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BOARD OF LAND AND NATURAL RESOURCES

STATE OF HAWAI'I

IN THE MATTER OF

Contested Case Hearing Re Conservation
District Use Application (CDUA) HA-3568 for
the Thirty Meter Telescope at the Mauna Kea
Science Reserve, Ka'ohē Mauka, Hāmakua,
Hawai'i, TMK (3) 4-4-015:009

Case No. BLNR-CC-16-002

THE UNIVERSITY OF HAWAI'I AT
HILO AND TMT INTERNATIONAL
OBSERVATORY, LLC'S JOINT
RESPONSE TO KEALOHA PISCIOTTA,
MAUNA KEA ANAINA HOU, PAUL
NEVES AND KALIKO KANAELE'S

RECEIVED
OFFICE OF CONSERVATION
AND COASTAL LANDS
2011 JUN 13 P 1:23
DEPT. OF LAND &
NATURAL RESOURCES
STATE OF HAWAII

**THE UNIVERSITY OF HAWAI'I AT HILO AND TMT INTERNATIONAL
OBSERVATORY, LLC'S JOINT RESPONSE TO KEALOHA PISCIOTTA, MAUNA
KEA ANAINA HOU, PAUL NEVES AND KALIKO KANAELE'S PROPOSED
FINDINGS OF FACT, CONCLUSIONS OF LAW, DECISION AND ORDER,
FILED MAY 30, 2017 [DOC. 665]**

Applicant UNIVERSITY OF HAWAI'I AT HILO ("UH Hilo") and TMT
INTERNATIONAL OBSERVATORY, LLC ("TIO"), through their respective counsel, jointly
submit this Response to Kealoha Pisciotta, Mauna Kea Anaina Hou, Paul Neves, and Kaliko
Kanaele's (collectively "MKAH") *Proposed Findings of Fact, Conclusions of Law, Decision
and Order*, filed May 30, 2017 [Doc. 665] ("Response").

**I. STANDARD OF REVIEW FOR REVERSAL OR MODIFICATION OF
ADMINISTRATIVE FINDINGS, CONCLUSIONS, DECISIONS, OR ORDERS**

To prevent judicial reversal or modification of administrative findings of fact under
§ 91-14(g), Hawaii Revised Statutes ("HRS"), the Board of Land and Natural Resources
("BLNR") should, upon review of the record, reverse or modify findings that are "[c]learly
erroneous in view of the reliable, probative, and substantial evidence on the whole record[.]" *In
re Gray Line Hawaii Ltd.*, 93 Hawai'i 45, 53, 995 P.2d 776, 784 (2000). A finding of fact is
clearly erroneous when: (1) the record lacks substantial evidence to support the finding or
determination; or (2) despite substantial evidence to support the finding or determination, the
BLNR is left with the definite and firm conviction that a mistake has been made. *Kienker v.
Bauer*, 110 Hawai'i 97, 105, 129 P.3d 1125, 1133 (2006).

Similarly, conclusions of law should be reversed or modified where the BLNR finds they are in violation of constitutional or statutory provisions, in excess of the statutory authority or jurisdiction of the Commission, or affected by other error of law. *Id.*

II. DISCUSSION

A. Responses to MKAH's Proposed FOF and COL

The UH Hilo and TIO object to each of the FOF and COL in MKAH's *Proposed Findings of Fact, Conclusions of Law, Decision and Order* ("MKAH's Proposed FOF/COL") to the extent that they are irrelevant, inapplicable, immaterial, mischaracterize the evidence, misstate or misrepresent the record, rely on evidence that is not credible, biased, or incomplete, and/or not supported by the evidence. UH Hilo and TIO also object to MKAH's Proposed FOF/COL to the extent they assert alleged "findings" that are beyond the scope of issues set forth in Minute Order No. 19.

Appendix A contains general objections to MKAH's Proposed FOF/COL, which UH Hilo and TIO hereby incorporate by reference into their response to each of MKAH's FOF and COL, to the extent applicable.

In addition to the general objections in Appendix A, UH Hilo and TIO have prepared a table of specific responses and objections to MKAH's proposed FOF and COL, which is attached hereto as **Appendix B**. Citations to the evidence in the record provided herein are not intended to be exhaustive or comprehensive, but demonstrate evidentiary support for UH Hilo and TIO's responses and objections.

UH Hilo and TIO further object to MKAH's Proposed FOF/COL to the extent they seek to challenge the FEIS for the TMT Project. This proceeding is not an EIS challenge under HRS Chapter 343; MKAH's ability to make such a challenge expired long ago, and they cannot reopen the FEIS approval process through improper arguments under the statutes and rules

governing the EIS process. This proceeding is entirely governed by the applicable constitutional law and the Conservation District rules that are genuinely at issue here.

The FOF/COL and page numbers referenced herein follow those as provided in MKAH's Proposed FOF/COL. References to the UH Hilo and TIO's Joint [Proposed] Findings of Fact, Conclusions of Law, and Decision and Order, filed on May 30, 2017 [Doc. 671] ("UH-TIO FOF/COL") are denoted by the prefixes "UH-TIO FOF" and "UH-TIO COL" for the numbered FOF and COL, respectively, in the UH-TIO FOF/COL.

Acronyms and defined terms used herein are defined in the Index of Select Defined Terms, which was filed as part of the jointly-submitted UH-TIO FOF/COL.

Any specific proposed finding or conclusion not specifically referred to or addressed below is deemed denied and disputed.

B. Responses to MKAH's Proposed Decision and Order

MKAH's proposed Decision and Order is not supported by the record. As set forth in the UH-TIO FOF/COL, substantial evidence has been adduced to show that the CDUA satisfies the eight criteria as set forth in Hawai'i Administrative Rule ("HAR") § 13-5-30(c). The record also shows that the TMT Project is consistent with the UH Hilo's and the BLNR's obligations under the public trust doctrine, *Ka Pa'akai*, and Article XI, section I and Article XII, section 7 of the Hawai'i Constitution.

Ultimately, Kealoha Pisciotto, Mauna Kea Anaina Hou, Paul Neves, and Kaliko Kanaele are categorically opposed to the construction of TMT regardless of whether or not the TMT Project satisfies the eight criteria. No location on the mountain, and no combination of mitigation measures, will make the TMT Project acceptable to MKAH. That position is not supported by the law.

III. CONCLUSION

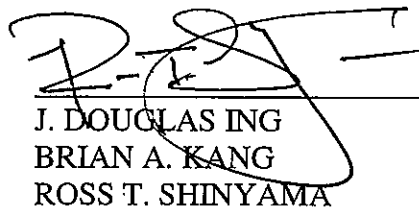
For the reasons set forth herein and in the UH Hilo Pre-Hearing Statement, TIO's Pre-Hearing Statement, the UH-TIO FOF/COL, the testimony of the UH Hilo's and TIO's witnesses, the examination of the Petitioners' and Opposing Intervenor's witnesses, and in UH Hilo's and TIO's other filings, UH Hilo and TIO respectfully request that the Hearing Officer adopt the UH-TIO FOF/COL, and reject MKAH's Proposed FOF/COL.

DATED: Honolulu, Hawai'i, June 13, 2017.



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APPENDIX A

Appendix A

General Responses to Petitioners'/Opposing Intervenors' Proposed Findings of Fact ("FOF") and Conclusions of Law ("COL")	
Citation does not support the proposition.	The citation offered by Petitioners/Opposing Intervenors does not support the proposed FOF or COL.
Estoppel/Improper Reconsideration	The proposed FOF or COL or a portion thereof is improper to the extent it is barred by estoppel or waiver, or improperly seeks reconsideration of the Hearing Officer's or the BLNR's prior ruling,
Inaccurate/False	The proposed FOF or COL or a portion thereof is inaccurate or false.
Incomplete.	The proposed FOF or COL is materially incomplete.
Irrelevant/Inapplicable.	The information in the proposed FOF or COL is irrelevant or inapplicable in this contested case proceeding. <u>See</u> Minute Order No. 19 [Doc. No. 281].
Lack of Jurisdiction	The proposed FOF or COL exceeds the scope of the Hearing Officer's jurisdiction and/or delegated authority
Mischaracterization.	The proposed FOF or COL mischaracterizes legal authority or the contents of the record.
Misleading. Partial quotation.	The proposed FOF or COL contains a partial quote from legal authority or a document in the record, and the incompleteness of the quotation is likely to mislead the reader.
Misleading. Presented out of context.	The proposed FOF or COL presents law or information in the record out of context and/or in a way that is likely to mislead the reader.
Misrepresentation	The proposed FOF or COL affirmatively misrepresents legal authority or the contents of the record.
Not credible.	The proposed FOF or COL is not credible based on the totality of the evidence contained in the record and/or the demonstrated biases of the witness whose testimony is cited in support of the proposed FOF or COL.

Not in dispute.	Either (1) the proposed FOF or COL is not at issue in this proceeding, or (2) standing alone, the proposed FOF or COL is not objectionable. The designation of any individual proposed FOF or COL as “not in dispute” does not and should not be construed as an admission of said FOF or COL or a concession that said FOF or COL should be incorporated into the final FOFs and COLs. It also does not and should not be construed as assent to any inferences suggested or that may be suggested by Petitioners/Opposing Intervenors from, e.g., their misleading grouping or ordering of otherwise unrelated facts.
Not in evidence.	The proposed FOF or COL asserts “facts” and/or cites documents that are not in evidence.
Unsupported/Unsubstantiated	The proposed FOF or COL is not supported by information in the record or was not substantiated by the Petitioners/Opposing Intervenors through the contested case process.

APPENDIX B

Appendix B
Summary Table of Responses to Kealoa Pisciotto, Mauna Kea Anaina Hou, Paul Neves,
and Kaliko Kanaele's Proposed FOF/COL

FOF/ COL #	Page	FOF/COL	Response
1.	10	In 1964, Mauna Kea Lands were placed within the states conservation district. Management is the responsibility of the Dept. of Land and Natural Resources (DLNR) and the Board of Land and Natural Resources (BLNR) and is guided by a number of federal and state laws, statutes and rules. (Ex. A-10 NRMP p. 1-7)	Incomplete. See UH-TIO FOF 123-158, 179-190.
2.	10	Areas in which natural resource conservation is a recognized concern on Mauna Kea encompass at least 106,000 acres (11,308 acres of UH managed lands, 3,894 acres of NAR, 52,500 Mauna Kea Forest Reserve, and 38,300 acres of the Hakalau Refuge). (Ex. B.41, CMP NRMP, p. 1-11, 1-12)	Citation does not support the proposition.
3.	10	Mauna Kea is the highest insular volcano in the world. It is home to numerous unique geologic features, Mauna Kea still evokes feelings of spirituality from its visitors through majestic views and a landscape that reflect the volcanic history of our planet." (Ex. B.28 CMP, p. 5-24)	Not in dispute.
4.	10	Extending into a portion of the Mauna Kea Science Reserve is the Mauna Kea Ice Age Natural Area Reserve, between 10,400 and 13,200 feet elevation. The NAR designation was approved by the BLNR on November 1978, a CDUA for the area was approved in 1981, and the executive order establishing the reserve was signed in that year. (Ex. A-10 NRMP P 1-11, 1-12)	Citation does not support proposition.
5.	10	The Master Lease for the Mauna Kea Science Reserve (General Lease No. S-4191), dated June 21, 1968, was made by and between the State of Hawaii, by its Board of Land and Natural Resource, as "Lessor" and the University of Hawaii as "Lessee". The lease expires in 2033.	Not in dispute.
6.	11	The University of Hawaii submitted a Conservation District use Application HA-3568, dated September 2, 2010 on behalf of TMT Corporation (NOT TIO) to the Department of Land and Natural Resources	Mischaracterization. TMT Corporation's role in the project has been reduced and transitioned to TIO. See, e.g., UH-TIO

		(DLNR) for the construction, operation, and eventual decommissioning of the Thirty Meter Telescope (TMT) Observatory within an area below the summit of Mauna Kea referred to as "Area E." (Ex. R-1)	FOF 206.
7.	11	Public hearings on CDUA HA-3568 for the proposed Thirty Meter Telescope (TMT) in the Mauna Kea Conservation District, Mauna Kea Science Reserve, Ka'ohē Mauka, Hāmākua, Hawai'i, TMK (3) 4-4-015:009 were held on December 2, 2010 at the Hawaii County Council Room, 25 Aupuni Street in Hilo, Hawaii, 96720, and December 3, 2010, at the Natural Energy Laboratory in Kona.	Not in evidence. Irrelevant/Inapplicable. Estoppel/Improper Reconsideration. While UH-TIO do not object to general references to the first contested case hearing solely for procedural background purposes (<i>See</i> UH-TIO FOF 31-33), the BLNR's April 12, 2013 decision and order was vacated, and this matter was remanded for a new contested case hearing on the CDUA. UH-TIO FOF 34-35. The Hearing Officer denied admission of proposed exhibits arising from the prior contested case hearing because that hearing "has been disallowed by the Supreme Court." Accordingly, the record in the prior contested case hearing is not part of the record in the current proceeding. UH-TIO do not necessarily agree with the characterization of the record in the prior proceeding, and object to the citation to, and use of, the record in the prior contested case for substantive purposes in this proceeding. Not in evidence. Irrelevant/Inapplicable.
8.	11	On February 25, 2011, the Board of Land and Natural Resources (BLNR) held a public hearing in Honolulu and voted to approve the CDUA HA-3568 for the Thirty-Meter Telescope in the Mauna Kea Conservation District, Mauna Kea Science Reserve, Ka'ohē Mauka, Hāmākua, Hawai'i.	Not in evidence. Irrelevant/Inapplicable.

9.	11	On February 25, 2011 and March 7, 2011, the Office of Conservation and Coastal Lands (OCCL) received seven requests for a contested case hearing on CDUA-HA-3568, in compliance with HAR 13-1-28, from Mo'oinanea (represented by E. Kalani Flores), the Flores-Case 'Ohana, Deborah J. Ward, Paul K. Neves (as an individual and as representative of the Royal Order of Kamehameha I (ROOK), Clarence Kūkauakahi Ching, KAHEA: The Hawaiian-Environmental Alliance (represented by Marti Townsend), and Mauna Kea Anaina Hou (represented by Kealoha Pisciotta). (Ex. Jt-16/A-316, Jt-20/A-320)	See UH-TIO response to FOF #7 Not in evidence. Irrelevant/Inapplicable. See UH-TIO response to FOF #7.
10.	11	On April 15, 2011, the BLNR Chairperson appointed Mr. Paul Aoki as the presiding officer over the contested case hearing	Not in evidence. Irrelevant/Inapplicable. Designation of Mr. Aoki as "Hearing Officer" or "HO" creates potential confusion with Hearing Officer Amano.
11.	12	The contested case hearing was held August 15, 16, 17, 18, 25, 26, and 30, 2011 at the University of Hawai'i Extension and Research Facility, Komohana Street, Hilo, Hawaii, and Hawaii Community College, Manono Street, Hilo, Hawai'i with Paul Aoki as Hearing Officer.	See UH-TIO response to FOF #7 Not in evidence. Irrelevant/Inapplicable.
12.	12	On April 12, 2013, and following the conclusion of the contested case hearing, the BLNR issued its 126-page findings of fact, conclusions of law and decision and order ("BLNR's decision and order").	Not in evidence.
13.	12	A timely agency appeal was taken by the Petitioners to the Circuit Court of the Third Circuit and after briefs were submitted by the parties and oral arguments were made before the court, the court issued its decision and order affirming the BLNR's decision and order and entered final judgment on May 5, 2014. The Petitioners then timely filed a notice of appeal.	Irrelevant/Inapplicable. Not in dispute.
14.	12	On August 27, 2015, oral arguments on the Petitioners' appeal were held before the Hawai'i Supreme Court and on December 2, 2015, the Hawai'i Supreme Court entered its decision in Mauna Kea Anaina Hou v. Board of	Not in dispute.

		Land and Natural Resources, 136 Hawai'i 376, 363 P.3d 224 (2015), in which it vacated the Third Circuit Court's May 5, 2014 Decision and Order and Final Judgment thereon and remanded to the circuit court to further remand to the BLNR for proceedings consistent with the Supreme Court's opinion, so that "a contested case hearing can be conducted before the Board or a new hearing officer, or for other proceedings consistent with this opinion." On February 22, 2016, the Third Circuit Court, the Honorable Greg K. Nakamura, presiding, entered its order of remand.	
15.	13	On December 2, 2015, The Hawaii Supreme Court issued its decision in Mauna Kea Anaina Hou v. Board of Land and Natural Resources, 136, 363 P.3d 224 (2015). The Court VACATED the circuit court's May 5, 2014 Decision and Order affirming Board of Land and Natural Resources, State of Hawai'i's Findings of Fact, Conclusions of Law and Decision and Order Granting Conservation District use permit for the Thirty Meter Telescope at the Mauna Kea Science Reserve Dated April 12, 2013, and final judgment thereon. On February 22, 2016, the Court "remanded (the matter) to the circuit court to further remand to BLNR for proceedings consistent with this opinion, so that a contested case hearing can be conducted before the Board or a new hearing officer, or for other proceedings consistent with this opinion."	Not in dispute.
16.	13	The Board of Land and Natural Resources met on February 26, 2016, as part of and to discharge its adjudicatory function governed by HRS 91-9. The Board noted that it previously authorized a contested case and delegation to a hearing officer and that the matter has been remanded "so that a contested case hearing can be conducted before the board or a new hearing officer." After full discussion of the issue, the Board delegated the conduct of the contested case hearing to a hearing officer, pursuant to HAR 13-1-32(b), and confirmed that the chairperson was authorized to engage the services of a hearing officer pursuant to law. (DOC 05 M.O 2 dated April 8, 2016)	Not in dispute, however citation should be to Doc. 3.
17.	13	Remanded Contested Case Hearing was held on the following dates in 2016 and 2017 October 3, 5, 17-19, 24-27, 31	False/Inaccurate. See, e.g., UH-TIO FOF 89.

		November 2, 15-16, 18 December 1-2, 5-6, 8-9, 12-13, 16, 19-20 December 1-2, 5, 6, 8, 12-13, 16, 19-20 January 3-5, 9-12, 19, 23-26, 30-31 February 13-16, 21-23, 27, 28 March 1-2	
18.	14	Riki May Amano was selected to be the Hearing Officer for the Contested case Hearing regarding the vacated/remanded CDUP HA-3568. (March 31, 2016, MO 1 DOC 1)	Not in dispute.
19.	14	On April 15, 2016, Richard Naiwieha Wurdeman, attorney for Petitioners Mauna Kea Anaina Hou (MKAH), Kealoha Pisciotto, Paul Neves, Clarence Kukauakahi Ching, KAHEA: The Hawaiian-Environmental Alliance, Deborah J. Ward, and The Flores/Case Ohana filed a motion objecting to the selection process of the hearing officer. DOC 05. Dated April, 15, 2016, Titled Petitioners Objections To Selection Process and Appointment of Hearing Officer Made Pursuant To Minute Order No. 1 Dated march 31, 2016.	Not in dispute.
20.	14	DOC 016/MO 5 dated May 6, 2016 set May 16, 2016, for the first 1st pre-hearing conference to be held in Honolulu at the DLNR office in the Kalanimoku Board Room located on the first floor, makai side, of the Kalanimoku Building at 1151 Punchbowl Street, Honolulu, Hawaii (Tr. Vol. I Titled "Prehearing Conference")	Not in dispute.
21.	14	The first 1st pre-hearing conference not noticed to parties in a timely manner.	Unsupported/Unsubstantiated. The Hearing Officer provided notice of the prehearing conference and conducted the conference pursuant to her authority under HAR Title 13, Chapter 1. Minute Order No. 5 [Doc. 16]. UH-TIO COL 37. By its terms, HRS § 91-9.5 pertains to notification of a "hearing" not a prehearing conference. The Hearing Officer provided the required notice of the contested case hearing in compliance with HRS § 91-9.5.

		Notice of Contested Case Hearing [Doc. 276] and Amended Notice of Contested Case Hearing [Doc. 325]. Estoppel/Improper Reconsideration. At the May 16, 2016 prehearing conference, the Hearing Officer specifically asked the Petitioners' representative, Mr. Wurdeman, whether he had any objections to the prehearing conference. He answered that he had no objections. He also indicated on the record that the petitioners were unable to attend simply because the hearing was held on Oahu, rather than the island of Hawai'i. Tr. 5/16/16 at 5:7-12. Therefore, the Petitioners have waived any argument as to a lack of sufficient notice.
22.	15	According to Minute Order 5, dated May 6, 2016, a pre-hearing conference was set for Monday, May 16, 2016. Notice requirements in Ch 91-9.5 (a) states: Unless otherwise provided by law, all parties shall be given written notice of hearing by registered or certified mail with return receipt requested at least 15 days before the hearing. DOC 49/MO 08 Dated May 27, 2016 set a second 2nd Pre-Hearing Conference to be held on June 17, 2016 at the Hilo State Office Rooms A, B, and C, 75 Aupuni Street, Hilo, Hawai'i 96720. Minute order titled "Minute Order 8: Order setting hearings on motions to intervene and 2nd pre-hearing conference; COS (3)".
23.	15	Misleading. Presented out of context. The notice requirements contained in Chapter 91-9.5(a) apply to contested case hearings, not pre-conference hearings. Not in dispute.
24.	15	Not in dispute. Also, on June 17, 2016, as part of the 2nd pre-hearing conference, there was a scheduling discussion on how many witnesses parties would be calling, establishing a date for site inspection, deadlines for pre-hearing motions, deadlines for subpoenas. (Tr. Vol III titled: "Request for Admission and Motions")

25.	15	The new parties were expected to discuss or state their case on how many witnesses they would be calling, for example, when they had no access to any motions filed and were not informed that they needed to come prepared with that information because they were not a party up until that point. All new parties except TIO and P.U.E.O were pro se.	Inaccurate/False. The Temple of Lono was represented by Mr. Lanny Sinkin and thus did not participate <i>pro se</i>. Unsupported/unsubstantiated. Misleading. Presented out of context. Estoppel/Improper Reconsideration. Minute Order No. 7 provided notice that the Hearing Officer would discuss scheduling issues during the prehearing conference on June 17, 2016. Minute Order No. 7 [Doc. 44]. None of the Petitioners and anticipated Opposing Intervenor who were present had difficulty in estimating the number of witnesses that they anticipated calling, including Wurdeman, who represented Petitioners at that point. Tr. 06/17/16 (Scheduling Hearing) at 7:8 – 12:4. Nor did Mr. Wurdeman object when asked to estimate the number of potential witnesses to be called by the Petitioners.
26.	15	Hearing Officer stated she will be filing a minute order describing the filing procedures. (Tr. Vol. III Titled: "Request for Admission and Motions" p. 7: 4-6)	Not in dispute. UH-TIO Hilo notes that the citation to "TR VOL III Titled: 'Request for Admissions and Motions'" should instead be to "TR VOL II Titled: 'Scheduling Hearing'".
27.	16	On August 5, 2016, a third 3rd pre-hearing conference was held at the YMCA building, 300 West Lanikaula Street, Hilo, Hawai'i 96720, to hear motions. (Tr. Vol. IV titled "Motions Hearing")	Not in dispute.
28.	16	On August 12, 2016, the fourth 4th pre-hearing conference was held at	Not in dispute.

		Hawai'i Community College Cafeteria, 1175 Manono St, Hilo, Hawaii 96720, to argue motions. (Tr. Vol. V titled "Motions Hearing") MKAH filed a motion to disqualify H.O. counsel China and Wynhoff.	
29.	16	On August 29, 2016, the fifth 5th pre-hearing conference was held at Hawai'i Community College Cafeteria, 1175 Manono, Hilo, Hawaii, 96720. Further Motions were heard. (Tr. Vol. VI. titled "Motions Hearings")	Not in dispute.
30.	16	On October 3, 2016 the sixth 6th pre-hearing conference was held at the Grand Naniloa Hotel, Crown Room, 93 Banyan Drive, Hilo, Hawai'i 96720. (Tr. Vol. VII. titled "Motions Hearing")	Not in dispute.
31.	16	On October 17, 2016, the seventh 7th pre-hearing conference was held at the Grand Naniloa Hotel, Crown Room, 93 Banyan Drive, Hilo, Hawai'i 96720. (Tr. Vol. VIII. titled "Prehearing")	Not in dispute.
32.	16	Petitioner Mauna Kea Anaina Hou is an organization of Native Hawaiian cultural practitioners who have genealogical ties and/or who engage in traditional and customary practices related to Mauna Kea. (Ex. A-029, page 6, Ex. C-1, page 1)	Mischaracterization. There is no reliable probative and substantial evidence that her or the referenced practices are within the bundle of rights protected by Article XII, Section 7 of the Hawaii State Constitution.
33.	17	Kealoha Pisciotto is president of Mauna Kea Anaina Hou. (Ex. A-029, page 6, Ex. C-1, page 1)	Not in dispute.
34.	17	Ms. Pisciotto engages in traditional and customary practices related to Hawaiian astronomy, cosmology, and la'au lapa'au on Mauna Kea. (Ex. A-029, page 6, Ex. C-1, page 1)	Citation does not support the proposition. Mischaracterization. There is no reliable probative and substantial evidence that her or the referenced practices are within the bundle of rights protected by Article XII, Section 7 of the Hawaii State Constitution. See UH-TIO FOF 3, 703-707.
35.	17	The practices of Ms. Pisciotto were taught to her by her elder family members. (Ex. A-029, page 6, Ex. C-1, page 1)	Citation does not support the proposition. Mischaracterization. There is no reliable probative and substantial evidence that her or the referenced practices are within the

			bundle of rights protected by Article XII, Section 7 of the Hawaii State Constitution. <i>See</i> UH-TIO FOF 3, 703-707.
36.	17	Construction of the TMT would introduce a new, large built structure into the natural, open space of the northern plateau on Mauna Kea, thus obscuring important star alignments and interrupting other viewplanes to and from the summit area. (Pisciotta, Tr. September 26, 2011, p. 90: 14-17)	2011 transcripts not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g). Unsupported/Unsubstantiated. There is no credible evidence that the viewplanes from the summit ridge area towards Haleakalā or other areas would be materially affected or blocked. <i>See, e.g.</i> , UH-TIO FOF 704. Citation does not support the proposition.
37.	17	If built, the TMT would increase the intensity of industrial human activity on Mauna Kea, which will further degrade the ability of her and others to gather for la'au lapa'au purposes. (C-1 Pisciotta, WDT p. 8)	Unsupported/Unsubstantiated. No evidence exists of an increase in the intensity of land use in the astronomical precinct area. <i>See, e.g.</i> , UH-TIO FOF 703-707, 935 Citation does not support the proposition.
38.	17	Ms. Pisciotta is also a former a telescope technician. She worked on the James Clerk Maxwell Telescope on Mauna Kea. (Ex. C-1 page 1)	2011 transcript not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g). Inaccurate/False.
39.	17	The Applicant agreed that Ms. Pisciotta has standing to participate in this contested case hearing. (Lui-Kwan, Tr. May 13, 2011, 45:22-46:4)	2011 orders not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g). Citation does not support the proposition.
40.	17	On May 27, 2011, the HO issued Minute Order 6 granting Ms. Pisciotta standing in this contested case hearing. (MO. 6; Aoki, TR. May 13, 2011, 6:17-23, 46:19-47-10 and 82:17-25)	
41.	17	Paul K. Neves is a Native Hawaiian practitioner of hula and kumu hula. (Ex F-01, Neves, WDT p 1)	
42.	18	Mr. Neves has genealogical ties to Mauna Kea and Haleakala. (Ex A-320, Neves, p 17)	Citation does not support the proposition. <i>See</i> UH-TIO FOF 7, 747.

43.	18	As a member of the Royal Order of Kamehameha I, Mr. Neves continues to engage in traditional and customary practices on Mauna Kea, such as celebrations of the solstice. (Ex F-01, WDT p 1, Ex A-320, Neves, p 17)	Citation does not support the proposition. <i>See</i> UH-TIO FOF 7, 747. False/Inaccurate to the extent that there is no evidence that Mr. Neves conducts any practices on the TMT project site or adjacent to it.
44.	18	Construction of the TMT would harm his traditional and customary practices on Mauna Kea by introducing a new, significant man-made structure into the natural, open space of Mauna Kea. (Neves Tr. 9.30.11 p 46: 21-25)	2011 transcript not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g). Unsupported/Unsubstantiated. There is no credible proof that any historic feature, traditional practice or viewpoint will be substantially or adversely impacted by the construction at the TMT Project site. <i>See, e.g.,</i> UH-TIO FOF 747.
45.	18	If built, the TMT would interrupt important viewplanes between Mauna Kea and Haleakala. (Neves Tr. 9.30.11 p 47: 20-25.)	2011 transcript not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g). Unsupported/Unsubstantiated. There is no credible evidence that the viewplanes from the summit ridge area towards Haleakalā or other areas would be materially affected or blocked. <i>See, e.g.,</i> UH-TIO FOF 704.
46.	18	Petitioner Deborah J. Ward is a recreational hiker who has been walking for 40 years on Mauna Kea to experience the trails and visit the summit of Mauna Kea, during the 1970's through to present, for recreation, wilderness experience, unfettered vistas, silence, spiritual peace, natural beauty, and cultural significance. (Ex. D-1, page 1)	Citation does not support the proposition. <i>See</i> UH-TIO FOF 6, 748, 749.
47.	18	Ms. Ward has led hikes on Mauna Kea for groups including the Honolulu Botanical Gardens, since the 1970's, and Hawai'i Community College, 4-	Citation does not support the proposition.

48.	18	H Youth Development Program, and High School Hikers, as a UH faculty member since the 1980's. (Exhibit D-1, page 1) Ms. Ward has experienced the cumulative impact of the destruction of habitat, widespread waste accumulation, obstruction of viewplanes, constant sound, alteration of the geology, and negative impact to the cultural practice during 40 years of recreational hiking and teaching on Mauna Kea. (Ex. D-1, page 2)	Misleading. Presented out of context. See UH-TIO FOF 6, 748,749. Citation does not support the proposition. Unsupported/Unsubstantiated. Not credible Misleading. Presented out of context. See UH-TIO FOF 6, 748,749. Ex. Jt-20/A-320 not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g). Irrelevant/Inapplicable Not supported by the reliable, probative and substantial evidence. 2011 transcript not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g). Irrelevant/Inapplicable Not supported by the reliable, probative and substantial evidence. Ex. Jt-20/A-320 not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g). Not supported by the reliable, probative and substantial evidence. 2011 transcript not in evidence
49.	18	Ms. Ward's stated goal is to preserve and protect the natural resources from degradation. Her recreational practices and scientific interests and longstanding history in this issue are distinct from that of the general public. (Ex. Jt-20/A-320, page 47)	Ex. Jt-20/A-320 not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g). Irrelevant/Inapplicable Not supported by the reliable, probative and substantial evidence. 2011 transcript not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g). Irrelevant/Inapplicable Not supported by the reliable, probative and substantial evidence. Ex. Jt-20/A-320 not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g). Not supported by the reliable, probative and substantial evidence. 2011 transcript not in evidence
50.	19	Ms. Ward brought her concerns to this case because, as a long-time recreational user, she felt it was her citizen's responsibility to participate in hearings and meetings held to review, plan and propose appropriate management of the natural resources associated with Mauna Kea. She contributed hundreds of hours as a volunteer to this effort without monetary compensation. (Ward, Tr. September 30, 2011, p 67 8-21)	Ex. Jt-20/A-320 not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g). Irrelevant/Inapplicable Not supported by the reliable, probative and substantial evidence. Ex. Jt-20/A-320 not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g). Not supported by the reliable, probative and substantial evidence. 2011 transcript not in evidence
51.	19	Ms. Ward demonstrated she has knowledge and information useful to the BLNR in making an informed decision regarding the protection of the Mauna Kea Conservation District. (Ex. Jt-20/A-320, page 47)	Ex. Jt-20/A-320 not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g). Not supported by the reliable, probative and substantial evidence. 2011 transcript not in evidence
52.	19	Ms. Ward hikes to experience the wilderness, the ecosystems and habitats	Ex. Jt-20/A-320 not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g). Not supported by the reliable, probative and substantial evidence. 2011 transcript not in evidence

		for native species, the constantly changing weather, the play of light on the landscape, the serenity of silence, the revelation of ancestral and spiritual wisdom, and numerous intangible aspects of the environment on Mauna Kea. (Ward, Tr. September 30, 2011, p 68 11- 16)	Consideration of the cited document is prohibited by HRS § 91-9(g). Not supported by the reliable, probative and substantial evidence.
53.	19	The steady deterioration of the natural landscape, including the intrusion of visual distractions, noise, trash, traffic, and access limitations has significantly degraded her recreational experience on the summit. (Ward, Tr. September 30, 2011, 17-21)	2011 transcript not in evidence Consideration of the cited document is prohibited by HRS § 91-9(g). Not supported by the reliable, probative and substantial evidence.
54.	19	Ms. Ward testified that the Applicant's characterization of the TMT as a "new visual element on the northern plateau" is a significant understatement. The development of over 5 acres of industrial infrastructure for the TMT on the last remaining unobstructed viewplane facing Haleakala would significantly undermine her recreational practices. (Ex. D-1, page 2)	Citation does not support the proposition. Unsupported/Unsubstantiated No credible evidence was presented which proved that the TMT site is the last remaining unobstructed view plane facing Haleakalā. There are multiple view planes west, north, and east of the TMT site that afford unobstructed view planes facing Haleakalā. Ex. C-18, C-19 UH- Hilo/TIO objects to the adoption of such statement to prove the truth of the matter asserted, because Ward's statements are irrelevant/inapplicable, unsupported/unsubstantiated and is otherwise not credible.
55.	19	Ms. Ward testified that telescopes are visual obstructions that cause adverse impacts to the hikers' wilderness experience. (Ex. D-1, page 2)	Citation does not support the proposition. See UH-TIO FOF 6, 748, 749.
56.	19	Ms. Ward has experienced the noise of observatory air conditioning, blowers, generators, associated vehicles and industrial activity and has	Citation does not support the proposition. See UH-TIO FOF 6, 748, 749.

		found it disturbing to recreational users. (Ex. D-1, page 2)	Unsupported/Unsubstantiated. Not credible.
57.	19	Ms. Ward testified that the multiple telescope domes on the summit of Mauna Kea are visual obstructions from any vantage point, and cause adverse impact to the natural beauty of Mauna Kea, which thereby undermines recreational enjoyment of the mountain. (Ex. D-1, page 3)	Citation does not support the proposition. UH Hilo/TIO objects to the adoption of such statement to prove the truth of the matter asserted, because Ward's statements are unsupported/unsubstantiated and is otherwise not credible. <i>See</i> UH-TIO FOF 6, 748, 749.
58.	20	Ms. Ward testified that she escapes the buildings and roads that have intruded on the natural vistas of the summit by walking to the northern plateau, where wilderness landscapes remain intact. (p.69 22-25, p 69 1-4)	Citation does not support the proposition. <i>See</i> UH-TIO FOF 6, 748, 749.
59.	20	For this reason, Ms. Ward maintains that the proposal to build the TMT on the northern plateau of Mauna Kea's summit region would further degrade, despoil, and irrevocably harm her rights to a clean and healthful environment. (p 69 5-8)	Citation does not support the proposition. UH Hilo/TIO objects to the adoption of such statement to prove the truth of the matter asserted, because Ward's statements are unsupported/unsubstantiated and is otherwise not credible. <i>See</i> UH-TIO FOF 6, 748, 749.
60.	20	Ms. Ward observed first-hand actions by the University's Institute for Astronomy (IfA) and Department of Land and Natural Resources (DLNR) staff that directly violated conditions set forth in the BLNR- approved Mauna Kea Management Plan in 1996. These actions included alteration to slopes and filling of inner cinder cone of Pu'u Hau Oki, and trenching of the outer slopes, affecting high quality Wekiu bug habitat. (Ex. D-1, page 2)	Citation does not support the proposition. <i>See</i> UH-TIO FOF 6, 748, 749. Consideration of the cited document is prohibited by HRS § 91-9(g). Irrelevant/Inapplicable. Unsupported/Unsubstantiated as to legal conclusions regarding violation of the

			Mauna Kea Management Plan. <i>See</i> UH-TIO FOF 6, 748, 749.
61.	20	Ms. Ward participated in meetings with BLNR archaeologist Holly McElowney and USFWS biologist Steve Miller, and Bishop Museum entomologist Frank Howarth, to identify resource protections absent from the practices of the University's IfA and DLNR, which led to these violations of the 1985 Mauna Kea management plan protections. (Ex. Jt-20/A-320, page 48)	Ex. Jt-20/A-320 not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g). Not supported by the reliable, probative and substantial evidence.
62.	20	Ms. Ward assisted in efforts to procure a Legislative Auditor's report in 1998, and participated in the process to develop the University's Mauna Kea Master Plan 2000 and the Keck/NASA Outrigger Environmental Assessment process. (Ex. Jt-20/A-320, page 48)	Ex. Jt-20/A-320 not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g). Not supported by the reliable, probative and substantial evidence.
63.	20	Ms. Ward has served at the request of the Office of Mauna Kea Management (OMKM) on the OMKM Environment Committee since December 2000. (Ex. D-1, page 2)	Citation does not support the proposition. <i>See</i> UH-TIO FOF 130. Consideration of the cited document is prohibited by HRS § 91-9(g).
64.	20	Ms. Ward worked with a committee of scientists working in the fields of biology, geology and environmental management, who together formulated recommendations for biological inventory and monitoring in 2002, and refined the natural resource monitoring and protection actions needed in 2005. (Ex. D-1, page 2)	Citation does not support the proposition. <i>See</i> UH-TIO FOF 130. Consideration of the cited document is prohibited by HRS § 91-9(g).
65.	20	The Applicant agreed that Ms. Ward has standing to participate in this contested case hearing. (Lui-Kwan, Tr. May 13, 2011, 45:22-46:4)	2011 transcript not in evidence Consideration of the cited document is prohibited by HRS § 91-9(g). Not supported by the reliable, probative and substantial evidence.
66.	21	On May 27, 2011, the HO issued Minute Order 6 granting Ms. Ward standing in this contested case hearing. (Min. Ord. 6; Aoki, Tr. May 13, 2011, 6:17-23, 46:19-47-10 and 82:17-25)	2011 orders not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g).

67.	21	Petitioner Clarence Kukauakahi Ching is a Native Hawaiian and traditional subsistence practitioner. (Ex E-1 Ching WDT p 3, Ching 9.30.11 TR p 81: 19-20)	Not supported by the reliable, probative and substantial evidence. Citation does not support the proposition. See UH-TIO FOF 4, 758. 2011 transcript not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g). Not supported by the reliable, probative and substantial evidence.
68.	21	Mr. Ching has hiked nearly every known ancient and modern trail of Mauna Kea. (Ex E-1 Ching WDT p 1, Ex A-320, Ching, p 37)	Citation does not support the proposition. See UH-TIO FOF 4, 758. Ex. A-320 not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g). Not supported by the reliable, probative and substantial evidence.
69.	21	Mr. Ching engages in these hu`aka`i to walk in the footsteps of his kupuna. (Ex E-1 Ching WDT p 1 Ex A-320, Ching, p 37)	Citation does not support the proposition. See UH-TIO FOF 4, 758. Ex. A-320 not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g). Not supported by the reliable, probative and substantial evidence.
70.	21	Mr. Ching has led others on hu`aka`i on Mauna Kea. (Ex E-1 Ching WDT p. 1)	Ex. E-1 not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g).

			Not supported by the reliable, probative and substantial evidence. <i>See</i> UH-TIO FOF 4, 758.
71.	21	Mauna Kea is Mr. Ching's temple and spiritual retreat. He enjoys it for the quiet and many other intangible features that make Mauna Kea so unique and special. (Ching 9.30.11 Tr. p 92: 1-3, p 82: 18-24)	2011 transcript not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g). Not supported by the reliable, probative and substantial evidence. <i>See</i> UH-TIO FOF 4, 758.
72.	21	If built, the TMT would further degrade his the ability to gather water for la`au lapau purposes and would undermine Mr. Ching's traditional and customary practices on Mauna Kea. (Ex A-320 Ching p 37)	Ex. A-320 not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g). Not supported by the reliable, probative and substantial evidence. <i>See</i> UH-TIO FOF 4, 758.
73.	21	Members of the Flores-Case 'Ohana are Kanaka Maoli (Native Hawaiian) cultural practitioners with substantial interest and connections to Mauna a Wakea and whose interest in this contested case hearing is clearly distinguishable from that of the general public. (Ex. A-318, p. 3)	Ex. A-318 not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g). Not supported by the reliable, probative and substantial evidence. <i>See</i> UH-TIO FOF 5, 764.
74.	21	Kalani Flores, B. Pualani Case, Hawane Rios, and Kapulei Flores are members of the Flores-Case 'Ohana. (Ex. A-318, p. 1)	Ex. A-318 not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g). Not supported by the reliable, probative and substantial evidence.
75.	22	Members of the Flores-Case 'Ohana continue to exercise their traditional and customary Kanaka Maoli (Native Hawaiian) cultural, spiritual, and	Ex. A-318 not in evidence. Consideration of the cited document is prohibited by HRS

		religious practices connected to Mauna a Wakea. (Ex. A-318, p. 2)	§ 91-9(g). Not supported by the reliable, probative and substantial evidence. See UH-TIO FOF 5, 764.
76.	22	The Flores-Case 'Ohana has connected with Mauna a Wākea through divine guidance of Ke Akua (the Creator), ancestral akua, and kupua connected to and/or presently residing on this mountain through genealogical ties as well as through customary cultural and traditional practices. (Ex. G-1, E. Flores WDT, p. 5, 10)	Ex. G-1 not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g). Not supported by the reliable, probative and substantial evidence. See UH-TIO FOF 5, 764.
77.	22	The Flores-Case 'Ohana has genealogical ties to Mo'oinanea, guardian of Lake Waiau who resides on the summit of Mauna a Wakea. (Ex. A-318, p. 2; Ex. G-1, E. Flores WDT, p. 5)	Ex. A-318, G-1 not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g). Not supported by the reliable, probative and substantial evidence. See UH-TIO FOF 5, 764.
78.	22	Petitioners, Ms. Case and Mr. Flores, were qualified as experts to their cultural practices related to Mauna Kea in this contested case hearing. (T. Lui-Kwan, Tr. Aug. 25, 2011, p. 28:9-15)	Inaccurate/False. No witnesses were qualified as experts. See, e.g., UH-TIO FOF 91. 2011 transcripts not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g). Not supported by the reliable, probative and substantial evidence.
79.	22	Mr. Flores was also qualified as an expert in the area of Hawaiian cultural traditions through his knowledge, skills, experience, training, and education in this subject matter. (P. Aoki, Tr. Sep. 26, 2011, p. 6:23-25)	Inaccurate/False. No witnesses were qualified as experts. See, e.g., UH-TIO FOF 91.

			2011 transcripts not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g).
80.	22	Collectively, Ms. Case and Mr. Flores have over 60 years of teaching experience in the area of Hawaiian Studies. They are known as kumu (teachers) who have acquired expertise in these areas they specialize in through their knowledge, skills, experience, teaching, education, and age. (B. Case, Tr. Aug. 25, 2011, p. 63:1-12)	Not supported by the reliable, probative and substantial evidence. 2011 transcripts not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g). Not supported by the reliable, probative and substantial evidence.
81.	22	The Flores-Case 'Ohana has insights, family traditions, and knowledge not previously disclosed in the CDUA that are useful to the BLNR in making an informed decision regarding the protection of the Mauna Kea Conservation District. (Ex. A-318, p. 3)	Misleading. Presented out of context. Flores was sent information about consultation on the Cultural Impact Assessment, but he did not respond or otherwise participate in that process. <i>See, e.g.,</i> UH-TIO FOF 216. Ex. A-318 not in evidence . Consideration of the cited document is prohibited by HRS § 91-9(g). Not supported by the reliable, probative and substantial evidence.
82.	22	Ms. Case is a Kanaka Maoli (Native Hawaiian) practitioner of hula and has had her own halau hula for over 25 years. (B. Case, Tr. Aug. 25, 2011, p. 63:25, 64:1-3)	2011 transcripts not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g). Not supported by the reliable, probative and substantial evidence.
83.	22	Ms. Case and her halau hula continue to engage in cultural practices, protocols, and ceremony gatherings connected to the Mauna. (B. Case, Tr.	2011 transcripts not in evidence. Consideration of the cited document is

		Aug. 25, 2011, p. 63:25, 64:1-3)	prohibited by HRS § 91-9(g). Not supported by the reliable, probative and substantial evidence.
84.	23	If built, the TMT would cause a substantially new visual obstruction on Mauna a Wakea and would cause a visual and spiritual interference for the Flores-Case 'Ohana when directing chants and prayers towards the mountain during cultural practices, protocols, and ceremony gatherings. (B. Case, Tr. Aug. 25, 2011, p. 66:14-23)	2011 transcripts not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g). Unsupported/Unsubstantiated. There is no credible evidence that the viewplanes from the summit ridge area towards Haleakalā or other areas would be materially affected or blocked. <i>See, e.g.,</i> UH-TIO FOF 704, 764.
85.	23	If built, the TMT would cause substantially new disruptions to the life forces and energies that flow into the piko of Mauna a Wakea which would have an impact upon the health, safety, and welfare of the Flores-Case 'Ohana and the general public of Hawai'i. (Ex. G-1, E. Flores WDT, p. 8-9)	Ex. G-1 not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g). Unsupported/Unsubstantiated. The preponderance of the evidence shows that the TMT Project will not be materially detrimental to the public health, safety, and welfare. <i>See</i> UH-TIO FOF 937-1000
86.	23	On May 27, 2011, the HO issued Minute Order 6 granting the Flores-Case 'Ohana standing in this contested case hearing. (Min. Ord. 6; Aoki, Tr. May 13, 2011, 6:17-23, 46:19-47-10 and 82:17-25)	2011 transcripts not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g).
87.	23	The mission of KAHEA: The Hawaiian-Environmental Alliance is to advocate for the protection of environmentally significant and culturally sacred places in Hawai'i. (Townsend, Tr. August 25, 2011, 124:24-125:9)	Not supported by the reliable, probative and substantial evidence. 2011 transcripts not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g). Not supported by the reliable, probative

88.	23	As an organization, KAHEA has worked for the protection of Mauna Kea since 2001. (Ex. B-1, page 1)	and substantial evidence. <i>See</i> UH-TIO FOF 8. Ex. B-1 not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g). Not supported by the reliable, probative and substantial evidence. <i>See</i> UH-TIO FOF 8.
89.	23	Construction of the TMT would undermine the quality of the natural and cultural resources on Mauna Kea and weaken the application of the laws and regulations that protect conservation districts.	Unsupported/Unsubstantiated. The TMT Management Plan is a project or site-based plan to protect and conserve natural and cultural resources and is consistent with the CMP and sub-plans. <i>See</i> , UH-TIO FOF 403-04.
90.	23	The Applicant agreed that KAHEA has standing to participate in this contested case hearing. (Lui-Kwan, Tr. May 13, 2011, 45:22-46:4)	2011 transcripts not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g). Not supported by the reliable, probative and substantial evidence.
91.	23	On May 27, 2011, the HO issued Minute Order 6 granting KAHEA standing in this contested case hearing. (Min. Ord. 6; Aoki, Tr. May 13, 2011, 6:17-23, 46:19-47-10 and 82:17-25)	2011 orders not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g). Not supported by the reliable, probative and substantial evidence.
92.	24	On June 17, 2016, in the Hilo State Office, Conference Rooms, A, B, and C, 75 Aupuni Street, Hilo, Hawaii, additional parties were granted admission to participate in the remanded contested case hearing. They were as follows: TMT International Observatory, LLC (TIO), Perpetuating Unique Educational Opportunities (P.U.E.O), Kahookahi Kanuha, Mehana Kihoi, Joseph Kualii Camara, Wilma Holi and Patricia Ikeda (as Hearings	Not in dispute.

		Officer's witnesses), Leinaala Sleightholm, Lanny Sinkin for The Temple of Lono, Maelani Lee, Kalikolehua Kanaele, Stephanie Malia Tabbada, Dwight Vicente, Cindy Freitas, William Freitas, Richard DeLeon, Glen Kila, Tiffnie Kakalia, and Brannon Kealoha. (Tr. Vol II titled: "Request for Admission and Motions" dated June 17, 2016)	
93.	24	Wilma Holu, and Patricia Ikeda were admitted in as witnesses for the hearing officer. (Tr. Vol II Titled: "Request for Admission and Motions" dated June 17, 2016)	Misrepresentation. Crystal West, Ivy McIntosh, and Moses Kealamakia, Jr. also admitted as HO witnesses. <i>See</i> Minute Order No. 13 [Doc. 115]
94.	24	Moses Kealamakia was admitted in to be witness for the hearing officer. (Tr. Vol II -p 45 1 5-24)	Misrepresentation. Wilma Holu, Patricia Ikeda, Crystal West and Ivy McIntosh also admitted as HO witnesses. <i>See</i> Minute Order No. 13 [Doc. 115]
95.	24	On August 5, 2016 at the third 3rd Pre-Hearing Conference, Officer Armano set the date September 26, 2016 for the site visit to Mauna Kea. (Tr. Vol IV p 68-69 1 23-25, p 69 1 2-7)	The fact of such a filing is not in dispute.
96.	25	On August 17, 2016 Mauna Kea Anaina Hou submitted "Site Visit Recommendations". DOC 218.	The fact of such a filing is not in dispute.
97.	25	On August 22, 2016, TIO submitted objections to Mauna Kea Anaina Hou, et al, Site Visit Recommendations. DOC 229.	The fact of such a filing is not in dispute.
98.	25	On September 19, 2016, BLNR submitted Minute Order 18, setting up schedules for site visit. Logistics included but were not limited to: Persons Approved for Site Visit to Mauna Kea on September 26, 2016. Based upon a careful review of the positions reflected in the documents noted above, the following persons are approved for the Site Visit: William Freitas, Tim Lui-Kwan, Ian L. Sandison or John P. Manaut (two of three), attorneys for the University of Hawaii'i at Hilo; three (total) representatives from the Office of Mauna Kea Management, the Institute for Astronomy or the Office of the General Counsel, J. Leina'ala Sleightholm and First responder/medical personnel Bimo Akiona, Douglas Ing and/or Ross Shinyama, attorneys for TIO; up to two TIO representatives, Richard Wurdeman, attorney for Mauna Kea Anaina Hou Petitioners; Kealoha Pisciotto, Keomailani Van Gogh, Clarence	Incomplete. <i>See</i> UH-TIO FOF 68-73.
99.	25		Incomplete, vague and ambiguous. <i>See</i> UH-TIO FOF 68-73.

		Kukauakahi Ching, E. Kalani Flores, Pualani Case, Hawane Rios, Deborah Ward, Candace Fujikane for KAHEA, Harry Fergerstrom, Cindy Freitas, Lincoln Ashida, attorney for PUEO; Shadd Keahi Warfield, Richard Ha, Bill Brown, and Mehana Kihoi. (MO 18, September 19, 2017 DOC 274)	
100.	25	Participants are asked to bring photo IDs to verify identification.	Incomplete. Unsupported/Unsubstantiated. See UH-TIO FOF 68-73.
101.	25	Logistics of Site Visit. The Department of Land and Natural Resources has obtained transportation for participants; three Arnott's vans have been hired, one of which will be designated an emergency vehicle to drive down the mountain if needed. All approved persons should be at the Hilo Bayfront Soccer Fields prepared to depart at 8:30 a.m. on Monday, September 26, 2016. Here is the schedule:	Incomplete. Unsupported/Unsubstantiated. See UH-TIO FOF 68-73.
102.	26	8:30 a.m.: Depart from Hilo Bayfront Soccer Fields	Incomplete. See UH-TIO FOF 68-73.
103.	26	Acclimatization stop at Puu Huluhulu, 15-20 minutes	Incomplete. See UH-TIO FOF 68-73.
104.	26	Acclimatization stop at Visitor Center, 15-20 minutes	Incomplete. See UH-TIO FOF 68-73.
105.	26	10:00 a.m.: Proceed to Hale Pohaku and begin site visit	Incomplete. See UH-TIO FOF 68-73.
106.	26	2:00 p.m.: Begin descent and return to Hilo Bayfront Soccer Fields	Incomplete. See UH-TIO FOF 68-73.
107.	26	(MO 18, September 19, 2016 DOC 274)	Incomplete. See UH-TIO FOF 68-73.
108.	26	On the site visit of September 26, 2016 there were no accommodations for allowing the Petitioners time for cultural protocols during the ascent up to Mauna Kea. In DOC 218, MKAH specifically requested to stop and perform required protocols. This request was denied (in so many words) in DOC 274 BLNR Minute Order 18. September 26, 2016 Doc 288 was filed by MKAH in objection to BLNR'S minute order 18 that did not allow for those protocols.	Unsupported/Unsubstantiated as to "there were no accommodations for allowing the Petitioners time for cultural protocols during the ascent up to Mauna Kea." See UH-TIO FOF 68-73.
109.	26	Mauna Kea Anaina Hou did not attend the site visit.	Not in evidence. See UH-TIO FOF 68-73.
110.	26	There were over 600 documents filed during the course of the CCH.	The fact of such a filing is not in dispute.
111.	26	April 15, 2016, Mauna Kea Anaina Hou submitted a motion to disqualify Riki May Amano titled "Petitioners Object to Selection process and to the Appointment of Hearing Officer Made Pursuant to MO 1 Dated March 31, 2016". DOC 005	The fact of such a filing is not in dispute.
112.	26	June 13, 2016, Petitioners Mauna Kea Anaina Hou filed a Memorandum In Opposition to Perpetuating Unique Education Opportunities Inc.'s Motion	The fact of such a filing is not in dispute.

113.	26	to Intervene. DOC 069. May 6, 2016, Mauna Kea Hui Petitioners filed Petitioners' objections regarding procurement committee and process and committee member / BLNR Board member. DOC 015	The fact of such a filing is not in dispute.
114.	27	May 13, 2016, Mauna Kea Hui Petitioners filed Petitioners' motion for reconsideration of Minute Order No. 4, filed on May 6, 2016 and/or motion to strike selection process and to disqualify various members and hearing officer. DOC 017	The fact of such a filing is not in dispute. UH-TIO notes that Mauna Kea Hui Petitioners' motion for reconsideration filed May 13, 2016 is Doc. 31 (not Doc. 17).
115.	27	May 31, 2016, Mauna Kea Hui Petitioners filed [Doc. 52] Petitioners' submissions and positions on record; Exhibit "A." DOC 052	The fact of such a filing is not in dispute.
116.	27	June 13, 2016, Mauna Kea Anaina Hou filed a Memorandum in Opposition to TIO'S Motion to be admitted as a party. DOC 070	The fact of such a filing is not in dispute.
117.	27	June 16, 2016, Mauna Kea Hui Petitioners filed [Doc. 69] Petitioners' memorandum in opposition to Perpetuating Unique Educational Opportunities, Inc.'s motion to intervene, dated May 16 2016. DOC 069	The fact of such a filing is not in dispute.
118.	27	July 11, 2016, Mauna Kea Anaina Hou filed Motion to Request for continuance on Submissions and Next Hearing Date. DOC 081	The fact of such a filing is not in dispute.
119.	27	July 12, 2016 Mauna Kea Anaina Hou filed a Supplemental Request For Continuance. DOC 083	The fact of such a filing is not in dispute.
120.	27	July 14, 2016, Mauna Kea Anaina Hou's Reply To TIO and UH Responses. DOC 087	The fact of such a filing is not in dispute.
121.	27	July 18, 2016, Mauna Kea Anaina Hou filed Motion to Strike Conservation District Use Application HA-3568 Dated September 2, 2010 and motion For Summary Judgment. DOC 094	The fact of such a filing is not in dispute.
122.	27	July 18, 2016 Mauna Kea Anaina Hou Filed Motion to Disqualify BLNR'S and Hearing Officer's counsel. DOC 095	The fact of such a filing is not in dispute.
123.	27	July 18, 2016, Mauna Kea Hui Petitioners filed Petitioners Mauna Kea Anaina Hou et al.'s supplemental witness list. D0C. 104	The fact of such a filing is not in dispute.
124.	28	July 26, 2016, Mauna Kea Anaina Hou Filed Renewal Of Objection to H.O Selection process and H.O Appointment and (2) Supplemental Arguments on Motion to Disqualify BLNR'S and H.O counsel. DOC. 130	The fact of such a filing is not in dispute.

125.	28	August 1, 2016, Position Statement on P.U.E.O Motion to Set Issues Dated July 18, 2016. DOC. 164	The fact of such a filing is not in dispute.
126.	28	August 1, 2016, Email regarding P.U.E.O's joinder to UH Hilo's motions when the motions haven't been filed yet. DOC. 168	The fact of such a filing is not in dispute.
127.	28	August 1, 2016, Mauna Kea Hui Petitioners filed [Doc. 165] (email) Note for the record. DOC. 165	Misrepresentation. Doc. 165 is MKAH's witness list resubmitted. UH-TIO notes, however, that the correct citation to this document is Doc. 168. The fact of such a filing is not in dispute.
128.	28	August 10, 2016, Motion to strike Motion for Protective Order Filed by BLNR for a protective order for the Honorable David Ige, Suzanne Case, and Stanley Roehrig, filed August 8, 2016. DOC. 187	The fact of such a filing is not in dispute.
129.	28	August 17, 2016, Mauna Kea Hui Petitioners filed Petitioners Mauna Kea Anaina Hou, et al.'s site visit recommendations. DOC 218	The fact of such a filing is not in dispute.
130.	28	August 22, 2016, Mauna Kea Hui Petitioners filed Petitioners Mauna Kea Anaina Hou, et al.'s memorandum in opposition to motion for protective order for the Honorable David Y. Ige, Suzanne Case and Stanley Roehrig, filed on August 8, 201. DOC 233.	The fact of such a filing is not in dispute.
131.	28	September 8, 2016, Request for further status conference and or consideration of proposed scheduling. DOC. 254	The fact of such a filing is not in dispute.
132.	28	September 19, 2016, Petitioners response to P.U.E.O proposed motion granting P.U.E.O motion to set issues. DOC 270	The fact of such a filing is not in dispute.
133.	28	September 23, 2016, Mauna Kea Hui Petitioners filed Correspondence regarding notice of contested case hearing. DOC 282.	The fact of such a filing is not in dispute.
134.	29	September 26, 2016, Mauna Kea Hui Petitioners filed Petitioner Mauna Kea Anaina Hou, et al.'s objections to site visit and Minute Order No. 18. DOC 288	The fact of such a filing is not in dispute.
135.	29	October 10, 2016, Mauna Kea Hui Petitioners filed Petitioners Mauna Kea Anaina Hou, et al.'s renewed motion to disqualify hearing officer. DOC 340	The fact of such a filing is not in dispute.
136.	29	October 10, 2016, Mauna Kea Hui Petitioners filed Notice of withdrawal of counsel. DOC 341	Misrepresentation. Notice of Withdrawal was filed by Mr. Wurdeman, not MKAH Petitioners.

137.	29	October 10, 2016, Mauna Kea Hui Petitioners filed Petitioners Mauna Kea Anaina Hou and Kealoha Pisciotto, Clarence Kukaakahi Ching; Flores Case Ohana, Deborah J. Ward, Paul K. Neves, and KAHEA: The Hawaiian-Environmental Alliance list of e-mail addresses for service of process. DOC 342	The fact of such a filing is not in dispute.
138.	29	October 17, 2016, Mauna Kea Hui Petitioners filed Petitioners' Statement of Position in Response to the University's Statement Re Petitioners Renewed Motion to Disqualify Hearing Officer Document 369. DOC 383	The fact of such a filing is not in dispute.
139.	29	October 17, 2016, Mauna Kea Anaina Hou, et al. filed Petitioners' Statement of Position in Response to the University's Statement Re Scheduling Document 370. DOC 384	The fact of such a filing is not in dispute.
140.	29	February 24, 2016, Mauna Kea Anaina Hou, et al. filed Mauna Kea Anaina Hou, Kealoha Pisciotto and Paul K. Neves; Clarence Kukaakahi Ching; and Deborah J. Ward's joinder in Flores-Case Ohana's (1) request for witness subpoena for Samuel Lemmo - Administrator, Office of Conservation and Coastal Lands, DLNR, State of Hawaii dated January 12, 2017 (uploaded January 25, 2017); and (2) Amended request for witness subpoena for Samuel Lemmo - Administrator, Office of Conservation and Coastal Lands, DLNR, State of Hawai'i dated and uploaded January 27, 2017. DOC 477.	The fact of such a filing is not in dispute.
141.	29	February 26, 2017, MKAH submitted exhibit list and written direct testimony into evidence. DOC 482	The fact of such a filing is not in dispute.
142.	30	March 9, 2017, MKAH and Paul Neves submitted a motion to admit first 1st supplemental exhibit list and written direct testimony into evidence. DOC 509.	The fact of such a filing is not in dispute.
143.	30	March 21, 2017, Mauna Kea Anaina Hou filed Mauna Kea Anaina Hou motion requesting time to respond to exhibit objections and related matters. DOC 522.	The fact of such a filing is not in dispute.
144.	30	March 23, 2017, Mauna Kea Anaina Hou, et al. filed Kealoha Pisciotto, Mauna Kea Anaina Hou and Paul K. Neves' motion for joinder in Temple of Lono motion to Board of Land and Natural Resources to dismiss HA-3568. DOC 542	The fact of such a filing is not in dispute.
145.	30	April 25, 2017, Mauna Kea Anaina Hou, et al. filed Petitioners Kealoha	The fact of such a filing is not in dispute.

