical, mechanical, structural, and civil portion of the transmission facilities shall be maintained at the power plant and made available, if requested, for BLM's Authorized Officer or CPM audit as set forth in the "Compliance Monitoring Plan." 3. A summary of inspections of the completed transmission facilities, and identification of any nonconforming work and corrective actions taken, signed and sealed by the registered engineer in charge	COMPLETED (CONSTRUCTION)	60 days After First Synchronization	19-Nov-2013			Submitted As-Built engineering description of the electrical, mechanical, structural and civil portion of the transmission facilities
Transm. Lines	TLSN-2	The project owner shall use a qualified individual to measure the strengths of the electric and magnetic fields from the line at the points of maximum intensity along the route for which the applicant provided specific estimates. The measurements shall be made before and after energization according to the American National Standard Institute/Institute of Electrical and Electronic Engineers (ANSI/IEEE) standard procedures. These measurements shall be completed no later than 6 months after the start of operations	The project owner shall file copies of the pre-and post-energization measurements with BLM's Authorized Officer and the CPM within 60 days after completion of the measurements.	Submitted	60 days after Completion of Measurements	31-Jul-2014			Pre and Post Energization Measurement Report was submitted on 7/31/2014.
Transm. Lines	TLSN-3	The project owner shall ensure that the rights-of-way of the proposed generation tie lines are kept free of combustible material, as required under the provisions of section 4292 of the Public Resources Code and section 1250 of Title 14 of the California Code of Regulations.	During the first 5 years of plant operation the project owner shall provide a summary of inspection results and any fire prevention activities carried out along the right-of-way and provide such summaries in the Annual Compliance Report to be provided to BLM's Authorized Officer and the CPM.	Ongoing - Annually	First 5 years of Plant Operation	1/30/2015; 1/29/2016			Submitted with the Annual Compliance Report

Technical Area	COC No.	Description	Verification	Compliance Status	Required Submittal Date	Date Submitted	Approval Date	Date of Amendment	NOTES
Visual Resources	VIS-1	At least 90 days prior to specifying to the vendor the colors and finishes for each set of structures or buildings that are surface treated during manufacture, the project owner shall submit the proposed treatment plan to BLM's Authorized Officer and the CPM for review and approval and simultaneously to San Bernardino County for review and comment. If BLM's Authorized Officer and the CPM determine that the plan requires revision, the project owner shall provide to BLM's Authorized Officer and the CPM a plan with the specified revision(s) for review and approval by BLM's Authorized Officer and the CPM before any treatment is applied. Any modifications to the treatment plan must be submitted to BLM's Authorized Officer and the CPM for review and approval. BLM's Authorized Officer and the CPM shall review and approve the Surface Treatment Plan or identify any material deficiencies within thirty (30) days of receipt. The treatment plan shall include: A. A description of the overall rationale for the proposed surface treatment, including the selection of the proposed color(s) and finishes; B. A list of each major project structure, building, tank, pipe, and wall; the transmission line towers and/or poles; and fencing, specifying the color(s) and finish proposed for each. Colors must be identified by vendor, name, and number; or according to a universal designation system; C. One set of color brochures or color chips showing each proposed color and finish; D. A specific schedule for completion of the treatment; and E. A procedure to ensure proper treatment maintenance for the life of the project. The project owner shall not specify to the vendors the treatment of any buildings or structures treated during manufacture, or perform the final treatment on any buildings or structures treated in the field, until the project owner receives notification of approval of the treatment plan by BLM's Authorized Officer and the CPM. Subsequent modifications to the treatment plan are prohibited without BLM's Authorized Officer and CPM approval. Prior to the start of commercial operation, the project owner shall notify BLM's Authorized Officer and the CPM that surface treatment of all listed structures and buildings has been completed and they are ready for inspection and shall submit to each one set of electronic color photographs from the same key observation points identified in (d) above. The project owner shall provide a status report regarding surface treatment maintenance in the Annual Compliance Report. The report shall specify: a) the condition of the surfaces of all structures and buildings at the end of the reporting year; b) maintenance activities that occurred during the reporting year; and c) the schedule of maintenance activities for the next year. <u>Surface Treatment of Project Structures and Buildings:</u> The project owner shall treat the surfaces of all project structures and buildings visible to the public, other than surfaces that are included to direct or reflect sunlight, such that a) their colors minimize visual intrusion and contrast by blending with the existing tan and brown color of the surrounding landscape; and b) their colors and finishes do not create excessive glare. The transmission line conductors shall be non-specular and non-reflective and the insulators shall be non-reflective and non-refractive. The project owner shall submit for CPM review and approval, a specific Surface Treatment Plan that will satisfy these requirements.	At least 90 days prior to specifying to the vendor the colors and finishes for each set of structures or buildings that are surface treated during manufacture, the project owner shall submit the proposed treatment plan to BLM's Authorized Officer and the CPM for review and approval and simultaneously to San Bernardino County for review and comment. If BLM's Authorized Officer and the CPM determine that the plan requires revision, the project owner shall provide to BLM's Authorized Officer and the CPM a plan with the specified revision(s) for review and approval by BLM's Authorized Officer and the CPM before any treatment is applied. Any modifications to the treatment plan must be submitted to BLM's Authorized Officer and the CPM for review and approval. BLM's Authorized Officer and the CPM shall review and approve the Surface Treatment Plan or identify any material deficiencies within thirty (30) days of receipt. The treatment plan shall include: A. A description of the overall rationale for the proposed surface treatment, including the selection of the proposed color(s) and finishes; B. A list of each major project structure, building, tank, pipe, and wall; the transmission line towers and/or poles; and fencing, specifying the color(s) and finish proposed for each. Colors must be identified by vendor, name, and number; or according to a universal designation system; C. One set of color brochures or color chips showing each proposed color and finish; D. A specific schedule for completion of the treatment; and E. A procedure to ensure proper treatment maintenance for the life of the project. The project owner shall not specify to the vendors the treatment of any buildings or structures treated during manufacture, or perform the final treatment on any buildings or structures treated in the field, until the project owner receives notification of approval of the treatment plan by BLM's Authorized Officer and the CPM. Subsequent modifications to the treatment plan are prohibited without BLM's Authorized Officer and CPM approval. Prior to the start of commercial operation, the project owner shall notify BLM's Authorized Officer and the CPM that surface treatment of all listed structures and buildings has been completed and they are ready for inspection and shall submit to each one set of electronic color photographs from the same key observation points identified in (d) above. The project owner shall provide a status report regarding surface treatment maintenance in the Annual Compliance Report. The report shall specify: a) the condition of the surfaces of all structures and buildings at the end of the reporting year; b) maintenance activities that occurred during the reporting year; and c) the schedule of maintenance activities for the next year.	Approved During Construction.	90 days Prior Specifying to the Vendor the Colors and Finishes.	6/30/2010; 11/4/2010 (amend. 1 & 2); 12/8/2010 (amend. 3 & 4); 4/5/2011 (amend. 5 & 6); Plan Revision 1 May 27, 2011; Revision 1.2 submitted June 27, 2011; Revision 1.3 submitted September 7, 2011; 1/30/2015; 1/29/2016	10/7/2010; 11/23/2010 (amend. 1 & 2); 1/10/2011 (amend. 3 & 4); 4/15/2011 (amend. 5); 5/2/2011 (amend. 6)		Submitted in the Annual Compliance Reports

Technical Area	COC No.	Description	Verification	Compliance Status	Required Submittal Date	Date Submitted	Approval Date	Date of Amendment	NOTES
Visual Resources	VIS-2	<u>Landscape Screening of Golf Course:</u> At the request of, and in consultation with BLM's Authorized Officer, the CPM and the golf course owner, the project owner shall prepare a perimeter landscape screening plan to reduce the visibility of the proposed ISEGS project as seen from the golf course. The purpose of the plan shall be to provide screening of the power project, particularly the mirror fields, while retaining as much of the scenic portion of the overall views of Ivanpah Valley and Clark Mountains as feasible. The design approach shall be developed with prior consultation with the golf course owner, and implemented only at the golf course owner's request. The project owner shall submit to BLM's Authorized Officer and the CPM for review and approval and simultaneously to the golf course owner for review and comment a preliminary conceptual landscaping plan whose objective is to provide an attractive visual screen to views of the ISEGS project mirror fields. Upon approval by BLM's Authorized Officer and the CPM and golf course owner, the project owner shall submit to BLM's Authorized Officer and the CPM for review and approval and simultaneously to the golf course owner for review and comment a landscaping plan whose proper implementation will satisfy these requirements. The plan shall not be implemented until the project owner receives final approval from BLM's Authorized Officer and the CPM.	The landscaping plan shall be submitted to BLM's Authorized Officer and the CPM for review and approval and simultaneously to the golf course owner for review and comment at least 90 days prior to installation of the landscaping. If BLM's Authorized Officer and the CPM determine that the plan requires revision, the project owner shall provide to BLM's Authorized Officer and the CPM and simultaneously to the golf course owner a revised plan for review and approval by BLM's Authorized Officer and the CPM. The plan shall include: A. A detailed landscape, grading, and irrigation plan, at a reasonable scale. The plan shall demonstrate how the requirements stated above shall be met. The plan shall provide a detailed installation schedule demonstrating installation of as much of the landscaping as early in the construction process as is feasible in coordination with project construction. B. A list (prepared by a qualified professional arborist familiar with local growing conditions) of proposed species, specifying installation sizes, growth rates, expected time to maturity, expected size at five years and at maturity, spacing, number, availability, and a discussion of the suitability of the plants for the site conditions and mitigation objectives, with the objective of providing the widest possible range of species from which to choose; C. Maintenance procedures, including any needed irrigation and a plan for routine annual or semi-annual debris removal for the life of the project; D. A procedure for monitoring for and replacement of unsuccessful plantings for the life of the project; and E. One set each for BLM's Authorized Officer and the CPM of 11"x17" color photo simulations of the proposed landscaping at five years and twenty years after planting, as viewed from adjoining segments of I-15. The plan shall not be implemented until the project owner receives final approval from BLM's Authorized Officer and the CPM. The planting must occur during the first optimal planting season following site mobilization. The project owner shall simultaneously notify BLM's Authorized Officer and the CPM and the golf course owner within seven days after completing installation of the landscaping, that the landscaping is ready for inspection. The project owner shall report landscape maintenance activities, including replacement of dead or dying vegetation, for the previous year of operation in each Annual Compliance Report.	COMPLETED LANDSCAPING WORKS. MAINTENANCE WORKS IN PROGRESS	ANNUALLY (To be included in the Annual Compliance Report)	1/30/2015; 1/29/2016			Landscaping along the Golf Course was completed. Landscape maintenance monitoring in progress and shall be reported in the Annual Compliance Report. A letter from Primm Valley Golf Club dated 9/16/2015 informed Solar Partners that they will permanently take over responsibilities for the well-being of the replaced trees and relieving Solar Partners of any future financial/reporting obligation for the maintenance of the Golf Course Landscape Screening under the requirement of this Condition of Certification. A copy of the letter was submitted with the 2015 Annual Compliance Report on 1/29/2016.
Visual Resources	VIS-4 (Continued-1)	<u>Temporary and Permanent Exterior Lighting:</u> To the extent feasible, consistent with safety and security considerations, the project owner shall design and install all permanent exterior lighting and all temporary construction lighting such that a) lamps and reflectors are not visible from beyond the project site, including any off-site security buffer areas; b) lighting does not cause excessive reflected glare; c) direct lighting does not illuminate the nighttime sky, except for required FAA aircraft safety lighting; d) illumination of the project and its immediate vicinity is minimized, and e) the plan complies with local policies and ordinances. The project owner shall submit to BLM's Authorized Officer and the CPM for review and approval and simultaneously to the County of San Bernardino for review and comment a lighting mitigation plan.	E. All lighting shall be of minimum necessary brightness consistent with operational safety and security; and F. Lights in high illumination areas not occupied on a continuous basis (such as maintenance platforms) shall have (in addition to hoods) switches, timer switches, or motion detectors so that the lights operate only when the area is occupied. The project owner shall not order any exterior lighting until receiving BLM's Authorized Officer and CPM approval of the lighting mitigation plan. Prior to commercial operation, the project owner shall notify BLM's Authorized Officer and the CPM that the lighting has been completed and is ready for inspection. <i>If after inspection, BLM's Authorized Officer and the CPM notify the project owner that modifications to the lighting are needed, within 30 days of receiving that notification the project owner shall implement the modifications and notify BLM's Authorized Officer and the CPM that the modifications have been completed and are ready for inspection.</i>	Approved - COMPLETED (CONSTRUCTION) AS NEEDED DURING OPERATIONS	Within 30 days of Receiving Notification from BLM & CEC	11/1/2010; 12/14/2010 (amend. 1)	Amend 1 approved by BLM and CEC on 1/11/2012		Lighting Plan Addendum 1 submitted 11/02/12
Waste Mgmt.	WASTE-5	Upon becoming aware of any impending waste management-related enforcement action by any local, state, or federal authority, the project owner shall notify BLM's Authorized Officer and the CPM of any such action taken or proposed to be taken against the project itself, or against any waste hauler or disposal facility or treatment operator with which the owner contracts.	The project owner shall notify BLM's Authorized Officer and the CPM in writing within 10 days of becoming aware of an impending enforcement action. BLM's Authorized Officer and the CPM shall notify the project owner of any changes that will be required in the way project-related wastes are managed.	As needed	As needed				

Technical Area	COC No.	Description	Verification	Compliance Status	Required Submittal Date	Date Submitted	Approval Date	Date of Amendment	NOTES
Waste Mgmt.	WASTE-6	The project owner shall prepare an Operation Waste Management Plan for all wastes generated during operation of the facility and shall submit the plan to BLM's Authorized Officer and the CPM for review and approval. The plan shall contain, at a minimum, the following: - a detailed description of all operation and maintenance waste streams, including projections of amounts to be generated, frequency of generation, and waste hazard classifications; - management methods to be used for each waste stream, including temporary on-site storage, housekeeping and best management practices to be employed, treatment methods and companies providing treatment services, waste testing methods to assure correct classification, methods of transportation, disposal requirements and sites, and recycling and waste minimization/source reduction plans; - information and summary records of conversations with the local Certified Unified Program Agency and the Department of Toxic Substances Control regarding any waste management requirements necessary for project activities. Copies of all required waste management permits, notices, and/or authorizations shall be included in the plan and updated as necessary; - a detailed description of how facility wastes will be managed and any contingency plan to be employed, in the event of an unplanned closure or planned temporary facility closure; and - a detailed description of how facility wastes will be managed and disposed upon closure of the facility.	The project owner shall submit the Operation Waste Management Plan to BLM's Authorized Officer and the CPM for approval no less than 30 days prior to the start of project operation. BLM's Authorized Officer and the CPM shall approve or identify any material deficiencies in the Operation Waste Management Plan within 30 days following receipt of the Plan. The project owner shall submit any required revisions to BLM's Authorized Officer and the CPM within 20 days of notification from BLM's Authorized Officer and the CPM that revisions are necessary. <u>The project owner shall also document in each Annual Compliance Report the actual volume of wastes generated and the waste management methods used during the year; provide a comparison of the actual waste generation and management methods used to those proposed in the original Operation Waste Management Plan; and update the Operation Waste Management Plan as necessary to address current waste generation and management practices.</u>	Operations Waste Management Plan was submitted on 9/24/2013	30 days Prior to the Start of Project Operations Annual Reporting Required in the Annual Compliance Report	9/24/2013; 1/30/2015; 1/29/2016			Operations Waste Management Plan was submitted on 9/24/2013; Actual volume of wastes generated submitted in the Annual Compliance Report
Waste Mgmt.	WASTE-7	The project owner shall ensure that all spills or releases of hazardous substances, hazardous materials, or hazardous waste are reported, cleaned up, and remediated as necessary, in accordance with all applicable federal, state, and local requirements.	The project owner shall document all unauthorized releases and spills of hazardous substances, materials, or wastes that occur on the project property or related pipeline and transmission corridors. The documentation shall include, at a minimum, the following information: location of release; date and time of release; reason for release; volume released; amount of contaminated soil/material generated; how release was managed and material cleaned up; if the release was reported; to whom the release was reported; release corrective action and cleanup requirements imposed by regulating agencies; level of cleanup achieved and actions taken to prevent a similar release or spill; and disposition of any hazardous wastes and/or contaminated soils and materials that may have been generated by the release. Copies of the unauthorized spill documentation shall be provided to BLM's Authorized Officer and the CPM within 30 days of the date the release was discovered.	As needed/ONGOING REPORTED IN MCR	As needed	8/15/2016; 10/13/2016			Notified CEC/BLM on 7/29/2016 on the lube oil release on 7/29/2016 at Unit 1. The Spill Report was submitted on 8/15/2016. Notified CEC/BLM on 10/2/2016 on the lube oil release at Unit 3. The Spill Report was submitted on 10/13/2016.
Worker Safety & FP	WS-2	The project owner shall submit to BLM's Authorized Officer and the CPM a copy of the Project Operations and Maintenance Safety and Health Program containing the following: - An Operation Injury and Illness Prevention Plan; - An Emergency Action Plan; - Hazardous Materials Management Program; - Fire Prevention Program (8 CCR § 3221); and; - Personal Protective Equipment Program (8 CCR §§ 3401-3411).	At least thirty (30) days prior to the start of first-fire or commissioning, the project owner shall submit to BLM's Authorized Officer and the CPM for approval a copy of the Project Operations and Maintenance Safety and Health Program. The project owner shall provide a copy of a letter to BLM's Authorized Officer and the CPM from the San Bernardino County Fire Department stating the Fire Department's comments on the Operations Fire Prevention Plan and Emergency Action Plan. The Operation Injury and Illness Prevention Plan, Emergency Action Plan and Personal Protective Equipment Program shall be submitted to BLM's Authorized Officer and the CPM for review and approval concerning compliance of the program with all applicable Safety Orders. The Operation Fire Prevention Plan and the Emergency Action Plan shall also be submitted to the San Bernardino County Fire Department for review and comment.	Submitted Project Operations Safety and Health Program to BLM's Authorized Officer and the CPM and SBCFD.	30 days Prior Start of First Fire or Commissioning	19-Nov-2013			
Worker Safety & FP	WS-5	The project owner shall ensure that a portable automatic external defibrillator (AED) is located on site during construction and operations and shall implement a program to ensure that workers are properly trained in its use and that the equipment is properly maintained and functioning at all times. During construction and commissioning, the following persons shall be trained in its use and shall be on-site whenever the workers that they supervise are on-site: the Construction Project Manager or delegate, the Construction Safety Supervisor or delegate, and all shift foremen. During operations, all power plant employees shall be trained in its use. The training program shall be submitted to BLM's Authorized Officer and the CPM for review and approval.	At least thirty (30) days prior to the start of site mobilization the project owner shall submit to BLM's Authorized Officer and the CPM proof that a portable AED exists on site and a copy of the training and maintenance program for review and approval.	Approved (Construction) ONGOING DURING OPERATIONS.	30 days Prior Site Mobilization	13-Aug-2010	2-Sep-2010		

Exhibit 3

Air Quality Conditions of Certification

Appendix A

**Conditions of Certification
AQ-01 & AQ-27**

**Project Owner Statement
Pertaining to Equipment Non-
Compliant Operations**



NRG Ivanpah Solar Electric Generating System
100302 Yates Well Road, HCR1, Box 280 Nipton, CA 92364
Ph: 702-815-2021 Fax: 702-815-2030

January 5, 2017

Mr. Joseph Douglas
Compliance Project Manager
California Energy Commission, Siting, Transportation and Environmental Protection Division
1516 9th Street
Sacramento, CA 95814

Mr. Michael Ahrens
Authorized Officer
Bureau of Land Management, Needles Field Office
1303 U.S. Hwy 95 S.
Needles, CA 92363

RE: Ivanpah Solar Electric Generating System (07-AFC-5C) Project Owner Statement Pertaining to Equipment Non-compliant Operations that shall be Listed in the Annual Compliance Report (COMPLIANCE-7) to fulfill California Energy Commission Conditions of Certification, AQ-1 and AQ-27

Dear Mr. Douglas and Mr. Ahrens,

In accordance with the requirements of Conditions of Certifications AQ-01 and AQ-27 of the Commission's approval of the Ivanpah Solar Electric Generating System, we are providing the following statement as a requirement in the Annual Compliance Report:

Operation of all auxiliary boilers and nighttime preservation boilers are conducted in compliance with all specifications and requirements submitted with the applications under which the permits were issued. Mojave Desert Air Quality Management District (MDAQMD) conducted an Air Quality Inspection on August 2, 2016, and reported that the facility is in full compliance with these Conditions of Certification and MDAQMD permit conditions. There are no non-compliant air quality operations to be listed in the annual compliance report.

William Dusenbury

General Manager,
NRG Ivanpah Solar Electric Generating System
100302 Yates Well Road, Nipton, CA – 92364

CC: Doug Davis, NRG
Tim Sisk, NRG
Document Control Specialist – NRG.

Appendix B

Conditions of Certification AQ-02 & AQ-28

Project Owner Statement Pertaining to Violations in Equipment Operations



NRG Ivanpah Solar Electric Generating System
100302 Yates Well Road, HCR1, Box 280 Nipton, CA 92364
Ph: 702-815-2021 Fax: 702-815-2030

January 5, 2017

Mr. Joseph Douglas
Compliance Project Manager
California Energy Commission, Siting, Transportation and Environmental Protection Division
1516 9th Street
Sacramento, CA 95814

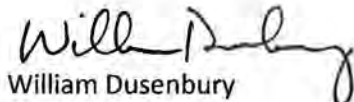
Mr. Michael Ahrens
Authorized Officer
Bureau of Land Management, Needles Field Office
1303 U.S. Hwy 95 S.
Needles, CA 92363

RE: Ivanpah Solar Electric Generating System (07-AFC-5C) Project Owner/Operator Statement Pertaining to Violations in Equipment Operations that shall be Included in the Annual Compliance Report (COMPLIANCE-7) to fulfill California Energy Commission Conditions of Certifications, AQ-2 and AQ-28

Dear Mr. Douglas and Mr. Ahrens,

In accordance with the requirements of Conditions of Certifications AQ-2 and AQ-28 of the Commission's approval of the Ivanpah Solar Electric Generating System, we are providing the following statement as a requirement in the Annual Compliance Report:

The owner's/operator's operation of all auxiliary boilers and nighttime preservation boilers are in strict accord with the recommendations of the manufacturer or supplier and/or sound engineering principles, and consistent with all information submitted with the permit applications. Mojave Desert Air Quality Management District (MDAQMD) conducted an Air Quality Inspection on August 2, 2016, and reported that the facility is in full compliance with this Condition of Certification. There are no air quality violations or operational non-compliance information to be included in the annual compliance report.


William Dusenbury

General Manager,
NRG Ivanpah Solar Electric Generating System
100302 Yates Well Road, Nipton, CA – 92364



NRG Ivanpah Solar Electric Generating System
100302 Yates Well Road, HCR1, Box 280 Nipton, CA 92364
Ph: 702-815-2021 Fax: 702-815-2030

CC: Doug Davis, NRG
Tim Sisk, NRG
Document Control Specialist – NRG.

Appendix C

Conditions of Certification AQ-03 & AQ-29

Project Owner Statement Pertaining to Use of Natural Gas as Fuel for the Boilers



NRG Ivanpah Solar Electric Generating System
100302 Yates Well Road, HCR1, Box 280 Nipton, CA 92364
Ph: 702-815-2021 Fax: 702-815-2030

January 5, 2017

Mr. Joseph Douglas
Compliance Project Manager
California Energy Commission, Siting, Transportation and Environmental Protection Division
1516 9th Street
Sacramento, CA 95814

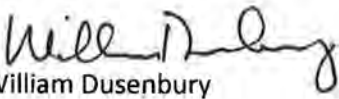
Mr. Michael Ahrens
Authorized Officer
Bureau of Land Management, Needles Field Office
1303 U.S. Hwy 95 S.
Needles, CA 92363

RE: Ivanpah Solar Electric Generating System (07-AFC-5C) Project Owner/Operator Statement Pertaining to Use of Natural Gas as Fuel for the Boilers and Include Proofs in the Annual Compliance Report (COMPLIANCE-7) to fulfill California Energy Commission Conditions of Certifications, AQ-3 and AQ-29

Dear Mr. Douglas and Mr. Ahrens,

In accordance with the requirements of Conditions of Certifications AQ-3 and AQ-29 of the Commission's approval of the Ivanpah Solar Electric Generating System (ISEGS), we are providing the following statement as a requirement in the Annual Compliance Report:

ISEGS is using pipeline quality natural gas supplied from Kern River Gas Transmission Company pipeline. KRGT Company is a Public Utility Company that was previously approved for this project. Mojave Desert Air Quality Management District (MDAQMD) conducted an Air Quality Inspection on August 2, 2016, and reported that the facility is in full compliance with these Conditions of Certifications.


William Dusenbury

General Manager,
NRG Ivanpah Solar Electric Generating System
100302 Yates Well Road, Nipton, CA – 92364



NRG Ivanpah Solar Electric Generating System
100302 Yates Well Road, HCR1, Box 280 Nipton, CA 92364
Ph: 702-815-2021 Fax: 702-815-2030

CC: Doug Davis, NRG
Tim Sisk, NRG
Mitch Samuelian, NRG
Document Control Specialist – NRG.

Appendix D

**Conditions of Certification
AQ-12 & AQ-34**

**Auxiliary Boilers & Nighttime
Preservation Boilers Gas
Consumption Record**

2016 - ISEGS AUXILIARY BOILERS and NIGHTTIME PRESERVATION BOILERS GAS CONSUMPTION RECORD

(Compliance with AQ-03, AQ-04, AQ-08, AQ-11, AQ-12, AQ-29, AQ-30, AQ-32 & AQ-34)

Last Reading Taken on: 31-Dec-2016

LOCATION (MDAQMD PERMIT No.)	2016 AUXILIARY BOILER GAS CONSUMPTION				2016 NIGHTTIME PRESERVATION BOILER GAS CONSUMPTION				2016 YTD GAS CONSUMPTION				ANNUAL GAS CONSUMPTION LIMIT	2016 AVAILABLE CAPACITY FOR CONSUMPTION	2016 AVERAGE DAILY AVAILABLE CAPACITY
	(lbm)	(SCF)	(MMSCF)	(MMBTU)	(lbm)	(SCF)	(MMSCF)	(MMBTU)	(lbm)	(SCF)	(MMSCF)	(MMBTU)	(MMSCF)	(MMSCF)	(MMSCF)
Unit 1 Gas Consumption by Month:															
Jan-2016	1,102,252	24,474,638	24.47	25,617.29	95,011	2,110,062.97	2.11	2,207.82	1,197,263	26,584,701	26.58	27,825.11			
Feb-2016	1,609,111	35,786,148	35.79	37,388.01	85,997	1,912,475.02	1.91	1,998.18	1,695,108	37,698,623	37.70	39,386.19			
Mar-2016	2,251,319	50,561,709	50.56	52,386.99	92,041	2,064,962.59	2.06	2,141.10	2,343,360	52,626,672	52.63	54,528.09			
Apr-2016	1,172,100	26,200,500	26.20	27,248.09	74,151	1,647,332.64	1.65	1,719.96	1,246,251	27,847,832	27.85	28,968.05			
May-2016	2,306,795	51,797,814	51.80	53,666.72	72,727	1,632,867.92	1.63	1,692.04	2,379,522	53,430,682	53.43	55,358.76			
Jun-2016	2,557,495	57,354,849	57.35	59,477.21	70,957	1,591,785.37	1.59	1,650.37	2,628,452	58,946,635	58.95	61,127.58			
Jul-2016	2,556,792	56,783,141	56.78	59,290.92	44,616	991,751.54	0.99	1,034.86	2,601,408	57,774,892	57.77	60,325.77			
Aug-2016	2,105,734	46,656,682	46.66	48,805.41	19,416	430,498.07	0.43	449.74	2,125,150	47,087,180	47.09	49,255.15			
Sep-2016	1,659,957	36,833,524	36.83	38,499.49	75,643	1,678,301.89	1.68	1,754.56	1,735,600	38,511,826	38.51	40,254.05			
Oct-2016	1,419,281	31,735,698	31.74	32,988.12	102,134	2,283,721.81	2.28	2,374.10	1,521,416	34,019,420	34.02	35,362.22			
Nov-2016	1,056,488	23,719,537	23.72	24,617.35	108,450	2,434,022.64	2.43	2,526.88	1,164,938	26,153,559	26.15	27,144.24			
Dec-2016	921,286	20,516,956	20.52	21,416.65	126,607	2,819,595.55	2.82	2,942.86	1,047,893	23,336,551	23.34	24,359.51			
Ivanpah 1 Aux. Boiler (B010375) & Nighttime Preservation Boiler (B011544)	20,718,611	462,421,197	462.42	481,402.25	967,751	21,597,378.02	21.60	22,492.48	21,686,362	484,018,575	484.02	503,894.72	525.00	40.98	2.05
Unit 2 Gas Consumption by Month:															
Jan-2016	1,586,466	35,237,377	35.24	36,874.61	91,365	2,029,460.45	2.03	2,123.38	1,677,831	37,266,837	37.27	38,997.98			
Feb-2016	1,285,789	28,587,713	28.59	29,872.47	55,788	1,240,254.40	1.24	1,296.04	1,341,577	29,827,967	29.83	31,168.52			
Mar-2016	2,149,018	48,258,710	48.26	50,003.99	65,355	1,465,896.51	1.47	1,520.20	2,214,373	49,724,607	49.72	51,524.19			
Apr-2016	635,735	14,238,874	14.24	14,788.70	16,452	368,595.99	0.37	382.74	652,188	14,607,470	14.61	15,171.44			
May-2016	0	0	0.00	0.00	0	0.00	0.00	0.00	0	0	0.00	0.00			
Jun-2016	933,727	20,931,731	20.93	21,703.71	30,130	675,722.60	0.68	700.50	963,857	21,607,454	21.61	22,404.21			
Jul-2016	2,255,888	50,109,874	50.11	52,308.76	54,482	1,210,247.02	1.21	1,263.34	2,310,370	51,320,121	51.32	53,572.09			
Aug-2016	1,641,832	36,383,246	36.38	38,052.87	77,032	1,706,754.42	1.71	1,785.38	1,718,864	38,090,000	38.09	39,838.25			
Sep-2016	1,468,610	32,592,643	32.59	34,062.09	61,672	1,368,256.32	1.37	1,430.39	1,530,282	33,960,899	33.96	35,492.48			
Oct-2016	1,488,536	33,289,499	33.29	34,601.41	84,224	1,882,633.35	1.88	1,957.50	1,572,760	35,172,132	35.17	36,558.91			
Nov-2016	1,266,903	28,444,280	28.44	29,518.77	90,089	2,022,246.34	2.02	2,099.09	1,356,992	30,466,526	30.47	31,617.86			
Dec-2016	993,156	22,115,180	22.12	23,086.30	96,654	2,152,598.77	2.15	2,246.58	1,089,810	24,267,779	24.27	25,332.88			
Ivanpah 2 Aux. Boiler (B010376) & Nighttime preservation Boiler (B011572)	15,705,659	350,189,127	350.19	364,873.68	723,244	16,122,666.16	16.12	16,805.12	16,428,904	366,311,793	366.31	381,678.80	525.00	158.69	7.93
Unit 3 Gas Consumption by Month:															
Jan-2016	1,576,273	34,998,667	35.00	36,635.96	58,219	1,293,356.35	1.29	1,352.93	1,634,492	36,292,023	36.29	37,988.89			
Feb-2016	1,813,604	40,329,469	40.33	42,140.61	66,024	1,468,212.76	1.47	1,534.03	1,879,628	41,797,682	41.80	43,674.63			
Mar-2016	2,272,232	51,023,035	51.02	52,870.67	65,637	1,472,995.17	1.47	1,526.87	2,337,869	52,496,030	52.50	54,397.54			
Apr-2016	1,837,833	41,070,708	41.07	42,713.30	87,579	1,947,609.22	1.95	2,031.72	1,925,412	43,018,317	43.02	44,745.02			
May-2016	1,161,388	26,042,064	26.04	27,016.84	41,376	927,609.51	0.93	962.54	1,202,764	26,969,674	26.97	27,979.38			
Jun-2016	1,787,998	40,089,856	40.09	41,578.59	50,978	1,143,020.71	1.14	1,185.72	1,838,976	41,232,877	41.23	42,764.31			
Jul-2016	2,267,123	50,360,578	50.36	52,572.59	55,488	1,232,706.81	1.23	1,286.70	2,322,611	51,593,284	51.59	53,859.29			
Aug-2016	950,774	21,061,557	21.06	22,039.76	51,544	1,141,736.43	1.14	1,194.45	1,002,318	22,203,293	22.20	23,234.21			
Sep-2016	1,438,792	31,924,102	31.92	33,370.18	64,902	1,440,035.56	1.44	1,505.39	1,503,694	33,364,137	33.36	34,875.57			
Oct-2016	1,485,095	33,216,743	33.22	34,523.17	77,461	1,731,012.21	1.73	1,800.23	1,562,556	34,947,755	34.95	36,323.40			
Nov-2016	1,269,029	28,497,181	28.50	29,567.22	90,623	2,033,993.67	2.03	2,111.67	1,359,653	30,531,174	30.53	31,678.89			
Dec-2016	1,284,783	28,615,533	28.62	29,868.62	82,739	1,842,496.21	1.84	1,922.88	1,367,522	30,458,029	30.46	31,791.51			
Ivanpah 3 Aux. Boiler (B010377) & Nighttime Preservation Boiler (B011573)	19,144,924	427,229,491	427.23	444,897.51	792,571	17,674,784.63	17.67	18,415.12	19,937,495	444,904,276	444.90	463,312.63	525.00	80.10	4.00
2016 YTD COMBINED GAS CONSUMPTION	55,569,194	1,239,839,815	1,239.84	1,291,173.43	2,483,567	55,394,828.81	55.39	57,712.73	58,052,761	1,295,234,644	1,295.23	1,348,886.16	1,575.00	279.77	13.99

Appendix E

Condition of Certification AQSC-07

Dust Control Annual Report



NRG Ivanpah Solar Electric Generating System
100302 Yates Well Road, HCR1, Box 280 Nipton, CA 92364
Ph: 702-815-2021 Fax: 702-815-2030

January 5, 2017

Mr. Joseph Douglas
Compliance Project Manager
California Energy Commission, Siting, Transportation and Environmental Protection Division
1516 9th Street
Sacramento, CA 95814

Mr. Michael Ahrens
Authorized Officer
Bureau of Land Management, Needles Field Office
1303 U.S. Hwy 95 S.
Needles, CA 92363

RE: Ivanpah Solar Electric Generating System (07-AFC-5C) Operations Dust Control Annual Report, to fulfill California Energy Commission Condition of Certification, AQSC-7

Dear Mr. Douglas and Mr. Ahrens,

In accordance with Section 5.1 of the Operations Dust Control Plan submitted under the requirements of Condition of Certification AQSC-7 of the Commission's approval of the Ivanpah Solar Electric Generating System, we are providing the following recordkeeping and reporting requirements of the Operations Dust Control Plan as a requirement in the Annual Compliance Report:

Requirement #1: For dust suppressants, the CARB equipment precertification Executive Order and Evaluation Report or EPA Environmental Technology Verification Report, as appropriate. Only dust suppressants certified through CARB's Equipment Precertification Program⁴ or U.S. EPA's Environmental Technology Verification Program⁵ will be used onsite, unless approved in advance in writing by the CEC CPM. Dust suppressants that are disallowed by California's Regional Water Quality Control Boards and/or the Mojave Desert AQMD will not be utilized.

Water is the only medium of dust suppressant used in the ISEGS facility. However, there were no site activities requiring dust abatement during the reporting period.

Requirement #2: Documentation of any fugitive dust complaints made to the Mojave Desert AQMD (where ISEGS was subsequently notified), and documentation of any fugitive dust complaints made directly with the ISEGS.

ISEGS did not receive any fugitive dust complaints during the reporting period, either from the Mojave Desert AQMD or directly.



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Requirement #3: Copies of any fugitive dust violations received, and immediate actions taken to return to compliance.

ISEGS did not receive any fugitive dust violations during the reporting period.

Requirement #4: A record of each visible dust plume response performed under Section 4.0. The record will identify the date and time that a visible dust plume meeting the criteria of Section 4.2 was observed; the source of the dust plume; the specific mitigation measures directed under Steps 1, 2, or 3; the time that the specific mitigation measures were directed under Steps 1, 2, or 3; the effectiveness of each mitigation measure directed, and a record of any appeals/responses to/from the CEC CPM or the Bureau of BLM Authorized Officer in relation to the shutdown of dust plume generating activities.

ISEGS implemented standard control measures as listed in section 3.3 of the Operations Dust Control Plan. Per section 4.0, the Environmental Specialist (VEE Certified) monitored the site for dust plumes. No visible plumes were observed either 400 feet upwind from any regularly occupied structure not owned by ISEGS or 200 feet beyond the centerline of a linear feature. No additional response as outlined in section 4.0 was required.

A handwritten signature in black ink, appearing to read "William Dusenbury".

William Dusenbury

General Manager,
NRG Ivanpah Solar Electric Generating System
100302 Yates Well Road, Nipton, CA – 92364

CC: Doug Davis, NRG
Tim Sisk, NRG
Document Control Specialist – NRG.

Exhibit 4

Biological Resources Conditions of Certification

Appendix F

**Conditions of Certification BIO-2,
BIO-4, BIO-10, BIO-11, BIO-18,
BIO-20, & BIO-21**

2016 Annual Biological Report

Ivanpah Solar Electric Generating System
California Energy Commission (07-AFC-5C)
Bureau of Land Management
(CACA-48668, 49502, 49503, and 49504)
Conditions of Certification BIO-2, BIO-4, BIO-10,
BIO-11, BIO-18, BIO-20, BIO-21

Annual Biological Report
January 1, 2016 – December 31, 2016
Reporting Period

January 16, 2017

Prepared by: Designated Biologist
(on behalf of Solar Partners I, II, VIII LLC's)

100302 Yates Well Road
Nipton, CA 92364

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Appendix I	ISEGS Juvenile Desert Tortoise Translocation 2016 Annual Report
Appendix J	Summary and Maps of ISEGS 2016 Tortoise Fatalities
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1.0 Introduction

This report is submitted in accordance with condition of certification (COC) BIO-2, BIO-4, BIO-10, BIO-11, BIO-18, BIO-20 and BIO-21 of the California Energy Commission (CEC) Ivanpah Solar Electric Generating System (ISEGS) Commission Decision (07-AFC-5C) and terms, conditions, and stipulations of the Bureau of Land Management (BLM) right of way agreement (CACA-48668, 49502, 49503, and 49504). Each of these conditions requires reporting on an annual basis for particular aspects of the project related to biological resources. The requirements of each of these conditions are outlined below and this report addresses each of these requirements.

BIO-2 and BIO-4 require:

“During project operation, the Designated Biologist shall submit record summaries in the Annual Compliance Report.”

BIO-10 requires:

The Designated Biologist will provide the Bureau of Land Management (BLM) Authorized Officer (AO) and the CEC Compliance Project Manager (CPM) with an annual Listed Species Status Report which shall include at a minimum: “1) A general description of the status of the project site and construction activities, including actual or projected completion dates, if known; 2) a copy of the table in the Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP) for the Ivanpah Solar Electric Generating System, San Bernardino County, California (07-AFC-5C), COC BIO-7 with notes showing the current implementation status of each mitigation measure; and 3) an assessment of the effectiveness of each completed or partially completed mitigation measure in minimizing and compensating for project impacts.”

BIO-11 requires:

“The Designated Biologist shall provide to the CPM, BLM’s Authorized Officer, CDFG, and USFWS an annual report summarizing all available data (species of carcass, date and location collected, and cause of death) describing bird and other carcasses collected within the project site each year.”

BIO-18 requires:

“During project operation, the Designated Biologist shall submit record summaries in the Annual Compliance Report for a period not less than 10 years for the Gas Pipeline Revegetation Plan,

and for the life of the project for the Special-Status Plant Protection and Monitoring Plan, and the Special-Status Plant Remedial Action Plan, including funding for the seed storage.”

BIO-20 requires:

“A copy of the notify change of conditions report shall be included in the annual reports”

BIO-21 requires:

“Following the completion of the fourth quarter of monitoring, the Designated Biologist shall prepare an Annual Report that summarizes the year’s data, analyzes any Project-related bird fatalities or injuries detected, and provides recommendations for future monitoring and any adaptive management actions needed.”

This report provides the required information for BIO-2, BIO-4, BIO-10, BIO-20 and the data for non-avian species as required in BIO-11. Avian reporting as required by BIO-11, BIO-21, and terms, conditions, and stipulations of the BLM right of way agreement is provided under separate cover. In addition, BIO-18 requirements are provided under a separate cover. This report provides an update on the project status, the BRMIMP table, an assessment of mitigation measures, and a summary of data for non-avian species.

2.0 Project Status

On December 30, 2013, Ivanpah 1 commenced commercial operations. On December 31, 2013, Ivanpah 2 and 3 commenced commercial operations. As a result of the commencement of commercial operations, the management of the environmental compliance at the facility was transferred to NRG Energy Services (NRG), the operator of the facility.

NRG operated the ISEGS facility from January 1, 2016 through December 31, 2016. The Designated Biologist and/or Biological Monitors are still present at the facility seven (7) days a week working with the NRG to implement the CEC's conditions of certifications, terms, conditions, and stipulations of the BLM right of way agreement, and the USFWS biological opinions mitigation measures.

2.1 Operations Monitoring Summary

Monitoring of environmental conditions within the project fence line boundaries included but were not limited to kit fox activity, weed presence and management, nesting birds, and tortoise husbandry at the quarantine pen. In addition, biological staff responded to reports of wildlife presence or incidents involving wildlife throughout the facility. Additionally, the Avian & Bat Management and Monitoring Plan (ABMMP) was implemented during 2016 by WEST Inc. biologists.

On a typical weekday:

- The designated biologist or biological monitor inspected the three units and the construction logistic areas (CLA), for fence integrity and fence repairs, weed presence, nesting birds, kit fox activity, presence of avian and bat mortalities and injuries.
- The designated biologist or biological monitor performed maintenance on avian deterrent systems at Ivanpah Units 1, 2, and 3.
- Starting in September in Ivanpah 1, the designated biologist began camera monitoring the newly installed Roadrunner best management practice measures within the fence line.
- One authorized biologist implemented the Husbandry Plan at the quarantine pens.
- One biological monitor collected raven and nesting bird data.

2.1.1 Ivanpah 1, 2, and 3, Construction Logistics Areas, and Colosseum Road

The designated biologist or biological monitor performed the following activities:

- Monitored fences for breaches
- Surveyed for weeds
- Monitored tortoise activity
- Performed maintenance on Bird Buffer and Gard
- Responded to the presence or incident involving wildlife
- Collected raven and nesting bird data

2.1.2 Construction in 2016

In 2016, two construction activities were undertaken at the facility. The first was the installation of a 3-foot section of tortoise guard along the north side of Colosseum Road on July 12, 2016. The tortoise guard was installed to allow Primm Golf Course access to a well site. Prior to the commencement of the installation, the area was surveyed by a biological monitor for the presence of mammals or other wildlife. The biological monitor was present to monitor the installation of the tortoise guard, and ensure no wildlife were in harm's way.

During July and August of 2016, removal of the desert tortoise exclusion fence and installation of a tortoise guard was conducted along the east side of Ivanpah 2 and 3. The desert tortoise exclusion fence was intended to be removed once construction on the gas line was completed. Prior to the commencement of the removal of the fence, the area was surveyed by a biological monitor for the presence of mammals or other wildlife. A biological monitor was present to monitor the removal of the fence and installation of a tortoise guard and ensure no wildlife were in harm's way.

2.1.3 Interstate 15 Pen

A biological monitor periodically surveyed fences for breaches and weeds. A biological monitor escorted all fence line repair workers and projects, which were required due to damage resulting from storm water runoff.

3.0 Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP)

BIO-10 requires a copy of the table in the BRMIMP with notes showing the current implementation status of each mitigation measure. See **Appendix A** for a copy of the BRMIMP table.

4.0 Assessment of Mitigation Measures

Mitigation measures discussed in this section are limited to those measures included as BIO-6 Worker Environmental Awareness Program, BIO-8 Desert Tortoise Clearance Surveys and Fencing, BIO-9 Desert Tortoise Translocation Plan, BIO-10 Desert Tortoise Compliance Verification, BIO-11 Impact Avoidance and Minimization Measures, BIO-12 Raven Management, BIO-13 Weed Management Measures, BIO-15 Nest Surveys, BIO-16 Burrowing Owl Impact Avoidance and Minimization Measures, BIO-17 Desert Tortoise Compensatory Mitigation, BIO-19 Special-status Plant Impact Avoidance and Minimization, and BIO-20 Streambed Impact Avoidance and Minimization .

The measures described below represent best management practices that were either specified in the CEC License, BLM ROW or developed independently at the site. For each of these broad categories of measures a succinct summary and an evaluation of the effectiveness is provided as required under BIO-10

4.1 Worker Environmental Awareness Program BIO-6

The approved Worker Environmental Awareness Program (WEAP) was implemented throughout 2016. Prior to commencing work all workers are trained upon arrival at the site or provided an annual WEAP training refresher. Training records are maintained on site and available by request.

4.2 Impact Avoidance and Minimization Measures BIO-11

BIO-11 requires impact avoidance and minimization measures to protect biological resources during construction. BIO-11 contains seventeen specific measures and each of these measures is evaluated below.

4.2.1 Limit Disturbance Areas

In 2016, no construction activities took place within the project fence line that required delineation with stakes, and there was no additional storage of soils. All project vehicles were parked within the project fence line. No measures were undertaken for this measure and therefore, no evaluation is presented.

4.2.2 Minimize Road Impacts

Established roads exist at the site and site fencing constrains vehicles to these areas. No new roads were constructed within the ISEGS fence line in 2016. Monitors supervised any activities that occurred outside

of the fence line, and ensured workers stayed on existing roads.

4.2.3 Minimize Traffic Impacts

Vehicular traffic during project operations was confined to existing routes of travel to and from the project site. Cross-country vehicle and equipment use outside designated work areas is prohibited. The speed limit is 20 miles per hour within the project area or on maintenance roads for linear facilities. All workers go through a site orientation. The orientation discusses the site egress route, prohibition of cross-country travel, the requirement of a biological monitor outside of the project fence line, and the speed limit on access routes. Orientation of all workers has been an effective means ensuring workers are aware of the mitigation measure. There have been no recorded instances of workers traveling cross-country, using equipment outside the project fence line, or using alternative routes of travel to and from the site. Biologists have reported instances of vehicles going over 20 miles an hour on paved roads on site. This information was brought to the Facility General Manager who immediately addressed the issue with site staff during a morning meeting to reinforce this requirement.

4.2.4 Monitoring During Construction occurring as part of Maintenance Activities

This mitigation measure was successful as at least one biological monitor was at the site when there was potential to disturb soil, vegetation, and wildlife during 2016. The Designated Biologist was available by cell phone when offsite to respond as needed. See Section 2.1 Operations Monitoring Summary for more details.

4.2.5 Minimize Impacts of Transmission/Pipeline Alignments, Roads, Staging Areas

Staging areas for operations on the plant site are within the areas that had been fenced with desert tortoise exclusion fencing and cleared. These areas were concentrated rather than dispersed, with the primary staging areas located in the eastern portion of the CLA, and within the paved parking lot of the power blocks. This mitigation measure was effective during 2016.

4.2.6 Avoid Use of Toxic Substances

Separate cover in this annual report discusses hazardous materials used on site. See reporting for HAZ-01 and HAZ-06, provided under separate cover.

4.2.7 Minimize Lighting Impacts

The installation of downcast lighting on site has been effective, and prevents casting light into adjacent wildlife habitat. Nighttime lighting was discontinued on all Unit towers in July 2014, with the exception of the required FAA lighting. Illumination in the towers will only be used when required for maintenance. The results of these mitigation measures continue to be monitored and evaluated.

4.2.8 Badger Surveys

Per the requirements of COC BIO-11, no badger surveys were conducted, and no known badger dens were located onsite in 2016. However, images of badgers were captured on cameras located on the ISEGS site. On March 15, 2016 a camera equipped with a motion sensor was placed on a mammal den (identified as den number 109) that was incidentally found in the Ivanpah 2 solar field. The camera photographed a badger passing by the den on June 15, 2016 at 01:31 hours. The den continued to be monitored until June 29, 2016, and no other badger photographs were obtained. This burrow was monitored for the remainder of 2016, and no other badger photographs were obtained. On January 28, 2016 a camera equipped with a motion sensor was placed on an automated mirror-washing unit in the Ivanpah 1 solar field. The camera photographed a badger passing by the den on August 16, 2016 at 20:40 hours. The den continued to be monitored until November 2016, and no other badger photographs were obtained.

Per COC BIO-2, the American Badger observations were submitted to the California Natural Diversity Data Base. No measures were undertaken for these species and therefore, no evaluation is presented.

4.2.9 Gila Monster Surveys

Per the requirements of COC BIO-11, no Gila monster surveys were conducted, and no Gila monsters were observed onsite in 2016. No measures were undertaken for these species, and therefore no evaluation is presented.

4.2.10 Avoid Vehicle Impacts to Desert Tortoise

Except for work on the gas line, the Long-Distance Translocation Pen (“I-15 Pen”), and offsite mitigation fences, all vehicles were confined to the area enclosed by desert tortoise exclusion fencing. WEAP training emphasized that workers should routinely inspect the ground beneath vehicles for the presence of wildlife prior to moving the vehicle. Biological monitors reminded workers of the requirement to inspect

under vehicles. Outside of fenced areas, biological monitors were responsible to search under all vehicles they escorted. Monitors were required to escort all vehicles traveling on offsite roads. These protective measures were effective at avoiding vehicle impacts to desert tortoise. Adult and juvenile tortoises, snakes, lizards, and small mammals have been found under vehicles, and allowed to move or, if necessary, are manually moved out of harm's way per applicable protocols.

4.2.11 Avoid Wildlife Pitfalls

During 2016 there were no open trenches or pipes stored outside areas fenced with desert tortoise exclusion fences. After the mirrors were installed, several hundred pylons remained uncapped. Biological monitors covered uncapped pylons with temporary caps that were weighted to maintain position. Pylons capped using this method are located on the exterior of the solar field. These temporary caps are working well, preventing entrapment until mirrors are installed in the future.