146.	30	Pisciotta, Mauna Kea Anaina Hou, and Paul K. Neves join with Temple of Lono's memorandum in support of motion for reconsideration of Minute Order 43. DOC 561	
147.	30	April 26, 2017, Mauna Kea Anaina Hou, et al. filed Mauna Kea Anaina Hou et al. joinder. DOC 564	The fact of such a filing is not in dispute.
148.	30	April 27, 2017, Mauna Kea Anaina Hou, et al. filed Mauna Kea Anaina Hou et al. joinder and objections. DOC 578	The fact of such a filing is not in dispute.
149.	30	April 28, 2017, Mauna Kea Anaina Hou, et al. filed Mauna Kea Anaina Hou et al. joinder. DOC 584	The fact of such a filing is not in dispute.
150.	30	May 5, 2017, Mauna Kea Anaina Hou, et al. filed Parties' petition to the BLNR for online access to the transcripts. DOC 622	The fact of such a filing is not in dispute.
151.	30	May 11, 2017, Mauna Kea Anaina Hou, et al. filed Parties' petition to Board for declaratory judgment and motion to vacate Minute Order 43. DOC 629	The fact of such a filing is not in dispute.
152.	31	May 12, 2017, Mauna Kea Anaina Hou, et al. filed [Doc. 632] Memorandum in opposition re: UH-CDUA-BLNR-CC-16-002-UH joinder to TMT's opp to parties' petition to Board for online access to transcripts, et al DOC 632.	The fact of such a filing is not in dispute.
153.	31	May 20, 2017, Mauna Kea Anaina Hou et al. filed a Motion for Reconsideration and Exhibit 1, COS. DOC 643	The fact of such a filing is not in dispute.
154.	31	March 31, 2016 Minute Order No. 1: Notice of selection of Riki May Amano as Hearing Officer on subject contested case; Exhibit 1; COS DOC 01.	The fact of such a filing is not in dispute.
155.	31	April 8, 2016, Minute Order No. 2: Order delegating the conduct of the contested case hearing to a hearing officer, and confirming that the chairperson was authorized to engage the services of a hearing officer; COS. DOC 03.	The fact of such a filing is not in dispute.
156.	31	April 25, 2017, Petitioners Kealoha Pisciotta, Mauna Kea Anaina Hou, and Paul K. Neves join with Temple of Lono's memorandum in support of motion for reconsideration of Minute Order 43. DOC 561	The fact of such a filing is not in dispute.
157.	31	April 29, 2016 Minute Order 3: Order setting deadlines for responses to Hearing Officer's supplemental disclosures; COS DOC 11	Incomplete. Not best evidence; minute order speaks for itself.
		June 6, 2016 Minute Order 4: Order regarding objections to the selection	Incomplete. Not best evidence; minute

			process, and regarding objections to the Hearing Officer; COS DOC 14.	order speaks for itself.
158.	31		June 9, 2016, Minute Order 5: Order setting pre-hearing conference; COS DOC 016.	Incomplete. Not best evidence; minute order speaks for itself.
159.	31		June 23, 2016, Minute Order 6: Order setting response date; COS DOC 041	Incomplete. Not best evidence; minute order speaks for itself.
160.	31		June 26, 2016, Minute Order No. 7: Order regarding 1st prehearing conference and Amano fourth supplemental disclosure; COS DOC 044	Incomplete. Not best evidence; minute order speaks for itself.
161.	31		June 27, 2016, Minute Order 8: Order setting hearings on motions to intervene and 2nd pre-hearing conference; COS (3) DOC 049	Incomplete. Not best evidence; minute order speaks for itself.
162.	31		July 3, 2016, Minute Order 9: Order denying Petitioners' motion for reconsideration of Minute Order No. 4 filed on May 6, 2016 and/or Motion to strike selection process and to disqualify various members and Hearing Officer; COS DOC 10	Incomplete. Citation should be to Doc. 63. Not best evidence; minute order speaks for itself.
163.	32		July 9, 2016, Minute Order 11: Order regarding relocation of hearings on motions to intervene. DOC 066	Incomplete. Not best evidence; minute order speaks for itself.
164.	32		July 12, 2016, Minute Order 12: Order denying Temple of Lono's motion for refund of filing fee, filed June 23, 2016; COS DOC 082	Incomplete. Not best evidence; minute order speaks for itself.
165.	32		July 21, 2016, Minute Order 13: Order on the hearing on admission or intervention as a party; Second pre-hearing conference; COS DOC 115	Incomplete. Not best evidence; minute order speaks for itself.
166.	32		July 22, 2016, Minute Order No. 14: Order denying Dwight J. Vicente's motion to disqualify Judge Riki May Amano (ret.); State of Hawaii lack of jurisdiction to hear the contested case hearing; COS DOC 124	Incomplete. Not best evidence; minute order speaks for itself.
167.	32		August 9, 2016, Minute Order 15: Order regarding change of location for August 12, 2016 continued hearing and 3rd pre-hearing conference; COS DOC 185	Incomplete. Not best evidence; minute order speaks for itself.
168.	32		August 22, 2016, Minute Order 16: Order regarding third prehearing conference; COS DOC 238	Incomplete. Not best evidence; minute order speaks for itself.
169.	32		August 17, 2016, Minute Order 17: Order denying motion objecting to the Hearing Officer and the Hearing Officer Selection Process; COS DOC 245	Incomplete. Not best evidence; minute order speaks for itself.
170.	32		August 19, 2016, Minute Order No. 18: Order regarding site visit to Mauna Kea - September 26, 2016; COS DOC 274	Incomplete. Not best evidence; minute order speaks for itself.
171.	32		September 23, 2016, Minute Order 19: Order granting Perpetuating Unique Educational Opportunities, Inc.'s motion to set the issues Doc. 99: Order	Incomplete. Not best evidence; minute order speaks for itself.

		setting issues; COS DOC 281	
172.	32	September 26, 2016, Minute Order No. 20: Order setting fifth pre-hearing conference; COS DOC 289	Incomplete. Not best evidence; minute order speaks for itself.
173.	32	October 10, 2016, Minute Order No. 21, Order regarding fourth pre-hearing conference; COS DOC 344	Incomplete. Not best evidence; minute order speaks for itself.
174.	32	October 10, 2016, Minute Order No. 22, Order denying Harry Fergerstrom's (1) Motion to reconsider all motions, application, and/or request for admission or intervention as a party or other parties in this matter; and (2) Motion to strike all motions, applications, decision, etc.; Essentially making moot the entire hearing (Doc. 96); COS DOC 345	Incomplete. Not best evidence; minute order speaks for itself.
175.	33	October 10, 2016, Minute Order No. 23, Order denying Temple of Lono's motion for partial summary judgment (Doc 78); COS DOC 346	Incomplete. Not best evidence; minute order speaks for itself.
176.	33	October 10, 2016. Minute Order 24 Order Denying Kalikolehua Kanaele motion to exclude / remove PUEO, TMT, UH Manoa/ Hilo and all petitioners seeking for permit for TMT by circumvention of religious protections of the Hawaii Constitution, Article XI and HRS 7- 11-1107 committing desecration. DOC 347	Incomplete. Not best evidence; minute order speaks for itself.
177.	33	October 10, 2016, Minute Order No. 25, Order denying Stephanie-Malia:Tabbada's motion to vacate entire process for violation of BLNR and University of Hawai'i fiduciary trust, rights, responsibilities, breach of contract, etc. mandated the by the law of the land (Doc 97); COS DOC 348	Incomplete. Not best evidence; minute order speaks for itself.
178.	33	October 10, 2016, Minute Order No. 25, Order denying Stephanie-Malia:Tabbada's motion to vacate entire process for violation of BLNR and University of Hawai'i fiduciary trust, rights, responsibilities, breach of contract, etc. mandated the by the law of the land (Doc 97); COS DOC 348	Incomplete. Not best evidence; minute order speaks for itself.
179.	33	October 10, 2016, Minute Order No. 26, Order denying Maelani Lee's motion to intervene (Doc 84); COS DOC 349	Incomplete. Not best evidence; minute order speaks for itself.
180.	33	October 10, 2016, Minute Order No. 27, Order denying Petitioners' request for continuance on submissions and next hearing date (Doc 81) and Petitioners' supplemental request for continuance on submissions and next hearing date (Doc 82); COS DOC 350	Incomplete. Not best evidence; minute order speaks for itself.
181.	33	October 10, 2016 Minute Order No. 28, Order denying Mehana Kihoi's motion to deny the intervention of Perpetuating Unique Educational	Incomplete. Not best evidence; minute order speaks for itself.

		Opportunities as a party in the contested case hearing (Doc. 98); COS DOC 351	
182.	33	October 10, 2016, Minute Order No. 29, Order denying Temple of Lono's motion to dismiss for lack of jurisdiction based on unresolved land claims (Doc 126); COS DOC 352	Incomplete. Not best evidence; minute order speaks for itself.
183.	34	October 10, 2016, Minute Order No. 30, Order denying Kamahana Kealoha: Motion invoking Quo Warranto, respectfully, a demand of jurisdiction; Declaratory judgment on a constitutional issue / violation resubmitted 8/8/2016 (Doc 180); COSD. Conduct of the contested case. DOC 353	Incomplete. Not best evidence; minute order speaks for itself.
184.	34	October 10, 2016, Minute Order No. 31, Order denying motion for protective order for the Honorable David Y. Ige, Suzanne Case and Stanley Roehrig (Doc 182); COS DOC 354	Incomplete. Not best evidence; minute order speaks for itself.
185.	34	October 10, 2016, Minute Order No. 32, Order denying motion to strike motion for protective order for the Honorable David Y. Ige, Suzanne Case and Stanley Roehrig, filed on August 8, 2016 (Doc. 187); COS DOC 355	Incomplete. Not best evidence; minute order speaks for itself.
186.	34	October 10, 2016, Minute Order No. 33, Order denying Temple of Lono's motion to dismiss out of time (Doc. 179); COS DOC 356	Incomplete. Not best evidence; minute order speaks for itself.
187.	34	October 11, 2016, Minute Order No. 34, Order denying Kamahana Kealoha's motion demanding inventory of the so-called ceded lands containing the specific land and parcel the TIO plans to be sub-leased by UH who leases said lands from the BLNR, a survey of these lands also (Doc. 191) DOC 363	Incomplete. Not best evidence; minute order speaks for itself.
188.	34	October 13, 2016, Minute Order No. 35, Order re: dismissal of Shelley Stephen's request to be part of Contested Case Hearing (Doc. 213) DOC 365	Incomplete. Not best evidence; minute order speaks for itself.
189.	34	October 14, 2016, Minute Order 36, Order voiding permit DOC 376	Incomplete. Not best evidence; minute order speaks for itself.
190.	34	October 19, 2016, Minute Order 37, Order denying motion to strike Conservation District Use Application, HA-3568, dated September 2, 2010, and/or motion for summary judgment (Doc. 94) DOC 388	Incomplete. Not best evidence; minute order speaks for itself.
191.	34	October 19, 2016, Minute Order 38, Order denying motion to disqualify BLNR's and Hearing Officer's counsel (Doc 95) DOC 389	Incomplete. Not best evidence; minute order speaks for itself.

192.	34	October 28, 2016, Minute Order No. 39, Order denying renewed motions to disqualify Hearing Officer DOC 340	Incomplete. Citation should be to Doc. 406. Not best evidence; minute order speaks for itself.
193.	35	January 1, 2016, Minute Order 41, Order regarding date to set witnesses; COS DOC 446	Incomplete. Not best evidence; minute order speaks for itself.
194.	35	February, 17, 2016, Minute Order No. 42: Order granting Flores-Case Ohana's request for subpoena for Samuel Lemmo - Administrator, Office of Conservation and Coastal Lands, DLNR, State of Hawaii (Doc. No. 452) and denying the University of Hawaii'i at Hilo's motion to quash Flores-Case Ohana's request for Samuel Lemmo - Administrator, Office of Conservation and Coastal Lands, DLNR, State of Hawaii (Doc 444); COS DOC 464	Incomplete. Not best evidence; minute order speaks for itself.
195.	35	April 18, 2016, Minute Order 43, Order setting post-hearing deadlines; COS DOC 552	Incomplete. Not best evidence; minute order speaks for itself.
196.	35	April 20, 2016, Minute Order 44, Order regarding documentary evidence DOC 553	Incomplete. Not best evidence; minute order speaks for itself.
197.	35	June 2, 2016, Minute Order No. 45: Order granting in part / denying in part petitioners Mauna Kea Anaina Hou, et al.'s request for further status conference and/or consideration of proposed scheduling (Doc. 254); and related Doc. Nos. 257, 258, 259, 261, 294, 296 & 298 DOC 590	Incomplete. Not best evidence; minute order speaks for itself.
198.	35	June 2, 2016 Minute Order No. 46: Order related to Temple of Lono motion to recuse Hearing Officer (Doc. Nos. 262, 434, 436, 536, 544); COS DOC 595	Incomplete. Not best evidence; minute order speaks for itself.
199.	35	June 4, 2016 Minute Order No. 47: Order related to Temple of Lono motion for summary judgment (disqualification) (Doc. 263); COS DOC 609	Incomplete. Not best evidence; minute order speaks for itself.
200.	35	June 12, 2016, Minute Order No. 48: Order denying the Temple of Lono's emergency motion to Board to stay proceedings, filed April 27, 2017 [Doc. 573] and related documents [Docs 582, 583, 584, 585, 600, 602, 624]; COS DOC 631.	Incomplete. Not best evidence; minute order speaks for itself.
201.	36	We offer a brief narrative and then will follow up with witness statements.	Irrelevant/Inapplicable.
202.	36	As outlined in the conservation district rules, the applicant for a CDUP must demonstrate compliance with all eight permit criteria. HAR §13-5-	Unsupported/Unsubstantiated. UH-TIO has demonstrated how TMT satisfies all

		30(c). There is no dispute that the UH/TMT must meet all eight of the criteria and that they as applicant have the burden of proof to demonstrate that all eight have been met. The UH/TMT has failed to demonstrate how the TMT would even satisfy one criterion, much less all eight.	eight criteria contained in HAR § 13-5-30(c). <i>See, e.g.,</i> UH-TIO FOF 348
203.	36	Conservation districts were formed “for the purpose of conserving, protecting and preserving the important natural resources of the State through appropriate management to promote their long-term sustainability and the public health, safety, and welfare.” (HAR §13-5-1, see also, HRS §205-2(e))	Incomplete. <i>See</i> UH-TIO FOF 350-384.
204.	36	UH/TMT proposes that an 18-story, five-acre industrial structure in an undisturbed natural area is not consistent with this purpose. This is an overbroad interpretation of HAR §13-5-30(c)(1) that, if accepted, would ultimately undermine conservation district protections. When interpreting a statute, the “whole act” rule demands that “the court will not look merely at a particular clause in which general words may be used, but will take in connection with it the whole statute . . . and the objects and policy of the law, as indicated by its various provisions, and give to it such a construction as will carry into execution the will of the Legislature.” (<i>Azarte v. Ashcroft</i> , 394 F.3d 1287-88 (9th Cir. 2005) quoting <i>Kokoszka v. Belford</i> , 417 U.S. 642, 650 (1974)). Against this rule of statutory interpretation, UH/TMT focuses solely on the latter half of the regulation to focus on “appropriate management,” ignoring the context of this general term and therefore the stated purpose of the conservation district. Because the TMT cannot meet this first criterion, this CDUA cannot be approved without abusing BLNR’s discretion.	Inaccurate/False. UH-TIO repeatedly notes the purpose of the Conservation District is to conserve, protect, and preserve and that the TMT Project is consistent with this purpose. <i>See, e.g.,</i> UH-TIO FOF 88, 130, 139, 317, 352. <i>See also Kilakila ‘O Halekala</i> , 138 Hawaii 383 (2016).
205.	37	The following witnesses affirmed the first criteria was not met:	Incomplete.
206.	37	So heavy is UH/TMT’s reliance on “astronomy facility” as an identified use in the Resource subzone that it crushes the foundational purpose of conservation districts -- “conserving, protecting, and preserving the important natural resources of the State.” HAR §13- 5-30(c)(1). Subzones are subset of a conservation district -- not an exception to it. <i>See</i> , HAR	Unsupported/Unsubstantiated. Inaccurate/false. <i>See, e.g.,</i> UH-TIO FOF 143-164, 385-416. Misrepresentation. Quotation is not from HAR § 13-5-30(c)(1).

207.	37	§13-5-30(c)(2). Any activity proposed for a subzone must comply with all of the requirements of the conservation district itself. Identified uses in a Resource subzone are hierarchically classified according to their consistency with the mission and purpose of the conservation district. (See, Department of Land and Natural Resources, State of Hawaii. "Conservation District Review Project: The Discussion Draft." November 1993. Prepared by Gail W. Atwater. (EXB.03t at p. 16, Atwater Report (1993))	Citation to HAR § 13-5-30(c)(2) does not support the proposition. Citation does not support the proposition.
208.	37	While astronomy is an identified use in the conservation district subzone, such use is permitted if and only if it will not entail substantial adverse impacts on the conservation district. According to HAR §13-5-13(a), "[t]he objective of this [Resource] subzone is to develop, with proper management, areas to ensure sustained use of the natural resources of those areas." Id. (emphasis added). Ensuring sustained use of Mauna Kea's natural resources necessarily means ensuring that these resources are actually conserved, not degraded. Mauna Kea's central location in mauka watersheds, views from the summit itself, unique rare and species habitat, and its cultural significance are resources would be degraded by the proposed TMT, as UH/TMT readily admits. (See Ex A003/R-3 FEIS Vol. 1, pp. S-12 through S-19). Thus, the TMT project cannot comply with criterion 2 and the CDUA should be denied.	Misrepresentation. HAR §13-5-13(a) states: The objectives of this subzone is to ensure, with proper management, the sustainable use of the natural resources of those areas. Inaccurate/False. As an astronomy facility that will be subject to appropriate management aimed at ensuring the protection and sustain use of natural resources in the area, the TMT Project is consistent with the purposes of the Resource subzone. <i>See, e.g.,</i> UH-TIO FOF 143-164, 385-416. Incomplete.
209.	37	The following witnesses affirmed the second criteria was not met:	Unsupported/Unsubstantiated. Unsupported/Unsubstantiated. The evidence presented demonstrates that the TMT Project complies with the objectives of Chapter 205A. <i>See, e.g.,</i> UH-TIO FOF 417-432.
210.	38	Most of the Coastal Zone Management (CZM) policies align with those of the Conservation District. These policies, along with other CZM objectives and guidelines, are binding on agency actions within the coastal zone management area, which includes Mauna Kea. HRS § 205A-4(b). The TMT project fails to demonstrate compliance with CZM policies for many of the same reasons that it would entail adverse, significant and substantial impacts on the natural and cultural resources of the Mauna Kea conservation district.	

211.	38	UH/TMT has failed to show that the TMT can comply with CZM policies for protecting watersheds and aquifers. HRS Chapter 205A(c)(4)(E). The Mauna Kea Science Reserve is located above five State of Hawai'i delineated aquifers. See the Mauna Kea Comprehensive Management Plan for UH Management Areas, Jan. 2009. (Ex A009 CMP at p. 5-32). Ground water and aquifer contamination is a "potential side effect of a variety of human activities on the mountain," and groundwater rates and flows at the summit are "unknown." (Ex A009 CMP 6-14). Moreover, as observatory operators have demonstrated, spills and run-off from telescopes, the Access Way, and a potential Mid-Level Facility have been allowed to "percolate into the ground[.]" (Ex A003 FEIS Vol.1, p. 3-120). In March 2008, as much as 1,000 gallons of sewage overflowed onto the ground and was "quickly absorbed" into highly porous ground, beneath which are flows to aquifers. (Ex A009 CMP, p. 6- 10). The TMT's three underground storage tanks (USTs), one of which will store hazardous wastes, raise additional concerns. Neither the CDUA nor the FEIS state whether they meet the EPA's standards for maintaining USTs. UH/TMT does not consider how this percolation impacts aquifers. UH/TMT have conducted no hydrology studies to understand how surface and ground water flows and the other water sources such as the lake, snow, ice and the melt waters follow.	Inaccurate/False. There is no HRS Chapter 205A(c)(4)(E). Unsupported/Unsubstantiated. The evidence presented demonstrates that the TMT Project complies with the objectives of Chapter 205A. See, e.g., UH-TIO FOF 417-432.
212.	38	In addition, as explained in more detailed below, the proposed TMT would directly interfere with scenic views to and from Mauna Kea's summit region in violation of CZM policies. HRS §205A-2(c)(3)(E). If built, the TMT would be an unavoidable blight on the remaining natural viewplanes in the line of sight between Mauna Kea and Haleakala" on Maui. Native traditions, oral histories, and historical accounts of Mauna Kea contain many references to the north-facing viewshed from Mauna Kea. E.g., Maly 2005, pp. 169, 209, 218, 231.	Inaccurate/False. There is no subsection (E) of HRS §205A-2(c)(3). Unsupported/Unsubstantiated. There is no credible evidence that the viewplanes from the summit ridge area towards Haleakala or other areas would be materially affected or blocked. See, e.g., UH-TIO FOF 704.
213.	39	The following witnesses affirmed the third criteria was not met:	Incomplete.
214.	39	HAR §13-5-30(c)(4) requires that "[t]he proposed land use will not cause	Unsupported/Unsubstantiated. Citation does not support the proposition

		substantial adverse impact to existing natural resources within the surrounding area, community or region." Id. Compliance with the fourth permit criteria is essential to ensure that the natural and cultural resources of the conservation district are not sacrificed in pursuit of unrelated goals.	that the purpose of HAR §13-5-30(c)(4) is to ensure that the natural and cultural resources of the conservation district are not sacrificed in pursuit of unrelated goals
215.	39	The following witnesses affirmed the second criteria was not met:	Incomplete.
216.	39	"Cumulative" is defined as "made up of accumulated parts; increasing by successive additions." Webster's Dictionary, 2011. This definition is consistent with HAR §11-200-2, which defines "cumulative impact" as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions."	Irrelevant/Inapplicable. Dictionary definitions are irrelevant when the terms are defined within the statute. <i>Singleton v. Liquor Com'n, County of Hawai'i</i> , 2006, 140 P.3d 1014, 111 Hawai'i 234 (where a statute's term is not defined, courts may rely upon extrinsic aids, such as legal and lay dictionaries, to determine such intent).
217.	39	UH/TMT's attempts to limit review of the project solely to the TMT's discrete contribution to cumulative impacts. HAR §13-5-30(c)(4) is concerned with the effects of proposed actions on natural resources and not with tracking individual contributions from different impact sources. UH/TMT's attempt to justify additional incremental impacts to a district already overburdened defies logic, for cumulative impacts necessarily results from incremental impacts.	Citation does not support the proposition. Mischaracterization. In the context of the existing summit area cumulative impacts - and under the assumption that such cumulative impacts will continue - the TMT project does not create or cause substantial adverse impacts to existing natural resources in the applicable area. <i>See, e.g., UH-TIO FOF 443.</i>
218.	40	UH/TMT's conclusion that the impact of the proposed TMT would only be "incremental" is based on sophistries that unnecessarily complicate findings in the FEIS and by the DLNR itself. The record is undeniable: the TMT will have a substantial, significant, adverse impact. What UH/TMT admits, we need not prove. The TMT FEIS states:	Incomplete. Inaccurate/False. In the context of the existing summit area cumulative impacts - and under the assumption that such cumulative impacts will continue - the TMT project does not create or cause substantial adverse impacts to existing natural resources in the applicable area. <i>See, e.g., UH-TIO FOF 443.</i>

219.	40	“From a cumulative perspective, the impact of past and present actions on cultural, archaeological, and historic resources is substantial, significant, and adverse: these impacts would continue to be substantial, significant, and adverse with the consideration of the [TMT] Project and other reasonably foreseeable future actions.” (Ex A003/R-3 TMT FEIS, S-8). In comments to the TMT-DEIS, the DLNR Chairperson states: “[i]t is our view that the effect of astronomy development on cultural resources and on the landscape of Mauna Kea has been significant and adverse. While a project such as TMT can bring new resources into play that may mitigate certain cultural impacts and even benefit native Hawaiians, we believe that the project will increase the level of impact on cultural resources, which remains to be significant and adverse.” (Ex. A004.R-4, FEIS Vol.2, p.17.)	Incomplete. Misleading. Presented out of context. See UH-TIO FOF 433-839.
220.	40	“[i]t is our view that the effect of astronomy development on cultural resources and on the landscape of Mauna Kea has been significant and adverse. While a project such as TMT can bring new resources into play that may mitigate certain cultural impacts and even benefit native Hawaiians, we believe that the project will increase the level of impact on cultural resources, which remains to be significant and adverse.” (Ex. A004.R-4, FEIS Vol.2, p.17.)	Incomplete. Misleading. Presented out of context. See UH-TIO FOF 433-839.
221.	40	The record demonstrates that, if built, the TMT would contribute significant harm to conservation resources on Mauna Kea. The TMT would introduce an 18-story industrial structure to a pristine plateau, increase astronomy-related personnel at the summit by fifty percent, and destroy over 12 acres total. DLNR Comment on the Draft EIS, (Ex A004 FEIS Vol.2, p. 21).	Inaccurate/False. The TMT Project is not an industrial structure. See Tr. 10/27/16 at 206:21-207:6 Unsupported/Unsubstantiated. The evidence demonstrates that TMT Project will preserve the existing physical and environmental aspects of the land directly and through the numerous mitigation commitments. See, e.g., UH-TIO FOF 890. Citation does not support the proposition. See UH-TIO FOF 433-839.
222.	40	In light of these substantial, adverse impacts on natural resources, UH/TMT’s argument that the project will only have an “incremental impact” is disingenuous. The DLNR staff’s elaboration of “incremental” unhelpfully stretches credulity to arrive at a finding of no-significance in regard to HAR §13-5-30(c)(4). In response to the FEIS finding that	Unsupported/Unsubstantiated. The evidence demonstrates that TMT Project will preserve the existing physical and environmental aspects of the land directly and through the numerous mitigation

		“impacts that are significant will remain significant with or without the TMT,” DLNR staff conclude, “the proposal is not significant in of itself, but will add incremental impacts to an area that has already undergone significant effects.” (Ex A007, B.03aa/R-7 Staff Recommendations at p. 59). For a resource that is already sustaining more adversity than is permitted in the conservation district, any “increment” additional harm is unacceptable. Thus, not only is the proposed TMT improper, but existing development must also be mitigated to bring Mauna Kea conservation district management into compliance with the law.	commitments. <i>See, e.g., UH-TIO FOF 890.</i> Citation does not support the proposition. <i>See UH-TIO FOF 433-839.</i>
223.	41	Among the reasons that UH/TMT had to press beyond an EA to an EIS in the environmental review process were that the project possibly 1) “[i]nvolves an irrevocable commitment or loss or destruction of any natural or cultural resource” and 2) “[s]ubstantially affects a rare, threatened or endangered species, or its habitat.” (UH Environmental Impact Statement Preparation Notice, September 23, 2008, p. iii, quoting HAR § 11-200-12.) The FEIS addresses adverse impacts on Wēkiu bugs in a combined six acres area of the Northern Plateau and the TMT Access Way. (Ex A003/R-3 FEIS Vol. 1, p. 3-71). Of particular concern is the substantial adverse impact of the TMT access road, which passes between two areas of Wēkiu bug habitat, Pu‘u Hau‘oki and Pu‘u Poli‘ahu, and considering the restricted range of Wēkiu bug habitat, much of which has already been destroyed by BLNR’s mismanagement, the loss of any additional habitat area cannot be anything but significant.	UH Environmental Impact Statement Preparation Notice not in evidence Unsupported/Unsubstantiated. The evidence demonstrates that the TMT Access Road will not have a substantial adverse impact on wēkiu bug habitat. <i>See, e.g., UH-TIO FOF 485, 486.</i> Estoppel/Improper Reconsideration. The EIS process has been completed and the time to appeal has passed. <i>See UH-TIO FOF 195-202.</i>
224.	41	HAR 13-5-30(c)(4) considers substantial adverse impacts on the area, community, or region – not just the immediate area of the Project. The TMT project would increase land use in surrounding summit areas that are home to a species that have or are candidates for Federal protection under the Endangered Species Act and several species of concern (including snails, bees, moths, and true bugs) in areas that would be more heavily utilized as a consequence of the TMT: the Hale Pohaku area, roads, the utilities maintenance corridor, and in the Batch Plant staging area. Increased usage of facilities will threaten biological resources in these areas as well, such as māmane subalpine woodland (palila habitat),	Citation does not support the proposition. Mischaracterization. There are no currently listed threatened or endangered species known to occur in the Astronomy Precinct. <i>See UH-TIO FOF 476.</i>

225.	42	endemic arthropods and snails, na'ena'e, silverswords, Hawaiian catchfly and their pollinators, 'io, and other species. (Ex A003/R-1 FEIS Vol.1, p. 3-66). Mamane subalpine forest habitat are also anticipated to be disturbed by activities at the Hale Pohaku and a potential TMT Mid-Level facility. (A003/R-1 FEIS Vol.1, p. 3-73). The proposed TMT's failures to comply with CZM policies on scenic open space resources are also evidence of its substantial adverse impacts on viewplanes in the Mauna Kea conservation district, including those used by Native Hawaiian Practitioners. This project will mar the impressive natural viewscape of the summit with even more industrial structures and the negatively impact the mauka to makai, makai mauna view planes, the views from Mauna Kea to other sacred sites down the island chain, the views from Mauna Kea to other heiau and those used between pu'u on the mauna, and to important view planes used to track the 26,000 year cycle of the precession of the equinoxes (The Polohiwa) conducted on Mauna Kea. Certain ceremonies will not be able to be done and the practice will be lost. For all who visit the summit to watch the sunset, the TMT would be an unavoidable intrusion into the view from Mauna Kea to Haleakala.	Unsupported/Unsubstantiated. The evidence demonstrates that the existing physical and environmental aspects of the land, such as natural beauty and open space characteristics, will be preserved or improved upon by the TMT Project. <i>See, e.g., UH-TIO FOF 306, 775-795, 869-913.</i> Not supported by the reliable, probative and substantial evidence.
226.	42	The context for the TMT's proposal to intrude onto these last few intact viewplanes is the existing interference with natural views of Mauna Kea caused by prior telescope development. "[A]t least one observatory is visible from roughly 43 percent of the island's area." (Ex A009 CDUA, p. 7-2). In this context, the TMT's added percentage of visibility is a substantial adverse impact on viewshed resources. This is particularly true for views from the summit.	Unsupported/Unsubstantiated. There is no credible evidence that the viewplanes from the summit ridge area towards Haleakala or other areas would be materially affected or blocked. <i>See, e.g., UH-TIO FOF 704.</i>
227.	42	Adding to the concerns for water resources raised by the UH/TMT's failure to satisfy criterion 3 is the fact that the project would introduce other undesirable substances into the Mauna Kea conservation district. The TMT project would require the use, handling and storage of hazardous materials at Mauna Kea including: propylene glycol, acetone, methyl ethyl ketone, at least 2,000 gallons of diesel fuel, ethylene glycol, hydraulic fluid, liquid adhesives, coating metals, acids, paints, solvents, and other cleaning chemicals. (Ex A003/R-3 FEIS Vol. 1, p. 3-129). TMT project	Citation does not support the proposition Unsupported/Unsubstantiated. The reliable, probative, substantial, and credible evidence demonstrates that the TMT Project will not have a substantial adverse impact on the water resources and hydrology of Mauna Kea, including Lake Waiau and the groundwater underlying Mauna Kea. <i>See, UH-TIO FOF 796-838</i>

		managers anticipate the generation of approximately 120 cubic feet of trash per week. (Ex A003/R-3 FEIS Vol.1, p. 3-129). UH/TMT's promises to comply with regulations for leaks or spills further begs the question of whether these substances should be permitted in a conservation district in the first place. (Ex A003/R-3 FEIS Vol.1, p. 3-125).	Citation does not support the propositions. Not supported by the reliable, probative and substantial evidence.
228.	43	UH/TMT admits, even with the proposed mitigation measures, the cumulative impacts on Mauna Kea's conservation district are and will continue to be substantial and adverse. The TMT FEIS states that:	Mischaracterization. In the context of the existing summit area cumulative impacts - and under the assumption that such cumulative impacts will continue - the TMT project does not create or cause substantial adverse impacts to existing natural resources in the applicable area. <i>See, e.g., UH-TIO FOF 443.</i>
229.	43	"[T]he cumulative impact of all actions at and near the summit of Maunakea, including the future TMT Observatory [and its proposed mitigation], on cultural resources will continue to be substantial, significant, and adverse[.]" 3-34.	Incomplete Citation should be to A-3 at 3-34. Incomplete. <i>See UH-TIO FOF 433-839.</i>
230.	43	This finding is true in relation to cultural, archaeological, and historic resources (p. 3- 214), ecosystems (p. 3-217), visual and aesthetic resources (p. 3-101), and geological qualities (p. 3-219). FEIS Vol.1. This means that none of the mitigation measures proposed for the TMT project would be enough to reduce the cumulative impact of telescope activity on Mauna Kea to a less than substantial level. At minimum, the EPA requires that mitigation measures address project-specific impacts, but finds appropriate mitigation efforts that "address cumulative impacts that are caused by activities other than the proposed project." U.S. Environmental Protection Agency, Office of Federal Activities (2252A). EPA 315-R-99-002, Consideration Of Cumulative Impacts In EPA Review of NEPA Documents (May 1999).	EPA 315-R-99-002 not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g). Irrelevant/Inapplicable - this FOF has no bearing on the merits of the CDUA. <i>See UH-TIO FOF 195-202.</i> Not supported by the reliable, probative and substantial evidence.
231.	43	The mitigation measures proposed by UH/TMT are too indirect and insufficient to meet the Supreme Court standard established in Morimoto.	Unsupported/Unsubstantiated. The University has proposed both project-level

		In <i>Morimoto v. Bd. of Land & Natural Res.</i>, 107 Haw. 296 (2005), the Court found that mitigation measures imposed through HAR § 13-5-42(a)(9) gives the BLNR authority to consider mitigation in assessing a CDUA under HAR § 13-5-30(c)(4). While <i>Morimoto</i> does not explicitly develop standards for mitigation, the mitigation actions considered in that case overcame the HAR 15-3-30(c)(4) requirement because they directly ameliorated harmful impacts of road construction on endangered palila habitat and those actions were specifically implemented by the appropriate agency. In that case, the U.S. Fish and Wildlife Services had issued a Biological Opinion (BO) in which the agency agreed that redesigning the highway project to provide for more habitat and reintroduction of endangered species would mitigate project-related disturbances to palila and <i>Silene hawaiiensis</i>.	and area-wide mitigation measures. These actions go beyond simply addressing the impact of the TMT Project in a vacuum. They will substantially mitigate existing area adverse impacts of the astronomy sites on Mauna kea as a whole. <i>See</i>, UH-TIO FOF 304-330. Not supported by the reliable, probative and substantial evidence.
232.	44	By contrast, the TMT project has not designed mitigation actions in accord with guiding documents. For example, the Cultural Impact Assessment (CIA) specifically “recommended that the TMT Observatory project be built on a recycled site of an outdated telescope on the summit instead of Area E” and to “develop a paradigmatic shift in how they [“Project proponents”] engage with the community in a way that truly recognizes cumulative impacts[.]” (Ex. A005/R-5 FEIS Appendix D - CIA for the TMT Observatory and TMT Mid-Level Facility Project, p. 204-5).	Mischaracterization. The University has proposed both project-level and area-wide mitigation measures. These actions go beyond simply addressing the impact of the TMT Project in a vacuum. They will substantially mitigate existing area adverse impacts of the astronomy sites on Mauna kea as a whole. <i>See, e.g.</i>, UH-TIO FOF 304-330.
233.	44	The range of mitigation measures offered by UH/TMT (furnishing items with a sense of place, ride-sharing, repaving roads, funding education programs, monitoring Wekiu bugs, painting facilities, complying with laws, etc.) do not directly address the harm caused by the proposed TMT or telescope activities in general nor those impacts to Native Hawaiian Practitioners and their use and access.	Unsupported/Unsubstantiated. The University has proposed both project-level and area-wide mitigation measures. These actions go beyond simply addressing the impact of the TMT Project in a vacuum. They will substantially mitigate existing area adverse impacts of the astronomy sites on Mauna kea as a whole. <i>See, e.g.</i>, UH-TIO FOF 304-330.
234.	44	The “primary mitigation” for TMT impacts on visual and scenic resources offered by UH/TMT is their decision to locate the project outside of the	Mischaracterization.

		summit ridge. (Ex A001/R-1 CDUA, p. 4-30). UH/TMT says they now finally recognize that Kukahau'ula is an important traditional cultural property. (Ex A001/R-1 CDUA, p. A-8). They claim it is because Kukahau'ula is so important that they chose to locate the TMT on the plateau. We are not convinced.	Citation does not support proposition that UH/TMT finally recognizes Kūkahau 'ula is an important traditional cultural property.
235.	45	UH/TMT has not shown that locating the TMT on the ridge would have been desirable or even possible. It is unlikely that the five-acre TMT could have been located on the summit ridge, so the fact that it is not proposed to be located there cannot be claimed as a mitigation measure for its unsightliness. The decision to locate the TMT on the northern plateau more reasonably proceeds from UH's finding that locating the TMT in the summit region is not deemed good sites for the TMT project all were within "Area E" on the northern plateau. (TMT FEIS, p. 4-5.) The few mitigation measures proposed for the TMT project do not directly address the anticipated harms caused by the proposal.	Irrelevant/Inapplicable. See UH-TIO FOF 304-330.
236.	45	The proposed TMT would not be compatible with the wide open and natural space that is the northern plateau of Mauna Kea. It is important to remember that it is the conservation district that is the locality to be considered, not the existing telescopes (many of which were retroactively permitted after construction). UH/TMT contends that the TMT project - comprised of more than 12.5 acres (4.9 ac. for the observatory, 3.6 ac. for the access way, 4 ac. for the batch plant staging area, and a utilities corridor (that intrudes into the Natural Area Reserve) - and 400 foot corridor along Mauna Kea access road) must be assessed in the context of existing buildings (i.e. other observatories), otherwise the HAR §13-5-30(c)(5) criterion would be senseless because nothing could ever be built in a Conservation District. (Ex A001/R-1 CDUA, p. 18).	Unsupported/Unsubstantiated - This FOF is pure speculation with no supporting citations. The evidence demonstrates that the existing physical and environmental aspects of the land, such as natural beauty and open space characteristics, will be preserved or improved upon by the TMT Project. See, e.g., UH-TIO FOF 306, 869-913.
237.	45	UH/TMT's interpretation ignores HAR §13-5-30(b), which establishes at the outset that generally, "[l]and uses shall not be undertaken in the conservation district" and further, if they are to occur, land uses must be evaluated to ensure that no adverse and significant impacts occur. Id.	Citation does not support the proposition. Unsupported/Unsubstantiated. The evidence demonstrates that the existing physical and environmental aspects of the land, such as natural beauty and open space characteristics, will be preserved or improved upon by the TMT Project. See, e.g., UH-TIO FOF 306, 869-913. Not supported by the reliable, probative and substantial evidence. Mischaracterization. Unsupported/Unsubstantiated.

238.	45	Problematically, the UH/TMT limits its consideration of the TMT's potential impacts to the Mauna Kea summit region only. This is a very limited area and does not allow for consideration of run-off down into other areas or possible pollution seepage into the land below the summit. Nor is the compatibility of the TMT Utilities Corridor with the existing, adjacent Natural Area Reserve adequately assessed.	False/Inaccurate. The TMT Project's use of a zero-discharge wastewater system means that wastewater will not be released from the TMT Project into the environment and there will not percolate into the groundwater at a depth below the TMT Observatory. <i>See, e.g., UH-TIO FOF 802-804.</i>
239.	46	The proposed HELCO substation requires an easement corridor across NARS lands in order to service the TMT. In their comment on the TMT-CDUA, DOFAW drew attention to the disturbances of the NARS that will result from maintenance of utility conduits. DOFAW noted that after twenty years of neglect, "erosion and settling" have occurred in utilities corridor and that "[a]ccess to the pill (sic) boxes will require improvements that might not fall within the 20- foot access corridor, and movement of heavy equipment over unstable terrain." DOFAW comment letter in Staff Recommendations (Ex A007/R-7, p. 23).	Not supported by the reliable, probative and substantial evidence. Misleading. Presented out of context. The University will ensure that the survey of the power line corridor easement will comply with DLNR-Land Division and Department of Accounting and General Services' standards and in accordance with the conditions contained in the grant of easement. Ex. A-7 at 23.
240.	46	UH/TMT's assurances that TMT-related disturbances of NARS lands that about the construction corridor do not withstand the fact that a CDUP cannot authorize UH/TMT activity in the NAR. The NAR is not leased to the University, nor does the CMP address disturbance mitigation in the NAR. To assume that disturbance outside the easement can be mitigated to the extent possible is an inappropriate and illegal encroachment on lands outside the boundaries of the lease to UH and the anticipated sublease to TMT. The TMT's incompatibility with the existing uses of the conservation district makes approval of the CDUA improper.	Unsupported/Unsubstantiated. UH/TMT has demonstrated how TMT satisfies all eight criteria contained in HAR § 13-5-30(c). <i>See, e.g., UH-TIO FOF 348</i> Not supported by the reliable, probative and substantial evidence.
241.	46	The TMT is a man-made structure and while it maybe beautiful to some in a human engineering way, it neither preserves nor improves upon Mauna Kea's natural beauty, which is what the law requires. UH/TMT has not and cannot meet the requirement under the sixth criterion. First, because the	Unsupported/Unsubstantiated. The evidence demonstrates that the existing physical and environmental aspects of the land, such as natural beauty and open space

		TMT is a very large (18 stories) building that is proposed to be sited on the North Plateau, which, significantly, is one of the last un-hindered open space areas with views down to the sea, along the coasts, and across the island chain. The TMT would intrude upon the currently unobstructed view of Haleakala Mountain as well as the primary view of the setting sun from the mountain. It will also obstruct viewplanes used for traditional and cultural spiritual and religious Native Hawaiian practice.	characteristics, will be preserved or improved upon by the TMT Project. <i>See, e.g., UH-TIO FOF 306, 869-913.</i>
242.	46	When we look out on the plateau where the TMT is proposing to site their project-- it is not just that it will now be blocking our eyes (depending on where we are looking from) but it will be the most dominant feature in our eyes and therefore the most dominant feature in our customary and traditional view plane. It is this view plane that we use to look and to honor the high maunas down the island chain. Written testimony of Paul Neves, Exhibit F-1.	Not supported by the reliable, probative and substantial evidence.
243.	47	It is our position that any appropriate development in the conservation district must preserve or improve upon the natural characteristics of the district -- that is the only way this criterion "makes sense." UH/TMT Brief, p. 18. The TMT proposal far exceeds the scope and degree of what could reasonably be deemed appropriate development on the pristine northern plateau of Mauna Kea.	Citation does not support the proposition Unsupported/Unsubstantiated. There is no credible proof that any historic feature, traditional practice or viewplane will be substantially or adversely impacted by the construction at the TMT Project site. <i>See, e.g., UH-TIO FOF 747.</i> Not supported by the reliable, probative and substantial evidence. UH/TMT Brief not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g). Unsupported/Unsubstantiated. The design of the TMT Observatory comports with the 2000 Master Plan. <i>See, e.g., UH-TIO FOF 241.</i>
244.	47	The proposed TMT would adversely impact viewplanes towards and away from the summit, increase noise levels and material pollutant levels, and permanently disrupt critical habitat for species that are Federally listed pursuant to the Endangered Species Act. (Ex A003/R-3 FEIS Vol. 1, p. S-	Not supported by the reliable, probative and substantial evidence. Misleading. Presented out of context. The level of impact after mitigation will be less than significant. Ex. A-3/R-3 at S-12 to S-19.

245.	47	12 through S-19). The DLNR staff's evaluation of the project under HAR §13-5-30(c)(6) criterion thus erroneously "concluded that the TMT will not have a significant impact on the environmental or cultural characteristics of the land." (Ex A007/R-7 Staff Recommendations, p. 59). Erroneously, DLNR staff recommends supporting the TMT as "a series of trade-offs" in which development in new areas would be accompanied by the migration of observatories away from the Kukahau 'ula summit. Id. Staff Recommendations, p. 59. The physical and environmental aspects of the land are neither preserved nor improved upon by the proposed new development and therefore the Agency's "support[t] for the concept of moving observatories" is irrelevant to whether or not the proposed TMT meets this sixth criterion.	Not supported by the reliable, probative and substantial evidence. Citation does not support the proposition. Unsupported/Unsubstantiated. The evidence demonstrates that the existing physical and environmental aspects of the land, such as natural beauty and open space characteristics, will be preserved or improved upon by the TMT Project. See, e.g., UH-TIO FOF 306, 869-913. Not supported by the reliable, probative and substantial evidence.
246.	47	The DLNR staff further erred by considering a pay-to-degrade rationale. Id. Staff Recommendations, p. 59 ("It should be noted that TMT is committed to paying a 'substantial' amount of sublease rent in exchange for the site"). BLNR cannot accept a payment of cash in exchange for permission to destroy the very resources it is mandated to protect. If applicants were allowed to meet the conservation district permit criteria through payment, then these criteria would be meaningless in evaluating any project that promised to generate capital. No matter how much TMT promises to pay, it cannot satisfy criterion 6 and the UH/TMT CDUA should be denied.	Citation does not support proposition, quoted portion not present. Mischaracterization. OCCL found that the proposed mitigation measures will bring the long-term impacts of the TMT Project down to either minor or negligible levels based upon a number of factors, none of which was rent monies. A-7/R-7 at 59.
247.	48	The TMT CDUA erroneously concluded that the "proposed TMT project does not involve the subdivision of land." CDUA, 2-28. Subdivision disposes of control over a land parcel so that more and different entities can make separate uses of the land and thus creates a greater capacity for land use that specifically cuts against conservation purposes. The Mauna Kea conservation district has been repeatedly subdivided through subleases between BLNR, UH, and telescope operators in order to facilitate	Citation does not support proposition, quoted portion not present. Inaccurate/False. The TMT Project does not utilize a subdivision of land to increase the intensity of land uses in the conservation district. See UH-TIO FOF

		increased telescope activity there. The TMT sublease would further parcel the original lot leased to UH in 1968 (Lease No. S-4191). Agreements like this dispose of the original parcel in ways that intensify land use in violation of HAR §13-5-30(c)(7) ("subdivision of land will not be utilized to increase the intensity of land uses in the conservation district"). Because the proposed TMT CDUA is premised on a subdivision of land that will intensify land use, the BLNR cannot approve it without abusing its discretion.	914-936. Argument. Unsupported/unsubstantiated. Not supported by the reliable, probative and substantial evidence.
248.	48	Further UH has drawn arbitrary maps to describe claims to lands leased from the BLNR. (See, CDUA p. 75-79 ref. MK MP2000). Areas such as the "Astronomy Precinct" and the "UH Management Area" are within the Mauna Kea Conservation District. Per HRS §205-2, the Land Use Commission (LUC) is the state agency tasked with not only establishing conservation districts but that holds the sole power to determine the boundaries of said districts. The Mauna Kea Conservation District was adopted in 1961, but the LUC never created either an "Astronomy Precinct" or a "UH Management Area."	Citation does not support proposition. Unsupported/Unsubstantiated. Not supported by the reliable, probative and substantial evidence.
249.	48	A "subdivision" is an enumerated form of land use in the conservation district rules, along with permanently placing materials, grading, and erecting or demolishing structures, all of which have been consequences of development on Mauna Kea. HAR §13-5-2(1994). A "subdivision" is the division of a parcel of land into more than one parcel. HAR §15-3-2. Under "Uniform Land Sales Practices" HRS §484-1 (2011), "subdivision" of lands are those enacted for the purpose of disposition ("including] sale, lease, assignment, award by lottery, or any other transaction concerning a subdivision, if undertaken for gain or profit) into two or more lots, parcels, units, or interests[.]". Id. UH has undertaken sublease agreements to gain telescope resources, viewing time, and other benefits and thus disposed of Mauna Kea conservation district land parcels to other telescope vendors.	Inaccurate/False. The University has not sought a subdivision of land and the prior sublease document does not create or require a subdivision. <i>See, e.g.,</i> UH-TIO FOF 934. Not supported by the reliable, probative and substantial evidence.
250.	49	HAR §13-5-30(c)(7) specifically guards against the intensification of land use that is usually, but not exclusively, associated with the subdivision of land. UH subleases intensified land use by increasing the burden of vehicles, visitors, and long-term personnel that will use access roads,	Inaccurate/False. HAR §13-5-30(c)(7) provides: "Subdivision of land will not be utilized to increase the intensity if land uses in the conservation district[.]". Thus,

		sewage, electricity, utilities, and base-level and mid-level facilities. Land use in the Mauna Kea Science Reserve has the hallmarks of a subdivision: facilities and improvements cost sharing, planned development, and defined, independent property interests. These facilitate coordinated, simultaneous activities on different regions of land in ways that intensify land use.	HAR §13-5-30(c)(7) does exclusively address subdivided lands. Not supported by the reliable, probative and substantial evidence.
251.	49	The TMT proposal would increase the storage of hazardous wastes in the conservation district and poses unknown threats to aquifers; it therefore threatens public health and safety. The TMT will also increase the visibility of observatory construction on and from the mountain, which is already substantially adverse. Despite these examples of material detriment, UH/TMT asserts "the Project will be an enormous benefit to the public welfare" because it will entail employment opportunities and generally "bring significant funds to Hawai'i." UH/TMT Brief, p.11. Although "public welfare" is one purpose of maintaining the conservation district, UH/TMT erroneously interprets this term to mean financial benefit, in order to fit their proposal.	UH/TMT Brief not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g). Unsupported/Unsubstantiated. The reliable, probative, substantial, and credible evidence demonstrates that the TMT Project will not have a substantial adverse impact on the water resources and hydrology of Mauna Kea, including Lake Waiau and the groundwater underlying Mauna Kea. See, e.g., UH-TIO FOF 796-823
252.	49	"Public welfare" does not mean job-creation or money generation. "The concept of welfare was added [to the conservation district mission] to include the notion of aesthetics -- preserving Hawai'i's unique natural beauty." (Please see EX B03t Department of Land and Natural Resources, State of Hawaii. "Conservation District Review Project: The Discussion Draft." November 1993. Prepared by Gail W. Atwater, consultant, p. 16). Thus, the Rule intends that the public welfare will be served by conserving natural beauty in the conservation district, as opposed to using conservation lands for economic development.	Mischaracterization. The evidence demonstrates that the existing physical and environmental aspects of the land, such as natural beauty and open space characteristics, will be preserved or improved upon by the TMT Project. See, e.g., UH-TIO FOF 306, 869-913. See also <i>Kilakila 'O Halekala</i> , 138 Hawaii 383 (2016).
253.	50	HAR §15-3-30(c)(8) is concerned with public health, which includes that of Native Hawaiians. "Native Hawaiians are members of the general public and in addition have traditional and customary rights that are legally	Statement of Dr. Liu not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g).

		protected." Telescope construction on Mauna Kea's upper regions is materially detrimental to the health of the Hawaiian people. "Native Hawaiians have watched the University repeatedly erect telescopes on Mauna Kea over and against their protests and patient explanations of this site's sacred importance. This ongoing violation of Hawaiians' religious and cultural attachments to Mauna Kea is linked to a colonial, systemic deprivation of self-determination that is materially detrimental to Native Hawaiian health[.]" Statement of Dr. Liu, Exhibit F-3.	Not supported by the reliable, probative and substantial evidence.
254.	50	The federal government recognizes, "the health and well-being of the Native Hawaiian people is intrinsically tied to their deep feelings and attachment to the land[.]" "Apology Bill", Pub. L. 203-150 (1993). This attachment is not merely sentimental or romantic; and it links Mauna Kea and the physical, mental, and collective health of Native Hawaiians, individually and as a people.	Apology Bill not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g). Irrelevant/Inapplicable.
255.	50	Observatory development on Mauna Kea's upper regions is materially detrimental to the health, safety, and welfare of the general public of Hawaii. In the Native Hawaiian worldview, people are to live in harmony with the natural and sacred environment. When that harmony is tipped out of balance, nature strives to restore it.	Unsupported/Unsubstantiated.
256.	50	The mountain of Wakaia is one of those sacred natural environments that commands great respect. As UH/TMT has admitted, the construction of telescopes on this mountain is undermining the balance between humanity and nature. Construction of the TMT would further this state of disharmony. d. Ethnocentric methods for assessing materially detrimental impacts on sites of historic significance are inappropriate	Unsupported/Unsubstantiated. Mischaracterization. The University has demonstrated that the existing physical and environmental aspects of the land, such as natural beauty and open space characteristics, will be preserved or improved upon by the TMT Project. <i>See, e.g., UH-TIO FOF 306, 869-913.</i> Irrelevant/Inapplicable.
257.	51	UH/TMT purports to have evaluated TCP's against adverse impacts, but has failed to apply the correct standard of evaluation. Instead the UH/TMT's inability to allow for Native Hawaiian views of the sacred significance of Mauna Kea cause them to apply ethnocentric approaches to evaluations of the TMT's impacts on Native Hawaiians. "Ethnocentrism	Unsupported/Unsubstantiated. The University repeatedly consulted with native Hawaiian practitioners and integrated their

		means viewing the world and the people in it only from the point of view of one's own culture and being unable to sympathize with the feelings, attitudes, and beliefs of someone who is a member of a different culture. It is particularly important to understand, and seek to avoid, ethnocentrism in the evaluation of traditional cultural properties." Patricia Parker and Thomas King. "Guidelines for Evaluating and Documenting Traditional Cultural Properties, U.S. Department of the Interior National Park Service. National Register Bulletin 38, 10 (Revised 1998) (please see B.01p Bulletin 38, p.4).	feedback in developing mitigation measures. <i>See</i> UH-TIO FOF 210-237. Not supported by the reliable, probative and substantial evidence.
258.	51	Native Hawaiian assertions that the telescopes desecrate a sacred cultural resource are not, as UH/TMT insists, matters of "opinion" that are counterbalanced by other Native Hawaiians who view the TMT project as a much needed economic development project or otherwise benign. (please see A001/R-1 the CDUA, p. 3-13).	Citation does not support proposition, no p. 3-13 of Ex. A-1/R-1. Mischaracterization.
259.	51	The Desecration Statute under HRS Chapter 711-1107, also defines what constitutes desecration, and detracton of the sacred landscape fits the criteria. UH/TMT flouts guidelines for approaching conflicting claims over sites of cultural significance for Native groups. "Where one individual or group asserts that a property has traditional cultural significance, and another asserts that it does not or where there is disagreement about the nature or extent of a property's significance, the motives and values of the parties, and the cultural constraints operating on each, must be carefully analyzed." In the instant case, the motives and values of TMT supporters are explicitly linked to a need to increase employment opportunities and funding for research and education as seen in the PUEO group.	Irrelevant/Inapplicable. Unsupported/Unsubstantiated. Mischaracterization. Astronomy is one of the oldest sciences and its contributions to humankind are immeasurable. <i>See, e.g.,</i> UH-TIO FOF 265-268. Lack of jurisdiction.
260.	51	The motives and values of Native Hawaiian cultural practitioners who testify in opposition to Mauna Kea are equally plain: they are motivated to preserve Mauna Kea's natural resources and cultural significance. For the purposes of evaluating a proposed conservation district land use, testimony motivated by conservation agendas should given more weight than those explicitly motivated by economic concerns.	Unsupported/Unsubstantiated. Mischaracterization. Astronomy is one of the oldest sciences and its contributions to humankind are immeasurable. <i>See, e.g.,</i> UH-TIO FOF 265-268.
261.	52	The Following witness testified to the	Incomplete.
262.	52	Since 1999, the university has been well aware of the importance and	The fact that this was stated in the

		sacredness of Mauna Kea to the Hawaiian people. In Paul H. Rosendahl's "Cultural Impact Assessment Study" in Appendix "N" in the University's Master Plan 2000, he goes into length about customary practice claims. "[T]hese would be claims which would lie within the purview of Article XII, Section 7, of the Hawaii State Constitution ("Traditional and Customary Rights"), particularly as reaffirmed in 1995 by the Hawaii State Supreme Court in the decision commonly referred to as the "PASH decision" and further clarified in the 1998 decision in "State v. Hanapi", and which would include various cultural practices and beliefs associated with the general geographical area of the summit region, rather than a clearly definable property or site. While certain other practices, such as prayer and ritual observances involving the construction of new kuahu (altars), or the releasing of cremated human remains rather than interment on pu'u, might seem to be contemporary cultural practices, they may as well be considered to be reasonable cultural developments evolving from earlier traditional practices. Ex A048 Master Plan 2000, Appendix "NPHRI, Inc. August, 1999" p43	referenced document is not in dispute.
263.	52	In Paul Rosendahl's section named "Contemporary Cultural Practice" it reads as follows: "With regard the current practices identified by Maly (1999) as contemporary cultural practices, it would seem that they all bear close enough relationships to earlier traditional cultural practices associated with the upper slopes and summit region of Mauna Kea so that no purpose would be served by distinguishing them as something different. Furthermore, as has been pointed out previously, it is likely that they represent reasonable cultural evolution from earlier traditional practices. Ex A048 Master Plan 2000, Appendix "N PHRI, Inc. August, 1999" p45.	The fact that this was stated in the referenced document is not in dispute.
264.	53	Pu'u Kukahau 'ula is significant due to its cultural significance to the Hawaiian people, associations with former and on-going cultural practices, and associations with traditional beliefs, events, and oral history accounts. (Ex. R-5/B.34 FEIS, p. G-55)	Citation should be to p. 55. The fact that some may hold such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute.
265.	53	The summit region, which includes the Mauna Kea summit Region	Incomplete. See UH-TIO FOF 611-774.

		Historic District and Kukahau`ula is a sacred area in Hawaiian culture and serves as a site for individual and group ceremonial and spiritual practices. (Ex. R-3/B.32 FEIS p 3-26)	The fact that some may hold such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute.
266.	53	As a result of his exhaustive studies, Kepa Maly identified many traditional cultural properties on Mauna Kea. He documented ongoing traditional cultural practices associated with several of these. It is a sacred landscape that provides a connection, genealogically, physically, and spiritually to ancestral realms. The mythical creation of Mauna Kea is part of a Hawaiian cosmology that establishes a relationship between all things animate and inanimate. (Ex. A-23, p. 1-2)	Citation does not support the proposition. See UH-TIO FOF 611-774.
267.	53	Mauna Kea is the first-born offspring of Papa Hanau Moku and Wakea who are the progenitors of the Hawaiian people. Exh B.70 CDUA Staff Report Feb 25, 2011, p.4-5	The fact that some may hold such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. Ex. B.70 not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g).
268.	53	There's a practice that the chiefs of the Order of Kamehameha do. The Royal Order Processional to ascend Mauna Kea. It begins often at my house at 9 or 10 o'clock p.m. where all that are participating gather for protocol instructions and then we give ho`okupu (offerings on the tele--ceremonial platform, in my yard) and start the precession up Mauna Kea. Many people join in these ceremonies--the last one we had over 75 people and they often come from all walks of life and all places around the world also. ExB.01ab, National Geographic; Ex. F-1, Neves, WDT, p. 2	The fact that some may hold such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. Citation does not support the proposition. See UH-TIO FOF 747.
269.	53	We hi`uwai, this is to cleanse; before you set out on coming into the presence of the supreme beings, you need to cleanse yourself, to get all things out of your mind. So we do hi`uwai there if it's necessary... We do this four times a year, on both equinox and solstice. But we also do that when we feel the need, when we feel the people or ourselves needing to be in the presence. We also stop at Puhi Bay ahu (shrine), made maybe 20	The fact that this was stated in the referenced document is not in dispute. Irrelevant/Inapplicable. See UH-TIO FOF 747.