4.2.12 Minimize Standing Water

No activities on site required dust abatement during 2016. Therefore, no wildlife was attracted to standing water resulting from dust abatement activities.

4.2.13 Dispose of Road-killed Animals

Carcasses of small mammals (rabbits and rodents) and reptiles found in the project area and along access roads were removed by biological monitors as soon as they were detected. Per the Raven Management Plan, carcasses are disposed of in covered containers to prevent scavenging by ravens or other scavengers. See Section 5.2 for a list of onsite wildlife fatalities disposed of in 2016.

4.2.14 Bird Carcasses

Bird carcasses found onsite were photographed, and the location was recorded. A database is maintained of the date, bird species, location data, and suspected cause of death. WEST Inc. performed the avian and bat injury and fatality surveys during 2016, and this data is presented under separate cover.

4.2.15 Minimize Spills of Hazardous Materials

All vehicles were routinely inspected and maintained in accordance with servicing specifications. A Construction Waste Management Plan was prepared in accordance with WASTE-3, and an Operations

Waste Management Plan prepared in accordance with WASTE-6. The annual report for WASTE-6 is provided separately. All spills were reported according to applicable county, state and federal requirements.

4.2.16 Worker Guidelines

All workers and visitors to the site were provided a basic orientation that included specific instruction on biological resources, safety, placement of trash, etc. in accordance with CEC COCs. In addition, workers were provided additional instruction in the worker orientations. All workers were informed as part of the worker training of the requirement that pets were not allowed onsite nor were wildlife to be fed. All site visitors and workers were made aware of the firearms restrictions through worker and visitor orientations.

4.2.17 Monitor Ground Disturbing Activities Prior to Site Mobilization

All site mobilization occurred prior to 2016.

4.3 Raven Management, BIO-12

During 2016, the Raven Management Plan was implemented per COC BIO-12 and the 2011 Biological Opinion. The goal of the Raven Management Plan is to deter raven depredation of hatchling and juvenile desert tortoises in Ivanpah Valley. The Raven Management Plan was designed to implement mitigation measures, which would discourage the presences of ravens on site. The plan specifies measures to prevent raven access to anthropogenic food and water resources (i.e. lids on dumpster, remove and dispose of all road-killed animals on the project site, and use of water in a manner that does not result in puddling).

Data collected from January to May 2016 show ravens rarely foraging on “direct” food subsidies, such as human food waste discarded on the ground or in open dumpsters. Only four observations of these activities were made in the reporting time period. Other direct anthropogenic sources of food subsidies include carcasses placed by biologists as part of the avian mortality study, and seeds or grain broadcast for plant restoration work or found in silt containment straw bundles and bails.

“Indirect” anthropogenic food subsidies are more commonly observed for raven foraging in recent years. These are primarily dead native source food items such as insect, bird carcasses, and road killed reptiles

and mammals. Ravens have been observed taking a variety of native food sources, such as live insects such as dragonflies, beetles, grasshoppers, Sphinx moths and their larvae, or scavenging prey remains from kit fox dens and shelter sites. Ravens at ISEGS have also been documented hunting lizards, and foraging on the contents of bird nests.

In addition to collecting foraging data, observations are conducted to determine raven use of anthropogenic water sources on the ISEGS site. Current water sources available to the ravens are mostly the runoff and minor water accumulation created by leaking fixtures in the power blocks. Raven proof spill containment pans and changes in operations routines have greatly diminished raven access to water. In addition, when anthropogenic water sources for ravens are identified, these features are addressed directly if possible with repairs, barriers, or engineering alterations, and workers, technicians, or supervisors are informed how to prevent ravens from accessing water. Further, biologists and NRG personnel have made temporary alterations to some leaking features onsite pending future repair, successfully preventing access to water. Where ravens are observed procuring human food or anthropogenic sources of water, the work crews and supervisors in the area are informed and raven protocols are reviewed directly with the field personnel involved.

A final monitoring report for ravens was submitted in June of 2016 per the requirements of the Raven Management Plan. See **Appendix B** for the final ISEGS Raven Management Report

4.4 Weed Management Activities, BIO-13

Biological monitors conducted monthly weed surveys throughout the site during the active growing season (February through November) in accordance with COC BIO-13 requirements. Data was collected when noxious weeds were located, the plants were collected, and both were transferred to the Designated Biologist for reporting and disposal. All weed surveys were successfully implemented and completed according to the Weed Management Plan and 2011 USFWS Biological Opinion. A report summarizing weed management activities on site is provided under a separate cover.

4.5 Closure, Revegetation and Rehabilitation Plan, BIO-14

A report summarizing the assessments of the Closure, Revegetation and Rehabilitation Plan is provided under a separate cover.

4.6 Nesting Birds, BIO-15

Per the requirements of COC BIO-15, no pre-construction surveys for nesting birds were required for the ISEGS site in 2016. A total of 3 nests were found incidentally on the site by avian biologists, from March 30 to April 25. The only nest species found was horned lark (HOLA).

ISEGS biologists continued to use the standard protocol recommended by the California Department of Fish and Wildlife (CDFW) for buffering active nests (containing eggs or nestlings) to a minimum of 250 feet (80 meters). Work supervisors and area personnel were provided with maps and location descriptions of all nests, and asked to stay away a distance of 100 meters. Signage, flagging, and orange traffic safety cones were placed at appropriate distances and locations so as to be clearly visible. For instances where an active nest was found within 250 feet of an existing road or work activity, the Designated Biologist was consulted to determine an appropriate buffer zone or restrictions on nearby activities. When appropriate, nests were monitored to document and prevent disturbance near the buffer perimeter.

There were no documented disturbances of a buffered nest by on site personnel. Buffering nests with signage, flagging, and orange safety cones was an appropriate and clear demarcation to keep workers out of the area. Providing maps and location description of all nests aided in ensuring disturbances of buffered nests did not occur. Standard practice is to report all active nests on a weekly basis to control room supervisors to ensure no nests are inadvertently disturbed by heliostat operations. These mitigation measures were deemed to be successful.

See the Map in **Appendix C** for locations of nests on the ISEGS site in 2016.

4.6.1 Raptor Nests

Off site, biologists conducting raven nest surveys observed and monitored six pairs of red-tailed hawks that began nesting in March, all in transmission towers located outside the site boundaries. In late May all six pairs successfully fledged a total of 13 nestlings (2,3,2,4,3,2).

The golden eagles occupying the Umberci Mine nesting territory were observed incubating eggs in mid-March, approximately 2.7 kilometers north of the unit 3 fence line. They successfully hatched in April, and were observed feeding and brooding at least two nestlings.

See the Map in **Appendix D** for location of nesting raptors in 2016.

4.7 Burrowing Owls, BIO-16

Per the stipulations of COC BIO-16, no pre-construction surveys for burrowing owls were required or warranted on the ISEGS site in 2016. No visual or auditory detections were made of burrowing owls on the ISEGS site during 2016, and no photos of owls on motion sensor cameras placed at mammal burrows and shelter sites were collected. No indications of the presence of burrowing owl were observed in 2016 by biological monitors on the site.

No measures were undertaken for these species, and therefore no effectiveness evaluation is presented.

4.8 Desert Tortoise Compensatory Mitigation, BIO-17

As part of the compensatory mitigation for desert tortoise, 50 miles of desert tortoise exclusion fence was required to be installed. The installation commenced along Interstates 15 and 40 in October 2015.

Construction was completed on March 17, 2016. The fence is inspected and maintained by a third party with funds provided from an endowment for the compensatory mitigation. A report summarizing fence inspection and maintenance is provided under a separate cover.

Habitat acquisition was completed through the California Department of Fish and Wildlife (CDFW) SB34 program in accordance with BIO-17. This program preserved in perpetuity over 7000 acres of wildlife habitat for various species, including desert tortoise. In addition, an endowment was established as part of the program to provide for the wildlife management on these lands in accordance with BIO-17.

August 28, 2013 marked the completion of restoring and habitat restoration of at least 50 routes within the Desert Wildlife Management Area managed by the BLM. During August and September of 2014 all fifty-one routes were inspected as part of an annual inspection and a report was submitted to BLM on the findings of the inspection. On February 26, 2015 BLM confirmed the requirements of this condition were satisfied. Therefore, no further reporting is required.

4.9 Special-status Plant Impact Avoidance and Minimization, BIO-18

A report summarizing the assessments of the mitigations measures is under a separate cover.

4.10 Streambed Impact Avoidance and Minimization, BIO-20

See **Appendix E** for reports on change of biological conditions from 2016. Each of the reports satisfies this condition.

4.11 Bird or Bats Injuries and Fatalities, BIO-21

Per the requirements of COC BIO-21, the Designated Biologist was informed of any avian or bat injury or fatality discovered on the site in 2016, and each incident was documented and reported as per the ABMMP. Per COC BIO-21 all listed bird or bat species or special-status species observed were submitted to the California Natural Diversity Data Base. The surveying, reporting, and data analysis for avian and bat injury and fatality were performed as prescribed in the ABMMP by WEST Inc. The results of these are presented under separate cover.

4.11.1 Avian and Bat Monitoring and Management Plan (ABMMP)

Avian biologists and personnel from West Inc. implemented the ABMMP during 2016. All results and actions, including deterrence measures are reported as part of the ABMMP and are provided under separate cover.

4.12 Desert Tortoises BIO-8, BIO-9, BIO-10

The following section describes the ISEGS desert tortoise best management practices that were prescribed as part of the CEC License Conditions and 2011 Revised Biological Opinion. ISEGS has also independently developed additional measures for tortoises.

Between October 2010 (ISEGS project construction start) and December 31, 2016, tortoises were numbered on the site, and in the recipient and control areas as part of the project (Figure 1). Collectively these 516 tortoises will further be referred to as “monitored tortoises.” See **Table 1** below for definitions of ISEGS monitored tortoise types. Monitored tortoises are broken down into three general groups:

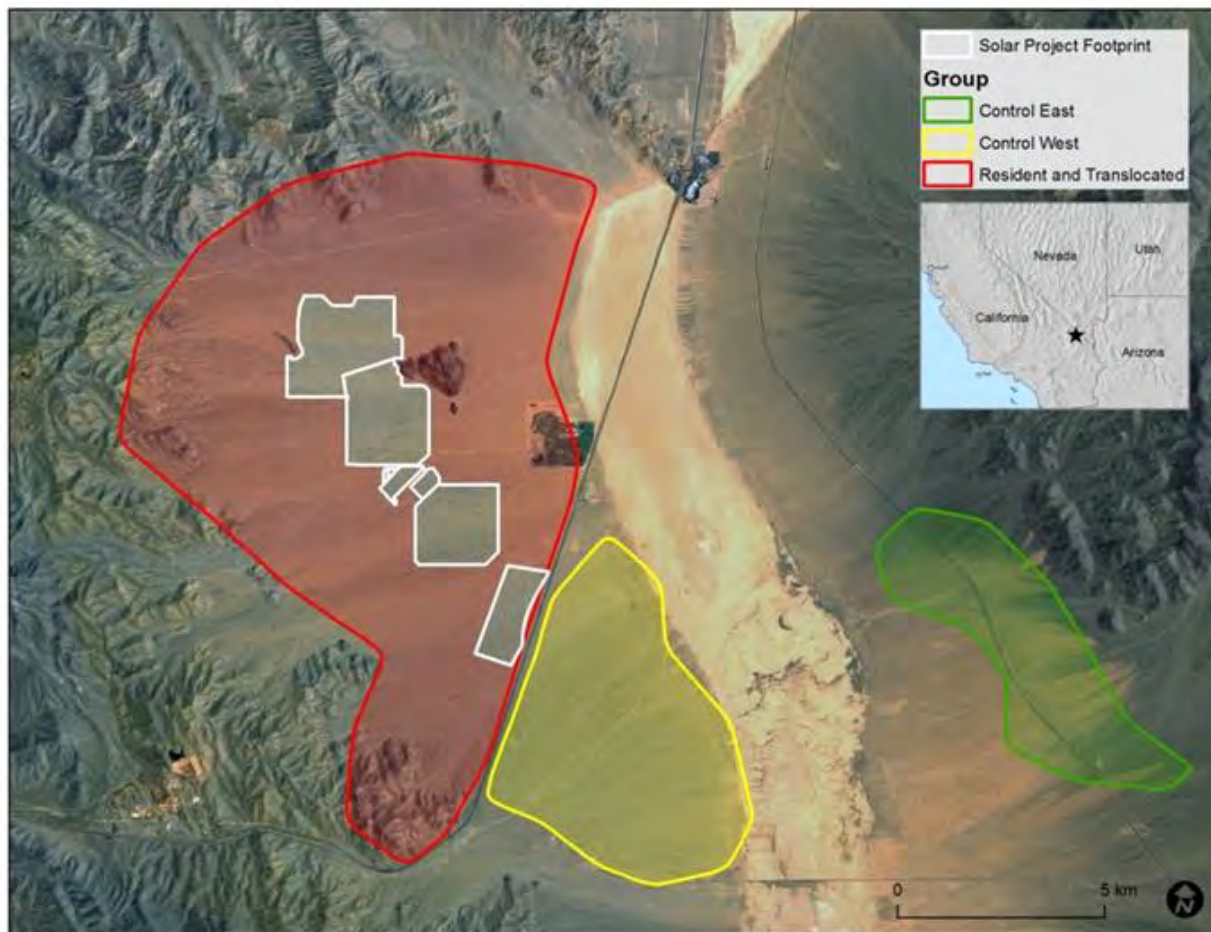
- i.) **translocated tortoises**, or numbered tortoises initially located within the site boundaries (235 total, includes long-distance translocation tortoises, short-distance translocation tortoises, Head Start tortoises (includes tortoises hatched in captivity), and never tracked tortoises);

- ii.) **resident tortoises**, or numbered tortoises initially located in the recipient area surrounding the site (125 total); and
- iii.) **control tortoises**, or numbered tortoises initially located in the control area (156 total). Other tortoises that exist in the recipient and control areas will be referred to as “unmarked, unmonitored tortoises” throughout the report.

Table 1: Definition of ISEGS Monitored Tortoise Types

Tortoise Type	Sub-Type	Definition
Translocated	Long-Distance Translocation	Numbered tortoises initially located within site boundaries whose mean location was greater than 500 meters from the perimeter fence.
Translocated	Short-Distance Translocation	Numbered tortoises initially located within site boundaries whose mean location was less than 500 meters from the perimeter fence
Translocated	Head Start (Juvenile)	Numbered tortoises initially located within site boundaries with a strait mid-line carapace length (MCL) of less than 120 mm. Head Start tortoises include tortoises hatched in the holding pens.
Translocated	Never Tracked	Numbered tortoises initially located within the site boundaries with a strait mid-line carapace length (MCL) of less than 120mm after the commencement of commercial operations.
Resident		Numbered tortoises initially located in the recipient area surrounding the site.
Control		Numbered tortoises initially located in the control area.

Figure 1: Locations of ISEGS Tortoise Groups



Of the 516 total monitored tortoises, 19 of these were not affixed with radio transmitters, and thus are not technically monitored. Of the 19 non-transmitted tortoises, 10 were numbered and not affixed with radio transmitters because they were only necessary for a one-time blood sampling effort and not for monitoring, Five were not transmitted because their carapaces were either too small or misshapen such that they could not hold a transmitter, and the remaining four were juveniles found inside the project boundaries during operations. These tortoises were numbered, a health assessment completed, and released outside the project boundaries. See **Table 2** below for a summary of monitored tortoises. Also note that these numbers include tortoises that died or were found dead initially. See the section on “Tortoise Fatalities” below for more information. See **Appendix F** for the ISEGS 2016 Desert Tortoise Disposition Table. See Maps in **Appendix G** for initial and current locations of all monitored tortoises.

Table 2: Summary of Monitored Tortoises

Tortoise Size and Sex	Translocated	Resident	Control	Total
Male >159 mm MCL	44	61	66	171
Female >159 mm MCL	40	45	59	144
Sex Unknown >159 mm MCL	7	2	4	13
120-159 mm MCL	27	6	13	46
0-119 mm MCL	117*	11	14	142
Total	235	125	156	516

* Includes 57 tortoises hatched in captivity.

4.12.1 Tortoise Discoveries - 2016

On May 25, 2016 Dr. Tom Boyer, DVM at the Pet Hospital of Penasquitos treated BS159 (resident, female, 250mm MCL) for an injury sustained to the plastron. The exact cause of the injury is unknown. The tortoise had a small (1.5cm long x 4mm wide) crack in her plastron which was noticed by a crew completing a health assessment on BS159. Boyer recommended the tortoise be held and treated at the ISEGS quarantine pens. During the month of June BS159 laid three eggs on the ground outside of her burrow. All three eggs were removed and placed in an incubator. One tortoise hatched out of the three eggs laid and incubated. This tortoise was marked with a number, BS361 and received a health assessment prior to being translocated to the recipient site on October 15, 2016. See **Table 3** below for details.

Table 3: New Project Tortoises Inside Project Boundaries in 2016

Tort ID	Tortoise Type	Tortoise Status	Sex	Initial MCL	Initial Site	Initial Date
BS361	Translocatee (Short 2016)	Not Tracked	Unknown	42	Common West	12-Oct-2016

4.12.2 Husbandry and the Holding Pens

In 2016, the holding pens (located in Construction Logistics Area West (Common West) of the ISEGS project site) consisted of 84 (20 by 20 meter) adult tortoise pens, and 24 smaller (ten by ten meters) juvenile tortoise (Head Start) pens enclosed in a predator-proof facility. As of October 1, 2016, the holding pens housed 103 Head Start tortoises, six of which are missing. October 1, 2016 marked the first day of translocation of the juvenile (Head Start) tortoises. Details of the translocation can be found under section 4.12.9 Head Start Translocation described below. The successful hatching, monitoring, and protection of the juveniles in these pens document the success of these measures.

4.12.3 Husbandry Protocols

In compliance with the Husbandry Plan developed for the ISEGS Project, desert tortoises moved to the holding pens within the Construction Logistics Area West were monitored daily by husbandry personnel. The area around the pens was inspected for any sign of predators on a daily basis. Purified water and a combination of native forage and organic store-bought food (including dandelion greens, timothy hay and mixed with a calcium supplement) was provided to all penned tortoises from approximately March 2016 through October 2016.

4.12.4 Head Start

The ISEGS Head Start facility was designed to house all live translocated tortoises that were under 120 mm MCL at the time of capture (68 tortoises) and all tortoises that hatched in captivity in 2011 (39 tortoises- Fourteen Head Start tortoises that had originally hatched in the holding pens were permanently transferred to the Mojave National Preserve Head Start facility on April 26 and 27, 2012, per instructions by the BLM and USFWS reducing the number of hatched-in-captivity tortoises on site from 53 to 39.). The Head Start facility is located within the holding pen area and is comprised of two structures containing (24) ten by ten meter pens. Metal flashing surrounds each pen and contains man-made tortoise burrows constructed of perforated PVC pipe. The entire facility is surrounded by chain-link fence, and was covered in netting to prevent predation by birds and mammals. The Head Start tortoises were translocated per the requirements of the 2011 Revised Biological Opinion into the recipient area during the fall of 2016. Details of the translocation can be found under 4.12.9 Head Start Translocation described below.

4.12.5 Desert Tortoise Health Analyses and ELISA Testing

Per the requirements of the 2011 Revised Biological Opinion, health analyses were conducted on all transmitterd monitored tortoises (translocated, recipient and control) twice per year. The prevalence of *Mycoplasma agassizii* and *Mycoplasma testudineum* in the population of tortoises associated with the ISEGS project was unknown before the project began.

Both spring and fall health assessments were conducted on the majority of monitored tortoises. A typical health assessment included a visual evaluation for clinical signs of disease (as determined by a data form created by the USFWS specifically for tortoise translocations associated with solar projects), size measurements, and photos. For animals over 100 grams, a series of specimen samples including blood and oral swabs were collected and sent to laboratories for analysis. Blood samples were spun down in centrifuges to separate plasma from red blood cells. The plasma was sent to the University of Florida for ELISA testing. ELISA tests to detect antibodies for both *M. agassizii* and *M. testudineum* were conducted. For *M. agassizii* titer levels of less than 32 were considered negative for exposure; titer levels of 32 were suspect and titer levels greater than 32 were positive. For *M. testudineum* titer levels of less than 32 were negative, 32 and 64 suspect, and 128 and greater positive. The ELISA results from the health assessments on the transmitterd monitored tortoises (short and long distance translocated, recipient and control) are used as part of the Effectiveness Monitoring Program (EMP) required by the 2011 Revised Biological Opinion. See ISEGS ELISA results in **Appendix H** for 2016.

4.12.6 Translocations

During 2016, continued monitoring of all translocated tortoises occurred. Three types of translocations have occurred at ISEGS: 1) short-distance translocation, 2) long-distance translocation and 3) Head Start translocation. The Head Start translocation commenced on October 1, 2016 and is detailed below in the section entitled “Head Start Translocation.” The 2011 Revised Biological Opinion requires an investigation of the drivers of post-translocation survival. The results of these mitigation measures continue to be monitored and evaluated.

4.12.7 Short-Distance Translocations

Short-distance translocation refers to the translocation method employed for the tortoises (>120 mm MCL) whose known home range center was located less than 500 meters from the ISEGS perimeter fence. These tortoises are part of the Effectiveness Monitoring Program (EMP), which aims to

investigate the multiple drivers of desert tortoise survival over space and time. All translocated tortoises were tracked per the requirements of the 2011 Revised Biological Opinion and ISEGS Desert Tortoise Translocation Plan Revision 5.1.

4.12.8 Long-Distance Translocation

Long-distance translocation refers to the translocation method employed for the tortoises greater than 120 mm MCL whose known home range center was located greater than 500 meters from the ISEGS perimeter fence. Those tortoises were translocated into a long-distance translocation pen per the requirements of the ISEGS Desert Tortoise Translocation Plan, the 2011 Biological Opinion and the Conditions of Certification on September 23, 2012. These tortoises are part of the Effectiveness Monitoring Program (EMP), which aims to investigate the multiple drivers of desert tortoise survival over space and time.

All translocated tortoises were tracked per the requirements of the 2011 Revised Biological Opinion and ISEGS Desert Tortoise Translocation Plan Revision 5.1.

4.12.9 Head Start Translocation

See **Appendix I** for Ivanpah Solar Electric Generating System Juvenile Desert Tortoise Translocation 2016 Annual Report.

4.12.10 Tortoise Fatalities

See summary and maps in **Appendix J** of all monitored tortoise fatalities in 2016.

Fatalities are broken down into two categories: Effectiveness Monitoring Program (EMP) or Head Start tortoises. There were a total of 13 EMP fatalities in 2016. Of these 13 fatalities three were control tortoises, five resident tortoises, and five translocated tortoises. Since translocation of the short distance tortoises commenced in the spring of 2012, a total of 63 tortoise fatalities have been discovered among the EMP tortoises (control, resident, and short and long distance translocated) in the control and recipient areas. Of the 63 tortoises 20 were control tortoises, 20 resident tortoises, and 23 translocated tortoises.

There were a total of 20 Head Start (juvenile) fatalities in 2016. Of these 20 fatalities 1 occurred prior to the tortoise translocation into the recipient area. BS63 died at Dr. Tom Boyer's DVM office after

treatment for injuries sustained while being housed in the Head Start facility. The other 19 tortoise fatalities occurred after the tortoises were translocated into the recipient area.

4.13 Precipitation Events and Fence Monitoring

Precipitation events were recorded several times during 2016. These events are detailed in **Table 4**. Immediately following each storm, after the cessation of runoff, site fences were inspected and designated biologist and biological monitors worked to temporarily repair any breach and remove debris from tortoise guards. As a result, following each event, the fence integrity was restored sufficiently to prevent tortoise from accessing the cleared areas. Therefore, tortoises did not have the opportunity to enter the site as a result of these measures. All rain data presented in Table 6 was obtained from the weather station located at the quarantine pens.

Table 4: ISEGS Precipitation Data for 2016

DATE	Jan-2016	Feb-2016	Mar-2016	Apr-2016	May-2016	Jun-2016	Jul-2016	Aug-2016	Sep-2016	Oct-2016	Nov-2016	Dec-2016
	(inches)	(inches)	(inches)	(inches)	(inches)	(inches)	(inches)	(inches)	(inches)	(inches)	(inches)	(inches)
1	0	0.01	0	0	0	0	0	0	0	0	0.01	0
2	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0.43	0	0	0	0
5	0.18	0	0	0	0	0	0	0	0	0	0	0
6	0.26	0	0.04	0	0.03	0	0	0	0	0	0	0
7	0.01	0	0.02	0	0.01	0	0	0	0	0	0	0
8	0.01	0	0	0.47	0	0	0	0	0	0	0	0
9	0	0	0	0.1	0	0	0	0	0	0	0	0
10	0	0	0	0.26	0	0	0	0	0	0	0	0
11	0	0	0.09	0.26	0	0.08	0	0	0	0	0	0
12	0	0	0.01	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0.01
16	0	0	0	0	0	0	0	0	0	0	0	0.05
17	0	0.14	0	0	0	0	0	0	0	0	0	0
18	0	0.05	0	0	0	0	0	0.19	0	0	0	0
19	0.12	0	0	0	0	0	0	0	0	0	0	0
20	0.01	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0.81
23	0	0	0	0	0	0	0	0	0	0.03	0	0
24	0	0	0	0	0	0	0	0	0	0.55	0	0.31
25	0	0	0	0.14	0.02	0	0	0	0	0	0	0
26	0.00	0	0	0.00	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0.44	0	0	0.05	0
28	0	0	0.01	0	0	0	0.01	0	0	0.02	0	0
29	0	0	0	0	0	0.25	0	0	0	0	0	0
30	0		0	0.45	0	1.11	0	0	0	0	0	0.02
31	0.03		0		0					0		0
MTD	0.62	0.20	0.17	1.68	0.06	1.44	0.01	1.06	0.00	0.60	0.06	1.20
YTD	7.10											

In accordance with the 2011 Revised Biological Opinion and the project COCs, all tortoise proof fences and tortoise guards on site were checked twice monthly and after significant rain events for breaches by the designated biologist or biological monitor. When fence breaches were identified, they were temporarily repaired by the biologist immediately to maintain the integrity of the fence, and reported to NRG for permanent repair. Issues that had not been addressed in a timely manner with permanent repairs were reported in the monthly fence report. As a result, the integrity of the fence was maintained throughout 2016. The practices associated with monitoring and fence repair are therefore effective.

4.14 Miscellaneous

Monitors captured venomous snakes within the project boundaries that were reported by operations personnel and sub-contractors. They were relocated nearby, but outside the site perimeter. Non-venomous snakes found in harm's way were relocated a short distance away from their capture location, within the project boundary. If not in danger, non-venomous snakes were not relocated.

5.0 Summary of Data

CEC COC BIO-11 requires an annual report summarizing all available data (species of carcass, date and location collected, and cause of death) describing bird and other carcasses collected within the project site each year. As previously noted, avian data is provided under separate cover. This section provides the details of all mammal fatalities discovered at the site in 2016. Tortoise fatalities were reported previously in Section 4.12.10.

5.1 Mammal Fatalities

At approximately 07:30 hours on June 15, 2016 a call was received on the designated biologist number about a dead kit fox observed on the access road to Ivanpah 3. A biologist responded to the call and arrived at the kit fox at approximately 07:45 hours. The kit fox was lying dead in the road (11S 0637599E 3937215N, NAD83). It appeared a vehicle hit the kit fox during the morning hours. The kit fox did not show external signs of trauma outside of the blood on and around the head. There are bloodstains on the pavement to support the kit fox was hit by a vehicle. Per agency direction the carcass was sent to California Department of Fish & Wildlife – Wildlife Investigations Lab. See Map in **Appendix K** for locations of Mammal Fatalities on the ISEGS site in 2016.

5.2 Wildlife Fatalities

Per the Raven Management Plan BIO-12 all carcasses of small mammals (rabbits and rodents) and reptiles observed in the project area and along access roads were promptly removed by a biological monitor and disposed of in a container with a secured top so that they were not accessible to ravens or other scavengers. The following is a summary of dead wildlife collected on roads or adjacent to roads during 2016.

- 9 - Black-tailed jackrabbit
- 1 - Sidewinder rattlesnake
- 1 - Leopard lizard
- 1 - Spiny lizard

Appendix A

Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP) Tracking Table

Table A- 1
Biological Resources Mitigation Implementation and Monitoring Plan Tracking Table

Event Description	Expected Dates and Essential Biological Resource Protection Measures	Date Completed
No. 1: Certification by CEC	Expected Date is September 22, 2010 by CEC, and October 6, 2010 by BLM	9/22/2010 & 10/7/2010
Preliminary Stage (Fence)		
No. 2: Biologists and botanists field preparation	July 2010 – September 2010	
	<i>Wildlife: Assemble materials required for clearance surveys and translocating tortoises. Includes fiber-optic scopes, tortoise tags. Obtain approval for Designated Biologists (DM) and Biological Monitors (BM).</i>	9/30/2010
	<i>Plants: During pre-construction, plant activities will include the following: Avoid impacts to rare plants by excluding from the project area a 433-acre area in the northernmost portion of Ivanpah 3 that is densely populated with rare plants; establish two additional Rare Plant Mitigation Areas in the CLA within which direct impacts to rare plants will be completely avoided; demark and/or fence Mojave milkweed and Rusby's desert mallow rare plant localities proposed for avoidance within the heliostat array to protect the rare plants from direct impacts during pre-construction and construction activities; salvage individual Mojave milkweed and Rusby's desert mallow plants that cannot be avoided for use in translocation, revegetation, and rehabilitation; salvage of all rare cactus (desert pincushion and Parish's club-cholla) onsite for use in translocation, revegetation, and rehabilitation.</i>	11/1/2010
No. 3: Site and Construction Logistics Area (CLA) staked by land surveyors	July 2010 - September 2010	9/30/2010 for areas subject to construction in Phase I
	<i>Administer WEAP (refer to attached BIO-6 Worker Environmental Awareness Program).</i>	9/30/2010
	<i>Wildlife: Survey vehicles to remain on existing roads.</i>	9/30/2010
No. 4: Improved Colosseum Road location staked by land surveyors	July 2010 - September 2010	

Event Description	Expected Dates and Essential Biological Resource Protection Measures	Date Completed
	<i>Administer WEAP (refer to attached BIO-6 Worker Environmental Awareness Program).</i>	9/30/2010
	<i>Wildlife: Survey vehicles to remain on existing roads.</i>	9/30/2010
No. 5: Weed inspection station established	October 2010 – May 2013	10/6/2010
	<i>Plants: A weed inspection station will be established on the first day of construction. Until the permanent facility is operational (see No. 26) vehicles that require washing will be monitored by security staff and turned back to be washed in Primm before returning to the site. A vehicle log will be included in monthly compliance reports.</i>	10/6/2010
No. 6: 10-foot-wide internal perimeter road (within the staked fence line) is cleared of vegetation and graded	October 2010 – November 2010 (for Phase I of construction)	11/30/2010
	<i>Continue to administer WEAP to all new personnel at site or all subsequent events.</i>	Ongoing
	<i>Administer WEAP (refer to attached BIO-6 Worker Environmental Awareness Program).</i>	11/30/2010
	<i>Wildlife:</i>	
	<i>An AB or BM will be onsite during installation of the temporary desert tortoise fence. If installation of temporary fencing, surveying or clearing is occurring at more than one location, more than one AB may need to be onsite to provide appropriate supervision. After installation of this temporary fencing and prior to initiation of construction activities, an AB and/or BM will perform a pre-construction sweep for desert tortoises. An AB will relocate any desert tortoises found in the project impact area. Desert tortoises will be moved to suitable habitat (at least 300 feet from the project site) outside the impact area and placed in a natural or artificial burrow or under a shrub, depending on time of day and year. An AB will also be available to relocate any desert tortoises that may wander into the impact area during construction. All ABs or BMs will have a copy of the Biological Opinion (Attachment B), Translocation Plan (BIO-9 attached), and be familiar with the COC BIO-11 all activities involving desert tortoise clearance surveys, handling, health assessments, and other related translocation activities.</i>	11/30/2010

Event Description	Expected Dates and Essential Biological Resource Protection Measures	Date Completed
	<i>Concurrent with start of perimeter fencing, construct minimum of 16 desert tortoise holding pens for use in quarantining tortoise removed from Ivanpah 1 and the CLA.</i>	11/30/2010
	<i>Plants: Concurrent with start of perimeter fencing, botanists will install protective fencing for rare plants and salvage any rare plants within the fence line corridor. Environmentally Sensitive Areas (ESAs) will be marked with signs.</i>	11/30/2010
No. 7: Temporary (stand alone) tortoise fence installed on perimeter of Ivanpah 1	September 2010 – October 2010	10/29/2010
	<i>Administer WEAP (refer to attached BIO- 6 Worker Environmental Awareness Program)..</i>	10/29/2010
	<i>Wildlife: An AB or BM will be onsite during installation of the temporary desert tortoise fence. If installation of temporary fencing, surveying or clearing is occurring at more than one location, more than one AB may need to be onsite to provide appropriate supervision. After installation of this temporary fencing and prior to initiation of construction activities, an AB and/or BM will perform a pre-construction sweep for desert tortoises. An AB will relocate any desert tortoises found in the project impact area. Desert tortoises will be moved to suitable habitat (at least 300 feet from the project site) outside the impact area and placed in a natural or artificial burrow or under a shrub, depending on time of day and year. An AB will also be available to relocate any desert tortoises that may wander into the impact area during construction. All ABs or BMs will have a copy of the Biological Opinion (Attachment B), Translocation Plan (BIO-9 attached), and be familiar with the COC BIO-11 for all activities involving desert tortoise clearance surveys, handling, health assessments, and other related translocation activities.</i>	11/4/2010
	<i>Plants: Botanists continue installation of protective fencing for rare plants and salvage plants within the fence line corridor. Environmentally Sensitive Areas (ESAs) will be marked with signs.</i>	10/29/2010
No. 8: Permanent security/Combo fence installed on perimeter of Ivanpah 1	September 2010 – December 2010	12/31/2010
	<i>Wildlife: Same as No. 7. Construction crews will require monitoring by DB/BMs until the fence installation is complete.</i>	12/31/2010

Event Description	Expected Dates and Essential Biological Resource Protection Measures	Date Completed
	<i>Plants: Botanists continue installation of protective fencing for rare plants and salvage plants within the fence line corridor.</i>	10/29/2010
No. 9: Tortoise exclusion fence installed along Colosseum Road	September 2010 – October 2010	10/29/2010
	<i>Wildlife: An AB or BM will be on site during installation of the fence.</i>	10/29/2010
No. 10: Area within fenced perimeters of Ivanpah 1, and later Ivanpah 2 and 3, is completed	Ivanpah 1 and CLA: October 2010; Ivanpah 2: September 2011; Ivanpah 3: September-October 2011	Ivanpah 1 and CLA: 11/4/2010; Ivanpah 2: 9/28/2011; Ivanpah 3: 10/10/2011
	<i>Wildlife: Within 24 hours prior to the initiation of construction of the desert tortoise-exclusion fence, a desert tortoise survey would be conducted by DB/BMs of those linear areas using techniques providing 100-percent coverage of the construction area and an additional transect along both sides of the fence line transect to provide coverage of an area approximately 90 feet wide, centered on the fence alignment. Transects would be no greater than 30 feet apart. Two passes of complete coverage would be conducted. All desert tortoise burrows, and burrows constructed by other species that might be used by desert tortoises, would be examined to determine occupancy. Any burrow within the fence line corridor would be collapsed after confirmation that a desert tortoise does not occupy it, or if occupied, the desert tortoise has been removed.</i>	Ivanpah 1 and CLA: 11/4/2010; Ivanpah 2: 9/28/2011; Ivanpah 3: 10/10/2011
	<i>Within 72 hours after the area to be cleared is fully enclosed with tortoise exclusion fencing, a desert tortoise clearance survey would be initiated per USFWS protocol (USFWS 1992) and project specific Guidelines (USFWS 2008). At least three complete clearance sweeps with 100 percent coverage would be conducted as described above. Each separate survey would be walked in a perpendicular direction to allow opposing angles of observation. The area will be considered clear after two complete passes have discovered no new desert tortoises. All ABs or BMs will have a copy of the Biological Opinion (Attachment B), Translocation Plan (BIO-9 attached), and be familiar with the COC BIO-11 for all activities involving desert tortoise clearance surveys, handling, health assessments, and other related translocation activities.</i>	Ivanpah 1 and CLA: 11/4/2010; Ivanpah 2: 9/28/2011; Ivanpah 3: 10/10/2011

Event Description	Expected Dates and Essential Biological Resource Protection Measures	Date Completed
	<i>Conduct concurrent clearance surveys for burrowing owls (BIO-16), Gila monsters and badger (BIO-11).</i>	Ivanpah 1 and CLA: 11/4/2010; Ivanpah 2: 9/28/2011; Ivanpah 3: 10/10/2011
	<i>Note: Nesting bird surveys (BIO-15) are required if construction occurs between February 1 and August 31.</i>	2/1/2012 – 8/31/2012
No. 11: Ivanpah 1, and later Ivanpah 2 and 3, is completed -- <i>CONTINUED</i>		
	<i>Plants: Monitoring activities specific to special-status plants include: the Designated Biologist will oversee the salvage and transplantation of special-status plants designated on final project plans as "salvage". Salvaged plants will be installed in the Rare Plant Transplantation Area (RPTA); regular inspections of salvaged plants placed in the RPTA will be conducted by the Botanical Monitors to check that salvaged plants are watered and maintained as needed to maximize survivorship throughout the construction period; salvaged native plants that are stored offsite in a native plant nursery, will also be inspected by the Botanical Monitor to document that plants are maintained in good condition; the Botanical Monitor will oversee construction to confirm that no unauthorized construction activities occur in Rare Plant Avoidance Areas (RPAA's); inspections of all fenced special-status plants within the heliostat array will be conducted by the Botanical Monitor to document that avoidance fencing is maintained in good condition; fencing surrounding the Rare Plant Mitigation Areas will be inspected regularly to check that fencing is maintained in good condition; the Botanical Monitor will monitor general construction activities for compliance with regulatory terms and conditions that pertain to special-status plants; and the Botanical Monitor will notify the project owner, BLM's Authorized Officer, and the CPM of any noncompliance with any biological resources condition of certification.</i>	5/31/2014
Construction of Fiber-optic and Gas Lines		
No. 12: Fiber-optic line construction	April 2011 – July 2012	7/2/2012
	<i>Wildlife: DB/BMs clear area of all desert tortoises immediately prior to construction and monitor construction.</i>	7/2/2012

Event Description	Expected Dates and Essential Biological Resource Protection Measures	Date Completed
No. 13: Gas line construction	March 2011 – December 2013	12/10/2013
	<i>Wildlife: DB/BMs clear area of all desert tortoises immediately prior to construction and monitor construction outside of fenced perimeter.</i>	12/10/2013
	<i>Plants: Prior to construction, survey and salvage special-status plants and common succulents within the linear right-of-way and sub-station and transplant to onsite nurseries. Monitor the adjacent mitigation areas to ensure construction does not intrude or extend beyond the right-of-way.</i>	12/10/2013
Preliminary Stage (Fence) of Ivanpah 2 and 3		
No. 14: 10-foot-wide internal perimeter road (within the staked fence line) is cleared of vegetation and graded	October 2011 – January 2011	1/5/2012
	<i>Continue to administer WEAP of all new personnel at site or all subsequent events (refer to attached BIO-6 Worker Environmental Awareness Program).</i>	Ongoing
	<i>Wildlife: Same as No. 6</i>	1/5/2012
	<i>Plants: Same as No. 6</i>	1/5/2012
No. 15: Perimeter fence construction in Ivanpah 2	March 2011 – June 2012	6/6/2012
	<i>Wildlife: Same as No. 7 and No.8.</i>	6/6/2012
	<i>Plants: Same as No. 7 and No.8</i>	6/6/2012
No. 16: Perimeter fence construction Ivanpah 3	March 2011 – June 2012	6/13/2012
	<i>Wildlife: Same as No. 7 and No.8.</i>	6/13/2012
	<i>Plants: Same as No. 7 and No.8</i>	6/13/2012
Site Development Stage (Primarily inside fenced areas)		

Event Description	Expected Dates and Essential Biological Resource Protection Measures	Date Completed
No. 17: Rough Grading of sites	Ivanpah 1 & Common areas: November 2010 – February 2011	2/1/2011
	Ivanpah 2: January 2011 – April 2011	4/1/2011
	Ivanpah 3: April 2011 – June 2011	8/31/2011
	<i>Wildlife: A Biological Monitor will be on site during initial grading to ensure no tortoises remain on the site. If a tortoise is found it will be translocated as previously described.</i>	8/31/2011
	<i>Conduct concurrent clearance surveys for burrowing owls (BIO-16), Gila monsters and badger (BIO-11).</i>	8/31/2011
	<i>Note: Nesting bird surveys (BIO-15) are required if construction occurs between February 1 and August 31.</i>	2/1/2012-8/31/2012
	<i>Plants: Rare plant protection areas, ESAs and RPAA's monitored to ensure construction activities don't intrude. Monitor for newly established special-status species and salvage and transplant to on site nurseries.</i>	5/31/2014
No. 18: Pads, parking areas and construction laydown areas graded if needed, and construction trailers moved to locations within the CLA	November 2010 – January 2011	1/24/2011
	<i>Wildlife: No biological monitoring required for wildlife for these construction activities as long as all of the previously described construction events have occurred (e.g., perimeter fence installed) and resources protection measures have been implemented. Monitoring of overwintering tortoises in holding pens will be ongoing.</i>	5/31/2014
	<i>Plants: Same as No. 17</i>	5/31/2014
No. 19: Locations of roads, buildings and structures staked by land surveyors	November 2010 – May 2013	5/31/2014
	<i>Wildlife: No biological monitoring required for wildlife as long as all of the previously described construction events have occurred (e.g., perimeter fence installed) and resources protection</i>	5/31/2014

Event Description	Expected Dates and Essential Biological Resource Protection Measures	Date Completed
	<i>measures have been implemented.</i>	
No. 20: Grading of power block, building pads, internal roads and solar field (as necessary)	Ivanpah 1 & Common: November 2010 - October 2011	10/10/2011
	Ivanpah 2: January 2011 – November 2011	11/3/2011
	Ivanpah 3: April 2011 – June 2012	6/5/2012
	<i>Wildlife: No biological monitoring required for wildlife as long as all of the previously described construction events have occurred (e.g., perimeter fence installed) and resources protection measures have been implemented.</i> <i>(Note: Biological monitoring required as per Biological Opinion)</i>	5/31/2014
	<i>Plants: Same as No. 17</i>	5/31/2014
No. 21: Vegetation mowed to within 10-12 inches of ground surface	Ivanpah 1, CLA, Ivanpah 2, and Ivanpah 3: December 2010 – November 2012	11/22/2012
	<i>Wildlife: No biological monitoring required for wildlife as long as all of the previously described construction events have occurred (e.g., perimeter fence installed) and resources protection measures have been implemented.</i> <i>(Note: Biological monitoring required as per Biological Opinion)</i>	Ongoing as per biological opinion
	<i>Plants: Same as No. 17</i>	Ongoing
No. 22: Colosseum Road graded and paved from golf course to plant	October 2010 – November 2010	July 2011
	<i>Wildlife: DB/BMs clear fenced area of all desert tortoises prior to construction.</i>	11/3/2010
	<i>Plants: No rare plants are located along Colosseum Road.</i>	N/A
No. 23: Internal roads graded, graveled, or	Ivanpah 1: October 2010 – November 2012	9/12/2013

Event Description	Expected Dates and Essential Biological Resource Protection Measures	Date Completed
paved		
	Ivanpah 2: January 2011- February 2013	11/18/2013
	Ivanpah 3: April 2011 – February 2013	12/4/2013
	<i>Wildlife: No biological monitoring required for wildlife as long as all of the previously described construction events have occurred (e.g., perimeter fence installed) and resources protection measures have been implemented.</i> <i>(Note: Biological monitoring required as per Biological Opinion)</i>	Ongoing as per biological opinion
	<i>Plants: Same as No. 17</i>	Ongoing
No. 24: Power equipment and materials brought onsite	November 2010 – May 2014	5/31/2014
	<i>Wildlife: No biological monitoring required for wildlife as long as all of the previously described construction events have occurred (e.g., perimeter fence installed) and resources protection measures have been implemented.</i>	5/31/2014
	<i>Plants: No monitoring necessary required for plants as long as all of the previously described construction events have occurred and resources protection measures have been implemented.</i>	5/31/2014
No. 25: Fabrication shops erected	November 2010 – June 2011	6/28/2011
	<i>Wildlife: No biological monitoring required for wildlife as long as all of the previously described construction events have occurred (e.g., perimeter fence installed) and resources protection measures have been implemented.</i>	6/28/2011
	<i>Plants: Same as No. 24</i>	6/28/2011
No. 26: Permanent wheel-washing station established	January 2011 - June 2011	6/30/2011
	<i>Wildlife: No biological monitoring required for wildlife as long as all of the previously described construction events have occurred (e.g., perimeter fence installed) and resources protection</i>	6/30/2011

Event Description	Expected Dates and Essential Biological Resource Protection Measures	Date Completed
	<i>measures have been implemented.</i>	
	<i>Plants: Same as No. 24</i>	6/30/2011
No. 27: Power block excavated and foundations poured	Ivanpah 1: February 2011 – April 2012	4/3/2012
	Ivanpah 2: April 2011 – July 2012	7/24/2012
	Ivanpah 3: June 2011 - May 2012	5/31/2012
	<i>Wildlife: No biological monitoring required for wildlife as long as all of the previously described construction events have occurred (e.g., perimeter fence installed) and resources protection measures have been implemented.</i>	5/31/2012
	<i>Plants: Same as No. 24</i>	5/31/2012
No. 28: Installation of underground piping and wiring	Ivanpah 1: December 2010 - May 2012	5/22/2012
	Ivanpah 2: February 2011 - April 2013	4/24/2013
	Ivanpah 3: April 2011 - September 2013	9/19/2013
	<i>Wildlife: No biological monitoring required for wildlife as long as all of the previously described construction events have occurred (e.g., perimeter fence installed) and resources protection measures have been implemented.</i>	9/19/2013
	<i>Plants: Same as No. 24</i>	9/19/2013
No. 29: Construction of power block	Ivanpah 1: February 2011 – December 2013	12/30/2013
	Ivanpah 2: April 2011 – December 2013	12/31/2013
	Ivanpah 3: September 2011 – December 2013	12/31/2013
	<i>Wildlife: No biological monitoring required for wildlife as long as all of the previously described construction events have occurred (e.g., perimeter fence installed) and resources protection measures have been implemented.</i>	12/31/2013

Event Description	Expected Dates and Essential Biological Resource Protection Measures	Date Completed
	<i>Plants: Same as No. 24</i>	12/31/2013
No. 30: Heliostat materials brought onsite	February 2011- September 2013	9/30/2013
	<i>Wildlife: No biological monitoring required for wildlife as long as all of the previously described construction events have occurred (e.g., perimeter fence installed) and resources protection measures have been implemented.</i>	9/30/2013
	<i>Plants: Same as No. 24</i>	9/30/2013
No. 31: Construction of Administration/warehouse building	February 2011 – November 2012	11/7/2012
	<i>Wildlife: No biological monitoring required for wildlife as long as all of the previously described construction events have occurred (e.g., perimeter fence installed) and resources protection measures have been implemented.</i>	11/7/2012
	<i>Plants: Same as No. 24</i>	11/7/2012
No. 32: Construction of heliostat field	Ivanpah 1: March 2011 - December 2012	12/17/2012
	Ivanpah 2: May 2011 - September 2013	9/10/2013
	Ivanpah 3: May 2012 - October 2013	10/7/2013
	<i>Wildlife: No biological monitoring required for wildlife as long as all of the previously described construction events have occurred (e.g., perimeter fence installed) and resources protection measures have been implemented.</i>	10/7/2013
	<i>Plants: Rare plant protection areas, ESAs and RPAs monitored to ensure construction activities don't intrude. Monitor for newly established special-status species and salvage and transplant to on-site nurseries.</i>	10/7/2013
Solar plant construction	Ivanpah 1 December 2010 – January 2013	9/20/2013
	<i>Implement all of the preceding measures for construction.</i>	5/31/2014

Event Description	Expected Dates and Essential Biological Resource Protection Measures	Date Completed
Solar plant construction	Ivanpah 2 January 2011 – April 2013	12/15/2013
	<i>Implement all of the preceding measures for construction.</i>	5/31/2014
Solar plant construction	Ivanpah 3 July 2011 – August 2013	12/6/2013
	<i>Implement all of the preceding measures for construction.</i>	5/31/2014
Removal/Restoration Phase		
Construction completed, all construction equipment and temporary buildings removed.	March 2013 - November 2013	11/30/2013
	<i>Wildlife: The permanent exclusion fencing would be inspected bimonthly (i.e., every other month) and after major rainfall events</i>	Ongoing
	<i>Plants: Areas used for construction that are no longer required for operation are restored per the Closure, Revegetation and Rehabilitation Plan. Special-status plant monitoring will be conducted within the RPAAs.</i>	Ongoing
Operation (Inside fenced areas)		
	Life of the project (45 Years)	Ongoing
	<i>WEAP repeated annually for permanent employees, and will be routinely administered within one week of arrival to any new construction personnel.</i>	Ongoing
	<i>Wildlife: The permanent exclusion fencing is inspected bimonthly and after major rainfall events.</i>	Ongoing
	<i>Implement ongoing measures of Raven Management Plan (BIO-12).</i>	Ongoing
	<i>Implement ongoing measures of Tortoise Translocation Plan. Monitoring and adaptive management measures for first 3 years of operation (see BIO-9 and Biological Opinion).</i>	Ongoing

Event Description	Expected Dates and Essential Biological Resource Protection Measures	Date Completed
	<i>Implement ongoing measures of Avian and Bat Monitoring and Management Plan (BIO-21)</i>	Ongoing
	<i>Plants: Maintain nursery plants. Special-status plant monitoring will be conducted within the RPAA's. An adaptive management approach will be used during long-term monitoring as per BIO-14.</i>	Ongoing
Maintenance (Inside and outside of fenced areas)		
Class I activities (do not result in surface disturbance)	Life of the project (45 Years)	Ongoing
	<i>Wildlife: DM/BM administers WEAP and monitors activity outside of fenced area that requires vehicles or construction equipment.</i>	Ongoing
Class II activities (results in minimal surface disturbance)	Life of the project (45 Years)	Ongoing
	<i>Wildlife: DM/BM administers WEAP and monitors activity outside of fenced area that requires vehicles or construction equipment</i>	Ongoing
	<i>Plants: Minimize new disturbance – avoid vegetation.</i>	Ongoing
Class III activities (result in new, major, surface disturbance outside of fenced areas)	Life of the project (45 Years)	Ongoing
	<i>Wildlife: Implement measures established for construction activities outside of fenced areas.</i>	Ongoing
	<i>Plants: Implement appropriate measures in the Closure, Revegetation and Rehabilitation Plan (BIO-14).</i>	Ongoing
Facility Closure		
Decommissioning.	45 years from project's start of operation	Not started
	<i>Implement measures of the Closure, Revegetation and Rehabilitation Plan (BIO-14)</i>	Not started

Appendix B

ISEGS Raven Management Final Report

**Ivanpah Solar Electric Generating System
California Energy Commission (07-AFC-5C)
Bureau of Land Management
(CACA-48668, 49502, 49503, and 49504)
Conditions of Certification BIO-12 and The Raven Management
Plan (Rev 2)**

Semi-Annual Report

**December 1, 2015 – May 31, 2016
Reporting Period**

**Submitted
June 27, 2016**

**Energyservices an NRG company
On behalf of Solar Partners I, II, and VIII LLC**

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Report Overview and Introduction

The California Energy Commission (CEC) condition of certification (COC) BIO-12 requires the preparation of a Raven Management Plan. In addition to the Raven Management Plan, the United States Fish and Wildlife Service (USFWS) issued a Biological Opinion (BO) to ISEGS in October 2010 that was revised in June 2011. The BO also provided additional guidance on raven management that was incorporated into the Raven Management Plan (Version 4). As part of the Raven Management Plan an annual monitoring report is a required that documents the following:

- The number and behavior of observed ravens
- Raven nest and perch locations
- Results of the management techniques
- The observed effectiveness of the techniques to minimize raven presence
- Suggestions for improving raven management

All studies are conducted under the direction of the CEC Designated Biologists by biology staff approved by CEC and Bureau of Land Management (BLM).