270.	54	years ago. (Ex. B.18a, Neves, WDT, p. 2) The second thing we do is go to the Naha stone (The Stone Kamehameha I lifted to prove his right to lead the people). The Naha is on Waianuenue Avenue at the Hilo Public Library in Hilo, and there we pray for what we call ke alaka`ina, for the leadership, for us leaders to continue, for those who have put themselves in positions of leadership, to be pono. And so we reflect on Kamehameha's life and his commands to us as chiefs. (Ex. B.18a, Neves, WDT, p. 2)	Irrelevant/Inapplicable. See UH-TIO FOF 747.
271.	54	From the Naha we go to the ahū at Pu`uhuluhulu, at the junction of the road to Mauna Kea. There we honor our kupuna, our grandparents, our tutus, both the living those that cannot make the journey because of restrictions of their health, and those that have made the journey and yet have never been to the top of the mountain. Those who are in the spirit, so we honor our kupuna. And we ask them to always give us counsel, to speak to us. We built this ahū for those that could not ascend further. Ex. B.18a, Neves, WDT, p. 2	Irrelevant/Inapplicable. See UH-TIO FOF 747.
272.	54	From there we go to Hale Pohaku, to the lele there (which is behind the gate at the MK VIS). It's a lele that we put together some years back. Because at that level, we pray for clarity of mind and purpose. We ask to chiefs for permission to ascend. All of Mauna Kea is an ahū, so we ask for clarity and humility. We may stop at Kealoha's 'Ohana place, too to ask to ascend even further. (Ex. B.18a, Neves, WDT, p. 2)	Incomplete. See UH-TIO FOF 747.
273.	54	At the top, Kukahau`ula, we do not ask for anything. What will be given, is given. It is there we welcome the morning sun or we welcome the sun going into the sunset. But we pray there, we pray for aloha, for peace, for goodness for all. Then we receive whatever they want to give us. (Ex. B.18a, Neves, WDT, p. 2)	Incomplete. See UH-TIO FOF 747.
274.	54	Petitioner Ching practices "pule ho'oulu" [traveling "on foot, on a system of trails that crossed the mountain," a practice that extended through the mid-1800s according to Maly] and has walked/hiked the trails and non-trails on Mauna Kea. (Ex. B.06a, Ching WDT, p. 1)	Citation should be to Ex. B.19a. Incomplete. See UH-TIO FOF 4, 758.
275.	55	Ching complies with and practices the essential elements ("Let every elderly person ... lie by the roadside in safety.") of the Law of the	Irrelevant/Inapplicable.

276.	55	Splintered Paddle (Kanawai Mamalahoe) on Mauna Kea. (Ex. B.06a, Ching WDT, p 3) It is noted that while none of the archival historical literature has made specific references to the sites or features that where recorded as being associated with navigational practices and customs, the gods and deities associated with Mauna Kea have celestial body forms and some were evoked for navigational practices. Ex. B.37 MP, App. I, p.29	Citation does not support proposition. <i>See</i> UH-TIO FOF 4, 758. Citation does not support the proposition. Unsupported/Unsubstantiated. Not supported by the reliable, probative and substantial evidence.
277.	55	Mauna Kea is actually the fulcrum of such ceremonies, because the Mauna sets the ultimate relationship to all other sacred sites for such ceremonies, as Mauna Kea is the highest point and from there you can see all else. Ex B.01a K. Pisciotta,, WDT, p. 5	Citation does not support the proposition. Unsupported/Unsubstantiated. <i>See</i> UH-TIO FOF 703-707.
278.	55	[T]housands of years ago our navigators and star people developed a system that allowed our ancient people to circumnavigate the globe and to people the tiniest islands scattered across the largest ocean on earth, the Pacific Ocean. We did this before the birth of Christ and at a time when no one on earth was doing a similar method of ocean voyaging...they did develop a system of advanced mathematics that allowed them to understand and determine that the earth was round and to a concept of a celestial equator. If this were not the case they could not have found the tiny little islands across a vast ocean with any accuracy at all. If your measurements are off by only a few degrees you will get lost at sea, because even tiny discrepancies in measurement on the sky translate to hundreds of miles on the ocean. Ex B.01a K. Pisciotta, WDT, p. 5	Irrelevant/Inapplicable. Citation does not support the proposition. Unsupported/Unsubstantiated. <i>See</i> UH-TIO FOF 703-707. Not supported by the reliable, probative and substantial evidence.
279.	55	I had an astronomer friend query me on this very thing, asking how the Hawaiian people knew the earth was round before the Europeans did?...I finally explained how we did understand these principles (i.e. celestial equator), but that they were contained for example in our stories of Creation and Papa (Earth Mother) and Wakea (Sky Father). His response was surprising to me, in that he was resistant to the idea that any science could flow from mythical stories...I explained that these stories are not myths but rather teaching tools. Our teachings are storied but they also meet the criteria of science, in that they are based on observation and are	Irrelevant/Inapplicable. Citation does not support the proposition. Unsupported/Unsubstantiated. <i>See</i> UH-TIO FOF 703-707. The fact that certain individuals may hold and/or express such religious or spiritual

		measurable and repeatable. Our modern Navigator's and their many accomplishments are evidence of this. Our oral traditions are not mere mythical stories, and they are dependent on the landscape and that is why the landscape of Mauna Kea needs to be protected and preserved. Ex B.01a K. Pisciotta,, WDT, p. 5	beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of the belief is factual.
280.	56	These ceremonies are about tracking the motion of the sun across the sky throughout the year and were used by our people and most of the ancient people around the world to keep track of the year. The po'e kahiko (ancient Hawaiian people) are not alone in these ceremonies for keeping track of the motions of the celestial bodies and their relationship to the observers on earth. The Celtic Shaman, Egyptian Priests, Mayan Priests, Chinese, Arab and Middle Eastern astronomers and holy people all performed the ceremonies similar to those we perform on Mauna Kea. Ex B.01aK. Pisciotta, WDT, 6	Irrelevant/Inapplicable. Citation does not support the proposition. Unsupported/Unsubstantiated. See UH-TIO FOF 703-707. The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of the belief is factual.
281.	56	Tracking the sun is for growing and harvesting. But more important is the need to track the annual time in the context of a much greater time frame known as the precession, which is the 26,000 year cycle (although some used slightly different time frames). Ex B.01a K. Pisciotta, , WDT, 6	Irrelevant/Inapplicable. Citation does not support the proposition. Unsupported/Unsubstantiated. See UH-TIO FOF 703-707. The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of the belief is factual.

282.	56	This cycle is the measure of the wobble of the earth's axis, and the time it takes for the wobble to make a complete cycle. The wobble was important to keep track of because relative to earth the pole stars appear to change over time. If the pole stars change it drastically impacts navigation. If the poles are changing then over time our knowledge must change to reflect these changes or we will get lost, and for us especially that means getting lost at sea. Ex C-1 K. Pisciotto, June 28, 2011, WDT, 5	2011 transcripts not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g). Unsupported/Unsubstantiated. See, UH-TIO FOF 706. Not supported by the reliable, probative and substantial evidence. The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of the belief is factual.
283.	56	The idea that so many ancient people understood this concept is amazing in and of itself. It would take about 70 years for a single person to realize that such a motion was actually happening and another great leap of consciousness to understand it would take about 26,000 years for the precession cycle to be completed. How the ancient peoples of the world came to this understanding is amazing. I learned about this from my Kupuna first, and then did some of my own research. Ex B.01a K. Pisciotto, WDT, p. 6.	Irrelevant/Inapplicable. Citation does not support the proposition. Unsupported/Unsubstantiated. See UH-TIO FOF 703-707.
284.	57	The ceremonies I just described are specifically dependent upon our ability to observe and track the motion of the sun and other celestial bodies in order to find our way and to determine when and how to perform certain things for the care of the land and sea. Our traditional resource management models are dependent on these ceremonies. Our ancient knowledge relating to our relationship to our other Pacific people are also a part of this knowledge. And lastly our sacred prophesies are based in this knowledge. Ex B.01a K. Pisciotto, WDT, p. 6	Irrelevant/Inapplicable. Citation does not support the proposition. Unsupported/Unsubstantiated. See UH-TIO FOF 703-707. The fact that certain individuals may hold

285.	57	Our traditional resource management models are dependent on these ceremonies. Our ancient knowledge relating to our relationship to our other Pacific peoples are also a part of this knowledge. And lastly our sacred prophesies are based in this knowledge. Ex C-1 K. Pisciotta, June 28, 2011, WDT, p. 6	and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of the belief is factual. Irrelevant/Inapplicable. Citation does not support the proposition. Unsupported/Unsubstantiated. <i>See</i> UH-TIO FOF 703-707. The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of the belief is factual.
286.	57	We refer to the summer solstice ceremonies as "Ke Ala Polohiwa a Kane", Winter as "Ke Ala Polohiwa a Kanaloa, spring equinox as "Ke Ala`ula a Kane", and autumnal equinox as "Ke Ala Ma`awe`ula a Kanaloa"	Irrelevant/Inapplicable. Unsupported/Unsubstantiated. The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of the belief is factual.
287.	57	Winter Solstice = "Ke Ala Polohiwa a Kanaloa" -- The Black Glistening Path of Kanaloa--is when the sun hits its farthest point south in the sky,	Irrelevant/Inapplicable.

		occurring in December.	Unsupported/Unsubstantiated. The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of the belief is factual.
288.	57	The Sumer Solstice is "Ke Ala Polohiwa a Kane" --The Black Glistening Path of Kane-- when the sun reaches its most northern point in the sky, occurring in June.	Irrelevant/Inapplicable. Unsupported/Unsubstantiated. The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of the belief is factual.
289.	57	Whereas, the equinoxes (where the sun crosses the equator ("Ka Piko o Wakea" from my family tradition) to the far winter and summer points are called: "Ke Ala`ula a Kane " (The Spring Equinox--The Dawning of the Path of Kane") occurring in March; and "Ke Ala Ma'awe`ula a Kanaloa" (The Autumnal Equinox--"The Red Track or Tentacle") of Kanaloa) occurring in September. Ex B.01a K. Pisciotta, WDT, p. 6-7	Irrelevant/Inapplicable. Citation does not support the proposition. <i>See</i> UH-TIO FOF 703-707. The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of the belief is factual.
290.	57	The map of Exhibit C-5 describes traditional cultural view planes. This	Map not in evidence. Consideration of the

		map incorporates our testimony as well as others. It is not a complete map but it does help provide a visual representation of some of the view planes including some of the solstice and equinox view planes and those in relation to other the sites and also to the other islands. Ex B.01a K. Pisciotto, WDT, p. 7	cited document is prohibited by HRS § 91-9(g). Citation does not support the proposition. See UH-TIO FOF 703-707. The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of the belief is factual.
291.	58	On this viewplane map, you can see that the TMT will be in direct line of sight of Maui and the NW plane which is used for ke ala ao (solstice and equinox) ceremonies. There are also lines that represent the relationship between Mauna Kea and Poli`ahu Heiau on Kaua`i, Ahu a Umi Heiau situated between the three great mountains (Hualalai, Mauna Loa and Mauna Kea) on Hawai`i Island, the Pu`u Kohola Heiau in Kawaihae, Hawai`i Island, and Motu Manamana (Necker Island) of the Northwestern Hawaiian Islands which marks the great turn around of the sun during the ke ala polohiwa time. The shrines on this tiny island are related to this relationship too. Ex B.01a K. Pisciotto, WDT, p. 7	Map not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g). Citation does not support the proposition. See UH-TIO FOF 703-707. The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of the belief is factual.
292.	58	For the CDUA to determine that there would be no effect on archaeo-astronomy, it would need to have a full understanding of the cultural values of those shrines through extensive discussion with cultural practitioners who may have cultural knowledge of how those shrines should be used. Id., at 83: 1-11.	Unsupported/Unsubstantiated.
293.	58	Exhibit B.01w is a picture of the Southern Sky from Mauna Kea. At the	Irrelevant/Inapplicable. See UH-TIO FOF

		left is the glow of the lava from Kilauea volcano. In the sky at the center is the Southern Cross. The snow covered peak in the center is the true summit of Mauna Kea, the highest point in the Pacific. At the right, the dome of the 8-meter Gemini North Telescope is under construction. Found in the Atlas of Hawai'i, 3rd Ed. Edited by Juvik and Juvik, Chief Cartographer Thomas R. Paradise, at Photograph by Mr. R.J. Wainscoat, copyright 1997, p. 98. Ex B.01a K. Pisciotto, WDT, p. 7	703-707. The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of the belief is factual.
294.	58	The Summit Access Road was built with government funds and is a public road ("non-exclusive road easement"). Ex. B.42 CMP MKPAP, p. 1-4	Citation does not support proposition. See UH-TIO FOF 118.
295.	59	"Area E" is in an undeveloped area within a Mauna Kea Historic District. Ex R-3 FEIS VOL 1 p2-3 Figure 2-4 under Project Description.	Citation does not support proposition.
296.	59	In 1999, during the preparation of the 2000 Master Plan, SHPD proposed that the cultural landscape on the top of Maunakea be recognized as the Mauna Kea Summit Region Historic District. The district is listed as SIHP # 50-10-23-26869. Nearly the entire MKSR is within the roughly 17,820-acre Mauna Kea Summit Region Historic District. The TMT Observatory Project 13N site, the Access Way, and the Batch Plant Staging Area are all within the Mauna Kea Summit Region Historic District. The boundaries of the district generally coincide with the extent of the glacial moraines and crest of the relatively pronounced change in slope that creates the impression of a summit plateau surrounding the cinder cones at or near the summit (Figure 3-1). The district encompasses a concentration of historic properties, including most of the 263 summarized in Table 3-3, that are historically, culturally, and visually linked within the context of their setting and environment. The spiritual and sacred quality of Maunakea is related to this context and the link between the Historic Properties and their setting and environment. Although the Mauna Kea Summit Historic District is only officially designated as a Historic District at the State level, it has been stated by SHPD that it is eligible for inclusion in the National Register of Historic Places (NRHP) as a district; however, no official application for such inclusion has been submitted. All of the Historic	Incomplete. See UH-TIO FOF 123-135.

		Properties discussed in this section are within the Historic District and are considered contributing properties. Based on recent archaeological field work, it has been proposed that the Historic District be expanded to include the entire MKSR. (PSCI, 2010a). FEIS Vol. 1 Ex. R-3 Sec 3.3 p. 3-42 2nd para.	
297.	59	The proposed TMT site is located within and is an integral part of a Historic District: Pursuant to HRS Chapter 6E-2, "Historic Property" means any building, structure, object, district, area, or site, including heiau and underwater site, which is over fifty years old. FEIS Vol 1 Ex. R-3 Archaeological/ Historic Resources, p 3-4.	Citation does not support proposition. Unsupported/Unsubstantiated.
298.	60	"Historic Districts" are geographically definable areas possessing a significant concentration, linkage, or continuity of contributing properties - sites, buildings, structures, or objects united by past events or aesthetically by plan or physical development. Contributing properties add to the historic architectural qualities, historic associations, or archaeological values for which a district is significant because it was present during the period of significance, and possesses historic integrity reflecting its character at that time or is capable of yielding important information about the period." FEIS Vol 1 Ex. R-3 Sec. 3.3 Archaeological/ Historic Resources, p 3-4.	Misleading. Presented out of context. Citation should be to p. 3-40.
299.	60	"Within the historic district, the effect of a project on the historic district as a whole needs to be assessed as well as the project's effect on individual historic properties located within or immediately adjacent to the project area. The effect of a project on the historic district must be addressed even if no individual historic properties are found within or immediately adjacent to the project area." (emphasis added) "Effects on a district would consider the visual impact of a facility on the surrounding landscape (i.e., the various land forms creating the setting and context of the multiple historic properties encompassed by the district) and on those individual historic properties which contribute to the significance of the district...." FEIS Vol. 1 Ex. R-3 Sec. 3.3 p 3-49 3rd and 4th par.	Misleading. Presented out of context.
300.	60	There was no regional archaeological analysis done for the Proposed TMT project. (Tr. Jan. 19, 2017, Kehaulani Abad, Ph.D, Vol 27 p31:7-15)	Not credible. See, UH-TIO FOF 604-08

301.	60	There were no analysis on how building the Thirty Meter Telescope in "Area E" which sits in the context of the ring of shrines would impact the sacred area. (Tr. Jan. 19, 2017, Kehaulani Abad, Ph.D, Vol 27 p 32:7-11)	Inaccurate/False. The Proposed TMT site has been extensively surveyed. <i>See, e.g.,</i> UH-TIO FOF 505-06, 514-15. Unsupported/Substantiated. The necessity of a regional archaeological analysis has not been established by law, nor the reliable probative and substantial evidence. Not credible. <i>See, UH-TIO FOF 604-08.</i> Misleading. The mitigation measures for addressing any effects on cultural practices that have been developed for the TMT are consistent with those stipulated in the CMP and CRMP. <i>See, e.g., UH-TIO FOF 593.</i> Unsupported/Unsubstantiated. The necessity of a regional archaeological analysis has not been established by law, nor the reliable probative and substantial evidence.
302.	60	Within the MKSR there are 263 historic properties, most of them shrines, but also burials. The majority of the Mauna Kea Science Reserve and these historic properties are located within the summit region Historic District. (FEIS Vol 1 Executive Summary p. S-3)	Not in dispute with regard to this 11,288 acre area.
303.	61	Building the TMT within the ring of shrines that is in the Historic District would absolutely impact cultural practitioners. (Tr. Jan. 19, 2017, Kehaulani Abad, Ph.D, Vol 27 p32:17-22)	Not credible. <i>See, UH-TIO FOF 604-06.</i> Unsupported/Unsubstantiated. Existence and location of a "ring of shrines" has not been established by reliable probative and substantial evidence.
304.	61	"...Integrity plays a very big role in historic preservation law, and you see it as being integral to what constitutes the significant site, that the site have	Not credible. <i>See, UH-TIO FOF 604-08.</i>

		integrity, and by placing something so - - I think, the scale of the project and its relative huge footprint within the landscape of the region, the integrity of the sites within the area would be compromised.” (Tr. Jan. 19, 2017, Kehaulani Abad, Ph.D, Vol 27 p32:22-25, p 33:1-4)	Not supported by the reliable, probative and substantial evidence.
305.	61	NASA’s FEIS analysis of the Outrigger Telescope Project stated that there would be adverse impact when looking at the cumulative picture or within a larger picture, it would create a significantly adverse impact. (Tr. Jan. 19, 2017, Kehaulani Abad, Ph.D, Vol 27 p33:15-23)	Irrelevant/Inapplicable.
306.	61	Kehaulani Abad cites a 2013 report by Pat McCoy - “[A]nd in looking at the regional perspective, he could see that, well, these aren’t just shrines that are, sort of, you know, randomly located, but my goodness, they follow along a pathway of access to - - to and from - - or access to or exit from the quarry area, and they form a pattern. But he had to do the wide lens view to see that that there are a very special type of individual who’s been supported with - - with some kako’o or kuleana given by, probably, ali’i and that they are going into a kapu space and that along the way, these shrines play a role in transitioning into that kapu space both in and back out from noa to kapu and kapu to noa.” (Tr. Jan. 19, 2017, Kehaulani Abad, Ph.D, Vol 27 p34:8-23)	Irrelevant/Inapplicable.
307.	61	Archaeologists for the TMT mischaracterize the importance of view planes that connect Mauna Kea to Haleakala. (Tr. Jan. 19, 2017, Kehaulani Abad, Ph.D, Vol 27 p35:11-14)	Not credible. See, UH-TIO FOF 604-08
308.	61	Cultural impact assessments of the TMT Project have focused on physical effects on historic properties, and not adequately considered indirect effects on cultural practitioners and traditional and customary practices. (Tr. Jan. 25, 2017, Peter Mills, Vol 30 p 14:10-20)	Unsupported/Unsubstantiated. Not credible. See, UH-TIO FOF 559, 757 Unsupported/Unsubstantiated.
309.	62	“The potential of the proposed action to introduce elements which may alter the setting in which cultural practices take place.” (Ex. B.12a at 2 citing B.12c (OEQC Guidelines at 13)	Not supported by the reliable, probative and substantial evidence. Not credible. See, UH-TIO FOF 559, 757. Irrelevant/Inapplicable. There is no reliable probative and

			substantial evidence that her or the referenced practices are within the bundle of rights protected by Article XII, Section 7 of the Hawaii State Constitution.
310.	62	Other sites throughout Hawaii ahu, shrines, etc. don't exist in isolation, they are alignments or are connected to other ahu or shrines to establish a siting point or a straight line, etc. (Tr. Jan. 19, 2017, Kehaulani Abad, Ph.D, Vol 27 p 35:15-21)	Not credible. <i>See</i> , UH-TIO FOF 604-08. Unsupported/Unsubstantiated. <i>See</i> response to FOF #303.
311.	62	OEQC guidelines are particularly relevant because the TMT would be visible to cultural practitioners over much of the island, thus introducing an expansive APE that would include large portions of Hilo, Kohala, and Kona. (Ex. B.12a at 2)	Not credible. <i>See</i> , UH-TIO FOF 559, 757. Unsupported/Unsubstantiated.
312.	62	The expectation is that assessment of the project's effects are to be broadly scoped to try to consider the impacts of these undertakings on cultural practitioners. (Tr. Jan. 25, 2017, Peter Mills, Vol 30 p 15:1-5)	Not supported by the reliable, probative and substantial evidence.
313.	62	The lives of cultural practitioners who wake up in their own homes every day and see the TMT on Mauna Kea, and who do not want that telescope in their environment, would be profoundly affected, in a very recognizable way, and in a way that is adverse. (Tr. Jan. 25, 2017, Peter Mills, Vol 30 p 35:14-20)	Not credible. <i>See</i> , UH-TIO FOF 559, 757. Unsupported/unsubstantiated.
314.	62	When evaluating sites in and around the proposed TMT area, UH archaeologists did not look at it within a larger purview of everything that the site could be. The cultural context or cultural interpretation could not be known without cultural consultations which were not done. (Tr. Jan. 19, 2017, Kehaulani Abad, Ph.D, Vol 27 p 40:11-25)	Not supported by the reliable, probative and substantial evidence.
			Not credible. <i>See</i> , UH-TIO FOF 604-08. Inaccurate/False. The University repeatedly consulted with native Hawaiian practitioners and integrated their feedback in developing mitigation measures. <i>See</i> UH-TIO FOF 210-237.
			Not supported by the reliable, probative

315.	62	UH archaeologists used an “etic” perspective (non cultural or outside the culture) as opposed to “emic (from within the culture) as required by law. (Tr. Jan. 19, 2017, Kehaulani Abad, Ph.D, Vol 27 p 41:1-18)	and substantial evidence. Not credible. <i>See</i> , UH-TIO FOF 604-08. Unsupported/Unsubstantiated. Not supported by the reliable, probative and substantial evidence. Citation does not support proposition. Inaccurate/False. The University repeatedly consulted with native Hawaiian practitioners and integrated their feedback in developing mitigation measures. <i>See</i> UH-TIO FOF 210-237. Not supported by the reliable, probative and substantial evidence.
316.	63	The TMT CIA is inadequate. Together, the EIS and CIA were required to consult with cultural practitioners to understand how they perceive a place, and what the spiritual qualities of that place may be and to frame proposed TMT project plans in a way which recognizes what those values are. Id. at 41:1-18.	Incomplete. Not supported by the reliable, probative and substantial evidence. Citation does not support the proposition. Unsupported/Unsubstantiated.
317.	63	The CDUA relied on those two documents and did not cover the Cultural Impact Assessment side adequately. Id. A major reason for the CIA’s inadequacy was the limited area of potential effect it considered. Id. at 41:1-18.	Irrelevant/Inapplicable. <i>See</i> , UH-TIO FOF 522. Ex. B.01 not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g). Irrelevant/Inapplicable. <i>See</i> , UH-TIO FOF 522.
318.	63	The National Register of Historic Places contains a wide range of historic property types, reflecting the diversity of the nation's history and culture. “...groups of buildings, structures or sites forming historic districts; landscapes; and individual objects are all included” in the Register. (MKAH B.01/ p 1)	
319.	63	“One kind of cultural significance a property may possess, and that may make it eligible for inclusion in the Register, is traditional cultural	

320.	63	significance. "Traditional" in this context refers to those beliefs, customs, and practices of a living community of people that have been passed down through the generations, usually orally or through practice." (MKAH B.01/ p. 1)	Ex. B.01 not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g).
	63	"A historic property, then, is significance derived from the role the property plays in a community's historically rooted beliefs, "customs, and practices." (MKAH B.01/ p. 1)	Irrelevant/Inapplicable. See, UH-TIO FOF 522.
321.	63	"A traditional cultural property, then, can be defined generally as one that is eligible for inclusion in the National Register because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community." (MKAH B.01/ p. 1)	Ex. B.01 not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g).
322.	64	"Traditional cultural values are often central to the way a community or group defines itself, and maintaining such values is often vital to maintaining the group's sense of identity and self respect". (MKAH B.01/ p. 2)	Irrelevant/Inapplicable. See, UH-TIO FOF 522.
323.	64	"Traditional cultural properties are often hard to recognize. A traditional ceremonial location may look like merely a mountaintop, a lake, or a stretch of river..." (MKAH B.01/ p. 2)	Ex. B.01 not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g).
324.	64	"Properties to which traditional cultural value is ascribed often take on this kind of vital significance, so that any damage to or infringement upon them is perceived to be deeply offensive to, and even destructive of, the group that values them." (MKAH B.01/ p. 2)	Ex. B.01 not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g).
325.	64	"In the 1980 amendments to the National Historic Preservation Act, the Secretary of the Interior, with the American Folklife Center, was directed to study means of: preserving and conserving the intangible elements of our cultural heritage such as arts, skills, folklife, and folkways." (MKAH B.01/ p. 2)	Irrelevant/Inapplicable. See, UH-TIO FOF 522.
			Ex. B.01 not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g).

326.	64	<i>Ethnocentrism</i> (emphasis added) is a means of viewing the world and the people in it only from the point of view of one's own culture and being unable to sympathize with the feelings, attitudes, and beliefs of someone who is a member of a different culture. It is particularly important to understand, and seek to avoid, ethnocentrism in the evaluation of traditional cultural properties. Bulletin 38. (MKAH B.01p/ p. 4)	Irrelevant/Inapplicable. See, UH-TIO FOF 522
327.	64	The authors of the archeological analysis for the FEIS failed to take into account intangible aspects of the cultural significance of the proposed project that is in the historic district. (Tr. Jan. 19, 2017, Kehaulani Abad, Ph.D, Vol 27, p 36:22-25, p37 1-6)	Ex. B.01 not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g). Not credible. See, UH-TIO FOF 604-08 Unsupported/Unsubstantiated. Not supported by the reliable, probative and substantial evidence. Irrelevant/Inapplicable.
328.	65	Mauna Kea was listed as a National Natural Landmark in 1972. One of the reasons given for placing the mountain on this register by the National Park Service is that Mauna Kea is the "Most majestic expression of shield volcanism in the Hawaiian Archipelago, if not the world." Ex A-009 CMP Appendix 4, p.9	Correct citation should be to Appendix A4.
329.	65	"Rising nearly 33,000 feet from the ocean floor, with a peak elevation of 13,796 feet, Mauna Kea is the highest point in the Pacific Basin and the highest island mountain in the world. Ex. A-009 CMP Appendix 4, p. 9	Not in dispute, however citation should be to Appendix A4.
330.	65	"Few sites possess [sic] better credentials to justify their national significance than does Mauna Kea." Ex. A-003 FEIS, p. 3-106, Mauna Kea NNL program.	Irrelevant/Inapplicable.
331.	65	Abundant evidence of glacial striae, boulders, polices and grooves shows that an ice cap covered Mauna Kea's summit during the Pleistocene era. Ex. A-003 FEIS Vol. 1, p. 3-106 (citing the U.S. National Park Service's description of Mauna Kea National Natural Landmark)	Irrelevant/Inapplicable. Citation does not support proposition.
332.	65	"Mauna Kea is currently estimated to be between 600,000 and 1.5 million years old and is considered by the U.S. Geological Survey (USGS) to be an active post-shield volcano. While there has been no recent volcanic activity at Mauna Kea, volcanologists believe that it "is likely to erupt again". Ex. A-009 CMP, p. 5-24 – 5-25	Irrelevant/Inapplicable.
333.	65	First and foremost, Mauna Kea is the exposed portion of the highest insular	Irrelevant/Inapplicable.

		mountain in the United States, rising up over 30,000 feet above its submerged base in the Pacific Ocean. Second, on its slopes is found Lake Waiau, the highest lake in the United States. Third, though located in the tropics, indisputable evidence of glaciations is present above the 11,000 foot level. Lastly, possibly transcending all of these nationally significant qualities, is the fact that Mauna Kea is the most majestic expression of shield volcanism in the Hawaiian Archipelago if not in the world. Rory Westberg, Acting Regional Director, NPS. Ex. A-004 FEIS Vol II p 4 of 53	
334.	65	The objectives of the NNL program are fourfold: to encourage the preservation of sites illustrating the geological and ecological character of the United States; to enhance the scientific and educational value of the sites thus preserved; to strengthen public appreciation of natural history; to foster a greater concern for the conservation of the nation's natural heritage. Laura Thielen, Chair, DLNR EX. A-004 FEIS Vol II p 19 of 531	Irrelevant/Inapplicable.
335.	66	Though located in the tropic, indisputable evidence of glaciation is present above the 11,000 foot level. Lastly, possible transcending all of these nationally significant qualities is the fact that Mauna Kea is the most majestic expression of shield volcanism in the Hawaiian Archipelago if not in the world. EX. A-004 (TMT FEIS Vol. II), p.3-6	Irrelevant/Inapplicable. Citation does not support proposition. Not supported by the reliable, probative and substantial evidence.
336.	66	The Mauna Kea National Natural Landmark is held in trust by the State of Hawai'i, and its 83,900 acre boundary incorporates the lands within the conservation district, including the Mauna Kea Science Reserve, Ice Age Natural Area Reserve and the Mauna Kea Forest Reserve. EX A-004 (TMT EIS Vol. II), p.3-6	Citation does not support proposition. Lacks evidentiary support from the record.
337.	66	Other unique geologic features of Mauna Kea include numerous cinder cones (pu'u) that rise above lavas of the upper plateau, and evidence of glaciers that covered nearly 27 square miles of the summit region during the Pleistocene Epoch (Ice Ages) approximately 18,000 years before present." EX A-009 CMP Appendix 4, p. 9	Irrelevant/Inapplicable. Citation does not support proposition.
338.	66	"Because of its elevation, Maunakea's summit was repeatedly glaciated during the past few hundred thousand years, and preserves the best glacial	Irrelevant/Inapplicable.

339.	66	record of any oceanic volcano on Earth." EX A-003/R-3 FEIS, p. 3-105 Hawaiian Hotspot' magmas, pushed up through the oceanic crust, began building Mauna Kea approximately 750,000 years ago. Throughout its building stages, a'a and pahoehoe lavas flowed from three main rift zones, forming a volcano resembling a warrior's shield. Towards the end of the post-shield stage eruptions became more explosive, discharging magma referred to as tephra. These eruptions created the numerous cinder cones dotted across the highest elevations of Mauna Kea. EX A-009 CMP Appendix 4, p. 9	Irrelevant/Inapplicable. Citation should be to Appendix A4.
340.	66	"Three cinder cones (pu'u) make up the summit of Mauna Kea (Pu'u Hau'oki, Pu'u Wēkiu, Pu'u Haukea), collectively referred to as Pu'u o Kūkahau'ula, a traditional deity associated with fisherman families. There are additional cinder cones (e.g., Pu'u Keonehehe'e, Pu'u Makaanaka, Pu'u Poepoe, Pu'u Poli'ahu, Māhoe, and Pu'u Waiau) below the summit." EX A-009 CMP Appendix 4, p. 9	Citation does not support proposition.
341.	67	Mauna Kea has two series of volcanic rocks. The older Hamakua series, mostly composed of olivine basalts, forms the bulk of the mountain. The Laupahoehoe series consists of "hawaiites" and comprises a veneer that overlays the upper part of the mountain. EX A-21 2000 Master Plan, p. IV-1	Not in dispute, however citation should be to Ex. A-48.
342.	67	Subglacial volcanic eruptions gave rise to lava flows that cooled quickly, yielding a fine grained, dense black rock called obsidian, prized by Hawaiians for adzes, at a site known as Keanakako'i. EX A-048 2000 Master Plan, p. IV-2	Citation does not support proposition.
343.	67	Due to glaciation during the last ice age of the Pleistocene era, ice covered approximately 27 square miles of the summit and ranged in thickness from 200-350 feet, to elevations of 10,500 feet, where ash and cinder were scraped away by glacial flow erosion. EX A-048, 2000 Master Plan p. IV-1	Not in dispute.
344.	67	Glacial moraine and meltwater deposits of fine sediments, and glacially sculpted features of cinder cones are evidence of summit glaciation that led to the formation of Lake Waiau, one of the highest lakes in the United States. EX. A-048, 2000 Master Plan IV-2	Citation does not support proposition that "Glacial moraine and meltwater deposits of fine sediments, and glacially sculpted features of cinder cones are evidence of summit glaciation that led to the formation

345.	67	The proposed TMT location is entirely underlain by a single lava flow. A single chemical analysis of this lava flow shows the flow to be of typical "hawaiite" composition (a type or alkali-rich basalt). EX A-003/R-3 FEIS, Vol. 1 p. 108	of Lake Waiau[.]” Citation does not support the proposition.
346.	67	“... The National Park Service is concerned about the deleterious effects its construction will have on the nationally recognized resources of Mauna Kea National Natural Landmark..” EX A004/R-4 FEIS Vol 2 May 8, 2010 p3 of 531	Mischaracterization. While the National Park Service agreed that the importance of the TMT Project is beyond reproach, it noted its concern about the deleterious effects of construction and suggested several mitigation measures. Ex. A-4/R-4 at 3.
347.	67	“The National Park Service contends that the permanent destruction of any surface geologic structures within the Mauna Kea NNL is significant and that it denigrates from it's overall status as a national natural landmark..” EX A004/R-4 FEIS Vol 2 May 8, 2010 p5 of 531 last paragraph	Misleading. Presented out of context. The National Park Service recommended, as a mitigation measure, that the University implement additional interpretation and educational opportunities, which the University did. Ex. A-4/R-4 p.5.
348.	68	“Aside from the aforementioned suggestions and additional recommendations for mitigation, the review of the DEIS has brought to our attention the incremental addition with resultant impacts of ten observatories to Mauna Kea since its establishment as a national natural landmark in 1972. Realizing that additional observatories may be a consideration in the future, the National park Service intends to review the current NNL designation and at the very least may consider removal of the 525 - acre Astronomy precinct from the current Mauna Kea National natural Landmark designation” EX A004/R-4 FEIS Vol 2 May 8, 2010 p6 of 531 3rd paragraph from top	Irrelevant/Inapplicable.
349.	68	National Natural Landmark designation would be threatened if the proposed Thirty Meter Telescope project were to be built. EX A004/R-4 FEIS Vol 2, May 8, 2010 p3 of 531	Mischaracterization. While the National Park Service agreed that the importance of the TMT Project is beyond reproach, it noted its concern about the deleterious effects of construction and suggested

350.	68	In her comments for the DEIS dated July 7, 2009, Chairwoman Theilan advises TMT "...to consult with DOI NNL program and determine if this project will impact designation.." EX A004 /R-4 FEIS V2 p. 19 of 531 para 4	several mitigation measures. Ex. A-4/R-4 at 3
351.	68	The scope of Hawaii's Public Trust Doctrine is set forth in article XI, section 1 of the Hawaii's Constitution and provides: For the benefit of present and future generations, the State and its political subdivisions shall conserve and protect Hawaii's natural beauty and all natural resources, including land, water, air, minerals and energy sources, and shall promote the development and utilization of these resources in a manner consistent with their conservation and in furtherance of the self-sufficiency of the State. All public natural resources are held in trust by the State for the benefit of the people.	Incomplete. The information regarding the NNL designation was added to the FEIS and the Project coordinated with the Department of the Interior regarding the NNL program. Ex. A-4/R-4 at 19. Misleading. Presented out of context. See UH-TIO FOF 1001-1014; see also UH-TIO COL 295-323.
352.	68	In the summit region, annual precipitation ranges from approximately 20 inches at the Very Long Baseline Array (VLBA) at an altitude of 12,600 feet to approximately 15.5 inches (including snowfall) at the Subaru Observatory at an altitude of 13,575 feet. Storms, including wintertime cold-fronts, upper-level and surface low-pressure systems, tropical depressions, and hurricanes provide the majority of annual precipitation over a very short period of time." Ex R-3/B.32 FEIS Vol. 1, 3-183	Not in dispute.
353.	69	Significant snowfall is known to occur during any month of the year, but is concentrated during January through March. Ex R-3/B.32 FEIS Vol. 1, 3-183	Not in dispute.
354.	69	Buried ground ice in two of the summit cinder cones show that permafrost exists near the summit. Ex B.37 MP, p. IV-1	Not in dispute.
355.	69	The regional aquifer beneath the summit of Mauna Kea is entirely fresh water. Ex R-3/B.32 FEIS Section 3.7, p 3-115	Not in dispute.
356.	69	The Applicant's evidence indicates that, except for Lake Waiau, which has an impermeable layer beneath it, rainwater and snowmelt at the summit "continues its downward migration to the regional aquifer" of Hawaii	Not in dispute.

357.	69	Island. Ex R-3/B.32 FEIS Section 3.7, p 3-115 In addition, as evidenced by most seeps and springs, shallow groundwater does exist in the mountains flanks below the summit area. Ex R-3/B.32 FEIS Section 3.7, p 3-117	Not in dispute.
358.	69	The Applicant's evidence indicates that drainage at the summit occurs through percolation of rainfall through cinder and broken rock substrates. Ex R-3/B.32 FEIS Section 3.7, p 3-117	Not in dispute.
359.	69	Applicant's analysis of spring water shows it to be recent and identical to rainfall at the summit. Ex R-3/B.32 FEIS Section 3.7, p 3-117	Not in dispute.
360.	69	Applicant's analysis concludes that at least some of the water percolates downward to ultimately discharge as a spring or seep. Ex R-3/B.32 FEIS Section 3.7, p 3-117	Not in dispute.
361.	69	The Applicant's evidence also indicates that surface runoff at the summit does not extend below an elevation of 6,000 feet, which means that "the majority of the water ultimately ends up percolating and becoming groundwater recharge with only a small amount lost to evaporation." Ex R-3/B.32 FEIS section 3.16, p 3-219	Not in dispute.
362.	70	Four components of the hydrology of the Mauna Kea summit region remain unknown: 1) watershed calculations of snow-water distribution, 2) outcomes of leachate and liquid waste from septic and cesspool systems, 3) distribution and impacts of permafrost, and 4) groundwater maps of water levels, flow paths, and recharge rates. Ex B.41 CMP NRMP, p. 2.1-39	Irrelevant/Inapplicable.
363.	70	Groundwater transportation rates at the summit region of Mauna Kea are unknown, and no flow paths have been identified. Ex B.28 CMP, p. 5-31	Citation does not support proposition.
364.	70	The 300 feet wide, approximately 10 foot deep, alpine lake, Wai'au, is "unique and revered." Ex B.37 MP, p. IV-2.	Not in dispute.
365.	70	The southern rim of Lake Wai'au is the rim of a subglacially-formed cinder cone, Pu'u Wai'au. Ex R-3/B.32 FEIS, Vol. 1, p. 3-115	Not in dispute.
366.	70	At an elevation of 13,020, Lake Wai'au is one of the highest lakes in the United States. It is 300 feet in diameter and believed to have formed 15,000 years ago after the last glacial retreat. Ex R-3/B.32 FEIS, Vol. 1, p. 3-115	Not in dispute.
367.	70	Lake Wai'au is recharged by precipitation and snow melt. An	Not in dispute.

		impermeable layer within Pu'u Wai'au creates a "perched aquifer" that constitutes Lake Wai'au. Ex R-3/B.32 FEIS, Vol. 1, p. 3-115	
368.	70	Beneath the summit is a "high level" aquifer, which indicates that it is entirely comprised of fresh-water, as opposed to those that also contain salt water. Ex R-3/B.32 FEIS, Vol. 1, p. 3-115	Not in dispute.
369.	70	Rainfall and other runoff at the summit percolates into the ground. Ex R-3/B.32 FEIS, Vol. 1, p. 3-117.	Not in dispute.
370.	70	"The summit of Mauna Kea (12,800 to 13,796 ft) is considered an Alpine Stone Desert. Several species of mosses and lichens, an unknown number of species of algae, some vascular plants constitute the plant community in this region. "Most of the species of plants found in the region are endemic (occurring only in Hawai'i) or indigenous (native to Hawai'i but occurring elsewhere). A few non-native plant species have also become established here, even at the summit." Ex B.28 CMP, p. 5-37- 5-38.	Not in dispute.
371.	71	During the Pleistocene era, an ice cap covered approximately 27 square miles of the upper regions of Mauna Kea and "scour[ed]" the area it covered. Ex B.37 MP, p. IV-1	Not in dispute.
372.	71	Classic terminal, polished rock outcrops, and glacial till deposits resulted from glacial-scouring. These features, combined with snowfall and wind patterns of the summit area, "support various forms of plant and animal life." Ex B.37 MP, p. IV-1 and IV-2	Not in dispute.
373.	71	"The landscape that exists today [on Mauna Kea] was formed by volcanic and glacial activity and is a unique environment for insects, spiders, lichens, ferns, and mosses. Rocky outcrops, loose cinder, and smooth lava flows make up habitats that combine with snowfall and wind patterns of the summit area to support various forms of plant and animal life." Ex B.37 MP p. IV-1	Not in dispute.
374.	71	"The Maunakea summit area is well above the atmospheric temperature inversions that occur around 7,000-feet. Particulates and aerosols like vog (volcanic gas), smog, dust, smoke, salt particles, and water vapors generated below the inversion level are "capped" by the temperature inversion, so they do not rise above the inversion level and do not cause any interference at the summit." Ex R-3/B.32 FEIS, p. 3-182	Not in dispute.

375.	71	High winds are common at the summit, but wind velocities usually range from 10 to 30 miles per hour. Wind speeds can exceed 100 miles per hour. Ex R-3/B.32 FEIS Vol. 1, p. 3-183	Not in dispute.
376.	71	Anabatic winds occasionally penetrate the inversion layer, bringing insects and small volumes of air from lower elevations. Ex R-3/B.32 FEIS Vol. 1, p. 3-183 to 3-184	Not in dispute.
377.	71	Winds gust up to 100 miles per hour in the upper regions of Mauna Kea, creating an aeolian (influenced by wind) ecosystem. Ex R-3/B.32 FEIS Vol. 1, p. 3-183	Not in dispute.
378.	72	High winds can spread dust to surrounding habitat. Ex. R-5/B.34, FEIS, Appendix K, p. 31	Not in dispute.
379.	72	"Wind vectors (direction and speed) across the summit area play a large role in the aeolian environment, transporting small debris including bugs from lower elevations up to the summit area. Obstructions to wind flow such as at the crests of the pu'u can redirect the wind or slow it, creating eddies or small vortexes that reduce the energy, or holding capacity, of the wind, allowing debris in the air parcel to fall out. The aeolian environment of the summit area is unique, the persistent wind forcing resident fauna to adapt. (see Section 2.2.2.2)." Ex B.41 CMP NRMP, p. 2.1-43	Not in dispute.
380.	72	Winter temperatures in the upper regions of Mauna Kea range from 10-40 degrees Fahrenheit. Summer temperatures range approximately between 30 to 60 degrees. Ex R-3/B.32 FEIS Vol. 1, p. 3-183	Not in dispute.
381.	72	"Seemingly barren, desolate, and unchanging, the natural environment of the upper slopes and summit area are actually very much alive, revealing through its topography, geology, and climate an impressive history of geomorphic process and ecosystem development." Ex B.28 CMP, p. 5-24.	Citation does not support the proposition.
382.	72	Although it may appear barren to the casual observer, the summit of Mauna Kea supports an interesting variety of species, many of which are found nowhere else in the world. Ex B.28 CMP, p. 5-38.	Citation does not support the proposition. Misleading. Presented out of context. There are no species of flora unique to the TMT Project site. UH-TIO FOF 466-479. There are no currently listed threatened or endangered species known to occur in the

			Astronomy Precinct. UH-TIO FOF 475-476.
383.	72	UH Management Areas on Mauna Kea contain two ecosystems: the Alpine Stone Desert above 12,800 feet and the Alpine Shrublands and Grasslands from roughly 9,500 feet to 12,800 feet. Ex R-3/B.32 FEIS Vol. 1, S-4.	Not in dispute.
384.	72	Vegetation above 12,800 feet in the upper regions of Mauna Kea consists primarily in the lichens, moss, and ferns that have adapted to its severe climatic conditions. Ex R-3/B.32 FEIS Vol. 1, p. 3-80.	Citation does not support the proposition.
385.	73	An unknown number of algal species and some vascular plants of species found at lower elevations also inhabit the summit region. Ex B.28 CMP, p. 5-37.	See response to FOF # 382.
386.	73	Native grass species (Hawaiian bentgrass (<i>Agrostis sanwicensis</i>) and pili uka (<i>Trisetum glomeratum</i>) and fern species ('iwa 'iwa (<i>Asplenium adiatum-nigrum</i>) and Douglas' bladderfern (<i>Cystopteris douglasii</i>) are found at elevations above 12,800 feet as well. Ex B.28 CMP, p. 5-38.	Citation does not support proposition.
387.	73	The highest density of the 21 known species of lichens in the alpine stone desert region of Mauna Kea grow on north and west faces of rocks, away from direct morning sunlight. Ex R-3/B.32 FEIS Vol. 1, p. 3-61.	Misrepresentation. Reference states that Hawaiian bentgrass, Douglass' bladder fern, 'iwa 'wa and pili uka occur in the alpine shrubland, which goes up to (not above). 12,800 feet in elevation. <i>See also</i> Ex. A-3/R-3 at S-4 (stating that alpine shrublands and grasslands are located between 9,500 and 12,800 feet in elevation.
388.	73	In 1982, 25 lichen species were found on Mauna Kea. Half of those species are endemic to Hawai'i, two of which occur only on Mauna Kea. Ex B.37 MP, p. IV-2.	See response to FOF # 382.
			See response to FOF # 382.
			Citation does not support proposition.
			Lacks evidentiary support from the record.
			Misleading. Presented out of context.
			None of the lichen or moss species detected at the TMT Project site are unique to Hawai'i. UH-TIO FOF 471.

389.	73	Twelve species of mosses have adapted to the alpine stone desert region and tend to cluster under rock overhangs, where moisture concentrates. Two indigenous species of mosses were detected in a recent botanical survey of the proposed Northern Plateau site for the TMT. Ex R-3/B.32 FEIS Vol. 1, p. 3-61.	See response to FOF # 382. Misleading. Partial quotation. The reference goes on to state that the two indigenous species of mosses detected at the Northern Plateau can be found elsewhere in the world. Ex. A-3/R-3 at 3-61.
390.	73	The Mauna Kea Silversword, a sub-species unique to the mountain, was once reported in the summit region. Ex B.37 MP, p. IV-4.	See response to FOF # 382. Not in dispute.
391.	73	Of the 25 different lichens found in 1982, half of the species were endemic to Hawaii, with two occurring only on Mauna Kea. Of the twelve mosses found in the summit area, less than a quarter were endemic. The fern <i>Cystopteris douglasii</i> was one of six vascular plants found at the summit, and the Mauna Kea Silversword, a sub-species unique to the mountain, was once reported in the summit region. Ex. B.37 MP, p.IV-2	Citation does not support proposition. See UH-TIO FOF 466-502. Misleading. Presented out of context. None of the lichen or moss species detected at the TMT Project site are unique to Hawai'i. UH-TIO FOF 471.
392.	73	Botanical surveys have been limited to species found about 13,000 feet and only in areas considered for future telescope development. Ex B.41 CMP NRMP 2.2-25.	See response to FOF # 382. Citation does not support proposition. See UH-TIO FOF 466-502.
393.	73	No information is available regarding the density, distribution, and effects of established invasive plant and animal species at Hale Pohaku and MKSR. Ex B.41 CMP NRMP 2.2-26	Citation does not support proposition. See UH-TIO FOF 466-502.
394.	74	Recent evidence suggests that there are isolated populations of some endangered and threatened species in the MKSR (Nagata 2007). Ex B.41 CMP NRMP 2.2-25	Citation does not support proposition. See UH-TIO FOF 466-502.
395.	74	The only resident animal species in the summit area are arthropods. At least ten indigenous Hawaiian arthropod species are residents of this area: wēkiu bugs (<i>Nysius Wēkiuicola</i>), lycosid wolf spiders (<i>Lycosa</i> sp.), two	Incomplete. See UH-TIO FOF 466-502.

		sheetweb spiders (genus <i>Erigone</i>), two mites (Family <i>Aysidae</i> and Family <i>Eupodidae</i>), two springtails (Family <i>Entomobryidae</i>), a centipede of the <i>Lithobius</i> species, a noctuid moth (<i>Agrotis</i> sp.). Ex R-1/B.30 UH/TMT CDUA, p. 3-6.	
396.	74	Despite their rarity, critical habitat for arthropod species is unknown or poorly defined because very little is known about their life cycle, population size, fecundity, and area distribution. Ex. B.37 MP, p. XI-22	Citation does not support the proposition. See UH-TIO FOF 466-502. Lacks evidentiary support from the record. The record reflects that the TMT Project will not be built in a critical habitat for the wēkiu bug or any species of concern. UH-TIO FOF 342. The wēkiu bug was removed as a candidate from the Federal Endangered Species Act, but in any case, OMKM has an overarching plan to restore the wēkiu bug habitat, which is currently being implemented. UH-TIO FOF 481-483. There Moreover, there are no currently-listed threatened or endangered species known to occur in the Astronomy Precinct. Ex. A-3/R-3 at S-4. See response to FOF # 396.
397.	74	Little information exists about the habits of arthropod species in the summit area, except the wēkiu bug. Ex B.28 CMP, p. 5-39.	
398.	74	Wēkiu bugs have adapted to Mauna Kea's aeolian ecosystem; their food supply consists of insects blown from lower elevations towards the summit. Ex R-3/B.32 FEIS	Citation does not support the proposition.
399.	74	Dust can impact lichens, mosses, and ferns and is believed to degrade Wēkiu bug habitat. Ex. R-5/B.34, App. K, p. 31 FEIS Vol. 1, p. 3-70.	See response to FOF # 396. Incomplete. See UH-TIO FOF 466-502. Misleading. Presented out of context. Measures are in place to mitigate the

			impacts of dust. UH-TIO FOF 309, 321, 490, 494.
400.	74	It has become clear that while Wēkiu bugs can range broadly over the summit when food sources and climate are favorable, the prime habitat is rims and inner craters of cinder cones. These are ice-free areas that rose above the once surrounding glacier (nunataks), as described by Englund and Porter 2006, sometimes on the flanks and base where cinder has accumulated (Eiben 2010).	See response to FOF # 396. Incomplete. See UH-TIO FOF 466-502. Unsupported/Unsubstantiated. Not in evidence. Misleading. Presented out of context. The disturbance of prime wēkiu bug habitat (Type 3) for the TMT Project would be limited to 0.2 acres. UH-TIO FOF 488; see also UH-TIO FOF 483-496. See response to FOF # 396. Citation does not support the proposition. See UH-TIO FOF 466-502. Irrelevant/Inapplicable. This FOF has no bearing on the TMT Projects impact on wēkiu bug populations. Misleading. Presented out of context. Numerous studies have been conducted on the wēkiu bug since the NRMP was published in 2009. See Exs. 17 at 4, A-18 at 4-5; Ex. A-22 at 7 - 10. See response to FOF # 396 Incomplete. See UH-TIO FOF 466-502.
401.	74	Information on relationships between wind and climate variables and wēkiu bug food availability is lacking. Ex B.41 CMP NRMP, p. 2.1-44.	
402.	75	In 1982, wēkiu bugs were found in abundance above 13,450 ft and on undisturbed areas on Pu'u Wēkiu and Pu'u Ha'oki and on stable	

		accumulations of loose cinders and tephra rocks with interstitial spaces that allowed the bugs to access moisture and shelter. Ex B.41 CMP NRMP, p. 2.2-34.	Misleading. Presented out of context. The TMT Project will not significantly impact wēkiu bug populations. UH-TIO FOF 481-496.
403.	75	Such hospitable environments for wēkiu bugs are found on cinder cones on the Mauna Kea summit as well as the flanks and bases of cinder cones. Ex B.28 CMP, p. 5-39.	See response to FOF # 396 Incomplete. See UH-TIO FOF 466-502. Citation does not support proposition. Misleading. Presented out of context. Numerous studies have been conducted on the wēkiu bug since the NRMP was published in 2009. See Exs. 17 at 4, A-18 at 4-5; Ex. A-22 at 7 - 10.
404.	75	In 1999, the Mauna Kea Summit Region Historic District (MKSRRHD) was determined eligible for listing on the National Register. (Ex. A-55, FAIS-AP, p. 1-1)	See response to FOF # 396 Not in dispute.
405.	75	The five criteria established for evaluating the significance of historic properties and assessing eligibility for placement on the National/Hawai'i Registers of Historic Places are: A. Associated with events that have made an important contribution to the broad patterns of our history. B. Associated with the lives of persons important in our past; C. Embodies the distinctive characteristics of a type, period, or method of construction, represents the work of a master, or possesses high artistic value; D. Have yielded, or is likely to yield information important for research on prehistory or history; E. Have an important value to the native Hawaiian people or to another ethnic group of the state due to associations with cultural practices	Not in dispute. Irrelevant/Inapplicable.

		once carried out, or still carried out, at the property, or due to associations with traditional beliefs, events or oral history accounts – these associations being important to the group's history and cultural identity. (Ex. R-5/B.34,TMT FEIS Vol. 3, p. G-54)	
406.	76	The proposed TMT project would be located within the Mauna Kea Summit Region Historic District (State Inventory of Historic Place #50-10-23-26869) which was determined by the DLNR - State Historic Preservation Division to be historically and culturally significant under all five criteria (A, B, C, D, & E) of the Hawai'i Register of Historic Places and Hawai'i Administrative Rules (§13-275) and under all four criteria (A; B, C, & D) of the National Register of Historic Places. (Ex. A-63, SHPD letter, p. 1)	Not in dispute.
407.	76	The eligibility of the Mauna Kea Region Historic District is particularly relevant when determining the "Area of Potential Effect" (APE) of any proposed project, including the TMT. (Ex. B.12a at 1)	Not credible. See, UH-TIO FOF 559, 757.
408.	76	The MKSRHD is significant under all four National Register criteria, and criterion "e" of the Hawaii Administrative Rules, Chapter §13-275-6. The district is significant under criterion "a" because of the presence of the Mauna Kea Adze Quarry Complex (a National Historic Landmark), which was used over a period of 500 years or more and the hundreds of shrines in and outside of the quarry. Both the quarry and the shrines are associated with broad patterns and events in Hawaiian prehistory. The district is significant under criterion "b" because of the association with several gods who may have been deified ancestors. These include Kukahau'ula, Lilinee and Waiau. The sites in the adze quarry and many of the shrines embody distinctive characteristics of traditional Hawaiian stone tool manufacture by craft specialists and a distinctive type of shrine construction found in only a few other places in the Hawaiian Islands. These make the district significant under criterion "c." Studies of the Mauna Kea Adze Quarry Complex and the on-going archaeological survey of the Mauna Kea Science Reserve have already made a significant contribution to our understanding of Hawaiian prehistory and history, and hold the potential to make even more contributions. The district is thus significant under	Irrelevant/Inapplicable. Not in dispute.

		criterion “d.” Finally, the district is significant under criterion “e” because of the presence of numerous burials and the hundreds of shrines which have been interpreted as evidence of a previously unknown land use practice in the form of pilgrimages to the summit of Mauna Kea to worship the gods and goddesses. (Ex. R-5/B.34, FEIS, p. G-54)	
409.	77	SHPD has repeatedly stated that they consider the summit region to be a historic district in a number of letters regarding astronomy and astronomy-related projects (See, Don Hibbard letter to Dierdre Mamiya, April 24, 2002; Don Hibbard letter to Robert McLaren, January 10, 2001; Timothy Johns letter to Kenneth Kumor, October 26, 2000; Don Hibbard letter to Robert A. McLaren, May 3, 1999). (Ex. R-4/B.33 FEIS, p. 27) With the recognition of the MKSRHD as eligible for the National Register there is now a single frame of reference that can be used in evaluating site significance for all of the historic properties on the top of Mauna Kea. (Ex. A-55, FAIS-AP, p. 7-2)	Not in dispute.
410.	77	Per the Mauna Kea Historic Preservation Plan [2000] prepared by SHPD: Within the [Mauna Kea Summit Region] historic district, the significance of properties is not evaluated individually because the summit region as a whole is considered eligible for inclusion in the National Register. Instead, the required assessments consider how each newly or previously recorded property potentially affected by a project contributes to the significance of the historic district as a whole. (Ex. R-5/B.34 FEIS, p. G-55)	Not in dispute.
411.	77	Pu'u Kukahau'ula State Historic Property (SIHP Site No. 50-10-23-21438) is a contributing component of the Mauna Kea Summit Region Historic District. (Ex. R-5/B.34 FEIS, p. G-55)	Not in dispute.
412.	77	Prior to the historic period, there are no other known sites on the series of cinder cones, including Pu'u Kukahau'ula, that comprise the 'summit' of Mauna Kea with the single exception of a cairn (Site 50-10-23-21209). There is a virtual absence of archaeological sites on the very top of the mountain. (Ex. A-55, FAIS-AP, p. 6-4)	Citation does not support proposition.
413.	77	Consideration of the properties included within the MKSRHD, and their associated practices and beliefs, suggests it to represent a type of historic property best referred to as a “cultural landscape”. A cultural landscape is a	Not in dispute.
414.	77		Not in dispute.

		geographical definable area that clearly reflects patterns of occupation and land use over a long time period, as well as the cultural values and attitudes which guide and regulate human interaction with the physical environment. [Emphasis in bold] (Ex. B.37 MP, App. N, p. 45)	
415.	78	This "cultural landscape" has been determined eligible for the National and State Register of Historic Places under multiple criteria including cultural significance to the native Hawaiian People (cf. letter of D. Hibbard to R. Evans, September 12, 1991). As a result, archaeologists with DLNR-SHPD have referred the summit region of Mauna Kea as a "ritual landscape" with all of the individual parts contributing to the integrity of the whole summit region. [Emphasis in bold] (Ex. B.37 MP, App. I, p. 3)	Not in dispute.
416.	78	Based on the Native Hawaiian traditional cultural practices and beliefs associated with Mauna Kea, as documented in the Maly (1999) oral history and consultation study, the MKSRHD could perhaps even more appropriately be considered a special type of cultural landscape referred to by the National Park Service as ethnographic landscapes: "those landscapes imbued with such intangible meanings that they continue to be deemed significant or even sacred by contemporary people who have continuous ties to the site or area". (Ex. B.37 MP, App. N, p. 45)	Not in dispute only as to exhibit citation.
417.	78	Such an ethnographic landscape would seem to be embodied in the concept of "cultural attachment" use by Maly (1999:27) to describe the connection of many Native Hawaiians to Mauna Kea. (Ex. B.37 MP, App. N, p. 45)	Incomplete.
418.	78	"Cultural Attachment" embodies the tangible and intangible values of a culture. It is how a people identify with and personify the environment (both natural and manmade) around them. Cultural attachment is demonstrated in the intimate relationship (developed over generations of experiences) that a people of a particular culture share with their landscape--for example, the geographic feature, the natural phenomena and resources, and traditional sites, etc., that make up their surroundings. This attachment to environment bears direct relationship to their beliefs, practices, cultural evolution, and identity of a people. In Hawai'i, cultural attachment is manifest in the very core of Hawaiian spirituality and attachment to landscape. The creative forces of nature which gave birth to	Not in dispute only as to exhibit citation.

		the islands (e.g., Hawai'i), the mountains (e.g. Mauna Kea) and all forms of nature, also gave birth to na kanaka (the people), thus in Hawaiian tradition, island and human kind share the same genealogy..." (Ex. B.37 MP, App. I, p. 27)	
419.	79	Figure 3.7 of this archaeological inventory survey identified the locations of historic properties, traditional cultural properties, and find spots in the MKSR. (Ex. A-55, FAIS-AP, p. 3-12)	Not in dispute.
420.	79	The largest concentration of historic properties and cultural resources is on the northern slope of Mauna Kea below the summit cones. (Ex. A-55, FAIS-AP, p. 6-1)	Not in dispute.
421.	79	Many of these sites are located within a narrow 220-ft contour interval, between the 12,900-ft and 13-100-ft elevations on the northern slope. (Ex. A-55, FAIS-AP, p. 6-1)	Citation does not support the proposition.
422.	79	The term 'shrine' is used by Archaeologist [McCoy] to describe all of the religious structures that exist in the summit region of Mauna Kea. (Ex. B.37 MP, App. N, p. 21)	Not in dispute.
423.	79	Most of the shrines found on Mauna Kea have 1 to 3 uprights. However, some have as many as 24 or 25 stone uprights. (Ex. B.37 MP, App. N, p. 21)	Not in dispute.
424.	79	Shrines were placed in prominent location with commanding views of the landscape. (Ex. B.37 MP, App. N, p. 21)	Not in dispute.
425.	79	PSCI's recommendation as part of the Cultural Resources Management Plan (CRMP): Section 4.3.2: In view of the documented existence of human burials in the Science Reserve there is a need to develop a burial treatment plan (BTP) to protect all known burial sites. Given the possibility that more human remains will be found inadvertently in the Science Reserve in the future there is also a need to develop an Inadvertent Discovery Plan. (Ex. A-55, FAIS-AP, p. 8-2)	Incomplete. A burial treatment plan was prepared by PCSI for the entire MKSR and Mauna Kea Access Road Corridor, including the TMT Project site. See, UH-TIO FOF 570; Ex. A-138.
426.	79	Mauna Kea is a burial ground of our highest born and most sacred ancestors. (Ex. B.01q MKAH/Paul Neves Temple Report 2001 p. 9)	Citation does not support proposition. Unsupported/Unsubstantiated. The fact that certain individuals may hold

427.	79	A 1997 SHPD reconnaissance survey began the process of recording what were initially referred to as "locations" but are now being termed "find spots" – a general term referring to man-made remains that are either obviously modern features or features that cannot be classified by archaeologists with any level of confidence as historic sites because of their uncertain age and function. (Ex. A-55, FAIS-AP, p. 3-10)	and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of the belief is factual.
428.	80	"Find spots" are cultural resources. (Ex. A-55, FAIS-AP, p. 5-20)	Vague/Ambiguous/Irrelevant, except as to quoted exhibit.
429.	80	Cultural resources in the MKSR need to be considered in developing appropriate management strategies. (Ex. R-1/B.30, CDUA, p. C-4)	Incomplete. "Find spots" are cultural resources that are either obviously modern features or features that cannot be classified with any level of confidence as historic sites because of their uncertain age and function. Ex. A-55 at 5-20.
430.	80	The archaeological field survey crew for the Astronomy Precinct and surrounding lands was limited to PSCI co-principal investigators, Patrick McCoy and Dennis Gosser, and staff, Richard Nees and Reid Yamasato. (Ex. A-55, FAIS-AP, p. 1-4)	Misleading. Partial quotation. Full quote reads: Cultural resources in the MKSR include a large number of remains that at present cannot be classified as historic properties or sites, as normally defined in State and Federal laws, but which nevertheless need to be considered in developing appropriate management strategies.
431.	80	This field survey crew did not include any Native Hawaiian cultural practitioners. (Ex. A-55, FAIS-AP, p. 1-4)	Misrepresentation. Citation does not support proposition that the field survey crew was "limited." Citation does not support proposition.