Raven Monitoring and Management

From December 2015 through May 2016 biologists continued monitoring common raven activity on the Ivanpah Solar Electric Generating System (ISEGS) site per California Energy Commission condition of certification BIO-12, USFWS biological opinion, and as outlined in the ISEGS Raven Management Plan. The monitoring effort is organized in three tasks: 1) Raven Observations, 2) Nest Monitoring and 3) Point Count Census data. The methods, results and effectiveness of raven management measures are provided in the sections below.

Raven Observations

Observations of ravens are performed eight or more days a month on the ISEGS site and nearby areas throughout the year. Observation sessions are two-hours long, and rotate throughout the units to ensure thorough coverage of potential raven activity. There are typically 32-36 sessions per month. Observations are recorded and analyzed to determine specific behaviors of resident and non-resident ravens. The overall objective is to document locations where ravens obtain anthropogenic sources of food and water, determine perching and night roost locations, and understand in general how ravens interact with the site.

Currently, there is one pair of adult ravens resident on the ISEGS site. In 2013 there were four resident pairs using the site for resources such as food, water, and night roosting, but using nesting locations located offsite. By January 2014 there were three resident pairs, and by April 2014, just two pairs. Beginning in late 2015, one of the two known remaining pairs has been observed far less frequently. These ravens had previously utilized unit 3 and part of unit 2 on a regular basis, and nested in prior years on transmission towers or cliffs north of the ISEGS site. By February 2016 this pair was rarely seen, and no ravens occupied their associated nesting area during the 2016 nest season.

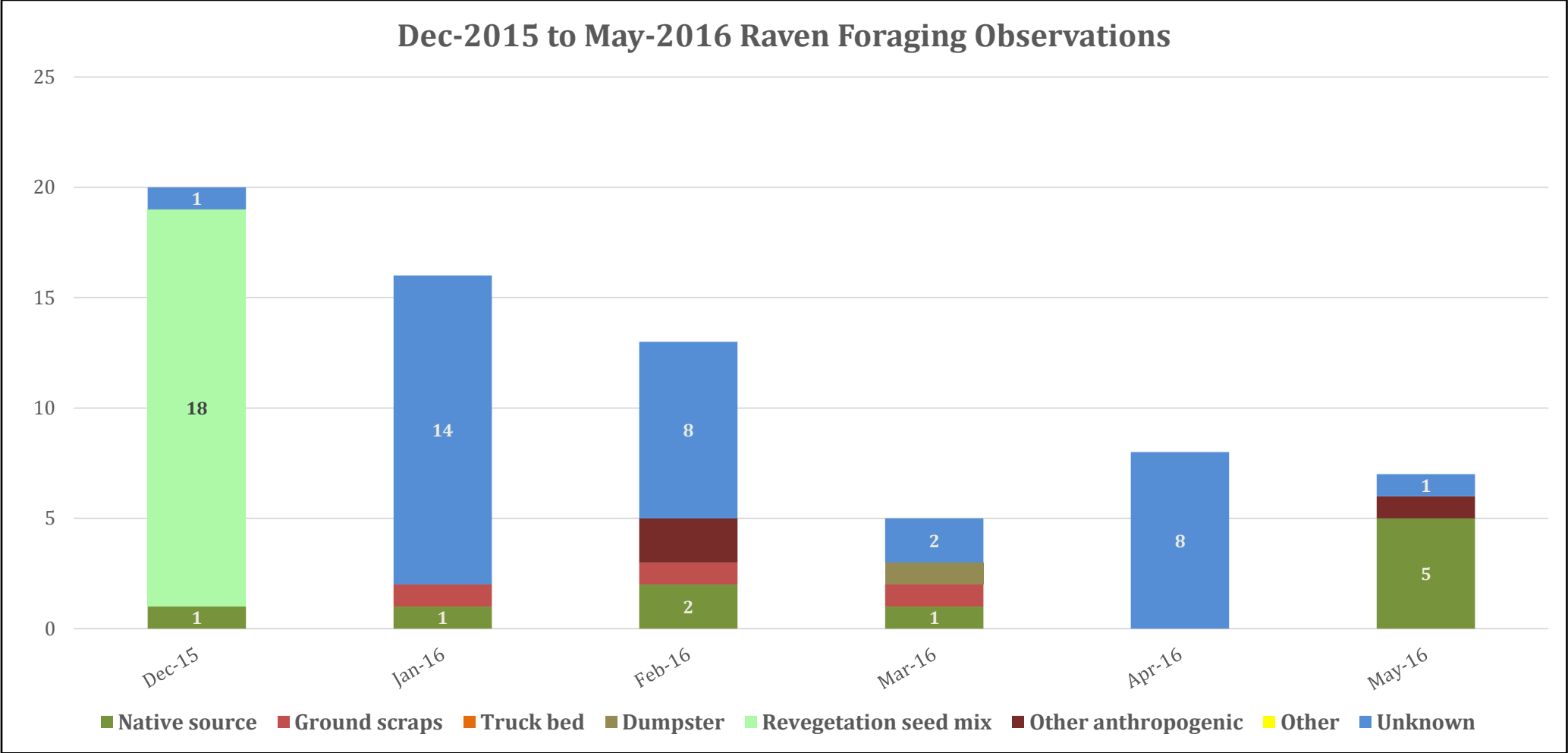
The remaining “CLA” resident pair is present year round, using both the site and nearby desert areas. These two ravens primarily utilize CLA-E and CLA-W, unit 1, and parts of unit 2. They are also observed along Colosseum Road as far as Yates Well Road. This pair frequents areas of busy operations or maintenance related worker activity, and visits the power blocks to access remaining anthropogenic sources of water. This pair frequently night roosts in the Heliostat Assembly Building (HAB), under the west side veranda roof, or on the east side exterior vents. The former “Ivanpah 3” resident pair was observed infrequently in early 2016 inside unit 3, foraging on the ground and at night roosting in the solar tower. Observations also demonstrated this pair roosting in the unit 2 solar tower and ACC building. Resident ravens utilize a wide variety of perch types including fences, heliostats, utility poles, transmission towers, equipment, vehicles, berms, and buildings. No vagrant ravens have been observed roosting at the site overnight. See Map 1 for perches and night roosts utilized by ISEGS resident ravens from December 2015 through May 2016.

Foraging on “direct” food subsidies, such as human food waste discarded on the ground or in open dumpsters is rare, with only 4 observations made in the reporting time period. Other direct anthropogenic sources include carcasses placed by biologists as part of the avian mortality study, and seeds or grain broadcast for plant restoration work or found in silt containment straw bundles and bails. “Indirect” anthropogenic food subsidies are the more commonly observed effort of raven foraging in recent years. These are primarily dead native source food items such as insect and bird carcasses found in the power blocks, and road killed reptiles and mammals. Ravens have been observed taking a variety of live insects such as dragonflies, beetles, grasshoppers, Sphinx moths and their larvae, or scavenging prey remains from kit fox dens and shelter sites. Ravens at ISEGS have also been documented hunting lizards, and foraging on the contents of bird nests.

From October 9 to October 16, 2015 a mixture containing native seeds and rolled oats was broadcast by Soil Tech workers into CLA-East as part of the plant restoration effort. The timing coincided with the seasonal arrival of migrant ravens to the Ivanpah Valley, and in October we observed raven flocks feeding on this seed mixture on 10 occasions, in November 21 times, and in early December 18 times. After mid December the available seed mix appeared to be depleted, and the foraging by vagrant raven flocks ceased.

See Figure 1 for Raven Foraging Observations and Map 2 for locations of raven foraging from December 2015 to May 2016. See also Map 3 for raven low flying and walking observations.

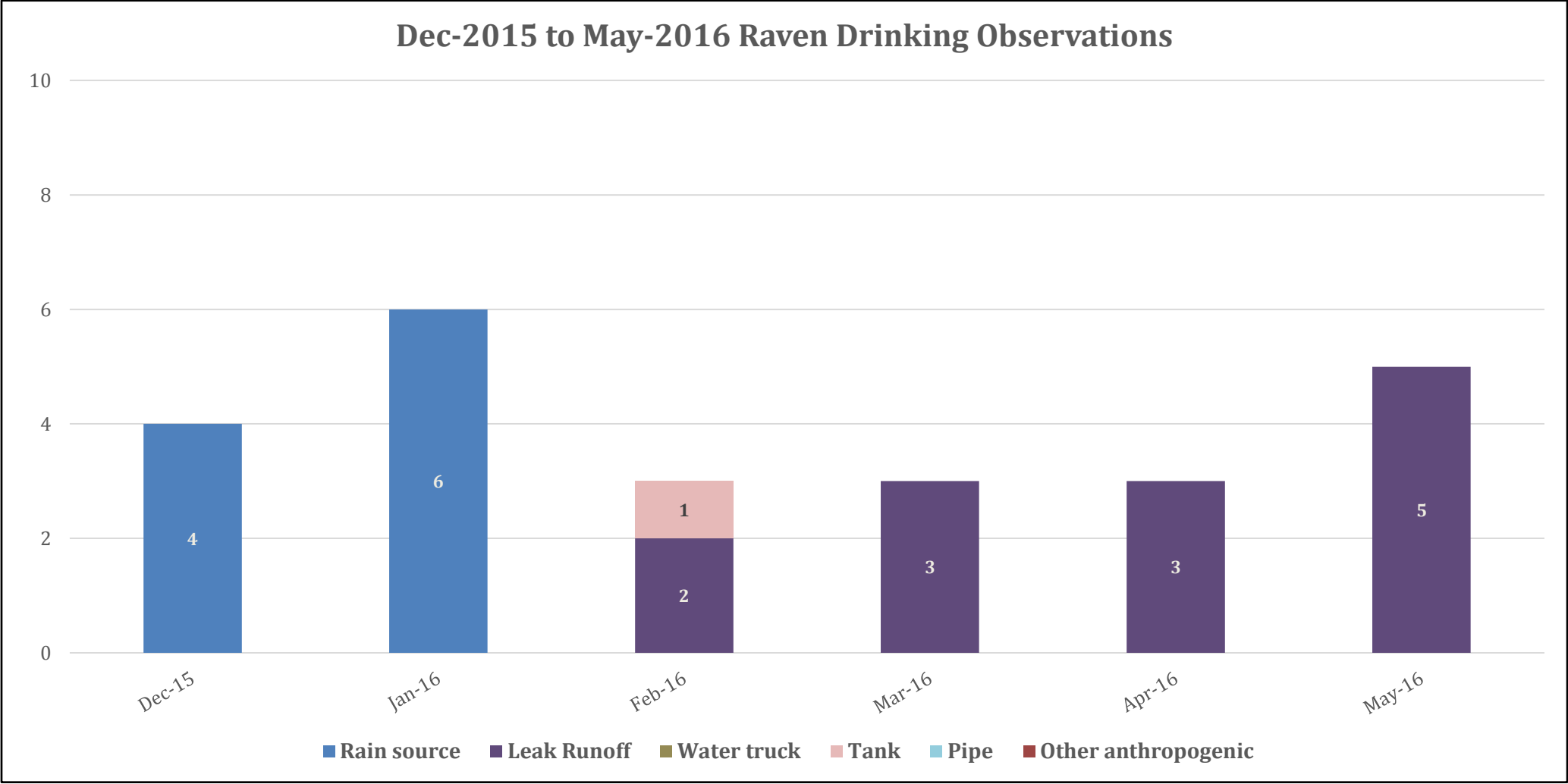
Figure 1: Foraging observations of ravens on ISEGS December 2015 to May 2016.



In addition to collecting foraging data, observations are conducted to determine raven use of anthropogenic water sources on the ISEGS site. Current water sources available to the ravens are mostly the runoff and pooling created by leaking fixtures in the power blocks (See Figure 2). Raven proof spill containment pans and changes in operations routines have greatly diminished raven access to water. In addition, when anthropogenic water sources for ravens are identified, these features are addressed directly if possible with repairs, barriers, or engineering alterations, and workers, technicians, or supervisors are informed how to prevent ravens from accessing water. Further, biologists and NRG personnel have made temporary alterations to some site leaking features pending future repair, successfully preventing access to water. In every situation where ravens are observed procuring human food or anthropogenic sources of water, the work crews and supervisors in the area are informed and raven protocols are reviewed directly with the field personnel involved.

See Map 2 for locations of raven water use at ISEGS from December 2015 through May 2016.

Figure 2: Drinking observations of ravens on ISEGS December 2015 to May 2016



Raven Nest Monitoring

During the nesting season from March through June CEC and BLM approved biologists locate and map all active raven nests in the designated survey area (see Map 4). Nesting pairs are observed every 5 - 7 days to determine egg lay, if the nests progress from incubation to nestling phase, determine number of nestlings per nest, and finally to determine if the nestlings fledge, or if there is nesting failure. Further, nesting adults are observed to determine foraging areas, and if pairs travel to the ISEGS site to obtain food and water subsidies. In addition, a juvenile tortoise carcass survey is conducted under every nest during these monitoring visits.

Annual raven nesting surveys for 2016 commenced in March, and six pairs of ravens were observed to be in occupancy of nesting territories. By late May two pairs under observation had failed their nesting attempts, and the four remaining pairs fledged a total of 11 nestlings. There was no nest building attempted directly on the ISEGS site this year. The “CLA” resident raven pair began laying eggs in late March, in an EITP transmission tower nest constructed in the Edison ROW, between Construction Logistics Area East and West. They failed this first attempt in late April. However, by May 11 the pair had made a second attempt, laying a new set of eggs in the same nest. By June 15 this second nesting attempt was observed to have failed, and the nest abandoned. This pair was the only nesting pair to be observed utilizing the ISEGS site. The remaining five raven pairs nesting in the survey area were never seen to visit or travel between their nests and the ISEGS site.

There were no juvenile tortoise carcasses found beneath monitored nests in 2016.

See Map 4 for Raven Nest Locations in 2016.

Point Count Census

Biologists conduct point counts for ravens twice a month on the ISEGS site and nearby desert habitat to determine relative abundance and seasonal distribution of birds. A total of 24 points are used, 16 in the offsite desert “recipient” areas and 8 on site.

The point count data shows that each year there is a seasonal increase in raven numbers observed throughout the Ivanpah Valley, usually beginning in September and October, and tapering off in January and February (See Figures 3, 4 and 5). These migrants and vagrants are seen either as solitary birds, pairs, or small flocks varying in size, typically from 3 to 20 birds. They are most often seen flying over or past ISEGS, and on occasion, perching on site. These migrants and vagrants are frequently harassed by the resident ravens and leave the site. In addition, there is a slight increase in raven numbers during the nesting season at offsite “recipient” area points near occupied nesting territories, and on the ISEGS site if resident pairs have surviving fledglings. Throughout most of the year point counts document 4 or less birds onsite, consistent with our observational data. See Map 5 for Point Count Groupings.

Figure 3: Seasonal Variation in Total Ravens Across Eight Onsite Same-Day Point Counts

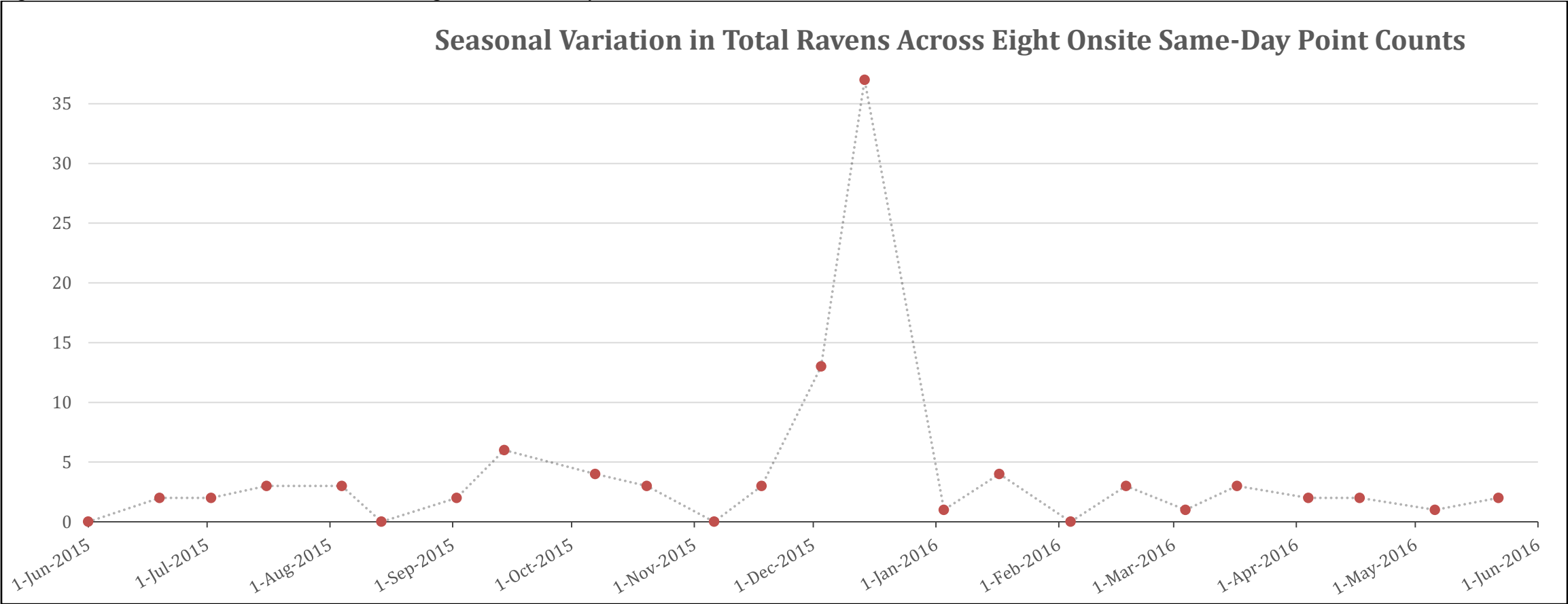


Figure 4: Seasonal Variation in Total Ravens Across Sixteen Recipient Site Same-Day Point Counts

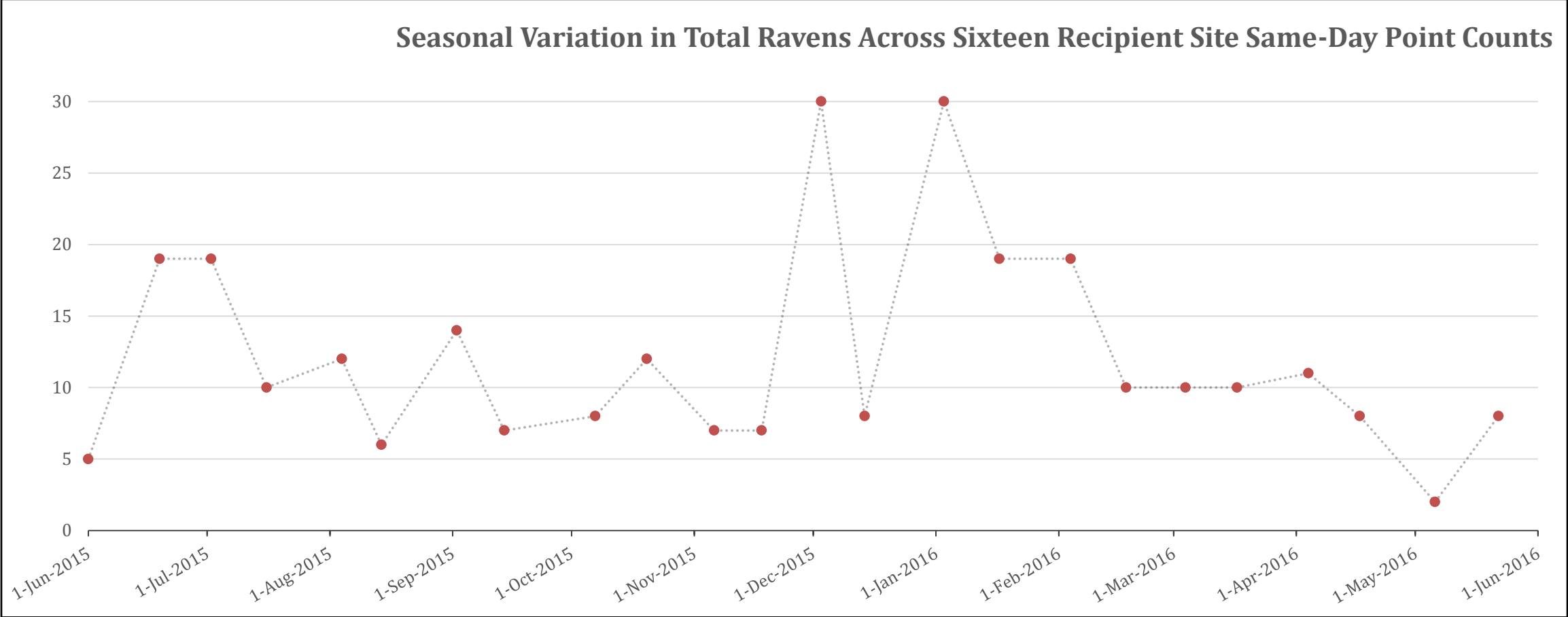
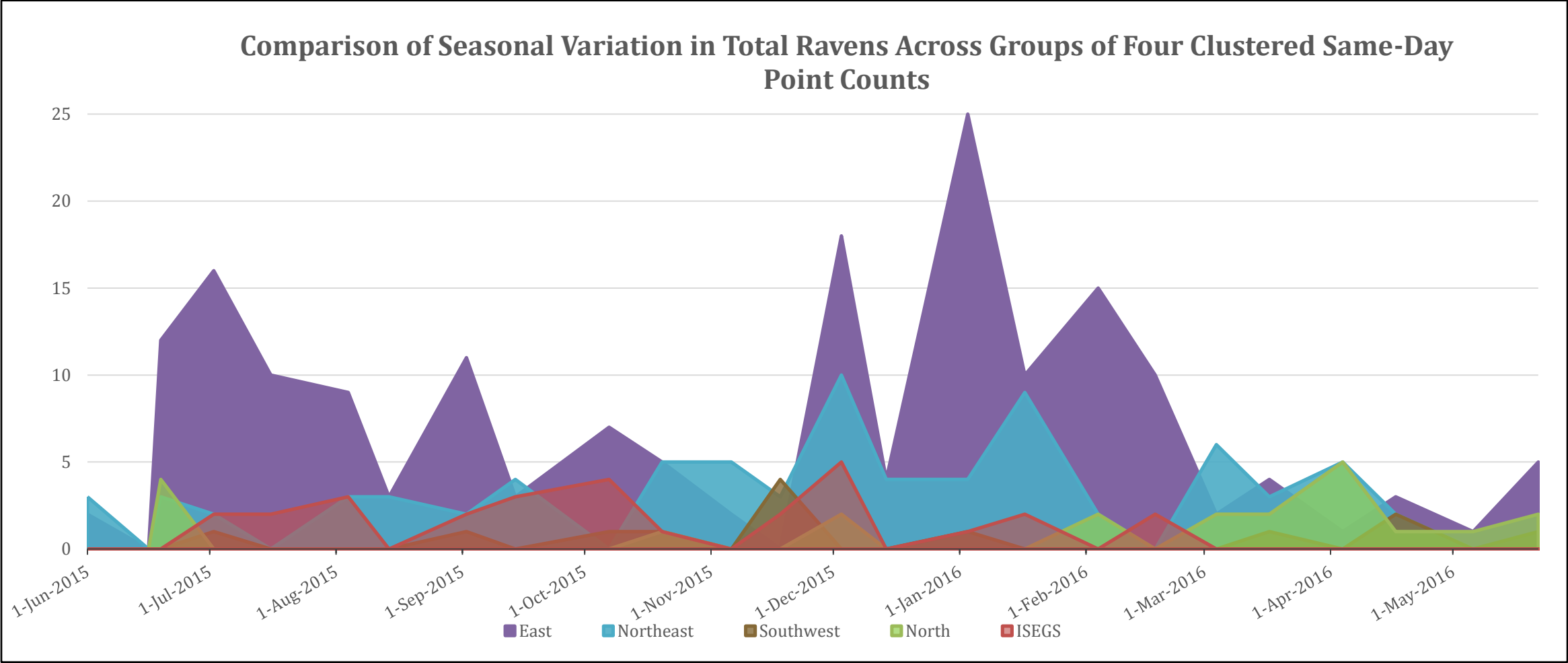


Figure 5: Comparison of Seasonal Variation in Total Ravens Across Groups of Four Clustered Same-Day Point Counts (See Map 5)



2016 Raven Management

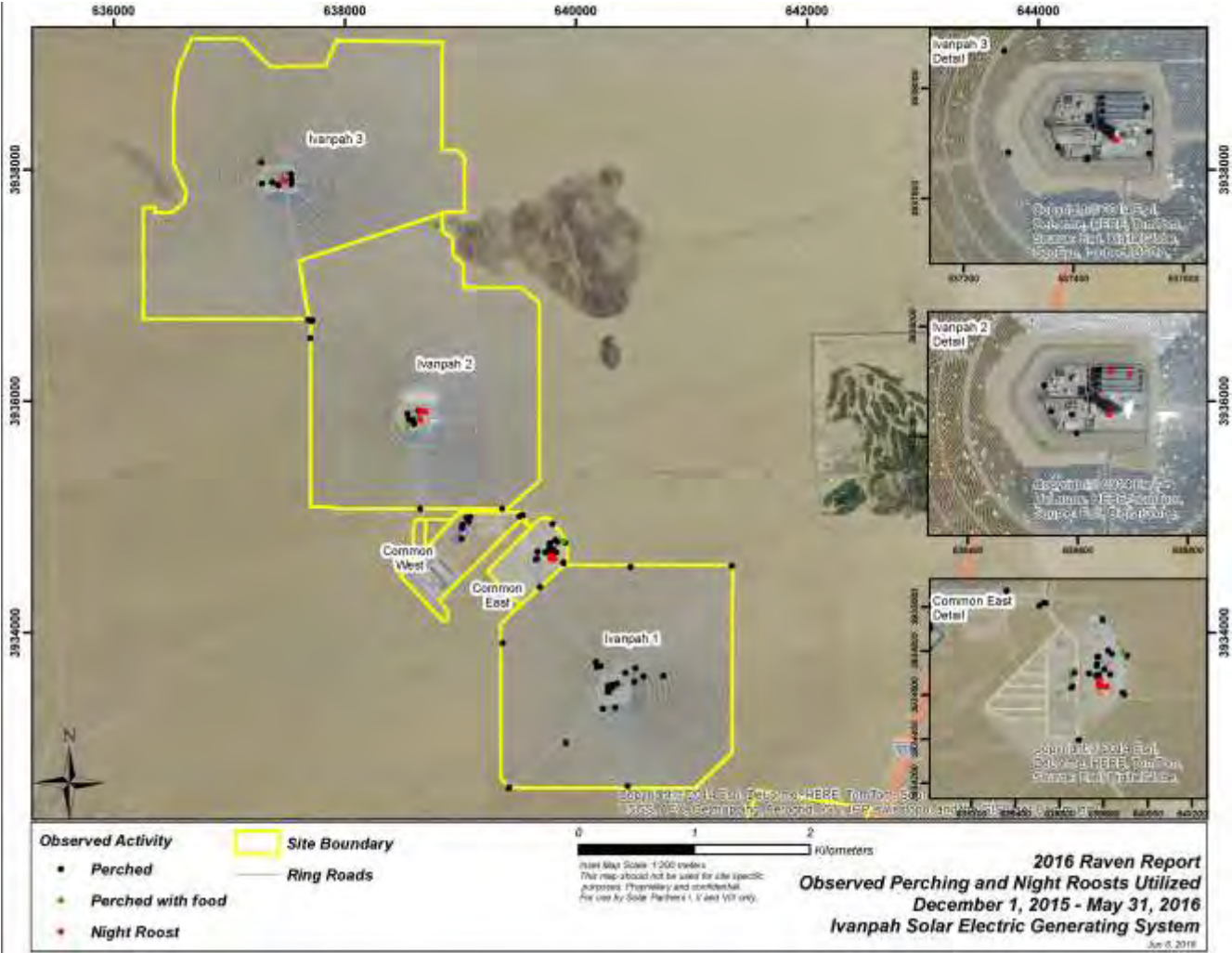
The following recommendations are provided for ongoing management at the site:

- Continue direct communication with workers following any observation of ravens taking human food and drinking water. Direct communication has been one of the most effective means of decreasing raven use of anthropogenic sources of food and water.
- Continue to mitigate water sources, including leaks from pipes and tanks and other equipment to prevent water pooling or to prevent raven access when observed.
- Deploy additional raven-proof spill containment pans at each power block as required.
- Work directly with heliostat washing crews to continue and extend raven-preventive water practices.
- Replace dumpsters with tarp covers as needed with dumpsters that have hard plastic lids.
- Improve enforcement of speed limits throughout the site and raise worker awareness to reduce the occurrence of road killed reptiles and mammals.
- Reduce the number of bird carcasses placed onsite for avian fatality studies to statistical minimums required.
- Consider use of 2.5 Watt Green Laser from Hardshell Labs, Inc. This laser has shown promise in hazing tests on individual and large flocks of ravens, and application for raven deterrence are still in development.

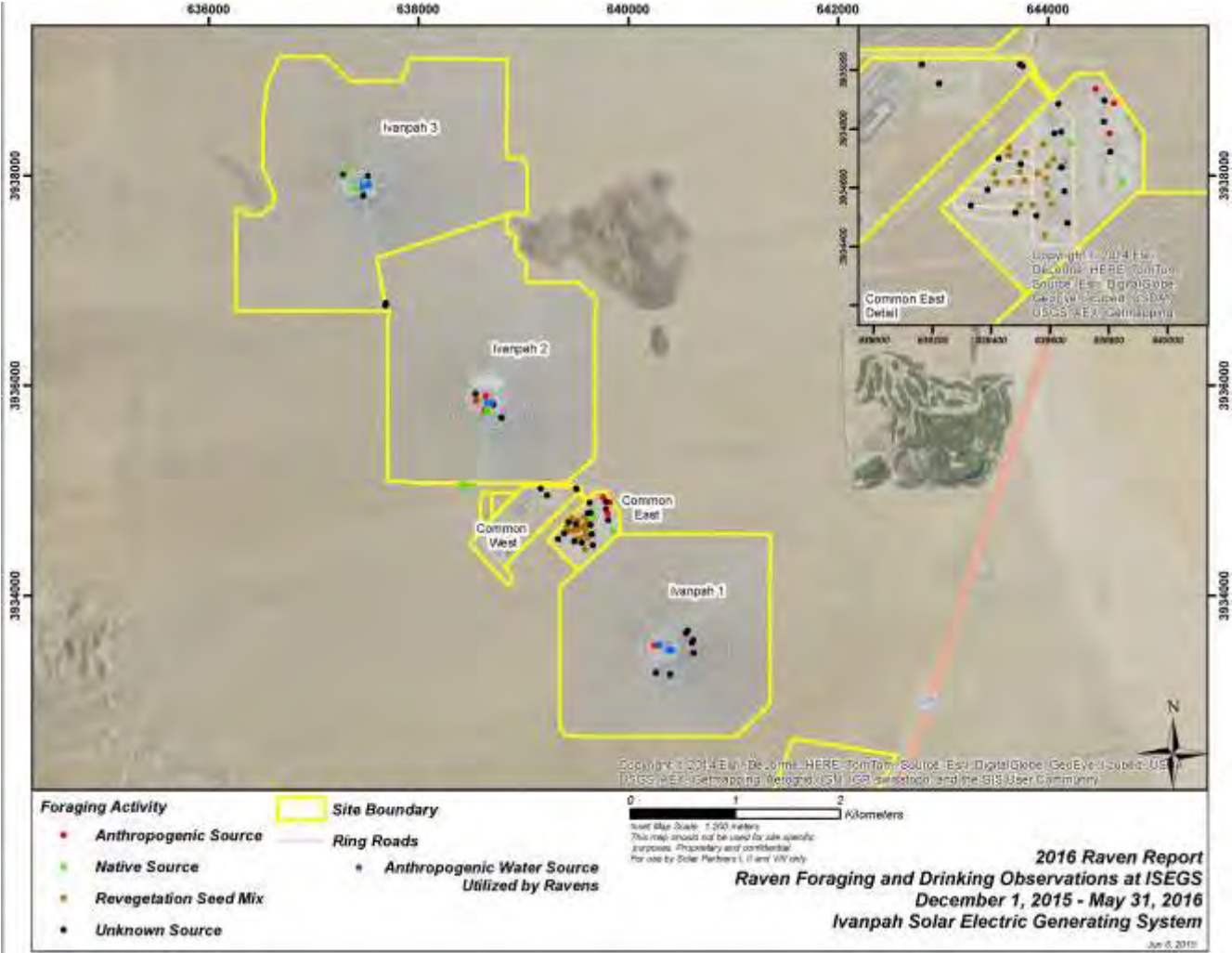
Appendix A

Raven Management Report Maps

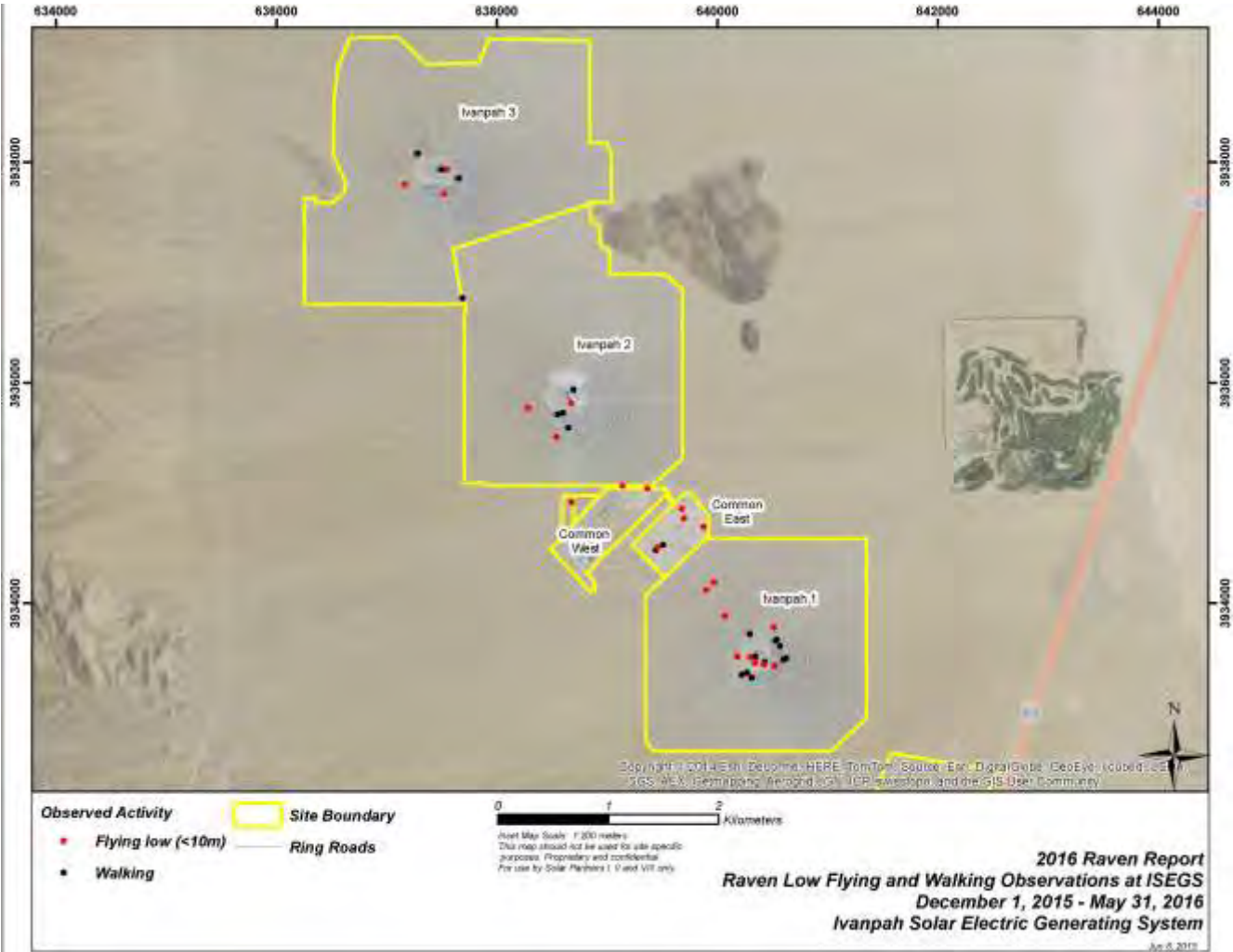
Map 1 Observed Perching and Night Roosts Utilized



Map 2 Raven Foraging and Drinking Observations



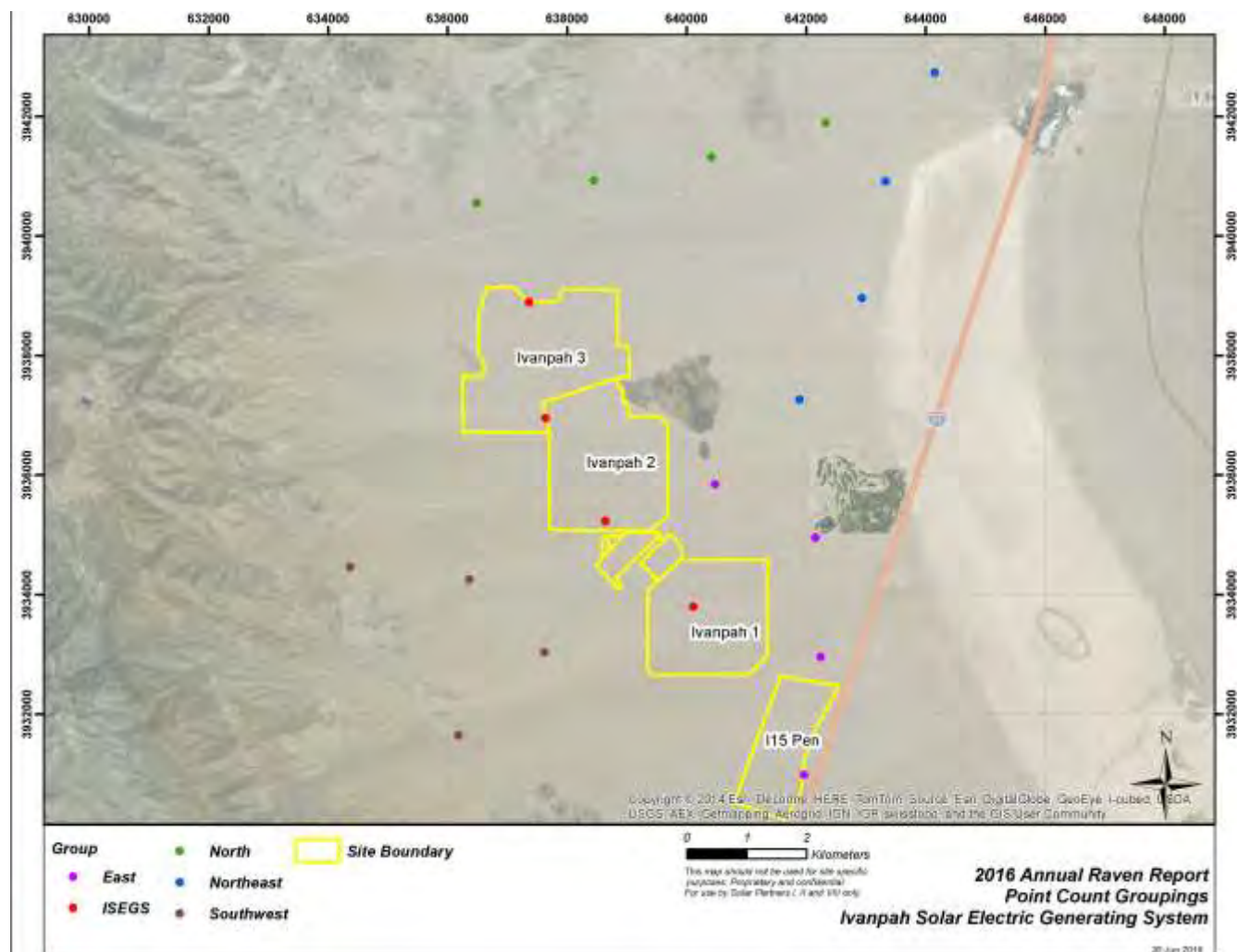
Map 3 Raven Low Flying and Walking Observations



Map 4 Raven Nest Locations

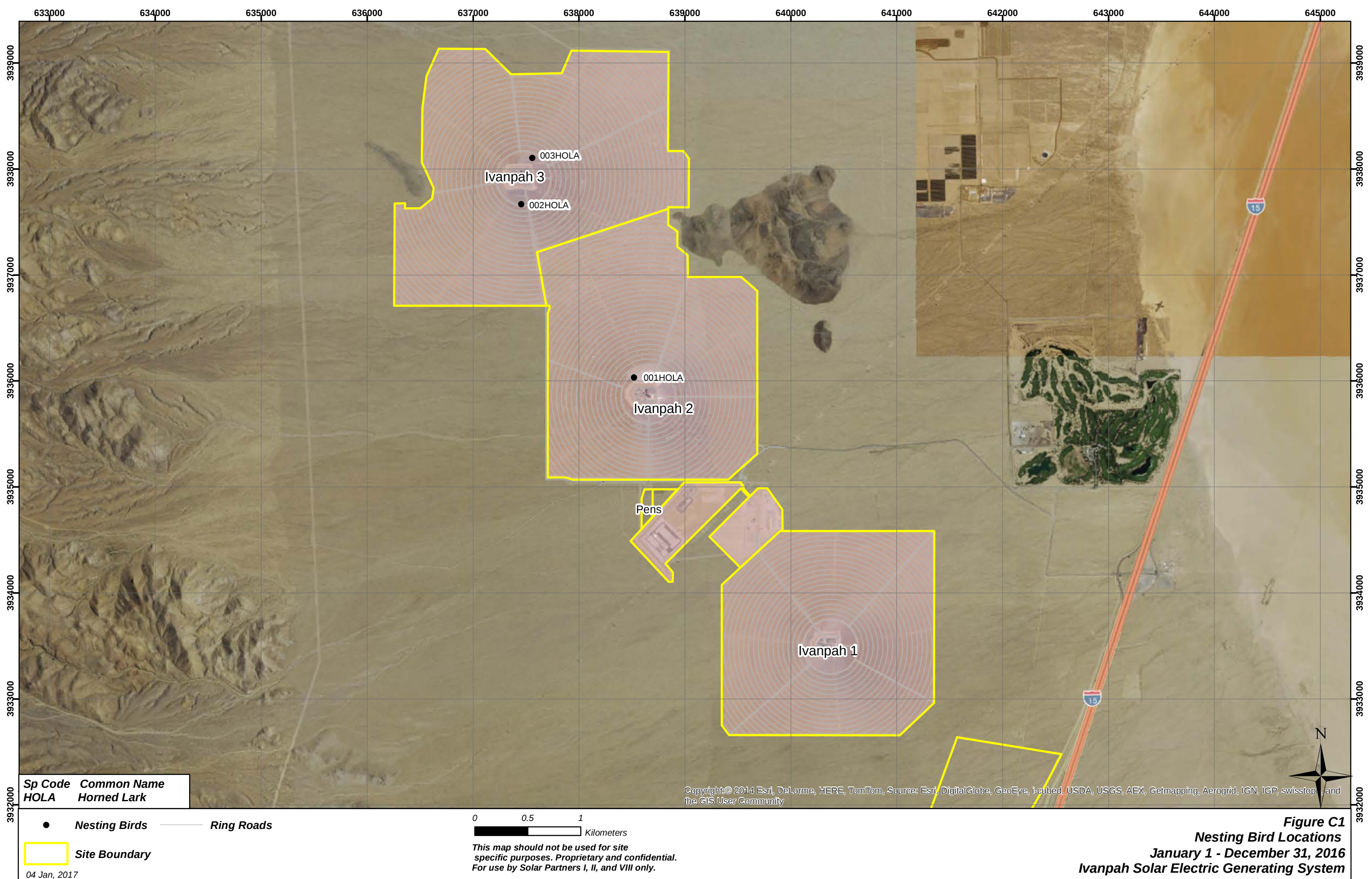


Map 5 Point Count Groupings and locations



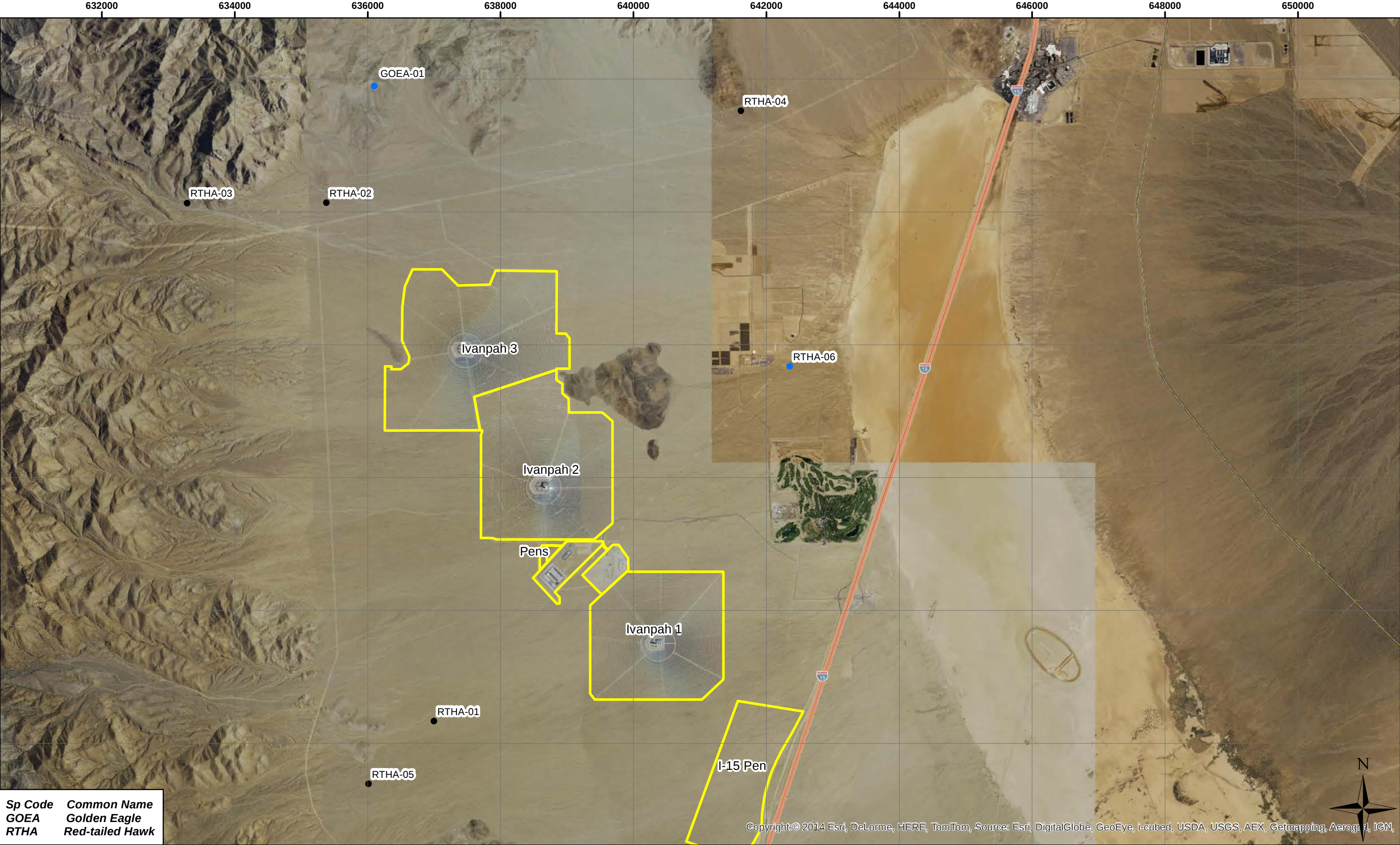
Appendix C

Map of ISEGS 2016 Nesting Bird Locations



Appendix D

Map of 2016 Raptor Nest Locations



Sp Code	Common Name
GOEA	Golden Eagle
RTHA	Red-tailed Hawk

Site Boundary

Raptor Nests

Nestlings

Fledged

012 Kilometers

This map should not be used for site specific purposes. Proprietary and confidential. For use by Solar Partners I, II, and VIII only.

Figure D1
Raptor Nest Locations
January 1 - December 31, 2016
Ivanpah Solar Electric Generating System

Appendix E

BIO-20 Biological Change of Conditions Reports

Ivanpah SEGS Change of Conditions Report COC BIO-20, May 2016

PREPARED FOR: Doug Davis/NRG Energy
PREPARED BY: Morgan King/CH2M HILL
COPIES: John Carrier/CH2M HILL
DATE: May 25, 2016

Introduction

The California Energy Commission's *Ivanpah Solar Electric Generating System Commissions Decision* (2010) Condition of Certification (COC) BIO-20 states, in part, that Solar Partners' must identify:

"...any change of conditions to the project, the jurisdictional impacts, or the mitigation efforts... As used here, change of condition refers to the process, procedures, and methods of operation of a project; the biological and physical characteristics of a project area; or the laws or regulations pertinent to the project."

Potential changes of conditions include changes to assumptions resulting from new data provided during the operations phase of Ivanpah Solar Electric Generating (ISEGS) surveys. In May 2016, environmental staff identified the presence of two new plant species, which is an apparent change in the biological conditions because they had not been previously identified from ISEGS.

New Plant Occurrences

Change of Conditions

The new plant species not previously observed onsite were tansy mustard (*Descurainia sophia*) and common oat (*Avena sativa*).

Description

Tansy mustard is a non-native species in California, which was introduced from elsewhere but naturalized in the wild. An ISEGS target weed is defined as a species included in the California Invasive Plant Council (Cal-IPC), California Department of Food and Agriculture (CDFA), or Mojave Weed Management Area (MWMA) weed lists. Tansy mustard is listed as limited on Cal-IPC and not included on the CDFA or MWMA lists. All individuals were removed manually.

In fall 2015, the western portion of Commons East was treated to revegetation according to BIO-14. To satisfy the seed predators, a mixture of creosote bush (*Larrea tridentata*) and common oats were sown with the native seed. In May 2016, the grass florets were present and the botanist identified the grass as common oats. The number of common oats present in this area is greater than 1000 individuals. This species is a non-native species in California because it is an escaped cultivar. This species is not an ISEGS target weed, because it is not included in the Cal-IPC, CDFA, or MWMA weed lists. This species can occur in dry conditions, but will not survive in the Mojave desert without supplemental water. Instead of removing this species, botanist recommended letting the current individuals dry out and die on their own.

Recommendations

No recommendations are necessary to accommodate this change in conditions. Biological staff will continue to monitor the project site for new plant species while complying with requirements BIO-18 special-status plants and BIO-13 noxious weeds.

Ivanpah SEGS Change of Conditions Report COC BIO-20, August 2016

PREPARED FOR: Doug Davis/NRG Energy
PREPARED BY: Morgan King/CH2M HILL
COPIES: Jerry Salamy/CH2M HILL
DATE: August 8, 2016

Introduction

The California Energy Commission's *Ivanpah Solar Electric Generating System Commissions Decision* (2010) Condition of Certification (COC) BIO-20 states, in part, that Solar Partners' must identify:

"...any change of conditions to the project, the jurisdictional impacts, or the mitigation efforts... As used here, change of condition refers to the process, procedures, and methods of operation of a project; the biological and physical characteristics of a project area; or the laws or regulations pertinent to the project."

Potential changes of conditions include changes to assumptions resulting from new data provided during the operations phase of Ivanpah Solar Electric Generating (ISEGS) surveys. In May 2016, environmental staff identified the presence of one new plant species, which is an apparent change in the biological conditions because they had not been previously identified from ISEGS.

New Plant Occurrences

Change of Conditions

The new plant species not previously observed onsite was Palmer's amaranth (*Amaranthus palmeri*).

Description

Palmer's amaranth is a native California annual plant in the Pigweed (Amaranthaceae) family. It occurs in disturbed creosote bush communities. Although not common in the eastern Mojave, it has been documented in San Bernardino County. There are no species of Amaranth included in the California Invasive Plant Council (Cal-IPC), California Department of Food and Agriculture (CDFA), or Mojave Weed Management Area (MWMA) weed lists. Therefore, this species is not an ISEGS target weed.

Recommendations

No recommendations are necessary to accommodate this change in conditions. Biological staff will continue to monitor the project site for new plant species while complying with requirements BIO-18 special-status plants and BIO-13 noxious weeds.

Appendix F

ISEGS 2016 Desert Tortoise Disposition Table

Table F1: ISEGS 2016 Desert Tortoise Disposition Table

Disposition Table Legend	
Term	Explanation
DTCC	Desert Tortoise Conservation Center
Inj	Injured
MNP	Mojave National Preserve
NT	Never Transmitted
OSP	Ojai Sulcata Project
Vet	Dr. Thomas Boyer, Pet Hospital of Penasquitos 9888 Carmel Mountain Rd. Ste F. San Diego, CA 92129
WT	Was Transmitted

* BS191 and BS193 have approximate Initial Process Dates

[illegible]

[illegible]

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[illegible]

[illegible]

[illegible]

[illegible]

Tort ID	Initial Process Location (GIS)	Pen #	Sex	Initial MCL	Recent MCL	Initial Process Date	Transmitter (Yes/No)	Jan-16	Feb-16	Mar-16	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16
BS173	Ivanpah 2		Female	217	219	5/11/2011	Yes	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient
BS174	Ivanpah 1		Unknown	59	106	5/12/2011	No	Deceased (Apr 2015)											
BS175	Ivanpah 1		Unknown	62	131	5/12/2011	Yes	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Recipient	Recipient	Recipient
BS176	Ivanpah 3		Female	228	233	5/17/2011	Yes	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient
BS177	Ivanpah 2		Female	236	237	5/22/2011	Yes	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient
BS178	Ivanpah 1		Unknown	46	117	6/9/2011	Yes	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Recipient	Recipient	Recipient
BS179	Ivanpah 3		Male	122	220	6/11/2011	Yes	Recipient (I-15 Pen)	Recipient (I-15 Pen)	Recipient (I-15 Pen)	Recipient (I-15 Pen)	Recipient (I-15 Pen)	Recipient (I-15 Pen)	Recipient (I-15 Pen)	Recipient (I-15 Pen)	Recipient (I-15 Pen)	Recipient (I-15 Pen)	Recipient (I-15 Pen)	Recipient (I-15 Pen)
BS180	Recipient Site		Unknown	94	107	7/12/2011	No	Deceased (Aug 2012)											
BS181	Ivanpah 3		Unknown	62	130	7/20/2011	No	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Deceased		
BS182	Ivanpah 2		Unknown	59	124	7/27/2011	Yes	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Recipient	Recipient	Recipient
BS183	Ivanpah 2		Male	261	264	7/30/2011	Yes	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient
BS184	Ivanpah 3		Female	176	213	8/4/2011	No	Deceased (Aug 2014)											
BS185	Ivanpah 3		Unknown	53	125	8/6/2011	Yes	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Recipient (I-15 Pen)	Recipient (I-15 Pen)	Recipient (I-15 Pen)
BS186	Ivanpah 2		Female	137	215	8/7/2011	Yes	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient
BS187	Ivanpah 3		Female	190	202	8/8/2011	No	Deceased (Apr 2014)											
BS188	Ivanpah 3		Unknown	75	136	8/12/2011	No	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Deceased		
BS189	Ivanpah 3		Unknown	137	152	8/13/2011	Yes	Missing	Missing	Missing	Missing	Missing	Missing	Missing	Missing	Missing	Missing	Missing	Missing
BS190	Ivanpah 3		Unknown	102	126	8/15/2011	Yes	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Recipient	Recipient	Recipient
BS191	Ivanpah 2		Unknown	82	152	4/15/2011	Yes	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Recipient (I-15 Pen)	Recipient (I-15 Pen)	Recipient (I-15 Pen)
BS192	Recipient Site		Female	148	182	8/23/2011	No	Missing	Missing	Missing	Missing	Missing	Missing	Missing	Missing	Missing	Missing	Missing	Missing
BS193	Ivanpah 3		Unknown	70	124	4/15/2011	No	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Deceased		
BS194	Quarantine Pens		Unknown	45	100	8/25/2011	Yes	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Recipient (I-15 Pen)	Recipient (I-15 Pen)	Recipient (I-15 Pen)
BS195	Quarantine Pens		Unknown	43	115	8/26/2011	Yes	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Recipient	Recipient	Recipient
BS196	Quarantine Pens		Unknown	43	86	8/26/2011	Yes	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Recipient (I-15 Pen)	Recipient (I-15 Pen)	Recipient (I-15 Pen)
BS197	Quarantine Pens		Unknown	45	102	8/26/2011	No	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Deceased		

Tort ID	Initial Process Location (GIS)	Pen #	Sex	Initial MCL	Recent MCL	Initial Process Date	Transmitter (Yes/No)	Jan-16	Feb-16	Mar-16	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16
BS198	Quarantine Pens		Unknown	44	84	8/26/2011	No	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Deceased		
BS199	Quarantine Pens		Unknown	43	91	8/26/2011	Yes	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Recipient	Recipient	Recipient
BS200	Quarantine Pens	216	Unknown	41	55	8/29/2011	No	Missing	Missing	Missing	Missing	Missing	Missing	Missing	Missing	Missing	Missing	Missing	Missing
BS201	Quarantine Pens		Unknown	43	120	8/29/2011	Yes	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Recipient (I-15 Pen)	Recipient (I-15 Pen)	Recipient (I-15 Pen)
BS202	Quarantine Pens		Unknown	46	85	8/29/2011	No	Deceased (Sep 2014)											
BS203	Quarantine Pens		Unknown	44	100	8/29/2011	Yes	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Recipient	Recipient	Recipient
BS204	Quarantine Pens		Unknown	43	110	8/29/2011	No	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Deceased		
BS205	Quarantine Pens		Unknown	41	107	8/29/2011	Yes	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Recipient	Recipient	Recipient
BS206	Quarantine Pens		Unknown	31	31	8/29/2011	No	Deceased (Aug 2011)											
BS207	Quarantine Pens	201	Unknown	43	71	8/30/2011	No	Missing	Missing	Missing	Missing	Missing	Missing	Missing	Missing	Missing	Missing	Missing	Missing
BS208	Quarantine Pens		Unknown	46	96	8/30/2011	Yes	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Recipient	Recipient	Recipient
BS209	Quarantine Pens		Unknown	40	112	8/30/2011	Yes	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Recipient (I-15 Pen)	Recipient (I-15 Pen)	Recipient (I-15 Pen)
BS210	Quarantine Pens		Unknown	40	114	8/30/2011	Yes	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Recipient	Recipient	Recipient
BS211	Quarantine Pens	218	Unknown	44	52	8/31/2011	No	Missing	Missing	Missing	Missing	Missing	Missing	Missing	Missing	Missing	Missing	Missing	Missing
BS212	Quarantine Pens		Unknown	48	94	9/1/2011	Yes	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Recipient (I-15 Pen)	Recipient (I-15 Pen)	Recipient (I-15 Pen)
BS213	Quarantine Pens		Unknown	46	109	9/1/2011	Yes	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Recipient (I-15 Pen)	Recipient (I-15 Pen)	Recipient (I-15 Pen)
BS214	Quarantine Pens		Unknown	45	110	9/1/2011	Yes	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Recipient	Recipient	Recipient
BS215	Quarantine Pens		Unknown	44	120	9/1/2011	Yes	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Recipient	Recipient	Recipient
BS216	Quarantine Pens		Unknown	42	102	9/1/2011	Yes	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Recipient (I-15 Pen)	Recipient (I-15 Pen)	Recipient (I-15 Pen)
BS217	Ivanpah 3		Male	253	265	9/3/2011	Yes	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient
BS218	Quarantine Pens		Unknown	38	38	9/3/2011	No	Deceased (Sep 2011)											
BS219	Quarantine Pens		Unknown	43	110	9/3/2011	Yes	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Recipient	Recipient	Recipient
BS220	Ivanpah 3		Male	268	263	9/5/2011	Yes	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient
BS221	Quarantine Pens		Unknown	48	92	9/5/2011	No	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Deceased		

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Tort ID	Initial Process Location (GIS)	Pen #	Sex	Initial MCL	Recent MCL	Initial Process Date	Transmitter (Yes/No)	Jan-16	Feb-16	Mar-16	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16
BS235	Quarantine Pens		Unknown	44	47	9/8/2011	No	Moved permanently to MNP (Apr 2012)											
BS236	Quarantine Pens		Unknown	42	47	9/8/2011	No	Moved permanently to MNP (Apr 2012)											
BS237	Quarantine Pens		Unknown	45	45	9/9/2011	No	Moved permanently to MNP (Apr 2012)											
BS238	Quarantine Pens		Unknown	41	44	9/9/2011	No	Moved permanently to MNP (Apr 2012)											
BS239	Recipient Site		Female	224	230	9/8/2011	Yes	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient
BS240	Quarantine Pens		Unknown	44	46	9/9/2011	No	Moved permanently to MNP (Apr 2012)											
BS241	Quarantine Pens		Unknown	41	103	9/11/2011	No	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Deceased		
BS242	Recipient Site		Male	210	259	9/9/2011	Yes	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient
BS243	Recipient Site		Unknown	134	135	9/9/2011	No	Missing	Missing	Missing	Missing	Missing	Missing	Missing	Missing	Missing	Missing	Missing	Missing
BS244	Ivanpah 2		Unknown	55	92	9/10/2011	Yes	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Recipient (I-15 Pen)	Recipient (I-15 Pen)	Recipient (I-15 Pen)
BS245	Recipient Site		Male	281	285	9/10/2011	Yes	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient
BS246	Ivanpah 3		Male	162	204	9/10/2011	Yes	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient
BS247	Ivanpah 2		Unknown	61	137	9/10/2011	No	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Recipient (I-15 Pen)	Deceased	
BS248	Recipient Site		Male	260	268	9/10/2011	Yes	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient
BS249	Quarantine Pens		Unknown	45	109	9/11/2011	Yes	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Recipient	Recipient	Recipient

Tort ID	Initial Process Location (GIS)	Pen #	Sex	Initial MCL	Recent MCL	Initial Process Date	Transmitter (Yes/No)	Jan-16	Feb-16	Mar-16	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16
BS250	Quarantine Pens		Unknown	48	48	9/12/2011	No	Moved permanently to MNP (Apr 2012)											
BS251	Quarantine Pens		Unknown	46	91	9/12/2011	Yes	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Recipient	Recipient	Recipient
BS252	Ivanpah 3		Unknown	79	140	9/12/2011	Yes	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Recipient	Recipient	Recipient
BS253	Quarantine Pens		Unknown	44	109	9/13/2011	Yes	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Recipient	Recipient	Recipient
BS254	Quarantine Pens		Unknown	43	102	9/13/2011	Yes	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Recipient	Recipient	Recipient
BS255	Quarantine Pens		Unknown	43	106	9/13/2011	Yes	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Recipient (I-15 Pen)	Recipient (I-15 Pen)	Recipient (I-15 Pen)
BS256	Ivanpah 3		Unknown	68	116	9/13/2011	Yes	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Recipient	Recipient	Recipient
BS257	Ivanpah 3		Female	140	195	9/14/2011	Yes	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient
BS258	Ivanpah 2		Unknown	81	80	9/13/2011	No	Deceased (May 2013)											
BS259	Ivanpah 3		Unknown	114	166	9/14/2011	Yes	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Recipient (I-15 Pen)	Recipient (I-15 Pen)	Recipient (I-15 Pen)
BS260	Ivanpah 3		Unknown	136	136	9/14/2011	No	Deceased (Aug 2012)											
BS261	Ivanpah 3		Unknown	134	146	9/14/2011	No	Deceased (Jul 2014)											
BS262	Quarantine Pens		Unknown	42	44	9/16/2011	No	Moved permanently to MNP (Apr 2012)											
BS263	Ivanpah 2		Unknown	74	117	9/16/2011	Yes	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Recipient	Recipient	Recipient
BS264	Ivanpah 3		Unknown	50	50	9/17/2011	No	Deceased (Sep 2011)											
BS265	Ivanpah 3		Female	126	186	9/18/2011	Yes	Recipient (I-15 Pen)	Recipient (I-15 Pen)	Recipient (I-15 Pen)	Recipient (I-15 Pen)	Recipient (I-15 Pen)	Recipient (I-15 Pen)	Recipient (I-15 Pen)	Recipient (I-15 Pen)	Recipient (I-15 Pen)	Recipient (I-15 Pen)	Missing	Missing
BS266	Ivanpah 2		Male	178	201	9/18/2011	No	Deceased (Sep 2013)											
BS267	Ivanpah 3		Unknown	82	143	9/18/2011	Yes	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Recipient	Recipient	Recipient
BS268	Ivanpah 3		Unknown	66	122	9/18/2011	Yes	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Recipient	Recipient	Recipient
BS269	Ivanpah 3		Unknown	93	132	9/18/2011	No	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Deceased		

[illegible]

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Tort ID	Initial Process Location (GIS)	Pen #	Sex	Initial MCL	Recent MCL	Initial Process Date	Transmitter (Yes/No)	Jan-16	Feb-16	Mar-16	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16
BS317	Recipient Site		Male	268	272	10/14/2011	Yes	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient
BS318	Recipient Site		Male	282	282	10/15/2011	No	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT
BS319	Recipient Site		Male	277	277	10/15/2011	No	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT
BS320	Recipient Site		Female	222	227	10/16/2011	No	Recipient (I-15 Pen)	Recipient (I-15 Pen)	Recipient (I-15 Pen)	Recipient (I-15 Pen)	Recipient (I-15 Pen)	Recipient (I-15 Pen)	Recipient (I-15 Pen)	Recipient (I-15 Pen)	At Vet in San Diego	At Vet in San Diego	Recipient (I-15 Pen)	Deceased
BS321	Recipient Site		Female	235	240	10/15/2011	Yes	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient
BS322	Recipient Site		Female	220	220	10/15/2011	No	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Deceased		
BS323	Recipient Site		Female	219	220	10/15/2011	Yes	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient
BS324	Recipient Site		Female	207	210	10/15/2011	Yes	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient
BS325	Recipient Site		Male	267	267	10/15/2011	No	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT
BS326	Recipient Site		Unknown	97	126	10/15/2011	No	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT
BS327	Recipient Site		Female	219	244	10/15/2011	Yes	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient
BS328	Recipient Site		Male	251	257	10/16/2011	Yes	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient
BS329	Recipient Site		Male	265	265	10/16/2011	No	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT
BS330	Recipient Site		Male	251	251	10/16/2011	No	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT
BS331	Recipient Site		Male	260	260	10/16/2011	No	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT
BS332	Recipient Site		Male	300	300	10/16/2011	No	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT	Recipient-NT
BS333	Ivanpah 1		Unknown	43	114	10/17/2011	Yes	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Recipient (I-15 Pen)	Recipient (I-15 Pen)	Recipient (I-15 Pen)
BS334	Recipient Site		Female	225	224	10/17/2011	Yes	Missing	Missing	Missing	Missing	Missing	Missing	Missing	Missing	Missing	Missing	Missing	Missing
BS335	Recipient Site		Male	271	272	10/17/2011	Yes	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient
BS336	Recipient Site		Unknown	104	138	10/19/2011	No	Missing	Missing	Missing	Missing	Missing	Missing	Missing	Missing	Missing	Missing	Missing	Missing
BS337	Common East		Unknown	37	37	11/28/2011	No	Deceased (Nov 2011)											
BS338	Ivanpah 2		Unknown	62	124	3/5/2012	Yes	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Recipient	Recipient	Recipient
BS339	Recipient Site		Male	167	237	3/15/2012	Yes	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient	Recipient
BS340	Ivanpah 2		Unknown	55	55	3/21/2012	No	Deceased (Mar 2012)											
BS341	Ivanpah 1		Unknown	70	115	4/3/2012	Yes	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Pens	Recipient (I-15 Pen)	Recipient (I-15 Pen)	Recipient (I-15 Pen)

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

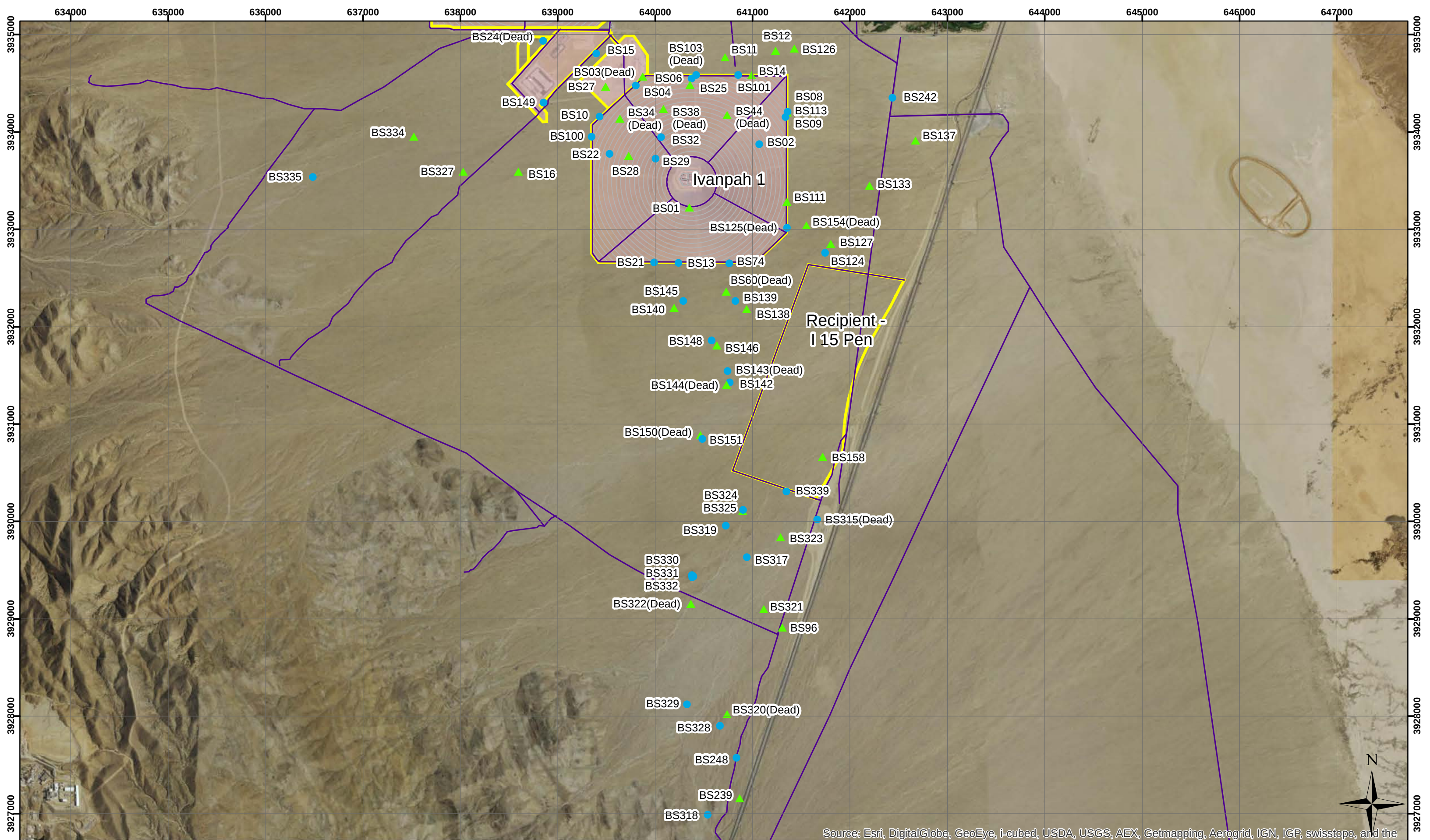
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[illegible]

[illegible]

Appendix G

Maps of ISEGS Initial and Current Locations of All Monitored Tortoises



Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the

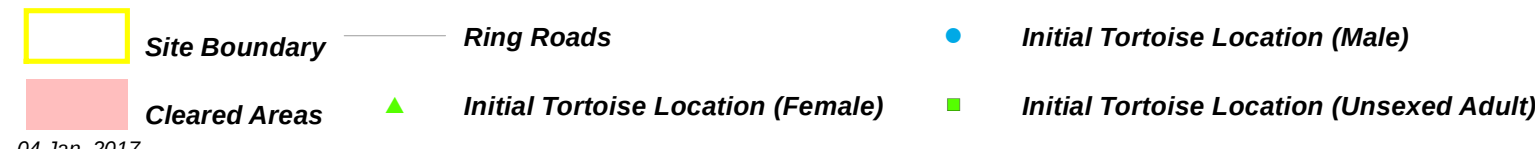
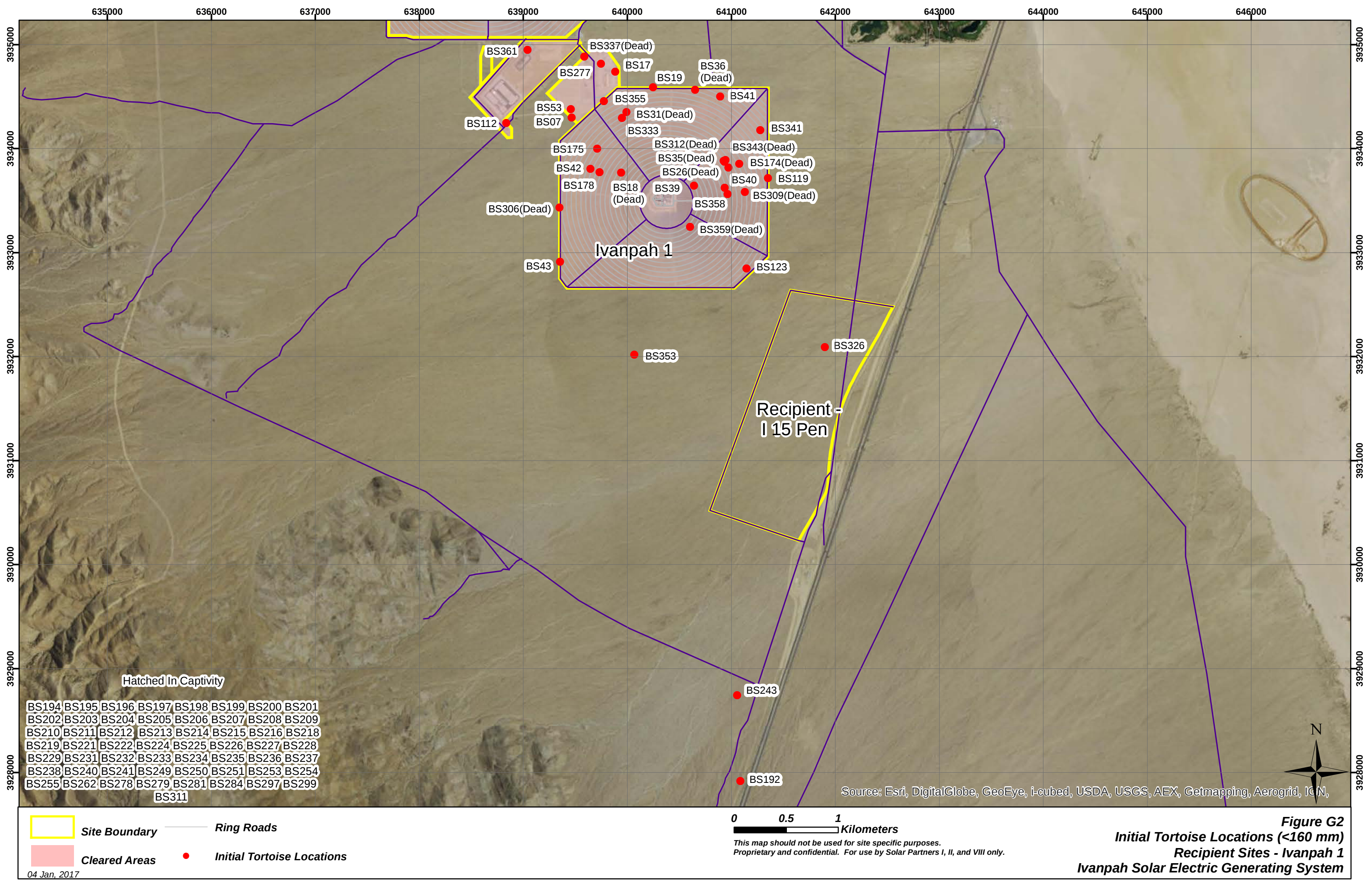
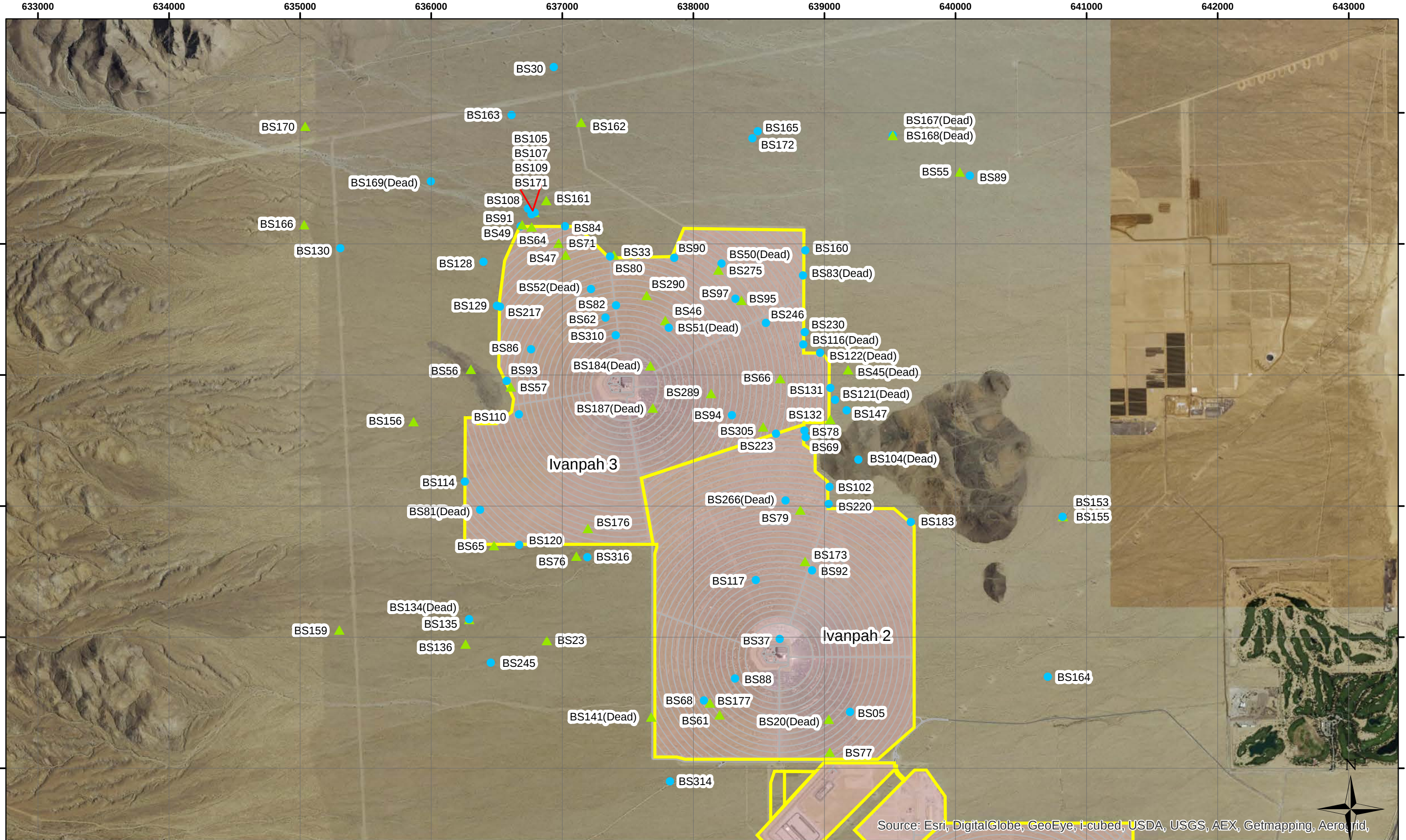


Figure G1
Initial Tortoise Locations (≥ 160 mm)
Recipient Sites - Ivanpah 1
Ivanpah Solar Electric Generating System





Site Boundary

Cleared Areas

Ring Roads

Initial Tortoise Location (Male)

Initial Tortoise Location (Female)

Initial Tortoise Location (Unknown Sex)

00.51

Kilometers

This map should not be used for site specific purposes. Proprietary and confidential. For use by Solar Partners I, II, and VIII only.

06 Jan, 2017

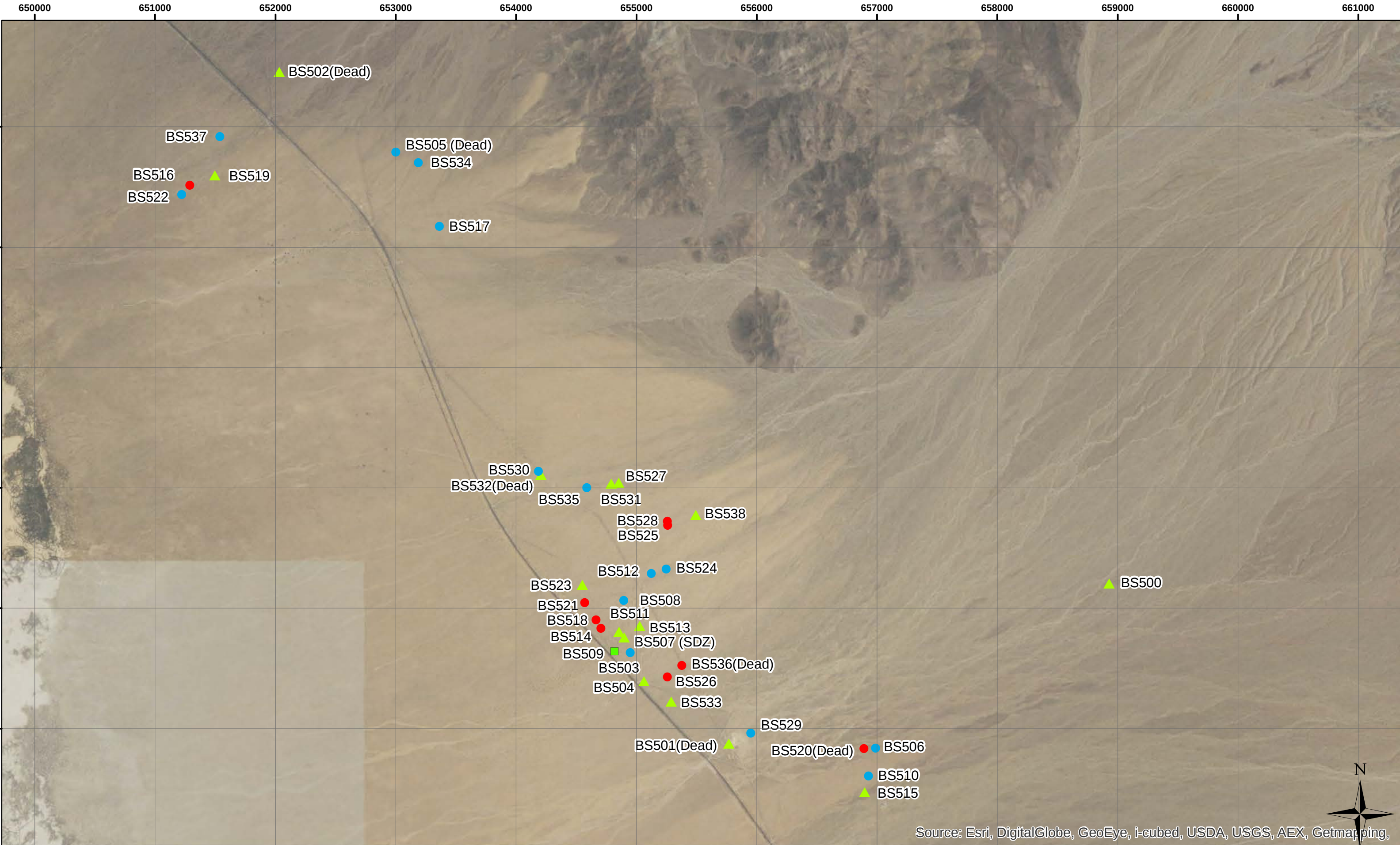
Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, AeroGRID,

Figure G3

Initial Tortoise Locations (≥ 160 mm)

Recipient Sites- Ivanpah 2 & 3

Ivanpah Solar Electric Generating System



Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping,

 **Initial Tortoise Location (Female)**

 **Initial Tortoise Location (Male)**

 **Initial Tortoise Location (Juvenile)**

 **Initial Tortoise Location (Unknown Sex)**

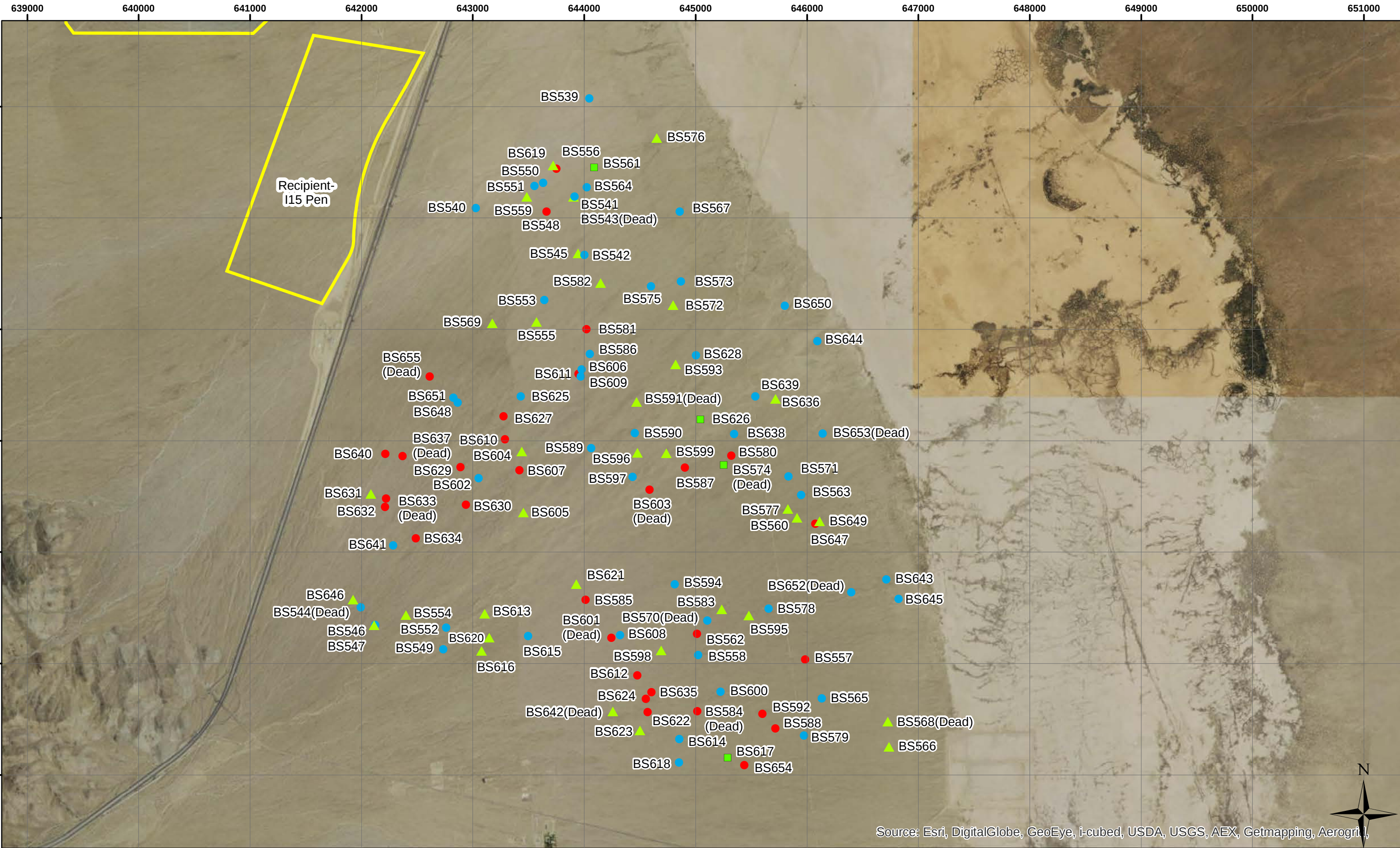
00.51

Kilometers

This map should not be used for site specific purposes.
Proprietary and confidential. For use by Solar Partners I, II, and VIII only.

Figure G5
Initial Tortoise Locations
Control East
Ivanpah Solar Electric Generating System

06 Jan, 2017



Site Boundary

Initial Tortoise Location (Female)

Initial Tortoise Location (<160 mm)

Initial Tortoise Location (Male)

Initial Tortoise Location (Unknown Sex)

00.51

Kilometers

This map should not be used for site specific purposes.
Proprietary and confidential. For use by Solar Partners I, II, and VIII only.

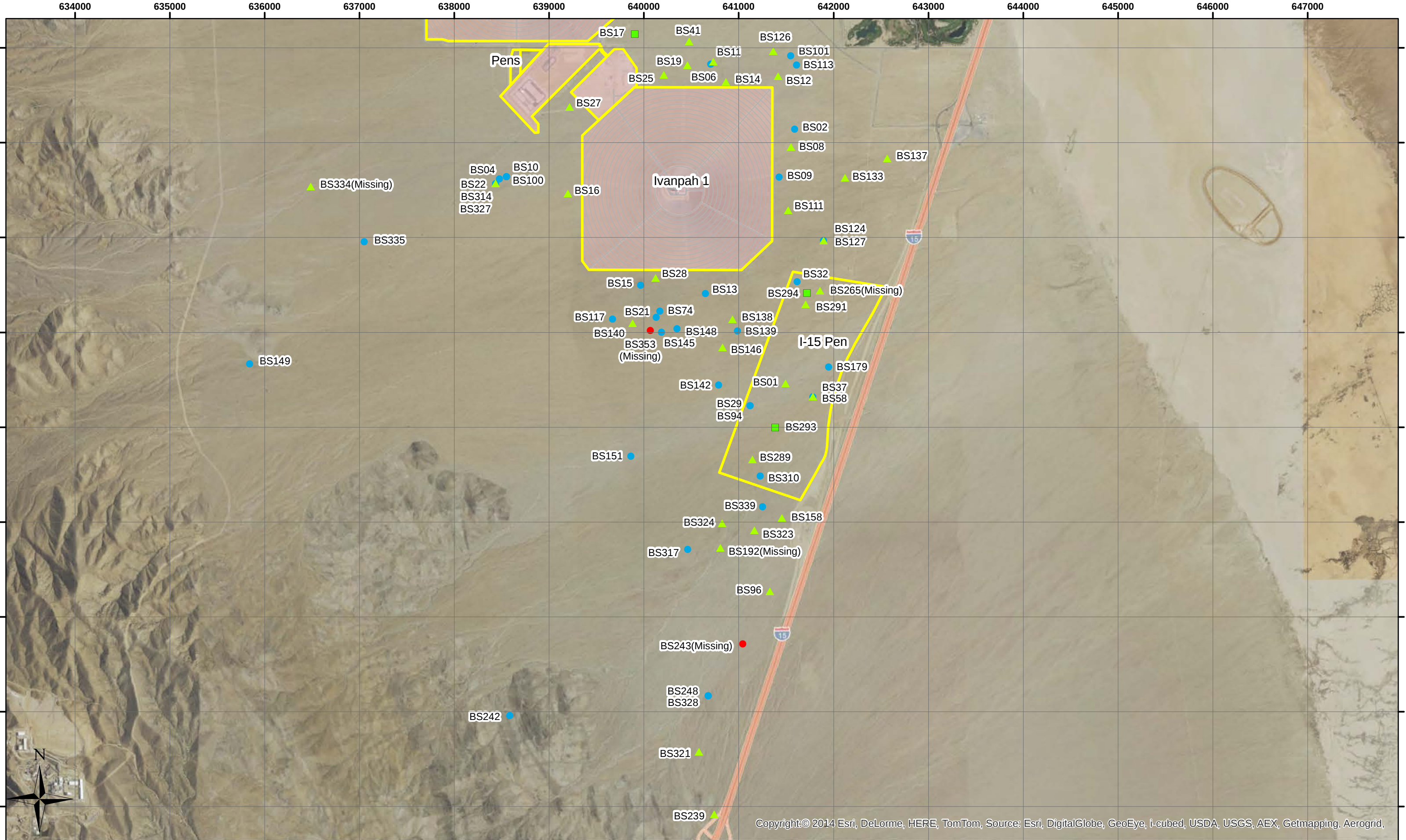
Figure G6

Initial Tortoise Locations

Control West

Ivanpah Solar Electric Generating System

06 Jan, 2017



Site Boundary

Ring Roads

Recent Tortoise Location (Female)

Recent Tortoise Location (Male)

Recent Tortoise Location (<160 mm)

Recent Tortoise Location (Unknown Sex)

Cleared Areas

0

0.5

1

Kilometers

This map should not be used for site specific purposes. Proprietary and confidential. For use by Solar Partners I, II, and VIII only.