			Not supported by the reliable, probative and substantial evidence.
432.	80	The confidence level of archaeologists in assigning functions to many of the sites and component features varies. (Ex. A-55, FAIS-AP, p. 4-4)	Vague/Ambiguous/Irrelevant, except as to quoted exhibit.
433.	80	"No universally accepted definitions of site and feature exist in Hawaiian archaeology, and it is unlikely that any ever will because of the architectural complexities of the archaeological landscape in many areas of the Hawaiian Islands, and the different perspectives that archaeologists hold on how the archaeological landscape should be observed and recorded." (Ex. A-55, FAIS-AP, p. 4-3)	Not in dispute.
434.	80	"While sites and features can be easily described in terms of formal attributes, there is in reality no dichotomy between form and function, since function is inferred from form..." (Ex. A-55, FAIS-AP, p. 4-3, 4-4)	Not in dispute.
435.	80	Archaeological classifications are not immutable. They may require revision. (Ex. A-55, FAIS-AP, p. 4-3)	Not in dispute.
436.	80	A Traditional Cultural Property [TCP] can be defined generally as one that is eligible for inclusion in the National Register because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community. (Ex. A-55, FAIS-AP, p. 5-15 & 5-17)	Not in dispute, but irrelevant.
437.	81	The National Register Bulletin 38 "Guidelines for Evaluating and Documenting Traditional Cultural Properties" (Parker and King 1990), provides agencies further guidance for assessing the importance of traditional cultural beliefs or practices (or cultural attachment) while assessing cultural resources and proposed actions that will affect their integrity. (Ex. B.37 MP, App. I, p. 27)	Irrelevant/Inapplicable.
438.	81	In defining "traditional cultural properties", the National Register explains: "traditional" in this context refers to those beliefs, customs, and practices of a living community of people that have been passed down through the generations, usually orally or through practice. The traditional cultural significance of a historic property, then, is significance derived from the role the property plays in a communities historically rooted beliefs,	Not in dispute, but irrelevant.

439.	81	customs, and practices. (Ex. B-37 MP, App. I, p. 27). The entire mountain region of Mauna Kea from approximately the 6,000 foot elevation to the summit, including the Mauna Kea Science Reserve, was identified in the Cultural Impact Assessment [CIA] Study (1999) as a potential TCP. (Ex. A-67, CIA, p. 39).	Citation does not support the proposition.
440.	81	A cultural impact assessment must evaluate the significance of the region, whether natural or build features, within the mind set of the cultural practitioners. Id. at 84:13-18.	Not supported by the reliable, probative and substantial evidence.
441.	81	The CDUA did not adequately address intangibles. Id. at 97-98.	Citation does not support the proposition.
442.	81	The CIA identified a number of potential traditional cultural properties within the Mauna Kea Science Reserve Master Plan project area. These are historic properties that are of importance to Native Hawaiians because they possess traditional cultural significance derived from associated cultural practice and beliefs. These historic properties include the following: The entire mountain region, from approximately the 6,000 feet elevation (The saddle area) to the summit;	Not supported by the reliable, probative and substantial evidence. Citation does not support proposition.
443.	81	Pu`u Kukahau`ula--a cinder cone that is the summit peak of Mauna Kea (sometimes also referred to by the modern name of Pu`u Wekiu);	Incomplete. See UH-TIO FOF 194-203.
444.	82	Pu`u Poliahu--a prominent summit region cone situated west of Pu`u Kukahau`ula;	Incomplete.
445.	82	Pu`u Lilinoe--a prominent summit region cinder cone situated to the south east of Pu`u Kukahau`ula;	Incomplete.
446.	82	Waiau--a shallow lake and its adjacent cinder cone situated in the summit region, to the southwest of Kukahau`ula;	Incomplete.
447.	82	Pu`u Makaanaka and Kaupo vicinity--a cluster of two prominent cinder cone situated near the edge of the summit region to the northeast of Pu`u Kukahau`ula;	Incomplete.
448.	82	Mauna Kea-Umiko Trail--a foot and horse trail extending between	Incomplete.
449.	82		

		Kuka'iau in Hamakua to immediately south of the summit area;	
450.	82	Mauna Kea-Humu'ula Trail--a foot and horse trail extending from the Humu'ula sheep station up to the summit area; and	Incomplete.
451.	82	A number of lesser foot and horse trails-including the Mauna Kea-Laupahoehoe-Waipunalei Kanakaleonui Trail, the Mauna Kea-Makahalau-Kemole Trail, and the Waiau-Waikiki-Pu'u La'au Trail. Ex. B.37 MP, App. N, p. 39-40	Incomplete.
452.	82	The proposed site for the TMT Observatory is a roughly 5-acre area at the end of a four-wheel drive road at an elevation of 13,150 feet on the Northern Plateau of Mauna Kea. (Ex R-3/B.32 FEIS, Vol. 1 p. 2-10)	Not in dispute.
453.	82	Roughly 6.2 acres of previously undisturbed land will be disturbed by the TMT Observatory and Access Way. (Ex R-3/B.32 FEIS Section 3.2, Page 3-26)	Not in dispute as per exhibit reference.
454.	82	There are no current developments on the Northern Plateau. (Ex B.70 CDUA Staff Report Feb 25, 2011, p.7)	Ex. B.70 not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g).
455.	83	TMT is being proposed for an area on the North Plateau of Mauna Kea that has not hosted permanent facilities or developments. It is opening up a new area. (Ex. B.70 CDUA Staff Report Feb 25, 2011, p.59)	Ex. B.70 not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g).
			Inaccurate/False. See UH-TIO FOF 238-261.
456.	83	The TMT's footprint will be a minimum of 8.5 acres on a pristine plateau. (Ex B.70 CDUA Staff Report Feb 25, 2011 p.K-1)	Ex. B.70 not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g).
			Inaccurate/False. See UH-TIO FOF 238-261.
457.	83	The total dome height will be 184 feet above finished grade, with an exterior radius of 108 feet. (Ex B.70 CDUA Staff Report Feb 25, 2011, p.15)	Ex. B.70 not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g).
			Inaccurate/False. See UH-TIO FOF 238-

458.	83	HAR 11-200-12 states: "In Determining whether an action may have a significant effect on the environment, the agency shall consider every phase of a proposed action, the expected consequences, both primary and secondary, and the cumulative as well as the short term and long term effects of an action. In most instances, an action shall be determined to have significant impact if it: (13) Requires significant energy consumption." HRS 11-200-12 (Significance Criteria).	261. Not in dispute.
459.	83	The TMT AIS did not review pertinent literature, although there have been "decades and decades of archaeological research" on the area. (Tr. 01/25/2017, Peter Mills, Vol.30 p 21-22.)	Not credible. <i>See</i> , UH-TIO FOF 559, 757. Unsupported/Unsubstantiated. Not supported by the reliable, probative and substantial evidence.
460.	83	Scott Williams' Master's thesis concerning Mauna Kea, published in 1989, is well known in the archaeological community and was not listed as having been reviewed in preparing the TMT AIS. (Tr. 01/25/2017, Peter Mills, Vol.30 p 21:11-20)	False/Inaccurate. Scott Williams' unpublished M.A. Thesis, A Technological Analysis of the Debitage Assemblage from Ko'oko'olau Rockshelter No. 1, Mauna Kea Adze Quarry, Hawaii, is listed as a cited reference. Ex. A-55 at 9-12.
461.	83	Nor was Professor Mills' 2006 report concerning the archaeological evaluation of the Mauna Kea Adze Quarry referenced by the TMT AIS. (Tr. 01/25/2017, Peter Mills, Vol.30 p 21:5-20)	Irrelevant/Inapplicable.
462.	83	An AIS should perform a complete literature review of archaeological and cultural research that has been conducted at a subject area. Because it omitted these reports, the TMT AIS was inadequate. (Id. at 92: 1-10)	Not credible. <i>See</i> , UH-TIO FOF 559, 757. Unsupported/Unsubstantiated.
463.	83	Many problems arise from this inadequacy, including that the TMT AIS will be viewed as an up to date and complete resource for this area, when it is not. (Id. at 92: 13-15)	Not supported by the reliable, probative and substantial evidence. Not credible. <i>See</i> , UH-TIO FOF 559, 757. Unsupported/Unsubstantiated.

			Not supported by the reliable, probative and substantial evidence.
464.	84	Further, previously identified issues in those surveys were not included in the TMT AIS, which furthers the incompleteness of the AIS. (Id., at 92:16-23)	Not credible. <i>See</i> , UH-TIO FOF 559, 757. Unsupported/Unsubstantiated.
465.	84	The TMT will have significant power requirements. (Ex B.70 CDUA Staff Report Feb 25, 2011, p.45)	Not supported by the reliable, probative and substantial evidence.
466.	84	The existing peak demand load documented by HELCO at the substation, including all the observatories and the Hale Pohaku facilities, is 2,230 kW, approximately less than half of the capacity of the substation. Of this current use, the Keck observatory uses approximately 350 kW of power on average. (Ex R-3/B.32 FEIS Section 3.12 Power and Communications p 3-169)	Ex. B.70 not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g).
467.	84	The TMT Project would result in HELCO having to upgrade the two transformers with the Hale Pohaku Substation. (Ex. R-1/B.30, CDUA, p. 1-13)	Not in dispute.
468.	84	The TMT Project would result in HELCO having to also upgrade the existing electrical service by replacing the existing wire conductors with new higher-capacity conductors in the underground conduits that run from the Hale Pohaku Substation to the summit area. (Ex. R-1/B.30, CDUA, p. 1-14)	Not in dispute.
469.	84	New electrical power lines and conduits would be extended into the northern plateau for the TMT Project where they are none installed at the moment. (Tr. Aug. 18, 2011, B. McLaren, p. 180:19-25)	Not in evidence.
470.	84	DOFAW notes...Not knowing the actual alignment makes it difficult to assess the potential impacts of the project, although, the powerline will pass through the Mauna Kea Ice Age Reserve in some locations. (Ex B.70 CDUA Staff Report Feb 25, 2011, p.23)	Unsupported/Unsubstantiated.
471.	84	The Department of Health Clean Water Branch (CWB) notes that the	Ex. B.70 not in evidence. Consideration of

		project will need to be compliant with the criteria set out in the Anti-degradation Policy (HAR ss11-54-1.1) and Designated uses (HAR ss11-54-1.1) regarding impacts on state waters. (Ex B.70 CDUA Staff Report Feb 25, 2011, p.25)	the cited document is prohibited by HRS § 91-9(g).
472.	84	The building and operation of the TMT Observatory on Maunakea will require a sublease from UH, which lease this ceded land from DLNR. The sublease will be subject to approval first from the TMT board and the UH BOR followed by approval from BLNR. (Ex R-3/B.32 FEIS section 3.10, p 3-159)	Vague, Irrelevant.
473.	85	The current UH lease expires in 2033 and the TMT Observatory will be required to be decommissioned and restore the site at that time, unless a new lease is obtained from the BLNR. (Ex R-3/B.32 FEIS section 3.10, p 3-160)	Not in dispute as an option.
474.	85	"... Thus, while the TMT project carries many benefits both scientifically, economically, and in the form of higher education for the Big Island and the State as a whole, there will be environmental and cultural impacts of a significant and adverse nature on the summit of Mauna Kea." (R-4 FEIS V2, p.17 OF 531 PDF 3rd par.) Tauai'i states, "TMT will cause a substantial adverse impact to the existing natural resources as well as a sacred area within the culture would." (Tr. 01/24/2017, Maile Taualii, Vol. 29, p 109:10-1)	Not credible. See, UH-TIO FOF 943-947 Unsupported/Unsubstantiated. Not supported by the reliable, probative and substantial evidence. The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute.
475.	85	"The summit of Mauna Kea has been characterized in literature as a sacred landscape in the Native Hawaiian Culture. It appears likely that the construction of this very large observatory will have a significant and adverse impact on this important landscape." (Laura Theilan R-4 FEIS V2, p17 of 531 pdf)	Misleading. Presented out of context. In response to the comment, the University amended the FEIS. Ex. A-4/R-4 at 17. Not supported by the reliable, probative and substantial evidence.
476.	85	It should be also noted that an EIS should be and "shall not be merely a self - serving recitation of benefits and rationalization of the proposed action." (Laura Theilan Ex R-4 FEIS V2, p17 of 531 pdf)	Misleading. Presented out of context. In response to the comment, the University amended the FEIS. Ex. A-4/R-4 at 17.

477.	85	“...The DEIS states that the TMT will result in a small incremental increase in the cumulative impact to cultural resources. We do not necessarily agree that the impact of the project can be characterized as a “small incremental “increase. The TMT will result in a 50% increase in astronomy related personal [SIC] in the summit area, will consume over 6 acres in its construction, and will result in the movement of almost 100,000 cubic yards of lava material. This project clearly represents more than a small incremental increase in environmental and cultural impacts...” (Laura Theilan Ex R-4 V2, p21-22 of 531 pdf)	Misleading. Presented out of context. Comment 34 addresses these concerns. Ex. A-4/R-4 at 21. Not supported by the reliable, probative and substantial evidence.
478.	86	Federal regulations define “APE” as “the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist[.]” 36 C.F.R. §800.16[b]. APE is also referenced under HRS Chapter 343 and associated guidelines for cultural impact assessments: “In scoping the cultural portion of an environmental assessment, the geographical extent of the inquiry should, in most instances, be greater than the area over which the proposed action will take place. This is to ensure that cultural practices which may not occur within the boundaries of the project area, but which may nonetheless be affected, are included in the assessment.” (Ex. B.12a at 2 citing Guidelines for Assessing Cultural Impacts, Office of Environmental Quality Control (OEQC), State of Hawai‘i, Nov. 19, 1997, p. 11 (Ex. B.12c).	Irrelevant/Inapplicable. The TMT Project is not a federal project.
479.	86	The OEQC Guidelines assist in clarifying what should be considered in assessing an APE for the TMT. (Tr. 01/25/2017, Peter Mills, Vol.30 p 89:11-14)	Not credible. See, UH-TIO FOF 559, 757 Citation does not support proposition
480.	86	Effects on the historic district would consider the visual impact of a facility on the surrounding landscape (i.e., the various land forms creating the setting and context of the multiple historic properties encompassed by the district) and on those individual historic properties that contribute to the significance of the district. (Ex. A-55, FAIS-AP, p. 8-2)	Not in dispute.
481.	86	Documents prepared in support of the TMT CDUA should have had a better analysis of where Native Hawaiian cultural practitioners were living and conducting cultural practices, and where viewplanes of the proposed	Unsupported/Unsubstantiated. See UH-TIO FOF 194-203, 210-237, 344-348, 611-774.

482.	86	TMT would intersect with those people and places. (Id. at 111-12) The CDUA underestimated the visual impact of the project (and former telescopes) on cultural practitioners, particularly in part stating, "there is no evidence suggesting that the presence of the existing observatories has prevented or impacted (emphasis added) those [observances and rituals/traditional customary] practices" (CDUA page 4-7). (Ex. B. 12a at 2)	Not credible. <i>See</i> , UH-TIO FOF 559, 757. Unsupported/Unsubstantiated.
483.	87	Within the viewplanes what Neves is concerned about is the viewplane of the path of the sun because it has a connection with his family. (Tr. 01/31/2017, Paul Neves, Vol. 33 p. 186:9-12; p. 244:13-17)	Incomplete. <i>See</i> UH-TIO FOF 747.
484.	87	This viewplane is from the Mauna Kea summit towards Haleakala on Maui. (Tr. 01/31/2017, Paul Neves, Vol. 33 p. 244:22-24; p. 245:12-16)	Incomplete. <i>See</i> UH-TIO FOF 747.
485.	87	If the TMT were built, it would interfere with this alignment directly. (Tr. 01/31/2017, Paul Neves, Vol. 33 p 185:7-12)	Unsupported/Unsubstantiated. There is no credible evidence that the viewplanes from the summit ridge area towards Haleakala or other areas would be materially affected or blocked. <i>See, e.g.</i> , UH-TIO FOF 704, 747. The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of the belief is factual. There is no reliable probative and substantial evidence that her or the referenced practices are within the bundle of rights protected by Article XII, Section 7 of the Hawaii State Constitution..
486.	87	Neves named his daughter after this mark and the call of the sun, Akala Nahikulani. (Tr. 01/31/2017, Paul Neves, Vol. 33 p. 183:18-20)	Irrelevant/Inapplicable. Unsupported/Unsubstantiated.

487.	87	Subsequent sections of the CDUA (4.2.2 through 4.2.6) emphasize physical impacts to tangible resources but failed to adequately recognize adverse effects caused by the altered setting referred to in the accepted OEQC Guidelines for Assessing Cultural Impacts. (Ex. B.12a at 2 citing B.12c)	Not credible. <i>See</i> UH-TIO FOF 559, 757. Unsupported/Unsubstantiated. Not supported by the reliable, probative and substantial evidence.
488.	87	Professor Mills noted that the map included with the CDUA application was cropped from the version prepared by Pacific Consulting Services, Inc. (PCSI) to limit presentation to an even smaller implied "Area of Potential Effect." (Ex. B.12a at 2)	Not credible. <i>See</i> UH-TIO FOF 559, 757. Unsupported/Unsubstantiated. Not supported by the reliable, probative and substantial evidence.
489.	87	The Pu 'u Kukahau 'ula State Historic Property has been massively impacted by the construction and use of the existing loop access road, telescope pads and appurtenances. These impacts include not only effects to the cinder cone itself but also to the surrounding view plane. (Ex. R-5/B.34, TMT FEIS, p. G-57)	Incomplete. <i>See</i> UH-TIO FOF 118-190.
490.	87	[T]he visual impact of past actions on Maunakea, such as the 11 observatories currently located within the Astronomy Precinct, is considered substantial, significant and adverse. When the TMT Observatory is combined with the existing conditions, the cumulative visual impact of development on or near the summit of Mauna kea will continue to be significant... (Ex. R-3/B.32 (TMT FEIS Section 3.5 Visual and Aesthetic Resources), p 3-101)	Incomplete. <i>See</i> UH-TIO FOF 118-190, 304-330.
491.	88	The TMT Observatory will add a new visual element to the northern plateau area that will be visible to varying degrees from the shrines along the northern slopes of Maunakea. (Ex. R-3/B.32, (TMT FEIS Section 3.2 Cultural Resources), p. 3-31)	Incomplete. <i>See</i> UH-TIO FOF 118-190, 304-330.
492.	88	The Applicant concedes that when the TMT Observatory is combined with the existing conditions, the cumulative visual impact of development on or near the summit of Mauna Kea will continue to be significant. (Ex R-3/B.32 FEIS Section 3.5 Visual and Aesthetic Resources, p 3-101)	Mischaracterization. In the context of the existing summit area cumulative impacts - and under the assumption that such cumulative impacts will continue - the TMT project does not create or cause

493.	88	The TMT observatory and appurtenances will be visible to the west and north of the Pu'u Kukahau 'ula State Historic Property. (Ex. R-5/B.34, TMT FEIS, p. G-57)	substantial adverse impacts to existing natural resources in the applicable area. <i>See, e.g., UH-TIO FOF 443.</i> Incomplete. <i>See UH-TIO FOF 118-190, 304-330.</i>
494.	88	[T]he TMT does not preserve or improve upon the open space and natural beauty characteristics of Mauna Kea, nor does it demonstrate it will not have an adverse or significant impact on the cultural resources of Mauna Kea. (Ex B.01a K. Pisciotto, June 28, 2011, WDT, p. 9)	Unsupported/Unsubstantiated. The University has demonstrated that the existing physical and environmental aspects of the land, such as natural beauty and open space characteristics, will be preserved or improved upon by the TMT Project. <i>See, e.g., UH-TIO FOF 306, 869-913.</i>
495.	88	The TMT Observatory will impact the view plane in certain portions of the Pu'u Kukahau 'ula State Historic Property (SIHP # 50-10-23-21438) and the Mauna Kea Summit Region Historic District (SIHP # 50-10-23-26869). (Ex. R-5/B.34, TMT FEIS, p. G-62)	Misleading. Partial quotation. Full quotes reads: While the TMT Observatory will impact the view plane in certain portions of the Pu'u Kukahau 'ula State Historic Property (SIHP 50-10-23-21438) and the Mauna Kea Summit Region Historic District (SIHP 50-10-23-26869), the impact will be far less than that of any existing observatory.
496.	88	Effects on the historic district would consider the visual impact of a facility on the surrounding landscape (i.e., the various land forms creating the setting and context of the multiple historic properties encompassed by the district) and on those individual historic properties that contribute to the significance of the district. (Ex. A-55, FAIS-AP, p. 8-2)	Misleading. Presented out of context. <i>See UH-TIO FOF 304-330.</i>
497.	88	Viewplanes and viewscapes are public trust resources too. Viewplanes and viewscapes and open spaces are also traditional cultural properties. The TMT being placed in the middle of the ring of shrines contain hundreds if not thousands of sites on the northwestern flank of the summit plateau will be impacted because the views used in ceremonies will be blocked in very	2011 transcripts not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g). Unsupported/Unsubstantiated.

		significant ways. (Tr. Kealoha Pisciotto, September 30, 2011 p.138:19-25, 139:1)		Not supported by the reliable, probative and substantial evidence.
498.	89	The DLNR staff criticized the viewplane analysis because the visual impacts were downplayed in the analysis. The analysis does not seem to account for the visual impact of the project on the individuals that move within and between impacted viewplanes, impact on visitors, and more importantly, the impact of viewing a new very large observatory from the perspective within the summit area. Laura Thielen, Chair, DLNR. (Ex R-5/B.34 FEIS Vol II p 21 of 531)		Misleading. Presented out of context. In response to the comment, a visualization of the TMT Observatory from a viewpoint near the Keck Observatory, looking toward Haleakalā was included in the FEIS and the FEIS discusses that in addition to being visible to the residents within the TMT viewshed, the TMT Observatory will be visible to other island residents and visitors when they travel within the TMT viewshed. Ex. A-4/R-4 at 21.
499.	89	The TMT Observatory will impact the view plane in certain portions of the Pu'u Kukahau'ula State Historic Property (SIHP # 50-10-23-21438) and the Mauna Kea Summit Region Historic District (SIHP # 50-10-23-26869). (Ex. R-5/B.34, TMT FEIS, p. G-62)		Misleading. Partial quotation. Full quotes reads: While the TMT Observatory will impact the view plan in certain portions of the Pu'u Kukahau'ula State Historic Property (SIHP 50-10-23-21438) and the Mauna Kea Summit Region Historic District (SIHP 50-10-23-26869), the impact will be far less than that of any existing observatory.
500.	89	Observatory construction has resulted in the moving of more than 10,000 cubic yards of material, grading and flattening of Kukahau'ula ridges, and placement of man-made structures on Kukahau'ula, affecting views to and from the summit. The development of observatories within the Astronomy Precinct substantially altered the appearance of the summit, and the presence of observatories continues to affect the performance of the religious and cultural practices. (Ex. R-3/B.32 (TMT FEIS Section 3.16 Cumulative Impacts), p. 3-21)		Citation does not support proposition. Not supported by the reliable, probative and substantial evidence.
501.	89	The Access Way will also result in a visual impact, particularly from a cultural perspective, where the access way occurs within the Kukahu'ula		Misleading. Presented out of context. Various elements have been incorporated

		Historic Property. (Ex. R-3/B.32, (TMT FEIS Section 3.2 Cultural Resources), p.3-32)	into the Access Way design to minimize the visual impacts of the Access Way. <i>See</i> , UH-TIO FOF 256.
502.	89	The Design Guideline Section of the University of Hawai'i's Master Plan 2000, states; "...off- ridge facilities enclosures use colors and patterns such as the mottled brown tones of the surrounding lava landscape...as much as possible surfaces should be non-reflective in the visible spectrum to minimize glare and visibility from distant areas...roof design and material and color selections in conventional structures should merge the facility into the natural landscape. Reflective Materials are to be avoided. (Emphasis added) (Ex. B.37, p. XI-6)	Not supported by the reliable, probative and substantial evidence.
503.	89	Today the cumulative impact of all of the observatories is overwhelming and is an adverse, significant and substantial impact to open space and natural beauty characteristics. The TMT project and associated infrastructure will without question increase this impact-and this is unacceptable. (Ex B.01a, K. Pisciotta, June 28, 2011, WDT, p. 9)	Misleading. Presented out of context. The design guidelines from the Master Plan are conceptual and were incorporated into the design of the TMT Observatory. <i>See</i> , UH-TIO FOF 241.
504.	90	The University has not used traditional methods to assess the viewshed impacts. The University claims the view planes or viewsheds will not be affected. This is not true. (Ex B.01a K. Pisciotta, June 28, 2011, WDT, p. 5)	Unsupported/Unsubstantiated. In the context of the existing summit area cumulative impacts — and under the assumption that such cumulative impacts will continue — the TMT project does not create or cause substantial adverse impacts to existing natural resources in the applicable area. <i>See, e.g.</i> , UH-TIO FOF 443.
505.	90	Most of our practices rely on some kind of view plane, because they are about the relationship between Papa and Wakea (our relationship with and to the earth and the celestial bodies and heavens). (Ex B.01a dated June 28,	Not supported by the reliable, probative and substantial evidence.
			Unsupported/Unsubstantiated.
			The fact that certain individuals may hold

		2011, re-submitted October 11, 2016, K. Pisciotto, WDT, p.5)	and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no probative and substantial evidence that the substance of the belief is factual. There is no reliable probative and substantial evidence that her or the referenced practices are within the bundle of rights protected by Article XII, Section 7 of the Hawaii State Constitution.
506.	90	We have repeatedly included concerns for the impacts on various ceremonies exercised on Mauna Kea, such as the solstice and equinox ceremonies that we along with many other Hawaiian groups (i.e. Royal Order of Kamehameha I and others) collectively participate in throughout the year on Mauna Kea and other sacred sites around the islands. (Ex B.01a dated June 28, 2011, re-submitted October 11, 2016 K. Pisciotto, , B.01a WDT, p. 5)	Incomplete. See UH-TIO FOF 194-202, 210-237. The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no probative and substantial evidence that the substance of the belief is factual. There is no reliable probative and substantial evidence that her or the referenced practices are within the bundle of rights protected by Article XII, Section 7 of the Hawaii State Constitution.
507.	90	TMT is very big and there is no question is will be the most dominant feature in the open space and view planes from Mauna Kea. (Ex B.01a K. Pisciotto, dated June 28, 2011, re-submitted October 11, 2011, WDT, p. 7)	Unsupported/Unsubstantiated. See UH-TIO FOF 238-261, 304-330. 2011 transcripts not in evidence. Consideration of the cited document is

508.	90	The TMT will add to the already obstructed day and night view planes used by cultural practitioners. This is an adverse, significant and substantial impact on the cultural practices and uses of Mauna Kea. Therefore the TMT does not preserve or improve upon the open space and natural beauty characteristics of Mauna Kea, nor does it demonstrate it will not have an adverse or significant impact on the cultural resources of Mauna Kea. (Ex B.01a K. Pisciotto, dated June 28, 2011, re-submitted October 11, 2016, WDT, p. 7	prohibited by HRS § 91-9(g). Mischaracterization. In the context of the existing summit area cumulative impacts — and under the assumption that such cumulative impacts will continue — the TMT project does not create or cause substantial adverse impacts to existing natural resources in the applicable area. <i>See, e.g., UH-TIO FOF 443.</i> The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no probative and substantial evidence that the substance of the belief is factual. There is no reliable probative and substantial evidence that her or the referenced practices are within the bundle of rights protected by Article XII, Section 7 of the Hawaii State Constitution. Irrelevant/Inapplicable. <i>See UH-TIO FOF 304-330, 747.</i> The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no probative and substantial evidence that the substance of the belief is factual.
509.	90	When the UH says the TMT will not obstruct our view planes --I am not sure I understand what they are talking about--does that mean just that my eyes--our eyes will not be covered by the domes or building? The view plane is about the open space--the view unobstructed by man-made features--like big buildings. (Ex B.18a P. K. Neves, WDT, p.4)	Irrelevant/Inapplicable. <i>See UH-TIO FOF 304-330, 747.</i> The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no probative and substantial evidence that the substance of the belief is factual.

510.	91	When we look out on the plateau where the TMT is proposing to site their project-- it is not just that it will now be blocking our eyes (depending on where we are looking from) but it will be the most dominant feature in our eyes and therefore the most dominant feature in our customary and traditional view plane. It is this view plane that we use to look and to honor the high maunas down the island chain. For me and my Ohana--that view is significant--the view of Haleakala--it is the view and the practice of honoring our ancestors, our akua residing in the high lewa. It is our way of honoring the motions of the heavens--which is also honoring the movements of the kupuna and the Akua. We can't partition our beliefs. (Ex B.18a WDT, p.7 P.K Neves)	There is no reliable probative and substantial evidence that her or the referenced practices are within the bundle of rights protected by Article XII, Section 7 of the Hawaii State Constitution. Unsupported/Unsubstantiated. There is no credible evidence that the viewplanes from the summit ridge area towards Haleakalā or other areas would be materially affected or blocked. <i>See, e.g., UH-TIO FOF 704, 747.</i> The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no probative and substantial evidence that the substance of the belief is factual. There is no reliable probative and substantial evidence that her or the referenced practices are within the bundle of rights protected by Article XII, Section 7 of the Hawaii State Constitution. Not supported by the reliable, probative and substantial evidence. Unsupported/Unsubstantiated. There is no credible evidence that the viewplanes from the summit ridge area towards Haleakalā or other areas would be materially affected or blocked. <i>See, e.g., UH-TIO FOF 704.</i>
511.	91	The TMT will impact us and many other people that seek to observe the sunset from Mauna Kea. The TMT will be in direct line of site of many traditional spiritual and religious view planes, including those towards Haleakala, the sunset and other sacred sites. (Ex B.01a p.9 WDT. K. Pisciotta)	There is no reliable probative and substantial evidence that her or the referenced practices are within the bundle of rights protected by Article XII, Section 7 of the Hawaii State Constitution. Unsupported/Unsubstantiated. There is no credible evidence that the viewplanes from the summit ridge area towards Haleakalā or other areas would be materially affected or blocked. <i>See, e.g., UH-TIO FOF 704.</i>

512.		The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no probative and substantial evidence that the substance of the belief is factual. There is no reliable probative and substantial evidence that her or the referenced practices are within the bundle of rights protected by Article XII, Section 7 of the Hawaii State Constitution. Not supported by the reliable, probative and substantial evidence.
91	When people come to view the sunset, including those of us doing ceremonies, the TMT will be a dominant feature in that view plane, including ours as we honor the sun as it sets. (Ex B.01a WDT, p.7. K. Pisciotta, dated June 28, 2011, re-submitted Oct 11, 2016)	Unsupported/Unsubstantiated. There is no credible evidence that the viewplanes from the summit ridge area towards Haleakalā or other areas would be materially affected or blocked. <i>See, e.g.,</i> UH-TIO FOF 704. The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no probative and substantial evidence that the substance of the belief is factual. There is no reliable probative and substantial evidence that her or the

			referenced practices are within the bundle of rights protected by Article XII, Section 7 of the Hawaii State Constitution.
513.	91	The TMT will be visible anywhere from that side of the Kukahau'ula and from below the summit. You will be able to see it from Pu'u Poliahu as well. This pu'u is very important. Yet, based on the University's documents there is this idea that if the TMT is not completely obstructing your eye it is not obstructing a particular view plane—but this is not correct. A view plane is the open plane and what is in it or not. (Ex B.01a WDT, p.7 K. Pisciotto, June 28, 2011, re-submitted October 11, 2011)	Not supported by the reliable, probative and substantial evidence.
514.	91	You cannot stop the sun from rising--so a view plane is not just by sight alone (in our customary beliefs--'ike is to know and see the event, have knowledge of the event and to come to understand its existence--which in and of itself has meaning --this meaning you receive from the na'au--so the view plane begins in the na'au not just in the maka (eyes). (Ex B.18a WDT, P. K. Neves, p.3)	Unsupported/Unsubstantiated. There is no credible evidence that the viewplanes from the summit ridge area towards Haleakala or other areas would be materially affected or blocked. See, e.g., UH-TIO FOF 704.
515.	91	For example, where I go to honor these relationships I can see from Pu'u Hau Oki that 'akala, yeah? I can see Haleakala, and I can see (Pu'u) Haukea. It's not Pu'u'ukea, but it's still a Kea. And I would be able to see her from there. But I will not be able to from these places if the TMT is built because it will be in the way—it will be right in the middle of the views from Mauna Kea to Haleakala. (Ex B.18a WDT, P. K. Neves, p.3)	Irrelevant/Inapplicable. See UH-TIO FOF 747.
516.	92	Water Resources	Not supported by the reliable, probative and substantial evidence.
517.	92	The scope of Hawaii's Public Trust Doctrine is set forth in article XI, section 1 of the Hawaii's Constitution and provides: For the benefit of present and future generations, the State and its political subdivisions shall conserve and protect Hawaii's natural beauty and all natural resources, including land, water, air, minerals and energy sources, and shall promote the development and utilization of these resources in a manner consistent with their conservation and in furtherance of the self-sufficiency of the	Irrelevant/Inapplicable. See UH-TIO FOF 747. Incomplete. Inaccurate. See UH-TIO FOF 1001-1014.

518.	92	State. All public natural resources are held in trust by the State for the benefit of the people. The Applicant concedes that the TMT Observatory, new Access Way, and potential Mid-Level facility, would result in all precipitation recharging underlying aquifers because runoff would be directed to nearby areas where it would percolate into the ground. (Ex R-3/B.32 FEIS Section 3.7, p 3-120)	Misleading. Partial quotation. Full quote reads: "In the case of the Observatory, Access Way, and potential Mid-Level Facility these measures would result in all precipitation ultimately recharge underlying aquifers because runoff would be directed to nearby areas where it would percolate into the ground rather than enter streams that discharge to the ocean." Citation does not support proposition. The TMT Project site is 12 miles from the nearest wells that extract groundwater. See, e.g., UH-TIO FOF 431
519.	92	The entirety of the Astronomy Precinct, which includes the TMT Observatory site and the Batch Plant Staging Area, is located above the Waimea Aquifer. (Ex R-3/B.32 FEIS, Vol. 1, p. 3-115)	Incomplete. See UH-TIO FOF 796-823.
520.	92	"Threats to the hydrology of Mauna Kea include those associated with human presence and activity on the mountain and climate change. Human activities that have the potential to impact water resources quality, and to a lesser degree quantity, include any actions that add to the current wastewater volume or that change in-situ patterns of water movement. Examples are: leaking facility pipes; accidental spills of contaminants; and improperly filtered wastewater. These contributions may affect the quality of water seeped to springs along Mauna Kea's flanks, as well as the fresh water aquifers beneath the mountain." (Ex B.41 CMP NRMP, p. 2.1-38)	
521.	93	Although the amount of precipitation that infiltrates into the ground is unknown, it is generally accepted, and is reported by the NRCs (Sato et al. 1973), that surface infiltration rates in the summit region are high, and that during heavy precipitation events, water reaching the ground surface infiltrates quickly. The depth and rate of transmission of water that infiltrates is unknown and most likely varies depending on the rock type and the subsurface structure. (Ex A009 CMP 5-32 pdf p 82)	Incomplete. See UH-TIO FOF 796-823. Misleading. Presented out of context. This FOF pertains specifically to runoff from the Mauna Kea Access Road. Additionally, the evidence has shown that precipitation on Mauna Kea above 9,000 is low and evaporation rates are high. The majority of water runoff at or near the

			TMT Project would be lost to evaporation and therefore does not become groundwater recharge. Ex. A-10, 2.1.34 – 2.1-35, 2.1-39; <i>see also</i> UH-TIO FOF 804-805.
522.	93	Applicant states that the regional aquifer beneath the summit is what is referred to in Hawai'i as "high-level," which means that the aquifer is entirely fresh water, not fresh water floating on salt water, and geologic structures, such as a volcanic sills and dikes, isolate the water. (A003 FEIS Vol I 3-115 (pdf p 203)) As evidenced by modest spring and seeps, shallow groundwater does exist in the mountain's flanks below the summit area. The most prominent of these springs and seeps are the series of springs found near Pohakuloa and Waikahalulu Gulches... This indicates that at least some of the rainfall and snow melt at the summit percolates downward to a perching layer to ultimately discharge at the ground surface as a spring or seep. (A003 FEIS Vol I 3-117 (pdf p 205))	Incomplete. <i>See</i> UH-TIO FOF 796-823.
523.	93		Misleading. Presented out of context. The primary watershed recharge areas for Mauna Kea occur at lower levels below the summit, not in alpine desserts. UH-TIO FOF 805. There is no reasonable prospect of the TMT Project impacting groundwater. UH-TIO FOF 804. Misleading. Partial quotation. Excerpt goes on to state: "Scientific dating tests of the spring's water indicate that it is recent, meaning that the water is not from the melting of ancient subsurface ice or permafrost, and analyses of the water shows it to be identical to rainfall at the summit. This indicates that at least some of the rainfall and snow melt at the summit percolates downward to a perching layer to ultimately discharge at the ground surface as a spring or seep. Hale Pohaku is located above the Onomea Aquifer system (Figure 3-30). There are no wells in the vicinity of Hale Pohaku, because, similar to the

			summit area, the groundwater is at such a great depth that it is not considered economical to use it." (emphasis added).
524.	93	Applicant states that Hydrology information gaps include the fate of leachates or liquid waste containing dissolved or suspended contaminants from septic and cesspool systems. (A010 NRMP 2.1-39)	The reliable, probative, and credible evidence establishes that the TMT Project will cause minimal surface runoffs, and the impacts of such runoff will not be significant. <i>See</i> WDT Nance at 2; Tr. 12/13/16 at 98:5-14. Incomplete. <i>See</i> UH-TIO FOF 796-823.
525.	93	The release of fuel or chemicals, including mirror washing wastewater, from an accidental spill could degrade surface and groundwater resources. (A003 FEIS Vol I 3-121 (pdf p 209))	Incomplete and speculative. <i>See</i> UH-TIO FOF 796-823.
526.	93	It is unknown how much of the total volume of leachate from these systems makes it into the mountain's aquifer. (A010 NRMP 2.1-36)	Citation does not support proposition. <i>See</i> UH-TIO FOF 796-823.
527.	93	Mr. Tom Nance stated that he had not conducted studies of the TMT site, but had only once	Incomplete. <i>See</i> UH-TIO FOF 796-823.
528.	94	collected samples of water from the Lake Waiau site prior to the Keck Outrigger project proposal. (Tr. 12.13.16, Tom Nance, Vol 16 p. 117:17-24)	Incomplete. <i>See</i> UH-TIO FOF 796-823.
529.	94	Mr. Nance stated that he was not hired to conduct tests or studies for the TMT project, just to review what was in the EIS. (Tr. 12.13.16, Tom Nance, Vol 16 p. 128:16-21)	Misleading. Presented out of context. Nance has substantial education and experience in the field of hydrology and water resources. <i>See</i> , UH-TIO FOF 796.
530.	94	Mr. Nance stated that he has not worked with USGS, and that he has not worked on high level water in the Mauna Kea summit region. He has not published any peer-reviewed papers on hydrology of Mauna Kea, nor on Hawaii Island. (Tr. 12.13.16, Tom Nance, Vol 16 p. 129:1-24)	Misleading. Presented out of context. Nance has substantial education and experience in the field of hydrology and water resources. <i>See</i> , UH-TIO FOF 796.
531.	94	Mr. Nance stated that he has not conducted any studies, nor has he tested	Misleading. Presented out of context.

		ground or surface waters on Mauna Kea for hazardous material or sewage. (Tr.12.13.16, Tom Nance, Vol 16 p. 155:23-25, p.156:1-2)	Nance has substantial education and experience in the field of hydrology and water resources. <i>See</i> , UH-TIO FOF 796
532.	94	Mr. Nance stated that he did not depict any dike confined areas in his Exhibit A044 Mauna Kea Groundwater Schematic, and deliberately left it blank. He surmised that you would expect to see numerous dikes. Mr Nance stated that no one has mapped perching members. (Tr. 12.13.16, Tom Nance, Vol 16 p. 135:21-25, p.136:2-6, p.137:1-5)	Misleading. Partial quotation. Mr. Nance testified that he did not depict any dike confined areas in his map because it is unknown exactly where or how many dikes there are, but that the number is probably in the thousands. <i>See</i> UH-TIO FOF 796-823.
533.	94	Mr. Nance state that he has not conducted an analysis of the cumulative effects of all the existing structures on the summit, and that the cumulative effect is important from a hydrology perspective. (Tr.12.13.16, Tom Nance, Vol 16 p. 199:5-10)	Misleading. Presented out of context. Nance has substantial education and experience in the field of hydrology and water resources. <i>See</i> , UH-TIO FOF 796
534.	94	...the volume of hazardous waste generated does not require any of the observatories to register as other than "conditionally exempt or small quantity generators of hazardous waste". (FEIS VI sec 3.8 Waste and Material Management p3-125)	Not in dispute.
535.	94	In 1995, the Hawaii State Health Department Clean Water Branch sent a letter to The Gemini Observatory in regard to their status as a hazardous waste generator. In part it states; "Based on the project quantity of waste to be generated, the observatory may be an Episodic Large Quantity Generator" subject to full state and federal hazardous waste regulations under 40 CFR 262 AND HAR 11-262. As a LQG the facility must obtain an EPA number..." (Ex B.01at)	Irrelevant/Inapplicable.
536.	95	Mr. Nance stated that hazardous materials and sewage could enter the groundwater beneath the summit. (Tr.12.13.16, Tom Nance, Vol 16 p. 156:6-10)	Misrepresentation. Mr. Nance testified that it was possible for runoff to enter the groundwater system beneath the summit. <i>See</i> UH-TIO FOF 796-823.
537.	95	Observatory facilities and support operations housing any potentially hazardous materials are required by law to have spill response and associated safe handling protocols in place. Situations in which a potential release might occur include discharge of liquid waste from septic tanks and	Incomplete. <i>See</i> UH-TIO FOF 796-823.

		cesspools, malfunction of sewage pipes, transport of sewage and hazardous materials, activities requiring the handling of potential contaminants, and vehicle use. (Ex B.41 CMP NRMP 4.2-13)	
538.	95	Threats to the natural environment due to escape and possible subsequent migration of contaminants vary depending upon the type of contaminant, release volume, and location. The fate and transport of byproducts and potentially hazardous materials used on Mauna Kea have not been determined, and an assessment of the potential risks following a release has not been developed. (Ex B.41 CMP NRMP 4.2-13)	Incomplete. See UH-TIO FOF 796-823.
539.	95	Spills of oil, sewage and hazardous chemicals have been repeatedly reported by researchers working at the summit, and they note that oil, in particular, will take a long time to biodegrade because of cold and dry conditions (Howarth 2003). (Ex R-5/B.34 FEIS Vol. III App K Englund)	Citation does not support proposition. Incomplete. See UH-TIO FOF 796-823.
540.	95	The TMT project would require the use, handling and storage of hazardous materials at Mauna Kea including: propylene glycol, acetone, methyl ethyl ketone, at least 2,000 gallons of diesel fuel, ethylene glycol, hydraulic fluid, liquid adhesives, coating metals, acids, paints, solvents, and other cleaning chemicals. (Ex R-3/B.32 FEIS Vol. 1, p. 3-129)	Citation does not support proposition Mischaracterization. The reliable, probative, substantial, and credible evidence demonstrates that the TMT Project will not have a substantial adverse impact on the water resources and hydrology of Mauna Kea, including Lake Waiau and the groundwater underlying Mauna Kea. See, e.g., UH-TIO FOF 796-823.
541.	95	About 0.5 gallons of hydraulic fluid spilled in the Canada-France-Hawai'i Telescope (CFHT) facilities in 1979. (Ex B.28 CMP, p. 6-9)	Not supported by the reliable, probative and substantial evidence. Irrelevant/Inapplicable.
542.	96	An unknown amount of diesel fuel leaked from a generator in the construction staging area in 1982. (Ex B.28 CMP, p. 6-9)	Irrelevant/Inapplicable.
543.	96	Mercury spills occurred in the NASA IRTF (1989), CFHT facility (1990), W.M. Keck Observatory (1995), CFHT (1998) and the UH 2.2-m telescope facility (1998). (Ex B.28 CMP, p. 6-9 and 6-10)	Irrelevant/Inapplicable. No mercury will be used at the TMT Observatory. See, e.g., UH-TIO FOF 428.

544.	96	“Transport of contaminants through the substrate has the potential to impact the quality of both surface water and groundwater. Direct toxic impacts on flora or fauna are also possible.” (Ex B.28 CMP, p. 6-14)	Incomplete. See UH-TIO FOF 796-823.
545.	96	“The highest probability of impact [on surface water, groundwater, and flora or fauna] is from petroleum products (e.g., fuel for vehicles and backup generators, lubricants, and cleaning fluids) and human waste.” (Ex B.28 CMP, p. 6-14)	Incomplete. See UH-TIO FOF 796-823.
546.	96	“The main activities that have potential to result in a release of contaminants include vehicle travel (on and off road) and accidents; release of hazardous material and petroleum product use by observatories and support operations; sewage generation; and transport of hazardous materials and sewage off-site.” (Ex B.28 CMP, p. 6-14)	Incomplete. See UH-TIO FOF 796-823.
547.	96	Approximately 60 gallons of diesel fuel, engine and hydraulic oil were spilled onto surface cinder near the VLBA, requiring the removal of cinder, in 1995. (Ex B.28 CMP, p. 6-9)	Irrelevant/Inapplicable.
548.	96	In 1996, 110 gallons (two 55 gallon containers) ruptured and spilled onto cinder surrounding the Subaru telescope, requiring removal of excavated cinder. (Ex B.28 CMP, p. 6-9)	Irrelevant/Inapplicable.
549.	96	Hydraulic fluid leaked from the Caltech Submillimeter Observatory (CSO) from approximately 1990 through 2000. (Ex B.28 CMP, p. 6-10)	Irrelevant/Inapplicable.
550.	96	In 2003 at Hale Pōhaku, crankcase oil and hydraulic fluid leaks onto the ground requiring soil excavation and transmission oil leaked onto surface cinder, which likewise had to be excavated. (Ex B.28 CMP, p. 6-10)	Irrelevant/Inapplicable.
551.	96	Decaying seals on the Smithsonian Astrophysical Observatory Submillimeter Array allowed hydraulic fluid to leak in 2003. (Ex B.28 CMP, p. 6-10)	Irrelevant/Inapplicable.
552.	97	From 1998-2004, sewage overflows of several liters occurred five times at the CSO facilities. (Ex B.28 CMP, p. 6-10)	Irrelevant/Inapplicable.
553.	97	Decaying seals on the Smithsonian Astrophysical Observatory Submillimeter Array allowed diesel fuel to leak in 2004. (Ex B.28 CMP, p. 6-10)	Irrelevant/Inapplicable.
554.	97	Twenty to thirty gallons of propylene glycol spilled at the W.M. Keck Observatory in 2004, with approximately two-thirds of that volume	Irrelevant/Inapplicable.

		introduced into the outside environment. The contamination required removal of cinder. (Ex B.28 CMP, p. 6-10)	
555.	97	Telescope mirror washing entails removing mirrors from a protective girdle that contains mercury. Seven documented mercury spills have occurred in association with mirror washing. (Ex B.28 CMP p. 6-8)	Irrelevant/Inapplicable.
556.	97	Waste from mirror washing will be collected, removed, and transported off site for treatment and disposal. (Ex R-3/B.32 FEIS Vol. 1, p. 3-129)	Not in dispute.
557.	97	The Applicant maintains that mirror washing wastewater is not a hazardous waste. (Ex R-3/B.32 FEIS Vol. 1, p. 3-129)	Citation does not support proposition.
558.	97	"A two-gallon sewage spill from an incorrectly installed septic line contaminated cinder and snow in wēkiu bug habitat in the Pu'u Hauoki crater in 1998." (Ex B.41 CMP NRMP p. 3-34)	Irrelevant/Inapplicable.
559.	97	Approximately 500 – 1,000 gallons of sewage overflowed from the septic tank at Hale Pōhaku and was allowed to percolate into the surrounding environment in 2008. (Ex B.28 CMP, p. 6-10)	Irrelevant/Inapplicable.
560.	97	In 1998, a septic tank spilled approximately 2 gallons of sewage onto the ground snow near the Subaru telescope. (Ex B.28 CMP, p. 6-9)	Irrelevant/Inapplicable.
561.	97	TMT project managers anticipate the generation of approximately 120 cubic feet of trash per week. (Ex R-3/B.32 FEIS Vol.1, p. 3-129)	Incomplete. See UH-TIO FOF 824-839.
562.	98	There are eight septic tanks with leach fields or disposal pits and three cesspools in the UH Managed Areas. (Ex B.41 CMP NRMP, p. 3-33)	Irrelevant/Inapplicable.
563.	98	Large sized tank trucks have carrying capacities ranging from 5,500 to 9,000 gallons. (Ex R-3/B.32 FEIS Vol 1: 3-120)	Not in dispute.
564.	98	Risk assessment and spill response planning provides a measure of safety for human health and for the protection of the cultural and natural resources of Mauna Kea. Although the observatories have individual spill response plans, such plans are lacking for other transporters or users, such as those that might result from vehicle accidents. (Ex B.41 CMP NRMP 4.2-14)	Inaccurate/False. In compliance with existing regulations and requirements, TIO will develop and implement a SPRP that will outline protocols for proper handling, storage, use and disposal of liquid and solid materials and wastes. See UH-TIO FOF 829
565.	98	Telescope activities on Mauna Kea have resulted in substantial, significant and adverse impacts to geologic resources, primarily due to alteration of the cinder cone morphology. (Ex R-3/B.32 FEIS Section 3.6, p 3-111)	Misleading. Presented out of context. In the context of the existing summit area cumulative impacts - and under the

			assumption that such cumulative impacts will continue - the TMT project does not create or cause substantial adverse impacts to existing natural resources in the applicable area. <i>See, e.g., UH-TIO FOF 443.</i>
566.	98	“The summit of Mauna Kea (12,800 to 13,796 ft) is considered an Alpine Stone Desert. Several species of mosses and lichens, an unknown number of species of algae, some vascular plants constitute the plant community in this region. “Most of the species of plants found in the region are endemic (occurring only in Hawai‘i) or indigenous (native to Hawai‘i but occurring elsewhere). A few non-native plant species have also become established here, even at the summit.” (Ex A009 CMP, p. 5-37- 5-38) During the Pleistocene era, an ice cap covered approximately 27 square miles of the upper regions of Mauna Kea and “scour[ed]” the area it covered. (Ex A048 2000 Master Plan, p. IV-1) Classic terminal, polished rock outcrops, and glacial till deposits resulted from glacial-scouring. These features, combined with snowfall and wind patterns of the summit area, “support various forms of plant and animal life.” (Ex A048 2000 Master Plan, p. IV-1 and IV-2) “The landscape that exists today [on Mauna Kea] was formed by volcanic and glacial activity and is a unique environment for insects, spiders, lichens, ferns, and mosses. Rocky outcrops, loose cinder, and smooth lava flows make up habitats that combine with snowfall and wind patterns of the summit area to support various forms of plant and animal life.” (Ex A048 2000 MP p. IV-1)	Citation does not support the proposition. Not supported by the reliable, probative and substantial evidence.
567.	98		Not in dispute.
568.	99		Not in dispute.
569.	99	“The landscape that exists today [on Mauna Kea] was formed by volcanic and glacial activity and is a unique environment for insects, spiders, lichens, ferns, and mosses. Rocky outcrops, loose cinder, and smooth lava flows make up habitats that combine with snowfall and wind patterns of the summit area to support various forms of plant and animal life.” (Ex A048 2000 MP p. IV-1)	Citation does not support the proposition.
570.	99	“The Maunakea summit area is well above the atmospheric temperature inversions that occur around 7,000-feet. Particulates and aerosols like vog (volcanic gas), smog, dust, smoke, salt particles, and water vapors generated below the inversion level are “capped” by the temperature inversion, so they do not rise above the inversion level and do not cause any interference at the summit.” (Ex A003 FEIS, p. 3-182) High winds are common at the summit, but wind velocities usually range	Not in dispute.
571.	99		Citation does not support the proposition.

		from 10 to 30 miles per hour. Winds gust up to 100 miles per hour in the upper regions of Mauna Kea, creating an aeolian (influenced by wind) ecosystem. (Ex A003 FEIS Vol. 1, p. 3-183)	
572.	99	Anabatic winds occasionally penetrate the inversion layer, bringing insects and small volumes of air from lower elevations. (Ex A003 FEIS Vol. 1, p. 3-183 to 3-184)	Not in dispute.
573.	99	“Wind vectors (direction and speed) across the summit area play a large role in the aeolian environment, transporting small debris including bugs from lower elevations up to the summit area. Obstructions to wind flow such as at the crests of the pu‘u can redirect the wind or slow it, creating eddies or small vortexes that reduce the energy, or holding capacity, of the wind, allowing debris in the air parcel to fall out. The aeolian environment of the summit area is unique, the persistent wind forcing resident fauna to adapt (see Section 2.2.2.2).” (Ex A010 CMP NRMP, p. 2.1-43)	Not in dispute.
574.	99	Winter temperatures in the upper regions of Mauna Kea range from 10-40 degrees Fahrenheit. Summer temperatures range approximately between 30 to 60 degrees. (Ex A003 FEIS Vol. 1, p. 3-183)	Not in dispute.
575.	100	It is impossible to accurately predict the exact plant species which will invade the subalpine and alpine zones on Mauna Kea in the future, but managers must be especially aware of plant species that are adapted to dry climates, early successional habitats, high elevation climates, have wind dispersed seeds, and or that originate from the temperate zone. (Ex B.41 CMP NRMP 2.2-21)	Not in dispute.
576.	100	There are several invasive plant species that may become established in the subalpine and alpine zone in the future, particularly if anthropogenic climate change affects rainfall regimes in the Hawaiian Islands. (Ex B.41 CMP NRMP 2.2-21)	Not in dispute.
577.	100	“Habitat alteration threatens native invertebrate communities by directly removing habitat (through development) or changing it to the extent that the invertebrates are no longer able to live there (for example, by changing host-plant abundances).” (Ex B.41 CMP NRMP, p. 2.2-43)	Misleading. Presented out of context. See UH-TIO FOF 466-502.
578.	100	A threat to high elevation environments on Mauna Kea exists in invasion by new plant species that are adapted to subalpine, alpine or arid	Misleading. Presented out of context. See UH-TIO FOF 466-502.

		environments. These can be introduced through ...accidental introduction through human activities (such as seeds stuck to vehicles or visitors shoes). (Ex B.41 CMP NRMP p. 2.2.20)	
579.	100	Approximately 9% of non-native species found growing at high elevations in the Hawaiian Islands were first recorded in the past thirty years. (Ex B.41 CMP NRMP 2.2.20)	Not in dispute.
580.	100	Habitat Disturbance should be minimized - The rocks and cinder within Area E are home to lichens, mosses, and endemic arthropods, therefore disturbance should be minimized at the construction site and in the surrounding habitats. (Ex. R-5/B.34 FEIS, Arthropod and Botanical Inventory and Assessment, App. K, p. 31)	Not in dispute.
581.	100	One species currently considered a species of concern by the USFWS, the Douglas' bladderfern (<i>Cystopteris douglasii</i>), are known to occur in the Maunakea summit region. The Douglas' bladderfern was found throughout Area E. (Ex. R-3/B.32 FEIS, p. 3-65)	Not in dispute.
582.	101	Species of Concern are those species about which regulatory agencies have some concerns regarding status and threats, but for which insufficient information is available to indicate a need to list the species under the Endangered Species Act. (Ex. R-3/B.32 FEIS, p. 3-65)	Not in dispute.
583.	101	Dust can impact lichens, mosses, and ferns and is believed to degrade Wekiu bug habitat. (Ex. R-5/B.34 FEIS V3, App. K, p. 31)	Misleading. Presented out of context. See UH-TIO FOF 466-502.
584.	101	Wind-blown dust that covers plants, lichens and mosses, deprives them of needed sunlight. The potential impact of excessive dust could have a moderate effect on the flora in habitats adjacent and downwind of the Access Way and TMT Observatory. (Ex. R-3/B.32 FEIS V3, App K p. 3-74)	Misleading. Partial quotation. Full quote states: The potential impact of excessive dust could have a moderate effect on the flora in habitats adjacent and downwind of the Access Way and TMT Observatory. However, because the lichens, mosses, and plants that will be impacted are found elsewhere in the Maunakea summit region and Hawaii, the overall impact to the flora will be less than significant.
585.	101	Non-native plant species can impact native plant communities by altering the environment, by lowering the groundwater table changing fire regimes,	Misleading. Presented out of context. See UH-TIO FOF 466-502.

		increasing or decreasing shade, smothering plant growth. (Ex B.41 CMP NRMP 2.2-18)	
586.	101	Invasive plants currently found in the in the subalpine and alpine plant communities at Hale Pohaku include the non-native grasses and invasive herbs such as common mullein (<i>Verbascum thapsus</i>) and fireweed (<i>Senecio madagascariensis</i>). (Ex B.41 CMP NRMP 2.2-19)	Misleading. Presented out of context. See UH-TIO FOF 466-502.
587.	101	Although not recorded in plant surveys in 1979, 1985, 1990 or 1999, fireweed (<i>Senecio madagascariensis</i>) was found in 2007 at Hale Pohaku, the summit access road, MK Ice Age NAR, and near the summit. (Ex B.41 CMP NRMP 2.2.-20)	Not in dispute.
588.	101	Invasive plants are spreading up the mountain. This can be easily observed by the way many invasive plants, such as common mullein, line the roadways up the mountain. (Ex B.42 CMP MKPAP, p 2-24)	Misleading. Presented out of context. See UH-TIO FOF 466-502.
589.	102	It has been estimated that since 1963, approximately 62 acres (25 hectares) of potential arthropod habitat have been lost to astronomy-related development on the summit. (Ex B.41 CMP NRMP p. 2.2-43)	Citation does not support proposition.
590.	102	The TMT Observatory would displace 5.9 acres of Wēkiu bug habitat. (Ex R-3/B.32 FEIS, p. 3-72)	Misleading. Presented out of context. Roughly 5.6 acres of Type 4 wēkiu bug habitat and 0.3 acre of Type 5 wēkiu bug habitat will be displaced. The mix of Type 4 and 5 habitats is not considered optimal for wēkiu bugs; they may only occupy this area during extreme population explosions that push the insects into marginal habitats.
591.	102	Wēkiu bug capture rates appear to be heavily influenced by climactic conditions such as presence of snow, which makes it difficult to compare capture rates across studies that were conducted during different conditions or time of year." (Ex B.28 CMP, p. 5-39 – 5-40)	Citation does not support the proposition. Misleading. Presented out of context. See UH-TIO FOF 466-502.
592.	102	Wēkiu bug capture rates declined an average of 99.7% in a 1997/8 study compared to the 1982 study. (Ex R-5/B.34 FEIS Vol. 3, p. 927// App Appendix K, p. 1)	Citation does not support proposition. Misleading. Presented out of context. See UH-TIO FOF 466-502.
593.	102	A prime example of habitat loss through development is the loss of Wēkiu bug habitat on the summit through construction of telescope facilities.	Citation does not support the proposition. Misleading. Presented out of context. See

		Wekiū bug habitat is easily altered by vehicular traffic and construction activity, as tephra cinders preferred by the bug are easily crushed into dust-sized particles. Prime habitat can be quickly degraded to compacted silt and mud by use of off-road vehicles. Wekiū bug habitat may also be altered by dust blown up from road grading and other construction activities on the summit. (2.2.2.3 Threats to Invertebrate Communities on Mauna Kea. CMP NRMP p 2.2-43)	UH-TIO FOF 466-502.
594.	102	Dust blown up from road grading and other construction activities on the summit can reduce surface porosity and fill pockets between cinders. This may degrade wēkiū bug habitat by inhibiting movement and by decreasing the accumulation of bugs blown up for wēkiū bug food consumption. (Ex B.41 CMP NRMP, p. 2.2-44)	Misleading. Presented out of context. The true level of impact from dust is unknown at this time, as it has not been studied.
595.	102	Wēkiū bug habitat is easily altered by vehicular traffic and construction activity, as the tephra cinders preferred by the bug are easily crushed into dust-sized particles. (Ex B.41 CMP NRMP, p. 2.2-44)	Citation does not support proposition. Misleading. Presented out of context. See UH-TIO FOF 466-502.
596.	103	The southern-most roughly 700 feet of the Access Way would be located on the Pu`u Hau`Oki cinder cone. (Ex R-1/B.30 TMT CDUA, p. 141)	Citation does not support the proposition.
597.	103	It should be noted here that the access way will alter, and destroy, known Type 3 Wēkiū bug habitat. DLNR Division of Forestry and Wildlife Administrator Paul J. Conry, CDUA Comments for the Thirty Meter Telescope wrote, November 29, 2010. (Ex B.70 CDUA Staff Report, p. 2-6)	Ex. B.70 not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g).
598.	103	The Arthropod and Botanical Inventory and Assessment (Appendix K in FEIS Vol. 3) recommends minimizing disturbance by limiting construction activities to the footprint pad and road improvements, and not side-casting cinder or other materials into adjacent habitat. (Ex R-5/B.34 FEIS Vol. 3, p. 942/ Appendix K, p. 31)	Not in dispute.
599.	103	“The cinder [in Access Way Option #3] is considered ideal Wēkiū bug habitat... option [3] would require disturbing the cinder cone and Wēkiū bug habitat, and the road would also bisect and isolate a portion of the habitat. While Wēkiū bugs have been observed crossing existing dirt roads, none have ever been observed on pavement. Because this option disturbs and displaces Wēkiū bug habitat, mitigation measures similar to those	Not in dispute.

600.	103	proposed in the Keck Outrigger would likely have to be implemented.” (Ex R-5/B.34 FEIS Vol. 3, Appendix K, p. 24)	
601.	103	Option 3 is the proposed plan for the TMT Access Way. (Ex R-1/B.30 TMT CDUA, p. 4-29)	Not in dispute.
602.	103	“Option 3, developing the existing 4-wheel drive road as the Access Way, should be avoided because it disturbs, displaces, and isolates portions of Wēkiu bug habitat. However, as redesigned the impact would be lessened. It would likely require mitigation measures similar to those suggested for the Outrigger Telescopes project, such a habitat restoration.” (Ex R-5/B.34 FEIS Vol. 3, Appendix K, p. 32)	Misleading. Presented out of context. The option selected for the placement of the TMT Access Way was the one recommended by SHPD of the DLNR. See, e.g. UH-TIO FOF 310.
603.	104	In lieu of a habitat restoration plan, the TMT Project plan is to monitor arthropod activity in the vicinity of the portion of the Access Way that will impact Type 3 Wēkiu bug habitat. (Ex R-3/B.32 FEIS, p. 3-73)	Misleading. Presented out of context. TMT will work with OMKM to develop and implement a habitat restoration study and depending on the results of the study, it could be used to support the design and implementation of a Habitat Restoration Plan. Ex B of Ex. A-1 at 4-13.
604.	104	Alien arthropods can arrive at Project sites from localities on the Island of Hawai’i where they are already established, or in crates, boxes, containers, or construction equipment that are shipped from off the Island. (Ex R-3/B.32 FEIS, p. 3-75)	Incomplete. See UH-TIO FOF 466-502.
605.	104	Invasive species, including spiders (Lepthyphantes tenuis and Meriola arcifera), and beetle (Hippodamia convergens) that compete with arthropods including the Wēkiu bug for food and may also prey on native species at the summit. (Ex B.41 CMP NRMP, p. 2.2-36)	Incomplete. See UH-TIO FOF 466-502.
606.	104	Non-indigenous arthropods may pose a threat to native species that are residents of the higher elevations of Mauna Kea through predation or as competitors for food resources. (Ex R-5/B.34 FEIS Vol. 3, Appendix K, p. 19)	Incomplete. See UH-TIO FOF 466-502.
607.	104	“It is possible that the introduction of an alien invasive species may occur in any area impacted by the construction process, and such invasion would ultimately impact the entire alpine ecosystem.” DLNR Division of Forestry and Wildlife Administrator Paul J. Conry, in his CDUA Comments for the	Incomplete. See UH-TIO FOF 466-502. Citation lacking pincite.

607.	104	Thirty Meter Telescope wrote, on November 29, 2010, in response to 4.1.2 Natural Resource Management p. 4-13: Ex R-4/B.33 FEIS Vol II Incremental habitat fragmentation, exacerbated by biotic challenges, puts small isolated species at further risk of extinction. Invasions of non-native weeds can further degrade an altered habitat and landscape. Predatory insects, and those feeding on the same food sources as the species at risk, can have rapid and devastating consequences. Invasive invertebrates are perhaps the greatest threat to native invertebrates in Hawaii, through competition, predation, habitat alteration, and parasitism. At the summit of Mauna Kea the greatest threat to the arthropod populations is the introduction of invasive arthropods that are adapted to alpine conditions. The potential of introduction of new invasive species to Hale Pohaku and the summit through the importation of goods from similar climates (such as astronomical equipment), construction equipment and fill, road grading equipment and gravel accidental transport on vehicles, clothing and equipment, and biological control agents. (Ex B.41 NRMP 2.2, 4.2)	Incomplete. See UH-TIO FOF 466-502.
608.	104	Since 2005, several new alien predatory species that could adversely impact the Wekiu bug have been found, and Englund reported that alien ant species are the greatest potential threat in the summit area. ...Because of the predatory and social nature of ants, and because ants have caused the extinction and decline of native arthropods throughout Hawaii, both the endemic wolf spider (<i>Lycosa</i> sp.) and the Wekiu bug would be expected to precipitously decline if ants ever become established. (Englund Wekiu-Rep 12-9 p 29) (Ex R-5/B.34 FEIS Vol III)	Incomplete. See UH-TIO FOF 466-502. Citation lacking pincite.
609.	105	It is known that Mauna Kea has long been regarded by many native Hawaiians as the most sacred place on the island, and it has been, and continues to be used as a place to conduct traditional and customary practices. Cultural and religious practices associated with the mountain include prayer, burial, and other rituals, and construction of small shrines. (Ex. B.42 CMP MKPAP, p 2-24)	Incomplete. See UH-TIO FOF 611-774.
610.	105	"Mauna Kea is now widely regarded by some as not only a sacred place, but the most important of all of the sacred places on the island of Hawai'i." (Ex. B.40 CMP CRMP, p. 4-12)	Incomplete. See UH-TIO FOF 611-774. The fact that certain individuals may hold

			and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of the belief is factual.
			There is no reliable probative and substantial evidence that her or the referenced practices are within the bundle of rights protected by Article XII, Section 7 of the Hawaii State Constitution.
611.	105	“It is clear that to many Hawaiians, Mauna Kea is more than a mountain; it is the embodiment of the Hawaiian people.” (Ex. B.28 CMP, p. 1-1)	Incomplete. See UH-TIO FOF 611-774. The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of the belief is factual. There is no reliable probative and substantial evidence that her or the referenced practices are within the bundle of rights protected by Article XII, Section 7 of the Hawaii State Constitution.
612.	105	Revered by Hawaiians for centuries, Mauna Kea remains a place of significant worship for Hawaiians, as well as non-Hawaiians. (Ex. B.28 CMP, p. 5-24)	Citation does not support the proposition. The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute.

			There is no reliable probative and substantial evidence that the substance of the belief is factual. There is no reliable probative and substantial evidence that her or the referenced practices are within the bundle of rights protected by Article XII, Section 7 of the Hawaii State Constitution.
613.	105	“Some contemporary Native Hawaiian cultural practitioners continue to view Maunakea as the first-born of the Wākea and Papa union and, thus, revered as a connection to all Native Hawaiian people and gods.” (Ex. R-3/B.32, FEIS Vol. 1, p. 3-13)	Incomplete. <i>See</i> UH-TIO FOF 611-774. The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of the belief is factual.
614.	105	The summit region of Mauna Kea “...is also by any standard of comparison one of the most culturally significant and archaeologically important places in the Hawaiian Islands. A number of Native Hawaiians regard Mauna Kea as the most sacred place on the island and some use the mountain as a place to conduct traditional and customary practices.” (Ex. A-55, FAIS-AP, p. 1-1)	There is no reliable probative and substantial evidence that her or the referenced practices are within the bundle of rights protected by Article XII, Section 7 of the Hawaii State Constitution. Incomplete. <i>See</i> UH-TIO FOF 611-774. The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of the belief is factual.

615.	106	The physical prominence of Mauna Kea as well as its stationing nearest to the heavens holds a spiritual significance for the Hawaiian people, a significance that can be expressed in likening the mountain to a sacred altar. (Ex. B.28 CMP, p. 1-3)	There is no reliable probative and substantial evidence that her or the referenced practices are within the bundle of rights protected by Article XII, Section 7 of the Hawaii State Constitution. Incomplete. <i>See</i> UH-TIO FOF 611-774. The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of the belief is factual. There is no reliable probative and substantial evidence that her or the referenced practices are within the bundle of rights protected by Article XII, Section 7 of the Hawaii State Constitution. Incomplete. <i>See</i> UH-TIO FOF 611-774. The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of the belief is factual. There is no reliable probative and substantial evidence that her or the
616.	106	For some Hawaiians, Mauna Kea is so revered that there is no desire to ascend it, no desire to trespass on what is considered sacred space. Simply viewing the tower, the mountain, from afar, both affirms its presence, and reaffirms the sense of connection with both place and personage. For this reason, many Hawaiians feel that activities on Mauna Kea that lead to visible alterations of the landscape not only have a significant effect on the mountain itself, but also have a damaging effect on everything and everyone that is physically, genealogically, spiritually and culturally tied to Mauna Kea. (Ex. B.28 CMP, p. 1-4)	There is no reliable probative and substantial evidence that her or the

617.	106	The origins of Maunakea and its central place in Hawaiian genealogy and cultural geography are told in mele (poems, chants) and mo'olelo (stories and traditions). Native Hawaiian traditions state that ancestral akua (gods and goddesses, deities) reside within the mountain summit area. Several natural features in the summit region are named for, or associated with, Hawaiian akua; these associations indicate the importance of Maunakea as a sacred landscape. Each part of the mountain contributes to the integrity of the overall cultural, historical and spiritual setting. (Ex. R-3/B.32, FEIS, p. 3-11)	referenced practices are within the bundle of rights protected by Article XII, Section 7 of the Hawaii State Constitution. Incomplete. <i>See</i> UH-TIO FOF 611-774. The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of the belief is factual. There is no reliable probative and substantial evidence that her or the referenced practices are within the bundle of rights protected by Article XII, Section 7 of the Hawaii State Constitution.
618.	106	As a result of its prominence, isolation, and extreme environmental conditions Mauna Kea's place in the culture and history of the Hawaiian people is significant. This "cultural significance" extends beyond a physical setting, sites or particular features which have been previously identified in archaeological site studies. Mauna Kea is a prominent feature on the cultural landscape of Hawai'i which has been and continues to be viewed from afar, and to which spiritual and cultural significance is attributed. (Ex. B.37 MP, App. I, p.3)	The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of the belief is factual.
619.	106	Native Hawaiian traditions state that ancestral akua (gods, goddesses, deities) reside within the mountain summit area. These personages are embodied within the Mauna Kea landscape – they are believed to be physically manifested in the earthly forms as various pu'u and as the waters of Waiau. Because these akua are connected to the Mauna Kea landscape in Hawaiian genealogies, and because elders and akua are revered and looked to for spiritual guidance in Hawaiian cultural, Mauna	Citation does not support the proposition. <i>See</i> UH-TIO FOF 611-774. The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute.

		Kea is considered a sacred place. (Ex. A-23, p. 5-3)	There is no reliable probative and substantial evidence that the substance of the belief is factual.
620.	107	“The upper regions of Mauna Kea reside in Wao Akua, the realm of the Akua-Creator. It is also considered the Temple of the Supreme Being and is acknowledged as such in many oral and written histories throughout Polynesia, which pre-date modern science by millennia.” (Ex. F-2, p.1)	Citation does not support the proposition. See UH-TIO FOF 611-774. The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of the belief is factual.
621.	107	“It is home of Na Akua (the Divine Deities), Na 'Aumakua (the Divine Ancestors), and the meeting place of Papa (Earth Mother) and Wakea (Sky Father) who are considered the progenitors of the Hawaiian People. Mauna Kea, it is said, is where the Sky and Earth separated to form the Great-Expanse-of-Space and the Heavenly Realms. Mauna Kea in every respect represents the zenith of the Native Hawaiian people's ancestral ties to Creation itself.” (Ex. B.01q Temple Report MKAH Royal Order of Kamehameha p.1)	Incomplete. See UH-TIO FOF 611-774. The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of the belief is factual.
622.	107	The three pu`u, Poli`ahu, Lilinoe and Waiau are named for three sister goddesses who are female forms of water. Poli`ahu is embodied in the snow, Lilinoe in the mist, and Waiau in the lake. (Ex. B.37 MP, App. N, p. 25)	The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of the belief is factual.
623.	107	The snow, ice, and water elements are divine manifestations of the different deities. We believe it is very important that the deities not be negatively impacted. (Ex. B.01a, Pisciotia WDT, p. 8)	Citation does not support the proposition. See UH-TIO FOF 611-774. The fact that certain individuals may hold

			and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of the belief is factual.
624.	107	Lake Waiau is believed to contain pure water associated with the god Kane and was used in healing and worship practices. (Ex. B.37 MP, App. N, p. 20)	Incomplete. <i>See</i> UH-TIO FOF 611-774. The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of the belief is factual.
625.	107	Lake Waiau is also home to our akua (deities), such as Mo`oinanea, who is recorded in our genealogies and who is assigned to care for the kupua children. (Ex B.01a, Pisciotta WDT, p. 8)	Citation does not support the proposition. <i>See</i> UH-TIO FOF 611-774. The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of the belief is factual.
626.	108	Lake Waiau is a very important cultural and religious site on Mauna Kea. The lake represents many things to the Hawaiian People and to many others as a beautiful, unique and special place. (Ex. B.01a, Pisciotta WDT, p. 8)	Citation does not support the proposition. <i>See</i> UH-TIO FOF 611-774. The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and

627.	108	Lake Waiau is considered among other things to be a doorway into the Po (the Heavenly Realms of the Ancestors). It is said this is the water of the sea and the water of the sky meet. (Ex B.01a, Pisciotta WDT, p. 8)	substantial evidence that the substance of the belief is factual. Citation does not support the proposition. <i>See</i> UH-TIO FOF 611-774. The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of the belief is factual.
628.	108	Lake Waiau is like a navigational gourd to view the heavens in, as the stars are reflected on its surface. (Ex B.01a, Pisciotta WDT, p. 8)	Citation does not support the proposition. <i>See</i> UH-TIO FOF 611-774. The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of the belief is factual.
629.	108	The snow, ice, and waters of Lake Waiau (or other pooling water areas, like those that occur on Pu`u Pohaku) are very valued because they are gathered for medicinal and other ceremonial uses and purposes. (Ex B.01a, Pisciotta WDT, p. 8)	Citation does not support the proposition. <i>See</i> UH-TIO FOF 611-774. The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of the belief is factual.
630.	108	The 300 feet wide, approximately 10 foot deep, alpine lake, Wai`au, is	Incomplete. <i>See</i> UH-TIO FOF 611-774.

		“unique and revered.” (Ex A009 2000 Master Plan, p. IV-2)	
631.	108	The southern rim of Lake Wai‘au is the rim of a subglacially-formed cinder cone, Pu‘u Wai‘au. (A003 FEIS, Vol. 1, p. 3-115)	Not in dispute.
632.	108	Traditional Hawaiian water uses are part of how watershed lands that now are called Conservation Districts are originally established. (Ex B.01a, Pisciotto WDT, p. 8)	Citation does not support the proposition.
633.	108	Our traditions tell us the waters we swim in at Hilo Bay are from Mauna Kea. The water of Mauna Kea even feed our fish ponds below. (Ex B.01a, Pisciotto WDT, p. 8)	Unsupported/Unsubstantiated. Citation does not support the proposition.
634.	108	The regional aquifer beneath the summit of Mauna Kea is entirely fresh water. (A003 FEIS Section 3.7 Water Resources and Wastewater p 3-115)	Irrelevant/Inapplicable. Not in dispute.
635.	108	Applicant’s evidence indicates that, except for Lake Waiau, which has an impermeable layer beneath it, rainwater and snowmelt at the summit “continues its downward migration to the regional aquifer” of Hawaii Island. (A003 FEIS Section 3.7 Water Resources and Wastewater p 3-11)	Not in dispute.
636.	108	Applicant’s analysis of spring water shows it to be recent and identical to rainfall at the summit. (Ex A003 FEIS Section 3.7 Water Resources and Wastewater p 3-117)	Not in dispute.
637.	109	For the purposes of evaluating the significance of Native Hawaiian cultural practices, features and beliefs identified in association with the Science Reserve Master Plan Project Area, it would be useful to consider them in terms of the three types of informant claims that were defined earlier ... information obtained by Maly in his oral history and consultation study (1999) suggests that several of the identified practices and beliefs would appear to fall within the category of traditional and customary practices claims. (Ex. B.37 MP, App. N, P. 43)	Incomplete. See UH-TIO FOF 611-774. The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of the belief is factual.
638.	109	These would be claims that would lie within the purview of Article XII, Section 7, of the Hawai‘i State Constitution (“Traditional and Customary Rights”) particularly as reaffirmed in 1995 by the Hawai‘i State Supreme Court in the decision commonly referred to as the “PASH decision”, and further clarified in the 1998 decision in “State v. Hanapi.” Which would include various cultural practices and beliefs associated with the general	Incomplete. See UH-TIO FOF 324-354. The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute.

		geographical area of the summit region rather than a clearly definable property or site. (Ex. B.37 MP, App. N, P. 43)	There is no reliable probative and substantial evidence that the substance of the belief is factual. There is no reliable probative and substantial evidence that her or the referenced practices are within the bundle of rights protected by Article XII, Section 7 of the Hawaii State Constitution.
639.	109	While certain other practices, such as prayer and ritual services involving the new construction of new kuahu (altars), or the releasing of cremated humans rather than internment on pu'u, might seem to be contemporary cultural practices they may as well be considered reasonable cultural development evolving from earlier traditional practices. (Ex. B.37 MP, App. N, P. 4)	Incomplete. See UH-TIO FOF 324-354. The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of the belief is factual.
640.	109	Intangibles have archaeological and anthropological significance. Intangibles should be an essential part of an archaeological or anthropological survey, but they have been given short shrift in the TMT site surveys. (Tr. 01/25/2017, Peter Mills, Vol.30 p. 43:16-24)	There is no reliable probative and substantial evidence that her or the referenced practices are within the bundle of rights protected by Article XII, Section 7 of the Hawaii State Constitution.
641.	109	Intangibles may mean there is a natural thing that you can touch with no evidence of human modification, but it still carries great significance within cultural practice and in the minds of the cultural practitioner. (Id. at 97:14-19)	Not credible. See, UH-TIO FOF 559, 757. Not supported by the reliable, probative and substantial evidence.
642.	110	Modern ritual practices on Mauna Kea need to be considered within the	Not credible. See, UH-TIO FOF 559, 757.

		scope of a cultural impact assessment. (Tr. 01/25/2017, Peter Mills, Vol.30 p. 26: 22-25). However, how the process of evaluation for cultural appropriate behavior gets established is incredibly difficult in a colonized world where one of the major ways where the process gets set up is through something like the Office of Mauna Kea Management and Kahu Ku Mauna. (Tr. 01/25/2017, Peter Mills, Vol.30 p.30:17-25)	Unsupported/Unsubstantiated. Not supported by the reliable, probative and substantial evidence.
643.	110	The General Lease (S-4191), dated June 21, 1968, states that the university 12.)“shall not damage, remove excavate, disfigure, deface, or destroy and object of antiquity, prehistoric ruin, or monument of historic value.” (Exhibit B-2, General Lease (S-4191) p5)	Ex. B-2 not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g). Misleading. Presented out of context. The General Lease further provides that the land is leased for a scientific complex and for activities inimical to the scientific complex. UH-TIO FOF 113-114. The TMT Project will not have a significant impact on archaeological and historic resource. UH-TIO FOF 503-610. Misleading. Presented out of context. Paragraph 4 of the General Lease states that “[t]he land hereby leased shall be used by the Lessee as a scientific complex, including without limitation thereof an observatory, and as a scientific reserve being more specifically a buffer zone to prevent the intrusion of activities inimical to said scientific complex.” Ex. B.17f at 3. Ex. B-2 not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g).
644.	110	The General Lease (S-4191) requires that 5.) “The lessee shall not sub-lease, subrent, assign or transfer any rights there under without the prior written approval of the BLNR.” (Exhibit B-2, General Lease (S-4191) p 4)	

		Irrelevant/Inapplicable. Lack of jurisdiction. Misleading. Presented out of context. The General Lease further provides that the land is leased for a scientific complex and for activities inimical to the scientific complex. UH-TIO FOF 113-114.
645.	110	The General Lease (S-4191) states that 2.) "The lessee shall keep the demised premises and improvements in a clean, sanitary, and orderly condition (Exhibit B-2 p 3) Ex. B-2 not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g). Misleading. Presented out of context. The General Lease further provides that the land is leased for a scientific complex and for activities inimical to the scientific complex. UH-TIO FOF 113-114. Misleading. Partial quotation. Ex. B-2 not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g). Misleading. Presented out of context. The General Lease further provides that the land is leased for a scientific complex and for activities inimical to the scientific complex. UH-TIO FOF 113-114. TIO has committed to performing under the Decommissioning Plan. The TIO Sublease also requires TIO to
646.	110	The General Lease (S-4191) states that "improvements shall be such improvements may be abandoned in place.... removed or disposed of by the Lessee at the expiration or sooner termination of the lease, provided, that with the approval of the Chairman requires that items be removed before the lease termination, or be abandoned with prior approval from the BLNR. (Ex. B-2, page 4)

647.	110	The General Lease (S-4191) states that 1a) "No activity shall be permitted which will result in the pollution of the waters of Lake Waiau." (Ex B-2 p2)	decommission, remove its improvements, and restore the site at the end of the useful life of the proposed TMT Observatory, or in the event the General Lease between the University and BLNR is not extended or renewed. UH-TIO FOF 159, 208. Ex. B-2 not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g). Misleading. Presented out of context. The General Lease further provides that the land is leased for a scientific complex and for activities inimical to the scientific complex. UH-TIO FOF 113-114. Misleading. Partial quotation. The TMT Project will not result in pollution of the waters of Lake Waiau. UH-TIO FOF 799-801.
648.	110	General Lease S-4191 from DLNR to the University for the use of the Mauna Kea Science Reserve does not confer an expectation of exclusivity onto the University. (Ex B-2 p4)	Ex. B-2 not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g). Misleading. Presented out of context. The General Lease allows UH Hilo to use the lease lands "as a scientific complex, including without limitation thereof an observatory, and as a scientific reserve being more specifically a buffer zone to prevent the intrusion of activities inimical to said scientific complex. Activities

		inimical to said scientific-complex shall include light and dust interference to observatory operation and certain types of electric or electronic installation on the demised lands, but shall not necessarily be limited to the foregoing.” Ex. B.17f at 3. Citation does not support the proposition. Except for actual construction areas while the Project is being built (and, once it is completed, the TMT Observatory site), Petitioners, Opposing Intervenor, and everyone else will have continued access to the summit area of Mauna Kea, for religious practices and for any other permitted activity. UH-TIO FOF 679, 681; UH-TIO COL 363. The TMT Project will even improve access to the Northern Plateau. UH-TIO FOF 910. Citation does not support the proposition. Citation does not support the proposition. Misleading. Presented out of context. This is one of the eight criteria upon which a CDUA is evaluated. Not in dispute. Incomplete, vague and ambiguous.
649.	111	There are currently 13 subleases for telescope facilities on the land leased to the University in the Mauna Kea conservation district. (Ex. B.28 CMP, page 6-1.)
650.	111	All telescope subleases occur within the University-designated “Astronomy Precinct,” except for one antenna that was built before the Astronomy Precinct was established by the University. (Ex B.28 CMP, page 3-1)
651.	111	HAR 13-5-30(c)(7) states that “subdivision of land will not be utilized to increase the intensity of land uses in the conservation district.”
652.	111	HAR 13-5-2 defines “subdivision” to mean “a division of a parcel of land into more than one parcel.”
653.	111	HAR 13-5 provides no exceptions to this rule.

654.	111	Webster's Merriam Dictionary defines "division" as something that "divides, separates or marks off," as in a "border." (See, http://www.merriam-webster.com/thesaurus/division , accessed November 14, 2011)	Irrelevant/Inapplicable. Incomplete. The definitions contained in the administrative rules sufficiently define a "subdivision." As such, dictionary definitions are inapplicable.
655.	111	The University of Hawai'i at Hilo (UH-Hilo) is the Applicant of Conservation District Use Application HA-3568 ("CDUA") - Thirty Meter Telescope. (Ex R-1/B.30 p1 of Item K-1 (CDUA))	Not in dispute.
656.	111	The Agent (signatory) for the Applicant UH-Hilo on CDUA HA-3568 is Dr. Donald Straney, Chancellor. (Ex R-1/B.30 p1 of Item K-1, (CDUA))	Not in dispute.
657.	111	Dr. Donald Straney is the Chancellor of UH-Hilo. (Ex R-1/B.30 p.1, K-1, (CDUA))	Not in dispute.
658.	111	The Applicant, University of Hawai'i at Hilo, is seeking a Conservation District Use Permit (CDUP) relative to CDUA HA-3568 on behalf of TMT Observatory Corporation ("TMT"). (Ex R-1/B.30 p.13, K-1 (CDUA))	Inaccurate/False. UH seeks the CDUP on its own behalf. TIO will build and operate the TMT Observatory.
659.	111	The TMT was founded by the California Institute of Technology, the University of California, and the Association of Canadian Universities for Research in Astronomy. (Ex R-1/B.30 p.13, K-1 (CDUA))	Not in dispute.
660.	112	California Institute of Technology, the University of California, and the Association of Canadian Universities for Research in Astronomy are they are listed as founders only. (Ex R-1/B.30 p.13, K-1 (CDUA))	Not in dispute.
661.	112	There is no definition or description for the following terms: founder, collaborating institution, or observer - and it is therefore impossible to determine what, if any, the distinctions are between the terms, and therefore, between the parties. (Ex R-1/B.30 p.13, K-1 (CDUA))	Irrelevant/Inapplicable.
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682.	112	The 1977 Management Plan for Mauna Kea (see below) identified the scope of the Mauna Kea conservation district as from the summit down to the 6,000-foot elevation and including all lands from the summit to Saddle Road, including the Mauna Kea Forest Reserve and Game Management Area, and Kaohe Game Management Area. (Ex B.17g page 1977 Mauna Kea Management Plan)	Misleading. Presented out of context. While the cited portion of the record speaks for itself, to the extent this proposed FOF is intended to support a finding and/or conclusion regarding the scope and/or adequacy of the Master Plan, CMP, any of the sub plans; the University's process in developing and/or implementing those plans; the University's management of Mauna Kea in general; and/or the BLNR's supervision and management of Mauna Kea, UH-TIO believe their proposed FOF are more comprehensive (and placed in the proper context), and therefore request the entry of their proposed FOF on these matters. <i>See, e.g., UH-TIO FOF 118-190.</i> Mischaracterization. The eight criteria in HAR § 13-5-30(c) already incorporate the considerations of the public trust doctrine. <i>See, UH-TIO FOF 1006.</i>
683.	112	The public trust doctrine under the Hawai'i Constitution, and the principles that it embodies, applies to the conservation land--the summit of Mauna Kea--involved in this case. This conclusion is supported by the plain language of Article XI, Section 1, the historical context under which this	

		provision was ratified, and this court's precedents.	
684.	122	The Mauna Kea Ice Age Natural Area Reserve (NAR) was established in 1981 and is comprised of two parcels that abut the Mauna Kea summit region. One is 143.5 acres and a larger, triangle shaped parcel is 3,750 acres. These areas contain Lake Wai'au and the Mauna Kea Adze Quarry. (Ex B.41 CMP NRMP, p. 1-12)	See response to FOF # 682.
685.	112	The approximately 52,500 acre Mauna Kea Forest Reserve surrounds the UH managed areas and the NAR, and contains critical māmane habitat for the endangered Palila bird. (Ex B.41 CMP NRMP, p. 1-12)	Irrelevant/Inapplicable. Misleading. Presented out of context.
686.	112	The Hakalau Forest National Wildlife Refuge encompass 33,000 acre Hakalau forest Unit and the 5,300 acre Kona Forest Unit. (Ex B.41 CMP NRMP, p. 1-12)	See response to FOF # 682. Irrelevant/Inapplicable.
687.	113	Pōhakuloa Training Area (PTA) lands total 108,863 acres that extend up the lower slopes of Mauna Kea to an approximate altitude of 6,800 ft. PTA contains critical Palila bird habitat, fifteen federally listed threatened and endangered plants, three federally listed endangered bird species, and one federally listed bat species. (Ex B.41 CMP NRMP, p. 1-12)	See response to FOF # 682. Irrelevant/Inapplicable. Misleading. Presented out of context.
688.	113	In 1974, George Ariyoshi expressed concerns that "social pressures for more intensive use of Mauna Kea for scientific, recreational, and other purposes pose a threat to the priceless qualities of that mountain..." He wrote to Sunao Kido, then Chairman of the BLNR, directing that the agency "develop and promulgate, as expeditiously as possible, a Master Plan for all of Mauna Kea above the Saddle Road." This Master Plan was directed to include provide for Plan enforcement and amendment. (Ex. B.17g, DLNR, The Mauna Kea Plan, May 1977, p. 2)	Citation does not support the proposition. See UH-TIO FOF 123-135. Misleading. Presented out of context. The 1977 Management Plan is merely a policy guide not intended to impose rigid standards. See UH-TIO FOF 339.
689.	113	The plan was prepared by DLNR staff, and approved on February 11, 1977 following two public hearings. (Ex B.17g, Mauna Kea Management Plan, p 2-3)	Misleading. Presented out of context. The 1977 Management Plan is merely a policy guide not intended to impose rigid standards. See UH-TIO FOF 339. Citation does not support proposition.

690.	113	The Mauna Kea Plan is a policy guide on land use and management adopted by the board of Land And Natural Resources; the plan shall be reviewed annually, and any proposed amendments shall be in accordance with procedures adopted by the Board. Ex D-3 p 10 The area covered by this plan extends from the summit down to about 6,000 feet, and includes all conservation district land from the summit of Mauna Kea down to the Saddle Road. (Ex B.17g, Mauna Kea Management Plan 1977, p 1)	Irrelevant/Inapplicable. See response to FOF # 688 Inaccurate/False. Certain portions of quotation are incorrect. Quotation properly reads: "The area covered by this plan shall extend from the summit down to about the 6,000-foot elevation and shall include all conservation district land from the summit of Mauna kea down to the Saddle Road." Ex. B.17g at 1. Citation does not support proposition. UH-TIO note, however, that the Mauna Kea Plan is a policy guide that is not intended to impose rigid development standards. UH-TIO FOF 339. Irrelevant/Inapplicable.
691.	113	The objectives of the plan were to determine the capability of Mauna Kea's resources to accommodate various uses without unacceptable damage to biotic and other natural values and historic values, and the visual appearance of the mountain, and to recognize the significance of MK's summit for astronomical research and let a limitation on facilities based on need and environmental concerns. (Ex B.17 D-3, Mauna Kea Management Plan, p 1) Any use of the lands will be, however subject to regulations under County, State and Federal laws. (p 5)	See response to FOF # 688. Inaccurate/False. Citation is incorrect. Ex. B.17g at 1. Citation does not support proposition. Irrelevant/Inapplicable. Misleading. Incomplete quotation "Any use of the lands will be, however, subject to regulation under County, State,

			and Federal laws on Historic Sites, Natural Area Reserves, and conservation districts.” Ex. B.17g at 5.
692.	114	No application for any proposed facility shall have final approval without the applicant having first filed, with the board, adequate security equal to the amount of the contract to construct the telescope facilities, support facilities and to cover any other direct or indirect costs attributed to the project. (Ex B.17g, Mauna Kea Management Plan, p 5)	See response to FOF # 688. Misleading. Presented out of context. The Mauna Kea Management Plan is a policy guide that is not intended to impose rigid development standards. See, e.g., UH-TIO FOF 339. Irrelevant/Inapplicable. Incomplete.
693.	114	In 1995 the BLNR and the University sought to amend the MKSRCDP to address Commercial Use and Public Access. It states “This revised public access management plan supersedes and replaces the management plan approved by BLNR on Feb. 22, 1985 in CDUA HA1573. This plan differs from the plan approved in 1985 in the following manner”:	Misleading. Presented out of context. The 1995 Management Plan (or “Revised Management Plan”) was superseded by the 2009 Comprehensive Management Plan. Ex. A-9 at 2-3. Unsupported/Unsubstantiated. Irrelevant/Inapplicable.
694.	114	Management and enforcement of public and commercial use of MK is the responsibility of DLNR except for specific rights reserved for UH.	Misleading. Presented out of context. The 1995 Management Plan was superseded by the 2009 Comprehensive Management Plan. Ex. A-9 at 2-3. Incomplete. See UH-TIO FOF 123-158. Unsupported/Unsubstantiated. Irrelevant/Inapplicable.
695.	114	Permitted Commercial uses and management controls are incorporated in the Plan.	

696.	114	Some controls are eliminated and/or modified and new ones added to reflect UH's experience in the past ten years, especially since the major portions of the road have been paved. The primary criterion for controls, however, has been and continues to be public safety. (Ex B.17h, p(i), Revised Mauna Kea Management Plan 1995)	Misleading. Presented out of context. The 1995 Management Plan was superseded by the 2009 Comprehensive Management Plan. Ex. A-9 at 2-3. Irrelevant/Inapplicable. Misleading. Presented out of context. The 1995 Management Plan (or "Revised Management Plan") was superseded by the 2009 Comprehensive Management Plan. Ex. A-9 at 2-3.
697.	114	The 1995 Management Plan, in turn, directly relies on the 1977 DLNR Mauna Kea Plan, the (1983) Science Reserve Complex Development Plan, and the Hale Pokaku Master Plan, for astronomy related uses. (Ex B.17h, p7, 1995 Management Plan)	Irrelevant/Inapplicable. Misleading. Presented out of context. The 1995 Management Plan (or "Revised Management Plan") was superseded by the 2009 Comprehensive Management Plan. Ex. A-9 at 2-3. While the cited portion of the record speaks for itself, to the extent this proposed FOF is intended to support a finding and/or conclusion regarding the scope and/or adequacy of the Master Plan, CMP, any of the sub plans; the University's process in developing and/or implementing those plans; the University's management of Mauna Kea in general; and/or the BLNR's supervision and management of Mauna Kea, UH-TIO believe their proposed FOF are more comprehensive (and placed in the proper context), and therefore request the

698.	114	DLNR has the authority to determine permitted public and commercial uses of the UH Management Area-subject to terms of Lease between UH and DLNR. Management and enforcement of public and commercial use of Mauna Kea is the responsibility of DLNR—except for specific rights reserved to UH. (Ex B.17h, 1995 Management Plan, p1)	entry of their proposed FOF on these matters. See, e.g., UH-TIO FOF 118-190. See response to FOF # 697.
699.	115	The 1995 Revised Plan --Part III: Management and Controls on page 7, states: "Astronomy-related uses in the UH Management Area are controlled by the 1977 DLNR Mauna Kea Plan, the Hale Pohaku Master Plan, the SRCDP, and the CDUA process." (Ex B.17h, p. 7, 1995 Management Plan 2000)	See response to FOF # 697.
700.	115	The 2000 Master Plan was never adopted nor approved by BLNR. (Ex R-3/B.32 FEIS p 3-146)	Irrelevant/Inapplicable. The TMT Project will be subject to management through the BLNR-approved CMP and sub-plans. See, e.g., UH-TIO FOF 359.
701.	115	In the 2000 Master Plan, the University concluded that there was a need for a single entity to manage the comprehensive plan for the Science Reserve. (Ex B.28 CMP P 3.8)	Misleading. Presented out of context. The Master Plan is an internal policy and planning guide for the University to promote the goal of balanced stewardship of the UH Management Area. Therefore, it was adopted by the BOR and there was no requirement that it be adopted or approved by BLNR. UH-TIO FOF 123.
702.	115	The 2000 Master Plan calls for the management organization to be housed within the University system and funded as an ongoing program unit of the University of Hawai'i at Hilo (UH-Hilo). (Ex B.28 CMP P 3.8)	Misleading. Partial quotation. Full quotation states: Similar to the 1983 Master Plan, the 2000 Master Plan was not adopted nor approved by BLNR.
			See response to FOF # 697; see also UH-TIO FOF No. 123 ("[t]he Master Plan is an internal policy and planning guide for the University . . .")(emphasis added).
			See response to FOF # 697

703.	115	In accordance with the 2000 Master Plan, UH-Hilo Chancellor established the OMKM on August 1, 2000. (Ex B.28 CMP P 3.8)	Misleading. Presented out of context. See UH-TIO FOF 125.
704.	115	OMKM is the office charged with ensuring compliance with and implementation of the 2000 Master Plan. (Ex B.28 CMP P 3.8)	See response to FOF # 697. Misleading. Presented out of context. See UH-TIO FOF 125.
705.	115	OMKM, the Office of Mauna Kea Management was formed in 2000 by the UH BOR and is part of UH-Hilo. (Ex A-009 CMP P 3-9)	See response to FOF # 697. Not in dispute.
706.	115	The OMKM has primary responsibility for managing the UH Management Areas, ensuring the coordinated planning and execution of activities so they are consistent with applicable legal mandates, authorities, and policies. (Ex A-009 CMP p. 3-1)	Not in dispute.
707.	116	OMKM is responsible for ensuring compliance with and implementation of the 2000 Master Plan. (Ex A-009 CMP P 3-8)	Not in dispute.
708.	116	OMKM has two primary advisory entities: 1) Mauna Kea Management Board (MKMB) and 2) Kahu Ku Mauna. (Ex. A-009 CMP p. 3-11)	Not in dispute.
709.	116	The MKMB is comprised of seven members, plus two UH-BOR members ex-office who advise UH-Hilo and OMKM. (Ex. A-099 CMP p. 3-11)	Not in dispute.
710.	116	MKMB members are nominated by the UH-Hilo Chancellor and approved by the UH-BOR. (Ex. A-009 CMP p. 3-11)	Not in dispute.
711.	116	Kahu Ku Mauna advises MKMB, OMKM, and UH-Hilo regarding Hawaiian cultural matters affecting the UH Management Areas. (Ex. A-009 CMP p 3-11)	Not in dispute.
712.	116	Kahu Ku Mauna members are approved by the MKMB. (Ex. A-009 CMP p 3-1)	Not in dispute.
713.	116	The 2000 Master Plan acknowledged that joint management by DLNR and the University, and layers of management requirements and recommendations outlined in historical leases, plans, permits and written or verbal commitments, have created a complex and often confusing pattern of management responsibility (Group 70 International 2000). (Ex B.28 CMP P 3.9)	Irrelevant/Inapplicable. Misleading. Presented out of context. Not in dispute. Excerpt is followed by statement that "[m]anagement actions to improve coordinated management and

			develop collaborative partnerships are detailed in Section 7” of the CMP. Ex. A-9 at 3-9. Misleading. Presented out of context. Management actions to improve coordinated management and develop collaborative partnerships are detailed in Ex. A-9 at 7-1 to 7-69. <i>See</i> response to FOF # 697.
714.	116	The acceptance of the 2000 Master Plan by the UH Board of Regents prompted the creation of OMKM, the MKMB, and Kahu Kū Mauna. (Ex B.28 CMP P 3.9)	Misleading. Presented out of context. Excerpt subsequently states: “[t]he MKMB serves in an advisory capacity to the UH Hilo Chancellor. The MKMB has also established several advisory committees, including the MKMB Environmental Committee and the MKMB Hawaiian Cultural Committee.” Ex. A-9 at 3-9. <i>See</i> response to FOF # 697.
715.	116	Under the 2000 Master Plan, some of MKSS’ services are to be transferred to OMKM, but no deadline was specified and the transfer has not occurred. (Ex B.28 CMP P 3-11)	Misleading. Presented out of context. The MKMB recently approved the transfer of the management and oversight of MKSS to OMKM. Ex. A-9 at 3-11; <i>see also</i> Tr. 12/12/16 at 129:10-13 (Mauna Kea ranger services are under the control of OMKM). <i>See</i> response to FOF # 697.
716.	116	The University’s 2000 Master Plan for the UH Management Area designated 525 acres (212 ha) of the leased land as an “Astronomy Precinct,” where development is to be consolidated to maintain a close grouping of astronomy facilities, roads and support infrastructure (Group	Misleading. Presented out of context. Excerpt continues that “[t]he remaining 10,763 acres (4,356 ha) are designated a Natural/Cultural Preservation Area in order

		70 International 2000). (Ex B.28 CMP P 3-1)	to protect natural and cultural resources within the UH Management Area.” Ex. A-9 at 3-1.
717.	117	Any future development would occur within the Astronomy Precinct portion of the UH Management Areas, as delineated in the 2000 Master Plan (Group 70 International 2000). (Ex B.28 CMP P 6-8)	See response to FOF # 697. Misleading. Presented out of context. Excerpt is preceded by: “[i]n addition to the potential construction of new observatories, other possible changes to the astronomy facilities include redevelopment of existing sites (i.e., dismantling an existing facility and replacing it with a new one on the existing footprint), upgrades to or expansions of existing observatories, and removal of some obsolete observatories. Changes could also involve improving utility service.” Ex. A-9 at 6-8. See response to FOF # 697. Citation does not support the proposition. The cited page of the CMP states in relevant part: “Using these criteria, the 2000 Master Plan updated designated telescope siting areas within the Astronomy Precinct for existing observatories, proposed redeveloped facilities, and potential new facility sites. The most probable scenarios will be to site all new proposed astronomy facilities in the area within the Astronomy Precinct identified as the north plateau.” Ex. A-9 at 7-57. “The goal of this process is to refine telescope siting areas defined in the 2000
718.	117	Any potential future observatories will be located inside the Astronomy Precinct. The goal of this process is to refine telescope siting areas defined in the 2000 Master Plan based on updated cultural and natural resource information (see Section 7.1.1 and Section 7.1.2). (Ex B.28 CMP Pg 7-57)	

719.			Master Plan based on updated cultural and natural resource information.” Misleading. Presented out of context. There are numerous siting criteria, other than consideration of updated cultural and natural resource information, defined in the 2000 Master Plan. <i>See, e.g.</i>, Ex. A-9 at 7-56.
	117	An approved management plan must be in place prior to the construction and operation within a resource subzone (HAR 13-5-39); a BLNR-approved comprehensive management plan must also be developed prior to construction and operation of such as facility. (Ex R-3/B.32 FEIS Section 3.10 p 3-142)	Citation does not support the proposition. While the cited portion of the record speaks for itself, to the extent this proposed FOF is intended to support a finding and/or conclusion regarding the scope and/or adequacy of the Master Plan, CMP, any of the sub plans; the University’s process in developing and/or implementing those plans; the University’s management of Mauna Kea in general; and/or the BLNR’s supervision and management of Mauna Kea, UH-TIO believe their proposed FOF are more comprehensive (and placed in the proper context), and therefore request the entry of their proposed FOF on these matters. <i>See, e.g.</i>, UH-TIO FOF 118-190. UH-TIO further note that the CMP was approved by the BLNR on April 9, 2009 and the sub plans were all approved by the BLNR on March 25, 2010. Ex. A-3/R-3 at 3-142. <i>See, also</i>, UH-TIO FOF 893. Misleading. Presented out of context. Excerpt is followed by: “[a] CMP for UH’s

720.	117	The Applicant relies on the UH CMP and its four subplans and the TMT Management Plan to fulfill the "approved management plan" requirement for its CDUP application (CDUA HA-3568) under HAR §13-5-24. The Applicant claims the proposed use is consistent with the provisions of the CMP and subplans, the approved management documents for the UH Management Areas on Mauna Kea. (Ex R-1/B.30 CDUA TMT Management Plan p 3-11 Section 3 Management and Controls)	Management Areas on Maunakea [sic] was approved by the BLNR on April 9, 2009. The BLNR placed conditions on their approval, including the production of ... CMP sub plans within a year or prior to submittal of a CDUP application by a project ... UH prepared these sub plans and they were all approved by the BLNR on March 25, 2010." Ex. A-3/R-3 at 3-142 - 3-143. Mischaracterization. The quoted excerpt states: "Astronomy facilities are an identified use in the Resource subzone (see HAR § 13-5-24(c) [R3/D1]) under an approved management plan. This means that astronomy facilities with appropriate management have been deemed to be consistent with proper management of the natural resources in that subzone. In addition to being an identified use, as discussed throughout this CDUA, both the University and the TMT Observatory Corporation are committed to managing the natural and cultural resources throughout the MKSR in a way that fulfills the objective of the Resource subzone of the Conservation District. The proposed TMT Project would help meet the objectives of the Resource subzone by using the excellent astronomical resources that Mauna Kea possesses to maintain the MKSR at the forefront of astronomical research while implementing and
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721.			supporting overall management activities that will promote the sustained use of the natural resources in the subzone. The proposed project would be developed and operated in compliance with the Conservation District Rules and with all conditions that may be attached to the Conservation District Use Permit. The proposed use is consistent with the provisions of the CMP and subplans, the approved management documents for the UH Management Areas on Mauna Kea.
	117	The CMP is described as "the framework for managing multiple existing and future activities, such as astronomy, recreational and commercial activities, scientific research, and cultural and religious activities." (Ex. B.28 CMP page 2-1)	Ex. A-1/R-1, Exhibit B at 3-11. Incomplete. Citation does not contain pin cite. Misleading. Presented out of context. The quoted excerpt states: "This CMP provides the framework for managing multiple existing and future activities, such as astronomy, recreational and commercial activities, scientific research, and cultural and religious activities. More importantly, the CMP provides a guide for protecting Mauna Kea's many unique cultural and natural resources. Once the CMP is adopted by the BLNR, it will also provide management guidelines and specific management recommendations to be included in BLNR's CDUPs."

722.	117	The TMT Management Plan is a "project-specific management plan." (Ex R-1/B.30 UH/TMT CDUA, p. 2-3)	Ex. A-9 at 2-1. See UH-TIO FOF 136. Misleading. Presented out of context. The TMT Management Plan is the management plan required under HAR § 13-5-24 and complements the CMP and sub plans. UH-TIO FOF 367-371. The quoted excerpt states: "In addition to supporting the implementation of the CMP, the TMT project has also developed a project-specific management plan. The TMT Management Plan provides a general description of the proposal, the existing conditions on the parcel, proposed land uses on the parcel and reporting schedule; it also adopts the approach, goals, objectives and management strategies and actions of the CMP and subplans in their entirety. Specifically, the TMT Management Plan implements all relevant action items and plans of the CMP and subplans on a site-specific basis ensuring that the management actions called for in the CMP and subplans which are applicable to the TMT project are effectively and responsibly implemented. Additionally, the TMT Management Plan sets forth mitigation measures in the form of Best Management Practices and conservation methods intended to mitigate
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			the impacts of the TMT project on Mauna Kea's varied resources. The TMT Management Plan is intended to provide site-specific information and be an extension of the CMP and subplans and together (CMP, subplans and TMT Management Plan), these documents are intended to fulfill the purpose of the Conservation District concerning the TMT project.”
723.	118	The CMP is described as being in accordance with the Third Circuit Court's ruling in 2007 regarding the inadequacy of the University's management plan proposal at the time. (Ex. B.28 CMP page 2-1)	Ex. A-1/R-1 at 2-3. Irrelevant/Inapplicable. Misleading. Presented out of context. Given the BLNR's approval of the CMP and sub plans (See UH-TIO FOF 893), which are the current, approved and operative plans, this proposed FOF is not relevant to the consideration of the CDUA. Mischaracterization. The CMP is in accordance with Judge Hara's decision; not “is described as being”. See response to FOF # 723.
724.	118	In its 2007 decision and order, the Third Circuit Court found that the the definition of management plan in HAR 13-5-2 requires the plan to be HAR 13-5-2 “comprehensive,” that is an “all-covering, all-embracing, all-inclusive” “plan for carrying out multiple land uses” for the conservation of resources on Mauna Kea. (Ex. B.28 CMP page 2-2, Ex. B-15, Mauna Kea Anaina Hou v. BLNR, Civ. No. 4-1-397, 7 (3rd Cir. Haw. Jan. 19, 2007))	
725.	118	As identified in the first management plan for the mountain, the Mauna	See response to FOF # 697.

		Kea conservation district the extends from the summit down to the 6,000-foot elevation and includes all lands from the summit to Saddle Road, including the Mauna Kea Forest Reserve and Game Management Area, and Ka'ōhe Game Management Area. (Ex.B.17g, page 1 MKMP 1977)	
726.	118	The CMP only applies to the "UH Management Areas" (described as "the Mauna Kea Science Reserve (Science Reserve), the mid-level support facilities at Hale Pohaku, and the Summit Access Road..."). (Ex. B.28 CMP page 2-1)	See response to FOF # 697.
727.	118	"Proposed new development on Mauna Kea, including the Thirty Meter Telescope (TMT)" is outside of the scope of the CMP. (Ex B.28 CMP, p. 2-3)	Misleading. Presented out of context. The TMT Project is consistent with the CMP, sub plans and all other applicable plans. UH-TIO FOF 359. False/Inaccurate. The CMP is the approved management plan for any future land use. Ex. A-9 at 2-3.
728.	118	The Applicant acknowledges that "this CMP does not address development plan issues related to future observatories, including whether new observatories should be located on Mauna Kea to support the astronomy program or if observatories should have their leases extended or be decommissioned." (Ex. B.28 CMP, page 7-54)	Citation does not support proposition. UH-TIO note that the correct citation for this Proposed FOF is Ex. A-9 at 7-55. Misleading. Presented out of context. The Decommission Plan addresses such issues. See UH-TIO FOF 151-153. The TMT Project is consistent with the CMP, sub plans and all other applicable plans. UH-TIO FOF 359. Misleading. Presented out of context. Citation is incorrect. Quoted excerpt states: "this CMP does not address development plan issues related to future

		observatories, including whether new observatories should be located on Mauna Kea to support the astronomy program or if observatories should have their leases extended or be decommissioned. The University's official position on proposed observatory and support facility development for the period of 2000-2020 was outlined in the 2000 Master Plan (Group 70 International 2000). The role of the CMP in considering future land use is to guide the evaluation of proposed projects from the standpoint of potential impacts to cultural and natural resources, and to provide management actions that can be adopted by BLNR as special conditions in any CDUPs that it may issue. The Board of Land and Natural Resources shall have final approval over all land uses on conservation lands pursuant to the Conservation District Use Permitting Process." Ex. A-9 at 7-55. False/Inaccurate. The CMP is the approved management plan for any future land use. Ex. A-9 at 2-3. Citation does not support the proposition. See UH-TIO FOF 136-158. Misrepresentation. The Comprehensive Management Plan contains design guidelines, as well as siting criteria. Ex. A-9 at 7-48.
729.	118	The CMP does not provide a limit on the number or size of future telescopes in the Mauna Kea Conservation District. (Ex. B.28 CMP, page 7-56)

		See response to FOF #728. The CMP further notes that the plan is to manage resources and that each “redevelopment or proposed new facility, including non-astronomy facilities, will undergo individual project reviews, that will include an environmental analysis pursuant to Chapter 343, HRS, and a comprehensive analysis of the potential cultural impact. Ex. A-9 at 7-55. The TMT Project is consistent with the CMP, sub plans and all other applicable plans. UH-TIO FOF 359.
730.	118	The CMP describes the need to complete, among other things: —a burial treatment plan because Mauna Kea is a known burial site (B.28 CMP, page 7-10) Citation does not support the proposition. See UH-TIO FOF 136-158. Misleading. Presented out of context. The reference sections do not set forth concrete requirements. In fact, the majority of the provisions and sections merely state “additional considerations.” Burial treatment plan: A burial treatment plan was prepared for the entire MKSR and Mauna Kea Access Road Corridor, including the TMT Project site, which was approved by HIBC and SHPD. UH-TIO FOF 570; Ex. A-22 at 30; Ex. A-138, Ex. A-138a; Ex. A-139. Citation does not support the proposition. See UH-TIO FOF 136-158.
731.	118	—buffer zones to protect archaeological sites (B.28 CMP, page 7-10, 7-56)

			Buffer zones: Management Action CR-12 requires buffer zones to "be established". Ex. A-9 at 7-10. The creation of buffer zones around known historic sites is ongoing. Ex. A-22 at 30. Kahu Ku Mauna determined that the establishment of buffer zones should be determined on a case-by-case basis instead of immediate implementation. Ex. A-17 Appendix A at 4.
732.	119	—invasives species control plan (B.28 CMP, page 7-16 thru 7-18)	Citation does not support the proposition. See UH-TIO FOF 136-158. Invasive species: Management Action NR-2 requires the limit of damage caused by invasive species through creation of an invasive species prevention and control program. This action is ongoing, and the TMT Project will develop an invasive species prevention and control program and has policies in place to control invasive species. Ex. A-22 at 31; UH-TIO FOF 457, 490-492. An invasive species management plan was prepared and approved in 2015. Ex. A-40; Ex. A-22 at 7.
733.	119	—emergency hazardous spill protocol (B.28 CMP, page 7-44)	Citation does not support the proposition. See UH-TIO FOF 136-158. Hazardous spill protocol: Updating and implementing an emergency response plan is ongoing. Ex. A-9 at 7-62;

734.	119	—permitting process for traditional and customary practices deemed appropriate (B.28 CMP, page 7-8 thru 7-10)	Ex. A-22 at 28, 36. The TMT Project will implement a Materials Storage / Waste Management Plan, including a Spill Prevention and Response Plan, and there are extensive measures planned to store and dispose of all waste. UH-TIO FOF 320, 424-428, 824-839.
			Citation does not support the proposition. See UH-TIO FOF 136-158. Traditional and customary practices: Development of plans for the exercise of culturally appropriate placement and removal of offerings, visitation of shrines and constructing new cultural resources are in progress and ongoing. Ex. A-22 at 30. The TMT Project will comply with requirements for public access and there will be no prohibitions on access to the areas outside of the TMT Observatory. UH-TIO FOF 679-682. Kahu Ku Mauna developed policies related to cultural practices, such as the appropriateness of construction of new cultural features, placement and removal of offerings. They were brought before MKMB at which time individuals opposed these policies. The MKMB recommended that Kahu Ku Mauna do some additional consultation. Previously, the MKMB approved guidelines for the visitation and use of ancient shrines. Ex. L-17; Ex. L-18; Ex. L-19; Ex. L-20; Tr. 12/12/2016 at 19: 20 –

735.	119	The CMP does not provide a timeline for completing these tasks and provides no process for public or agency oversight consistent with Chapter 91, HRS. (Ex. B.28 CMP)	23:7; 12/12-2016 at 60:17 – 61:9. Irrelevant/Inapplicable. Citation does not support proposition. Misrepresentation. <i>See, e.g., UH-TIO FOF 136.</i> Misleading. Presented out of context. There is no requirement that such a timeline or process must be established under HRS Chapter 91. Additionally, included in the first annual report to the BLNR, was an estimated timeline for implementation of each CMP management actions. Ex. A-16, App. B. OMKM is required to produce an annual progress report on the management goals, objectives and actions to the BLNR. See Ex. A-22. The report in the record notes that major components of the plan are completed, ongoing or in progress. Ex. A-22. The BLNR is not required by law to hold a contested case hearing with respect to BLNR's review and oversight of the CMP. <i>See Mauna Kea Anaina Hou v. University of Hawaii'i</i>, 126 Haw. 265. Ex. B-70 not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g). <i>See UH-TIO FOF 136-158.</i> Citation does not support the proposition.
736.	119	The CMP specifically identifies the following measures as being among those Native Hawaiian rights for which access will be maintained insofar as they are consistent with other management actions: ...gathering of cultural resources..., Access for families to visit iwi kupuna..., Access to scatter ashes..., Access through trails for hunting and gathering..., Access	

		to deposit piko..., Access for traditional...religious and spiritual observances..., Pilgrimage, offerings, and prayers, and Access to Lake Waiau to gather water for religious and spiritual purposes. (Ex. B.70 CDUA Staff Report Feb 25, 2011, p.11)	See UH-TIO FOF 136-158. Development of plans for the exercise of culturally appropriate placement and removal of offerings, visitation of shrines and constructing new cultural resources are in progress and ongoing. Ex. A-22 at 30. The TMT Project will comply with requirements for public access and there will be no prohibitions on access to the areas outside of the TMT Observatory. UH-TIO FOF 679-682.
737.	119	Upon approval of the CMP, the BLNR made the UH BOR responsible for implementing the CMP. In accepting that responsibility, the UH BOR delegated implementation of the CMP through normal UH governance channels to UH Hilo, OMKM, and MKMB and also assigned two members of the UH BOR to sit as ex-officio, nonvoting members on the MKMB. (Ex R-3/B.32 FEIS section 3.10, p 3-148)	The TMT Project considers and provides efforts to mitigate any negative impacts to culture. TR. 11/15/16 at 136:16-137:7. Citation does not support the proposition. See UH-TIO FOF 136-158. Misleading. Presented out of context. Complete excerpt states: OMKM is charged with the day-to-day management of the MKSR. OMKM works closely with the Mauna Kea Management Board (MKMB), the Kahu Ku Mauna Council, and several advisory committees. Seven members of the community who are nominated by the UH Hilo Chancellor and approved by the UH BOR comprise the MKMB. Upon approval of the CMP, the BLNR made the UH BOR responsible for implementing the CMP. In accepting that

		responsibility, the UH BOR delegated implementation of the CMP through normal UH governance channels to UH Hilo, OMKM, and MKMB and also assigned two members of the UH BOR to sit as ex officio, non-voting members on the MKMB. MKMB guides the operations of OMKM and advises the Chancellor on activities, operations, and development. Kahu Ku Mauna - in Hawaiian, Guardians of the Mountain - is a nine-member council named by MKMB, and advises the MKMB, OMKM, and the UH Hilo Chancellor on cultural matters. Other advisory councils formed to advise the MKMB include an Environment Committee, a Hawaiian Culture Committee, a Public Safety and Conduct Committee, and a Wekiu Bug Scientific Committee. Ex. A-3/R-3 at 3-147.
738.	119	“OMKM’s responsibilities are complicated by the fact that the UH Management areas are governed by two overarching documents—the Master Plan 2000, which was not approved by the Board of Land and Natural Resources, thus requiring UH to continue to comply with the rights and responsibilities outlined in the 1995 Revised Management Plan.” (Ex B.40 CRMP 3.2.1 OMKM Mission and Responsibilities 3-3) Citation does not support the proposition. See UH-TIO FOF 136-158. Misleading. Presented out of context. The 1995 Management Plan was superseded by the 2009 Comprehensive Management Plan. Ex. A-9 at 2-3; <i>see also</i> UH-TIO FOF 123.. The CRMP goes on to note OMKM’s management initiatives to address these issues. Ex. A-11 at 3-3 – 3-5. UH-TIO FOF 123:

			In response to the concerns raised in an audit performed in 1998 that was critical of the University's management of the cultural and environmental resources in the MKSR, the University began preparing a new master plan for the MKSR. Ex. B.17e. On June 16, 2000, after nearly two years of work by an advisory committee and two series of public meetings, the University Board of Regents ("BOR") adopted the Mauna Kea Science Reserve Master Plan ("Master Plan"), which established management guidelines for the UH Management Area. The process reflected the Hawai'i Island community's deeply rooted concerns over the use of Mauna Kea, including respect for Hawaiian cultural beliefs and practices, protection of environmentally sensitive habitat, recreational use of the mountain, as well as astronomical research. The Master Plan is an internal policy and planning guide for the University to promote the goal of balanced stewardship of the UH Management Area through on-island community based management. WDT Nagata at 2; Tr. 12/8/16 at 27:6-8, 28:3-9; WDT Heen at 1; Ex. A-48 at Chapter XII.
739.	119	The University of Hawaii is an educational institution, not a land management agency. (HRS 304A-102)	Mischaracterization. HRS § 304A-102 is not an exhaustive list of the permitted actions the University of Hawai'i (and its various branches) may take in pursuing its stated purpose. HRS § 304A-103(2)

		provides in relevant part that the University shall have the general power to: "To acquire in any lawful manner any property, real, personal, or mixed, tangible or intangible, or any interest therein; to hold, maintain, use, and operate that property; and to sell, lease, or otherwise dispose of that property at such time, in such manner, and to the extent deemed necessary or appropriate to carry out its purposes[.]"
		Additionally, the General Lease authorizes UH Hilo to manage the demised lands on Mauna Kea and to develop the lands into a scientific complex. See Ex. B.17f at 3-4. Moreover, the BLNR Approved CMP and subplans require UH Hilo to exercise land management responsibilities. <i>See generally</i> , Exs. A-9 to A-13.
740.	120	Irrelevant/Inapplicable.
		Irrelevant/Inapplicable.
741.	120	Irrelevant/Inapplicable. Citation does not support the proposition. <i>See</i> UH-TIO FOF 136-158.
		Unsupported/Unsubstantiated.
		Misleading. Presented out of context. The CMP and sub plans are clearly relevant and material to the BLNR's <i>Ka Pa 'akai</i> analysis in connection with its

			consideration of the CDUA. See UH-TIO COL 324-354. The CMP specifically outlines the <i>Ka Pa 'akai</i> framework used to develop the plan. See Ex. A-9 at 2-6 to 2-8.
742.	120	All of the 11,288 acres leased by the University on Mauna Kea are designated as a conservation district. (B.28, page 3-1)	Not in dispute.
743.	120	The University subdivided the 525-acre Astronomy Precinct from rest of the 11,288 acres it leases from the DLNR. (Ex. A-1, page 5)	False/Inaccurate. The Astronomy Precinct is not a subdivision of UH Management lands. See, e.g., UH-TIO FOF 167.
744.	120	As explained by the Applicant, the University "subdivided" the 11,288 acres it leases on Mauna Kea to ensure that all future "telescope development is limited to the Astronomy Precinct". (Ex. A-1, page 5)	False/Inaccurate. The Astronomy Precinct is not a subdivision of UH Management lands. See, e.g., UH-TIO FOF 167.
745.	120	"The University's 2000 Master Plan for the UH Management Area designated 525 acres (212 ha) of the leased land as an "Astronomy Precinct," where development is to be consolidated to maintain a close grouping of astronomy facilities, roads, and support infrastructure." (B.28 CMP, page 3-1 (citations omitted))	Misleading. Presented out of context. More specifically, the TMT Project is within the resource subzone of the Conservation District. UH-TIO FOF 385-395.
746.	120	In addition, the CMP directs decision-makers "to site all new proposed astronomy facilities in the area within the Astronomy Precinct identified as the north plateau." (Ex. B.28 CMP, page 7-56)	Citation does not support the proposition. See UH-TIO FOF 136-158.
747.	120	The proposed site for the TMT Observatory is a roughly 5-acre area at the end of a four-wheel drive road at an elevation of 13,150 feet on the Northern Plateau of Mauna Kea. (Ex R-3/B.32 FEIS, Vol. 1 p. 2-10)	Misleading. Presented out of context. The quoted excerpt states: "Within Area E, the TMT Observatory will be located on a roughly 5-acre site near the end of the existing 4-wheel drive road, at an elevation of approximately 13,150 feet (Figure 2-4). This site is known as 13N in reference to its elevation and its location on the northern plateau." Ex. A-3/R-3 at 2-10.
748.	120	Roughly 6.2 acres of previously undisturbed land will be disturbed by the	Misleading. Presented out of context.