Figure G7
Effectiveness Monitoring Program
Recent Tortoise Locations (30 Dec, 2016)
Recipient Sites - Ivanpah 1
Ivanpah Solar Electric Generating System

07 Jan, 2017

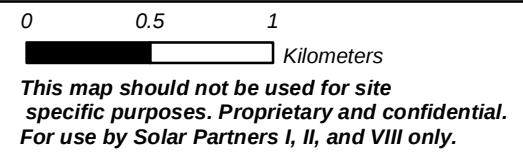
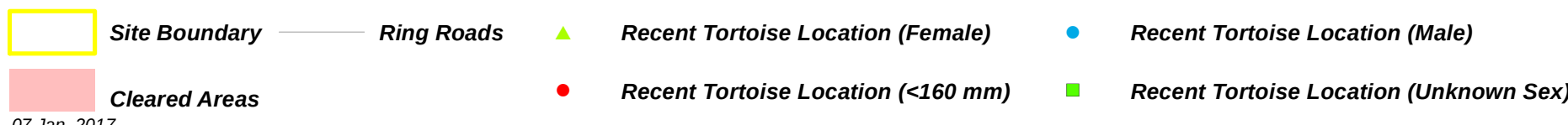
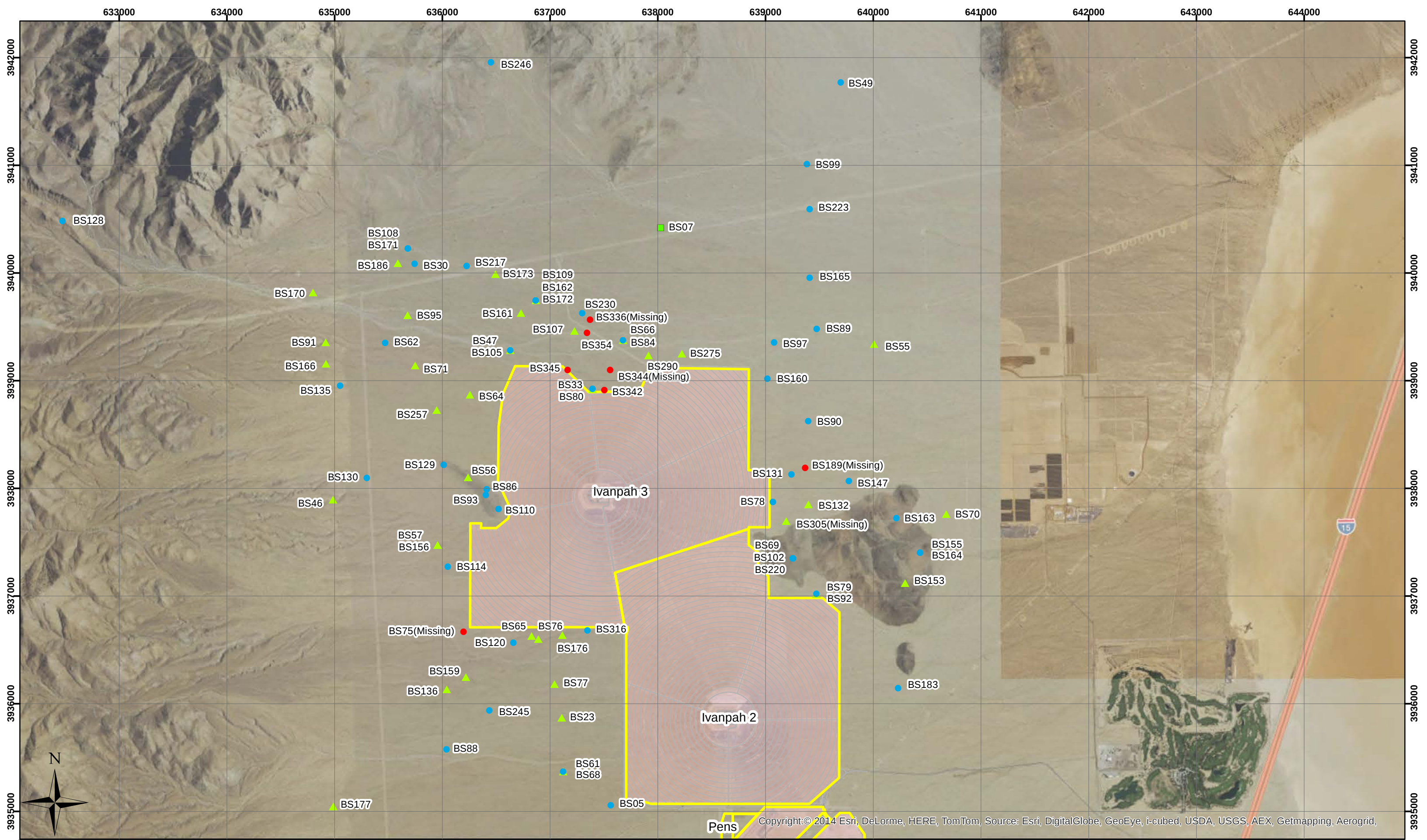
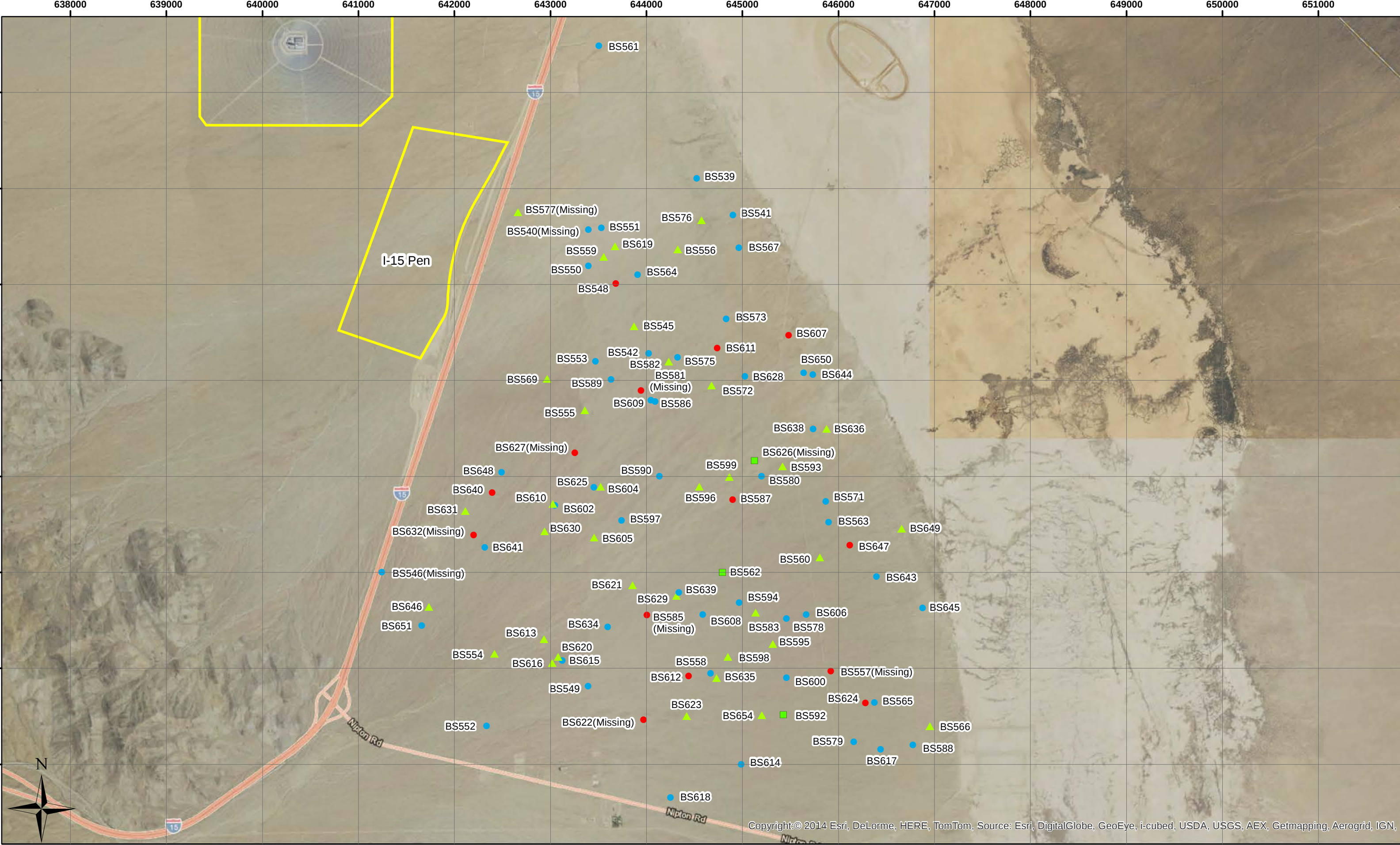


Figure G8
Effectiveness Monitoring Program
Recent Tortoise Locations (30 Dec, 2016)
Recipient Sites - Ivanpah 2 & 3
Ivanpah Solar Electric Generating System



Site Boundary

Recent Tortoise Location (Female)

Recent Tortoise Location (<160mm)

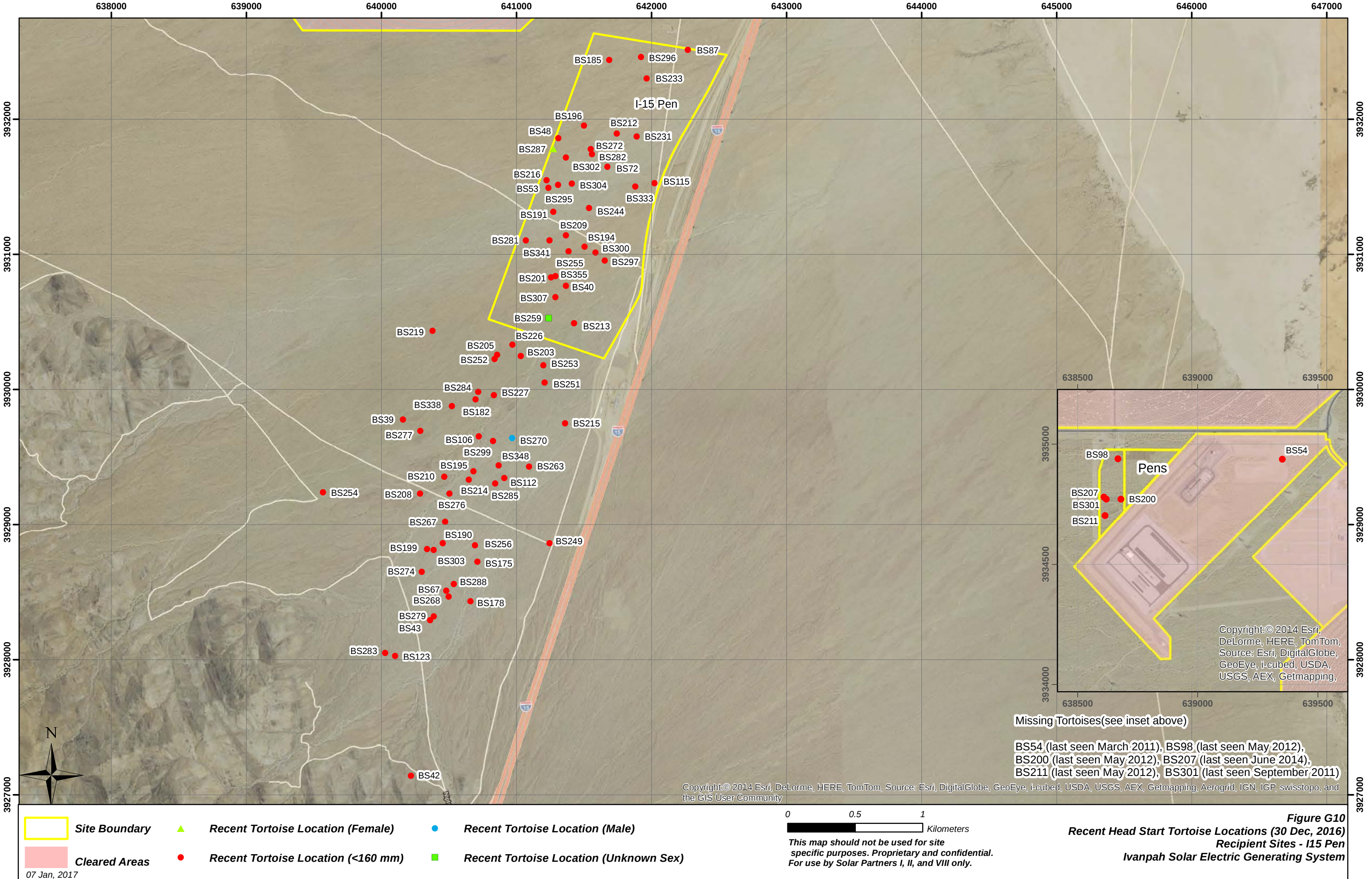
Recent Tortoise Location (Male)

Recent Tortoise Location (Unknown Sex)

0 0.5 1 Kilometers

This map should not be used for site specific purposes. Proprietary and confidential. For use by Solar Partners I, II, and VIII only.

Figure G9
Effectiveness Monitoring Program
Recent Tortoise Locations (30 Dec, 2016)
Control West
Ivanpah Solar Electric Generating System



Appendix H

ISEGS 2016 ELISA Results

Table H1: ISEGS Effectiveness Monitoring Program ELISA Results

Tortoise ID	Tortoise Type	Sex	MCL	Sample Date	M. <i>agassizii</i> Result	M. <i>testudineum</i> Result
BS01	Translocatee (Adult Found Onsite)	Female	222	15-May-2016	Negative	Negative
BS01	Translocatee (Adult Found Onsite)	Female	222	19-Sep-2016	Negative	Negative
BS02	Translocatee (Adult Found Onsite)	Male	268	18-May-2016	Negative	Negative
BS02	Translocatee (Adult Found Onsite)	Male	268	19-Sep-2016	Negative	Negative
BS04	Translocatee (Adult Found Onsite)	Male	263	24-May-2016	Negative	Negative
BS04	Translocatee (Adult Found Onsite)	Male	263	20-Sep-2016	Negative	Negative
BS05	Translocatee (Adult Found Onsite)	Male	253	16-May-2016	Positive	Positive
BS05	Translocatee (Adult Found Onsite)	Male	253	22-Sep-2016	Positive	Positive
BS06	Translocatee (Adult Found Onsite)	Male	275	27-May-2016	Negative	Negative
BS06	Translocatee (Adult Found Onsite)	Male	275	18-Sep-2016	Negative	Negative
BS07	Resident	Unknown	170	24-May-2016	Negative	Suspect
BS07	Resident	Unknown	170	20-Sep-2016	Negative	Negative
BS08	Translocatee (Adult Found Onsite)	Female	212	18-May-2016	Negative	Negative
BS08	Translocatee (Adult Found Onsite)	Female	212	19-Sep-2016	Negative	Negative
BS09	Translocatee (Adult Found Onsite)	Male	261	18-May-2016	Negative	Negative
BS09	Translocatee (Adult Found Onsite)	Male	261	22-Sep-2016	Negative	Negative
BS10	Resident	Male	274	27-May-2016	Negative	Negative
BS10	Resident	Male	274	22-Sep-2016	Negative	Negative
BS11	Resident	Female	230	27-May-2016	Negative	Negative
BS11	Resident	Female	230	18-Sep-2016	Negative	Negative
BS12	Resident	Female	225	27-May-2016	Negative	Negative
BS12	Resident	Female	225	18-Sep-2016	Negative	Negative
BS13	Resident	Male	246	19-May-2016	Negative	Negative
BS13	Resident	Male	246	18-Sep-2016	Negative	Negative
BS14	Translocatee (Adult Found Onsite)	Female	237	27-May-2016	Negative	Negative
BS14	Translocatee (Adult Found Onsite)	Female	237	18-Sep-2016	Negative	Negative
BS15	Resident	Male	232	18-May-2016	Negative	Negative
BS15	Resident	Male	232	21-Sep-2016	Negative	Negative
BS16	Resident	Female	225	23-May-2016	Negative	Negative
BS16	Resident	Female	225	22-Sep-2016	Negative	Negative
BS17	Translocatee (Adult Found Onsite)	Unknown	177	27-May-2016	Negative	Negative
BS17	Translocatee (Adult Found Onsite)	Unknown	177	22-Sep-2016	Negative	Negative
BS19	Resident	Female	193	27-May-2016	Negative	Suspect
BS19	Resident	Female	193	22-Sep-2016	Negative	Negative
BS21	Translocatee (Adult Found Onsite)	Male	256	18-May-2016	Negative	Negative
BS21	Translocatee (Adult Found Onsite)	Male	256	20-Sep-2016	Negative	Negative
BS22	Translocatee (Adult Found Onsite)	Male	245	23-May-2016	Negative	Negative
BS22	Translocatee (Adult Found Onsite)	Male	245	22-Sep-2016	Negative	Negative
BS23	Resident	Female	249	16-May-2016	Negative	Negative
BS23	Resident	Female	249	18-Sep-2016	Negative	Negative
BS25	Translocatee (Adult Found Onsite)	Female	215	15-May-2016	Negative	Negative
BS25	Translocatee (Adult Found Onsite)	Female	215	22-Sep-2016	Negative	Negative
BS27	Translocatee (Adult Found Onsite)	Female	230	24-May-2016	Negative	Suspect
BS27	Translocatee (Adult Found Onsite)	Female	230	21-Sep-2016	Negative	Negative
BS28	Translocatee (Adult Found Onsite)	Female	227	18-May-2016	Negative	Negative
BS28	Translocatee (Adult Found Onsite)	Female	227	18-Sep-2016	Negative	Negative
BS29	Translocatee (Adult Found Onsite)	Male	251	17-May-2016	Negative	Negative
BS29	Translocatee (Adult Found Onsite)	Male	251	19-Sep-2016	Negative	Negative

Tortoise ID	Tortoise Type	Sex	MCL	Sample Date	M. agassizii Result	M. testudineum Result
BS30	Resident	Male	260	16-May-2016	Negative	Negative
BS30	Resident	Male	260	18-Sep-2016	Negative	Negative
BS32	Translocatee (Adult Found Onsite)	Male	261	16-May-2016	Negative	Negative
BS32	Translocatee (Adult Found Onsite)	Male	261	20-Sep-2016	Negative	Negative
BS33	Resident	Female	229	16-May-2016	Negative	Negative
BS33	Resident	Female	229	23-Sep-2016	Negative	Negative
BS37	Translocatee (Adult Found Onsite)	Male	280	15-May-2016	Negative	Negative
BS37	Translocatee (Adult Found Onsite)	Male	280	23-Sep-2016	Negative	Negative
BS41	Translocatee (Adult Found Onsite)	Female	200	15-May-2016	Negative	Negative
BS41	Translocatee (Adult Found Onsite)	Female	200	22-Sep-2016	Negative	Negative
BS45	Resident	Female	223	20-May-2016	Negative	Negative
BS46	Translocatee (Adult Found Onsite)	Female	229	19-May-2016	Negative	Negative
BS46	Translocatee (Adult Found Onsite)	Female	229	20-Sep-2016	Negative	Negative
BS47	Translocatee (Adult Found Onsite)	Female	242	18-May-2016	Negative	Negative
BS47	Translocatee (Adult Found Onsite)	Female	242	22-Sep-2016	Negative	Negative
BS49	Translocatee (Adult Found Onsite)	Male	249	18-May-2016	Negative	Negative
BS49	Translocatee (Adult Found Onsite)	Male	249	22-Sep-2016	Negative	Negative
BS50	Translocatee (Adult Found Onsite)	Male	236	17-May-2016	Negative	Negative
BS52	Translocatee (Adult Found Onsite)	Male	241	20-May-2016	Negative	Negative
BS55	Resident	Female	249	18-May-2016	Negative	Negative
BS55	Resident	Female	249	18-Sep-2016	Negative	Negative
BS56	Resident	Female	243	20-May-2016	Negative	Negative
BS56	Resident	Female	243	21-Sep-2016	Negative	Negative
BS57	Translocatee (Adult Found Onsite)	Female	220	17-May-2016	Negative	Negative
BS57	Translocatee (Adult Found Onsite)	Female	220	21-Sep-2016	Negative	Negative
BS58	Translocatee (Adult Found Onsite)	Female	228	15-May-2016	Negative	Suspect
BS58	Translocatee (Adult Found Onsite)	Female	228	18-Sep-2016	Negative	Negative
BS61	Translocatee (Adult Found Onsite)	Female	220	16-May-2016	Negative	Suspect
BS61	Translocatee (Adult Found Onsite)	Female	220	18-Sep-2016	Negative	Negative
BS62	Translocatee (Adult Found Onsite)	Male	239	17-May-2016	Negative	Negative
BS62	Translocatee (Adult Found Onsite)	Male	239	30-Sep-2016	Negative	Negative
BS64	Translocatee (Adult Found Onsite)	Female	213	17-May-2016	Negative	Suspect
BS64	Translocatee (Adult Found Onsite)	Female	213	19-Sep-2016	Negative	Negative
BS65	Translocatee (Adult Found Onsite)	Female	210	19-May-2016	Negative	Negative
BS65	Translocatee (Adult Found Onsite)	Female	210	22-Sep-2016	Negative	Negative
BS66	Translocatee (Adult Found Onsite)	Female	232	16-May-2016	Negative	Suspect
BS66	Translocatee (Adult Found Onsite)	Female	232	21-Sep-2016	Negative	Negative
BS68	Translocatee (Adult Found Onsite)	Male	262	15-May-2016	Negative	Negative
BS68	Translocatee (Adult Found Onsite)	Male	262	18-Sep-2016	Negative	Negative
BS69	Translocatee (Adult Found Onsite)	Male	269	20-May-2016	Negative	Negative
BS69	Translocatee (Adult Found Onsite)	Male	269	21-Sep-2016	Negative	Negative
BS70	Resident	Female	185	19-May-2016	Negative	Negative
BS70	Resident	Female	185	18-Sep-2016	Negative	Suspect
BS71	Translocatee (Adult Found Onsite)	Female	225	17-May-2016	Negative	Negative
BS71	Translocatee (Adult Found Onsite)	Female	225	23-Sep-2016	Negative	Negative
BS74	Resident	Male	242	19-May-2016	Negative	Suspect
BS74	Resident	Male	242	18-Sep-2016	Negative	Negative
BS76	Resident	Female	225	18-May-2016	Negative	Negative
BS76	Resident	Female	225	20-Sep-2016	Negative	Negative

Tortoise ID	Tortoise Type	Sex	MCL	Sample Date	M. agassizii Result	M. testudineum Result
BS77	Translocatee (Adult Found Onsite)	Female	227	16-May-2016	Negative	Suspect
BS77	Translocatee (Adult Found Onsite)	Female	227	22-Sep-2016	Negative	Negative
BS78	Resident	Male	264	20-May-2016	Negative	Negative
BS78	Resident	Male	264	21-Sep-2016	Negative	Negative
BS79	Translocatee (Adult Found Onsite)	Female	244	20-May-2016	Negative	Negative
BS79	Translocatee (Adult Found Onsite)	Female	244	19-Sep-2016	Negative	Negative
BS80	Translocatee (Adult Found Onsite)	Male	266	18-May-2016	Negative	Suspect
BS80	Translocatee (Adult Found Onsite)	Male	266	23-Sep-2016	Negative	Negative
BS84	Resident	Male	248	15-May-2016	Negative	Negative
BS84	Resident	Male	248	23-Sep-2016	Negative	Negative
BS86	Translocatee (Adult Found Onsite)	Male	261	20-May-2016	Negative	Negative
BS86	Translocatee (Adult Found Onsite)	Male	261	30-Sep-2016	Negative	Negative
BS88	Translocatee (Adult Found Onsite)	Male	266	15-May-2016	Negative	Negative
BS88	Translocatee (Adult Found Onsite)	Male	266	4-Oct-2016	Negative	Negative
BS89	Resident	Male	270	18-May-2016	Negative	Negative
BS89	Resident	Male	270	18-Sep-2016	Negative	Negative
BS90	Translocatee (Adult Found Onsite)	Male	273	18-May-2016	Negative	Negative
BS90	Translocatee (Adult Found Onsite)	Male	273	19-Sep-2016	Negative	Negative
BS91	Translocatee (Adult Found Onsite)	Female	235	20-May-2016	Negative	Suspect
BS91	Translocatee (Adult Found Onsite)	Female	235	19-Sep-2016	Negative	Negative
BS92	Translocatee (Adult Found Onsite)	Male	270	20-May-2016	Negative	Negative
BS92	Translocatee (Adult Found Onsite)	Male	270	20-Sep-2016	Negative	Negative
BS93	Resident	Male	290	20-May-2016	Negative	Suspect
BS93	Resident	Male	290	30-Sep-2016	Negative	Negative
BS94	Translocatee (Adult Found Onsite)	Male	243	15-May-2016	Negative	Negative
BS94	Translocatee (Adult Found Onsite)	Male	243	19-Sep-2016	Negative	Negative
BS95	Translocatee (Adult Found Onsite)	Female	247	19-May-2016	Negative	Negative
BS95	Translocatee (Adult Found Onsite)	Female	247	22-Sep-2016	Negative	Negative
BS96	Resident	Female	226	15-May-2016	Negative	Negative
BS96	Resident	Female	226	21-Sep-2016	Negative	Negative
BS97	Translocatee (Adult Found Onsite)	Male	230	18-May-2016	Negative	Suspect
BS97	Translocatee (Adult Found Onsite)	Male	230	18-Sep-2016	Negative	Negative
BS99	Resident	Male	220	18-May-2016	Negative	Negative
BS99	Resident	Male	220	21-Sep-2016	Negative	Negative
BS100	Translocatee (Adult Found Onsite)	Male	255	23-May-2016	Negative	Negative
BS100	Translocatee (Adult Found Onsite)	Male	255	21-Sep-2016	Negative	Negative
BS101	Resident	Male	274	27-May-2016	Negative	Negative
BS101	Resident	Male	274	19-Sep-2016	Negative	Negative
BS102	Resident	Male	270	20-May-2016	Negative	Suspect
BS102	Resident	Male	270	20-Sep-2016	Negative	Negative
BS105	Resident	Male	264	15-May-2016	Negative	Negative
BS105	Resident	Male	264	22-Sep-2016	Negative	Negative
BS107	Resident	Female	237	15-May-2016	Negative	Negative
BS107	Resident	Female	237	23-Sep-2016	Negative	Negative
BS108	Resident	Male	270	20-May-2016	Negative	Negative
BS108	Resident	Male	270	18-Sep-2016	Negative	Negative
BS109	Resident	Male	268	15-May-2016	Negative	Negative
BS109	Resident	Male	268	19-Sep-2016	Negative	Negative
BS110	Translocatee (Adult Found Onsite)	Male	266	17-May-2016	Negative	Negative

Tortoise ID	Tortoise Type	Sex	MCL	Sample Date	M. agassizii Result	M. testudineum Result
BS110	Translocatee (Adult Found Onsite)	Male	266	21-Sep-2016	Negative	Negative
BS111	Resident	Female	231	18-May-2016	Negative	Suspect
BS111	Resident	Female	231	21-Sep-2016	Negative	Negative
BS113	Resident	Male	255	19-May-2016	Negative	Suspect
BS113	Resident	Male	255	20-Sep-2016	Negative	Negative
BS114	Translocatee (Adult Found Onsite)	Male	269	25-May-2016	Negative	Negative
BS114	Translocatee (Adult Found Onsite)	Male	269	23-Sep-2016	Negative	Negative
BS117	Translocatee (Adult Found Onsite)	Male	254	28-May-2016	Negative	Negative
BS117	Translocatee (Adult Found Onsite)	Male	254	21-Sep-2016	Negative	Negative
BS120	Resident	Male	270	17-May-2016	Negative	Negative
BS120	Resident	Male	270	20-Sep-2016	Negative	Negative
BS124	Resident	Male	258	17-May-2016	Negative	Negative
BS124	Resident	Male	258	21-Sep-2016	Negative	Negative
BS125	Resident	Male	252	17-May-2016	Negative	Negative
BS125	Resident	Male	252	22-Sep-2016	Negative	Negative
BS126	Resident	Female	242	19-May-2016	Negative	Negative
BS126	Resident	Female	242	19-Sep-2016	Negative	Negative
BS127	Resident	Female	257	17-May-2016	Negative	Suspect
BS127	Resident	Female	257	22-Sep-2016	Negative	Negative
BS128	Resident	Male	256	19-May-2016	Negative	Suspect
BS128	Resident	Male	256	22-Sep-2016	Negative	Negative
BS129	Resident	Male	293	25-May-2016	Negative	Negative
BS129	Resident	Male	293	23-Sep-2016	Negative	Negative
BS130	Resident	Male	273	20-May-2016	Negative	Negative
BS130	Resident	Male	273	23-Sep-2016	Negative	Negative
BS131	Resident	Male	272	20-May-2016	Negative	Negative
BS131	Resident	Male	272	21-Sep-2016	Negative	Negative
BS132	Resident	Female	221	20-May-2016	Negative	Negative
BS132	Resident	Female	221	21-Sep-2016	Negative	Negative
BS133	Resident	Female	226	9-Jun-2016	Negative	Negative
BS133	Resident	Female	226	22-Sep-2016	Negative	Negative
BS135	Resident	Male	240	17-May-2016	Negative	Negative
BS135	Resident	Male	240	20-Sep-2016	Negative	Negative
BS136	Resident	Female	230	19-May-2016	Negative	Negative
BS136	Resident	Female	230	19-Sep-2016	Negative	Suspect
BS137	Resident	Female	233	18-May-2016	Negative	Negative
BS137	Resident	Female	233	30-Sep-2016	Negative	Negative
BS138	Resident	Female	224	19-May-2016	Negative	Negative
BS138	Resident	Female	224	18-Sep-2016	Negative	Negative
BS139	Resident	Male	272	28-May-2016	Negative	Negative
BS139	Resident	Male	272	21-Sep-2016	Negative	Negative
BS140	Resident	Female	207	18-May-2016	Negative	Negative
BS140	Resident	Female	207	19-Sep-2016	Negative	Negative
BS141	Translocatee (Adult Found Onsite)	Female	227	15-May-2016	Negative	Negative
BS142	Resident	Male	257	17-May-2016	Negative	Negative
BS142	Resident	Male	257	19-Sep-2016	Negative	Negative
BS145	Resident	Male	283	17-May-2016	Negative	Negative
BS145	Resident	Male	283	19-Sep-2016	Negative	Negative
BS146	Resident	Female	219	19-May-2016	Negative	Suspect

Tortoise ID	Tortoise Type	Sex	MCL	Sample Date	M. <i>agassizii</i> Result	M. <i>testudineum</i> Result
BS146	Resident	Female	219	19-Sep-2016	Negative	Negative
BS147	Resident	Male	269	19-May-2016	Negative	Negative
BS147	Resident	Male	269	19-Sep-2016	Negative	Negative
BS148	Resident	Male	266	16-May-2016	Negative	Negative
BS148	Resident	Male	266	20-Sep-2016	Negative	Negative
BS149	Resident	Male	263	22-May-2016	Negative	Negative
BS149	Resident	Male	263	23-Sep-2016	Negative	Negative
BS151	Resident	Male	250	17-May-2016	Negative	Negative
BS151	Resident	Male	250	20-Sep-2016	Negative	Negative
BS153	Resident	Female	234	19-May-2016	Negative	Negative
BS153	Resident	Female	234	18-Sep-2016	Negative	Negative
BS154	Resident	Female	236	17-May-2016	Negative	Negative
BS155	Resident	Male	264	19-May-2016	Negative	Negative
BS155	Resident	Male	264	18-Sep-2016	Negative	Negative
BS156	Resident	Female	233	20-May-2016	Negative	Negative
BS156	Resident	Female	233	23-Sep-2016	Negative	Negative
BS157	Translocatee (Adult Found Onsite)	Female	203	15-May-2016	Negative	Negative
BS158	Resident	Female	220	16-May-2016	Negative	Negative
BS158	Resident	Female	220	20-Sep-2016	Negative	Negative
BS159	Resident	Female	250	18-May-2016	Negative	Negative
BS159	Resident	Female	250	22-Sep-2016	Negative	Negative
BS160	Resident	Male	251	18-May-2016	Negative	Suspect
BS160	Resident	Male	251	21-Sep-2016	Negative	Negative
BS161	Resident	Female	240	16-May-2016	Negative	Suspect
BS161	Resident	Female	240	19-Sep-2016	Negative	Negative
BS162	Resident	Female	234	16-May-2016	Negative	Suspect
BS162	Resident	Female	234	22-Sep-2016	Negative	Negative
BS163	Resident	Male	223	28-May-2016	Negative	Negative
BS163	Resident	Male	223	19-Sep-2016	Negative	Negative
BS164	Resident	Male	313	19-May-2016	Negative	Negative
BS164	Resident	Male	313	18-Sep-2016	Negative	Negative
BS165	Resident	Male	252	17-May-2016	Negative	Negative
BS165	Resident	Male	252	18-Sep-2016	Negative	Negative
BS166	Resident	Female	245	19-May-2016	Negative	Negative
BS166	Resident	Female	245	30-Sep-2016	Negative	Negative
BS170	Resident	Female	226	19-May-2016	Negative	Negative
BS170	Resident	Female	226	22-Sep-2016	Negative	Negative
BS171	Resident	Male	262	18-May-2016	Negative	Negative
BS171	Resident	Male	262	19-Sep-2016	Negative	Negative
BS172	Resident	Male	252	15-May-2016	Negative	Negative
BS172	Resident	Male	252	22-Sep-2016	Negative	Negative
BS173	Translocatee (Adult Found Onsite)	Female	219	15-May-2016	Negative	Negative
BS173	Translocatee (Adult Found Onsite)	Female	219	18-Sep-2016	Negative	Negative
BS176	Translocatee (Adult Found Onsite)	Female	233	18-May-2016	Negative	Negative
BS176	Translocatee (Adult Found Onsite)	Female	233	20-Sep-2016	Negative	Negative
BS177	Translocatee (Adult Found Onsite)	Female	237	15-May-2016	Negative	Negative
BS177	Translocatee (Adult Found Onsite)	Female	237	19-Sep-2016	Negative	Negative
BS179	Translocatee (Adult Found Onsite)	Male	220	16-May-2016	Negative	Negative
BS179	Translocatee (Adult Found Onsite)	Male	220	23-Sep-2016	Negative	Negative

Tortoise ID	Tortoise Type	Sex	MCL	Sample Date	M. <i>agassizii</i> Result	M. <i>testudineum</i> Result
BS183	Translocatee (Adult Found Onsite)	Male	264	28-May-2016	Negative	Negative
BS183	Translocatee (Adult Found Onsite)	Male	264	20-Sep-2016	Negative	Negative
BS186	Translocatee (Adult Found Onsite)	Female	215	16-May-2016	Negative	Negative
BS186	Translocatee (Adult Found Onsite)	Female	215	21-Sep-2016	Negative	Negative
BS217	Translocatee (Adult Found Onsite)	Male	265	16-May-2016	Negative	Negative
BS217	Translocatee (Adult Found Onsite)	Male	265	19-Sep-2016	Negative	Negative
BS220	Translocatee (Adult Found Onsite)	Male	263	20-May-2016	Negative	Suspect
BS220	Translocatee (Adult Found Onsite)	Male	263	20-Sep-2016	Negative	Negative
BS223	Translocatee (Adult Found Onsite)	Male	227	17-May-2016	Negative	Suspect
BS223	Translocatee (Adult Found Onsite)	Male	227	18-Sep-2016	Negative	Negative
BS230	Resident	Male	234	15-May-2016	Negative	Negative
BS230	Resident	Male	234	20-Sep-2016	Negative	Negative
BS239	Resident	Female	230	15-May-2016	Negative	Suspect
BS239	Resident	Female	230	23-Sep-2016	Negative	Negative
BS242	Resident	Male	259	15-May-2016	Negative	Suspect
BS242	Resident	Male	259	22-Sep-2016	Negative	Suspect
BS245	Resident	Male	285	16-May-2016	Negative	Negative
BS245	Resident	Male	285	18-Sep-2016	Negative	Negative
BS246	Translocatee (Adult Found Onsite)	Male	204	17-May-2016	Negative	Negative
BS246	Translocatee (Adult Found Onsite)	Male	204	21-Sep-2016	Negative	Negative
BS248	Resident	Male	268	18-May-2016	Negative	Negative
BS248	Resident	Male	268	23-Sep-2016	Negative	Negative
BS257	Translocatee (Adult Found Onsite)	Female	195	17-May-2016	Negative	Negative
BS257	Translocatee (Adult Found Onsite)	Female	195	19-Sep-2016	Negative	Negative
BS265	Translocatee (Adult Found Onsite)	Female	186	16-May-2016	Negative	Negative
BS265	Translocatee (Adult Found Onsite)	Female	186	20-Sep-2016	Suspect	Positive
BS275	Translocatee (Adult Found Onsite)	Female	227	17-May-2016	Negative	Suspect
BS275	Translocatee (Adult Found Onsite)	Female	227	21-Sep-2016	Negative	Negative
BS289	Translocatee (Adult Found Onsite)	Female	245	19-May-2016	Negative	Negative
BS289	Translocatee (Adult Found Onsite)	Female	245	18-Sep-2016	Negative	Negative
BS290	Translocatee (Adult Found Onsite)	Female	232	16-May-2016	Negative	Negative
BS290	Translocatee (Adult Found Onsite)	Female	232	20-Sep-2016	Negative	Negative
BS291	Translocatee (Adult Found Onsite)	Female	223	16-May-2016	Negative	Negative
BS291	Translocatee (Adult Found Onsite)	Female	223	20-Sep-2016	Negative	Negative
BS293	Translocatee (Adult Found Onsite)	Unknown	170	16-May-2016	Negative	Negative
BS293	Translocatee (Adult Found Onsite)	Unknown	170	18-Sep-2016	Negative	Negative
BS294	Translocatee (Adult Found Onsite)	Unknown	160	16-May-2016	Negative	Suspect
BS294	Translocatee (Adult Found Onsite)	Unknown	160	20-Sep-2016	Negative	Suspect
BS310	Translocatee (Adult Found Onsite)	Male	279	16-May-2016	Negative	Negative
BS310	Translocatee (Adult Found Onsite)	Male	279	18-Sep-2016	Negative	Negative
BS314	Resident	Male	236	24-May-2016	Negative	Suspect
BS314	Resident	Male	236	20-Sep-2016	Negative	Negative
BS316	Resident	Male	281	18-May-2016	Negative	Negative
BS316	Resident	Male	281	20-Sep-2016	Negative	Negative
BS317	Resident	Male	272	16-May-2016	Negative	Negative
BS317	Resident	Male	272	21-Sep-2016	Negative	Negative
BS320	Resident	Female	227	16-May-2016	Negative	Negative
BS320	Resident	Female	227	23-Sep-2016	Negative	Negative
BS321	Resident	Female	240	15-May-2016	Negative	Negative

Tortoise ID	Tortoise Type	Sex	MCL	Sample Date	M. agassizii Result	M. testudineum Result
BS321	Resident	Female	240	23-Sep-2016	Negative	Negative
BS323	Resident	Female	220	16-May-2016	Negative	Negative
BS323	Resident	Female	220	21-Sep-2016	Negative	Negative
BS324	Resident	Female	210	16-May-2016	Negative	Negative
BS324	Resident	Female	210	22-Sep-2016	Negative	Negative
BS327	Resident	Female	244	23-May-2016	Negative	Negative
BS327	Resident	Female	244	30-Sep-2016	Negative	Negative
BS328	Resident	Male	257	18-May-2016	Negative	Suspect
BS328	Resident	Male	257	22-Sep-2016	Negative	Negative
BS335	Resident	Male	272	22-May-2016	Negative	Negative
BS335	Resident	Male	272	23-Sep-2016	Negative	Negative
BS339	Resident	Male	237	16-May-2016	Negative	Negative
BS339	Resident	Male	237	21-Sep-2016	Negative	Negative
BS342	Resident	Unknown	120	15-May-2016	Negative	Negative
BS342	Resident	Unknown	120	21-Sep-2016	Negative	Negative
BS345	Resident	Unknown	148	16-May-2016	Negative	Negative
BS345	Resident	Unknown	148	21-Sep-2016	Negative	Negative
BS354	Resident	Unknown	142	15-May-2016	Negative	Negative
BS354	Resident	Unknown	142	20-Sep-2016	Negative	Negative
BS500	Control East	Female	245	27-May-2016	Negative	Negative
BS503	Control East	Male	242	27-May-2016	Negative	Negative
BS504	Control East	Female	222	27-May-2016	Negative	Negative
BS506	Control East	Male	254	26-May-2016	Negative	Suspect
BS508	Control East	Male	247	25-May-2016	Negative	Negative
BS509	Control East	Male	236	25-May-2016	Negative	Negative
BS510	Control East	Male	267	26-May-2016	Negative	Negative
BS511	Control East	Female	224	24-May-2016	Negative	Suspect
BS512	Control East	Male	276	27-May-2016	Negative	Negative
BS513	Control East	Female	230	27-May-2016	Negative	Negative
BS514	Control East	Female	234	25-May-2016	Negative	Negative
BS515	Control East	Female	215	26-May-2016	Negative	Negative
BS517	Control East	Male	251	23-May-2016	Negative	Negative
BS519	Control East	Female	207	22-May-2016	Negative	Suspect
BS521	Control East	Female	191	25-May-2016	Negative	Negative
BS522	Control East	Male	268	22-May-2016	Negative	Negative
BS523	Control East	Female	225	24-May-2016	Negative	Negative
BS524	Control East	Male	262	26-May-2016	Negative	Negative
BS527	Control East	Female	219	24-May-2016	Negative	Negative
BS529	Control East	Male	239	27-May-2016	Negative	Negative
BS530	Control East	Male	238	24-May-2016	Negative	Negative
BS531	Control East	Female	205	23-May-2016	Negative	Negative
BS533	Control East	Female	211	27-May-2016	Negative	Negative
BS534	Control East	Male	227	23-May-2016	Negative	Negative
BS535	Control East	Male	245	23-May-2016	Negative	Negative
BS537	Control East	Male	244	22-May-2016	Negative	Negative
BS538	Control East	Female	229	27-May-2016	Negative	Negative
BS539	Control West	Male	248	22-May-2016	Negative	Negative
BS539	Control West	Male	248	25-Sep-2016	Negative	Negative
BS541	Control West	Male	254	24-May-2016	Negative	Suspect

Tortoise ID	Tortoise Type	Sex	MCL	Sample Date	M. <i>agassizii</i> Result	M. <i>testudineum</i> Result
BS541	Control West	Male	254	25-Sep-2016	Negative	Negative
BS542	Control West	Male	272	26-May-2016	Negative	Negative
BS542	Control West	Male	272	27-Sep-2016	Negative	Negative
BS545	Control West	Female	207	23-May-2016	Negative	Negative
BS545	Control West	Female	207	27-Sep-2016	Negative	Negative
BS548	Control West	Unknown	131	23-May-2016	Negative	Negative
BS548	Control West	Unknown	131	27-Sep-2016	Negative	Negative
BS549	Control West	Male	233	17-May-2016	Negative	Negative
BS549	Control West	Male	233	26-Sep-2016	Negative	Negative
BS550	Control West	Male	278	22-May-2016	Negative	Negative
BS550	Control West	Male	278	26-Sep-2016	Negative	Negative
BS551	Control West	Male	268	22-May-2016	Negative	Negative
BS551	Control West	Male	268	25-Sep-2016	Negative	Negative
BS552	Control West	Male	284	20-May-2016	Negative	Negative
BS552	Control West	Male	284	27-Sep-2016	Suspect	Negative
BS553	Control West	Male	260	23-May-2016	Negative	Negative
BS553	Control West	Male	260	26-Sep-2016	Negative	Negative
BS554	Control West	Female	223	17-May-2016	Negative	Negative
BS554	Control West	Female	223	27-Sep-2016	Suspect	Negative
BS555	Control West	Female	220	9-Jun-2016	Negative	Negative
BS555	Control West	Female	220	26-Sep-2016	Negative	Negative
BS556	Control West	Female	227	22-May-2016	Negative	Negative
BS556	Control West	Female	227	26-Sep-2016	Negative	Negative
BS558	Control West	Male	246	25-May-2016	Negative	Suspect
BS558	Control West	Male	246	25-Sep-2016	Negative	Suspect
BS559	Control West	Female	233	22-May-2016	Negative	Negative
BS559	Control West	Female	233	26-Sep-2016	Negative	Negative
BS560	Control West	Female	231	24-May-2016	Negative	Negative
BS560	Control West	Female	231	26-Sep-2016	Negative	Negative
BS561	Control West	Male	204	22-May-2016	Negative	Negative
BS561	Control West	Male	204	25-Sep-2016	Negative	Negative
BS562	Control West	Unknown	174	25-May-2016	Negative	Negative
BS562	Control West	Unknown	174	26-Sep-2016	Negative	Negative
BS563	Control West	Male	272	22-May-2016	Negative	Negative
BS563	Control West	Male	272	25-Sep-2016	Negative	Negative
BS564	Control West	Male	269	23-May-2016	Negative	Negative
BS564	Control West	Male	269	26-Sep-2016	Negative	Suspect
BS565	Control West	Male	254	22-May-2016	Negative	Negative
BS565	Control West	Male	254	26-Sep-2016	Negative	Suspect
BS566	Control West	Female	237	22-May-2016	Negative	Negative
BS566	Control West	Female	237	26-Sep-2016	Negative	Negative
BS567	Control West	Male	269	23-May-2016	Negative	Negative
BS567	Control West	Male	269	7-Oct-2016	Negative	Negative
BS569	Control West	Female	236	23-May-2016	Negative	Negative
BS569	Control West	Female	236	25-Sep-2016	Negative	Negative
BS571	Control West	Male	259	22-May-2016	Negative	Negative
BS571	Control West	Male	259	26-Sep-2016	Negative	Negative
BS572	Control West	Female	236	26-May-2016	Negative	Negative
BS572	Control West	Female	236	26-Sep-2016	Negative	Negative

Tortoise ID	Tortoise Type	Sex	MCL	Sample Date	M. agassizii Result	M. testudineum Result
BS573	Control West	Male	255	24-May-2016	Negative	Negative
BS573	Control West	Male	255	26-Sep-2016	Negative	Suspect
BS575	Control West	Male	262	25-May-2016	Negative	Negative
BS575	Control West	Male	262	27-Sep-2016	Negative	Negative
BS576	Control West	Female	246	23-May-2016	Negative	Negative
BS576	Control West	Female	246	25-Sep-2016	Negative	Negative
BS578	Control West	Male	262	26-May-2016	Negative	Negative
BS578	Control West	Male	262	27-Sep-2016	Negative	Negative
BS579	Control West	Male	219	22-May-2016	Negative	Negative
BS579	Control West	Male	219	27-Sep-2016	Negative	Negative
BS580	Control West	Male	192	23-May-2016	Negative	Negative
BS580	Control West	Male	192	25-Sep-2016	Negative	Negative
BS582	Control West	Female	228	25-May-2016	Negative	Negative
BS582	Control West	Female	228	27-Sep-2016	Negative	Negative
BS583	Control West	Female	215	24-May-2016	Negative	Negative
BS583	Control West	Female	215	27-Sep-2016	Negative	Negative
BS586	Control West	Male	276	24-May-2016	Negative	Negative
BS586	Control West	Male	276	27-Sep-2016	Negative	Negative
BS587	Control West	Unknown	154	27-May-2016	Negative	Negative
BS587	Control West	Unknown	154	26-Sep-2016	Negative	Negative
BS588	Control West	Male	200	22-May-2016	Negative	Negative
BS588	Control West	Male	200	26-Sep-2016	Negative	Suspect
BS589	Control West	Male	247	26-May-2016	Negative	Negative
BS589	Control West	Male	247	7-Oct-2016	Negative	Negative
BS590	Control West	Male	278	25-May-2016	Negative	Negative
BS590	Control West	Male	278	27-Sep-2016	Negative	Negative
BS592	Control West	Unknown	175	23-May-2016	Negative	Suspect
BS592	Control West	Unknown	175	26-Sep-2016	Negative	Negative
BS593	Control West	Female	219	23-May-2016	Negative	Negative
BS593	Control West	Female	219	27-Sep-2016	Negative	Negative
BS594	Control West	Male	199	25-May-2016	Negative	Negative
BS594	Control West	Male	199	25-Sep-2016	Negative	Negative
BS595	Control West	Female	219	24-May-2016	Negative	Negative
BS595	Control West	Female	219	27-Sep-2016	Negative	Negative
BS596	Control West	Female	233	24-May-2016	Negative	Negative
BS596	Control West	Female	233	27-Sep-2016	Negative	Negative
BS597	Control West	Male	272	19-May-2016	Negative	Negative
BS597	Control West	Male	272	27-Sep-2016	Negative	Negative
BS598	Control West	Female	235	26-May-2016	Negative	Negative
BS598	Control West	Female	235	25-Sep-2016	Negative	Negative
BS599	Control West	Female	222	23-May-2016	Negative	Negative
BS599	Control West	Female	222	27-Sep-2016	Negative	Negative
BS600	Control West	Male	259	23-May-2016	Negative	Suspect
BS600	Control West	Male	259	26-Sep-2016	Negative	Negative
BS602	Control West	Male	217	25-May-2016	Negative	Negative
BS602	Control West	Male	217	27-Sep-2016	Negative	Negative
BS604	Control West	Female	194	25-May-2016	Negative	Negative
BS604	Control West	Female	194	27-Sep-2016	Negative	Negative
BS605	Control West	Female	232	26-May-2016	Negative	Negative

Tortoise ID	Tortoise Type	Sex	MCL	Sample Date	M. agassizii Result	M. testudineum Result
BS605	Control West	Female	232	27-Sep-2016	Negative	Negative
BS606	Control West	Male	222	26-May-2016	Negative	Negative
BS606	Control West	Male	222	25-Sep-2016	Negative	Negative
BS607	Control West	Unknown	148	24-May-2016	Negative	Suspect
BS607	Control West	Unknown	148	25-Sep-2016	Negative	Negative
BS608	Control West	Male	250	24-May-2016	Negative	Negative
BS608	Control West	Male	250	25-Sep-2016	Negative	Negative
BS609	Control West	Male	252	24-May-2016	Negative	Negative
BS609	Control West	Male	252	7-Oct-2016	Negative	Negative
BS610	Control West	Female	207	27-May-2016	Negative	Negative
BS610	Control West	Female	207	26-Sep-2016	Negative	Negative
BS611	Control West	Unknown	145	22-May-2016	Negative	Negative
BS611	Control West	Unknown	145	26-Sep-2016	Negative	Suspect
BS612	Control West	Unknown	125	24-May-2016	Negative	Negative
BS612	Control West	Unknown	125	25-Sep-2016	Negative	Negative
BS613	Control West	Female	223	20-May-2016	Negative	Suspect
BS613	Control West	Female	223	27-Sep-2016	Negative	Suspect
BS614	Control West	Male	271	23-May-2016	Negative	Suspect
BS614	Control West	Male	271	27-Sep-2016	Negative	Negative
BS615	Control West	Male	279	19-May-2016	Negative	Suspect
BS615	Control West	Male	279	27-Sep-2016	Negative	Suspect
BS616	Control West	Female	250	20-May-2016	Negative	Negative
BS616	Control West	Female	250	27-Sep-2016	Negative	Negative
BS617	Control West	Male	221	26-May-2016	Negative	Negative
BS617	Control West	Male	221	26-Sep-2016	Negative	Negative
BS618	Control West	Male	274	25-May-2016	Negative	Negative
BS618	Control West	Male	274	27-Sep-2016	Negative	Negative
BS619	Control West	Female	220	22-May-2016	Negative	Negative
BS619	Control West	Female	220	25-Sep-2016	Negative	Negative
BS620	Control West	Female	208	20-May-2016	Negative	Negative
BS620	Control West	Female	208	26-Sep-2016	Negative	Negative
BS621	Control West	Female	197	19-May-2016	Negative	Negative
BS621	Control West	Female	197	25-Sep-2016	Negative	Negative
BS623	Control West	Female	226	25-May-2016	Negative	Negative
BS623	Control West	Female	226	26-Sep-2016	Negative	Negative
BS624	Control West	Unknown	158	25-May-2016	Negative	Negative
BS624	Control West	Unknown	158	26-Sep-2016	Negative	Negative
BS625	Control West	Male	272	26-May-2016	Negative	Negative
BS625	Control West	Male	272	26-Sep-2016	Negative	Negative
BS628	Control West	Male	235	26-May-2016	Negative	Negative
BS628	Control West	Male	235	26-Sep-2016	Negative	Negative
BS629	Control West	Female	197	24-May-2016	Negative	Negative
BS629	Control West	Female	197	27-Sep-2016	Negative	Negative
BS630	Control West	Female	214	26-May-2016	Negative	Negative
BS630	Control West	Female	214	27-Sep-2016	Negative	Negative
BS631	Control West	Female	226	18-May-2016	Negative	Negative
BS631	Control West	Female	226	25-Sep-2016	Negative	Negative
BS634	Control West	Male	192	26-Sep-2016	Negative	Negative
BS635	Control West	Female	210	26-May-2016	Negative	Negative

Tortoise ID	Tortoise Type	Sex	MCL	Sample Date	M. <i>agassizii</i> Result	M. <i>testudineum</i> Result
BS635	Control West	Female	210	7-Oct-2016	Negative	Negative
BS636	Control West	Female	275	23-May-2016	Negative	Suspect
BS636	Control West	Female	275	27-Sep-2016	Negative	Negative
BS638	Control West	Male	262	27-May-2016	Negative	Negative
BS638	Control West	Male	262	25-Sep-2016	Negative	Negative
BS639	Control West	Male	234	25-May-2016	Negative	Negative
BS639	Control West	Male	234	27-Sep-2016	Negative	Negative
BS640	Control West	Unknown	110	18-May-2016	Negative	Negative
BS640	Control West	Unknown	110	25-Sep-2016	Negative	Negative
BS641	Control West	Male	238	17-May-2016	Negative	Negative
BS641	Control West	Male	238	26-Sep-2016	Negative	Negative
BS642	Control West	Female	200	24-May-2016	Negative	Negative
BS643	Control West	Male	229	9-Jun-2016	Negative	Negative
BS643	Control West	Male	229	26-Sep-2016	Negative	Negative
BS644	Control West	Male	267	27-May-2016	Negative	Negative
BS644	Control West	Male	267	25-Sep-2016	Negative	Negative
BS645	Control West	Male	272	9-Jun-2016	Negative	Negative
BS645	Control West	Male	272	25-Sep-2016	Negative	Negative
BS646	Control West	Female	230	17-May-2016	Negative	Negative
BS646	Control West	Female	230	26-Sep-2016	Negative	Negative
BS647	Control West	Unknown	129	22-May-2016	Negative	Negative
BS647	Control West	Unknown	129	25-Sep-2016	Negative	Negative
BS648	Control West	Male	262	27-May-2016	Negative	Negative
BS648	Control West	Male	262	25-Sep-2016	Negative	Negative
BS649	Control West	Female	251	22-May-2016	Negative	Negative
BS649	Control West	Female	251	25-Sep-2016	Negative	Negative
BS650	Control West	Male	273	24-May-2016	Negative	Negative
BS650	Control West	Male	273	25-Sep-2016	Negative	Negative
BS651	Control West	Male	255	19-May-2016	Negative	Negative
BS651	Control West	Male	255	27-Sep-2016	Negative	Negative
BS654	Control West	Female	202	23-May-2016	Negative	Negative
BS654	Control West	Female	202	26-Sep-2016	Negative	Negative