		TMT Observatory and Access Way. (Ex R-3/B.32 FEIS Section 3.2 Cultural Resources Page 3-26)	Quoted excerpt states: “Based on numerous previous studies, Area E was selected in Master Plans to be a suitable location for observatory development because, for one, it would have either a limited or no adverse impact on physical cultural resources such as archaeological and historic resources. Within Area E, the site of the TMT Observatory, known as the 13N site, was selected in part because it is the portion of Area E most disturbed by previous activity. The Access Way maximizes the use of previously disturbed areas as well. Overall, roughly 6.2 acres of previously undisturbed land will be disturbed by the TMT Observatory and Access Way, with slight variations depending on which Access Way Option is selected.” Ex. A-3/R-3 at 3-26. Misleading. Presented out of context. The proposed TMT Project site was selected in part because it is the portion of area that is most disturbed by previous activity. The access way maximizes the use of previously disturbed areas as well. Ex. A-3/R-3 at 3-26.
749.	121	There are no current developments on the Northern Plateau. (Ex B.70 CDUA Staff Report Feb 25, 2011, p.7)	Ex. B-70 not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g). See UH-TIO FOF 136-158.

			Mischaracterization. Presented out of context. The exhibit states that there are no current developments in "the main part of the Northern Plateau." Incorrect/Inaccurate. The Smithsonian Submillimeter Array occupies part of the Northern Plateau. Ex. A-48 at IX-12. See response to FOF # 748.
750.	121	TMT is being proposed for an area on the North Plateau of Mauna Kea that has not hosted permanent facilities or developments. It is opening up a new area. (Ex B.70 CDUA Staff Report Feb 25, 2011, p 59)	Ex. B-70 not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g). See UH-TIO FOF 136-158. Misleading. Presented out of context. The Smithsonian Submillimeter Array occupies part of the Northern Plateau. Ex. A-48 at IX-12. Mischaracterization. As described in the Master Plan, "Area E" within the Astronomy Precinct was identified as the anticipated location for the next generation large telescope. See UH-TIO FOF 169. See response to FOF #748; see also UH-TIO FOF 238-240.
751.	121	The TMT's footprint will be a minimum of 8.5 acres on a pristine plateau. (Ex B.70 CDUA Staff Report, p.K-1)	Ex. B-70 not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g). See UH-TIO FOF 136-158. Misleading. Presented out of context. The staff report notes that the observatory

	footprint will be approximately 4.9 acres. Ex. B.70 at 1. See, also UH-TIO FOF 252. The staff report further notes that "Approximately ten percent of the 13N Site in Area E has been previously disturbed; approximately 1/3 of the existing Access Right of Way has been previously graded; and the Batch Plant site was initially graded as part of the road-paving project and was used as a staging area during the construction of several observatories." Ex. B.70 at 7. Citation does not support the proposition that the Thirty-Meter Telescope will be built on "a pristine plateau." Indeed, portions of the northern plateau have been previously disrupted. The proposed TMT Project site was selected in part because it is the portion of area that is most disturbed by previous activity. The access way maximizes the use of previously disturbed areas as well. Ex. A-3/R-3 at 3-26 Additionally, the FOF is misleading and presented out of context. The 8.5 acre (approx.) footprint includes not only the observatory dome and the Access Way, but also the support building, parking area, area disturbed by construction. See Ex. A-1/R-1 at 3-5. Moreover, a 2.5 acres of the total 8.5 acre footprint has previously been disturbed. See UH-TIO FOF 850.

752.	121	The total dome height will be 184 feet above finished grade, with an exterior radius of 108 feet. (Ex B.70 CDUA Staff Report, Feb 25, 2011, p.15)	Ex. B-70 not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g). <i>See</i> UH-TIO FOF 136-158.
753.	121	HAR 11-200-12 states: "In Determining whether an action may have a significant effect on the environment, the agency shall consider every phase of a proposed action, the expected consequences, both primary and secondary, and the cumulative as well as the short term and long term effects of an action. In most instances, an action shall be determined to have significant impact if it: (13) Requires significant energy consumption." (HRS 11-200-12 (Significance Criteria))	Not in dispute. However, this is more properly a COL.
754.	121	The TMT will have significant power requirements. (Ex B.70 CDUA Staff Report Feb 25, 2011, p.45)	Ex. B-70 not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g). <i>See</i> UH-TIO FOF 136-158. Misleading. Presented out of context. Reference goes on to state that the TMT Project will not be a major contributor to greenhouse gases. The staff report makes it clear that BLNR considers this requirement within the context of the use of natural resources and contribution to greenhouse gases. The BLNR staff concluded that the TMT Project "will not be a major contributor of greenhouse gases in and of itself," and the staff further concluded that the TMT Project "does not extract resources, nor consume significant resources once constructed." Ex. A-7 at 45.
755.	121	The existing peak demand load documented by HELCO at the substation, including all the observatories and the Hale Pohaku facilities, is 2,230 kW, approximately less than half of the capacity of the substation. Of this	Misleading. Presented out of context. The FEIS further clarifies, however, that "the average power usage at the TMT

		current use, the Keck observatory uses approximately 350 kW of power on average. (Ex R-3/B.32 FEIS Section 3.12 Power and Communications p 3-169)	Observatory is likely to be similar to the average power usage at the Keck observatory, 350 kW, because the two facilities will be similar in size when you consider both of the Keck domes." Ex. A-3/R-3 at 3-170
756.	121	Preliminary design electrical load estimates indicate that the TMT Observatory will operate with a "Peak Demand" of 2.4 MW. To adequately support the peak power requirement... two transformers will be upgraded at the existing HELCO substation at Hale Pohaku. (Ex R-3/B.32 FEIS Section 3.12 Power and Communications p 3-169)	Misleading. Presented out of context. The FEIS further clarifies, however, that "the average power usage at the TMT Observatory is likely to be similar to the average power usage at the Keck observatory, 350 kW, because the two facilities will be similar in size when you consider both of the Keck domes." Ex. A-3/R-3 at 3-170
757.	121	The TMT Project would result in HELCO having to upgrade the two transformers with the Hale Pohaku Substation. (Ex. R-1/B.30, CDUA, p. 1-13)	Mischaracterization. Misleading. Presented out of context. The exhibit does not state that the TMT Project alone necessitates the planned upgrades. The CDUA further clarifies that the "new transformers will replace the existing transfers on a one-to-one basis, and the existing fenced compound will not be expanded." Ex. A-1/R-1 at 1-13.
758.	122	The TMT Project would result in HELCO having to also upgrade the existing electrical service by replacing the existing wire conductors with new higher-capacity conductors in the underground conduits that run from the Hale Pohaku Substation to the summit area. (Ex. R-1/B.30, CDUA, p. 1-14)	See response to FOF # 757. Misleading. Presented out of context. The CDUA further clarifies that existing underground conduits will be used and because existing pull boxes are available, no new ground disturbance will be needed

			for the upgrade. Ex. A-1/R-1 at 1-14. As part of the mitigation measures, existing utility pull boxes in certain locations will be camouflaged to reduce their visibility. UH-TIO FOF 909.
759.	122	DOFAW notes...Not knowing the actual alignment makes it difficult to assess the potential impacts of the project, although, the powerline will pass through the Mauna Kea Ice Age Reserve in some locations. (Ex B.70 Staff Report Feb 25, 2011, p.23)	Ex. B-70 not in evidence. Consideration of the cited document is prohibited by HRS § 91-9(g). <i>See</i> UH-TIO FOF 136-158. Misleading. Partial quotation. This FOF omits UH Hilo's response addressing the DOFAW note. Misleading. Presented out of context. UH noted that the power line work would comply with DLNR and Department of Accounting and General Services standards and in accordance with the conditions in the grant of easement (including for the NAR) that was previously approved by the BLNR. Ex. A-7/R-7 at 23. Misleading. Partial quotation. The quoted excerpt states thereafter: "The sublease will be negotiated after the Project receives a CDUP and will be consistent with the existing Master Lease between UH and the BLNR, adopted under HRS Chapter 171." Ex. A-3/R-3 at 3-159. <i>See</i> UH-TIO FOF 208-209.
760.	122	The building and operation of the TMT Observatory on Maunakea will require a sublease from UH, which lease this ceded land from DLNR. The sublease will be subject to approval first from the TMT board and the UH BOR followed by approval from BLNR. (Ex R-3/B.32 FEIS section 3.10 Land Use Plans, Policies and Controls p 3-159)	

761.	122	The current UH lease expires in 2033 and the TMT Observatory will be required to be decommissioned and restore the site at that time, unless a new lease is obtained from the BLNR. (Ex R-3/B.32 FEIS section 3.10 Land Use Plans, Policies and Controls p 3-160)	Not in dispute as per cite in exhibit only.
762.	122	In 1999, the Mauna Kea Summit Region Historic District (MKSRHD) was determined eligible for listing on the National Register. (Ex. A-55, FAIS-AP (Jan 2010), p. 1-1)	Not in dispute.
763.	122	The proposed TMT project would be located within the Mauna Kea Summit Region Historic District (State Inventory of Historic Place #50-10-23-26869) which was determined by the DLNR - State Historic Preservation Division to be historically and culturally significant under all five criteria (A, B, C, D, & E) of the Hawai'i Register of Historic Places and Hawai'i Administrative Rules (§13-275) and under all four criteria (A, B, C, & D) of the National Register of Historic Places. (Ex. A-63, SHPD letter; re AIS-M (5/26/10), p. 1)	Not in dispute.
764.	123	The MKSRHD is significant under all four National Register criteria, and criterion "e" of the Hawaii Administrative Rules, Chapter §13-275-6. The district is significant under criterion "a" because of the presence of the Mauna Kea Adze Quarry Complex (a National Historic Landmark), which was used over a period of 500 years or more and the hundreds of shrines in and outside of the quarry. Both the quarry and the shrines are associated with broad patterns and events in Hawaiian prehistory. The district is significant under criterion "b" because of the association with several gods who may have been deified ancestors. These include Kukahau`ula, Lilineo and Waiau. The sites in the adze quarry and many of the shrines embody distinctive characteristics of traditional Hawaiian stone tool manufacture by craft specialists and a distinctive type of shrine construction found in only a few other places in the Hawaiian Islands. These make the district significant under criterion "c." Studies of the Mauna Kea Adze Quarry Complex and the on-going archaeological survey of the Mauna Kea Science Reserve have already made a significant contribution to our understanding of Hawaiian prehistory and history, and hold the potential to make even more contributions. The district is thus significant under	Not in dispute as to criteria identified and exhibit cited.

		criterion “d.” Finally, the district is significant under criterion “e” because of the presence of numerous burials and the hundreds of shrines which have been interpreted as evidence of a previously unknown land use practice in the form of pilgrimages to the summit of Mauna Kea to worship the gods and goddesses. (Ex. R-5/B.34, TMT FEIS Vol. 3, p. G-54)	
765.	123	The public trust doctrine under the Hawai‘i Constitution, and the principles that it embodies, applies to the conservation land—the summit of Mauna Kea—involved in this case. This conclusion is supported by the plain language of Article XI, Section 1, the historical context under which this provision was ratified, and this court’s precedents.	Mischaracterization. The eight criteria in HAR § 13-5-30(c) already incorporate the considerations of the public trust doctrine. See, UH-TIO FOF 1006.
766.	123	The scope of Hawai‘i’s Public Trust Doctrine is set forth in article XI, section 1 of the Hawai‘i Constitution and provides: For the benefit of present and future generations, the State and its political subdivisions shall conserve and protect Hawai‘i’s natural beauty and all natural resources, including land, water, air, minerals and energy sources, and shall promote the development and utilization of these resources in a manner consistent with their conservation and in furtherance of the self-sufficiency of the State. All public natural resources are held in trust by the State for the benefit of the people.	Incomplete. See UH-TIO FOF 1001-1014, UH-TIO COL 295-323.
767.	124	SHPD has begun working on the nomination of the MKSRHD to the National Register of Historic Places. (Ex. A-55, FAIS-AP (Jan 2010), p. 7-1)	Not in dispute.
768.	124	SHPD has repeatedly stated that they consider the summit region to be a historic district in a number of letters regarding astronomy and astronomy-related projects (See, Don Hibbard letter to Dierdre Mamiya, April 24, 2002; Don Hibbard letter to Robert McLaren, January 10, 2001; Timothy Johns letter to Kenneth Kumor, October 26, 2000; Don Hibbard letter to Robert A. McLaren, May 3, 1999). (Ex. R-4/B.33, TMT FEIS Vol. 2, p. 27)	Vague/Ambiguous/Irrelevant.
769.	124	With the recognition of the MKSRHD as eligible for the National Register there is now a single frame of reference that can be used in evaluating site significance for all of the historic properties on the top of Mauna Kea. (Ex. A-55, FAIS-AP (Jan 2010), p. 7-2)	Vague/Ambiguous/Irrelevant.

770.	124	Per the Mauna Kea Historic Preservation Plan [2000] prepared by SHPD: Within the [Mauna Kea Summit Region] historic district, the significance of properties is not evaluated individually because the summit region as a whole is considered eligible for inclusion in the National Register. Instead, the required assessments consider how each newly or previously recorded property potentially affected by a project contributes to the significance of the historic district as a whole. (Ex. R-5/B.34, TMT FEIS Vol. 3, p. G-55)	Not in dispute as to quote in exhibit only.
771.	124	Pu 'u Kukahau 'ula State Historic Property (SIHP Site No. 50-10-23-21438) is a contributing component of the Mauna Kea Summit Region Historic District. (Ex. R-5/B.34, TMT FEIS Vol. 3, p. G-55)	Not in dispute only as to exact quote in exhibit.
772.	124	Prior to the historic period, there are no other known sites on the series of cinder cones, including Pu 'u Kukahau 'ula, that comprise the 'summit' of Mauna Kea with the single exception of a cairn (Site 50-10-23-21209). There is a virtual absence of archaeological sites on the very top of the mountain. (Ex. A-55, FAIS-AP (Jan 2010), p. 6-4)	Citation does not support proposition.
773.	125	Consideration of the properties included within the MKSRHD, and their associated practices and beliefs, suggests it to represent a type of historic property best referred to as a "cultural landscape". A cultural landscape is a geographical definable area that clearly reflects patterns of occupation and land use over a long time period, as well as the cultural values and attitudes which guide and regulate human interaction with the physical environment. [Emphasis in bold] (Ex. B.37, App. N, p. 45)	Vague/Ambiguous/Irrelevant.
774.	125	This "cultural landscape" has been determined eligible for the National and State Register of Historic Places under multiple criteria including cultural significance to the native Hawaiian People (cf. letter of D. Hibbard to R. Evans, September 12, 1991). As a result, archaeologists with DLNR-SHPD have referred the summit region of Mauna Kea as a "ritual landscape" with all of the individual parts contributing to the integrity of the whole summit region. [Emphasis in bold] (Ex. B.37, App. I, p. 3)	The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of the belief is factual. There is no reliable probative and substantial evidence that her or the referenced practices are within the bundle

775.	125	Based on the Native Hawaiian traditional cultural practices and beliefs associated with Mauna Kea, as documented in the Maly (1999) oral history and consultation study, the MKSRHD could perhaps even more appropriately be considered a special type of cultural landscape referred to by the National Park Service as ethnographic landscapes: "those landscapes imbued with such intangible meanings that they continue to be deemed significant or even sacred by contemporary people who have continuous ties to the site or area". (Ex. B.37, App. N, p. 45)	of rights protected by Article XII, Section 7 of the Hawaii State Constitution. The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of the belief is factual. There is no reliable probative and substantial evidence that her or the referenced practices are within the bundle of rights protected by Article XII, Section 7 of the Hawaii State Constitution.
776.	125	Such an ethnographic landscape would seem to be embodied in the concept of "cultural attachment" use by Maly (1999:27) to describe the connection of many Native Hawaiians to Mauna Kea. (Ex. B.37, App. N, p. 45)	Vague/Ambiguous/Irrelevant.
777.	125	"Cultural Attachment" embodies the tangible and intangible values of a culture. It is how a people identify with and personify the environment (both natural and manmade) around them. Cultural attachment is demonstrated in the intimate relationship (developed over generations of experiences) that a people of a particular culture share with their landscape--for example, the geographic feature, the natural phenomena and resources, and traditional sites, etc., that make up their surroundings. This attachment to environment bears direct relationship to their beliefs, practices, cultural evolution, and identity of a people. In Hawai'i, cultural attachment is manifest in the very core of Hawaiian spirituality and attachment to landscape. The creative forces of nature which gave birth to the islands (e.g., Hawai'i), the mountains (e.g. Mauna Kea) and all forms of nature, also gave birth to na kanaka (the people), thus in Hawaiian tradition, island and human kind share the same genealogy..." (Ex. B.37, App. I, p. 27)	The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of the belief is factual. There is no reliable probative and substantial evidence that her or the referenced practices are within the bundle of rights protected by Article XII, Section 7 of the Hawaii State Constitution.

778.	126	Effects on the historic district would consider the visual impact of a facility on the surrounding landscape (i.e., the various land forms creating the setting and context of the multiple historic properties encompassed by the district) and on those individual historic properties that contribute to the significance of the district. (Ex. A-55, FAIS-AP (Jan 2010), p. 8-2)	Vague/Ambiguous/Irrelevant, except as to quoted exhibit.
779.	126	Figure 3.7 of the archaeological inventory survey conducted by PCSI identified the locations of historic properties, traditional cultural properties, and find spots in the MKSR. (Ex. A-55, FAIS-AP, p. 3-12)	Vague/Ambiguous/Irrelevant, except as to quoted exhibit.
780.	126	The largest concentration of historic properties and cultural resources is on the northern slope of Mauna Kea below the summit cones. (Ex. A-55, FAIS-AP, p. 6-1)	Vague/Ambiguous/Irrelevant, except as to quoted exhibit.
781.	126	Many of these sites are located within a narrow 220-ft contour interval, between the 12,900-ft and 13-100-ft elevations on the northern slope. (Ex. A-55, FAIS-AP, p. 6-1)	Citation does not support the proposition.
782.	126	The term 'shrine' is used by Archaeologist [McCoy] to describe all of the religious structures that exist in the summit region of Mauna Kea. (Ex. B.37, App. N, p. 21)	Misrepresentation. The term "shrine" is used by McCoy and not necessarily all archaeologists as the FOF suggests.
783.	126	Most of the shrines found on Mauna Kea have 1 to 3 uprights. However, some have as many as 24 or 25 stone uprights. (Ex. B.37, App. N, p. 21)	Not in dispute.
784.	126	Shrines were placed in prominent location with commanding views of the landscape. (Ex. B.37, App. N, p. 21)	Not in dispute as to locations, but not established as to intent of placement.
785.	126	In order to assess TMT impacts on view planes and shrines, the CDUA could not approach this as a mathematical problem of size or height. Id. at 82: 2:11.	Unsupported/Unsubstantiated.
786.	127	A full understanding of why the shrines were built and where you would be standing when you were observing them was needed to answer questions of potential effect. Id. at 82: 15-22.	Not supported by the reliable, probative and substantial evidence.
787.	127	PSCI's recommendation as part of the Cultural Resources Management Plan (CRMP): Section 4.3.2: In view of the documented existence of human burials in the Science Reserve there is a need to develop a burial treatment plan (BTP) to protect all known burial sites. Given the	Unsupported/Unsubstantiated.
			Not supported by the reliable, probative and substantial evidence.
			Incomplete. A burial treatment plan was prepared by PCSI for the entire MKSR and Mauna Kea Access Road Corridor, including the TMT Project site. See, UH-

		possibility that more human remains will be found inadvertently in the Science Reserve in the future there is also a need to develop an Inadvertent Discovery Plan. (Ex. A-55, FAIS-AP, p. 8-2)	TIO FOF 570; Ex. A-138.
788.	127	A 1997 SHPD reconnaissance survey began the process of recording what were initially referred to as "locations" but are now being termed "find spots" – a general term referring to man-made remains that are either obviously modern features or features that cannot be classified by archaeologists with any level of confidence as historic sites because of their uncertain age and function. (Ex. A-55, FAIS-AP, p. 3-10)	Vague/Ambiguous/Irrelevant, except as to quoted exhibit.
789.	127	"Find spots" are cultural resources. (Ex. A-55, FAIS-AP, p. 5-20)	Incomplete. "Find spots" are cultural resources that are either obviously modern features or features that cannot be classified with any level of confidence as historic sites because of their uncertain age and function. Ex. A-55 at 5-20.
790.	127	In August 2005, PCSI was contracted by OMKM to undertake an archaeological inventory survey of the Astronomy Precinct, located within the MKSR. (Ex. A-55, FAIS-AP, p. 1-1 & 1-3)	Not in dispute.
791.	127	The archaeological field survey crew for the Astronomy Precinct and surrounding lands was limited to PCSI co-principal investigators, Patrick McCoy and Dennis Gosser, and staff, Richard Nees and Reid Yamasato. (Ex. A-55, FAIS-AP, p. 1-4)	Misrepresentation. Not supported by the reliable, probative and substantial evidence.
792.	127	This field survey crew did not include any Native Hawaiian cultural practitioners. (Ex. A-55, FAIS-AP, p. 1-4)	Citation does not support proposition that the field survey crew was "limited." Citation does not support proposition.
793.	127	The CDUA referenced 4 historic properties in the vicinity of the TMT Observatory, 2 historic properties in the vicinity of the Batch Plant, and 6	Not supported by the reliable, probative and substantial evidence. Unsupported/Unsubstantiated Inaccurate/false. No historic properties are known to be present in the Batch Plant

		historic properties in the Hale Pohaku area. (Ex. R-1/B.30, CDUA, p. 4-1, 4-3, 4-5)	Staging Area and none has been recorded during various surveys. Ex. A-1 at 4-3.
794.	127	Site 16169 was identified in the FAIS-AP as a shrine with a single row of two uprights. (Ex. A-55, FAIS-AP, p. 5-11, 5-12)	Not in dispute.
795.	128	Site 21447 was identified in the FAIS-AP as a shrine with a single upright. (Ex. A-55, FAIS-AP, p. 5-14)	Not in dispute.
796.	128	PCSI assigned the function of Marker to cultural resources Nos. 1997.07, 2005.03, 2005.05, & 2005.09 that were described as stacked rocks. (Ex. A-55, FAIS-AP, p. 5-20)	Not in dispute.
797.	128	PCSI assigned the function of Unknown to cultural resources Nos. 2005.06, 2005.07, & 2005.08 that were described as upright(s). (Ex. A-55)	Not in dispute.
798.	128	Figure 5.1 in the Pacific Consulting Services Inc. (PCSI) AIS (Exhibit B.02m) includes sites that were not noted in Figure 4.1 of the CDUA. (Tr. 01/25/2017, Peter Mills, Vol 30 p. 77-80). Rather than simply reproducing the map from the PCSI report, a decision was made to remove the find spots and zoom into the specific footprint of the TMT, and consequently many fewer sites are represented in the CDUA map, despite the fact that PCSI is cited as the source of the map. (Tr. 01/25/2017, Peter Mills, Vol 30 p. 96:11-20)	Not credible. See, UH-TIO FOF 559, 757. Unsupported/Unsubstantiated. Not supported by the reliable, probative and substantial evidence.
799.	128	The confidence level of archaeologists in assigning functions to many of the sites and component features varies. (Ex. A-55, FAIS-AP, p. 4-4)	Vague/Ambiguous/Irrelevant, except as to quoted exhibit.
800.	128	"No universally accepted definitions of site and feature exist in Hawaiian archaeology, and it is unlikely that any ever will because of the architectural complexities of the archaeological landscape in many areas of the Hawaiian Islands, and the different perspectives that archaeologists hold on how the archaeological landscape should be observed and recorded." (Ex. A-55, FAIS-AP, p. 4-3)	Not in dispute as to quote in exhibit.
801.	128	"While sites and features can be easily described in terms of formal attributes, there is in reality no dichotomy between form and function, since function is inferred from form,..." (Ex. A-55, FAIS-AP, p. 4-3, 4-4)	Not in dispute as to quote in exhibit.
802.	128	Archaeological classifications are not immutable. They may require revision. (Ex. A-55, FAIS-AP, p. 4-3)	Not in dispute as to reference in exhibit.
803.	128	Due to the uncertainty of archaeologists, a number of sites in the MKSR	Citation does not support the proposition.

804.	129	have not been accurately identified and/or their functions are listed as Unknown. (Ex. A-133, DAIS-MKSR, Appendix E)	Citation does not support the proposition.
		Where conflict began was when the KECK 1 & 2, SMA and Subaru projects were being proposed...I realized the landscape was being taken over; really taken over. (K. Pisciotto, 11, 2011 Ex B.01a WDT, p. 9 dated June 28, 2011, re-submitted October 11, 2011)	Not supported by the reliable, probative and substantial evidence.
805.	129	It was one thing to have some of the telescopes up there scattered here and there, because the landscape was still the dominant feature and all of the beauty surrounding you still swept you up even with the telescopes on some of the tops of the pu`u. (K. Pisciotto, Ex B.01a WDT, p. 9 dated June 28, 2011)	Citation does not support proposition.
806.	129	Today the cumulative impact of all of the observatories is overwhelming and is an adverse, significant and substantial impact to open space and natural beauty characteristics. The TMT project and associated infrastructure will without question increase this impact-and this is unacceptable. (K. Pisciotto, B.01a WDT, p. 9)	Citation does not support proposition. See UH-TIO FOF 118-165, 304-330.
807.	129	Existing development on the summit is causing adverse impacts and significant obstructions to the life forces that flow into these islands through this piko. (Ex. G-1, E. Flores WDT, p. 8).	Citation does not support proposition. See UH-TIO FOF 118-165, 304-330.
808.	129	For comparison, the Jewish people go to the Wailing Wall--the Temple is not there but they still go to the wall---in order to recognize the Temple--you can't partition off your beliefs and your practice of this belief. Mauna Kea is the environment of our belief--just like the Wailing Wall still represents the temple, which represents the Jewish people's beliefs. And what we see from Mauna Kea, from atop there and across there--like from Pu`u to Pu`u or ahu to ahu are all a part of our beliefs. When this environment is destroyed we wail--just as the Jewish people mourn at their wailing wall--and we mourn with them because we feel their pain too. (P. K. Neves, June 28, 2011, B.18a WDT, p. 4)	Unsupported/Unsubstantiated. Testimony regarding Jewish religious traditions and beliefs not in evidence. Not supported by the reliable, probative and substantial evidence. The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of

809.	129	We mourn the loss of the Temple--but we don't want to have to mourn the loss of this temple known as Mauna Kea--we want to rejoice in the Creator's creation and in Akua's beauty. This is how our rights are negatively impacted because they destroy the very environment of our spirituality and beliefs, we lose the landscape which we use to perform these ceremonies of Aloha and Peace. (P. K. Neves, June 28, 2011, b.18a WDT, p. 4)	the belief is factual. Unsupported//Unsubstantiated. There was no evidence demonstrating a need to conduct or participate in religious ceremonies on the proposed TMT Project site. <i>See</i>, UH-TIO FOF 363. The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of the belief is factual. There is no reliable probative and substantial evidence that her or the referenced practices are within the bundle of rights protected by Article XII, Section 7 of the Hawaii State Constitution. Citation does not support the proposition. Unsupported/Unsubstantiated. <i>See</i> UH-TIO FOF 611-774. There is no reliable probative and substantial evidence that her or the referenced practices are within the bundle of rights protected by Article XII, Section 7 of the Hawaii State Constitution. Citation does not support the proposition. Unsupported/Unsubstantiated. <i>See</i> UH-
810.	130	The University maintains that they have right to determine what of modern practice is appropriate or not. What the University is not addressing is the "reasonable exercise" of our traditional cultural practices. Affirming the continuation of traditional and cultural practice is useless if there are no actual protections provided for practitioners to continue their practices. University obstructs our practice regularly, and the BLNR has taken no affirmative stand to correct this problem. (K. Pisciotto, B.01a WDT, p. 9)	Citation does not support the proposition. Unsupported/Unsubstantiated. <i>See</i> UH-TIO FOF 611-774. There is no reliable probative and substantial evidence that her or the referenced practices are within the bundle of rights protected by Article XII, Section 7 of the Hawaii State Constitution. Citation does not support the proposition. Unsupported/Unsubstantiated. <i>See</i> UH-
811.	130	Digging into the sacred landscape not only impacts us directly by changing the landscape that our practices rely on but it impacts us indirectly as well, because our house of prayer and worship is being destroyed for a purpose	Citation does not support the proposition. Unsupported/Unsubstantiated. <i>See</i> UH-

		not related to our practice. The burial ground of our most sacred ancestors is being destroyed and desecrated. (K. Pisciotta, B.01a WDT, p. 13-14)	TIO FOF 611-774. The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of the belief is factual. There is no reliable probative and substantial evidence that her or the referenced practices are within the bundle of rights protected by Article XII, Section 7 of the Hawaii State Constitution. Citation does not support the proposition. Unsupported/Unsubstantiated. See UH-TIO FOF 611-774. The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of the belief is factual. Citation does not support the proposition. Unsupported/Unsubstantiated. See UH-TIO FOF 611-774. Religious practices of other faiths not in
812.	130	The concerns many Hawaiian people have over more and more development of Mauna Kea is not hard to understand when you place Mauna Kea in the context of other religious places. (K. Pisciotta, B.01a WDT, p. 13)	
813.	130	Even if other sacred sites around the world were good sites for astronomy it is not likely that astronomy proponents would consider proposing what they are for Mauna Kea. For example, observatories are not being proposed or built on top of Mount Fuji, because it is a place of national importance and because it is held in spiritual reverence by the people of Japan. No one has proposed to level Mecca or Mount Sinai either. Would	

		not the worshippers of Islam be upset if the dome of the rock was being leveled to put observatories on it? Or would not the Catholic people be upset if the Vatican was going to be taken down so a McDonalds or a bunch of unrelated developments could sit there instead? (K. Pisciotto, B.01a WDT, p. 13)	evidence. The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of the belief is factual.
814.	130	I believe the respective worshipper of those various religions would be very upset at the proposition of destruction of their holy sites. It is no different for Hawaiians. (K. Pisciotto, B.01a WDT, p. 13-14)	Citation does not support the proposition. The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of the belief is factual. Unsupported/Unsubstantiated. See UH-TIO FOF 611-774.
815.	130	We have a right to practice in the environment of our belief, and the landscape of Mauna Kea is the environment of our belief. (Ex B.01a K. Pisciotto, WDT, p. 11)	Citation does not support the proposition. See UH-TIO FOF 611-774. There is no reliable probative and substantial evidence that her or the referenced practices are within the bundle of rights protected by Article XII, Section 7 of the Hawaii State Constitution.
816.	131	The telescopes are man's destruction of Creator's place--a place created for man to come to and be pili to the heavenly realm--close to Akua's beauty and Aloha. (P. K. Neves, B.18a WDT, p. 4)	Unsupported/Unsubstantiated. See UH-TIO FOF 611-774.
817.	131	The idea of previously disturbed--disturbance is Hehi ana-, which means to	Not credible.

		trample--trample on a covenant--a covenant is a holy agreement--sacred agreement--a religious agreement between Akua and yourself--to use that word is to say the land is being trampled upon--but here and now it mean over and over and over again! Every time --building on Mauna Kea--we feel the `Aina being trampled upon--and our covenant assaulted--Aloha `Aina is assaulted. (P. K. Neves, B.18a WDT, p. 4)	Unsupported/Unsubstantiated. See UH-TIO FOF 611-774. The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of the belief is factual.
818.	131	I think in the end the problem is not with astronomy it is that astronomy is trying to do its work in our house of prayer, and in a conservation district, which is for protecting the cultural, and natural resources, the very delicate life forms that live there and where the waters that give us all life flow from. (P.K. Neves, B.18a WDT, p. 5)	Irrelevant/Inapplicable. The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of the belief is factual. There is no reliable probative and substantial evidence that her or the referenced practices are within the bundle of rights protected by Article XII, Section 7 of the Hawaii State Constitution. Not credible. Unsupported/Unsubstantiated. See UH-TIO FOF 611-774. The fact that certain individuals may hold and/or express such religious or spiritual
819.	131	The observatories have impacted these things and this unacceptable. The TMT is going to impact the sacred nature of Mauna Kea and it simply does not meet the criteria (eight criteria) that the rules require and therefore this project should not be approved by BLNR. (P. K. Neves, B.18a WDT, p. 5)	

			beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of the belief is factual.
820.	131	The BLNR is supposed to protect all of these things including our simple ability to practice our cultural and religious practice—yet for all these years BLNR has just been turning a blind eye to Mauna Kea—to our pleas for help with protecting Mauna Kea... The problem is more serious because we fear it will set a negative precedent—because if they can do this to Mauna Kea and Haleakala what other Conservation Districts can they do it to? (P. K. Neves, B.18a WDT, p. 5)	There is no reliable probative and substantial evidence that her or the referenced practices are within the bundle of rights protected by Article XII, Section 7 of the Hawaii State Constitution. Not credible.
821.	131	The issues surrounding Mauna Kea are policy issues and they challenge the very foundation of the land use laws in our state. (P. K. Neves, B.18a WDT, p. 5)	Unsupported/Unsubstantiated. See UH-TIO FOF 611-774. Not supported by the reliable, probative and substantial evidence. Not credible.
822.	131	We have been asking BLNR to take a hard look for more than a decade now—so my question is this—when is enough really enough? We already won our previous case in court—that was when BLNR was supposed to re-think their responsibilities, but yet here we are again doing yet another contested case hearing-over virtually the same issues all over. This needs to stop—it is not fair to make the citizens carry all of the legal battle just to get BLNR to do what they are required by law to do. (P. K. Neves, B.18a	Not supported by the reliable, probative and substantial evidence. Unsupported/Unsubstantiated. Irrelevant/Inapplicable Irrelevant/Inapplicable. See UH-TIO FOF 611-774.

823.	132	WDT, p. 5) [W]hen the land, the waters, the life forms suffer, we feel this suffering, the process of creation begins to un-ravel and de-creation begins. The law, the kanawai is broken. We lose our place in time and space and then we are lost. (Ex B.01a. Pisciotta, WDT, p. 1)	Citation does not support the proposition. See UH-TIO FOF 611-774. Irrelevant/Inapplicable.
824.	132	This is why we stand for Mauna Kea. It is our kuleana to stand, our collective kulena, it is our honor to stand, our collective honor, it is our blessing to stand, our collective blessings...today however, there is sorrow, collective sorrow because we know not how else to live, not in destruction, not in the absence of its nature, the sacred nature. In Aloha all are blessed and that is all we know. Aloha Ke Akua, Na Akua, Na `Aumakua. (Ex B.01a. K. Pisciotta, WDT, p. 1)	Citation does not support the proposition. See UH-TIO FOF 611-774. Irrelevant/Inapplicable.
825.	132	To be clear, many people, including myself have been practicing traditional and customary cultural and religious practices since the eighties and long before the University even created the Office of Mauna Kea Management in their 2000 Master Plan. It can be said that we are some of the most obvious practitioners, as we have been very outspoken and have worked hard to actually help the University and BLNR to consider how to better protect the sacred nature and properties of Mauna Kea. (Ex B.01a. K. Pisciotta, WDT, p. 9)	Citation does not support the proposition. See UH-TIO FOF 611-774. Irrelevant/Inapplicable.
826.	132	Many of our ceremonial things such as our ahu (shrines) and lele (ceremonial platforms) - areas used by many other practitioners and people that come to offer prayers and give offerings - have been desecrated and destroyed by the University's own personnel. (Ex B.01a K. Pisciotta, WDT, p. 9)	Citation does not support proposition. See UH-TIO FOF 611-774. Unsupported/Unsubstantiated.
827.	132	For example, in the case of my family ahu it was one thing to have it destroyed once, but since that time it has continued to be desecrated and destroyed on at least seven separate occasions and I can prove at least three of the incidents directly involved University personnel. (Ex B.01a K. Pisciotta, WDT, p. 9)	Citation does not support the proposition. See UH-TIO FOF 611-774. Irrelevant/Inapplicable.
828.	132	In fact, the last ahu we made (that is Ms. Keomailani Von Gogh, Mr. Paul K. Neves and I made together) was not to be found on June 18, 2011. My Auntie's burial remains were desecrated at this site also, as she requested	Citation does not support the proposition. See UH-TIO FOF 611-774.

		that she be brought there after her passing. (See Exhibit B.01v, a picture of my family stone, with me in the picture for context) (Ex B.01a K. Pisciotta, WDT, p. 9)	Irrelevant/Inapplicable.
829.	133	Their eyes upon you, their lessons learned, their requests fulfilled, their blessing given. (Ex B.01a K. Pisciotta, WDT, p. 1)	Irrelevant/Inapplicable. See UH-TIO FOF 611-774.
830.	133	Places like Mauna Kea that allow us to practice and connect culturally and spiritually to our ancestors help Hawaiians and others find that quiet, spiritual connection that allows for healing that must occur and can only occur in places that hold that kind of reverence. (Tr. 01/24/2017, Dr. Maile Taualii, Vol. 29 p. 68:9-14)	Not credible. Dr. Taualii is not a practitioner on the summit of Mauna Kea. See, e.g., UH-TIO FOF 760.
831.	133	Observatory construction has resulted in the moving of more than 10,000 cubic yards of material, grading and flattening of Kukahau'ula ridges, and placement of man-made structures on Kukahau'ula, affecting views to and from the summit. The development of observatories within the Astronomy Precinct substantially altered the appearance of the summit, and the presence of observatories continues to affect the performance of the religious and cultural practices. (Ex. A005 FEIS V3 p. 3-214)	Citation does not support the proposition. There is no reliable probative and substantial evidence that her or the referenced practices are within the bundle of rights protected by Article XII, Section 7 of the Hawaii State Constitution.
832.	133	For Neves other practitioners maintaining these protocols our role there is not to put up a flag like Columbus. Our role there is not to claim it for us. Our role there is to keep the window of prayer open to Akua, and to ensure and also to give responsibility to those who go and offer prayer that their prayer is pono, it has integrity. It's precious. (Tr. 01/31/2017, Paul K. Neves, Vol. 33 p. 160:18-25)	Irrelevant/Inapplicable. See UH-TIO FOF 611-774. The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of the belief is factual. There is no reliable probative and substantial evidence that her or the referenced practices are within the bundle of rights protected by Article XII, Section 7 of the Hawaii State Constitution.

833.	133	Damage of a holy place or object or to treat a holy place or object with disrespect to be irreverent or outrageous to violate sanctity of a shrine, cemetery or burial "that definition fits my description". (Tr. 01/24/2017, Dr. Maile Taulii, V.29 p. 43:2-6)	Irrelevant/Inapplicable. Not credible. <i>See, e.g., UH-TIO FOF 942-947.</i>
834.	133	Whichever of the two Access Way options that is chosen will skirt the lowest edge of SIHP # 50-10-23-21438 at approximately the 13,400-foot contour approximately 400 feet below the 13,796 foot summit of the historic property. The Access Way will have an adverse physical impact to this lowest westernmost portion of the historic property. (Ex. A005, FEIS V3, p. G-57)	Misleading. Presented out of context. The TMT Access Way's physical and visual impacts have been directly mitigated. <i>See, e.g., UH-TIO FOF 309.</i>
835.	134	The proposed project would decrease the suitability of the northern plateau area for spiritual observances and offerings. (Ex. R-3/B.32, page 3-27)	Misrepresentation. Misleading. Partial quotation. The full quote reads: To some individuals, the Project could represent a decrease in the suitability of the northern plateau area for spiritual observances and offerings. However, this would not result in a substantial adverse impact on the cultural practices of the community or State. Ex. A-3/R-3 at 3-27. There is no reliable probative and substantial evidence that her or the referenced practices are within the bundle of rights protected by Article XII, Section 7 of the Hawaii State Constitution.
836.	134	The project is anticipated to result in additional impacts to cultural practices and beliefs. Cultural practices would be precluded in the 6.2 acres occupied by the TMT Observatory and Access Way. (Ex. R-3/B.32, page 3-28)	Misrepresentation. Misleading. Partial quotation. The full quote reads: Within the context of the existing conditions, specifically the presence of eleven existing observatories

		within the summit region, the Project is anticipated to result in additional impacts to cultural practices and beliefs for some, but not all, individuals. <i>See</i> UH-TIO FOF 611-774. There is no reliable probative and substantial evidence that her or the referenced practices are within the bundle of rights protected by Article XII, Section 7 of the Hawaii State Constitution. Misrepresentation. Misleading. Partial quotation. The full quote reads: In addition, for some individuals, the introduction of new elements associated with the Project in the area of the northern plateau would adversely affect the setting in which such practices take place. <i>See</i> UH-TIO FOF 611-774. There is no reliable probative and substantial evidence that her or the referenced practices are within the bundle of rights protected by Article XII, Section 7 of the Hawaii State Constitution. Unsupported/Unsubstantiated. There was no evidence demonstrating a need to conduct or participate in religious ceremonies on the proposed TMT Project site. <i>See</i>, UH-TIO FOF 363.
837.	134	In addition, the introduction of new elements associated with the project in the area of the northern plateau would adversely affect the setting in which such practices could take place as well as a decrease the suitability of the northern plateau area for spiritual observances and offerings. (Ex. R-3/B.32, page 3-26, 3-27)
838.	134	We mourn the loss of the Temple--but we don't want to have to mourn the loss of this temple known as Mauna Kea--we want to rejoice in the Creator's creation and in Akua's beauty. This is how our rights are negatively impacted because they destroy the very environment of our spirituality and beliefs, we lose the landscape which we use to perform these ceremonies of Aloha and Peace. (Ex. B.18a, Neves WDT, p. 4)

		The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of the belief is factual. There is no reliable probative and substantial evidence that her or the referenced practices are within the bundle of rights protected by Article XII, Section 7 of the Hawaii State Constitution. Citation does not support the proposition. Unsupported/Unsubstantiated. See UH-TIO FOF 611-774. The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of the belief is factual. There is no reliable probative and substantial evidence that her or the referenced practices are within the bundle of rights protected by Article XII, Section 7 of the Hawaii State Constitution. Irrelevant/Inapplicable.
839.	134	Digging into the sacred landscape not only impacts us directly by changing the landscape that our practices rely on but it impacts us indirectly as well, because our house of prayer and worship is being destroyed for a purpose not related to our practice. The burial ground of our most sacred ancestors is being destroyed and desecrated. (Ex.B.01a, K. Pisciotta WDT, p. 13-14)
840.	134	The telescopes are man's destruction of Creator's place--a place created for man to come to and be pili to the heavenly realm--close to Akua's beauty

		and Aloha. (Ex. B.18a, Neves WDT, p. 4)	The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of the belief is factual. There is no reliable probative and substantial evidence that her or the referenced practices are within the bundle of rights protected by Article XII, Section 7 of the Hawaii State Constitution. Unsupported/Unsubstantiated. See UH-TIO FOF 611-774. Not credible. Unsupported/Unsubstantiated. See UH-TIO FOF 611-774. See UH/TIO response to FOF #817. Unsupported/Unsubstantiated. There is no reliable probative and substantial evidence that her or the referenced practices are within the bundle of rights protected by Article XII, Section 7 of the Hawaii State Constitution. Irrelevant/Inapplicable. See UH-TIO FOF 611-774.
841.	134	The idea of previously disturbed--disturbance is Hehi ana-, which means to trample--trample on a covenant--a covenant is a holy agreement--sacred agreement--a religious agreement between Akua and yourself--to use that word is to say the land is being trampled upon--but here and now it mean over and over and over again! Every time --building on Mauna Kea--we feel the `Aina being trampled upon--and our covenant assaulted--Aloha `Aina is assaulted. (Ex. B.18a, Neves WDT, p. 4)	
842.	135	Such development on Mauna Kea is desecration--in Hawaiian the word for desecration is Hauna `eli--which means also to be in contempt of court . But on Mauna Kea is means to have contempt for Akua's court--Akua's law (the Kanawai) which is codified in the `Aina. (Ex. B.18a, Neves WDT, p. 4)	

843.	135	The observatories have impacted these things and this unacceptable. The TMT is going to impact the sacred nature of Mauna Kea and it simply does not meet the criteria (eight criteria) that the rules require and therefore this project should not be approved by BLNR. (Ex. B.18a, Neves WDT, p. 5)	Lack of Jurisdiction. <i>See</i> UH-TIO COL 392-407. Unsupported/Unsubstantiated. UH/TMT has demonstrated how TMT satisfies all eight criteria contained in HAR § 13-5-30(c). <i>See, e.g.,</i> UH-TIO FOF 348. The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of the belief is factual.
844.	135	The BLNR is supposed to protect all of these things including our simple ability to practice our cultural and religious practice—yet for all these years BLNR has just been turning a blind eye to Mauna Kea—to our pleas for help with protecting Mauna Kea...The problem is more serious because we fear it will set a negative precedent—because if they can do this to Mauna Kea and Haleakala what other Conservation Districts can they do it to? (Ex. B.18a, Neves WDT, p. 5)	Unsupported/Unsubstantiated. UH/TMT has demonstrated how TMT satisfies all eight criteria contained in HAR § 13-5-30(c). <i>See, e.g.,</i> UH-TIO FOF 348. The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of the belief is factual. Citation does not support the proposition. The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute.
845.	135	When the land, the waters, the life forms suffer, we feel this suffering, the process of creation begins to unravel and de-creation begins. The law, the kanawai is broken. We lose our place in time and space and then we are lost. (Ex. B.01a, Pisciotto WDT, p. 1)	Citation does not support the proposition. The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute.

			There is no reliable probative and substantial evidence that the substance of the belief is factual. There is no reliable probative and substantial evidence that her or the referenced practices are within the bundle of rights protected by Article XII, Section 7 of the Hawaii State Constitution. Irrelevant/Inapplicable.
846.	135	Many of our ceremonial things such as our ahu (shrines) and lele (ceremonial platforms) - areas used by many other practitioners and people that come to offer prayers and give offerings - have been desecrated and destroyed by the University's own personnel. (Ex. B.01a, Pisciotto WDT, p. 9)	Citation does not support the proposition. Not supported by the reliable, probative and substantial evidence. Unsupported/Unsubstantiated. See UH-TIO FOF 611-774.
847.	135	For example, in the case of my family ahu it was one thing to have it destroyed once, but since that time it has continued to be desecrated and destroyed on at least seven separate occasions and I can prove at least three of the incidents directly involved University personnel. (Ex. B.01a, Pisciotto, WDT, p. 9)	Citation does not support the proposition Unsupported/Unsubstantiated. See UH/TIO response to FOF #827. See UH-TIO FOF 611-774.
848.	136	In fact, the last ahu we made (that is Ms. Keomailani Von Gogh, Mr. Paul K. Neves and I made together) was not to be found on June 18, 2011. My Auntie's burial remains were desecrated at this site also, as she requested that she be brought there after her passing. (See Exhibit C-7, a picture of my family stone, with me in the picture for context) (Ex. B.01a, Pisciotto WDT, p. 9)	Citation does not support the proposition. Unsupported/Unsubstantiated. See UH-TIO FOF 611-774. See also UH/TIO response to FOF # 828.
849.	136	The World Health Organization defines health as the physical, mental,	Irrelevant/Inapplicable.

		social well-being and not merely the absence of disease or infirmity. (Tr. 01/24/2017, Dr. Maile Taualii, Vol. 29 p. 67:7-12)	
850.	136	As the 1993 Apology Resolution correctly recognizes, "the health and well-being of the Native Hawaiian people is intrinsically tied to their deep feelings and attachment to the land[.]" (Joint Resolution, U.S. Public Law 203-150).	Not in evidence. Irrelevant/Inapplicable. Lack of jurisdiction.
851.	136	Dr. Taualii, in direct reference to Criteria 8, stated that all her research shows that the TMT is the direct opposite of meeting the criteria for health safety and welfare. (Tr. 01/24/2017, Dr. Maile Taualii, Vol. 29 p. 116:20-25	Not credible. Dr. Taualii's testimony is insufficient to support a finding that the TMT Project will have materially detrimental impacts on the physical health of Native Hawaiians, or the general public. <i>See, e.g.</i> , UH-TIO FOF 942-947.
852.	136	Research showed that people had many poor health outcomes directly related to their sacred places. This included mental, emotional as well as physical effects. (Tr. 01/24/2017, Dr. Maile Taualii, Vpl. 29 p. 13:5-10)	Not supported by the reliable, probative and substantial evidence. Unsupported/Unsubstantiated. Dr. Taualii's research was limited in scope and tainted by her own personal bias. <i>See, e.g.</i> , UH-TIO FOF 942-947.
853.	136	People are fundamentally built like the aina. It's about pono alignments - or righteousness. (Tr. Jan. 10, 2016, Laulani Teale, Vol 24, p. 154:22-25, p. 155:1-5.)	Not supported by the reliable, probative and substantial evidence. Irrelevant/Inapplicable. <i>See</i> UH-TIO FOF 937-1000.
854.	136	Well being includes mind, body, and spirit. (Tr. Jan. 10, 2016, Laulani Teale, Vol 24, p.155: 9-11)	Irrelevant/Inapplicable. <i>See</i> UH-TIO FOF 937-1000.
855.	136	Beauty from a cultural perspective, is not an arbitrary term, but, "not only in the eyes of the beholder; it's in the eyes of the great beholder of all." (Tr. Jan. 10, 2016, Laulani Teale, Vol 24, p.155:13-22)	Irrelevant/Inapplicable.
856.	136	Nature is our first teacher about beauty. (Tr. Jan. 10, 2016, Laulani Teale, Vol 24, p.157:19-23)	Irrelevant/Inapplicable.

857.	137	Aloha is codified in Hawaii law HRS 5-7.5 the Aloha Spirit Law. (Tr. Jan. 10, 2016, Laulani Teale, Vol 24, p.160:7-16)	Irrelevant/Inapplicable.
858.	137	La'au practitioners cannot use any plant, water or mineral that has any amount of contaminants in it. An important part of this kind of healing is having faith and prayer that the healing will go right. (Tr. Jan. 10, 2016, Laulani Teale, Vol 24, p.172:17-25, p.173:1-5)	Irrelevant/Inapplicable. See UH-TIO FOF 611-774.
859.	137	Ho'opae Peace Project helped with the writing and delivery of a petition for the protection of Mauna Kea. The petition had about 66,000 signatures. (Tr. Jan. 10, 2016, Laulani Teale, Vol 24, p.174:22-25, p 175:1-21)	Irrelevant/Inapplicable.
860.	137	The petition was based on the Desecration Law HRS 711-1107. (Tr. Jan. 10, 2016, Laulani Teale, Vol 24, p.175:18-22)	Irrelevant/Inapplicable. Not credible. Lack of jurisdiction.
861.	137	125 people filed complaints of desecration on Mauna Kea. They were filed with the DLNR. There was no response or action taken by DOCARE OR DLNR. (Tr. Jan. 10, 2016, Laulani Teale, Vol 24, p.176:1-25, p.177: 1-25)	See UH-TIO COL 392-407. Unsupported/Unsubstantiated.
862.	137	You're relying on a system to protect you. And when it fails and you feel a constant sense of loss and hopelessness, that is actually in the causal model associated with health assimilation and colonization and harm effects lead to hopelessness, loss of identity and those things also lead to the poor health outcome. When you believe that law is set in place to protect you and if it doesn't it can create a sense of loss and hopelessness that can lead to poor health outcomes. (Tr. 01/24/2017, Dr. Maile Taualii, Vol. 29 p. 46:23-25; p 47:1-11)	Irrelevant/Inapplicable. See UH-TIO COL 937-1000.
863.	137	Indigenous people who feel strongly about fighting for the protection of a place like Mauna Kea experience several physical problems with their	Incomplete.

		health like high stress, heart attack, stroke, lack of sleep etc.due to them putting all their energy into the protection of a sacred place that is so important to the. (Tr. Jan. 10, 2016, Laulani Teale, Vol 24, p.182:1-25, p.183:1-25, p.184:1-8)	Unsubstantiated/Unsubstantiated . The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of the belief is factual. There is no reliable probative and substantial evidence that her or the referenced practices are within the bundle of rights protected by Article XII, Section 7 of the Hawaii State Constitution. <i>See</i> UH-TIO FOF 937-1000.
864.	137	Cross examiner (Kealoha Pisciotto) was interrupted several times by H.O while crossing the witness and told "last question, please." (Tr. Jan. 10, 2016, Laulani Teale, Vol 24, p.183:4-5)	Citation does not support the proposition.
865.	138	She was not objected to by the U.H, TIO, or P.U.E.O. Ms. Pisciotto objected at the end to not being able to finish cross on the witness.	Misrepresentation. Incomplete.
866.	138	Dr. Maile Taulaii's research demonstrates 3 key findings: 1) desecrating sacred spaces impacts cultural identity and health, 2) participation in traditional practices are protective factors against distress, and 3) health disparities of Native Hawaiians cannot be explained by standard determinants of health (e.g. poverty or low education) and that causes, such as forced assimilation are causal factors in poor health outcomes. (Exhibit B.04a at 1; Tr. 11:1-25)	Irrelevant/Inapplicable. Not credible. Dr. Taulaii's research was limited in scope and tainted by her own personal bias. <i>See, e.g.,</i> UH-TIO FOF 942-947. Not supported by the reliable, probative and substantial evidence.
867.	138	Research showed that people had many poor health outcomes directly related to their sacred places. This included mental, emotional as well as physical effects. (Tr. 01/24/2017, Maile Taulaii, Vol. 29, p.13:5-10)	Not credible. Dr. Taulaii's research was limited in scope and tainted by her own personal bias. <i>See, e.g.,</i> UH-TIO FOF 942-

			947.	Not supported by the reliable, probative and substantial evidence.
868.	138	Statistics demonstrating what is going on population wise showed there was a cause of illness in the indigenous populations that is related to the only thing that is common among those indigenous populations which is forced assimilation and colonization relating now to the experiences of the building of the telescope and the threat on the lives of Native Hawaiian people. (Tr. 01/24/2017, Maile Taualii, Vol. 29, p.14:22-25, p.15:1-2)	Not credible. Dr. Taualii's research was limited in scope and tainted by her own personal bias. <i>See, e.g.,</i> UH-TIO FOF 942-947.	Not supported by the reliable, probative and substantial evidence.
869.	138	It can also happen in the future for those who will be affected by a sacred space being desecrated today that many generations from now that possibility of historical trauma may result as related to construction happening today. (Tr. 01/24/2017, Maile Taualii, Vol. 29, p.34:7-11)	Not credible. Dr. Taualii's research was limited in scope and tainted by her own personal bias. <i>See, e.g.,</i> UH-TIO FOF 942-947.	Not supported by the reliable, probative and substantial evidence.
870.	138	Within Chapter 6E, there are provisions and a process for protecting burial sites and their locations. (Tr. Jan. 19, 2017, Kehaulani Abad, Ph.D., Vol 27 p.41:20-25, p.42:1-2)	Not in dispute.	Not supported by the reliable, probative and substantial evidence.
871.	139	Ch 6-E guides authors of Burial Treatment Plan is being produced, known Lineal and Cultural descendants must be contacted. (Tr. Jan. 19, 2017, Kehaulani Abad, Ph.D., Vol 27 p.38:3-25, p.39:1-25)	Chapter 6E's requirements speak for themselves as to process of consultation.	Not supported by the reliable, probative and substantial evidence.
872.	139	PSCI's recommendation as part of the Cultural Resources Management Plan (CRMP) Section 4.3.2: In view of the documented existence of human burials in the Science Reserve there is a need to develop a burial treatment plan (BTP) to protect all known burial sites. Given the possibility that more human remains will be found inadvertently in the Science Reserve in the future there is also a need to develop an Inadvertent Discovery Plan. (Ex. A-55, FAIS-AP, p. 8-2)	Not in dispute.	Not supported by the reliable, probative and substantial evidence.
873.	139	"Fox Guarding the Henhouse"	Incomplete.	Not supported by the reliable, probative and substantial evidence.
874.	139	As of May 11, 2017, The University of Hawaii for TMT, hadn't submitted	False/Inaccurate. A burial treatment plan	Not supported by the reliable, probative and substantial evidence.

		a burial treatment plan with any of the planning documents, surveys, assessments, OR sub plans including but not limited to, the Final Environmental Impact Statement, , Cultural Resource Management Plan, Natural Resource Management Plan, CDUA, or Comprehensive Management Plan. (Tr. Jan. 19, 2017, Kehaulani Abad, Ph.D., Vol 27 p. 37:24-25, p.38:1-12)	was prepared by PCSI for the entire MKSR and Mauna Kea Access Road Corridor, including the TMT Project site. <i>See, e.g.,</i> UH-TIO FOF 570; Ex. A-138. Not supported by the reliable, probative and substantial evidence.
875.	139	In regard to other archaeologists' observations that burials are in Mauna Kea cinder cones, Professor Mills noted that previous studies have largely utilized pedestrian surveys and "given the active nature of alluvial actions or the movement of sediment downslope, it would be very easy for burials which were exposed in 1892 to no longer be visible on the surface." (Tr. 01/25/2017, Peter Mills, Vol.30 p.20:5-8)	Not credible. <i>See, UH-TIO FOF 559, 757.</i>
876.	139	Not all burials on the summit are cinder-cone related. (Id. at p.20: 9-14)	Citation does not support the proposition Not credible. <i>See, UH-TIO FOF 559, 757</i>
877.	139	The term desecration of sacred spaces as a health issue is considered any form of preventing people from practicing and engaging in that space is held culturally in reverence to the native people. (Tr. 01/24/2017, Maile Taualii, Vol. 29. p.17:10-15)	Not credible. <i>See, e.g., UH-TIO FOF 942-947.</i> Not supported by the reliable, probative and substantial evidence.
878.	140	When a sacred place is destroyed or harmed or something is built on it that is desecration which means that the value in the way native people can interact in that space has been harmed by an outside force that has disrupted their ability to practice traditionally. (Tr. 01/24/2017, Maile Taualii, Vol. 29. p.17:17-18)	Irrelevant/Inapplicable. Not credible. <i>See, e.g., UH-TIO FOF 942-947.</i> Not supported by the reliable, probative and substantial evidence. The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and

			substantial evidence that the substance of the belief is factual.
879.	140	The destruction of lele and ahu on Mauna Kea constituted an injury to Neves "because that's telling me that my beliefs mean nothing to other people." (Tr. 01/31/2017, Paul Neves, Vol. 33, p.174:4-10)	Irrelevant/Inapplicable.
880.	140	If the 'TMT' is built it will continue injuries from other desecration of the mountain, lele, and desecration of Neves as a kumu and a father. (Tr. 01/31/2017, Paul Neves, Vol. 33, p.187:8-20)	Irrelevant/Inapplicable.
881.	140	Another of Neves' practices is to place the lele on the summit of Mauna Kea. (Tr. 01/31/2017, Paul Neves, Vol. 33, p.163:15-16)	Unsupported/Unsubstantiated. See UH-TIO FOF 937-1000.
882.	140	In 2007, Neves and others from the Royal Order celebrated the tenth year of placing the lele at Mauna Kea, which was placed because of the great outcry of Native Hawaiians and to help them offer prayers to stop further development of Mauna Kea. (Tr. 01/31/2017, Paul Neves, Vol. 33, p.164:9-16)	The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of the belief is factual.
883.	140	The lele is also a place for people to leave ho'okupu. (Tr. 01/31/2017, Paul Neves, Vol. 33, p.165: 8-11)	Lack of Jurisdiction. See UH-TIO COL 392-407.
884.	140	Such development on Mauna Kea is desecration--in Hawaiian the word for desecration is Hauna `eli--which means also to be in contempt of court. But on Mauna Kea it means to have contempt for Akua's court--Akua's law (the Kanawai) which is codified in the `Aina. (P. K. Neves, B.18a WDT, p.	Incomplete. See UH-TIO FOF 747.
			Irrelevant/Inapplicable.
			Lack of jurisdiction. See UH-TIO COL 392-407.

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885.	140	Site 16169 was identified in the FAIS-AP as a shrine with a single row of two uprights. (Ex. A-55, FAIS-AP, p. 5-11, 5-12)	Not in dispute.	
886.	140	Site 21447 was identified in the FAIS-AP as a shrine with a single upright. (Ex. A-55, FAIS-AP, p. 5-14)	Not in dispute.	
887.	141	PCSI assigned the function of Marker to cultural resources Nos. 1997.07, 2005.03, 2005.05, & 2005.09 that were described as stacked rocks. (Ex. A-55, FAIS-AP, p. 5-20)	Not in dispute.	
888.	141	PCSI assigned the function of Unknown to cultural resources Nos. 2005.06, 2005.07, & 2005.08 that were described as upright(s). (Ex. A-55)	Not in dispute.	
889.	141	In August 2005, PCSI was contracted by OMKM to undertake an archaeological inventory survey of the Astronomy Precinct, located within the MKSR. (Ex. A-55, FAIS-AP, p. 1-1 & 1-3)	Not in dispute.	
890.	141	The archaeological field survey crew for the Astronomy Precinct and surrounding lands was limited to PSCI co-principal investigators, Patrick McCoy and Dennis Gosser, and staff, Richard Nees and Reid Yamasato. This field survey crew did not include any Native Hawaiian cultural practitioners. (Ex. A-55, FAIS-AP, p. 1-4)	Misrepresentation. Citation does not support proposition that the field survey crew was "limited". Not supported by the reliable, probative and substantial evidence.	
891.	141	"No universally accepted definitions of site and feature exist in Hawaiian archaeology, and it is unlikely that any ever will because of the architectural complexities of the archaeological landscape in many areas of the Hawaiian Islands, and the different perspectives that archaeologists hold on how the archaeological landscape should be observed and recorded." (Ex. A-55, FAIS-AP, p. 4-3)	Not in dispute.	
892.	141	"While sites and features can be easily described in terms of formal attributes, there is in reality no dichotomy between form and function, since function is inferred from form..." (Ex. A-55, FAIS-AP, p. 4-3, 4-4)	Not in dispute.	
893.	141	Archaeological classifications are not immutable. They may require revision. (Ex. A-55, FAIS-AP, p. 4-3)	Not in dispute.	
894.	141	"Find spots" nominate sites that are potentially culturally important and may include sites that are less than fifty years old. (Tr. 01/25/2017, Peter	Incomplete. "Find spots" are cultural resources that are either obviously modern	

		Mills, Vol.30. p.25:12-22)	features or features that cannot be classified with any level of confidence as historic sites because of their uncertain age and function. Ex. A-55 at 5-20.
895.	141	Just because modern material are found in an area does not immediately remove the site from the realm of ritual practice. (Id., at 68:18-20)	Citation does not support the proposition.
896.	142	Modern ritual practices on Mauna Kea need to be considered within the scope of a cultural impact assessment. (Tr. 01/25/2017, Peter Mills, Vol.30. p.26: 22-25)	Not supported by the reliable, probative and substantial evidence.
897.	142	A 1997 SHPD reconnaissance survey began the process of recording what were initially referred to as "locations" but are now being termed "find spots" – a general term referring to man-made remains that are either obviously modern features or features that cannot be classified by archaeologists with any level of confidence as historic sites because of their uncertain age and function. (Ex. A-55, FAIS-AP, p. 3-10)	Not in dispute.
898.	142	[E]very time information is omitted, we have less context for what we're trying to interpret." (Tr. 01/25/2017, Peter Mills, Vol.30. p.24:4-6)	Vague/Ambiguous/Irrelevant, except as to quoted exhibit.
899.	142	The TMT CDUA omitted a number of "find spots" and even sites (SIHP - 1619 and -21447) that are identified within the UH managed areas of the Mauna Kea summit. Exh. B.12a at 2. "Find spots" are cultural resources. (Ex. A-55, FAIS-AP, p. 5-20)	quoted exhibit.
900.	142	Cultural resources in the MKSR need to be considered in developing appropriate management strategies. (Ex. R-1/B.30, CDUA, p. C-4)	Irrelevant/Inapplicable.
901.	142	Figure 3.7: Historic Properties, Traditional Cultural Properties, and Find Spots identified the locations of the find spots in the MKSR. (Ex. A-55, FAIS-AP, p. 3-12)	False/Inaccurate. Referring to Exhibit R-1, Page 4-2, Figure 4.1, site 16169 is shown and was not omitted from the CDUA. 21447 is also included in Figure 4.1. 21447 is identified in a list in the FEIS and the FEIS is incorporated in the CDUA. Tr. 1/25/17 at 149:9-154:9.
902.	142	The confidence level of archaeologists in assigning functions to many of the sites and component features varies. (Ex. A-55, FAIS-AP, p. 4-4 0)	Not in dispute.
			Vague/Ambiguous/Irrelevant, except as to quoted exhibit.

903.	142	The elevated harm due to the fact that one is unable or prohibited from practicing their religious faith and spiritual practices harms the bodies in many physical ways as well as mental ways. Desecration of the sacred can affect one's ability to not be able to function on a daily basis and also not to be able to function as a whole as native people. (Tr. 01/24/2017, Maile Taulii, Vol. 29 p.18:18-25, p.19:1-2)	Unsupported/Unsubstantiated. Not supported by the reliable, probative and substantial evidence. Not credible. Dr. Taulii's research was limited in scope and tainted by her own personal bias. <i>See, e.g.,</i> UH-TIO FOF 942-947.
904.	143	Some of the worst and gravest health effects including strokes, heart attacks and even death have occurred to people who identified themselves as having kuleana and stewardship to engage respect and hold those sacred places. (Tr. 01/24/2017, Maile Taulii, Vol. 29 p.21: 11-14)	Unsupported/Unsubstantiated. Not supported by the reliable, probative and substantial evidence. Not credible. Dr. Taulii's research was limited in scope and tainted by her own personal bias. <i>See, e.g.,</i> UH-TIO FOF 942-947.
905.	143	The Applicant requires people to depart the summit region shortly after sunset, (Emphasis Added) (Ex. AOO3/R-3, TMT FEIS Section 3.16 Cumulative Impacts, p. 3-213)	Citation does not support the proposition False/Inaccurate.
906.	143	"Locally generated contributors to air pollution above the inversion level include vehicle exhaust, chemical fumes from construction and maintenance activities, and fugitive dust from various sources, including vehicles traveling on unpaved surfaces and road grading and construction or other activities conducted on unpaved areas. Rapid dispersion of pollutants is aided by strong winds." (Ex R-3/B.32FEIS, p. 3-182)	Incomplete. <i>See</i> UH-TIO FOF 433-464. Misleading. Presented out of context. FOF fails to demonstrate how this relates to the TMT Project. The FEIS goes onto conclude that "the impact of the Project on air quality and the climate will be less than significant." Ex. A-3/R-3 at 3-185. The TMT Project will not result in significant noise related impacts. UH-TIO FOF 978-986.

			Misleading. Partial quotation. Quoted language is preceded by the following statement: “Air quality monitoring has been performed at the Mauna Loa Observatory at an elevation of approximately 11, 140 feet since its construction in 1956. This monitoring station provides data most representative of the conditions at Maunakea. The data gathered at this station indicate that the air quality at the Mauna Loa Observatory is excellent and in attainment status with State and National Ambient Air Quality Standards (NAAQS). Given the similarities between the two locations (Maunakea and Maunaloa), it has been inferred that the overall air quality at Maunakea is excellent as well.” Ex. A-3/R-3 at 3-182 (emphasis added).
907.	143	Climate modeling predicts that the intensity of warming is positively related to altitude. (Ex B.41 CMP NRMP 2.2.23)	Misleading. Presented out of context. Results from the model are currently under investigation. Ex. A-10 at 2.2-23. Irrelevant/Inapplicable.
908.	143	Increase in CO2 concentration may increase the competitive edge by fast growing invasive species. (Ex B.41 CMP NRMP 2.2-25)	Misleading. Presented out of context. It is not yet possible to accurately predict what will occur on Mauna Kea due to climate change. Ex. A-10 at 2.2-24. Irrelevant/Inapplicable.
909.	143	Threats to Mauna Kea’s air quality and sonic environment primarily revolve around the presence of humans and their levels of activity.	Incomplete. See UH-TIO FOF 433-464.

		Potential future increases in the number of people visiting, working, and recreating at the UH Management Areas may increase the levels of these impacts. (Ex B.41 CMP NRMP p. 2.1-46)	Misleading. Misleading. Presented out of context. See UH-TIO FOF 978 – 983. This Proposed FOF does not address specific impacts of the TMT Project. The FEIS states that “the impact of the Project on air quality and the climate will be less than significant.” Ex. A-3/R-3 at 3-185. The noise impacts from the TMT Project will be less than significant. UH-TIO FOF 978-983; Ex. A-3/R-3 at 3-201 to 203.
910.	143	Applicant does not define “noise sensitive areas.” (Ex R-3/B.32FEIS Section 3.13 Noise p 3-179)	Inaccurate/False. The FEIS provides various descriptions of “noise sensitive” locations, areas, and sites. <i>See, e.g.</i> , Ex. A-3/R-3 at 3-173 (identifying noise sensitive sites near the TMT Project), 3-175 (identifying Kūkahau‘ula as a noise sensitive location), 3-179 (describing all noise sensitive areas located in the summit region); <i>see also</i> , UH-TIO FOF 980. The noise impact from the TMT Project will be less than significant. UH-TIO FOF 978-983.
911.	144	Applicant does not analysis the cultural impacts of noise levels and offers no analysis of noise from culturally significant places like Pu‘u Poliahu. (Ex R-3/B.32FEIS Section 3.13 Noise p 3-179)	Inaccurate/False. Misrepresentation. The TMT Project operations are not expected to cause a significant noise impact, and although no mitigation measures (beyond compliance with applicable regulations are required),

			mitigation measures will be employed. The finding of less than significant impact to noise sensitive areas addresses the cultural impact. Ex. A-3/R-3 at 3-179-180. UH-TIO FOF 978-983.
912.	144	Very little information was found regarding the impact of noise generators on the summit regions. (Ex B.41 CMP NRMP, p. 2.1-46)	False/Inaccurate. <i>See, e.g.,</i> Ex. A-3 at 3-173 to 3-181. Not supported by the reliable, probative and substantial evidence. Misrepresentation. Misleading. Presented out of Context. UH did not concede that "significant" noise would result. Noise impacts from construction will be mitigated through compliance with conditions in Noise Permits and the Noise Variance. Construction noise at the TMT Observatory site is likely to be inaudible from a relatively short distance from the source due to the existing background noise associated with the strong wind conditions at the summit. Ex. A-3/R-3 at 3-203.
913.	144	The Applicant concedes that significant noise would result from construction activities such as excavation, trenching, grading, pouring of foundations, and erection of structures. (Ex R-3/B.32, FEIS, p 3-202)	Misleading. Misrepresentation. The EIS states that proper steps will be taken to ensure that construction complies with all applicable noise regulations. See Ex. A-3/R-3 at 3-
914.	144	Construction of the proposed project would violate noise regulations, such that a noise variance would be required under HAR 11-46-8 for construction of the TMT Observatory. (Ex R-3/B.32, FEIS, p 3-202)	Misleading. Misrepresentation. The EIS states that proper steps will be taken to ensure that construction complies with all applicable noise regulations. See Ex. A-3/R-3 at 3-

915.	144	The Applicant acknowledges the proposed project would generate construction-related noise in the 80-100 dBA range at 50 feet for front-end loaders, backhoes, tractors, scrapers, graders, pavers, trucks, concrete mixers, concrete pumps, cranes, compressors, pneumatic wrenches, jack hammers, and rock drills. Short periods of blasting may also be necessary to dig foundations for the TMT Observatory. (Ex R-3/B.32FEIS, p 3-202)	203. A noise variance would be obtained in connection with noise permits so that construction noise will comply with the variance and permits, and the TMT Project will comply with all variance and permit conditions. Ex. A-3/R-3 at 3-203. Misleading. Presented out of context. UH-TIO clarified that no explosives or blasting will be done to construct the TMT Project. See UH-TIO FOF 283. The sound does not project very far under most conditions. UH-TIO FOF 978. The noise impacts from the TMT Project will be less than significant. Construction noise at the TMT Observatory site is likely to be inaudible from a relatively short distance from the source due to the existing background noise associated with the strong wind conditions at the summit. UH-TIO FOF 978-983; Ex. A-3/R-3 at 3-201 to 203. Incomplete. Misleading/presented out of context to the extent it suggests that the TMT Project will adversely impact customary and traditional practices. There is no reliable probative, substantial and credible evidence or testimony sufficient to establish that any
916.	145	Mauna Kea's cultural and religious significance is well documented in oral and written historical archives, as well as in legislative and court records.	Incomplete. Misleading/presented out of context to the extent it suggests that the TMT Project will adversely impact customary and traditional practices. There is no reliable probative, substantial and credible evidence or testimony sufficient to establish that any

917.	145	Mauna Kea is revered in the same way that other religions revere their churches, temples, synagogues, and mosques. The upper regions of Mauna Kea reside in Wao Akua, the realm of the Akua-Creator. It is considered the Temple of the Supreme Being, and also home of Na Akua (the Divine Deities), Na 'Aumakua (the Divine Ancestors), and the meeting place of Papa (Earth Mother) and Wakea (Sky Father) who are considered the progenitors of the Hawaiian People. Mauna Kea, it is said, is where the Sky and Earth separated to form the Great-Expanse-of-Space and the Heavenly Realms.	cultural or religious practices - whether characterized as contemporary, or customary and traditional - were conducted at the five-acre site on which the TMT Project is proposed to be located. <i>See</i> UH-TIO COL 324-354 (regarding customary and traditional native Hawaiian rights); <i>see also</i> UH-TIO COL 355-382 (regarding religious practices); <i>see also</i> UH-TIO COL 383-385 (regarding contemporary practices). Misleading and presented out of context to the extent it suggests that the TMT Project will adversely impact customary and traditional practices. <i>See</i> UH-TIO COL 324-354 (regarding customary and traditional native Hawaiian rights); <i>see also</i> UH-TIO COL 355-382 (regarding religious practices). The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of the belief is factual. There is no reliable probative and substantial evidence that her or the referenced practices are within the bundle of rights protected by Article XII, Section 7 of the Hawaii State Constitution.
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918.	145	Mauna Kea in every respect represents the zenith of the Native Hawaiian people's ancestral ties to Creation itself.	Unsupported/Unsubstantiated. See UH-TIO COL 324-354; <i>see also</i> UH-TIO COL 355-382. The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of the belief is factual.
919.	145	Mauna Kea, as a Wahi Kapu, is dedicated to life, peace, and Aloha. Anything that is contrary to these mandates impacts the temple and those who worship there. While the Hawaiian (and Polynesian) people's relationship with Mauna Kea dates back many millennia, the Mauna is used by many people today for spiritual practices and recreational enjoyment. What happens to the land and life forms of Mauna Kea impacts us all.	Unsupported/Unsubstantiated as to the proposition that Mauna is used by many people today for spiritual practices and recreational enjoyment. Not credible as to the proposition that what happens to the land and life forms of Mauna Kea impacts us all. Misleading and presented out of context to the extent it suggests that the TMT Project will adversely impact customary and traditional practices. <i>See</i> UH-TIO COL 324-354; <i>see also</i> UH-TIO COL 355-382. Misleading and presented out of context to the extent it suggests that the TMT Project will adversely impact the land and life from of Mauna Kea. <i>See</i> UH-TIO COL 177-217 (regarding impact on existing natural resources); <i>see also</i> UH-TIO COL 227-256 (regarding preservation and

		improvement upon the existing physical and environmental aspects of the land). The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of the belief is factual.
920.	145	Mauna Kea protects all life big and small. When a species becomes extinct, it sets the process of creation unraveling. This impacts our relationship to all living things and our relationships with Akua, Na Akua and Na `Aumakua. Unsupported/Unsubstantiated. Not credible. Misleading and presented out of context to the extent it suggests that the TMT Project will adversely impact customary and traditional practices. <i>See</i> UH-TIO COL 324-354; <i>see also</i> UH-TIO COL 355-382. Misleading and presented out of context to the extent it suggests that the TMT Project will adversely impact the land and life from of Mauna Kea. <i>See</i> UH-TIO COL 177-217 (regarding impact on existing natural resources); <i>see also</i> UH-TIO COL 227-256 (regarding preservation and improvement upon the existing physical and environmental aspects of the land). The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal

921.	146	The legal definition of desecration in Hawai'i is found under HRS Chapter 711-1107, is defined as any act that would cause outrage in a segment of the population. Burials, monuments and places of worship are all specifically named as having special protection against this crime. The penalties for the commission of the crime of desecration, include imprisonment, a substantial fine an or both. There are no exceptions.	impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of the belief is factual. Irrelevant/Inapplicable. Lack of jurisdiction. Misleading/presented out of context. See UH-TIO COL 392-407 (addressing claims of alleged desecration and concluding they are not within BLNR's jurisdiction, are unsupported by any evidence, and are therefore rejected); see also UH-TIO FOF 542, UH-TIO FOF 942-957.
922.	146	Mauna Kea has been and continues to be a place of worship, a burial ground of the highest born and most sacred ancestors (please see EX. B.01q Mauna Kea Anaina Hou/Royal Order of Kamehameha I - Temple Report). Hundreds of sacred sites exist on Mauna Kea , including burial sites of renowned people such as Hawai'i Loa (an ancestor of the Hawaiian people), Lilinoe one the goddess of the Mist who lived also as a human and for whom Kamehameha I was name after), and many of the grandparents (Kupuna) and family of those living today have been laid to rest there. Mauna Kea clearly meets the definition of the HRS Chapter 711-1107 the desecration statute	Irrelevant/Inapplicable. Lack of jurisdiction. Misleading and presented out of context to the extent it suggests that the TMT Project will adversely impact customary and traditional practices. See UH-TIO COL 324-354; see also UH-TIO COL 355-382. Unsupported/unsubstantiated and inaccurate/false to the extent the Proposed COL concludes that the development of the TMT Project constitutes "desecration" under HRS § 711-1107. UH-TIO COL 392-407. The fact that certain individuals may hold

			and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of the belief is factual.
923.	146	This is further evidenced by the fact that 66,528 people signed the Petition to stop the bulldozers and desecration of Mauna Kea. (please see http://www.change.org/p/governor-david-y-ige-stop-tmt-construction-and-arrests-of-mauna-kea-protectors) and 700 to a 1000 Kia'i or Earth Protectors showed up on Mauna Kea to hold back the TMT's bulldozers demonstrates that people felt "outrage" at any threats made to the sanctity or sacred nature of Mauna Kea.	Petition not in evidence. Irrelevant/Inapplicable. Not material. Lack of jurisdiction. Not credible. See UH-TIO COL 392-407; see also UH-TIO FOF 542, 942-957, 991.
924.	146	We wish to clarify also that the actions of the Kia'i were not a form of protest nor an act of civil disobedience because they were not breaking any law and were instead trying to stop the TMT bulldozers from committing a crime (the crime of desecration). We have great respect for Mahatma Gandhi and for his gifts of wisdom to help the people to resist the onslaught of Industrial Revolution and the oppression that followed, such as acts of resistance/civil disobedience in the face of unjust laws. However, in this instant case the law was on our side, in that the courts were in fact in the middle of reviewing the question whether or not BLNR erred in issuing a CDUP for the TMT project prior to conducting a CCH.	Irrelevant/Inapplicable. Not material. Unsupported/Unsubstantiated. Inaccurate/false. UH-TIO COL 392-407; UH-TIO FOF 542, 942-957, 991.
925.	147	The distinction is important because under American jurisprudence the court alone must answer question of law. In <i>Marbury v. Madison</i> , 5 U.S. 137, the court established that it was the province and duty of the judicial department to say what law is. In this case the court had the final say on whether the CDUP issued by BLNR was valid or not. The Supreme Court did in fact invalidate the TMT CDUP for due process failures.	Mischaracterization. Irrelevant/Inapplicable. Not material.
926.	147	The Kia'i therefore were acting in accordance to the law. They where not protesting an unjust law as is usually the case of civil disobedience, they	Unsupported/Unsubstantiated.

927.	147	were instead protecting the Mauna from desecration which is against the law in Hawai'i. If this were not the case the TMT would have committed an unlawful act, the act of desecration, resulting in irreparable damage and harm to the sacred landscape of Mauna Kea. TMT should not be approved because to do so would be to allow the State to issue a permit to desecrate a place of worship, a burial ground, and a place of serious veneration.	Irrelevant/Inapplicable. Inaccurate/false. UH-TIO COL 392-407; UH-TIO FOF 542, 942-957. Irrelevant/Inapplicable. Unsupported/Unsubstantiated. Not supported by the reliable, probative and substantial evidence. Lack of jurisdiction. Inaccurate/false. UH-TIO COL 392-407; UH-TIO FOF 542, 942-957.
928.	147	On December 2, 2015, the Hawai'i Supreme Court entered its decision in Mauna Kea Anaina Hou v. Board of Land and Natural Resources, 136 Hawai'i 376, 363 P.3d. 224 (2015) ("MKAH (2016)"). In the Concurring Opinion ("Concurring") the Justices identified and clarified three specific "provisions" and "guarantees" established in the Constitution that "forge the right to a contested case hearing and establish procedure essential to safeguard the rights protected by the constitutions in such cases..." Those provisions and guarantees identified were (1) Traditional Hawaiian Rights under Article XII, Section 7, (2) The Public Trust Doctrine and (3) Constitutional Responsibilities of an Agency.	Irrelevant/Inapplicable. Misleading/presented out of context. Mischaracterization. UH-TIO COL 115.
929.	148	Regarding Native Hawaiian Rights found under the Article XII, Section 7, we believe the BLNR has improperly delegated its authority and responsibility to protect Native Hawaiian rights by relying on the UH/TMT and their representatives such as OMKM to oversee, manage and decide and determine what rights are to be upheld and what are not, and what rights are to be regulated, and so on and so forth, on the ground. OMKM	Irrelevant/Inapplicable. UH-TIO COL 392-407; UH-TIO FOF 542. Inaccurate/False. UH-TIO FOF 179-182 (regarding the BLNR's ongoing supervision and management over

		can decide who has access to the summit and who does not and when. The University personnel have been directly involved in blocking access to Kealoha Pisciotia and other Members of MKAH and the Mauna Kea Hui on many occasions, the latest of which occurred on the winter solstice during the last Contested Case Hearing (December 22, 2016). OMKM staff is implicated in numerous acts of desecration, including but not limited to, the destruction and desecration of Kealoha Pisciotia's family shrine (Ahu). Her families' ashes were scattered and desecrated and burial places desecrated. Her family stone (Ahu) was taken to the Hilo Dump (where it was later recovered and taken back up to Mauna Kea). Since that time it has been taken never to be returned. When given another stone by the family of Auntie Iolani Luahine, that stone was also taken and has never been returned. A small Ahu build at Kealoha's family area by Kumu Paul K. Neves, Keomailani Von Gogh of MKAH, and Kealoha Pisciotia has also been dismantled and destroyed. To date, anything placed on or near this site is taken down and destroyed. The irony here also is Kealoha's site is in the Natural Area Reserve (NAR) which is not even in the University's jurisdiction. This act and continued actions are deeply disturbing and hurtful to Ms. Pisciotia.	Conservation District lands). Not supported by the reliable, probative and substantial evidence.
930.	148	There is a legal term for what has happened, that is, we believe, called continued injury, but has a much deeper ramification then the legal implications and that is, after all these years since her family ahū was first taken in 1998, there has never been a rational explanation for its removal and desecration in the first place. It bothered no one. The question is, why do our spiritual things, even the smallest pohaku, so disturb anyone enough to take offense enough to take a ceremonial thing to the dump? How do our religious practices challenge or offend anyone, let alone the observatories and UH/OMKM personnel? This action is so contrary to Aloha!	Irrelevant/Inapplicable. Not credible. <i>See</i> UH-TIO COL 392-407; <i>see also</i> UH-TIO FOF 542, 942-957. Not supported by the reliable, probative and substantial evidence. The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no probative and substantial evidence that the substance of the belief is

			factual.
931.	148	B.01v (Kealoha Pisciotto's pohaku or ahu at her family site on Mauna Kea),	Irrelevant/Inapplicable. Not material.
932.	149	B.01y (Letter from Marc Smith, DLNR archaeologist, describing the location of Ms. Pisciotto's pohaku to be in the NARS and confirming she had not disturbed anything of historic value in the NARS),	Incomplete. Irrelevant/Inapplicable. Not material.
933.	149	B.01x (letter for the then interim Director of the Institute for Astronomy (IfA) who used to be the entity overseeing MK, apologizing to Ms. Pisciotto and affirming that such an incident would not happen again, which has not been followed because it has been taken many times since this letter.	Incomplete. Irrelevant/Inapplicable. Not material.
934.	149	B.01ak, B.01al, B.01am (all pictures of the ceremonial Lele (platform) put up by the Royal Order of Kamehameha I (ROOK I), used for ceremonies and to lay offerings. It is on Pu'u Wekiu. The ROOK I Lele has been desecrated and destroyed on numerous occasions. Like Ms. Pisciotto's family area and pohaku, the Lele continues to be taken down. So there is no Lele up on the summit now. The Lele was put up so the people could make offerings. When it is not up, there is no place for the people to lay their offerings.	Irrelevant/Inapplicable. Not material. Incomplete.
935.	149	"Mauna Kea is the burial ground of our highest born and most sacred ancestors." (B.01q MKAH/NEVES Temple Report 2001, p. 9)	Unsupported/Unsubstantiated. Misleading/Presented out of context. See UH-TIO FOF 542 (finding no burials on the TMT Project site); see also UH-TIO FOF 570 (same). The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no probative and substantial

936.	149	The UH at the 11th hour submitted a burial treatment plan (BTP) at the end of the contested case hearing (it is in evidence as well). The BTP is dubious at best because it was submitted after the majority of the Protector witnesses had already crossed the UH/TMT witnesses. Ms. Pisciotta had asked Ms. Stephanie Nagata (OMKM) if there was a burial treatment plan but it was not in evidence at the time so she could not inquire further about it. She did ask Ms. Nagata if OMKM had interviewed any members of MKAH or herself regarding their knowledge of burials relating to Mauna Kea and Ms. Nagata had answered in the negative. In 2011 for the first CCH there was no burial treatment plan. While there is one now, we believe it is inadequate because the OMKM did not take into account the known cultural or lineal descendants such as Ms. Pisciotta, Mr. Neves, Mr. Ching and Mr. Kaliko Kanaele and many others who have voiced their concern over the decades for the sacred burials of Mauna Kea. They did not even try to reach out to contact any of us. Our original CCH Petitions identify us as being cultural and lineal descendants of Mauna Kea.	evidence that the substance of the belief is factual. Unsupported/Unsubstantiated. False/Inaccurate. UH-TIO FOF 214 (regarding public burial notices placed in the newspapers and in OHA's monthly publication, Ka Wai Ola); UH-TIO FOF 570 (regarding the burial treatment plan). Not supported by the reliable, probative and substantial evidence.
937.	150	The record is filled with other acts of disrespect and desecration to numerous sites built and cared for by the Kia'i (Earth/Mauna Protectors). See also William Frietas testimony/exhibits on such desecration and destruction of the Ahu he built. We join with his statements regarding such desecration and destruction. We also join with the Flores Case Ohana regarding the destruction of Ahu. We join with all the Petitioners regarding the impacts such desecration has on the Native Hawaiian or Kanaka Maoli peoples.	Irrelevant/Inapplicable. Not material. Unsupported/Unsubstantiated. Lack of Jurisdiction. Inaccurate/False. UH-TIO FOF 542, 942-957; UH-TIO COL 392-407.
938.	150	It is our position that the fundamental policy issue underlying the improper development of the Mauna Kea conservation district is BLNR's wholesale abdication of its responsibility for managing these precious lands. BLNR has allowed telescope construction to desecrate an area they recognize as a Native Hawaiian traditional cultural property, destroy significant habitat	Irrelevant/Inapplicable. Not material. Unsupported/Unsubstantiated. Incomplete.

		for rare and unique species, and potentially contaminate five aquifers on Hawai'i Island. Demonstrating that history repeats itself, the BLNR is considering the TMT construction permit, even though it admits:	Not supported by the reliable, probative and substantial evidence. Lack of Jurisdiction.
939.	150	"[i]t is our view that the effect of astronomy development on cultural resources and on the landscape of Mauna Kea has been significant and adverse. While a project such as TMT can bring new resources into play that may mitigate certain cultural impacts and even benefit native Hawaiians, we believe that the project will increase the level of impact on cultural resources, which remains to be significant and adverse." (BLNR Chairwoman Laura Thielen, Ex. BA004/R-4, FEIS Vol.2, p.17).	Inaccurate/False. UH-TIO COL 392-407. Mischaracterization. In the context of the existing summit area cumulative impacts - and under the assumption that such cumulative impacts will continue - the TMT project does not create or cause substantial adverse impacts to existing natural resources in the applicable area. See, e.g., UH-TIO FOF 443. Misleading. Presented out of context on the basis that the quoted comments were provided in response to the earlier, draft EIS. In addition, the Applicant responded to said comments by adding Section 3.2.3 into the Final EIS. Ex. A-4/R-4, FEIS Vol. 2, p. 17.
940.	150	Instead of regulating (that is, limiting) these astronomically destructive projects, the BLNR entertains the fundraising opportunities provided by this destruction and weighs the mitigative value of native art on the walls of an industrial structure in the middle of a natural temple. BLNR has repeatedly abandoned, delegated, and/or exceeded its authority and fiduciary obligations to oversee, regulate and properly manage the conservation district of Mauna Kea by authorizing the over-development of the district and allowing the University to assert their claims of jurisdiction over it. This is unacceptable.	Irrelevant/Inapplicable. Unsupported/Unsubstantiated. See UH-TIO FOF 179-182 (regarding the BLNR's ongoing supervision and management over Conservation District lands); see also UH-TIO COL 289 (concluding that the Hawaii Supreme Court held in <i>Kilakila 'O Haleakalā v. Bd. of Land and Natural Resources</i> , 138 Hawai'i 383, 382 P.3d 195

941.	151	While UH/TMT has the burden to prove their proposed land use is consistent with all eight CDUP criteria, the BLNR's role is to evaluate whether the applicant has actually met the requirements or not, with particular consideration of the proposed project's impacts on Native Hawaiian traditional, cultural, and religious practices (see Public Access Shoreline Hawai'i v. Hawai'i County Planning Commission, 79 Hawai'i 425 (1995) [hereafter, PASH] and Kapa'akai O Ka `Aina v. Land Use Commission, 94 Hawai'i 1, 7 P. 3d 1068 (2000)) [hereafter Kapa'akai]. UH/TMT's admissions that the TMT will have a significant, adverse impact on cultural and natural resources should lead the BLNR to deny the TMT-CDUA.	(2016) that the consideration of relevant scientific, economic, and educational benefits are proper in the context of a CDUA as such benefits impact long-term sustainability and public welfare). Not supported by the reliable, probative and substantial evidence. Unsupported/Unsubstantiated. Inaccurate/False. <i>See</i> UH-TIO FOF 186 (refuting arguments that UH Hilo has admitted that the TMT Project will itself have substantial adverse impacts").
942.	151	The BLNR cannot approve the TMT-CDUA without abusing its authority because the law prohibits approval of permit applications that fail to meet the eight criteria for conservation district use permits. The TMT cannot even satisfy one, much less all eight of the criteria. The DLNR staff surmised that, "[i]t appears likely that the construction of this very large observatory will have a significant and adverse impact on this important cultural landscape" (Ex A004/R-4 FEIS Vol.2, p. 17) and "impacts that are significant will remain significant with or without the TMT" (Ex. A007, B.03aa, Staff Recommendations, p. 59). Despite this, the staff recommends approval. This is because the staff recommendation to approve the CDUA is based on an inappropriate interpretation of HAR §13- 5-30(c). If approved, the staff recommendation would allow UH/TMT to pay to degrade the natural resources BLNR is mandated to protect, to "balance" destruction of those resources with promises of more accountable	Unsupported/Unsubstantiated. <i>See</i> UH-TIO COL 127 (concluding that the TMT Project is consistent with the eight criteria and UH Hilo has proven by a preponderance of criteria that it meets the requirements for granting of the CDUP); <i>see also</i> UH-TIO FOF 340-343 (regarding the OCCL's recommendation to approve the University's CDUA). Misleading. Presented out of context on the basis that the quoted comments were provided in response to the earlier, draft EIS. In addition, the Applicant responded

		management, and to cynically assert that the summit regions of Mauna Kea have suffered such adversity already that any additional adverse impacts will not be 'significant'.	to said comments by adding Section 3.2.3 into the Final EIS. Ex. A-4/R-4, FEIS Vol. 2, p. 17. Not credible. UH-TIO FOF 349 (regarding testimonies that the TMT Project does not comply with the eight criteria in HAR § 13-5-30 by those who admitted that they did not even consider or read the Hawai'i Supreme Court's recent decision in <i>Kilakila 'o Haleakala v. Board of Land and Natural Resources</i> , 138 Hawai'i 383, 382 P.3d 195 (2016), which extensively discussed several of the same eight criteria).
943.	152	The DLNR staff recommendation to approve the TMT CDUA is one example in the agency's failures to follow the laws and regulations that protect the Mauna Kea conservation district. Where "an agency [has] exceeded its legal authority, acted unconstitutionally, or failed to follow its own regulations," the courts have held the agency responsible for "abuse of discretion." <i>United States v. Carpenter</i> , 525 F.3d 1237, 1241 (9th Cir. 2008) quoting, <i>Guadamuz v. Bowen</i> , 859 F.2d 762, 767 (9th Cir. 1988); see also <i>Ness Inv. Corp. v. U.S. Dep't of Agric.</i> , 512 F.2d 706, 714 (9th Cir. 1975) (holding that discretionary agency actions are reviewable where the claim alleges "that an agency . . . abused its discretion by exceeding its legal authority or by failing to comply with its own regulations"). An Agency's actions demonstrate an abuse of discretion where they "clearly exceeded the bounds of reason or disregarded rules or principles of law or practice to the substantial detriment of a party litigant." <i>Sierra Club v. D.O.T.</i> , 115 Haw. 299, 317 (Haw. 2007) quoting <i>State v. Sacoco</i> , 45 Haw. 288, 292 (1961). Agency actions deemed "[a]rbitrary, or capricious, or characterized by abuse of discretion or clearly unwarranted exercise of discretion" are overturned by courts as illegal. HRS §91-14(g)(6)(2011).	Unsupported/Unsubstantiated. Inaccurate/False. See UH-TIO FOF 340-343 (regarding the OCCCL's recommendation to approve the University's CDUA).

944.	152	The criteria for conservation district permits should not be so broadly interpreted to allow the dedication of proceeds to be a means of making resource destruction into an appropriate use of conservation lands. The DLNR staff thus erred by concluding that the TMT's "strong management framework" and its potential role in Hawai'i's economic development as support for their decision to approve the CDUA. (Ex. A007m B.03aa/R-7 Staff Recommendations, p. 45). Approving the TMT-CDUA on these terms would be an abuse of BLNR's discretion.	Unsupported/Unsubstantiated. See UH-TIO COL 289.
945.	152	The BLNR may not abdicate nor delegate their fiduciary duty to oversee and manage the public lands trust nor the conservation lands of Hawai'i. Yet, the BLNR has and continues to improperly delegate its oversight and management responsibilities for the Mauna Kea conservation district to the University, its lessee and the primary advocate for telescope construction.	Unsupported/Unsubstantiated. See UH-TIO FOF 179-182 (regarding the BLNR's jurisdiction and ongoing supervision and management over Conservation District lands). Not supported by the reliable, probative and substantial evidence.
946.	153	The Supreme Court has ruled that state agencies cannot delegate their authority and responsibility to third parties. See, <i>Ka Pa`akai O Ka `Aina v. Land Use Commission</i> , 94 Haw. 31 (2000). In <i>Ka Pa`akai</i> , the Supreme Court found that the Land Use Commission (LUC) had violated its statutory and constitutional obligations when it approved a request to reclassify land without completing its own independent assessment of the impact to traditional cultural and natural resources and feasible actions to reasonably protect those resources. <i>Id.</i> The Supreme Court rejected the LUC's claim that it had delegated the authority to prepare a management to the developer:	Not in dispute as to the holding of <i>Ka Pa`akai</i> , but more accurately stated in UH-TIO COL 110-112, 325-326. Misleading. Presented out of context. Unsupported/Unsubstantiated to the extent the Proposed FOF stands for the proposition that the BLNR delegated its authority. See UH-TIO FOF 179-182. Not supported by the reliable, probative and substantial evidence.
947.	153	The power and responsibility to determine the effects on customary and traditional Native Hawaiian practices and the means to protect such practices may not validly be delegated by the LUC to a private petitioner who, unlike a public body, is not subject to public accountability... [I]nsofar as the LUC allowed [the private developer] to direct the manner	Not in dispute as to the holding of <i>Ka Pa`akai</i> , but more accurately stated in UH-TIO COL 110-112, 325-326. Misleading. Presented out of context.

		in which customary and traditional Native Hawaiian practices would be preserved and protected by the proposed development -- prior to any specific findings and conclusions by the LUC as the effect of the proposed reclassification on such practices -- the LUC failed to satisfy its statutory and constitutional obligations. In delegating its duty to protect Native Hawaiian rights, the LUC delegated a non-delegable duty and thereby acted in excess of its authority. <i>Ka Pa`akai</i>, 94 Haw. at 22-23. - "reasonably preserve and perpetuate cultural resources such as archaeological sites, the coastal trails, areas of fishing, opihi, and limu gathering, salt gathering, and general recreation in the proposed areas." - "provide for resource management," - "ensure public access to the coastal areas," "perpetuate [fishing, limu, opihi, and salt gathering] on and makai of the property." (<i>Kapa`akai</i>, 94 Haw. at 37.)	Unsupported/Unsubstantiated to the extent the Proposed FOF stands for the proposition that the BLNR delegated its authority. <i>See</i> UH-TIO FOF 179-182. Not supported by the reliable, probative and substantial evidence.
948.	154	The Supreme Court overruled the LUC's decision because the LUC had illegally granted KD broad authority to "preserve and protect any gathering and access rights of Native Hawaiians." <i>Id.</i> at 39. The Court held, "[a]llowing a petitioner to make such after-the-fact determinations may leave practitioners of customary and traditional uses unprotected from possible arbitrary and self-serving actions on the petitioners' part. After all, once a project begins, the pre-project cultural resources and practices become a thing of the past." <i>Id.</i> at 52. We submit that the BLNR would commit the LUC's same fatal error by seeking to delegate broad authority over Hawaiian cultural resources to UH, the primary developer of the Mauna Kea conservation district.	Mischaracterization. <i>See</i> UH-TIO COL 110-112, 325-326. Unsupported/Unsubstantiated. <i>See</i> UH-TIO FOF 179-182. Not supported by the reliable, probative and substantial evidence.
949.	154		Unsupported/Unsubstantiated. <i>See</i> UH-TIO FOF 179-182. Not supported by the reliable, probative and substantial evidence.
950.	154	In this case, there is no dispute that the Mauna Kea summit area is designated a conservation district. <i>Per</i> Haw. Const. Art. XI, §2, HRS. §§205-2(e), 183C-2, 183C-3, and 171-3 (2010), and HAR §13-5, the sole entity authorized to manage conservation districts is the Board of Land and Natural Resources. These articles, statutes, and regulations do not grant BLNR the authority to delegate its responsibilities to an entity outside of	Not in dispute, but more accurately stated in UH-TIO FOF 179-182.

		the Department. Without specific authorization to delegate its legal mandates, the BLNR remains the sole entity responsible for the management of multiple land uses for the protection of the natural and cultural resources in a conservation district.	
951.	154	The University contends that it has a right to manage its own areas because it holds a long-term lease to the Mauna Kea Science Reserve. This is true, but only in terms of the areas within the telescope facilities. The University has yet to demonstrate any areas in the Mauna Kea conservation district that they can call their own, aside from those within the observatories themselves. The fact that the University has a long-term lease does not grant them private property interest or any expectation of exclusivity. Mauna Kea lands are public lands and conservation lands and the law assigns BLNR the sole obligation to oversee and management them on behalf of the general public and Native Hawaiians. If this were not the case, the University would not need to apply for a conservation district use permit. Thus, the BLNR is the only entity with jurisdiction over the Mauna Kea conservation district. For the BLNR to delegate any authority to the University is improper.	Mischaracterization. Unsupported/Unsubstantiated to the extent the Proposed FOF stands for the proposition that the BLNR delegated its authority. <i>See</i> UH-TIO FOF 179-182.
952.	155	The University also contends there is no unlawful delegation here because the University is a state agency. This argument fails. The fact that the developer in this situation also happens to be another state agency is irrelevant. Under the Court's ruling in <i>Ka Pa`akai</i> , the responsible agency cannot delegate authority to any entity that does not share its same statutory and constitutional obligations. The BLNR is the only agency with the legal obligation to management conservation districts and ceded lands.	Mischaracterization. <i>See</i> UH-TIO FOF 179-182.
953.	155	By comparison, nothing in the Constitution, Haw. Rev. Stat. §§205 or 183C identify natural resource conservation as one of the purposes of the University of Hawaii System. The University's constitutional mandate is public education. <i>See</i> , Haw. Const. Art. X, §5, HRS §304A. Even with the recent amendments to Haw. Rev. Stat. §304A(2009), the University is not empowered to manage conservation resources. <i>See</i> , Act 132, SLH 2009. The University seeks to overcome this limitation by forming multiple intermediary entities between the BLNR and UH Board of Regents (e.g.	Mischaracterization. <i>See</i> UH-TIO FOF 123-135 (regarding the development and implementation of the 2000 Master Plan and OMKM); UH-TIO FOF 179-182 (regarding the BLNR's ongoing supervision and management over Conservation District lands).

		Office of Mauna Kea Management, Mauna Kea Management Advisory Board, Kahu Ku Mauna), but this is nothing more than puppetry, for all of these entities ultimately answer to the UH Board of Regents. None of these entities have any authority greater than that bestowed by that board.	Unsupported/Unsubstantiated.
954.	155	Moreover, in this situation, as we outlined above in section II(B)(3), the University's actual interests in the mountain are more aligned with Kaupulehu Development, the developer in the Ka Pa 'akai case, than with any state agency fulfilling statutory and constitutional obligations to protect public trust lands and manage conservation areas. The University profits from the exploitation of the Mauna Kea conservation district. Its pursuit of excellence in astronomy is in direct conflict with the purpose of the conservation district. Thus, the BLNR should heed the Court's concern that "self-serving" implementation of a developer-controlled management plan could destroy important natural and cultural resources because "once a project begins, the pre- project cultural resources and practices become a thing of the past." (Kapa 'akai, 94 Haw. at 52, 7 P.3d at 1089). If BLNR does not act to protect the cultural and natural resources of the Mauna Kea conservation district, they will be lost.	Mischaracterization. See UH-TIO FOF 123-135 (regarding the development and implementation of the 2000 Master Plan and OMKM); UH-TIO FOF 179-182 (regarding the BLNR's ongoing supervision and management over Conservation District lands). False/Inaccurate. Unsupported/Unsubstantiated. Not supported by the reliable, probative and substantial evidence.
955.	156	The Supreme Court's ruling in Kapa 'akai specifically directs agencies confronted with a decision that might affect the traditional and customary practices of Native Hawaiians to assess: "(1) the identity and scope of "valued cultural, historical, or natural resources" in the petition area, including the extent to which traditional and customary native Hawaiian rights are exercised in the petition area; (2) the extent to which those resources --including traditional and customary native Hawaiian rights -- will be affected or impaired by the proposed action; and (3) the feasible action, if any, to be taken by the LUC to reasonably protect native Hawaiian rights if they are found to exist." Id. at 47, 1084.	Not in dispute as to the holding of <i>Ka Pa 'akai</i> , but more accurately stated in UH-TIO COL 110-112, 325-326. Misleading. Presented out of context. Unsupported/Unsubstantiated to the extent the Proposed FOF stands for the proposition that the BLNR delegated its authority. See UH-TIO FOF 179-182.
956.	156	The record in this case is replete with examples of how the BLNR has failed to conduct this type of detailed assessment, opting instead to rely on promises from the developer that the traditional and customary practices of	False/Inaccurate. Unsupported/Unsubstantiated. UH-TIO

		Native Hawaiians will be protected through “after-the-fact” decisions by the developer through the developer-controlled management plan(s).	FOF 340-343 (regarding the OCCCL’s recommendation to approve the University’s CDUA).
957.	156	This is exactly the same mistake made by the LUC in the Kapa`akai case. Without specifically identifying the valued resources and related rights, the extent to which they may be harmed, and feasible actions necessary to protect them, the LUC relied on promises from the developer that its management plan would protect all traditional and customary practices of Native Hawaiians.	Not supported by the reliable, probative and substantial evidence. False/Inaccurate. Unsupported/Unsubstantiated. Irrelevant/Inapplicable. Not material.
958.	157	Please review Ms. Stephanie Nagata, the head of Office of Mauna Kea Management (OMKM), oral testimony—cross by Ms. Kealoha Pisciotta at Vol 14, p. 99-153, 159-173.	Incomplete.
959.	157	the following oral testimony of Mr. Wallace Ishibashi, the Senior Advisor of Office of Mauna Kea Management (hereafter OMKM). Kealoha Pisciotta Cross of Mr. Ishibashi, Nov. 16, 2016, Vol. 9, p. 112-118 and p. 125-128. Here is an example of Mr. Ishibashi’s testimony: (Tr. Nov. 16, 2016, Wallace Ishibashi, Vol. 9, p.126:3-25 and p.127:1-15, and p.128:1-22) MS. PISCIOтта: It is C-2, the definition. HEARINGS OFFICER AMANO: Pardon me, it's not – it's 2, just 2, under “desecrate,” right? MS. PISCIOтта: Right, right. HEARINGS OFFICER AMANO: Then your next question is? MS. PISCIOтта: Actually, let me start with one, first. The first definition is a person commits the offense of desecration if the person intentionally desecrates. Number 2 is the definition of desecrate which I just read earlier. And you can see it up there. Okay. So earlier, would you consider, for example, the incident with my family at Pohaku an act of desecration?	Incomplete. Lack of jurisdiction to the extent the Proposed COL purports to stand for the proposition that the TMT Project constitutes “desecration” under HRS § 711-1107. See UH-TIO COL 392-407. Ms. Pisciotta’s personal crusade to prosecute someone for incidents is not a part of this proceeding. There is no reliable probative and substantial evidence that her or the referenced practices are within the bundle of rights protected by Article XII, Section 7 of the Hawaii State Constitution.

HEARINGS OFFICER AMANO: You are not asking for a legal opinion, right?

MS. PISCIOTTA: No, but just on his understanding of what desecration is.

HEARINGS OFFICER AMANO: Mr. Lui Kwan?

MR. LUI KWAN: I still don't see the relevance of what his opinion will have, especially if he's not qualified and he's not giving a legal opinion on the meaning of desecration or the offense.

MS. PISCIOTTA: I think this is important because desecration is some of the questions that I think are relevant in this contested case hearing.

HEARINGS OFFICER AMANO: It might be relevant. But it might not be to this witness.

MS. PISCIOTTA: Maybe not. If not this witness, I'm not sure who. So he's the senior advisor relating to things cultural, and so I want to know if he has an understanding about what at least the state law defines as desecration or not.

MR. LUI KWAN: I would say there is a lack of foundation as to whether or not this witness was involved in the removal of the ahu or the determination of whether or not there was an offense committed as a result of that.

MS. PISCIOTTA: I'm not accusing him of having anything to do with that.

HEARINGS OFFICER AMANO: I'm going to let you ask your question, so please ask it clearly, so the witness understands it and he can answer it truthfully.

Q (By Ms. Pisciotta) Okay. So my question was in the particular case that you heard about my ahu, about my family place, would you consider that an act of desecration?

A I'm not sure if your ahu was permitted or not, that's the question first because you guys will never like the answer coming from my office, OMKM, because we follow state laws. And so there is a permitting process necessary in order to build an ahu. So to answer that question, I'm

		going to have a hard time because I'm not sure of the history, if the ahu was permitted or not. Q What law are you stating requiring a permit? A Any time you're going to move any type of rocks on the mountain, you got to get one permit if you're going to build structures or ahus or any type of structure on the summit. So it is just my understanding of the DLNR rules. Q But can you cite to me those rules or where those rules come from? A No, just my understanding. Q That is your understanding? A Yes.	
960.	158	Mr. Ishibashi seems to be describing the definition of "Land Use" under HAR 13-5-2 which states as follows: "Land use" means: (1) The placement or erection of any solid material on land if that material remains on the land more than thirty days, or which causes a permanent change in the land area on which it occurs; (2) The grading, removing, harvesting, dredging, mining, or extraction of any material or natural resource on land; (3) The subdivision of land; or (4) The construction, reconstruction, demolition, or alteration of any structure, building, or facility on land. For purposes of this chapter, harvesting and removing does not include the taking of aquatic life or wildlife that is regulated by state fishing and hunting laws nor the gathering of natural resources for personal, non-commercial use or pursuant to Article 12, Section 7 of the Hawaii State Constitution or section 7-1, HRS, relating to certain traditional and customary Hawaiian practices. (Emphasis added)	Not credible. Irrelevant/Inapplicable. Misleading. Presented out of context. Mischaracterization.
961.	159	If the "Land Use" definition is not what Mr. Ishibashi is referring to, than we are not sure what law(s) he is referring to. But if Mr. Ishibashi, is referring to the rules under HAR 13-5-2, then he has not been properly informed about the exemption for continued exercise of Native Hawaiian	Not credible. Irrelevant/Inapplicable.

		cultural and religious practices under the BLNR "Land Use" definition cited above. The Master Plan 2000, Cultural Impact Assessment did identify the placement and erection of such Ahu (or kuahu such as stone alters) as a constitutionally protected activity that has already been identified as a reasonably protected right under the Hawai'i's Constitution and if it is not a reasonably protected activity then the BLNR, the UH/TMT and OMKM representatives have the burden to prove that such a protected practice is unreasonable. (Please see Ex A048, App. N PHRI Inc CIA, 1999, at p.43)	
962.	159	BLNR must demonstrate that they can in fact transfer their authority to the UH-Hilo and OMKM to regulate, limit and exclude Native Hawaiians and the general public from accessing Mauna Kea and from limiting the overall access, use and enjoyment of the public lands of Mauna Kea. BLNR has the burden to demonstrate that the UH has the police authority and the expectation of exclusivity to close Native Hawaiians from accessing the summit to conduct ceremonies and to continue their practice on the undeveloped or less then fully developed lands of Mauna Kea.	False/Inaccurate. Irrelevant/Inapplicable. Unsupported/Unsubstantiated. <i>See</i> UH-TIO FOF 179-182. Not credible. <i>See</i> UH-TIO FOF 707, 747, 758, 769, 787-795, 906; <i>see also</i> UH-TIO COL 363.
963.	160	We contend that we as practitioners fulfill the specific purposes as laid out in PASH and the body of law commonly referred to as Native Hawaiian Rights laws. It is our understanding that these rights are not exclusive rights but rather rights that evolved over thousands of years and long before the US had a presence in Hawai'i. The State by codifying these rights and practices in the Constitution, did so to recognized and support the survival of Hawaiian cultural in a quickly changing world.	Mischaracterization. <i>See</i> UH-TIO COL 100-103 (regarding the Hawaii Supreme Court's holding in PASH).
964.	160	Neither the UH-Hilo nor the OMKM representatives were able to define or defend their exclusive claims over the Mauna Kea Access road. They could not define how or why the "rangers" were called such when they had no regulatory or police power to block public and Native Hawaiian practitioners. Nor could they explain why Native Hawaiians' and the public's access could be hindered while the UH, OMKM and international astronomy personnel were permitted up the access road. They also could	Mischaracterization. Irrelevant/Inapplicable.

		not cite to and direct us to any laws that gave them permission to destroy any cultural sites. We submit the UH-Hilo, OMKM and another UH representatives have no authority to regulate public activities on Mauna Kea. The UH is a lease holder but that does not grant them any expectation of exclusivity on Mauna Kea.	
965.	160	In our Temple Report compiled by MKAH and Royal Order of Kamehameha I (MKAH/ROOKI, see Ex B.01q, p. 19-30) we held that "stake holders" such as the international and national astronomy observatories (also as third party leaseholders) should be included in the discussions, but the "right-holders" such as Native Hawaiians and the general public (those for whom the laws are written to protect) should have a vote as to what happens to the land and resources of Hawai'i. The UH for over 50 years has maintained an environment of exclusivity that has led to the degradation and destruction of the land and cultural sites. This has primarily occurred because BLNR has abdicated its fiduciary duty and authority to the UH, an entity in a conflict of interest and not legally mandated with the authority to protect Native Hawaiian cultural and religious access, practices and use on public lands.	Unsupported/Unsubstantiated. Irrelevant/Inapplicable. Inaccurate/False. See UH-TIO FOF 179-182.
966.	161	The Mauna Kea Science Reserve was established in 1968 by general lease S-4191, which was signed between the Department of Land and Natural Resources and the University. This lease governs the scope of activities -- consistent with conservation district rules -- that UH may engage in on this property. The terms of this lease, however, have not been fully enforced.	Unsupported/Unsubstantiated. Inaccurate/False. See UH-TIO FOF 113-117 (regarding the General Lease, MKSR, and the University Management Area).
967.	161	An observatory. The 1968 lease authorizes the University to erect "an observatory." The remainder of the land to serve as "a buffer zone." This lease has never been modified. Yet, today, UH admits there are at least 13 telescopes in the Mauna Kea Science Reserve. If the actual number of telescope structures is counted (optical and radio telescopes) there are actually 18 telescopes, in addition to the many support structures on the mountain. "Observatory" is defined as "a place or building equipped and used making observations..., especially a place equipped with a powerful telescope..." "Telescope is defined as "an optical instrument for making distant objects appear larger and therefore nearer."	False/Inaccurate.