Table H2: ISEGS Head Start ELISA Results

Tortoise ID	Tortoise Type	Sex	MCL	Sample Date	M. agassizii Result	M. testudineum Result
BS18	Translocatee (Juvenile Found Onsite)	Unknown	147	16-May-2016	Negative	Negative
BS18	Translocatee (Juvenile Found Onsite)	Unknown	147	16-Sep-2016	Negative	Negative
BS39	Translocatee (Juvenile Found Onsite)	Unknown	120	27-May-2016	Negative	Negative
BS39	Translocatee (Juvenile Found Onsite)	Unknown	120	24-Sep-2016	Negative	Negative
BS40	Translocatee (Juvenile Found Onsite)	Unknown	147	16-May-2016	Negative	Negative
BS40	Translocatee (Juvenile Found Onsite)	Unknown	147	15-Sep-2016	Negative	Negative
BS42	Translocatee (Juvenile Found Onsite)	Unknown	131	16-May-2016	Negative	Negative
BS42	Translocatee (Juvenile Found Onsite)	Unknown	131	16-Sep-2016	Negative	Negative
BS43	Translocatee (Juvenile Found Onsite)	Unknown	115	27-May-2016	Negative	Negative
BS43	Translocatee (Juvenile Found Onsite)	Unknown	115	17-Sep-2016	Negative	Suspect
BS48	Translocatee (Juvenile Found Onsite)	Unknown	128	15-May-2016	Negative	Negative
BS48	Translocatee (Juvenile Found Onsite)	Unknown	128	15-Sep-2016	Negative	Negative
BS53	Translocatee (Juvenile Found Onsite)	Unknown	119	15-May-2016	Negative	Negative
BS53	Translocatee (Juvenile Found Onsite)	Unknown	119	16-Sep-2016	Negative	Negative
BS67	Translocatee (Juvenile Found Onsite)	Unknown	147	15-May-2016	Negative	Negative
BS67	Translocatee (Juvenile Found Onsite)	Unknown	147	16-Sep-2016	Negative	Negative
BS72	Translocatee (Juvenile Found Onsite)	Unknown	120	16-May-2016	Negative	Suspect
BS72	Translocatee (Juvenile Found Onsite)	Unknown	120	15-Sep-2016	Negative	Negative
BS87	Translocatee (Juvenile Found Onsite)	Unknown	128	23-May-2016	Negative	Negative
BS87	Translocatee (Juvenile Found Onsite)	Unknown	128	17-Sep-2016	Negative	Negative
BS106	Translocatee (Juvenile Found Onsite)	Unknown	119	15-May-2016	Negative	Negative
BS106	Translocatee (Juvenile Found Onsite)	Unknown	119	15-Sep-2016	Negative	Negative
BS112	Translocatee (Juvenile Found Onsite)	Unknown	124	18-May-2016	Negative	Negative
BS112	Translocatee (Juvenile Found Onsite)	Unknown	124	16-Sep-2016	Negative	Negative
BS115	Translocatee (Juvenile Found Onsite)	Unknown	123	16-May-2016	Negative	Suspect
BS115	Translocatee (Juvenile Found Onsite)	Unknown	123	16-Sep-2016	Negative	Negative
BS123	Translocatee (Juvenile Found Onsite)	Unknown	116	17-May-2016	Negative	Negative
BS123	Translocatee (Juvenile Found Onsite)	Unknown	116	16-Sep-2016	Negative	Negative

Tortoise ID	Tortoise Type	Sex	MCL	Sample Date	M. agassizii Result	M. testudineum Result
BS175	Translocatee (Juvenile Found Onsite)	Unknown	131	15-May-2016	Negative	Negative
BS175	Translocatee (Juvenile Found Onsite)	Unknown	131	24-Sep-2016	Negative	Negative
BS178	Translocatee (Juvenile Found Onsite)	Unknown	117	20-May-2016	Negative	Suspect
BS178	Translocatee (Juvenile Found Onsite)	Unknown	117	17-Sep-2016	Negative	Negative
BS181	Translocatee (Juvenile Found Onsite)	Unknown	130	15-May-2016	Negative	Suspect
BS181	Translocatee (Juvenile Found Onsite)	Unknown	130	16-Sep-2016	Negative	Negative
BS182	Translocatee (Juvenile Found Onsite)	Unknown	124	23-May-2016	Negative	Negative
BS182	Translocatee (Juvenile Found Onsite)	Unknown	124	17-Sep-2016	Negative	Negative
BS185	Translocatee (Juvenile Found Onsite)	Unknown	125	23-May-2016	Negative	Negative
BS185	Translocatee (Juvenile Found Onsite)	Unknown	125	17-Sep-2016	Negative	Negative
BS188	Translocatee (Juvenile Found Onsite)	Unknown	136	16-May-2016	Negative	Negative
BS188	Translocatee (Juvenile Found Onsite)	Unknown	136	15-Sep-2016	Negative	Negative
BS190	Translocatee (Juvenile Found Onsite)	Unknown	126	16-May-2016	Negative	Negative
BS190	Translocatee (Juvenile Found Onsite)	Unknown	126	15-Sep-2016	Negative	Negative
BS191	Translocatee (Juvenile Found Onsite)	Unknown	152	19-May-2016	Negative	Negative
BS191	Translocatee (Juvenile Found Onsite)	Unknown	152	17-Sep-2016	Negative	Negative
BS193	Translocatee (Juvenile Found Onsite)	Unknown	124	15-May-2016	Negative	Negative
BS193	Translocatee (Juvenile Found Onsite)	Unknown	124	24-Sep-2016	Negative	Negative
BS194	Translocatee (Hatched in Captivity)	Unknown	100	2-Jun-2016	Negative	Negative
BS194	Translocatee (Hatched in Captivity)	Unknown	100	16-Sep-2016	Negative	Negative
BS195	Translocatee (Hatched in Captivity)	Unknown	115	21-May-2016	Negative	Negative
BS195	Translocatee (Hatched in Captivity)	Unknown	115	16-Sep-2016	Negative	Negative
BS196	Translocatee (Hatched in Captivity)	Unknown	86	22-May-2016	Negative	Negative
BS196	Translocatee (Hatched in Captivity)	Unknown	86	17-Sep-2016	Negative	Negative
BS197	Translocatee (Hatched in Captivity)	Unknown	102	22-May-2016	Negative	Negative
BS197	Translocatee (Hatched in Captivity)	Unknown	102	17-Sep-2016	Negative	Negative
BS198	Translocatee (Hatched in Captivity)	Unknown	84	24-May-2016	Negative	Suspect
BS198	Translocatee (Hatched in Captivity)	Unknown	84	17-Sep-2016	Negative	Negative
BS199	Translocatee (Hatched in Captivity)	Unknown	91	23-May-2016	Negative	Negative
BS199	Translocatee (Hatched in Captivity)	Unknown	91	15-Sep-2016	Negative	Negative
BS201	Translocatee (Hatched in Captivity)	Unknown	120	25-May-2016	Negative	Negative
BS201	Translocatee (Hatched in Captivity)	Unknown	120	17-Sep-2016	Negative	Negative
BS203	Translocatee (Hatched in Captivity)	Unknown	100	24-May-	Negative	Negative

Tortoise ID	Tortoise Type	Sex	MCL	Sample Date	M. agassizii Result	M. testudineum Result
				2016		
BS203	Translocatee (Hatched in Captivity)	Unknown	100	17-Sep-2016	Negative	Negative
BS204	Translocatee (Hatched in Captivity)	Unknown	110	2-Jun-2016	Negative	Negative
BS204	Translocatee (Hatched in Captivity)	Unknown	110	24-Sep-2016	Negative	Negative
BS205	Translocatee (Hatched in Captivity)	Unknown	107	27-May-2016	Negative	Negative
BS205	Translocatee (Hatched in Captivity)	Unknown	107	15-Sep-2016	Negative	Negative
BS208	Translocatee (Hatched in Captivity)	Unknown	96	20-May-2016	Negative	Negative
BS208	Translocatee (Hatched in Captivity)	Unknown	96	15-Sep-2016	Negative	Negative
BS209	Translocatee (Hatched in Captivity)	Unknown	112	17-May-2016	Negative	Negative
BS209	Translocatee (Hatched in Captivity)	Unknown	112	15-Sep-2016	Negative	Negative
BS210	Translocatee (Hatched in Captivity)	Unknown	114	26-May-2016	Negative	Negative
BS210	Translocatee (Hatched in Captivity)	Unknown	114	15-Sep-2016	Negative	Negative
BS212	Translocatee (Hatched in Captivity)	Unknown	94	21-May-2016	Negative	Negative
BS212	Translocatee (Hatched in Captivity)	Unknown	94	16-Sep-2016	Negative	Negative
BS213	Translocatee (Hatched in Captivity)	Unknown	109	21-May-2016	Negative	Negative
BS213	Translocatee (Hatched in Captivity)	Unknown	109	15-Sep-2016	Negative	Negative
BS214	Translocatee (Hatched in Captivity)	Unknown	110	25-May-2016	Negative	Negative
BS214	Translocatee (Hatched in Captivity)	Unknown	110	16-Sep-2016	Negative	Negative
BS215	Translocatee (Hatched in Captivity)	Unknown	120	22-May-2016	Negative	Negative
BS215	Translocatee (Hatched in Captivity)	Unknown	120	15-Sep-2016	Negative	Negative
BS216	Translocatee (Hatched in Captivity)	Unknown	102	25-May-2016	Negative	Negative
BS216	Translocatee (Hatched in Captivity)	Unknown	102	15-Sep-2016	Negative	Negative
BS219	Translocatee (Hatched in Captivity)	Unknown	110	26-May-2016	Negative	Negative
BS219	Translocatee (Hatched in Captivity)	Unknown	110	17-Sep-2016	Negative	Negative
BS221	Translocatee (Hatched in Captivity)	Unknown	92	9-Jun-2016	Negative	Negative
BS221	Translocatee (Hatched in Captivity)	Unknown	92	17-Sep-2016	Negative	Negative
BS226	Translocatee (Hatched in Captivity)	Unknown	113	24-May-2016	Negative	Negative
BS226	Translocatee (Hatched in Captivity)	Unknown	113	17-Sep-2016	Negative	Negative
BS227	Translocatee (Hatched in Captivity)	Unknown	132	21-May-2016	Negative	Negative
BS227	Translocatee (Hatched in Captivity)	Unknown	132	15-Sep-2016	Negative	Negative
BS231	Translocatee (Hatched in Captivity)	Unknown	108	22-May-2016	Negative	Negative
BS231	Translocatee (Hatched in Captivity)	Unknown	108	17-Sep-2016	Negative	Negative
BS233	Translocatee (Hatched in Captivity)	Unknown	118	18-May-2016	Negative	Negative
BS233	Translocatee (Hatched in Captivity)	Unknown	118	24-Sep-2016	Negative	Negative
BS241	Translocatee (Hatched in Captivity)	Unknown	103	23-May-2016	Negative	Negative
BS241	Translocatee (Hatched in Captivity)	Unknown	103	16-Sep-2016	Negative	Negative
BS244	Translocatee (Juvenile Found Onsite)	Unknown	92	24-May-2016	Negative	Suspect
BS244	Translocatee (Juvenile Found Onsite)	Unknown	92	17-Sep-2016	Negative	Negative
BS247	Translocatee (Juvenile Found	Unknown	137	17-May-	Negative	Negative

Tortoise ID	Tortoise Type	Sex	MCL	Sample Date	M. agassizii Result	M. testudineum Result
	Onsite)			2016		
BS247	Translocatee (Juvenile Found Onsite)	Unknown	137	16-Sep-2016	Negative	Negative
BS249	Translocatee (Hatched in Captivity)	Unknown	109	24-May-2016	Negative	Negative
BS249	Translocatee (Hatched in Captivity)	Unknown	109	17-Sep-2016	Negative	Negative
BS251	Translocatee (Hatched in Captivity)	Unknown	91	26-May-2016	Negative	Negative
BS251	Translocatee (Hatched in Captivity)	Unknown	91	17-Sep-2016	Negative	Negative
BS252	Translocatee (Juvenile Found Onsite)	Unknown	140	2-Jun-2016	Negative	Negative
BS252	Translocatee (Juvenile Found Onsite)	Unknown	140	17-Sep-2016	Negative	Negative
BS253	Translocatee (Hatched in Captivity)	Unknown	109	27-May-2016	Negative	Negative
BS253	Translocatee (Hatched in Captivity)	Unknown	109	17-Sep-2016	Negative	Negative
BS254	Translocatee (Hatched in Captivity)	Unknown	102	27-May-2016	Negative	Negative
BS254	Translocatee (Hatched in Captivity)	Unknown	102	17-Sep-2016	Negative	Negative
BS255	Translocatee (Hatched in Captivity)	Unknown	106	24-May-2016	Negative	Negative
BS255	Translocatee (Hatched in Captivity)	Unknown	106	17-Sep-2016	Negative	Negative
BS256	Translocatee (Juvenile Found Onsite)	Unknown	116	19-May-2016	Negative	Negative
BS256	Translocatee (Juvenile Found Onsite)	Unknown	116	16-Sep-2016	Negative	Negative
BS259	Translocatee (Juvenile Found Onsite)	Unknown	166	20-May-2016	Negative	Suspect
BS259	Translocatee (Juvenile Found Onsite)	Unknown	166	16-Sep-2016	Negative	Negative
BS263	Translocatee (Juvenile Found Onsite)	Unknown	117	18-May-2016	Negative	Negative
BS263	Translocatee (Juvenile Found Onsite)	Unknown	117	16-Sep-2016	Negative	Negative
BS267	Translocatee (Juvenile Found Onsite)	Unknown	143	2-Jun-2016	Negative	Negative
BS267	Translocatee (Juvenile Found Onsite)	Unknown	143	15-Sep-2016	Negative	Negative
BS268	Translocatee (Juvenile Found Onsite)	Unknown	122	24-May-2016	Negative	Suspect
BS268	Translocatee (Juvenile Found Onsite)	Unknown	122	23-Sep-2016	Negative	Suspect
BS269	Translocatee (Juvenile Found Onsite)	Unknown	132	19-May-2016	Negative	Negative
BS269	Translocatee (Juvenile Found Onsite)	Unknown	132	16-Sep-2016	Negative	Negative
BS270	Translocatee (Juvenile Found Onsite)	Male	184	17-May-2016	Negative	Negative
BS270	Translocatee (Juvenile Found Onsite)	Male	184	16-Sep-2016	Negative	Negative
BS272	Translocatee (Juvenile Found Onsite)	Unknown	142	17-May-2016	Negative	Negative
BS272	Translocatee (Juvenile Found Onsite)	Unknown	142	16-Sep-2016	Negative	Negative
BS274	Translocatee (Juvenile Found Onsite)	Unknown	100	22-May-2016	Negative	Suspect
BS274	Translocatee (Juvenile Found	Unknown	100	17-Sep-2016	Negative	Negative

Tortoise ID	Tortoise Type	Sex	MCL	Sample Date	M. agassizii Result	M. testudineum Result
	Onsite)					
BS276	Translocatee (Juvenile Found Onsite)	Unknown	111	25-May-2016	Negative	Negative
BS276	Translocatee (Juvenile Found Onsite)	Unknown	111	16-Sep-2016	Negative	Negative
BS277	Translocatee (Juvenile Found Onsite)	Unknown	99	22-May-2016	Negative	Negative
BS277	Translocatee (Juvenile Found Onsite)	Unknown	99	17-Sep-2016	Negative	Negative
BS279	Translocatee (Hatched in Captivity)	Unknown	95	20-May-2016	Negative	Negative
BS279	Translocatee (Hatched in Captivity)	Unknown	95	17-Sep-2016	Negative	Negative
BS280	Translocatee (Juvenile Found Onsite)	Unknown	145	25-May-2016	Negative	Negative
BS280	Translocatee (Juvenile Found Onsite)	Unknown	145	15-Sep-2016	Negative	Negative
BS281	Translocatee (Hatched in Captivity)	Unknown	107	24-May-2016	Negative	Negative
BS281	Translocatee (Hatched in Captivity)	Unknown	107	16-Sep-2016	Negative	Negative
BS282	Translocatee (Juvenile Found Onsite)	Unknown	151	19-May-2016	Negative	Negative
BS282	Translocatee (Juvenile Found Onsite)	Unknown	151	17-Sep-2016	Negative	Negative
BS283	Translocatee (Juvenile Found Onsite)	Unknown	144	16-May-2016	Negative	Negative
BS283	Translocatee (Juvenile Found Onsite)	Unknown	144	15-Sep-2016	Negative	Negative
BS284	Translocatee (Hatched in Captivity)	Unknown	104	25-May-2016	Negative	Negative
BS284	Translocatee (Hatched in Captivity)	Unknown	104	23-Sep-2016	Negative	Negative
BS285	Translocatee (Juvenile Found Onsite)	Unknown	133	28-May-2016	Negative	Negative
BS285	Translocatee (Juvenile Found Onsite)	Unknown	133	17-Sep-2016	Negative	Negative
BS286	Translocatee (Juvenile Found Onsite)	Unknown	120	21-May-2016	Negative	Negative
BS286	Translocatee (Juvenile Found Onsite)	Unknown	120	23-Sep-2016	Negative	Negative
BS287	Translocatee (Juvenile Found Onsite)	Female	192	18-May-2016	Negative	Negative
BS287	Translocatee (Juvenile Found Onsite)	Female	192	15-Sep-2016	Negative	Negative
BS288	Translocatee (Juvenile Found Onsite)	Unknown	101	28-May-2016	Negative	Suspect
BS288	Translocatee (Juvenile Found Onsite)	Unknown	101	16-Sep-2016	Negative	Negative
BS292	Translocatee (Juvenile Found Onsite)	Unknown	150	17-May-2016	Negative	Negative
BS292	Translocatee (Juvenile Found Onsite)	Unknown	150	16-Sep-2016	Negative	Negative
BS295	Translocatee (Juvenile Found Onsite)	Unknown	109	18-May-2016	Negative	Negative
BS295	Translocatee (Juvenile Found Onsite)	Unknown	109	20-Sep-2016	Negative	Negative
BS296	Translocatee (Juvenile Found Onsite)	Unknown	119	18-May-2016	Negative	Negative
BS296	Translocatee (Juvenile Found	Unknown	119	24-Sep-2016	Negative	Negative

Tortoise ID	Tortoise Type	Sex	MCL	Sample Date	M. agassizii Result	M. testudineum Result
	Onsite)					
BS297	Translocatee (Hatched in Captivity)	Unknown	109	26-May-2016	Negative	Negative
BS297	Translocatee (Hatched in Captivity)	Unknown	109	16-Sep-2016	Negative	Negative
BS298	Translocatee (Juvenile Found Onsite)	Unknown	112	18-May-2016	Negative	Negative
BS298	Translocatee (Juvenile Found Onsite)	Unknown	112	16-Sep-2016	Negative	Negative
BS299	Translocatee (Hatched in Captivity)	Unknown	111	19-May-2016	Negative	Negative
BS299	Translocatee (Hatched in Captivity)	Unknown	111	24-Sep-2016	Negative	Negative
BS300	Translocatee (Juvenile Found Onsite)	Unknown	117	26-May-2016	Negative	Negative
BS300	Translocatee (Juvenile Found Onsite)	Unknown	117	15-Sep-2016	Negative	Negative
BS302	Translocatee (Juvenile Found Onsite)	Unknown	104	19-May-2016	Negative	Negative
BS302	Translocatee (Juvenile Found Onsite)	Unknown	104	16-Sep-2016	Positive	Negative
BS303	Translocatee (Juvenile Found Onsite)	Unknown	132	20-May-2016	Negative	Suspect
BS303	Translocatee (Juvenile Found Onsite)	Unknown	132	15-Sep-2016	Negative	Negative
BS304	Translocatee (Juvenile Found Onsite)	Unknown	110	18-May-2016	Negative	Negative
BS304	Translocatee (Juvenile Found Onsite)	Unknown	110	23-Sep-2016	Negative	Negative
BS307	Translocatee (Juvenile Found Onsite)	Unknown	124	26-May-2016	Negative	Suspect
BS307	Translocatee (Juvenile Found Onsite)	Unknown	124	17-Sep-2016	Negative	Negative
BS333	Translocatee (Juvenile Found Onsite)	Unknown	114	17-May-2016	Negative	Negative
BS333	Translocatee (Juvenile Found Onsite)	Unknown	114	24-Sep-2016	Negative	Negative
BS338	Translocatee (Juvenile Found Onsite)	Unknown	124	3-Jun-2016	Negative	Negative
BS338	Translocatee (Juvenile Found Onsite)	Unknown	124	15-Sep-2016	Negative	Negative
BS341	Translocatee (Juvenile Found Onsite)	Unknown	115	20-May-2016	Negative	Negative
BS341	Translocatee (Juvenile Found Onsite)	Unknown	115	27-May-2016	Negative	Negative
BS341	Translocatee (Juvenile Found Onsite)	Unknown	115	17-Sep-2016	Negative	Negative
BS347	Translocatee (Juvenile Found Onsite)	Unknown	108	25-May-2016	Negative	Negative
BS347	Translocatee (Juvenile Found Onsite)	Unknown	108	17-Sep-2016	Negative	Negative
BS348	Translocatee (Juvenile Found Onsite)	Unknown	116	25-May-2016	Negative	Negative
BS348	Translocatee (Juvenile Found Onsite)	Unknown	116	17-Sep-2016	Negative	Negative
BS350	Translocatee (Juvenile Found Onsite)	Unknown	100	2-Jun-2016	Negative	Suspect
BS350	Translocatee (Juvenile Found Onsite)	Unknown	100	20-Sep-2016	Negative	Suspect

Tortoise ID	Tortoise Type	Sex	MCL	Sample Date	M. agassizii Result	M. testudineum Result
BS351	Translocatee (Juvenile Found Onsite)	Unknown	157	19-May-2016	Negative	Negative
BS351	Translocatee (Juvenile Found Onsite)	Unknown	157	16-Sep-2016	Negative	Negative
BS352	Translocatee (Juvenile Found Onsite)	Unknown	140	27-May-2016	Negative	Negative
BS352	Translocatee (Juvenile Found Onsite)	Unknown	140	16-Sep-2016	Negative	Negative
BS355	Translocatee (Juvenile Found Onsite)	Unknown	111	2-Jun-2016	Negative	Negative
BS355	Translocatee (Juvenile Found Onsite)	Unknown	111	23-Sep-2016	Negative	Negative

Appendix I

ISEGS Juvenile Desert Tortoise Translocation 2016 Annual Report

**IVANPAH SOLAR ELECTRIC GENERATING SYSTEM
JUVENILE DESERT TORTOISE TRANSLOCATION**

**2016 Annual Report
October 1, 2016 – December 31, 2016**

Prepared for: **Solar Partners I, II, and VIII.**
100302 Yates Well Road
Nipton, CA 92364

Prepared by: **Rochaco Environmental, Inc.**

December 2016

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Appendix A – Juvenile Tortoise Disposition Table
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Section 1.0 – Introduction

1.1 Background

The translocation of juvenile desert tortoises at the Ivanpah Solar Electric Generating System (ISEGS) is a mitigation requirement indicated in the *Revised Biological Opinion for ISEGS* (USFWS, 2011). The ISEGS *Juvenile Desert Tortoise Translocation Plan* has been incorporated into the *ISEGS Biological Resources Mitigation Implementation and Monitoring Plan* (BRMIMP) and follows procedures outlined in the *Guidelines for Clearance and Translocation of Desert Tortoises from the Ivanpah Solar Electric Generating System Project* (USFWS, 2008) and the translocation guidelines specified in the *Desert Tortoise Recovery Plan* (USFWS, 1994).

1.2 Initial Juvenile Tortoise Encounters

The ISEGS Quarantine Facility is located at the Ivanpah Solar Electric Generating Facility off Colosseum Road in Construction Logistics Areas West (Commons West) and south of the Ivanpah 2 access gate. Juvenile desert tortoises (MCL <120mm) held at the quarantine pens were either encountered during clearance surveys, monitoring of construction activities, during operations, or were hatched in captivity from adult female tortoises held at the quarantine pens prior to their translocation. Table 1 shows the initial encounter locations and totals.

Table 1. Translocated Tortoises – Initial Encounter Sites

Site	Number of Tortoises
Commons East	2
Commons West	1
Unit 1	11
Unit 2	15
Unit 3	33
Hatched in Quarantine Facility	35

1.3 Recipient Site

The juvenile tortoise recipient site, as identified by the USFWS Biological Opinion, extends south from Ivanpah 1 to Interstate-15 (I-15) and along the western edge of I-15 from Yates Well Road to Nipton Road. The fenced portion of the recipient site, the I-15 pen, begins approximately two kilometers south of the Yates Well Road exit and extends south for 2.5 kilometers along the I-15 tortoise exclusion fence and to the west one kilometer (Figure 1).

1.4 Release

As specified in the 2011 revised biological opinion, juvenile desert tortoises will be translocated in cohorts of 30 once they have reached a size of 120mm MCL or until they have been held for five years. Since a group of 30 tortoises did not reach the 120mm MCL requirement before the five-year holding period was reached, all tortoises were released during one translocation event in the fall of 2016.

Section 2.0 – Translocation

2.1 Overview

The juvenile desert tortoise release points were systematically determined using the following methodology. First, the tortoises were divided into groups based on whether they were hatched in captivity or were brought to the quarantine facility from encounter locations on the project site. Second, those groups were then divided into nine size classes in 10mm increments from 80mm to 189mm (Table 2). From each 10mm size class bracket, tortoises were then randomly assigned an “Inside I-15 Pen” or “Outside I-15 Pen” disposition for a total of 48 tortoises inside the I-15 pen and 49 tortoises outside the I-15 pen (Table 3). Lastly, release points were selected under the criteria that no point would be within 150 meters from a fence and points would be separated on the roughly east-west axis by 150 meters and by 175 meters on the roughly north-south axis. Appendix A provides the disposition details for each of the 97 juvenile tortoises released.

Table 2. Translocated Tortoises – Size Class Summary

MCL (mm)	Number of Tortoises
80-89	6
90-99	13
100-109	36
110-119	11
120-129	15
130-139	10
140-149	4
170-179	1
180-189	1
Total	97

Table 3. Translocated Tortoises – Disposition Summary

Tortoise Size and Sex	Inside I-15 Pen	Outside I-15 Pen
<i>Male >159 mm MCL</i>	0	1
<i>Female >159 mm MCL</i>	1	0
<i>Sex Unknown >159 mm MCL</i>	1	0
<i>120-159 mm MCL</i>	19	19
<i>0-119 mm MCL</i>	27	29
Totals	48	49

Figure 1 shows the proposed release locations for the juvenile tortoises. If the proposed release point was not suitable, i.e. near a canid burrow or with inadequate shrub cover, the tortoise was translocated to a more appropriate location up to 50 meters from the proposed location (Figure 2). 16 juvenile tortoises were released at locations more than 15 meters from their proposed translocation sites (Table 4).

Figure 1. ISEGS 2016 Juvenile Desert Tortoise Translocation: Proposed Release Points

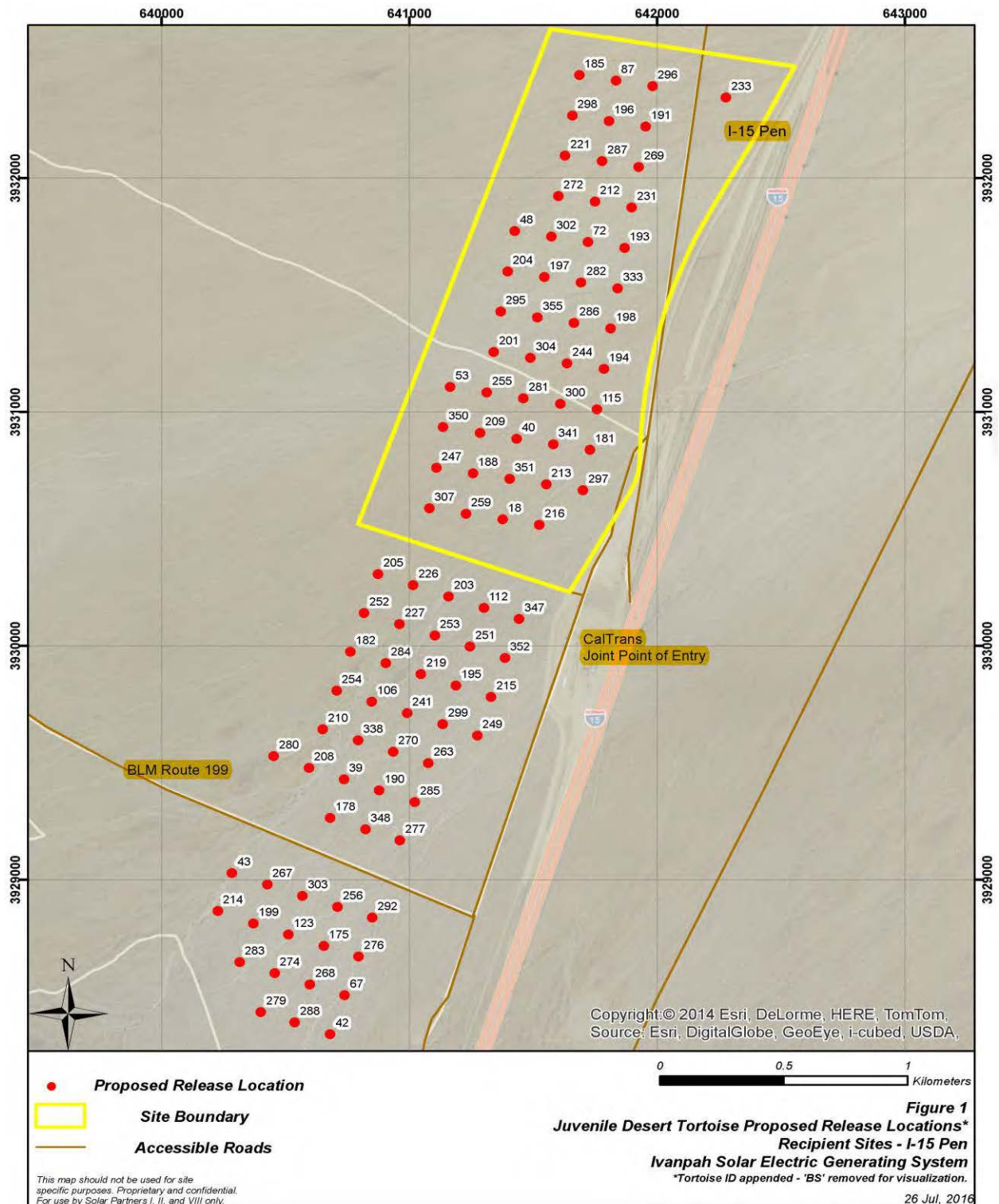


Figure 2. ISEGS 2016 Juvenile Desert Tortoise Translocation: Actual Release Points

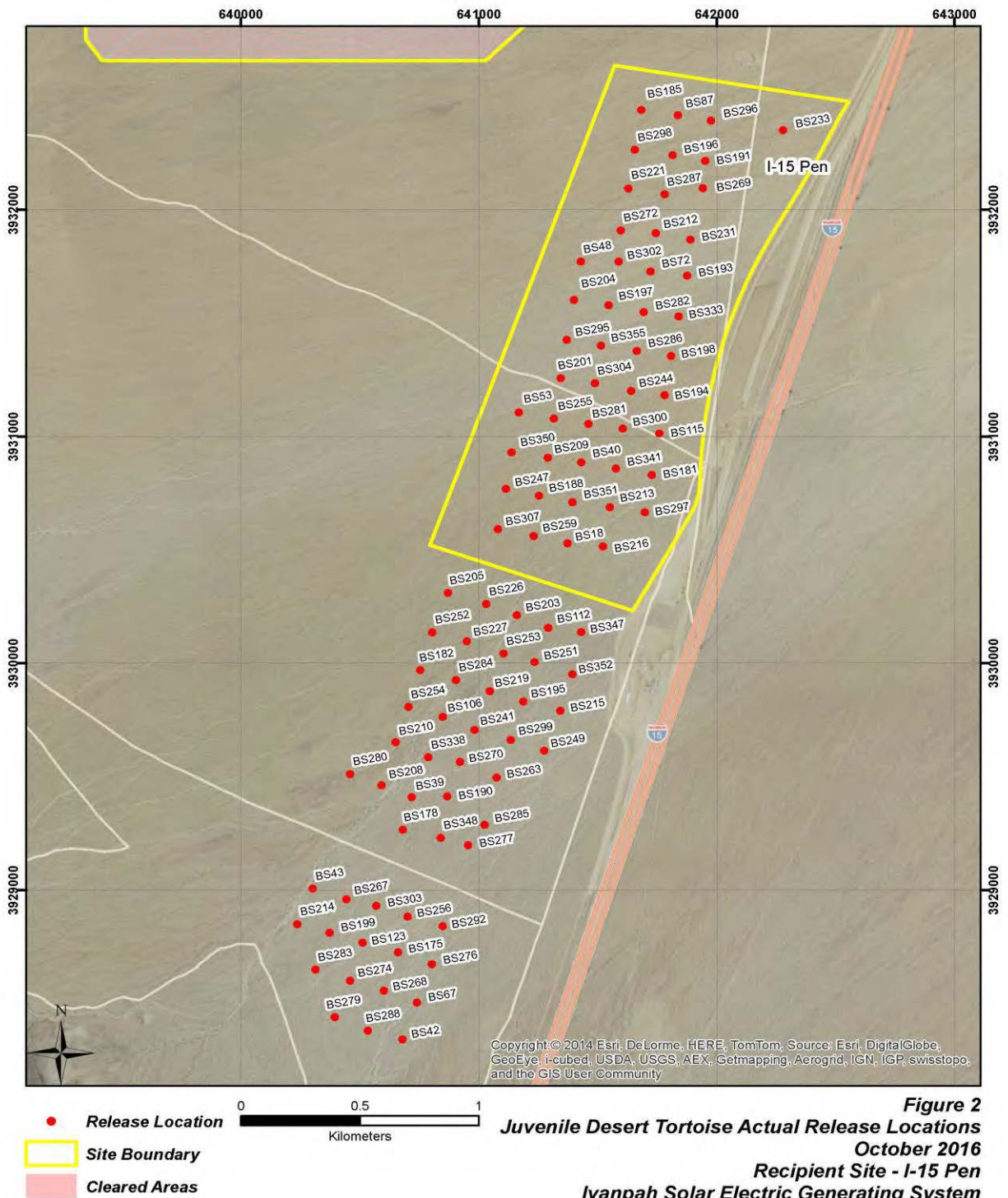


Table 4. Translocated Tortoises – Release Site Changes

Tort ID	Release Site	Difference (m) Between Proposed and Actual Release Location
BS208	Recipient Site	16
BS215	Recipient Site	16
BS226	Recipient Site	16
BS280	Recipient Site	18
BS214	Recipient Site	19
BS270	Recipient Site	22
BS348	Recipient Site	23
BS347	Recipient Site	26
BS43	Recipient Site	27
BS267	Recipient Site	27
BS302	I-15 Pen	27
BS39	Recipient Site	28
BS277	Recipient Site	31
BS190	Recipient Site	34
BS285	Recipient Site	44
BS269	I-15 Pen	51

2.2 Implementation

The translocation of 97 juvenile tortoises from the ISEGS quarantine facilities was completed in October 2016. Tortoises were released over a period of four days beginning October 1, 2016. One day prior to release, biologists completed pre-release health assessments and attached radio transmitters to the tortoises.

2.3 Evaluation of Translocation Plan Goals

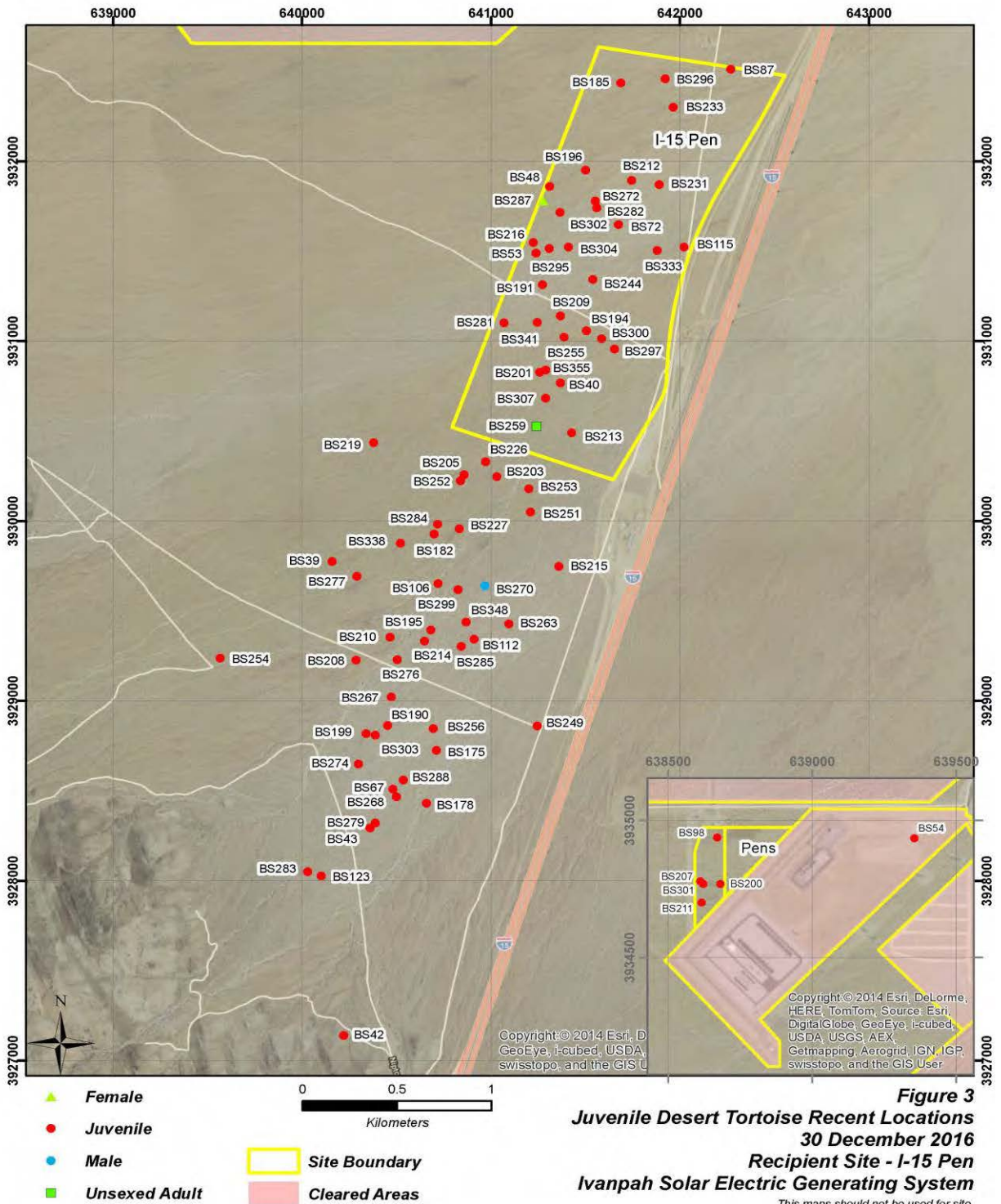
As outlined in the *Juvenile Desert Tortoise Translocation Plan – Ivanpah Solar Electric Generating System*, the juvenile tortoise translocation goals include:

- Translocate all juvenile desert tortoises from the ISEGS Quarantine Facility to habitat along I-15
- Minimize impacts on resident desert tortoises outside fenced areas
- Minimize stress, disturbance, and injuries to translocated tortoises
- Assess the success of the translocation effort through monitoring

The translocation effort successfully accomplished the first three goals outlined in the translocation plan. All juvenile tortoises were translocated; the impact on resident desert tortoises was minimized; and the stress, disturbance, and injuries to translocated tortoises were also minimized. The fourth goal, the assessment of the translocation effort, will be ongoing during the five years of monitoring.

Monitoring consists of tracking the tortoise to its current location using radio telemetry; recording the tortoise's activity and location information (burrow, shrub, in the open, etc.); and making general observations on the tortoise's health. In 2016, biologists monitored the juvenile tortoises in the field one day post-release and every four days for two weeks following release, for a total of four visits during the first two weeks after release. From October 16 through November 12, biologists monitored tortoises once a week. Beginning the week of November 13 through December 31, biologists monitored the juvenile tortoises once every other week. The every-other-week monitoring schedule will continue until the week of February 12, 2017 when weekly monitoring will resume per the requirements of the 2011 revised biological opinion. In 2016, biologists last monitored the tortoises during the week of December 25. Their locations are shown in Figure 3.

Figure 3. ISEGS 2016 Juvenile Desert Tortoise Translocation: Recent Encounter Locations



11 Jan, 2017

Section 3.0 – Health Analysis and ELISA Testing

3.1 Fall Health 2016

As outlined in the 2011 *Revised Biological Opinion for ISEGS*, health analysis will be conducted on all translocated juvenile desert tortoises in the spring and fall each year. Blood samples for ELISA testing will only be taken from a randomly selected half of the tortoises each spring and from all tortoises each fall.

Health assessment data will be collected using the *USFWS Health Assessment Data Collection Form for Translocated Desert Tortoises* and will follow the guidelines in the *USFWS Desert Tortoise Health Evaluation Handbook*.

USFWS approved biologists completed fall 2016 juvenile desert tortoise health assessments prior to translocation. A summary of ELISA results are included in the ISEGS Annual Biological Report. Translocated juvenile desert tortoise health assessments and ELISA results will be included in the Juvenile Desert Tortoise Annual Report beginning in 2017.

Section 4.0 – Tortoise Fatalities

4.1 Summary of Tortoise Fatalities

There were 19 total translocated juvenile desert tortoise fatalities in 2016: eight juveniles (size class <120mm MCL) and 11 sub-adults (size class 121mm-159mm MCL) (Table 5). There were no adult tortoise fatalities. Of the 19 fatalities, 18 were suspected to be caused by canids while one was suspected to be the result of hyperthermia (Table 6). Table 7 shows fatality details for each tortoise. Fatality locations can be seen in Figure 4.

Table 5. Translocated Tortoise Fatalities – Size Class Summary.

	<120mm MCL	121mm-159mm MCL	>160mm MCL	Totals
Inside I-15 Pen	6	8	0	14
Outside I-15 Pen	2	3	0	5
Totals	8	11	0	19

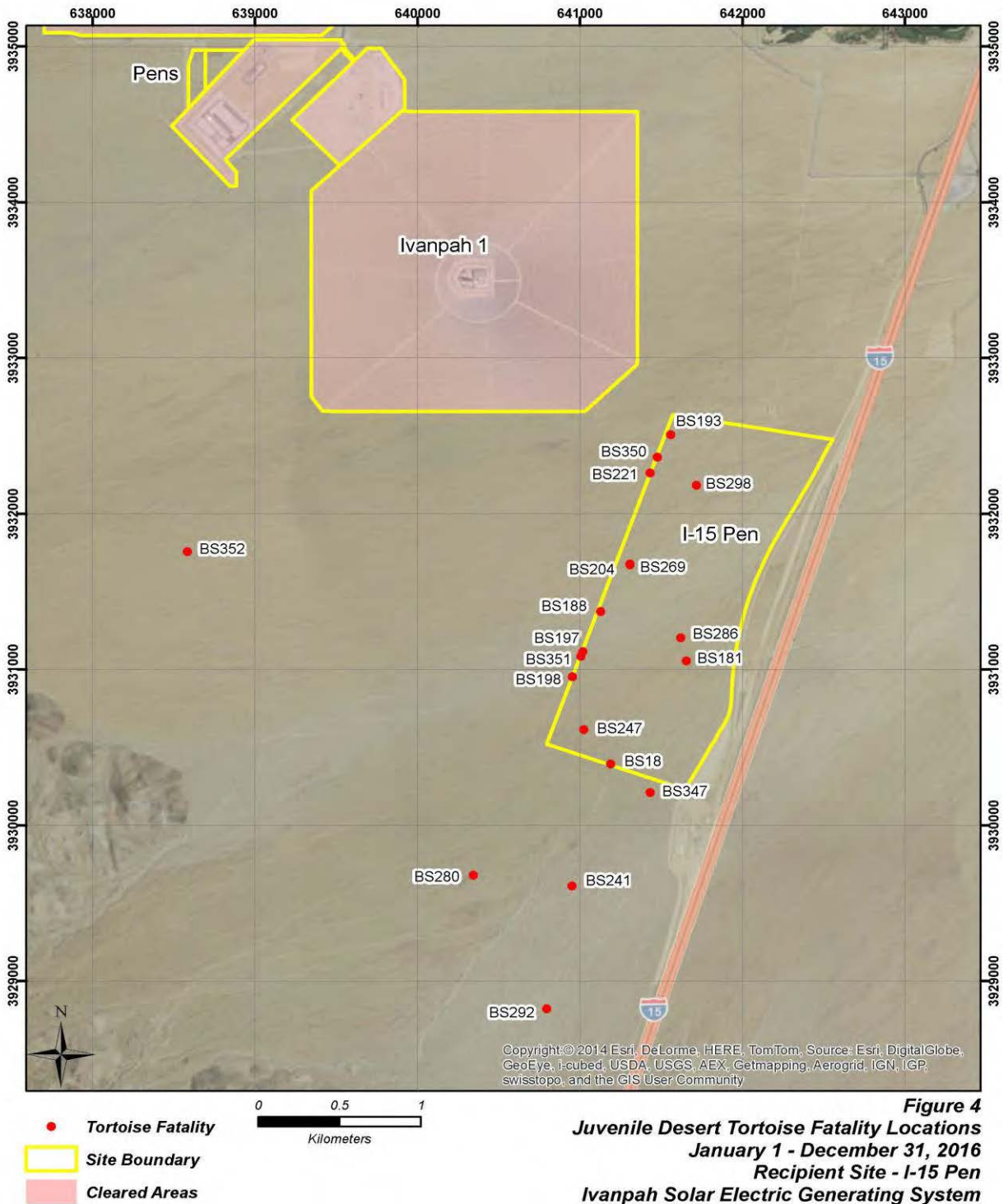
Table 6. Translocated Tortoise Fatalities – Suspected Cause of Death Summary.

	Canid	Hyperthermia	Totals
Inside I-15 Pen	14	0	<i>14</i>
Outside I-15 Pen	4	1	<i>5</i>
Totals	<i>18</i>	<i>1</i>	<i>19</i>

Table 7. ISEGS 2016 Juvenile Desert Tortoise Fatalities

Tort ID	Tortoise Type	Sex	MCL	Date Carcass Found	Suspected Cause of Death
BS292	Translocatee (2016 Out I-15)	Unknown	150	2-Oct-2016	Canid-Badger
BS18	Translocatee (2016 In I-15)	Unknown	147	3-Oct-2016	Canid-Badger
BS351	Translocatee (2016 In I-15)	Unknown	157	6-Oct-2016	Canid-Badger
BS347	Translocatee (2016 Out I-15)	Unknown	108	7-Oct-2016	Hyperthermia
BS188	Translocatee (2016 In I-15)	Unknown	136	9-Oct-2016	Canid-Badger
BS197	Translocatee (2016 In I-15)	Unknown	102	9-Oct-2016	Canid-Badger
BS198	Translocatee (2016 In I-15)	Unknown	84	9-Oct-2016	Canid-Badger
BS193	Translocatee (2016 In I-15)	Unknown	124	10-Oct-2016	Canid-Badger
BS221	Translocatee (2016 In I-15)	Unknown	92	10-Oct-2016	Canid-Badger
BS269	Translocatee (2016 In I-15)	Unknown	132	12-Oct-2016	Canid-Badger
BS280	Translocatee (2016 Out I-15)	Unknown	145	14-Oct-2016	Canid-Badger
BS204	Translocatee (2016 In I-15)	Unknown	110	15-Oct-2016	Canid-Badger
BS352	Translocatee (2016 Out I-15)	Unknown	140	15-Oct-2016	Canid-Badger
BS298	Translocatee (2016 In I-15)	Unknown	112	16-Oct-2016	Canid-Badger
BS286	Translocatee (2016 In I-15)	Unknown	120	17-Oct-2016	Canid-Badger
BS241	Translocatee (2016 Out I-15)	Unknown	103	18-Oct-2016	Canid-Badger
BS350	Translocatee (2016 In I-15)	Unknown	100	18-Oct-2016	Canid-Badger
BS181	Translocatee (2016 In I-15)	Unknown	130	19-Oct-2016	Canid-Badger
BS247	Translocatee (2016 In I-15)	Unknown	137	1-Nov-2016	Canid-Badger

Figure 4. ISEGS 2016 Juvenile Desert Tortoise Translocation: Fatality Locations



11 Jan, 2017

Appendix A – Juvenile Tortoise Disposition Table

Tort ID	Site (initial)	Tracking Date (initial)	Sex	MCL (initial)	MCL (latest)	Site (release)	Oct 2016	Nov 2016	Dec 2016
BS18	Ivanpah 1	10/20/2010	Unknown	72	147	I-15 Pen	Deceased (Oct 2016)		
BS39	Ivanpah 1	11/1/2010	Unknown	61	120	Recipient Site	Recipient Site	Recipient Site	Recipient Site
BS40	Ivanpah 1	11/1/2010	Unknown	69	147	I-15 Pen	I-15 Pen	I-15 Pen	I-15 Pen
BS42	Ivanpah 1	12/17/2010	Unknown	53	131	Recipient Site	Recipient Site	Recipient Site	Recipient Site
BS43	Ivanpah 1	12/20/2010	Unknown	46	115	Recipient Site	Recipient Site	Recipient Site	Recipient Site
BS48	Ivanpah 2	3/9/2011	Unknown	86	128	I-15 Pen	I-15 Pen	I-15 Pen	I-15 Pen
BS53	Common East	3/10/2011	Unknown	46	119	I-15 Pen	I-15 Pen	I-15 Pen	I-15 Pen
BS67	Ivanpah 2	3/16/2011	Unknown	71	147	Recipient Site	Recipient Site	Recipient Site	Recipient Site
BS72	Ivanpah 2	3/21/2011	Unknown	57	120	I-15 Pen	I-15 Pen	I-15 Pen	I-15 Pen
BS87	Ivanpah 3	3/30/2011	Unknown	72	128	I-15 Pen	I-15 Pen	I-15 Pen	I-15 Pen
BS106	Ivanpah 3	4/2/2011	Unknown	68	119	Recipient Site	Recipient Site	Recipient Site	Recipient Site
BS112	Common West	4/4/2011	Unknown	44	124	Recipient Site	Recipient Site	Recipient Site	Recipient Site
BS115	Ivanpah 3	4/5/2011	Unknown	64	123	I-15 Pen	I-15 Pen	I-15 Pen	I-15 Pen
BS123	Ivanpah 1	4/13/2011	Unknown	57	116	Recipient Site	Recipient Site	Recipient Site	Recipient Site
BS175	Ivanpah 1	5/12/2011	Unknown	62	131	Recipient Site	Recipient Site	Recipient Site	Recipient Site
BS178	Ivanpah 1	6/9/2011	Unknown	46	117	Recipient Site	Recipient Site	Recipient Site	Recipient Site
BS181	Ivanpah 3	7/20/2011	Unknown	62	130	I-15 Pen	Deceased (Oct 2016)		
BS182	Ivanpah 2	7/27/2011	Unknown	59	124	Recipient Site	Recipient Site	Recipient Site	Recipient Site
BS185	Ivanpah 3	8/6/2011	Unknown	53	125	I-15 Pen	I-15 Pen	I-15 Pen	I-15 Pen

Tort ID	Site (initial)	Tracking Date (initial)	Sex	MCL (initial)	MCL (latest)	Site (release)	Oct 2016	Nov 2016	Dec 2016
BS188	Ivanpah 3	8/12/2011	Unknown	75	136	I-15 Pen	Deceased (Oct 2016)		
BS190	Ivanpah 3	8/15/2011	Unknown	102	126	Recipient Site	Recipient Site	Recipient Site	Recipient Site
BS191	Ivanpah 2	4/15/2011	Unknown	82	152	I-15 Pen	I-15 Pen	I-15 Pen	I-15 Pen
BS193	Ivanpah 3	4/15/2011	Unknown	70	124	I-15 Pen	Deceased (Oct 2016)		
BS194	Quarantine Pens	8/25/2011	Unknown	45	100	I-15 Pen	I-15 Pen	I-15 Pen	I-15 Pen
BS195	Quarantine Pens	8/26/2011	Unknown	43	115	Recipient Site	Recipient Site	Recipient Site	Recipient Site
BS196	Quarantine Pens	8/26/2011	Unknown	43	86	I-15 Pen	I-15 Pen	I-15 Pen	I-15 Pen
BS197	Quarantine Pens	8/26/2011	Unknown	45	102	I-15 Pen	Deceased (Oct 2016)		
BS198	Quarantine Pens	8/26/2011	Unknown	44	84	I-15 Pen	Deceased (Oct 2016)		
BS199	Quarantine Pens	8/26/2011	Unknown	43	91	Recipient Site	Recipient Site	Recipient Site	Recipient Site
BS201	Quarantine Pens	8/29/2011	Unknown	43	120	I-15 Pen	I-15 Pen	I-15 Pen	I-15 Pen
BS203	Quarantine Pens	8/29/2011	Unknown	44	100	Recipient Site	Recipient Site	Recipient Site	Recipient Site
BS204	Quarantine Pens	8/29/2011	Unknown	43	110	I-15 Pen	Deceased (Oct 2016)		
BS205	Quarantine Pens	8/29/2011	Unknown	41	107	Recipient Site	Recipient Site	Recipient Site	Recipient Site
BS208	Quarantine Pens	8/30/2011	Unknown	46	96	Recipient Site	Recipient Site	Recipient Site	Recipient Site
BS209	Quarantine Pens	8/30/2011	Unknown	40	112	I-15 Pen	I-15 Pen	I-15 Pen	I-15 Pen
BS210	Quarantine Pens	8/30/2011	Unknown	40	114	Recipient Site	Recipient Site	Recipient Site	Recipient Site
BS212	Quarantine Pens	9/1/2011	Unknown	48	94	I-15 Pen	I-15 Pen	I-15 Pen	I-15 Pen
BS213	Quarantine Pens	9/1/2011	Unknown	46	109	I-15 Pen	I-15 Pen	I-15 Pen	I-15 Pen
BS214	Quarantine Pens	9/1/2011	Unknown	45	110	Recipient Site	Recipient Site	Recipient Site	Recipient Site
BS215	Quarantine Pens	9/1/2011	Unknown	44	120	Recipient Site	Recipient Site	Recipient Site	Recipient Site
BS216	Quarantine Pens	9/1/2011	Unknown	42	102	I-15 Pen	I-15 Pen	I-15 Pen	I-15 Pen

Tort ID	Site (initial)	Tracking Date (initial)	Sex	MCL (initial)	MCL (latest)	Site (release)	Oct 2016	Nov 2016	Dec 2016
BS219	Quarantine Pens	9/3/2011	Unknown	43	110	Recipient Site	Recipient Site	Recipient Site	Recipient Site
BS221	Quarantine Pens	9/5/2011	Unknown	48	92	I-15 Pen	Deceased (Oct 2016)		
BS226	Quarantine Pens	9/6/2011	Unknown	46	113	Recipient Site	Recipient Site	Recipient Site	Recipient Site
BS227	Quarantine Pens	9/7/2011	Unknown	44	132	Recipient Site	Recipient Site	Recipient Site	Recipient Site
BS231	Quarantine Pens	9/7/2011	Unknown	43	108	I-15 Pen	I-15 Pen	I-15 Pen	I-15 Pen
BS233	Quarantine Pens	9/7/2011	Unknown	44	118	I-15 Pen	I-15 Pen	I-15 Pen	I-15 Pen
BS241	Quarantine Pens	9/11/2011	Unknown	41	103	Recipient Site	Deceased (Oct 2016)		
BS244	Ivanpah 2	9/10/2011	Unknown	55	92	I-15 Pen	I-15 Pen	I-15 Pen	I-15 Pen
BS247	Ivanpah 2	9/10/2011	Unknown	61	137	I-15 Pen	I-15 Pen	Deceased (Nov 2016)	
BS249	Quarantine Pens	9/11/2011	Unknown	45	109	Recipient Site	Recipient Site	Recipient Site	Recipient Site
BS251	Quarantine Pens	9/12/2011	Unknown	46	91	Recipient Site	Recipient Site	Recipient Site	Recipient Site
BS252	Ivanpah 3	9/12/2011	Unknown	79	140	Recipient Site	Recipient Site	Recipient Site	Recipient Site
BS253	Quarantine Pens	9/13/2011	Unknown	44	109	Recipient Site	Recipient Site	Recipient Site	Recipient Site
BS254	Quarantine Pens	9/13/2011	Unknown	43	102	Recipient Site	Recipient Site	Recipient Site	Recipient Site
BS255	Quarantine Pens	9/13/2011	Unknown	43	106	I-15 Pen	I-15 Pen	I-15 Pen	I-15 Pen
BS256	Ivanpah 3	9/13/2011	Unknown	68	116	Recipient Site	Recipient Site	Recipient Site	Recipient Site
BS259	Ivanpah 3	9/14/2011	Unknown	114	166	I-15 Pen	I-15 Pen	I-15 Pen	I-15 Pen
BS263	Ivanpah 2	9/16/2011	Unknown	74	117	Recipient Site	Recipient Site	Recipient Site	Recipient Site
BS267	Ivanpah 3	9/18/2011	Unknown	82	143	Recipient Site	Recipient Site	Recipient Site	Recipient Site
BS268	Ivanpah 3	9/18/2011	Unknown	66	122	Recipient Site	Recipient Site	Recipient Site	Recipient Site
BS269	Ivanpah 3	9/18/2011	Unknown	93	132	I-15 Pen	Deceased (Oct 2016)		
BS270	Ivanpah 3	9/18/2011	Male	120	184	Recipient Site	Recipient Site	Recipient Site	Recipient Site
BS272	Ivanpah 3	9/20/2011	Unknown	89	142	I-15 Pen	I-15 Pen	I-15 Pen	I-15 Pen

Tort ID	Site (initial)	Tracking Date (initial)	Sex	MCL (initial)	MCL (latest)	Site (release)	Oct 2016	Nov 2016	Dec 2016
BS274	Ivanpah 3	9/20/2011	Unknown	45	100	Recipient Site	Recipient Site	Recipient Site	Recipient Site
BS276	Ivanpah 3	9/20/2011	Unknown	69	111	Recipient Site	Recipient Site	Recipient Site	Recipient Site
BS277	Common East	9/20/2011	Unknown	46	99	Recipient Site	Recipient Site	Recipient Site	Recipient Site
BS279	Quarantine Pens	9/21/2011	Unknown	48	95	Recipient Site	Recipient Site	Recipient Site	Recipient Site
BS280	Ivanpah 3	9/21/2011	Unknown	85	145	Recipient Site	Deceased (Oct 2016)		
BS281	Quarantine Pens	9/21/2011	Unknown	48	107	I-15 Pen	I-15 Pen	I-15 Pen	I-15 Pen
BS282	Ivanpah 3	9/21/2011	Unknown	90	151	I-15 Pen	I-15 Pen	I-15 Pen	I-15 Pen
BS283	Ivanpah 2	9/21/2011	Unknown	100	144	Recipient Site	Recipient Site	Recipient Site	Recipient Site
BS284	Quarantine Pens	9/22/2011	Unknown	43	104	Recipient Site	Recipient Site	Recipient Site	Recipient Site
BS285	Ivanpah 3	9/22/2011	Unknown	54	133	Recipient Site	Recipient Site	Recipient Site	Recipient Site
BS286	Ivanpah 3	9/22/2011	Unknown	63	120	I-15 Pen	Deceased (Oct 2016)		
BS287	Ivanpah 2	9/22/2011	Female	111	192	I-15 Pen	I-15 Pen	I-15 Pen	I-15 Pen
BS288	Ivanpah 2	9/23/2011	Unknown	58	101	Recipient Site	Recipient Site	Recipient Site	Recipient Site
BS292	Ivanpah 2	9/24/2011	Unknown	103	150	Recipient Site	Deceased (Oct 2016)		
BS295	Ivanpah 2	9/26/2011	Unknown	60	109	I-15 Pen	I-15 Pen	I-15 Pen	I-15 Pen
BS296	Ivanpah 3	9/26/2011	Unknown	70	119	I-15 Pen	I-15 Pen	I-15 Pen	I-15 Pen
BS297	Quarantine Pens	9/27/2011	Unknown	43	109	I-15 Pen	I-15 Pen	I-15 Pen	I-15 Pen
BS298	Ivanpah 3	9/27/2011	Unknown	62	112	I-15 Pen	Deceased (Oct 2016)		
BS299	Quarantine Pens	9/29/2011	Unknown	47	111	Recipient Site	Recipient Site	Recipient Site	Recipient Site
BS300	Ivanpah 3	9/29/2011	Unknown	47	117	I-15 Pen	I-15 Pen	I-15 Pen	I-15 Pen
BS302	Ivanpah 3	9/30/2011	Unknown	62	104	I-15 Pen	I-15 Pen	I-15 Pen	I-15 Pen
BS303	Ivanpah 3	9/30/2011	Unknown	76	132	Recipient Site	Recipient Site	Recipient Site	Recipient Site
BS304	Ivanpah 3	10/2/2011	Unknown	72	110	I-15 Pen	I-15 Pen	I-15 Pen	I-15 Pen
BS307	Ivanpah 3	10/3/2011	Unknown	64	124	I-15 Pen	I-15 Pen	I-15 Pen	I-15 Pen
BS333	Ivanpah 1	10/17/2011	Unknown	43	114	I-15 Pen	I-15 Pen	I-15 Pen	I-15 Pen
BS338	Ivanpah 2	3/5/2012	Unknown	62	124	Recipient Site	Recipient Site	Recipient Site	Recipient Site
BS341	Ivanpah 1	4/3/2012	Unknown	70	115	I-15 Pen	I-15 Pen	I-15 Pen	I-15 Pen

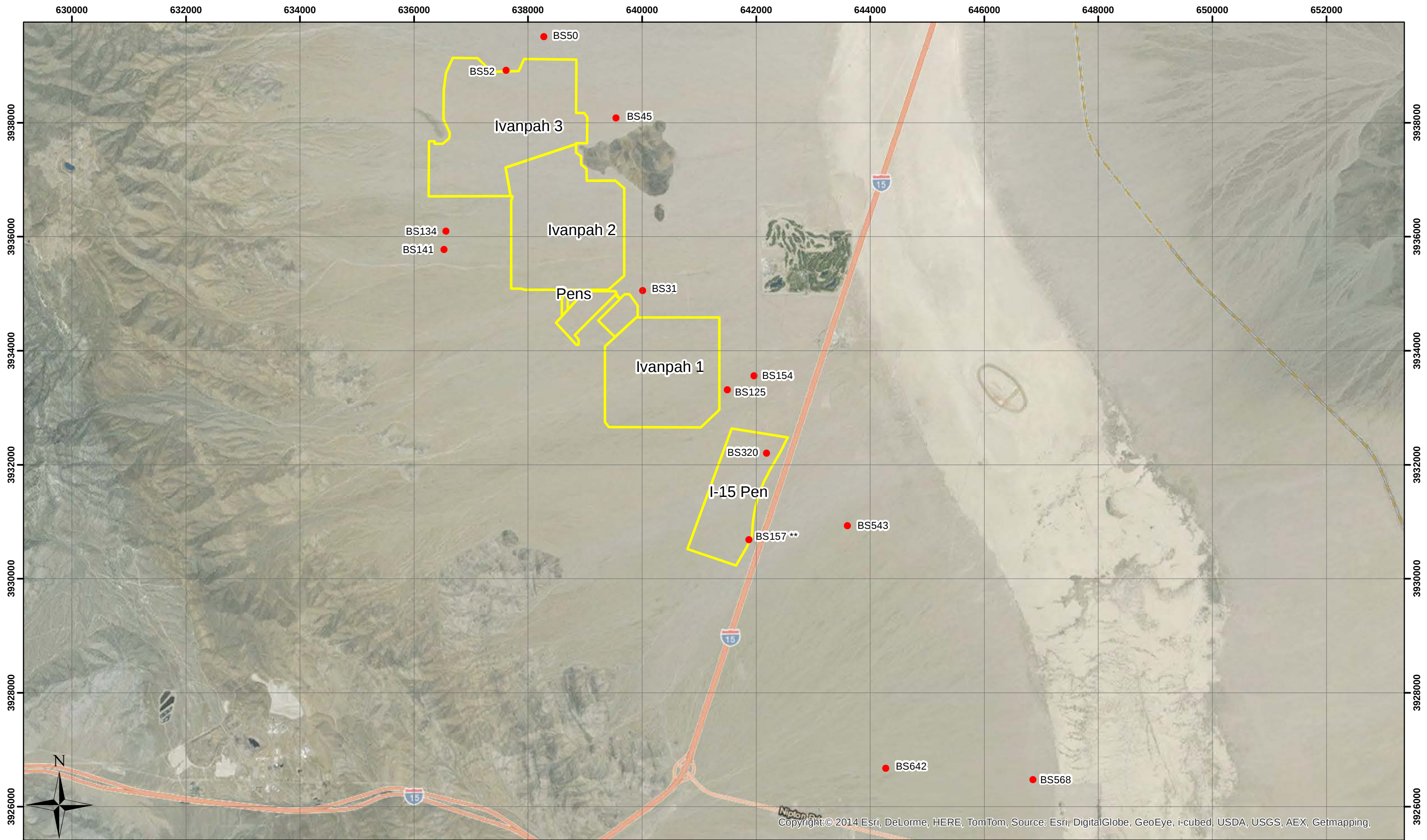
Tort ID	Site (initial)	Tracking Date (initial)	Sex	MCL (initial)	MCL (latest)	Site (release)	Oct 2016	Nov 2016	Dec 2016
BS347	Ivanpah 3	9/7/2012	Unknown	72	108	Recipient Site	Deceased (Oct 2016)		
BS348	Ivanpah 2	9/10/2012	Unknown	74	116	Recipient Site	Recipient Site	Recipient Site	Recipient Site
BS350	Ivanpah 3	9/25/2012	Unknown	45	100	I-15 Pen	Deceased (Oct 2016)		
BS351	Ivanpah 3	10/8/2012	Unknown	93	157	I-15 Pen	Deceased (Oct 2016)		
BS352	Ivanpah 3	10/17/2012	Unknown	101	140	Recipient Site	Deceased (Oct 2016)		
BS355	Ivanpah 1	3/27/2013	Unknown	43	111	I-15 Pen	I-15 Pen	I-15 Pen	I-15 Pen

Appendix J

Summary and Maps of ISEGS 2016 Tortoise Fatalities

Table J1: ISEGS 2016 Effectiveness Monitoring Program Tortoise Fatalities

Tort ID	Tortoise Type	Sex	MCL	Date Carcass Found	Suspected Cause of Death
BS568	Control West	Female	197	15-Mar-2016	Canid
BS134	Resident	Female	227	3-May-2016	Entombed in burrow
BS31	Translocatee (Adult Found Onsite)	Female	217	8-May-2016	Unknown
BS543	Control West	Female	246	15-May-2016	Canid
BS157	Translocatee (Adult Found Onsite)	Female	203	20-May-2016	Euthanized
BS45	Resident	Female	223	7-Jun-2016	Unknown
BS154	Resident	Female	236	14-Jun-2016	Unknown
BS141	Translocatee (Adult Found Onsite)	Female	227	19-Jun-2016	Hyperthermia; Flipped on back
BS642	Control West	Female	200	4-Jul-2016	Hyperthermia; Flipped on back
BS50	Translocatee (Adult Found Onsite)	Male	236	22-Aug-2016	Hyperthermia; Flipped on back
BS52	Translocatee (Adult Found Onsite)	Male	241	22-Aug-2016	Hyperthermia; Flipped on back
BS125	Resident	Male	252	27-Oct-2016	Canid
BS320	Resident	Female	227	15-Dec-2016	Unknown



● Tortoise Fatality

□ Site Boundary

11 Jan, 2017

****Note:** BS157 was euthanized at Vet's office.
Symbol represents the location of injured-related collection from field.

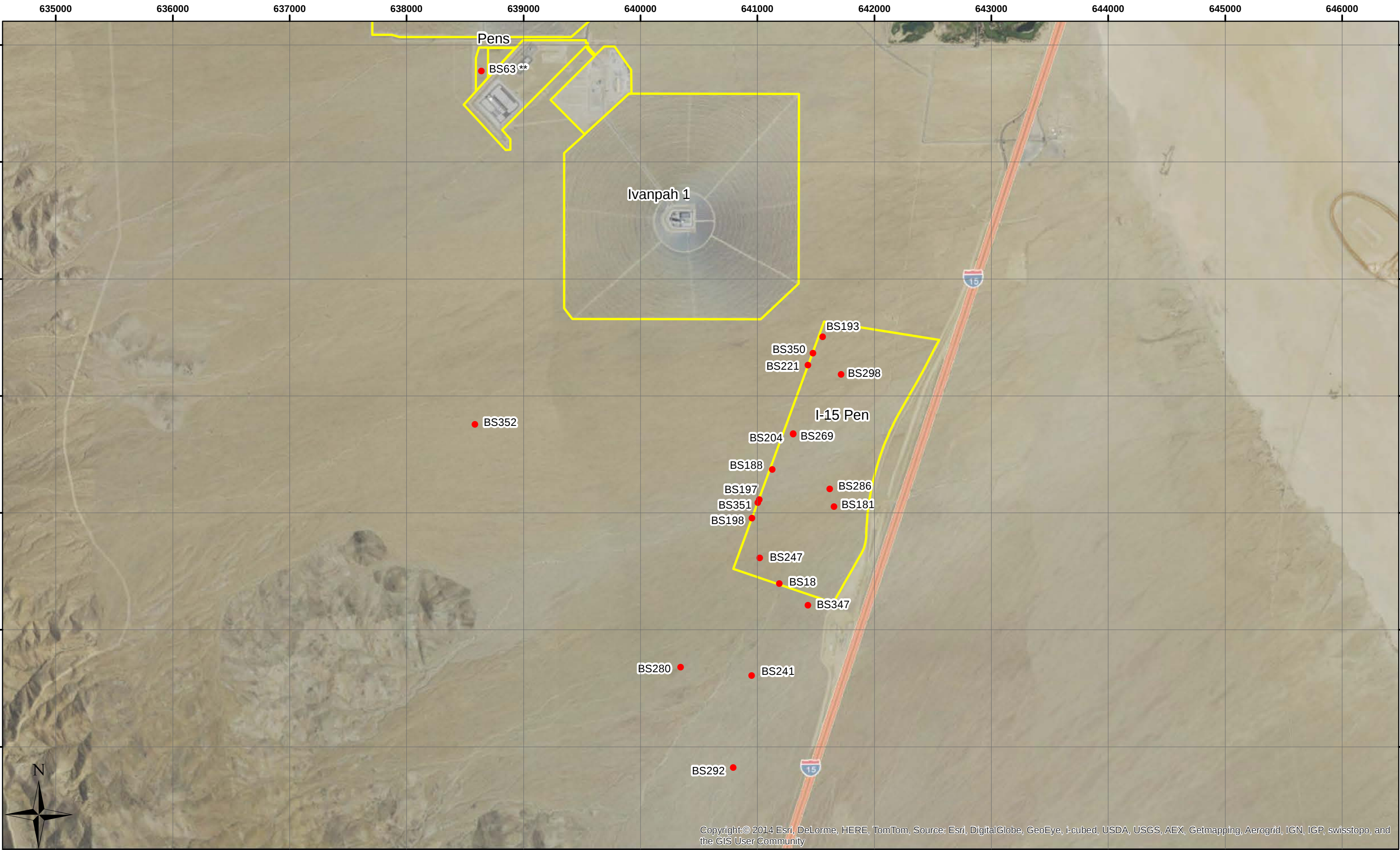
0 1 2 Kilometers

This map should not be used for site specific purposes. Proprietary and confidential. For use by Solar Partners I, II, and VIII only.

Figure J2
Effectiveness Monitoring Program
Tortoise Fatality Locations
January 1 - December 31, 2016
Ivanpah Solar Electric Generating System

Table J3: ISEGS 2016 Head Start Tortoise Fatalities

Tort ID	Tortoise Type	Sex	MCL	Date Carcass Found	Suspected Cause of Death
BS63	Translocatee (Juvenile Found Onsite)	Unknown	110	23-Apr-2016	Unknown: Died at Vet
BS292	Translocatee (Juvenile Found Onsite)	Unknown	150	2-Oct-2016	Canid-Badger
BS18	Translocatee (Juvenile Found Onsite)	Unknown	147	3-Oct-2016	Canid-Badger
BS351	Translocatee (Juvenile Found Onsite)	Unknown	157	6-Oct-2016	Canid-Badger
BS347	Translocatee (Juvenile Found Onsite)	Unknown	108	7-Oct-2016	Hyperthermia
BS188	Translocatee (Juvenile Found Onsite)	Unknown	136	9-Oct-2016	Canid-Badger
BS197	Translocatee (Hatched in Captivity)	Unknown	102	9-Oct-2016	Canid-Badger
BS198	Translocatee (Hatched in Captivity)	Unknown	84	9-Oct-2016	Canid-Badger
BS193	Translocatee (Juvenile Found Onsite)	Unknown	124	10-Oct-2016	Canid-Badger
BS221	Translocatee (Hatched in Captivity)	Unknown	92	10-Oct-2016	Canid-Badger
BS269	Translocatee (Juvenile Found Onsite)	Unknown	132	12-Oct-2016	Canid-Badger
BS280	Translocatee (Juvenile Found Onsite)	Unknown	145	14-Oct-2016	Canid-Badger
BS204	Translocatee (Hatched in Captivity)	Unknown	110	15-Oct-2016	Canid-Badger
BS352	Translocatee (Juvenile Found Onsite)	Unknown	140	15-Oct-2016	Canid-Badger
BS298	Translocatee (Juvenile Found Onsite)	Unknown	112	16-Oct-2016	Canid-Badger
BS286	Translocatee (Juvenile Found Onsite)	Unknown	120	17-Oct-2016	Canid-Badger
BS241	Translocatee (Hatched in Captivity)	Unknown	103	18-Oct-2016	Canid-Badger
BS350	Translocatee (Juvenile Found Onsite)	Unknown	100	18-Oct-2016	Canid-Badger
BS181	Translocatee (Juvenile Found Onsite)	Unknown	130	19-Oct-2016	Canid-Badger
BS247	Translocatee (Juvenile Found Onsite)	Unknown	137	1-Nov-2016	Canid-Badger



●

Tortoise Fatality

Site Boundary

**Note: BS63 Died at Dr. Tom Boyer's DVM office.
Symbol represents the location of injured-related
collection from pen system.

00.51

Kilometers

This map should not be used for site
specific purposes. Proprietary and confidential.
For use by Solar Partners I, II, and VIII only.

Figure J4

Head Start Program

Tortoise Fatality Locations

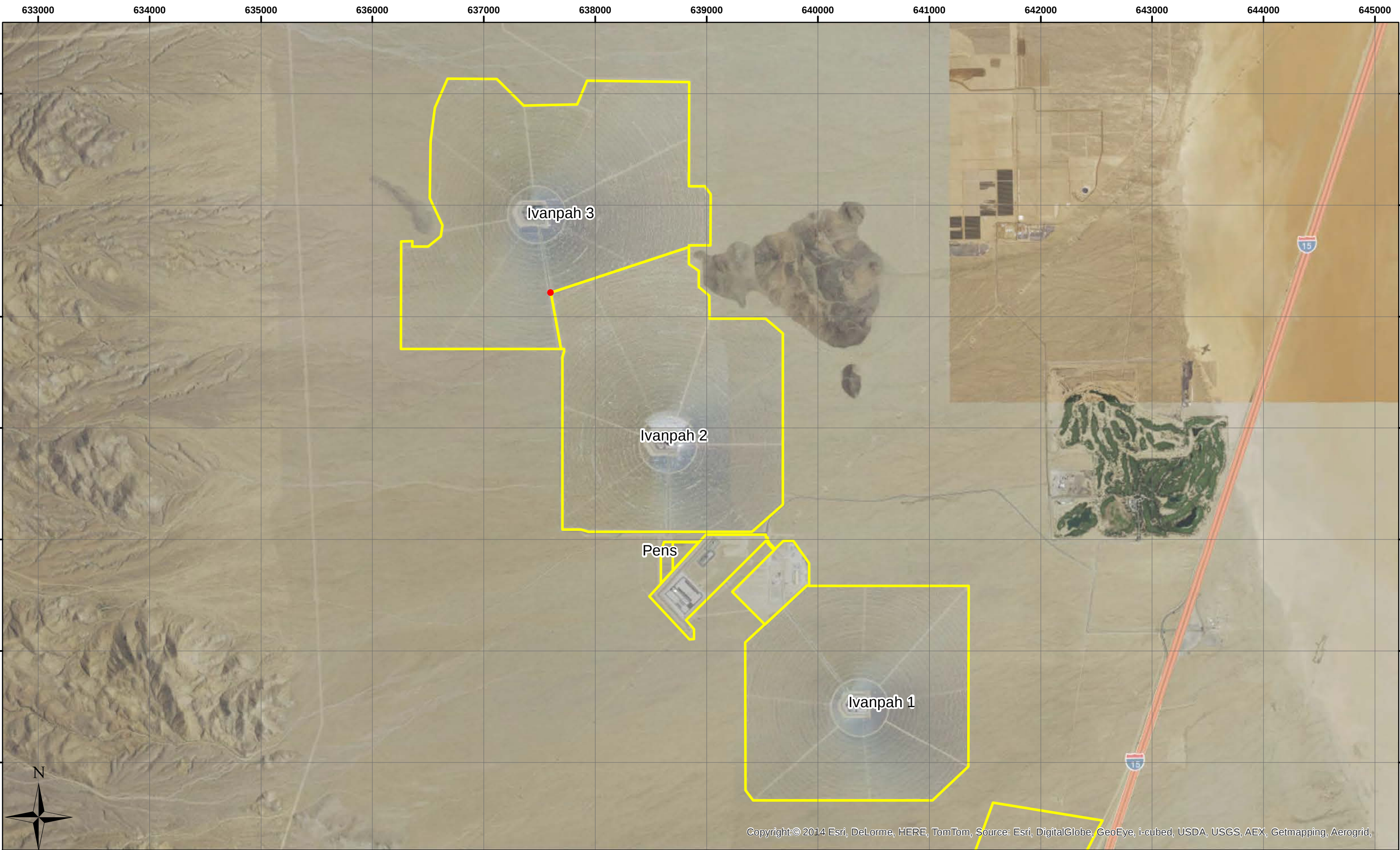
January 1 - December 31, 2016

Ivanpah Solar Electric Generating System

08 Jan, 2017

Appendix K

Map of 2016 Mammal Fatality Locations



Kit Fox Fatality

Site Boundary

08 Jan, 2017

0

0.5

1

Kilometers

This map should not be used for site specific purposes. Proprietary and confidential. For use by Solar Partners I, II, and VIII only.

Figure K1

Kit Fox Fatality Locations

January 1 - December 31, 2016

Ivanpah Solar Electric Generating System

Appendix G

Condition of Certification BIO-13

Weed Management Plan Annual Report

Ivanpah Solar Electric Generating System
California Energy Commission (07-AFC-5C)
Bureau of Land Management
(CACA-48668, 49502, 49503, and 49504)
Condition of Certification BIO-13

Annual Weed Report
January 1, 2016 – December 31, 2016
Reporting Period

January 12, 2017

Prepared by: Designated Biologist
(on behalf of Solar Partners I, II, VIII LLC's)

100302 Yates Well Road
Nipton, CA 92364

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Introduction

This annual compliance report pertains to weed management activities at Ivanpah Solar Electric Generating System (ISEGS). Compliance with this plan is required by the Bureau of Land Management Right-of-Way Grant, California Energy Commissions (CEC) Conditions of Certification (COC's) BIO-13, and Revised 2011 United States Fish and Wildlife Service (USFWS) Biological Opinion.

Weed Management Activities

The Weed Management Plan's protocols implemented in 2016 continue to be an effective method at identifying and controlling weed establishment within the ISEGS facility. Weed establishment early in the project was an anticipated result of the disturbance areas created by construction of the ISEGS facility. Weed management will continue for the first several years to mitigate the increased potential of weed establishment. In 2016, weeds identified at the facility were manually removed, and disposed of off site by the Designated Biologist.

Biological monitors and/or the Designated Biologist conducted semi-monthly weed surveys throughout the site during the active growing season (February through November), in accordance with the CEC's BIO-13 requirements. Data was collected and reported to the Designated Biologist including the location and type of noxious weeds. In addition, the plants were collected, and transferred to the Designated Biologist for disposal. All weed surveys were implemented and completed according to the Weed Management Plan (Revision 2) and 2011 USFWS Biological Opinion (8-8-10-F-24R).

Ten noxious weed species and 4,710 individuals were found throughout the project site in 2016. Five of these species meet the criteria of the Weed Management Plan's target weed species. All ten weed species were treated as noxious weeds and removed from the facility. See table 1 for number of each species found in 2016. The ten noxious weed species were: Halogeton (*Halogeton glomeratus*), Indian hedge mustard (*Sisymbrium orientale*), Kochia (*Kochia scoparia*), London rocket (*Sisymbrium irio*), Mustard species (*Sisymbrium* species), Puncture Vine (*Tribulus terrestris*), Russian thistle (*Salsola tragus*), Sahara mustard (*Brassica tournefortii*), Stinking Chamomile (*Anthemis cotula*), and Tansy mustard (*Descurainia sophia*)

Table 1. Summary of Noxious Weed Species Observed During 2016 at ISEGS

Noxious Weed Species	Colosseum Road	CLA-E	CLA-W	Ivanpah 1	Ivanpah 2	Ivanpah 3	Total per Species
Halogeton	17	2	8	6	1	0	34
Indian hedge mustard	2	0	0	0	0	0	2
Kochia	1	0	0	0	0	0	1
London Rocket	163	0	46	603	1	2552	3365
Mustard species	0	1	0	0	0	0	1
Puncture vine	5	39	9	2	11	392	458
Russian thistle	232	19	108	167	307	5	838
Sahara mustard	0	0	0	0	3	0	3
Stinky Chamomile	7	0	0	0	0	0	7
Tansy Mustard	0	0	0	0	1	0	1
Total per Location	427	61	171	778	324	2949	---
Total Plants Observed and Removed Onsite During 2016							4710

In 2016, a total of 4,710 individual weeds were removed from the project site, as compared to 3,062 individuals removed from the project site in 2015. Only ten species of weeds were removed from the project site in 2016, whereas fourteen species of weeds were removed in 2015. The reduction in number of weeds species can be attributed to removal of weeds prior to going to seed in 2015. The goal is to reduce the number of weed species, and total weeds observed each year. While the number of individual weeds did increase in 2016, this was not deemed to be significant compared to 2015. In order to reduce future potential increases in individual numbers of weeds and number of weed species biologists will survey areas where weeds were observed going to seed on a more frequent basis in 2017.

Appendix H

Condition of Certification BIO-14

**Revegetation Annual Monitoring
Report for Short-Term Disturbance**

Revegetation Monitoring Report for Short-term Disturbance

Ivanpah Solar Electric Generating System (BLM ROW: CACA-49502)

Prepared for

Solar Partners II, LLC; Solar Partners I, LLC;
and Solar Partners VIII, LLC

January 2017



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Acronyms and Abbreviations

%	percent
115 kV	gen-tie 115-kV line
33 kV	gen-tie 33-kV line
BIO-18	Condition of Certification Biology -18
BLM	Bureau of Land Management
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CH2M	CH2M HILL Engineers, Inc.
CLA	Construction Logistics Area
cm	centimeter
CNNDB	California Natural Diversity Database
COC	Condition of Certification
ft ²	square foot
gen-tie	generation tie
GPS	global positioning system
ISEGS	Ivanpah Solar Electric Generating System
km	kilometer
kV	kilovolt
m	meter
m ²	square meter
NGL	natural gas pipeline
NI	not included in POD calculations
No.	number
POD	Plan of Development
Revegetation Plan	<i>Closure, Revegetation and Rehabilitation Plan for Ivanpah Solar Electric Generating System</i>
Revegetation Plan	<i>Closure, Revegetation, and Rehabilitation Plan for the Ivanpah Solar Electric Generating System)</i>
ROW	right-of-way
Solar Partners	Solar Partners I, LLC; Solar Partners II, LLC; and Solar Partners VIII, LLC
U.S.	United States
USFWS	U.S. Fish and Wildlife Service
Weed Plan	<i>Weed Management Plan for the Ivanpah Solar Electric Generating System</i>
WR	Well Road

Introduction

1.1 Project Description

Solar Partners I, LLC; Solar Partners II, LLC; and Solar Partners VIII, LLC (Solar Partners) are the owners of the Ivanpah Solar Electric Generating System (ISEGS), a nominal 370-megawatt (MW) solar energy project in southern California's Mojave Desert, near the Nevada border. The project was developed by BrightSource Energy, Inc. and is operated for Solar Partners by NRG Energy Services, LLC (NRG). The project is located on a 3,471-acre site west of the Ivanpah Dry Lake, on land managed by the Bureau of Land Management (BLM). CH2M (CH2M) provides environmental compliance support during construction and operations of the solar facility.

Ivanpah 1 (the southern unit) covers approximately 913.5 acres (1.4 square miles); Ivanpah 2 (the middle unit) covers approximately 1,077 acres (1.7 square miles); and Ivanpah 3 (the northern unit) is larger and covers approximately 1,235 acres (1.9 square miles). The remaining disturbance areas include common access roads, gas lines, generation tie-lines, and construction and operations facilities. All three phases share an administration building, an operations and maintenance (O&M) building, a substation located between Ivanpah 1 and 2, and paved roads to access each site. The project ties into the existing Kern River Gas Transmission Line about 0.5-mile north of the Northern Rare Plant Mitigation Area and into the Southern California Edison 230/115-kilovolt (kV) line that crosses between the Ivanpah 1 and 2 sites (Figure 1-1) (CEC, 2010).

1.2 Report Objective

This report presents the results of the annual revegetation monitoring of 48.94 acres of short-term and temporary disturbance within the Construction Logistics Area (CLA) and shared ancillary facilities for the ISEGS. All sites were treated according to the restoration measures prescribed in the project-specific *Closure, Revegetation and Rehabilitation Plan for Ivanpah Solar Electric Generating System* (Revegetation Plan) (CH2M, 2010b), as required by the BLM Right-of-Way (ROW) Grant and the California Energy Commission's (CEC's) Condition of Certification (COC) BIO-14. The ROW Grant provides independent reclamation bond numbers for each independent part of the facility. The reclamation bond numbers for the short-term and temporary disturbance discussed in this report are included in the CLA and common facilities (BLM ROW CACA-49502).

This report provides the results from two separate monitoring protocols, revegetation and weed monitoring. Revegetation monitoring refers to the vegetation sampling along belt transects and relevé plots, where success criteria are based on perennial vegetation cover and species richness. The Revegetation Plan also requires other field monitoring analyses, such as density, diversity, and survivorship, that are not used in determining success, but provide additional information on the condition of the vegetation and the progress of recovery after disturbance. The revegetation monitoring duration is for 10 years, or until the success criteria are met; therefore, revegetation monitoring may be completed in less than 10 years (CH2M, 2010b).

Monitoring and management of noxious weeds within revegetation locations is required by the *Weed Management Plan for the Ivanpah Solar Electric Generating System* (Weed Plan) (CH2M, 2010c), which is a standalone document that was also included as Appendix A of the Revegetation Plan. Weed management and monitoring requirements are concurrently guided by the U.S. Fish and Wildlife Service's *Biological Opinion on BrightSource Energy's Ivanpah Solar Electric Generating System Project* (USFWS, 2011). Weed monitoring results of the revegetation locations are provided in this document

but are independent of the success criteria. Weed monitoring duration occurs for a 10-year duration post-revegetation treatment.

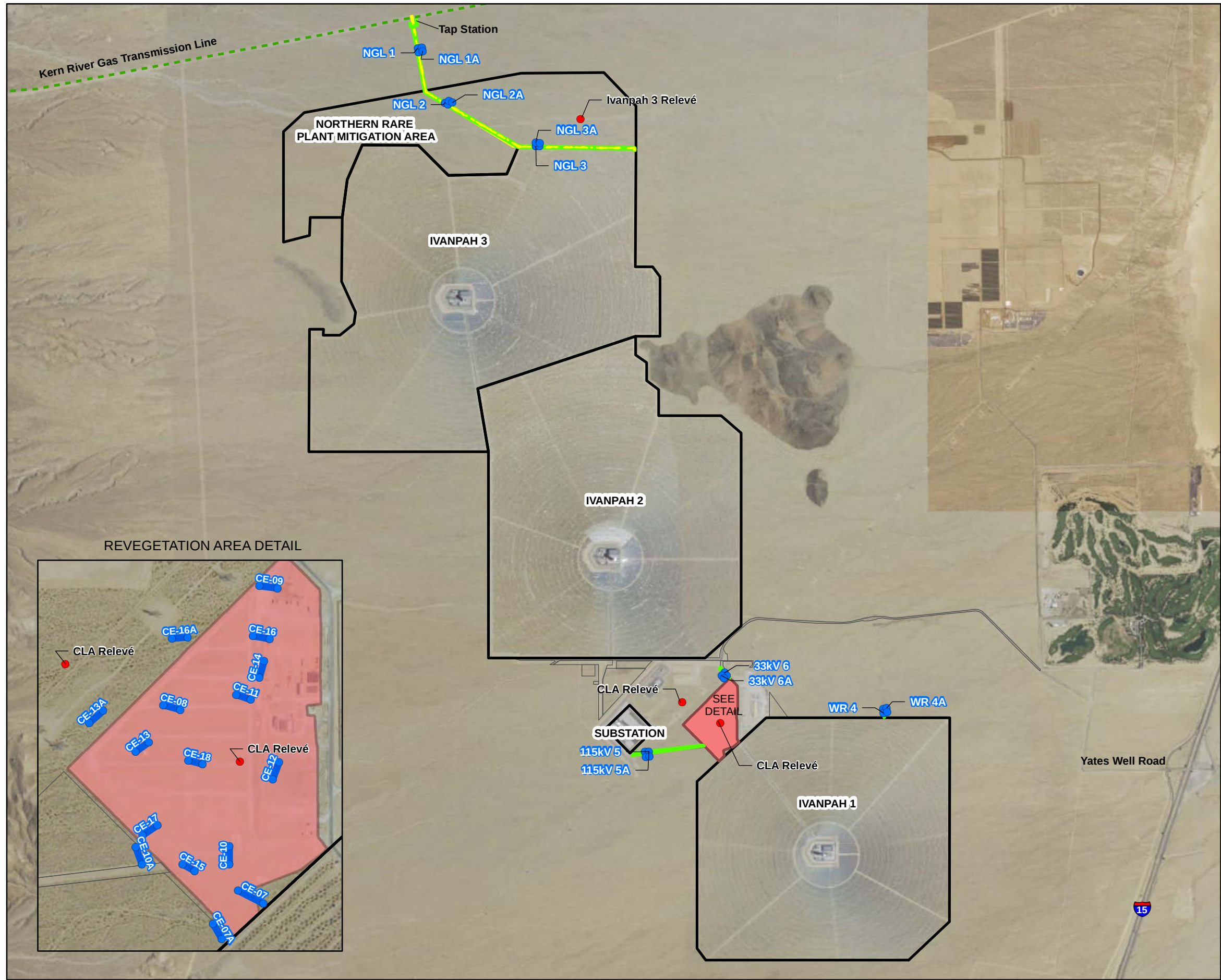
Annual revegetation monitoring was staggered, depending on when disturbance was complete. This report provides Year 1 and Year 3 revegetation monitoring results. Year 1 monitoring occurred on the short-term disturbance of 40.1 acres treated in the CLA East, completed in 2015. Year 3 monitoring was conducted on the temporary disturbance associated with the natural gas pipeline (NGL) linear north of Ivanpah 3, which was completed in November 2013. Monitoring was not conducted on 33-kilovolt (kV) line in 2016 (Year 4) because this area is measured on a biannual basis; monitoring will resume in 2017. In 2015, Revegetation Plan success criteria were met on two NGL linear monitoring sites, the NGL tap station, the well road, and the 115-kV generation tie (gen-tie) line. Weed monitoring will continue at these locations for 10 years post-revegetation treatment. The monitoring locations are shown on Figure 1, which is located at the end of this section.

1.3 2015 Revegetation

In fall 2015, 40.1 acres of short-term disturbance were treated in the western side of CLA East (Figure 1). A seed mix modification technical memorandum was prepared and submitted to the agencies presenting an updated list of seed (CH2M, 2015). The species used in the 2015 CLA East revegetation were:

- Creosote bush (*Larrea tridentata*)
- Cheesebush (*Ambrosia salsola*)
- California buckwheat (*Eriogonum fasciculatum* ssp. *polifolium*)
- White bursage (*Ambrosia dumosa*)
- Woolly bursage (*Ambrosia eriocentra*)
- Virgin River brittlebush (*Encelia virginensis*)
- Desert marigold (*Baileya multiradiata*)
- Big galleta grass (*Hilaria rigida*)
- Button brittlebush (*Encelia frutescens*)
- Brittlebush (*Encelia farinosa*)
- Winterfat (*Krascheninnikovia lanata*)
- Cooper's goldbush (*Ericameria cooperi*)
- Desert rabbitbrush (*Ericameria paniculata*)
- Cooper's paperflower (*Psilostrophe cooperi*)
- Mexican bladder sage (*Scutellaria mexicana*)
- Parish's goldeneye (*Viguiera parishii*)

Additionally, two desert wash scrub species were hand-spread in the channels, catclaw acacia (*Senegalia greggii*), and desert almond (*Prunus fasciculata*).



LEGEND

- Permanent Photographic Plot at End of Belt Transect
- Relevé
- Belt Transect
- ▭ Project Site
- 2012 Revegetation Area
- 2013 Revegetation Area
- 2015 Revegetation Area

Notes:

2012 Revegetation Area Acreage:
Underground Gen-tie Line - 2.18 acres
33 kV Line - 0.38 acres
115 kV Line - 2.3 acres
Well Road - 0.10 acres
Gas Line Tap Station - 0.15 acres
Natural Gas Pipeline - 7.43 acres

2013 Revegetation Area Acreage:
Natural Gas Line - 1.9 acres

2015 Revegetation Area Acreage:
Construction Logistics Area (CLA)
East - 40.1 acres

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

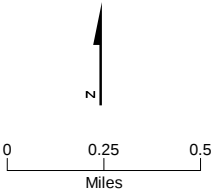


Figure 1
2016 Annual
Revegetation Monitoring Locations
Ivanpah Solar Electric Generating System

Methods

2.1 Revegetation Monitoring and Progress Assessment

Revegetation monitoring and success criteria for ISEGS are guided by the Technical Basis Document, Appendix C of the Revegetation Plan (CH2M, 2010b). Success criteria are based on perennial plant species, including perennial grasses and succulents, and do not include annual species because their populations fluctuate drastically from year-to-year.

2.1.1 Vegetation Sampling

The Revegetation Plan states that each 10 acres of disturbance requires a minimum of three sample belt transects. Because of the independent location and timing of the disturbance, vegetation sample locations were adjusted to the size and location of each disturbance. Table 2-1 provides the acreage and vegetation sampling sites at each independent disturbed location in comparison to estimated disturbance in the Plan of Development (POD) (CH2M, 2010a).

The monitoring sites had different success criteria standards, as follows:

1. The NGL and NGL tap station were associated with Ivanpah 3
2. Well Road (WR), gen-tie 115-kV line (115 kV), gen-tie 33-kV line (33 kV), and the western side of CLA East were associated with the CLA

Three monitoring locations were chosen along the 2.4-kilometer (km) (1.5-mile) NGL disturbed area, with one location near the NGL tap station. Due to the acreage and layout of the WR, 115kV, and 33kV locations, one representative belt transect was chosen within each disturbed revegetation area. Within the CLA East revegetation location (40.1 acres), 12 sample sites were established on the disturbed area (3 sampling sites for each 10-acre portion). In addition, four control sample sites were established in undisturbed areas for comparison with the CLA East revegetation location.

Table 2-1. Revegetation Monitoring Sampling Locations and Acreages

Location (Year Revegetation Complete)	Disturbed Belt Transect	Undisturbed Belt Transect	Actual Revegetation Acres^a	POD - Estimated Area in Acres^a
Ivanpah 3 Area (2012 and 2013)				
NGL from Ivanpah 3 to the Tap Point at Kern River Gas Transmission ^{b, d}	NGL-1, NGL-2, NGL-3	NGL-1A, NGL- 2A, NGL-3A	6.03	5.1
Kern River Gas Transmission Tap Station ^d	None	None	0.15 ^c	0.9
CLA Area (2012 and 2015) ^f				
WR north of Ivanpah 1 ^d	WR-4	WR-4A	0.1	NI
Underground 115 kV between Ivanpah 1 and substation ^d	115kV-5	115kV-5A	2.18	3.4
33 kV ^e	33kV-6	33kV-6A	0.38	NI

Table 2-1. Revegetation Monitoring Sampling Locations and Acreages

Location (Year Revegetation Complete)	Disturbed Belt Transect	Undisturbed Belt Transect	Actual Revegetation Acres ^a	POD - Estimated Area in Acres ^a
Western side of CLA East	CE-07, CE-08, CE-09, CE-10, CE-11, CE-12, CE-13, CE-14, CE-15, CE-16, CE-17, CE-18	CE-07A, CE-10A, CE-13A, CE-16A	40.1	49.3
Total Acreage			48.94	58.7

^a Areas may differ because POD area was an estimate based on estimated width and length of disturbance.

^b 1.9 acres treated in 2013.

^c Revegetation area is less than in the POD because the area inside the Tap Station fencing was not revegetated.

^d Revegetation success criteria was met in 2015 for NGL-1, NGL-1A, NGL-2, NGL-2A, WR-4, WR-4A, 115 kV-5, and 115 kV-5A (CH2M, 2016). Weed monitoring will continue at these locations for 10 years post-revegetation treatment (see Table 4-3 for weed monitoring schedule).

^e Monitoring was not conducted on 33 kV in 2016 because this area is measured on a biannual basis; monitoring will resume in 2017.

^f Revegetation was completed on the well road, 115 kV, and 33 kV in 2012. Revegetation was completed on western side of CLA East in 2015.

NI = not included in POD calculations

Within the disturbed areas, a total of eighteen 30-meter (m) (98-foot) by 4-m (13-foot) belt transects (120 square meters [m²]; 1,170 square feet [ft²] each) were staked with a capped t-post at each end of the transect axis. In 2016, vegetation sampling was required at 13 of the 18 disturbed locations. Revegetation monitoring was not conducted on the remaining five locations because success criteria were met in 2015 on four of them, the fifth is only monitored biannually, and monitoring will resume in 2017. As a control comparison, five 120-m² belt transect locations were chosen within the undisturbed vegetation adjacent to the disturbed sample plots. The undisturbed transects were chosen along the same orientation as the disturbed transects and approximately 30 m (98 feet) from the edge of disturbance.

On linear features, sampling locations were named from north to south. On nonlinear features (western side of CLA East), sampling locations were randomly assigned as a representative sample of the entire area. Random samples were chosen by overlaying a numbered grid over the revegetation area and running a random number generator. A random number generator was also used to determine orientation: north-south, east-west, northeast-southwest, and northwest-southeast. Sampling locations within disturbed locations are numbered 1 through 18, and associated undisturbed locations include the number and letter A. Vegetation sampling locations were recorded using a Garmin global positioning system (GPS) and are provided on a map with an aerial photograph base layer (Figure 1).

2.1.1.1 Belt Transects

Perennial plant cover was recorded along the centerline of each transect as a percent of total transect length. Biologists assessed cover by stretching a tape measure along the transect axis between the capped t-posts and measuring the distance that canopies of perennial plants at least 30 centimeters (cm) (11.8 inches) high intercepted the tape measure. Field data were collected on datasheets and then transcribed to a Microsoft Excel database for analysis. Transect locations were marked by capped t-posts placed at the start and end of the 30-m (98-foot) axis, and recorded using a GPS, for later relocation.

Belt transects were formed by placing two 4-m-long (13-foot) sticks at the ends of and perpendicular to the 30-m-long (98-foot) transect axis; thus, describing a rectilinear area (the 'belt') of 120 m² (393.7 ft²)

Individuals were counted if they had vegetative cover that intersected the belt transect. Perennial species were counted as separate individuals when clumps of stems protruded from different locations on the ground. This is most common for creosote bush, white bursage, and Mojave yucca (*Yucca schidigera*). Individual Mojave yucca trunks were counted separately.

Perennial species richness was recorded within the belt transect as the number of unique perennial species. The Revegetation Plan (CH2M, 2010b) states that richness should be totaled over three belt transects and one circular relevé plot (Section 2.1.1.2 provides a description of a relevé plot). Due to the small acreage and linear nature of the NGL, WR, 115 kV, and 33 kV revegetation locations, a relevé plot was not included in the richness analysis of disturbed locations. A relevé plot was used in the richness calculations on the CLA East revegetation location.

2.1.1.2 Relevé Plots

Two 12-m-radius (39-foot) relevé plots were established to sample the undisturbed vegetation adjacent to the Ivanpah 3 and CLA locations, and one relevé plot was established on the disturbed CLA East revegetation location (Figure 1). The northern undisturbed relevé plot is located north of Ivanpah 3 and is representative of the NGL vegetation, and the southern undisturbed relevé plot is representative of the CLA vegetation. The only disturbed relevé plot was established on the CLA East revegetation location, and will be used as a value in the average perennial species richness calculations. Due to the small acreage and linear nature of the NGL, WR, 115 kV and 33 kV disturbance areas, relevé plots were not established in these disturbed areas.

Relevé plots were used to calculate perennial species' richness by counting the number of species in the plot (CNPS, 2000). This analysis is required by field monitoring protocol, and will not be used in determining success (CH2M, 2010b).

2.1.1.3 Germination and Survivorship

Perennial species density measurements (that is, number of live individuals present per unit area) were used to estimate survivorship. For this measurement, the unit area is defined as each 120-m² (393.7-ft²) belt transect. The population present at the time of the first monitoring session (t_1) is defined as the original cohort. Survivorship at Year 1 is set to 1.0 for the original cohort of perennials and will be equal to the proportion of the population surviving at subsequent monitoring dates. Values can be either greater or less than 1, depending on whether there is reduction of or recruitment to the population within the sampled area. This analysis is required by field monitoring protocol, and will not be used in determining success (CH2M, 2010b).

2.1.1.4 Photographic Documentation

At each belt transect monitoring site, permanent photo locations were established at the start and end of the line. Each location was permanently marked in the field with a capped t-post, which also represents the start and end of the belt transect. These locations were recorded with a Garmin GPS, and shown on maps of the monitoring sites. A meter stick or range pole was used as a scale to illustrate the relative size of plants in photographs. Photographs are provided in Appendix A.

2.2 Data Analysis

2.2.1 Species Richness Calculations

Perennial species richness is defined as the total number of unique species per unit area at each sampling site within a revegetation location. Species richness is calculated independently for the 2 belt transects at Ivanpah 3 (NGL-3 and NGL-3A), the 16 CLA belt transects (CE-07 through 18 and CE-07A, 10A, 13A, and 16A), and the 3 relevé plots (North Ivanpah 3, South CLA, and CLA East).

2.2.2 Species Diversity Calculations

Perennial species diversity was calculated using Simpson's Index of Diversity using the following formula:

Where,

$$1 - D = 1 - \frac{\sum n(n-1)}{N(N-1)}$$

1 – D = Index of diversity

N = Total number of individual perennials

n = Number of individuals of a particular species

2.2.3 Progress Criteria

The Revegetation Plan (CH2M, 2010b) provides the following revegetation success criteria:

- **Monitoring Duration:** 10 years or until success criteria are met. The period would be extended on a yearly basis if the criteria are not met after 10 years.
- **Vegetation Cover Success Criterion:** 60 percent of predisturbance cover of perennials.
- **Species Richness Success Criterion:** 60 percent of predisturbance perennial-species richness.

To avoid ambiguities, the Revegetation Plan also specified 100 percent values for predisturbance vegetation cover and species richness (Table 7-4, page 7-36). For the purpose of this document, the baseline success criteria values were revised to reflect the 60 percent cover and richness values for ease of analysis (Table 2-2). In addition, the richness data were extrapolated from 100 m² (328 ft²) to 120 m² (393.7 ft²) to reflect the implemented transect area. These baseline data are used to compare the perennial cover and species richness values measured during this reporting period.

Table 2-2. Success Criteria for Perennial Cover and Richness Values

Unit/Area	60% Perennial Plant Cover	60% Perennial Species Richness (per 120 m ²)
Ivanpah 1	8%	3
Ivanpah 2 and CLA	11%	6
Ivanpah 3 and NGL	13%	8
Channels and washes	4%	2

Note:

The Revegetation Plan (CH2M, 2010b) defined species richness per 100 m² (328 ft²). Due to the implemented transect area, the richness values were extrapolated for 120 m² (4-m-wide, 30-m-long; 393.7 ft²) transect area.

% = percent

The Revegetation Plan (CH2M, 2010b) also provided cover and richness criteria at Years 2, 5, and 8 as a guideline to meet the success criteria (Table 2-3). These numbers do not indicate success if monitoring meets these interim goals; however, they do provide a check of how revegetation success is progressing. Analysis includes comparing the actual monitoring results to the interim goals presented in Table 2-3.

Table 2-3. Revegetation Success Criteria at Years 2, 5, and 8

Parameter	Year 2	Year 5	Year 8
Perennial Plant Cover	No cover criteria; however, a minimum of 1,500 plants per acre		8%
Species Richness (100 m ²)	3	5	10

Notes:

Richness is defined as the number of perennial species per unit area.

These goals are general success guidelines and are not specific success criteria to units or areas, as outlined in Table 2-2.

2.2.4 Schedule and Reporting

Monitoring of revegetation progress will be conducted for a period of 10 years from the date of revegetation, or until the success criteria provided in Table 2-2 are met. If success criteria are not met in 10 years, monitoring extensions will be given on a year-by-year basis until success criteria are met. Monitoring will be performed annually during the first 3 years following revegetation, and biennially thereafter. Weed monitoring will occur for 10 years post-revegetation treatment, and are independent of the success criteria. The weed monitoring frequency is described in Section 2.3, Weed Management.

According to the Revegetation Plan (CH2M, 2010b), revegetation monitoring reports will be submitted to an adaptive management stakeholders' board within 30 days of each board meeting, and annually submitted to the BLM and CEC. In the absence of a stakeholders' board, reports summarizing the previous year's monitoring results will be submitted to BLM and CEC annually or bi-annually according to the monitoring schedule described previously.

2.3 Weed Management

The Weed Plan (CH2M, 2010c) and Biological Opinion (USFWS, 2011) established the post-construction revegetation weed monitoring schedule. Monthly monitoring was to occur for the first 2 years after revegetation construction, and then quarterly for the third and fourth years, followed by semiannually for a total of 7 years (per the Weed Plan), or for 10 years (per the Biological Opinion). To resolve the conflict in duration guidance, Solar Partners chose to follow the more conservative 10-year monitoring duration required by the Biological Opinion.

Most disturbed acreage was linear, so to gather monitoring data, biological staff walked two transects within the approximately 15-meter-wide corridors (approximately 50-foot): one transect outbound and one transect returning. In the CLA East location, biological staff walked 30-foot spaced transects, alternating months between north-south oriented transects and east-west oriented transects. During the first several years of monitoring, the qualified botanist may recommend increasing the monitoring frequency during the growing season to account for increased weed establishment. Each weed or grouping of weeds were recorded using a GPS and presented on a map. In addition, information was collected on species, number of individuals, and general location and then cataloged in a spreadsheet. Weeds were then manually removed, bagged, and disposed of offsite at an approved municipal waste disposal container.

Results

3.1 Revegetation Assessment

3.1.1 Dates and Staff

Annual assessment of revegetation progress was conducted on April 17 and 18, and July 10, 11, 12, and 13, 2016, by CH2M botanists, Morgan King and Jason Brooks.

3.2 Survey Findings

Data from the 13 disturbed sites (identified as NGL-3, CE-7, CE-8, CE-9, CE-10, CE-11, CE-12, CE-13, CE-14, CE-15, CE-16, CE-17, and CE-18) and 5 nearby undisturbed sites (NGL-3A, CE-7A, CE-10A, CE-13A, and CE-16A) were evaluated for comparison and are summarized in this section.

3.2.1 Initial Establishment: Species Composition

Table 3-1 provides the most abundant perennial species at sampled sites based on individual counts within 120-m² (393.7 ft²) belt transects. The most abundant perennials in the disturbed sites are white bursage, cheesebush, creosote bush, and California buckwheat. The Revegetation Plan (CH2M, 2010b) recognized that white bursage and cheesebush were well-adapted to disturbed habitats and might be expected to be pioneers on recently disturbed soils. The most common perennial species in the undisturbed sites include:

- Creosote bush
- White bursage
- Cheesebush
- Pencil cholla (*Cylindropuntia ramosissima*)
- Nevada ephedra (*Ephedra nevadensis*)
- Littleleaf ratany (*Krameria erecta*)

Table 3-1. Most Abundant Perennial Plant Taxa in Disturbed and Undisturbed Sites, Ordered by Percent Cover

Sample Site (Year)	Disturbed (% cover)	Undisturbed (% cover)
NGL-3 (Year 3)		
1	White bursage (7.7)	Creosote bush (7.8)
2	Cheesebush (2.9)	Pencil cholla (4.0)
3	Creosote bush (0.7)	White bursage (2.3)
33kV-6 (Year 4)	Monitoring was not conducted on 33 kV in 2016 because this area is measured on a biannual basis; monitoring will resume in 2017.	
CE-07 and 7A (Year 1)		
1	No perennial species observed	Nevada ephedra (9.3)
2	No perennial species observed	White bursage (5.2)
3	No perennial species observed	Creosote bush (4.8)
CE-08 (Year 1)	No perennial species observed	See undisturbed control site results for CE-7A

Table 3-1. Most Abundant Perennial Plant Taxa in Disturbed and Undisturbed Sites, Ordered by Percent Cover

Sample Site (Year)	Disturbed (% cover)	Undisturbed (% cover)
CE-09 (Year 1)	No perennial species observed	See undisturbed control site results for CE-7A
CE-10 and 10A (Year 1)		
1	California buckwheat (0.3)	Littleleaf ratany (8.1)
2	White bursage (0.2)	White bursage (7.4)
3	No perennial species observed	Creosote bush (5.4)
CE-11 (Year 1)	No perennial species observed	See undisturbed control site results for CE-10A
CE-12 (Year 1)	No perennial species observed	See undisturbed control site results for CE-10A
CE-13 and 13A (Year 1)		
1	No perennial species observed	White bursage (15.6)
2	No perennial species observed	Creosote bush (3.7)
3	No perennial species observed	Littleleaf ratany (1.5)
CE-14 (Year 1)	No perennial species observed	See undisturbed control site results for CE-13A
CE-15 (Year 1)		
1	White bursage (0.1)	See undisturbed control site results for CE-13A
CE-16 and 16A (Year 1)		
1	No perennial species observed	Creosote bush (15.4)
2	No perennial species observed	White bursage (5.6)
3	No perennial species observed	Cheesebush (4.6)
CE-17 (Year 1)	No perennial species observed	See undisturbed control site results for CE-16A
CE-18 (Year 1)	No perennial species observed	See undisturbed control site results for CE-16A

Note:

Year 1, Year 3, Year 4: Year number indicates number of years since revegetation treatment

Although annual species' use of the revegetation areas does not pertain to the success criteria, it is important to note that these species are also establishing and using the disturbance areas. Native plant species establishment decreases erosion and slows disturbance for adapted species establishment.

Typical annual species observed in the revegetation areas include:

- Woolly amsonia (*Amsonia tomentosa*)
- Cryptantha species (*Cryptantha* sp.)
- Western tansy mustard (*Descurainia pinnata*)
- Buckwheat species (*Eriogonum* sp.)
- Six-week fescue (*Festuca octoflora*)
- Combseed species (*Pectocarya* sp.)
- Modest pepperweed (*Lepidium lasiocarpum*)
- Desert dandelion (*Malacothrix glabrata*)
- Small wirelettuce (*Stephanomeria exigua*)

Similar to previous years, the NGL continued to have signs of significant herbivory from mammals (for example, burrows, rabbits).

Annual growth on the disturbed areas also includes weedy species, such as the following:

- Russian thistle (*Salsola tragus*)
- Redstem stork's bill (*Erodium cicutarium*)
- Common wheat (*Triticum* sp.)
- Common oat (*Avena sativa*)

These species are discussed further in Section 3.2.8, Weed Management.

3.2.2 Perennial Density

Perennial density was determined as the number of perennial plants, irrespective of species, per 120-m² belt transect, and is provided in Table 3-2. Perennial density in the disturbed sites has increased over time, as shown by Figure 2. One would expect that the perennial density at the undisturbed sites would remain constant, but the numbers have changed over time. As shown in Table 3-2, perennial densities in the disturbed sites ranged from 0 (CE-13) to 529 (CE-10). At the NGL-3 site, perennial densities observed in 2016 in the disturbed sites (114) are approaching the perennial density found in the undisturbed control site (122).

Table 3-2. Perennial Density in Disturbed and Undisturbed Sample Sites

Sample Site	Disturbed				Undisturbed			
	2013	2014	2015	2016	2013	2014	2015	2016
Ivanpah 3 Sites (Year 3)								
NGL-3	-	25	111	114	71	51	176	122
CLA Sites (Year 1 and Year 4) ^a								
33 kV-6	Monitoring was not conducted on 33 kV in 2016 because this area is measured on a biannual basis; monitoring will resume in 2017.							
CE-07	-	-	-	39	-	-	-	574
CE-08	-	-	-	2	-	-	-	-
CE-09	-	-	-	37	-	-	-	-
CE-10	-	-	-	529	-	-	-	842
CE-11	-	-	-	3	-	-	-	-
CE-12	-	-	-	47	-	-	-	-
CE-13	-	-	-	0	-	-	-	184
CE-14	-	-	-	27	-	-	-	-
CE-15	-	-	-	69	-	-	-	-
CE-16	-	-	-	2	-	-	-	135
CE-17	-	-	-	108	-	-	-	-
CE-18	-	-	-	1	-	-	-	-

^a Year 1 monitoring occurred on CE-07 through CE-18; Year 3 monitoring occurred on NGL-3.

Note:

Perennial density is calculated as the number of plants per 120 m² (393.7 ft²)

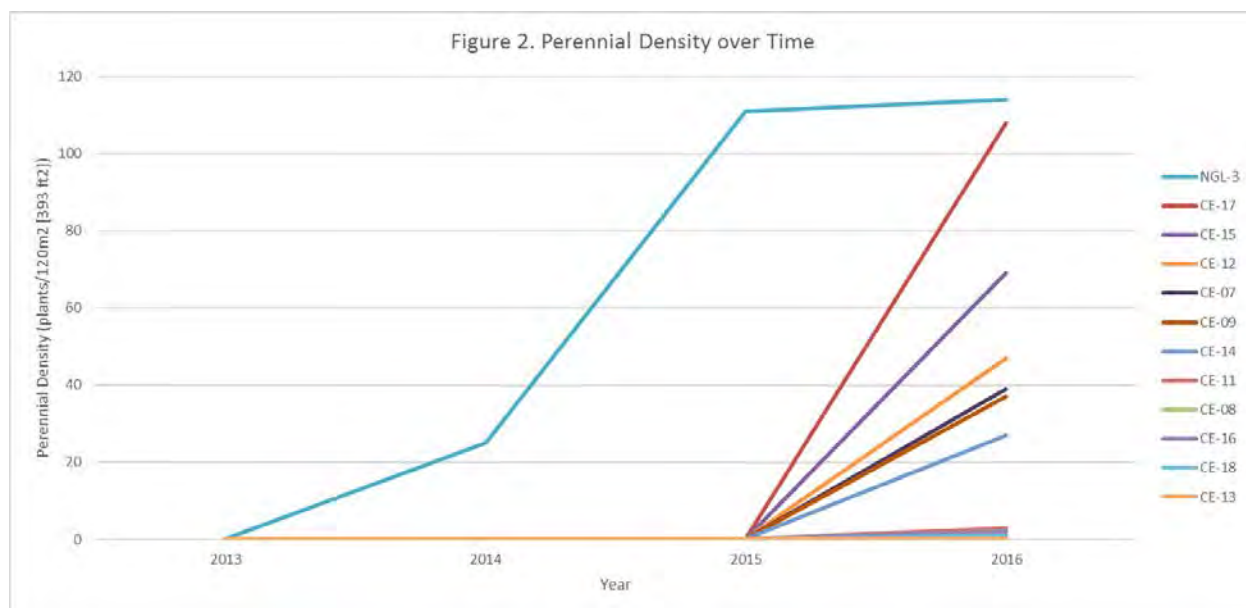


Figure 2. Perennial Density over Time

3.2.3 Perennial Cover

The perennial cover in the disturbed and undisturbed sites is presented in Table 3-3. The Year 3 results for the NGL-3 site show an 11 percent cover, which is comparable to the undisturbed 14 percent cover. The Year 1 results for the CE locations show perennial cover ranging from 0 to 0.5 percent. The perennial cover in the undisturbed sites ranges from 14 to 25 percent.

Table 3-3. Percent Perennial Cover in Disturbed and Undisturbed Sample Sites during 2016

Sample Site (Year)	Disturbed		Undisturbed	
	2014 (%)	2015 (%)	2016 (%)	2016 (%)
Ivanpah 3 Sites (Year 3)				
NGL-3	4.0	10.0	11.3	14.1
CLA Sites (Year 1 and Year 4)				
33 kV-6	Monitoring was not conducted on 33 kV in 2016 because this area is measured on a biannual basis; monitoring will resume in 2017.			
CE-07	-	-	0	22.3
CE-08	-	-	0	-
CE-09	-	-	0	-
CE-10	-	-	1	24.2
CE-11	-	-	0	-
CE-12	-	-	0	-
CE-13	-	-	0	22.8
CE-14	-	-	0	-
CE-15	-	-	0	-

Table 3-3. Percent Perennial Cover in Disturbed and Undisturbed Sample Sites during 2016

Sample Site (Year)	Disturbed		Undisturbed	
	2014 (%)	2015 (%)	2016 (%)	2016 (%)
CE-16	-	-	0	25.6
CE-17	-	-	0	-
CE-18	-	-	0	-

^a Year 1 monitoring occurred on CE-07 through CE-18; Year 4 monitoring occurred on 33 kV-6

3.2.4 Perennial Species Richness and Diversity

The richness and diversity parameters are interrelated expressions, or different ways of enumerating the abundance of plant species (not individuals) in a community. This section provides 2016 monitoring results for these parameters.

3.2.4.1 Species Richness

Perennial species richness is presented in Table 3-4 for each sample site (richness is the total number of species present within a 120-m² (393.7-ft²) area for small areas; or for large enough areas, the average number of species present within three 120-m² (393.7-ft²) area belt transects and one relevé plot). During Year 1 monitoring of CLA East location, richness was less at the disturbed sites than the undisturbed sites. On the disturbed sites, species richness ranged from four to five species. At the undisturbed sites, species richness ranged from 8 to 14 species.

Table 3-4. Perennial Species Richness in Disturbed and Undisturbed Sample Sites during 2016

Site (Year)	Perennial Species Richness			
	Disturbed ^a		Undisturbed	
	2014	2015	2016	2016
Ivanpah 3 Sites (Year 3)				
NGL-3	4	6	5	8
CLA Sites (Year 1 and Year 4) ^b				
33 kV-6	Monitoring was not conducted on 33 kV in 2016 because this area is measured on a biannual basis; monitoring will resume in 2017.			
CE-07, CE-08, CE09	-	-	4	14
CE-10, CE-11, CE-12	-	-	3.75	13
CE-13, CE-14, CE-15	-	-	4	11
CE-16, CE-17, CE-18	-	-	3.75	9

^a Due to the size and distribution of the 33 kV-6 and NGL-3 locations, perennial species richness was calculated based on the total number of perennial species in one belt transect. On large enough revegetation areas (CLA East, CE areas), perennial species richness is calculated as an average between three belt transects and one relevé plot. See results for CLA East disturbed relevé plot in Table 3-7.

^b Year 1 monitoring occurred on CE-07 through CE-18; Year 4 monitoring occurred on NGL 3

3.2.4.2 Diversity

Perennial diversity, as expressed by Simpson's Index (see Section 2.2.2) is presented in Table 3-5 for each sample site. Perennial diversity was overall less in the disturbed sites than the undisturbed, with the exception of NGL-3. Diversity in the disturbed sites ranged from 0 to 0.71, and in the undisturbed sites ranged from 0.33 to 0.73.

Table 3-5. Perennial Diversity in Disturbed and Undisturbed Sample Sites during 2016

Site (Year)	Simpson's Index of Diversity (1-D)			
	Disturbed		Undisturbed	
	2014	2015	2016	2016
Ivanpah 3 Sites (Year 3)				
NGL-3	0.73	0.72	0.71	0.61
CLA Sites (Year 1 and Year 4)^a				
33 kV-6	Monitoring was not conducted on 33 kV in 2016 because this area is measured on a biannual basis; monitoring will resume in 2017.			
CE-07	-	-	0.36	0.45
CE-08	-	-	0	-
CE-09	-	-	0.25	-
CE-10	-	-	0.2	0.33
CE-11	-	-	0	-
CE-12	-	-	0.39	-
CE-13	-	-	0	0.68
CE-14	-	-	0.37	-
CE-15	-	-	0.22	-
CE-16	-	-	0	0.73
CE-17	-	-	0.31	-
CE-18	-	-	0	-

^a Year 1 monitoring occurred on CE-07 through CE-18. Year 4 monitoring occurred on 33 kV-6.

Note:

The higher the index of diversity, the greater the diversity at a site.

3.2.5 Survivorship

Table 3-6 presents the survivorship or growth rates for the revegetation and control sites. Survivorship is calculated against Year 1 results. Survivorship or growth rate values greater than 1.0 indicate that more individuals are present in the belt transect than during Year 1, and values less than 1.0 indicate that fewer individuals are present. The NGL results of Year 2 and Year 3 are consistent, with the expectation that disturbed sites would have higher growth rates than adjacent, undisturbed sites. Since this is Year 1 for the CLA East location, the value calculated is the baseline survivorship data to compare against future survivorship.

Table 3-6. Perennial Survivorship in Disturbed and Undisturbed Sample Sites

Sample Site	Disturbed			Undisturbed		
	2014	2015	2016	2014	2015	2016
Ivanpah 3 Sites (Year 3)						
NGL-3 and NGL-3A	1	4.44	4.56	1	3.45	2.39

Table 3-6. Perennial Survivorship in Disturbed and Undisturbed Sample Sites

Sample Site	Disturbed			Undisturbed		
	2014	2015	2016	2014	2015	2016
CLA Sites (Year 1 and Year 4) ^a						
33 kV-6	Monitoring was not conducted on 33 kV in 2016 because this area is measured on a biannual basis; monitoring will resume in 2017.					
CE-07 and CE-07A	-	-	1	-	-	1
CE-08	-	-	1	-	-	-
CE-09	-	-	1	-	-	-
CE-10 and CE-10A	-	-	1	-	-	1
CE-11	-	-	1	-	-	-
CE-12	-	-	1	-	-	-
CE-13 and CE-13A	-	-	1	-	-	1
CE-14	-	-	1	-	-	-
CE-15	-	-	1	-	-	-
CE-16 and CE-16A	-	-	1	-	-	1
CE-17	-	-	1	-	-	-
CE-18	-	-	1	-	-	-

^a Year 1 monitoring occurred on CE-07 through CE-18. Year 3 monitoring occurred on NGL-3.

Note:

The higher the index of diversity, the greater the diversity at a site.

3.2.6 Relevé Plots

Table 3-7 provides the observed perennial species at the three relevé plots, two on undisturbed sites and one on the disturbed CLA East location. The southern relevé, which is at the lower elevation CLA location, had 22 species observed. The northern relevé, which is at the higher elevation Ivanpah 3 location, had 17 species observed. The CLA East relevé plot during Year 1 monitoring had seven species observed.

Table 3-7. Relevé Plots Observed Perennial Species List on Disturbed and Undisturbed Areas during 2016

Scientific Name	Common Name	Undisturbed		Disturbed
		Relevé Plot (North, Ivanpah 3)	Relevé Plot (South, CLA)	Relevé Plot (CLA East)
<i>Adenophyllum cooperi</i>	Cooper's dogweed	X	X	—
<i>Ambrosia dumosa</i>	White bursage	X	X	X
<i>Ambrosia salsola</i>	Cheesebush	X	X	—
<i>Baileya multiradiata</i>	Desert marigold	—	—	X
<i>Cylindropuntia acanthocarpa</i>	Buckhorn cholla	X	X	—
<i>Cylindropuntia echinocarpa</i>	Silver cholla	X	X	—
<i>Cylindropuntia ramomissima</i>	Pencil cholla	X	X	—
<i>Dasyochloa pulchellum</i>	Fluff grass	X	X	X
<i>Echinocereus polycephalus</i>	Cottontop cactus	—	X	—

Table 3-7. Relevé Plots Observed Perennial Species List on Disturbed and Undisturbed Areas during 2016

Scientific Name	Common Name	Undisturbed		Disturbed
		Relevé Plot (North, Ivanpah 3)	Relevé Plot (South, CLA)	Relevé Plot (CLA East)
<i>Encelia virginensis</i>	Virgin River brittlebush	—	—	X
<i>Ephedra nevadensis</i>	Death Valley jointfir	X	X	—
<i>Eriogonum fasciculatum</i>	California buckwheat	X	X	X
<i>Eriogonum inflatum</i>	Desert trumpet	—	X	—
<i>Euphorbia albomarginatus</i>	Whitemargin sandmat	X	—	—
<i>Grusonia parishii</i>	Dead man's cholla	—	X	—
<i>Hilaria rigida</i>	Big galleta grass	X	X	X
<i>Krameria erecta</i>	Pima ratany	X	X	—
<i>Larrea tridentata</i>	Creosote bush	X	X	—
<i>Lycium andersonii</i>	Water jacket	—	X	—
<i>Opuntia basilaris</i>	Beavertail cactus	X	X	—
<i>Porophyllum gracile</i>	Slender poreleaf	X	X	—
<i>Scutellaria mexicana</i>	Mexican bladder sage	X	X	—
<i>Senegalia greggii</i>	Catclaw acacia	—	X	X
<i>Sphaeralcea ambigua</i>	Desert globe mallow	—	X	—
<i>Yucca schidigera</i>	Mojave yucca	X	X	—
Total Perennial Plant Species Observed in Plot		17	22	9

X = observed

— = not observed

3.2.7 Photographic Documentation

Photographs of the disturbed and undisturbed locations are provided in Appendix A.

3.2.8 Weed Management

In 2016, weed monitoring requirements were staggered based on when the revegetation treatment was completed (see Table 4-3 for the weed monitoring schedule). The western side of CLA East was monitored monthly according to Year 1 criteria. Due to the weeds observed in May and June, the qualified botanist recommended increasing monitoring to twice-monthly during the growing season. Between May and November, biological staff conducted twice-monthly surveys. The remaining areas (NGL tap station, NGL, WR, 115 kV, and 33 kV) were monitored quarterly according to Year 3 and Year 4 criteria.

Weed monitoring occurred on the six revegetation sites between January 1 and December 31, 2016. During this time, a total of 1,407 individual plants of nine plant species were observed (Table 3-8; Figure 3). The nine plant species observed were:

- Berlandier's goosefoot (*Chenopodium berlandieri*)
- Halogeton (*Halogeton glomeratus*)

- London rocket (*Sisymbrium irio*)
- Pigweed (*Amaranthus* sp.)
- Puncture vine (*Tribulus terrestris*)
- Russian thistle (*Salsola tragus*)
- Sahara mustard (*Brassica tournefortii*)
- Sow thistle (*Sonchus oleraceus*)
- Tumbling mustard (*Sisymbrium altissimum*)

Similar to the observations at the facility as a whole, the most common weed species observed in CLA East was Russian thistle.

Table 3-8. Summary of Weed Species Observed at Revegetation Locations 2016

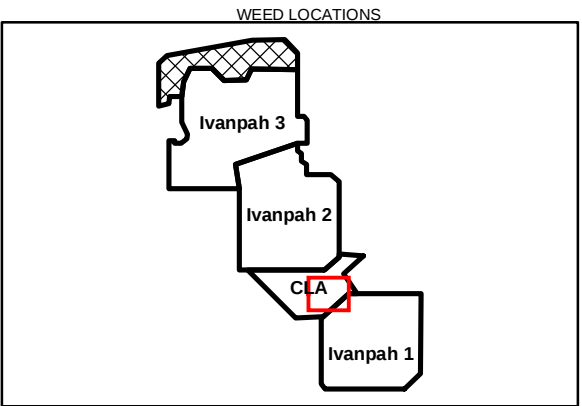
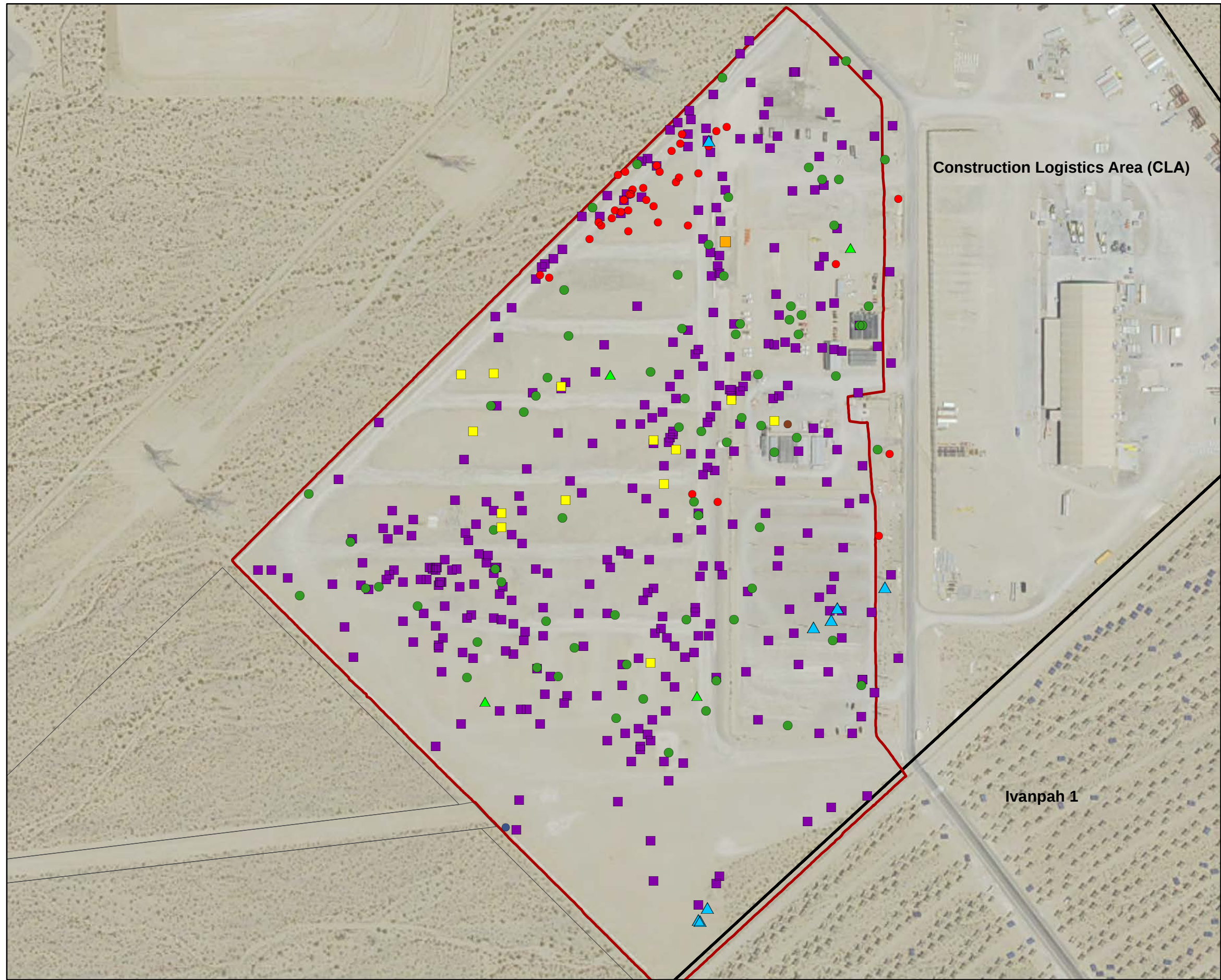
Noxious Weed Species	Revegetation Location ^a					CLA East (CLA-E)
	NGL	NGL Tap Station	WR	115 kV	33 kV	
Berlandier's goosefoot	0	0	0	0	0	57
Halogeton	0	0	0	0	0	81
London rocket	0	0	0	0	0	39
Pigweed	0	0	0	0	0	1
Puncture vine	0	0	0	0	0	224
Russian thistle	0	0	0	0	0	999
Sahara mustard	0	0	0	0	0	4
Sow thistle	0	0	0	0	0	1
Tumbling mustard	0	0	0	0	0	1
Total per Location	0	0	0	0	0	1,407
Total Observed						1,407

^a Weed monitoring included the entire disturbed revegetation area, including the sampling sites.

In 2016, all weed individuals were found at the CLA East revegetation location during Year 1 monitoring (Table 3-8). Biological staff documented that some of the individuals had already dispersed seeds. These locations will be targeted for monitoring during Year 2 (2017) weed surveys. All individuals were removed by hand and disposed of according to the Weed Plan (CH2M, 2010c).

No weed species were observed in the revegetation locations (NGL, NGL tap station, WR, 115 kV, or 33 kV) during Year 3 and Year 4 monitoring; annual weed monitoring was staggered based on when revegetation was complete. This indicates that implementation of the Weed Plan is successfully attaining the goals of removing weeds before they can set seed, and of minimizing the transport of additional weed propagules to the site. At these sites, they are meeting the Revegetation Plan (CH2M, 2010b) goal that revegetation sites have less than 15 percent weed cover.

In the CLA East revegetation location, biological staff also observed weed species that are not Weed Plan target species, including redstem stork's bill (*Erodium cicutarium*), common wheat (*Triticum* species), and common oat (*Avena sativa*) (CH2M, 2010c). Redstem stork's bill is considered ubiquitous in the Mojave Desert; therefore, it is not feasible to control. Common wheat was present, likely because of seeds present from straw waddles used for stormwater control. Common oats were present because they were purposefully sown with the native plant seed on the disturbed area to satisfy the seed predators. Both common wheat and common oats can occur in dry conditions, but will not survive in the Mojave Desert without supplemental water. Instead of removing these species, the botanist recommended letting the current individuals dry out and die on their own.



- LEGEND
- Project Site
 - Current Short-term Impact Area
- Weed Data 2016
- Berlandier's goosefoot
 - Halogeton
 - London Rocket
 - Pigweed
 - Puncture vine
 - Russian Thistle
 - Sahara mustard
 - Sow Thistle
 - Tumbling mustard

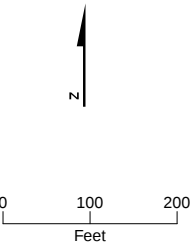


Figure 3
2016 Revegetation Monitoring
Weed Results
 Ivanpah Solar Electric Generating System

Discussion

4.1 Summary

To meet the revegetation success criteria, a sampling site must meet both the percent cover and species richness goals. Once both success criteria are met, then annual revegetation monitoring is complete for that location, and no further revegetation monitoring is required. In accordance with weed management requirements, monitoring for presence of invasive weed species will continue for a total of 10 years past the date of revegetation treatment (CH2M, 2010c; USFWS, 2011).

4.1.1 Revegetation Monitoring

The results of the perennial percent cover and species richness for the 13 disturbed locations as compared to the Revegetation Plan (CH2M, 2010b) success criteria are provided in Table 4-1. In 2016, none of the sampling sites met the Revegetation Plan success criteria. Both overall sites, NGL and CLA East locations, are on track to meeting the revegetation goals within 10 years. As compared to Table 2-3 (Revegetation Success Criteria at Years 2, 5, and 8), the NGL-3 location exceeded the Year 5 projections during Year 3 monitoring, and the CLA East locations are approaching, if not exceeding, the Year 2 goals.

Table 4-1. 2016 Monitoring Results Compared to Success Criteria

	Target Percent Cover (%)	2016 Observed Percent Cover (%)	Met Cover Success Criteria?	Target Species Richness	2016 Observed Species Richness ^a	Met Richness Success Criteria?	Met Both Success Criteria? ^b
Ivanpah 3 & NGL							
NGL-3	13	11.3	No	8	5	No	No
Ivanpah 2 and CLA							
33 kV-6							
CE-07	11	0	No	6	4	No	No
CE-08	11	0	No	6	4	No	No
CE-09	11	0	No	6	4	No	No
CE-10	11	0.5	No	6	3.75	No	No
CE-11	11	0	No	6	3.75	No	No
CE-12	11	0	No	6	3.75	No	No
CE-13	11	0	No	6	4	No	No
CE-14	11	0	No	6	4	No	No
CE-15	11	0.1	No	6	4	No	No
CE-16	11	0	No	6	3.75	No	No
CE-17	11	0	No	6	3.75	No	No
CE-18	11	0	No	6	3.75	No	No

^a Perennial species richness at the CE locations was calculated as an average of three belt transects and one relevé plot.

^b In 2015, success criteria were met on four sites (NGL-1, NGL-2, WR-4, and 115 kV-5), and revegetation monitoring is complete.

Species composition on the disturbed sites is still highest among the pioneer colonizers, white bursage and cheesebush, which is to be expected in Year 1 and Year 3 post-revegetation. The most abundant species observed in the CE-10 sample site was California buckwheat, which was a species sown in the

native seed mix. Many of the CLA East locations had 0 percent cover; therefore, data were not provided for the species composition analysis. Zero percent cover is a reasonable result, since the revegetation effort was only completed 5 months prior to monitoring.

During Year 1 (CE locations) and Year 3 (NGL location) monitoring, perennial species density on the disturbed sites was approaching the results on the undisturbed locations. In several locations, density on the disturbed sites was also higher than undisturbed sites, which is consistent with an establishing pioneer community. Diversity will eventually decrease to match the adjacent stable climax community.

Perennial percent cover success criteria were not met at any of the sampling sites in 2016 as noted in Table 4-1. In projected success criteria Table 2-3, estimated percent cover is expected to be 0 for both Year 1 and Year 2 monitoring results, which is consistent with the results observed on CLA East locations.

As expected, perennial species richness continued to be lower on the disturbed sites as compared to the undisturbed locations. During Year 1 monitoring of CLA East locations, perennial species richness was four for each of the sample sites, which exceeds the Year 2 projected target of three species (Table 2-3). At the NGL-3 sample site, richness decreased between Year 3 (five species) and Year 2 (six species).

During Year 1 of CLA East monitoring locations, species diversity was lower at the disturbed locations overall than compared to the undisturbed sites. During Year 3 monitoring of NGL-3, species diversity in the disturbed sites was higher than undisturbed sites, which is consistent with an establishing pioneer community. Diversity will eventually decrease to match the adjacent stable climax community.

The Revegetation Plan (CH2M, 2010b) indicates that annual revegetation monitoring data analysis should include observations of biological activity and erosion. In 2016, botanists observed signs of herbivory on all revegetation sites outside of the perimeter fence (NGL tap station, NGL linear, WR, 33 kV, and 115 kV). Erosion was only observed on the eastern edges of the CLA East revegetation near the access road to Ivanpah 1.

4.1.2 Weed Management

The only weeds observed in 2016 on revegetation locations were at the CLA East revegetation location during Year 1 monitoring. The number of weeds observed is not unexpected because weed species are pioneer species that are adapted to disturbed soil. Biological staff will continue diligent manual control early in the revegetation process. Facility-wide weed monitoring, beyond the revegetation locations, is conducted in accordance with Condition of Certification (COC) BIO-13 – Weed Management Plan and is reported in the *Conditions of Certification BIO-13, Annual Biological Report January 1, 2016 – December 31, 2016* (Solar Partners, 2017).

Similar to 2015 results, no weeds were observed on the five other revegetation locations in 2016 (NGL, NGL tap station, WR, 115 kV, and 33 kV). As monitoring continues for 10 years' post-revegetation, we expect that weeds will have little chance of establishing on these areas, since native plants are increasing percent cover each year.

4.2 Long-term Monitoring Schedule

4.2.1 Revegetation

Table 4-2 provides a recommended long-term schedule for revegetation monitoring on the remaining sites.

Table 4-2. Revegetation Monitoring Schedule ^a

Site	End of Construction	Annual Monitoring Years 1–3			Bi-annual Monitoring Years 4–10 ^b			
NGL-3	2013	2014	2015	2016	2018	2020	2022	2024
33 kV-6	2012	2013	2014	2015	2017	2019	2021	2023
CLA East	2015	2016	2017	2018	2020	2022	2024	2026

^a This schedule does not account for dry years or remedial actions after 10 years if success criteria are not met.

^b Or until success criteria are met.

4.2.2 Weeds

Biological staff will continue monitoring the revegetation areas for weeds through 2025 (Table 4-3).

Table 4-3. Weed Monitoring Schedule

Site	End of Construction	Monthly Monitoring Years 1 and 2		Quarterly Monitoring Years 3 and 4		Semiannual Monitoring Years 5-10					
NGL linear	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
NGL Tap Station	2012	2013	2014	2015	2016	2017	2018	2019	2020	2020	2022
WR	2012	2013	2014	2015	2016	2017	2018	2019	2020	2020	2022
115 kV	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
33 kV	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
CLA East	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025

4.3 Remaining Revegetation

The only remaining short-term disturbance awaiting revegetation is the Interstate-15 Desert Tortoise Pen Area. This area was constructed in 2011 and is expected to be used until fall 2021. The ISEGS short-term disturbance area is 4.77 acres, which is three sides of the pen at a 50-foot disturbance corridor width. The fourth side of the pen area is part of the Joint Point of Entry, which is maintained by the California Department of Transportation.

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Appendix A

Baseline Site Photographs



Photo A-1
Permanent photo station, Ivanpah 3 associated disturbed site NGL-3, facing east



Photo A-2
Permanent photo station, Ivanpah 3 associated disturbed site NGL-3, facing west



Photo A-3

Permanent photo station, Ivanpah 3 associated undisturbed site NGL-3A, facing east



Photo A-4

Permanent photo station, Ivanpah 3 associated undisturbed site NGL-3A, facing west



*Photo A-5
Permanent photo station, Construction Logistics Area associated disturbed site CE-07,
facing northwest*



*PHOTO A-6
Permanent photo station, Construction Logistics Area associated disturbed site CE-07,
facing southeast*



Photo A- 7
Permanent photo station, Construction Logistics Area associated undisturbed site CE-07A, facing southeast



Photo A-8
Permanent photo station, Construction Logistics Area associated undisturbed site CE-07A, facing northwest



*Photo A-9
Permanent photo station, Construction Logistics Area associated disturbed site CE-08,
facing west*



*Photo A-10
Permanent photo station, Construction Logistics Area associated disturbed site CE-08,
facing east*



Photo A-11

Permanent photo station, Construction Logistics Area associated disturbed site CE-09, facing east



Photo A-12

Permanent photo station, Construction Logistics Area associated disturbed site CE-09, facing west



*Photo A-13
Permanent photo station, Construction Logistics Area associated disturbed site CE-10,
facing north*



*Photo A-14
Permanent photo station, Construction Logistics Area associated disturbed site CE-10,
facing south*



Photo A-15
Permanent photo station, Construction Logistics Area associated undisturbed site CE-10A, facing north



Photo A-16
Permanent photo station, Construction Logistics Area associated undisturbed site CE-10A, facing south



*Photo A-17
Permanent photo station, Construction Logistics Area associated disturbed site CE-11,
facing east*



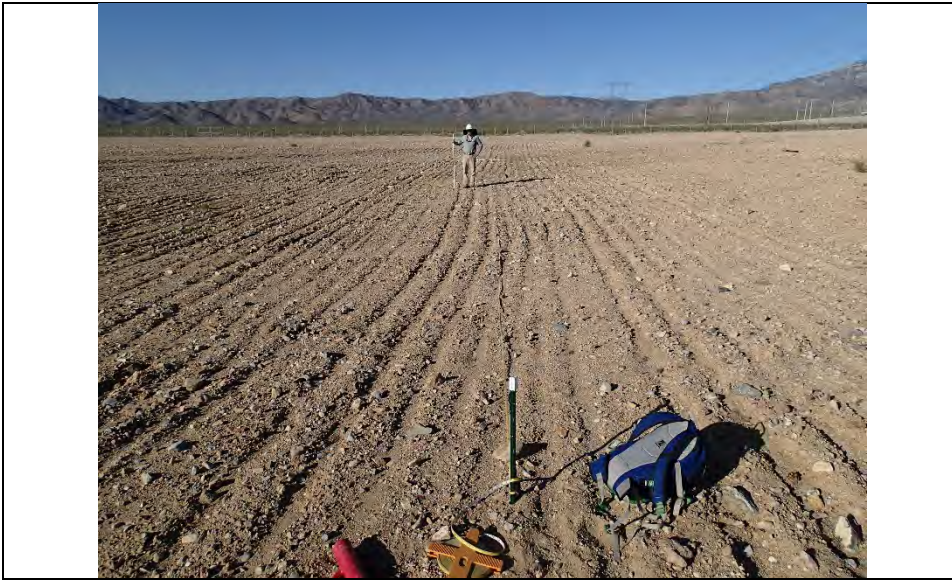
*Photo A-18
Permanent photo station, Construction Logistics Area associated disturbed site CE-11,
facing west*



*Photo A-19
Permanent photo station, Construction Logistics Area associated disturbed site CE-12,
facing northeast*



*Photo A-20
Permanent photo station, Construction Logistics Area associated disturbed site CE-12,
facing southwest*



*Photo A-21
Permanent photo station, Construction Logistics Area associated disturbed site CE-13,
facing southwest*



*Photo A-22
Permanent photo station, Construction Logistics Area associated disturbed site CE-13,
facing northeast*



Photo A-23
Permanent photo station, Construction Logistics Area associated undisturbed site CE-13A, facing northeast



Photo A-24
Permanent photo station, Construction Logistics Area associated undisturbed site CE-13A, facing southwest



*Photo A-25
Permanent photo station, Construction Logistics Area associated disturbed site CE-14,
facing south*



*Photo A-26
Permanent photo station, Construction Logistics Area associated disturbed site CE-14,
facing north*



*Photo A-27
Permanent photo station, Construction Logistics Area associated disturbed site CE-15,
facing west*



*Photo A-28
Permanent photo station, Construction Logistics Area associated disturbed site CE-15,
facing east*



*Photo A-29
Permanent photo station, Construction Logistics Area associated disturbed site CE-16,
facing east*



*Photo A-30
Permanent photo station, Construction Logistics Area associated disturbed site CE-16,
facing west*



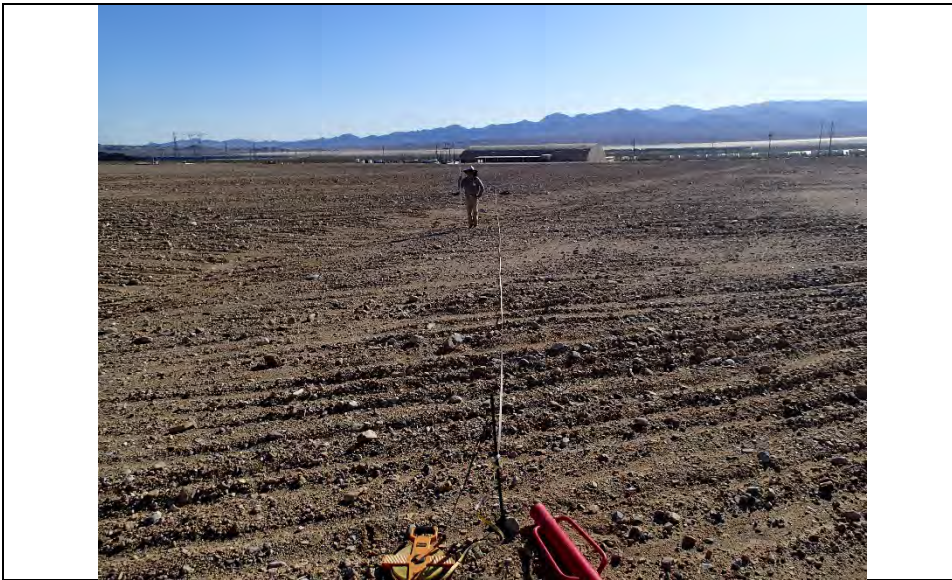
*Photo A-31
Permanent photo station, Construction Logistics Area associated undisturbed site CE-16A, facing east*



*Photo A-32
Permanent photo station, Construction Logistics Area associated undisturbed site CE-16A, facing west*



*Photo A-33
Permanent photo station, Construction Logistics Area associated disturbed site CE-17,
facing southwest*



*Photo A-34
Permanent photo station, Construction Logistics Area associated disturbed site CE-17,
facing northeast*



*Photo A-35
Permanent photo station, Construction Logistics Area associated disturbed site CE-18,
facing east*



*Photo A-36
Permanent photo station, Construction Logistics Area associated disturbed site CE-18,
facing west*