968.	161	Given these definitions, it is likely that the authors of the General Lease used the term "an observatory" to mean a single observing building containing a single telescope device. This interpretation is more consistent with other terms of the lease that call for a "buffer zone" between the observatory and other activities on the summit.	Unsupported/Unsubstantiated.
969.	161	Lake Waiau. The lease terms provide that "no activity shall be permitted which will result in the pollution of the waters of Lake Waiau." We are concerned that the numerous cesspools and accidental spills of hydraulic fluid, aluminizing fluid, diesel fuel, and more, over time may have polluted Lake Waiau. BLNR should test the lake to ensure compliance with the laws protecting Hawai'i's waters and the terms of this lease.	Unsupported/Unsubstantiated. See UH-TIO FOF 306, 373, 423, 586, 669-671, 799-801, 806; see also UH-TIO COL 174, 341. Not credible. See UH-TIO FOF 703 (regarding Pisciotta's testimony concerning cultural practices, <i>inter alia</i>, collecting water from Lake Waiau, and finding said practices would not be altered by the TMT Observatory); UH-TIO FOF 758 (regarding Ching's testimony concerning cultural practices, <i>inter alia</i>, collecting water from Lake Waiau, and finding said practices would not be altered by the TMT Observatory). Not supported by the reliable, probative and substantial evidence. Violations of the General Lease are not an issue in this proceeding.
970.	161	Good order and condition. The lease requires UH to return the Mauna Kea Science Reserve to BLNR in good order and condition. Our concern is that the extensive construction activity on the mountain will cause irreparable harm. Indeed, the summit is now 38 feet shorter due to telescope construction.	Unsupported/Unsubstantiated. Not material. Not credible. Not supported by the reliable, probative

			and substantial evidence.
971.	162	Abide by all laws. The lease requires UH to “observe and comply” with all laws, ordinances, rules and regulations governing the Mauna Kea Science Reserve. Yet, UH has facilitated the construction of telescopes without CDUA permits, destroyed historic sites, and interfered in traditional and customary practices of Native Hawaiians.	Violations of the General Lease are not an issue in this proceeding. Unsupported/Unsubstantiated. Not credible. Not supported by the reliable, probative and substantial evidence. Violations of the General Lease are not an issue in this proceeding.
972.	162	Objects of Antiquity. The lease states UH shall not “damage, remove, excavate, disfigure, deface or destroy any object of antiquity.” Yet, UH has assisted telescope owners in destroying the traditional cultural property of Kukahau`ula.	Unsupported/Unsubstantiated. Not credible. Not supported by the reliable, probative and substantial evidence. Violations of the General Lease are not an issue in this proceeding.
973.	162	Lease ends in 2033. The lease ends in 22 years on December 31, 2033. All telescopes are to be decommissioned and removed by this date. Yet, UH is advocating for and BLNR is considering approval of a CDUA for a telescope with an anticipated operational lifespan of 50 years. UH/TMT has not committed to decommissioning the telescope before the close of the lease.	False/Inaccurate. Not supported by the reliable, probative and substantial evidence. Violations of the General Lease are not an issue in this proceeding.
974.	162	The BLNR goes further turning a blind eye to the needs of the taxpayers of Hawai`i by failing to charge the telescope owners fair-market rent for the use of public lands. While UH may use public lands for free as provided for under 5(f) of the Admissions Act, foreign entities do not enjoy such an	Irrelevant/Inapplicable. <i>See</i> UH-TIO FOF 208, 261 (regarding payment of rent under the TIO Sublease).

		entitlement. The majority of the telescopes on Mauna Kea are owned and operated by entities foreign to the State of Hawai'i. (Ex A009 CMP, p. 6-2). Where the qualifications for 5(f) purposes have not been met, BLNR must assess the fair market value of the land and charge for its use. (HRS §171-17 and -18.) Instead of collecting rent, however, the BLNR has allowed these foreign entities to pay one dollar or less in rent.	Not supported by the reliable, probative and substantial evidence. Violations of the General Lease are not an issue in this proceeding.
975.	162	At the same time, BLNR claims to lack the funds to pay for proper management of conservation districts. DLNR staff avers: "Environmental protection costs money. Protecting historic and cultural resources costs money. Education costs money. Maintaining public access and ensuring the public safety costs money." Staff Recommendations (Ex. A007, B.03aa/R-7 at p. 62). We agree! Unfortunately, BLNR's failure to collect rent over the last 40 years has resulted in an agency unable to meet its most basic legal obligations. This self-inflicted poverty is being used to justify an unauthorized pay-to-degrade regime for conservation district use permits. Instead, the BLNR should independently assess the fair market value of telescopes at the preeminent location of astronomy and charge rent.	Irrelevant/Inapplicable. Not material. Misleading. Presented out of context.
976.	163	The University contends that the TMT will pay a substantial (as-yet-unknown) amount of rent to the OMKM, but this "rent" does not comport with the requirements under HRS §171-17, because it is not based on an independent assessment of the market value of the land. Rather, this "substantial amount," whatever it might be, is solely what the TMT is willing to pay for use of our public land. Moreover, this rent is also not being deposited into the general fund as the law requires, but will instead be paid to the OMKM. (Ex A009 CDUA, p. 2-2; HRS §171-18.	Unsupported/Unsubstantiated. Irrelevant/Inapplicable. Not material. False/Inaccurate. See UH-TIO FOF 208, 261.
977.	163	The BLNR has a duty to the general public (and Native Hawaiians) to collect this rent on their behalf under section 5(f) of the Admissions Act and other related legal provisions. BLNR's failure to collect this rent means the people of Hawai'i are subsidizing the astronomy programs of foreign entities (not paying taxes in Hawai'i) on their own lands.	False/Inaccurate. Not credible. The sublease is not an issue in this proceeding.

978.	163	Finally regarding Traditional Hawaiian Rights Under Article XII, Section 7, the ICA recently in <i>State v. Palama</i>, 364 P.3d 251 (Haw. Ct. App. 2015), again ruled in favor of not delegating or unreasonably regulating Native Hawaiian rights, finding that the State's action would "operate as a summary extinguishment of Palama's constitutionally protected right to hunt pig on the subject property, in the ahupua'a of Hanapepe for which Palama cared for his family's kuleana land, grew taro, and hunted. Palama and his 'ohana were clearly ho'a'aina (ahupua'a tenants) of Hanapepe. The court recognized ho'a'aina rights as priority and found that the State's regulatory authority to foreclose Palama from hunting in his ahupua'a and delegating its authority to a private landowner would effectively extinguish Palama's rights or essentially "regulate" Palama's "rights out of existence." Again a consequence the PASH court cautioned against. Id. In the <i>Waiahole</i> (2000) case the Court also makes the following findings: • The State is obligated to protect, control and regulate the use of Hawai'i's water resources for the benefit of its people as a public trust. • Private commercial use is not a public trust purpose. • Retention of waters in their natural state does not constitute waste. Rather, a public trust interest exists in maintaining a free-flowing stream for its own sake. • The Water Commission "inevitably must weigh competing public and private water uses on a case-by-case basis" but any balancing must "begin with a presumption in favor of public use, access, and enjoyment." • Domestic uses and the exercise of Native Hawaiian and traditional and customary rights are public trust purposes. Is a Standard for Managing Public Trust Resources that Specifically Mitigates in Favor of Protecting the Resources.	Unsupported/Unsubstantiated. Mischaracterization. Irrelevant/Inapplicable. Not material.
979.	164	In the <i>Waiahole</i> (2000) case the Court also makes the following findings: • The State is obligated to protect, control and regulate the use of Hawai'i's water resources for the benefit of its people as a public trust. • Private commercial use is not a public trust purpose. • Retention of waters in their natural state does not constitute waste. Rather, a public trust interest exists in maintaining a free-flowing stream for its own sake. • The Water Commission "inevitably must weigh competing public and private water uses on a case-by-case basis" but any balancing must "begin with a presumption in favor of public use, access, and enjoyment." • Domestic uses and the exercise of Native Hawaiian and traditional and customary rights are public trust purposes. Is a Standard for Managing Public Trust Resources that Specifically Mitigates in Favor of Protecting the Resources.	Irrelevant/Inapplicable. Not material. See UH-TIO FOF 1001-1014 (regarding the public trust doctrine); <i>see also</i> UH-TIO COL 295-323 (same).
980.	164	Is a Standard for Managing Public Trust Resources that Specifically Mitigates in Favor of Protecting the Resources.	Incomplete. Not material. See UH-TIO FOF 1001-1014 (regarding the public trust doctrine); <i>see also</i> UH-TIO COL 295-323 (same).
981.	164	In the <i>Waiahole</i> (2000) case the Court discusses what is known as the precautionary principle, holding that, in the absence of conclusive evidence	Irrelevant/Inapplicable. Not material. See UH-TIO FOF 1001-1014 (regarding the

		to the contrary, trustee should err on the side of caution and mitigate the side of protecting the resource(s); thus stating in relevant part: “Where scientific evidence is preliminary and not yet conclusive regarding the management of fresh water resources which are a part of the of the public trust, it is prudent to adopt the “precautionary principle” in protecting the resources. That is, where there are present or potential threats of serious damage, lack of full scientific certainty should not be the basis for postponing effective measures to prevent environmental degradation...in addition, where uncertainly exists, a trustee’s duty to protect the resource mitigates in favor of choosing presumptions that also protects the resources. “ (In re Water Use Permit Application , 94 Hawaii 97; 9 P.3d 409 (2000) (hereafter “Waiahole”) at p.154.))	public trust doctrine); <i>see also</i> UH-TIO COL 295-323 (same).
982.	165	The Court in McBryde Sugar Co. v. Robinson (1973), stated: [t]he right to water was specifically and definitely reserved for the people of Hawaii for their common good....[a]nd the ownership of water in natural watercourses and rivers [remains] in the people of Hawaii for their common good. (Emphasis the Court’s) at p.129 But the Court when further in In Robinson v. Ariyoshi (1982) stating; [a] public trust was imposed upon all waters of the kingdom. (Emphasis of the Court) Id. Then in 1978 the people of Hawai’i adopted protection of all the waters of Hawai’i in the Constitution, in Article XI, Section 1 and Section 7, which read in relevant part: Section 1. For the of present and future generations, the State and its political subdivisions shall preserve and protect...all natural resources including water,...and shall promote the development and utilization of these resources in a manner consistent with their conservation.... And, All public natural resources are held in trust by the State for the benefit of the people. (Emphasis the Court’s)	Irrelevant/Inapplicable. Not material. <i>See</i> UH-TIO FOF 1001-1014 (regarding the public trust doctrine); <i>see also</i> UH-TIO COL 295-323 (same).
983.	165		Irrelevant/Inapplicable. Not material. <i>See</i> UH-TIO FOF 1001-1014 (regarding the public trust doctrine); <i>see also</i> UH-TIO COL 295-323 (same).
984.	165		Irrelevant/Inapplicable. <i>See</i> UH-TIO FOF 1001-1014 (regarding the public trust doctrine); <i>see also</i> UH-TIO COL 295-323 (same).

985.	165	Article XI, under the WATER RESOURCES section provides; Section 7. The State has an obligation to protect, control and regulate the use of the Hawaii's water resources for the benefit of its people. (Emphasis of the Court), Waiahole at p. 129, 130	Irrelevant/Inapplicable. See UH-TIO FOF 1001-1014 (regarding the public trust doctrine); see also UH-TIO COL 295-323 (same).
986.	165	Further, the Court affirming the scope of the "States Resource Trust" had this to say: [t]he public trust doctrine applies to all water resources without exceptions or distinction [including surface and underground water]. Id. at 133.	Irrelevant/Inapplicable. See UH-TIO FOF 1001-1014 (regarding the public trust doctrine); see also UH-TIO COL 295-323 (same).
987.	166	The principles of the public trust inform every decision made about shared resources in Hawai'i, such as the public lands of Mauna Kea. The Public Trust Doctrine is at the foundation of law in Hawai'i.	False/Inaccurate. See UH-TIO FOF 1001-1014 (regarding the public trust doctrine); see also UH-TIO COL 295-323 (same).
988.	166	The Hawai'i Supreme Court has repeatedly held that an agency's discretionary authority is "circumscribed" by the Public Trust Doctrine. (Kelly v. 1250 Oceanside Ptnrs, 111 Hawai'i 205, 230, 140 P.3d 985, 1010 (2006). See also, In re Water Permits, 94 Hawai'i 97, 133, 9 P.3d 409, 445 (2000), In re Contested Case Hearing on the Water Use Permit Application Filed by Kukui, 116 Hawai'i 481, 508, 174 P.3d 320, 347 (2007)). An entity seeking to use public trust resources for other than their intended use must demonstrate that the proposed use does not harm that public resource or the public's interest in that resource, especially for Native Hawaiians. (In re Water Permits, 94 Hawai'i at 136-7, 9 P.3d at 448-49.)	Irrelevant/Inapplicable. See UH-TIO FOF 1001-1014 (regarding the public trust doctrine); see also UH-TIO COL 295-323 (same).
989.	166	The recent Supreme Court in MKAH (2015), held; Waiahole I was an explicit acknowledgment of by this court that the public trust doctrine, as incorporated into the Hawai'i Constitution, necessitates "a balancing process" between the constitutional requirements of protection and conservation of public trust resources, on the one hand, and the development and utilization of those resources, on the other. (Id. At 142, 9 P.3d at 454.) This balancing process, however, exists in a framework demanding that "any balancing between public and private purpose [must] begin with a presumption in favor of public use, access and enjoyment." (Id.) The burden of showing that the requisite balance has	Mischaracterization. See UH-TIO FOF 1001-1014 (regarding the public trust doctrine); see also UH-TIO COL 295-323 (same).

990.	166	been properly evaluated "in light of the purposes protected by the trust" rest on "those seeking or approving such uses." (Id.) (Emphasis added). The Court holds agencies responsible for implementing the Public Trust Doctrine. BLNR has a legal duty to preserve the public's right to ensure the public trust is not degraded. (In re Water Permit Applications, 94 Hawai'i at 141, 9 P.3d at 453.) Where an agency fails to uphold its obligation to protect the Public Trust Doctrine, citizens, as beneficiaries of that public trust, have an independent cause of action against to uphold their rights. This case involves §5(f) of the Admissions Act, a federal law that addresses public trust lands. "Under basic trust law principles beneficiaries have the right to 'maintain a suit (a) to compel the trustee to perform his duties as trustee; (b) to enjoin the trustee from committing a breach of trust; [and] (c) to compel the trustee to redress a breach of trust.'" (Price v. Akaka, 3 F.3d 1220, 1224 (9th Cir. 1993), citing Restatement 2d of the Law of Trusts, §199.)	Irrelevant/Inapplicable. See UH-TIO FOF 1001-1014 (regarding the public trust doctrine); see also UH-TIO COL 295-323 (same).
991.	167	The Ninth Circuit later clarified that Native Hawaiians can bring suit as §5(f) beneficiaries under federal law. (Day v. Apoliona, 496 F.3d 1027, 1032 (9th Cir. 2007) ("[W]e twice explicitly held that because it creates a trust, §5(f) also creates a right enforceable under 42 U.S.C.S. § 1983 (LEXIS Pub. L. 112-18 through 2011) by the trust's beneficiaries.")) The Supreme Court of Hawai'i further clarified that "a private implied right of action . . . to enforce the terms of the §5(f) trust under Hawai'i law" exists under State Constitutional Protections in Haw. Const. Art. XII, § 4." Pele Defense Fund v. Paty, 73 Haw. 578; 837 P.2d 1247 (1992). In Pele, the Court reviewed a number of cases in which Hawai'i citizen beneficiaries sued to enforce their rights as beneficiaries of public trust lands. (Id. at 604-07; citing, Kapiolani Park Preservation Society v. City & County of Honolulu, 69 Haw. 569, 751 P.2d 1022 (1988) (public trust beneficiaries were held to be able to bring suit to prevent a government agency from disposing of trust lands) and Natatorium Preservation Committee v. Edelstein, 55 Haw. 55, 515 P.2d 621 (1973), ("citizens can bring suit for an injunction against the government agencies charged with the management of public lands when those agencies seek to dispose of the public lands in	Irrelevant/Inapplicable. See UH-TIO FOF 1001-1014 (regarding the public trust doctrine); see also UH-TIO COL 295-323 (same).

992.	167	violation of the statutes governing their management and disposition.) The sacred waters of Mauna Kea include but are not limited to, the snow, ice (including fossil ice), meltwaters, the waters collected from the clouds and mist, the surface and underground water, rivers, ice caves, and the water that flows into the sea are protected under the precautionary principle and the public trust doctrine.	Unsupported/Unsubstantiated. <i>See</i> UH-TIO FOF 1001-1014 (regarding the public trust doctrine); <i>see also</i> UH-TIO COL 295-323 (same). The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of the belief is factual.
993.	167	Neither the State BLNR nor the UH/TMT who are the proponents and the agency responsible for protecting the waters of Mauna Kea, have presented conclusive evidence to ensure the sacred waters will be protected from the telescopes' use of hazardous material, sewage treatment, mirror washing treatment, or that other hazardous materials and sewage handling will not contaminate the waters that feed the multiple aquifers for Hawai'i island.	False/Inaccurate. Conclusive evidence is beyond the burden of proof in this proceeding. Not supported by the reliable, probative and substantial evidence. <i>See</i> UH-TIO FOF 373, 423-432, 445-446 (regarding water resources); <i>see also</i> UH-TIO COL 173-175, 192-193, 243, 300 (same). <i>See</i> UH-TIO FOF 824 (noting that no hazardous waste is anticipated to be generated at the TMT Observatory); <i>see also</i> UH-TIO FOF 825-839 (regarding the handling and disposal of solid waste, and wastewater).
994.	168	BLNR and UH/TMT witnesses did not present any conclusive evidence or witness testimony that demonstrated they have met their burden to prove	False/Inaccurate. Conclusive evidence is beyond the burden of proof for this

		the water is safe and will be protected into the future. In fact their witnesses in some case testified to disagreeing with the historical holdings of the Supreme Court of Hawai'i and specifically about the public trust doctrine.	proceeding. Not supported by the reliable, probative and substantial evidence. Unsupported/Unsubstantiated. Not credible. <i>See</i> UH-TIO FOF 373, 423-432, 445-446, 824 <i>see also</i> UH-TIO COL 173-175, 192-193, 243, 300.
995.	168	The cumulative impacts of all of the telescopes over a thirty year period have already been shown to be adverse, significant and substantial to the natural and cultural resources of the Mauna Kea. (see Ex. B.01.o Request for Section 106 consultation and DEIS comments 7/7/09) (Emphasis added)	Not in dispute, but more accurately stated in UH-TIO FOF 119-122. Inaccurate/False to the extent the Proposed FOF suggests that Section 106 consultation was required for the TMT Project. UH-TIO FOF 507-509 (regarding consultation under NHPA Section 106 that is not required for the TMT Project); UH-TIO COL 427-444 (same). Irrelevant/Inapplicable. <i>See</i> UH-TIO FOF 433-464 (regarding the fourth criterion in HAR §13-5-30(c)(4) and finding that the TMT Project itself will not cause substantial adverse impacts to resources such as cultural, historic, and archaeological sites); <i>see also</i> UH-TIO COL 177-217 (concluding that the TMT Project satisfies the fourth criterion). False/Inaccurate. Mischaracterizes the
996.	168	The UH/TMT witnesses also did not present any conclusive evidence	

	demonstrating that they have met their burden to show that Native Hawaiian practices relating to the access, gathering, use and enjoyment of the sacred waters would be protected. Native Hawaiian practice and use of the water for medicinal, ritual, and ceremonial purpose cannot be done if the water is not clean and pristine. It is not known and this unknowing has led some practitioners not to harvest some waters and to use some of the waters in limited ways. So our practices are being negatively impacted. If Hawaiians cannot use the water for healing then it probably should not be used for drinking water either. With so much uncertainty there is no way to be certain that the water sources for public consumption are not being negatively impacted. If we are unsure, then the precautionary principle should be applied, and that is to err on the side of caution.	burden of proof. Not supported by the reliable, probative and substantial evidence. Unsupported/Unsubstantiated. <i>See</i> UH-TIO FOF 306, 373, 423, 586, 669-671, 799-801, 806; <i>see also</i> UH-TIO COL 174, 341. Observatories have been in operation without zero discharge systems for decades and petitioners have yet to establish any impact to waters at Mauna Kea. Not credible. <i>See</i> UH-TIO FOF 703 (regarding Pisciotta's testimony concerning cultural practices, <i>inter alia</i>, collecting water from Lake Waiau, and finding said practices would not be altered by the TMT Observatory); UH-TIO FOF 758 (regarding Ching's testimony concerning cultural practices, <i>inter alia</i>, collecting water from Lake Waiau, and finding said practices would not be altered by the TMT Observatory). Irrelevant/Inapplicable. False/Inaccurate. Ms. Pisciotta is free to assert a private right of action in an appropriate proceeding, but not here. This forum lacks jurisdiction to entertain such a claim.
997.	168 It matters not how many black holes we discover, when we haven't figured out how to clean our own drinking water once it has been contaminated at its source. Therefore as Hawai'i citizens and Native Hawaiian beneficiaries of §5(f) public trust lands, we assert a private right of action to compel the BLNR to enforce compliance with statutory provisions that ensure the protection of public trust lands and waters of Mauna Kea.	

998.	169	We submit that the State and the UH representatives who closed the Mauna Kea access road (a public road and neither owned nor exclusively controlled by the University or their representatives from the Office of Mauna Kea Management (OMKM)) used State and County enforcement officers not just to infringe on the civil rights of Native Hawaiians and others who were there to support stopping desecration by stopping the bulldozers on the road, but that UH/TMT, State and County representatives acted in conspiratorial ways and used the state's police power against the citizens and people of Hawai'i (including subjects of the Hawaiian Kingdom of any ethnicity). The state's Attorney General, the Deputy Attorney Generals, the County Prosecutor, University and TMT representatives have been shown to have had detailed conversations regarding how to deal with the "protestors." Such conversations were not pono and demonstrate how the state's representatives continue to have the appearance of bias against the pro se Petitioners, even while they continue to advise the Hearings Officer and the BLNR regarding this case.	Not credible. See UH-TIO FOF 306, 373, 423, 586, 669-671, 703, 758, 799-801, 806; <i>see also</i> UH-TIO COL 174, 341. Irrelevant/Inapplicable. False/Inaccurate. Lack of Jurisdiction. UH-TIO COL 392-407 (addressing claims of alleged desecration and concluding they are not within BLNR's jurisdiction, are unsupported by any evidence, and are therefore rejected); <i>see also</i> UH-TIO FOF 542 (finding no burials on the TMT Project site).
999.	169	Please see, DOC 095 July 18, 2016, (Petitioners Mauna Kea Anaina Hou, et al, Motion To Disqualify BLNR's and Hearing Officer's Counsel). Here petitioners asserted that the named deputy attorneys general in question have been involved with counsel for the UH / TMT. These various deputy attorneys general cannot therefore provide fair and impartial advice to the Hearing Officer in these case. The motion was brought pursuant to HAR CH 13-1-12, 13-1-34 and rule 1.10 of Hawaii Rules of Professional Conduct.	Incomplete. <i>See</i> UH-TIO FOF 38 (regarding the denials of several motions objecting to the Hearing Officer selection process and seeking to disqualify the Hearing Officer). Irrelevant/Inapplicable. False/Inaccurate. Not supported by the reliable, probative

1000.	169	Our attorney at the beginning of the hearing, Mr. Naiwi Wurdeman, did file motions outlining this very problem. Shortly after he filed these motions, the Hearings Officer unilaterally created a hearing schedule that was untenable and in direct conflict for Mr. Wurdeman's other commitments and his cases, including one in the Supreme Court.	and substantial evidence. Irrelevant/Inapplicable. False/Inaccurate. Unsupported/Unsubstantiated. Not supported by the reliable, probative and substantial evidence. UH-TIO FOF 2-3 (regarding representation of MKAH); UH-TIO FOF 75-87 (regarding scheduling the hearing, including advance and repeated notices provided to Wurdeman regarding scheduling).
1001.	169	Mr. Wurdeman made a serious effort to accommodate his schedule, all to no avail. Thereafter the six Petitioners continued on pro se as they had in the first Contested Case Hearing. As a matter of fact, we wish the record to reflect that as soon as Mr. Wurdeman filed notice of his forced withdrawal as counsel, the University, who had been claiming it was Mr. Wurdeman trying to game the system and cause tactical delays, themselves asked for an extension of time, which was categorically granted.	Irrelevant/Inapplicable. False/Inaccurate. See UH-TIO FOF 75-87. Unsupported/Unsubstantiated. Not supported by the reliable, probative and substantial evidence.
1002.	170	We would also like the record to reflect that, aside from the one case we can remember, we do not believe that the Hearings Officer/DAG or BLNR ever granted a single motion that any of the Pro Se Petitioners ever filed.	Irrelevant/Inapplicable. The Minute Orders speak for themselves.
1003.	170	In 2009, we requested that the TMT begin consultation under the National Historic Preservation Act. MKAH has previously been recognized by the Advisory Council on Historic Preservation (ACHP) as a Native Hawaiian Organization (NGO) for the purpose of consulting regarding the	False/Inaccurate. See UH-TIO FOF and COL at Appendix B -4; Appendix C-2, C-3; and Appendix D-1 through D-8. Irrelevant/Inapplicable. Not material. False/Inaccurate. See UH-TIO FOF 507-509 (regarding consultation under NHPA

		Traditional Cultural Properties (TCP) of Mauna Kea, sometime around 2003 during the NASA/KECK Outriggers Project. We provided comments, parts of which are included below from Ex. B.01o under Section III:	Section 106 that is not required for the TMT Project); UH-TIO COL 427-444 (same). Not credible. UH-TIO FOF 677 ("Pisciotta testified that she made comments on behalf of MKAH, Neves, and Ching in 2009 that were included in the EIS process. Tr. 2/13/17 at 170:20-171:3. She also testified that she participated in the scoping meeting for the TMT EIS, reviewed the TMT DEIS and commented extensively twice. Tr. 2/13/17 at 203:1-203:11; Ex. C-43. Pisciotta acknowledged that she is aware that there is a time period to challenge an EIS that is approved by the Governor and that she did not challenge the FEIS for the TMT Project during this period. Tr. 2/13/17 at 171:4-171:10.").
1004	170	The TMT Draft EIS is filled with inaccuracies, misleading and/or false information and is wholly inadequate	The credible evidence established that there was no "federal undertaking". Unsupported/Unsubstantiated. False/Inaccurate.
1005	170	TMT claims no federal funding used for Project	Not credible. UH-TIO FOF 677. Not in dispute, but more accurately stated in UH-TIO FOF 507-509.
1006	170	The TMT DEIS states: Federal rules, such as the National Environmental Policy Act (NEPA), do not apply to the Project, no Federal agency is involved in the Project, no Federal Funding is being use for the Project,	Not in dispute, but more accurately stated in UH-TIO FOF 507-509 and UH-TIO COL 427-444.

1007	170	and the Project does not use Federal Land.” (TMT DEIS at p. 3-105) [T]he TMT project has received substantial federal funding from the National Science Foundation (NSF). NSF Award 0443999 confirms this. The NSF Award also confirms that \$18 million federal tax dollars were awarded to the TMT and Giant Magellan Telescope (GMT), for “(1) The Design and development phase for a 30-meter diameter segmented-mirror, optical/infrared telescope, the Thirty Meter Telescope (TMT).” Further confirmation of federal funding used by TMT is found at the link below. (See Executive Summary second paragraph) (http://www.noao.edu/dir/spo/GSMT-annual-report08.pdf).	Unsupported/Unsubstantiated. Not material. Not in evidence. False/Inaccurate. See UH-TIO FOF 507-509; UH-TIO COL 427-444.
1008	171	NEPA is the nation’s law for protecting the environment. The NEPA rules state:	Incomplete. Irrelevant/Inapplicable. UH-TIO FOF 507-509; UH-TIO COL 427-444.
1009	171	NEPA is not to generate paper work, even excellent paper work, but to foster excellent action... The NEPA process is intended to help public officials make decision that are based on the understanding of the environmental consequences, and take actions that protect, restore and enhance the environment.” (40 CFR § 1500.1, 1502.1)	Irrelevant/Inapplicable. UH-TIO FOF 507-509; UH-TIO COL 427-444.
1010	171	The National Science Foundation (NSF) funding of the project constitutes a significant federal undertaking. Neither NSF as the funding agency nor the TMT as the receiving agency has prepared a federal level environmental review document (i.e. an Environmental Assessment (EA) or Environmental Impact Statement (EIS)) pursuant to the National Environmental Act, as amended 1969, relevant federal rules and regulations, and legal precedent (court made law).	False/Inaccurate Irrelevant/Inapplicable The credible evidence established that there has been no federal undertaking that triggers either NHPA or NEPA requirements. UH-TIO FOF 507-509; UH-TIO COL 427-444.
1011	171	Listing the University of Hawai‘i at Hilo (UHH), a state agency, as the	False/Inaccurate

		proposing agency on the TMT DEIS does not allow the Project to escape federal legal requirements; it means either the UHH will be "federalized" for the purpose of fulfilling NEPA and the NHPA, or will cause UHH to be enjoined in any legal challenges brought against this process.	Irrelevant/Inapplicable UH-TIO FOF 507-509; UH-TIO COL 427-444. Not credible. UH-TIO FOF 677. See response to FOF #1010. Mischaracterization. Irrelevant/Inapplicable. UH-TIO FOF 507-509; UH-TIO COL 427-444. Not credible. UH-TIO FOF 677.
1012.	171	The TMT is proposing to use Mauna Kea summit lands, which are eligible for listing on the National Historic Register, yet TMT has not begun Section 106 consultations under the National Historic Preservation Act (NHPA). Again, we made formal requests in our scoping comments, calling for NHPA, Section 106 Consultation to begin.	Irrelevant/Inapplicable. UH-TIO FOF 507-509; UH-TIO COL 427-444.
1013.	171	The U.S. District Court (Hawai'i) affirmed: NHPA mandates that a federal agency "shall consult...with any Native Hawaiian organization that attaches religious and cultural significance" to properties eligible for the inclusion on the National Register." (OHA v. NASA, Civil No. 02-00227 (SOM/BMK), 2003, p. 18 of 39)	Irrelevant/Inapplicable. Not material. UH-TIO FOF 507-509; UH-TIO COL 427-444.
1014.	172	The State Historic Preservation Office, TMT DEIS review letter dated June 26, 2009, states: Agencies Involved: Section 2.0 states that the TMT Observatory Corporation is a private non-profit partnership. Your memo dated May 28, 2009 notes that the National Science Foundation released the DEIS. There is no mention of the NSF in the DEIS, and we presume that is the case. If the NSF is involved, this project is subject to review under the National Historic Preservation Act, Section 106. (36 CFR 800). And, The DEIS and draft archeological Assessment for Area E (Appendix E) does not address impacts to the Mauna Kea Summit Historic District.	Unsupported/Unsubstantiated. Not material. Irrelevant/Inapplicable.
1015.	172	TMT representatives appear to understand what federal laws require, yet continue to ignore them. (Please see TMT comments below). The idea that	False/Inaccurate. UH-TIO FOF 507-509; UH-TIO COL 427-444.

1016	172	TMT can move forward "independent of anything that happens with the Comprehensive Management Plan" is erroneous. The TMT may not move forward without a completed and approved CMP.	Irrelevant/Inapplicable. UH-TIO FOF 507-509; UH-TIO COL 427-444.
1017	172	When questioned by Kealoha Pisciotta, Edward Stone of the TMT stated the following: (Tr. Dec. 19, 2016, Edward Stone, Vol 18, p.26:16-25, p.27:1-25, p.28:1-25, p.29:1-25, p.30:1-25, p.31:1-25, p.32:1-25, p.33:1-2, p.34:1-25, p.35:1-25, p.36:1-25, p.37:1-25, p.38:1-9 Q. Has your staff informed you that Native Hawaiians attach religious and cultural significance to the historic properties within the Historic District of Mauna Kea? A. I'm aware of that, yes. Q. Are you aware that the advisory council on Historic Preservation is a council that is made up of presidential appointees and it is a federal agency responsible for ensuring federal agencies and/or federal undertakings comply with the National Historic Preservation Act? MR. ING: Objection, Your Honor, this is beyond the scope and lacks foundation. HEARINGS OFFICER AMANO: Could you set the foundation and also perhaps tell me where we're going with this? MS. PISCIOTTA: Well, the CDUA requires that all county, state and federal requirements and laws be met and followed. So we believe it's relevant, and we believe that he's the witness who can talk about it because he is Executive Director of TMT, and so really the buck has to stop with someone and I think it's him. HEARINGS OFFICER AMANO: All right. So could you then set the foundation? In other words, you have to establish that he knows about that.	Irrelevant/Inapplicable. UH-TIO FOF 507-509; UH-TIO COL 427-444.

	MS. PISCIOTTA: Sure, let me try. Q. Are you aware that the NASA Keck Observatory did complete Historic Preservation and National Environmental Policy Act review processes? A. I'm sorry, what is the question? Q. Are you aware that the TMT -- oh, sorry --that the NASA and Keck, for example, did have to comply with the National Environmental Policy Act and the Historic Preservation Act review processes? A. I don't remember. Q. Do you remember that the court had stated that your EA and finding of no significant impact was incorrect? MR. ING: Objection, Your Honor, beyond the scope of his direct. MS PISCIOTTA: It's really not because he was in charge of the Keck Observatories during the period in which this lawsuit occurred. And he also was in charge of the -- he was in the lawsuit, so I think he should know NASA, Sean O'Keefe (phonetic) and University of California and Caltech were involved as well. So I'm just trying to establish that he knows. It's in 2003 -- that's part of his testimony that he was this person in 2003 and CARA does oversee Keck Observatories, and that was their project? HEARINGS OFFICER AMANO: Mr. Ing. MR. ING: The Keck project is not at issue here. If she wants to ask with regard to NSF and the Historic Preservation Council, she can ask those questions of him with regard to the TMT project. That's what I'm objecting to. She is asking the issues with regard to the Keck project. MS. PISCIOTTA: He objected to the earlier question, so I'm trying to lay foundation. He should be aware of because he's been involved in the exact same processes regarding federal review which is one of the requirements of the CDUP that they have to be in compliance with federal as well as state and county. HEARINGS OFFICER AMANO: How does that tie to TMT? MS. PISCIOTTA: Because TMT has not conducted those same federal level review that he had to go through earlier.	
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	HEARINGS OFFICER AMANO: I'll overrule the objection, allow you to lay your foundation, please. Q. (By Ms. Pisciotta): Are you aware that the TMT has not conducted either the federal level environmental review or Historic Preservation review process? A. Yes. Q. Are you aware that the federal review process would include compliance with National Environmental Policy Act? A. Federal government is not involved in the way that in fact requires that review. A. And they're not -- okay. I'm going to quote something for you and then ask you another question. The National Historic Preservation Act as amended in 1992 defines an undertaking which means project activity or program, funded in whole or in part under the direct or indirect jurisdiction of federal agency, including those carried out on behalf of the federal agency or those carried out with federal assistance. Then it goes on for little bit more. Are you aware of that, what the definition after undertaking? A. There has been -- this is something the NSF would determine, and they have not determined that they have that role, as I understand it. Q. But it doesn't have to necessarily be NSF, it's whoever receives federal funds. A. Well, the federal funds have to come from organizations like NSF that determine whether or not this is something that is required. Q. That's correct. So are you aware that the TMT has received federal funding and federal assistance in the form of National Science Foundation funding? A. We have, but not for purposes covered by those laws, as I understand it. Q. Do you know what those purposes are? A. The purposes of what the funding we have had has been for community outreach to national U.S. community and to developing a plan for possible future federal contributions, but they're not in fact involved in	
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funding the design or construction of TMT.

Q. I'm going to put something on the projector. I have to turn it on.

MR. ING: If these are exhibits, I would like to have them identified first all. If they're not exhibits, then they shouldn't be shown to the witness.

MS. PISCIOTTA: yeah, they're exhibits, it's already been shown before. This one is NSF grant for \$18 million, and it's a cooperative agreement, and it is the design and development of the giant segmented mirror that is -- I'm trying to go read which one it is.

MR. ING: What is the exhibit number?

MS. PISCIOTTA: B.01b. It's in there already, but you can put it up? Thank you.

Q. Are you familiar with that exhibit?

A. Yes.

Q. So are you familiar with that \$18 million?

A. Yes.

Q. So would you -- and would you identify what that 18 million is for?

A. That's for the studies that were going on at the time. These were pre -- the period where we were actually designing the telescope and had -- and at that time NSF was involved in some of the site testing in South America, which is part of that 18 million dollars, for instance. But NSF, it's up to them to determine what laws they have to follow with respect to these things. They did not determine that this required an EIS or anything like that.

Q. Okay. I'm going to show you another one. And this is -- we don't have it uploaded yet, but we have copies for everyone. We're going to identify it as B.01q.

HEARINGS OFFICER AMANO: Could you give a copy to Mr. Ing, first, please?

MS PISCIOTTA: Yeah. Excuse me, I'm sorry, just taking a moment here

MR. ING: You Honor, I thought there were copies for each of the

	parties. MS. PISCIOTTA: I'm sorry? MR. ING: I object to the use of the witness -- I don't have a copy of the exhibit and they will be asking questions from it... HEARINGS OFFICER AMANO: Yes. So you've hand B.01q and you've identified and intend to have uploaded -- a copy has been given to this witness as well as Mr. Ing and Mr. Ing is sharing with Mr. Lui-Kwan. Q. (By Ms. Pisciotta): Just a simple question. This one specifically is for 1 million dollars, and I guess you and Mr. Michael Bolte and Gary Sanders, I believe, were the proponents of this grant; is that correct? A. Yes. Q. Are you aware of any other grants that NSF has awarded to the TMT? A. No, these are the two. Q. Were any others? A. No. To TMT? Q. Yes. A. No, nothing comes to mind. Q. Nothing for the STEM program? A. STEM program, I'm not aware, I don't -- Q. Anyway, so I'll get on with the questions. You were saying that your testimony was that NSF needed to be the one to trigger it, but it also says that the one who gets federal funds is also responsible for federal compliance. I'm going to read an excerpt from Exhibit A-11, which is Cultural Resource Management Plan for University of Hawai'i. I'm going to read first from page 1-29, I'll read it for you. The National Historic Preservation Act first passed in 1966 and subsequently amended covers the treatment of historic properties on federal lands under federal control and/or affected by federal funded activities or undertakings. The National Historic Preservation Act governs the identification and treatment of properties by public and private entities in order to ensure that, quote, the historical and cultural foundation of the nation should be preserved as a living part of the our community life and	
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development in order to give a sense of orientation to the American people, unquote.

And then on page 1-3, I will read this part for you. Section 106 of the National Historic Preservation Act governs how federal agencies proposing or funding an undertaking must proceed in order to -- in order to ensure the appropriate treatment of historic properties affected by the undertaking.

There is a federal statute listing the 16 U.S.C. 470F, the head of any federal agency having direct or indirect jurisdiction of a proposed federal or federally assisted undertaking in any state, and head of federal department or independent agency having authority to license any undertaking shall, prior to the approval of the expenditure of any federal funds on the undertaking or prior to the issuance of any license or approval -- as the case may be taken into account the effects of the undertaking on any district, site, building, structure or object that is included or is eligible for the inclusion in the National Register.

The head of such federal agency shall afforded by counsel [SIC: should be "Council"] on historic preservation establish under Title 2 of this act a reasonable opportunity to comment with regard to such an undertaking.

It states, given this definition, it is clear that the activities within the UH management area that are carried out with federal funding, for example, from National Science Foundation or National Aeronautics and Space Administration are covered by Section 106 National Historic Preservation Act.

In addition, any activities that require federal permit license or approval from the U.S.S Fish and Wildlife under the Endangered Species Act also come under Section 106 in National historic Preservation Act. So my question, Mr. Stone, is have you talked to the National Science Foundation regarding either doing a federal Environmental Impact Statement or a Federal Level Section 106 consultation?

A. It's my understanding it's not required.

Q. Okay. Because you have read these rules?

		A. No, that's what I'm told. I'm not an expert on all those rules, but that's what I've been told. Q. Who is telling you this? A. The lawyers. Q. Oh, the lawyers? A. Yes. Q. All right. So in the past Yale University has paid money, I believe, in the amount of 14 million to acquire time on the Keck Observatory. Are you aware of that? A. I'm aware of that, but I was not involved. Q. Have you or TIO or TMT Corporation negotiated any state -- negotiated with the state or BLNR for percentage of any proceeds that might come in from other places for use of the TMT? A. I don't have any knowledge of these details. I have not been involved. Q. Will TMT look to patent any of the technologies that they might produce on the TMT telescope? A. Patent? Q. Yes. A. I assume -- I don't know. I don't know that we have patented anything, but certainly as a corporation we could do so as LLC. Q. And then if that were true, would you then negotiate with the state for a share of those proceeds since it will be being used on ceded lands? MR. ING: Objection, You honor, calls for speculation, lacks foundation. HEARINGS OFFICER AMANO: Sustained. (End transcript excerpts)	
1018	179	We maintain the TMT project, having received substantial federal funding, constitutes a federal undertaking as defined by Section 106 of the National Historic Preservation Act, as well as compliance with the National Environmental Act (NEPA). In order for the BLNR to issue a permit for the construction of the TMT they must insure the project has met all	Unsupported/Unsubstantiated. False/Inaccurate. UH-TIO FOF 507-509; UH-TIO COL 427-444.

		county, state and federal laws. The TMT project has not met the necessary county, state and federal requirements and therefore should not be granted a CDUP.	Not supported by the reliable, probative and substantial evidence.
1019	179	Many of the Pu`u [cinder cones], associated burials and kinolau; The TMT DEIS fails to address the cumulative impacts to the kinolau (bodily forms of the deities) such those impacts to the image of Poliahu seen from the east side of the island.	Unsupported/Unsubstantiated. False/Inaccurate. UH-TIO FOF 564 (finding no known pre-existing burials or human remains located in the TMT Project area); UH-TIO FOF 677 (finding that the TMT Observatory cannot be seen from Pu`u Wēkiu and will not have an adverse effect on solstice and equinox observations on Pu`u Wēkiu); UH-TIO FOF 771-772 (regarding no obstruction to view planes and continuation of practices); UH-TIO FOF 782, 788, 792, 904, 905, 909; UH-TIO COL 225, 341. Not credible. UH-TIO FOF 704, 769 (Pisciotta's testimony that the TMT Project will obstruct viewplanes used in Polohiwa ceremonies and those connected to the path of the sun, solstice, and equinox contradicts her previous statements that her ceremonies relating to the celestial equator are located near where the Subaru and Keck observatories are located. Moreover, Pisciotta's conclusion that the TMT Project will obstruct traditional viewplanes ignores her testimony that she has already adjusted her practices because existing telescopes block traditional viewplanes); UH-TIO FOF 787.

1020	179	View plane (including mauka-makai and makai-mauka view planes) The TMT DEIS fails to address the cumulative impacts of the practitioners view planes at the summit looking outward (mauka-makai). The view planes (view scapes) cannot only be evaluated from sea level looking up. The impacts include the practitioners' view planes which are viewed from Mauna Kea to the sea, to the other islands and to the night sky.	Unsupported/Unsubstantiated. False/Inaccurate. Not credible. Not supported by the reliable, probative and substantial evidence. <i>See</i> response to COL #1019; <i>see also</i> FOF 306, 307, 454, 641, 686, 704, 757, 764, 769, 770, 771, 775-795.
1021	179	Mountain landscape in navigational traditions; The TMT DEIS fails to evaluate the cumulative impacts on the ritual landscape including impacts on solstice, equinox ceremonies and other ceremonies relating to navigation.	Unsupported/Unsubstantiated. False/Inaccurate. Not credible. Not supported by the reliable, probative and substantial evidence. <i>See</i> response to COL #1019; <i>see also</i> FOF 306, 307, 454, 641, 686, 704, 757, 764, 769, 770, 771, 775-795.
1022	180	We wish also to state our objections to the TMT DEIS hearing presentations. The TMT hired people to give a presentation suggesting that modern astronomy is nothing more than an extension of what our ancestors accomplished. This is an unreasonable assertion. The two disciplines may not be reasonably compared; it is like comparing apples and oranges. Our ancestors may not have done what Plato did, but what they did accomplish was amazing. It is righteous to give credit where it is due.	Irrelevant/Inapplicable. Not in evidence. HRS § 91-9(g) prohibits consideration of information not in the record. Misleading. Presented out of context.
1023	180	The presentation was based on a book written about our past King who supported the construction of a small telescope in Honolulu. Unfortunately	Not credible. UH-TIO FOF 216-217, 236; UH-TIO COL 386-391. Irrelevant/Inapplicable.

		the book also claims the King supported it because it would help prove to the Hawaiian people the earth was round. The Hawaiian people certainly understood the earth was round; it was traditional knowledge dating back to before the time of Christ. They understood this because they could not have navigated and peopled 10 million square miles of the ocean and tiny islands without having known this.	Not in evidence. Misleading. Presented out of context. See response to FOF #1022.
1024.	180	The Kupuna (ancestors) understood this because they had identified a celestial equator, using knowledge kept in the traditions (and family mo`oleo) of Mauna Kea, which made the TMT presentations even more egregious. What our Kupuna (ancestors) accomplished was important to Polynesia but is also to the world, contributing to the global knowledge base. The Kupuna should be properly credited for this. Mauna Kea is the land of our history and knowledge—and it requires maximum protection. (Ex B.01.o Request for Section 106, Section Cultural Impacts #1,2,3)	Incomplete. Irrelevant/Inapplicable. Not material. Misleading. Presented out of context. Not supported by the reliable, probative and substantial evidence.
1025.	180	Our traditional resource management models are dependent on these ceremonies. Our ancient knowledge relating to our relationship to our other Pacific peoples are also a part of this knowledge. And lastly our sacred prophesies are based in this knowledge. (Ex B.01a K. Pisciotta, WDT, p. 6.)	Incomplete. Irrelevant/Inapplicable. Not supported by the reliable, probative and substantial evidence.
1026.	181	We refer to the summer solstice ceremonies as "Ke Ala Polohiwa a Kane", Winter as "Ke Ala Polohiwa a Kanaloa, spring equinox as "Ke Ala`ula a Kane", and autumnal equinox as "Ke Ala Ma`awe`ula a Kanaloa"	Irrelevant/Inapplicable. Not material. UH-TIO FOF 677 (finding that the TMT Project will not have an adverse effect on solstice and equinox observations occurring on Pu`u Wēkiu).
1027.	181	Winter Solstice = "Ke Ala Polohiwa a Kanaloa" -- The Black Glistening Path of Kanaloa--is when the sun hits its farthest point south in the sky, occurring in December.	Irrelevant/Inapplicable. Not material. UH-TIO FOF 677
1028.	181	The Summer Solstice is "Ke Ala Polohiwa a Kane" --The Black Glistening Path of Kane-- when the sun reaches it most northern point in the sky, occurring in June.	Irrelevant/Inapplicable. Not material. UH-TIO FOF 677
1029.	181	Whereas, the equinoxes (where the sun crosses the equator ("Ka Piko o	Irrelevant/Inapplicable. Not material. UH-

		Wakea" from my family tradition) to the far winter and summer points are called: "Ke Ala`ula a Kane " (The Spring Equinox--The Dawning of the Path of Kane") occurring in March and; "Ke Ala Ma'awe`ula a Kanaloa" (The Autumnal Equinox--"The Red Track or Tentacle") of Kanaloa) occurring in September. (Ex B.01a K. Pisciotta, WDT, p. 6-7)	TIO FOF 677
1030.	181	When questioned by Clarence Kukauakahi Ching, Kealoha Pisciotta referred to certain practices. (Tr. Feb. 13, 2017, Kealoha Pisciotta, Vol 34, p.48:9-25, p.49:1-25, p.50:1-10, p.50:25, p.51:1 Q. So what is the extent of the breadth of your activities on the mountain when you're doing 11 your cultural practices? A. All over, from Pu`u Poli`ahu to the lake, to Kukukau`la [SIC: should be Kukahau`ula] to Pu`u Weiku [SIC: Should be Wekiu] to Pu`u Hau`oki, the edge of Pu`u Kukahau`ula looking towards the whole archipelago including Haleakala. Q. Would your interest go further than Haleakala and Maui? A. Yes, because part of the practice is the alignments connecting Mauna Kea to the other heiau across the archipelago, all the way down to Motumanamana in the northwest Hawaiian island in Papahānaumokuākea National Monument. Q. So it would include the island of Kaua`i also, right?</p> <p>A. Yes, Pu`u Poli`ahu -- I mean Poli`ahu Heiau on Kaua`i as well.</p> <p>Q. So there is a relationship between Poli`ahu Heiau on Kaua`i and on Mauna Kea; is that true?</p> <p>A. Yes.</p> <p>Q. Could you tell us about that relationship, if you know?</p> <p>A. Well, I went there one time, having seen the heiau on some website, and I didn't understand why it would be on Kaua`i originally. Now I have a much better understanding. And so I traveled to Kaua`i and I went to the heiau, and I actually measured the alignments of that heiau and its construction and	Not credible. Misleading. Presented out of context. UH-TIO FOF 758 (finding that, <i>inter alia</i>, Ching did not establish that any of his cultural practices at the Mauna Kea Summit area that are connected to a firmly rooted traditional or customary native Hawaiian practice dating back to 1892. Ching also did not establish that he performs any historical or traditional native Hawaiian practice at the TMT Project site. No evidence was presented that his practices would be substantially impacted or prevented by the TMT Project.). UH-TIO COL 355-385 (regarding religious freedom and religious establishment). Incomplete. UH-TIO FOF 582 (testimony by Ching that kūpuna of his age would prefer to keep the road in place so that they can drive up to the top of Pu`u Poli`ahu since they cannot walk that distance). The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal

		their alignments back directly to Mauna Kea. They connect directly. Q. I see. Now, everyone knows that if you're looking towards Kaua'i and Poli'ahu Heiau, that the curvature of the earth sort of says that you do not really see it, it's below the horizon. Have you ever been able to see Poli'ahu Heiau from Mauna Kea? A. I actually have seen Kaua'i, but how I know they're directly aligned is because when you do the alignments connecting the solstice alignments from Mauna Kea that radiates out and across the archipelago, they are directly lined up with the north, south, and west directions. That's how we know they're aligned in that way as they are in Motumanamana. Q. In the EIS, the cultural EIS and all of that, they discuss the three principal spiritual places on Mauna Kea from which Hawaiians are supposed to be doing their practices. Do you limit yourself to those three places, if at all? A. Oh, no. I'm sorry, I do not limit my practices only to those three places. (end transcript excerpts)	impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of the belief is factual.
1031.	183	Please see the following Exhibits: Ex B-01t (NH Traditional View Plane Map showing some of the view used in ceremonies), Ex B-01w (a picture showing the Southern Cross, an important star constellation for Native Hawaiian practices), Ex. B28 (the image and Kinolau (bodily form of Poli'ahu, the snow goddess, found in the contours of the Pu'u Cinder Cones of the summit of Mauna Kea—found through oral histories and Mo'oleo), and B. 18c – B. 18g (the hand drawn maps made to describe the importance of the view planes for the Solstice and Equinox ceremonies by Ms. Pisciotta during testimony.)	Incomplete. See response to COL #1030.
1032.	183	As outlined in the conservation district rules, the applicant for a CDUP must demonstrate compliance with all eight permit criteria. HAR §13-5-30(c). There is no dispute that the UH/TMT must meet all eight of the criteria and that they as applicant have the burden of proof to demonstrate that all eight have been met. The UH/TMT has failed to demonstrate how	Unsupported/Unsubstantiated. Inaccurate/False. UH-TIO FOF 344-1000(finding that UH Hilo has demonstrated by a preponderance of the

		the TMT would even satisfy one criterion, much less all eight.	evidence that the TMT Project meets the eight criteria to support recommendation of approval of the CDUA and issuance of a CDUP); UH-TIO COL 126-293 (concluding the same).
1033	183	Conservation districts were formed "for the purpose of conserving, protecting and preserving the important natural resources of the State through appropriate management to promote their long-term sustainability and the public health, safety, and welfare." HAR §13-5-1, see also, HRS §205-2(e).	Not credible. Inaccurate citation. Misleading. Partial quotation. Full text reads: "The purpose of this chapter is to regulate land-use in the conservation district for the purpose of conserving, protecting, and preserving the important natural and cultural resources of the State through appropriate management and use to promote their long-term sustainability and the public health, safety, and welfare." HAR § 13-5-1.
1034	183	UH/TMT proposes that an 18-story, five-acre industrial structure in an undisturbed natural area is consistent with this purpose. This is an overbroad interpretation of HAR §13-5-30(c)(1) that, if accepted, would ultimately undermine conservation district protections. When interpreting a statute, the "whole act" rule demands that "the court will not look merely at a particular clause in which general words may be used, but will take in connection with it the whole statute . . . and the objects and policy of the law, as indicated by its various provisions, and give to it such a construction as will carry into execution the will of the Legislature." <i>Azarte v. Ashcroft</i> , 394 F.3d 1287-88 (9th Cir. 2005) quoting <i>Kokoszka v. Belford</i> , 417 U.S. 642, 650 (1974). Against this rule of statutory interpretation, UH/TMT focuses solely on the latter half of the regulation to focus on "appropriate management," ignoring the context of this general term and therefore the stated purpose of the conservation district. Because	Unsupported/Unsubstantiated. False/Inaccurate. Not credible. see <i>Kilakila 'O Haleakala</i>, 138 Hawaii 383 (2016).

1035	184	the TMT cannot meet this first criterion, this CDUA cannot be approved without abusing BLNR's discretion. Please see Marti Townsend's testimony (Tr. V24 p15:16-25) And also, Former BLNR Chair Laura Thielen stated the following "... Thus, while the TMT project carries many benefits both scientifically, economically, and in the form of higher education for the Big Island and the State as a whole, there will be environmental and cultural impacts of a significant and adverse nature on the summit of Mauna Kea." (R-4 FEIS V2, p.17 OF 531 PDF 3rd par.)	Incomplete. Unsupported/Unsubstantiated. Not credible as to Townsend's testimony. (UH-TIO FOF 838, 858, 859).
1036	184	So heavy is UH/TMT's reliance on "astronomy facility" as an identified use in the Resource subzone that it crushes the foundational purpose of conservation districts - "conserving, protecting, and preserving the important natural resources of the State." HAR §13- 5-30(c)(1). Subzones are a subset of a conservation district -- not an exception to it. See, HAR §13-5-30(c)(2). Any activity proposed for a subzone must comply with all of the requirements of the conservation district itself.	False/Inaccurate. Unsupported/Unsubstantiated. Not supported by the reliable, probative and substantial evidence. UH-TIO FOF 350-384 (finding that the TMT Project complies with criterion one under HAR § 13-5-30(c)(1); UH-TIO COL 128-142 (concluding the same). UH-TIO FOF 382-416 (finding that the TMT Project complies with criterion two under HAR § 13-5-30(c)(2); UH-TIO COL (143-164 (concluding the same).
1037	184	Identified uses in a resource subzone are hierarchically classified according to their consistency with the mission and purpose of the conservation district. See, Department of Land and Natural Resources, State of Hawaii. "Conservation District Review Project: The Discussion Draft." November 1993. Prepared by Gail W. Atwater. (EXB.03t at p. 16, Atwater Report (1993).	Not in dispute. UH-TIO FOF 382-416 (finding that the TMT Project complies with criterion two under HAR § 13-5-30(c)(2); UH-TIO COL (143-164 (concluding the same).

1038	185	While astronomy is an identified use in the conservation district subzone, such use is permitted if and only if it will not entail substantial adverse impacts on the conservation district. According to HAR §13-5-13(a), “[t]he objective of this [Resource] subzone is to develop, with proper management, areas to ensure sustained use of the natural resources of those areas.” Id. (emphasis added). Ensuring sustained use of Mauna Kea’s natural resources necessarily means ensuring that these resources are actually conserved, not degraded. Mauna Kea’s central location in mauka watersheds, views from the summit itself, unique rare and species habitat, and its cultural significance are resources would be degraded by the proposed TMT, as UH/TMT readily admits. (See Ex A003/R-3 FEIS Vol. 1, pp. S-12 through S-19). Thus, the TMT project cannot comply with criterion 2 and the CDUA should be denied.	False/Inaccurate. Assumes facts not in evidence. Unsupported/Unsubstantiated. Not supported by the reliable, probative and substantial evidence. UH-TIO FOF 350-384; UH-TIO COL 128-142. UH-TIO FOF 382-416 ;UH-TIO COL 143-164.
1039	185	Most of the Coastal Zone Management (CZM) policies align with those of the Conservation District. These policies, along with other CZM objectives and guidelines, are binding on agency actions within the coastal zone management area, which includes Mauna Kea. HRS § 205A-4(b). The TMT project fails to demonstrate compliance with CZM policies for many of the same reasons that it would entail adverse, significant and substantial impacts on the natural and cultural resources of the Mauna Kea conservation district.	False/Inaccurate. Unsupported/Unsubstantiated. UH-TIO FOF 417-432 (finding that the TMT Project complies with criterion three under HAR § 13-5-30(c)(2); UH-TIO COL 165-176 (concluding the same).
1040	185	UH/TMT has failed to show that the TMT can comply with CZM policies for protecting watersheds and aquifers. HRS Chapter 205A(c)(4)(E). The Mauna Kea Science Reserve is located above five State of Hawai’i delineated aquifers. See the Mauna Kea Comprehensive Management Plan for UH Management Areas, Jan. 2009. (Ex A009 CMP at p. 5-32). Ground water and aquifer contamination is a “potential side effect of a variety of human activities on the mountain,” and groundwater rates and flows at the summit are “unknown.” (Ex A009 CMP 6-14). Moreover, as observatory operators have demonstrated, spills and run-off from telescopes, the Access Way, and a potential Mid-Level Facility have been allowed to “percolate into the ground[.]” (Ex A003 FEIS Vol.1, p. 3-120).	False/Inaccurate. Unsupported/Unsubstantiated. UH-TIO FOF 417-432; UH-TIO COL 165-176.
1041	186	In March 2008, as much as 1,000 gallons of sewage overflowed onto the	Irrelevant/Inapplicable.

		ground and was "quickly absorbed" into highly porous ground, beneath which are flows to aquifers. (Ex A009 CMP, p. 6- 10). The TMT's three underground storage tanks (USTs), one of which will store hazardous wastes, raise additional concerns. Neither the CDUA nor the FEIS state whether they meet the EPA's standards for maintaining USTs. UH/TMT does not consider how this percolation impacts aquifers. UH/TMT have conducted no hydrology studies to understand how surface and ground water flows and the other water sources such as the lake, snow, ice and the melt waters follow.	False/Inaccurate. See UH-TIO FOF 824 (noting that no hazardous waste is anticipated to be generated at the TMT Observatory); see also UH-TIO FOF 825-839 (regarding the handling and disposal of solid waste, and wastewater).
1042	186	In addition, as explained in more detailed below, the proposed TMT would directly interfere with scenic views to and from Mauna Kea's summit region in violation of CZM policies. HRS §205A-2(c)(3)(E). If built, the TMT would be an unavoidable blight on the remaining natural viewplanes in the line of sight between Mauna Kea and Haleakala on Maui. Native traditions, oral histories, and historical accounts of Mauna Kea contain many references to the north-facing viewshed from Mauna Kea. E.g., Maly 2005, pp. 169, 209, 218, 231.	Unsupported/Unsubstantiated False/Inaccurate. Unsupported/Unsubstantiated. Not supported by the reliable, probative and substantial evidence. UH-TIO FOF 417-432; UH-TIO COL 165-176.
1043	186	HAR §13-5-30(c)(4) requires that "[t]he proposed land use will not cause substantial adverse impact to existing natural resources within the surrounding area, community or region." Id. Compliance with the fourth permit criteria is essential to ensure that the natural and cultural resources of the conservation district are not sacrificed in pursuit of unrelated goals.	Not in evidence. Mischaracterization. UH-TIO FOF 433-839 (finding that the TMT Project complies with criterion four under HAR § 13-5-30(c)(4); UH-TIO COL 177-217 (concluding the same).
1044	187	"Cumulative" is defined as "made up of accumulated parts; increasing by successive additions." Webster's Dictionary, 2011. This definition is consistent with HAR §11-200-2, which defines "cumulative impact" as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions."	Irrelevant/Inapplicable.
1045	187	UH/TMT attempts to limit review of the project solely to the TMT's discrete contribution to cumulative impacts. HAR §13-5-30(c)(4) is	Mischaracterization.

		concerned with the effects of proposed actions on natural resources and not with tracking individual contributions from different impact sources. UH/TMT's attempt to justify additional incremental impacts to a district already overburdened defies logic, for cumulative impacts necessarily results from incremental impacts.	False/Inaccurate. Unsupported/Unsubstantiated. UH-TIO FOF 493, 441, 442, 443, 452, 579, 795, 892; UH-TIO COL 463, 184, 187, 190, 443, 444.
1046	187	UH/TMT's conclusion that the impact of the proposed TMT would only be "incremental" is based on sophistries that unnecessarily complicate findings in the FEIS and by the DLNR itself. The record is undeniable: the TMT will have a substantial, significant, adverse impact. What UH/TMT admits, we need not prove. The TMT FEIS states:	Mischaracterization. False/Inaccurate. Unsupported/Unsubstantiated. Incomplete. UH-TIO FOF 493, 441, 442, 443, 452, 579, 795, 892; UH-TIO COL 463, 184, 187, 190, 443, 444.
1047	187	"From a cumulative perspective, the impact of past and present actions on cultural, archaeological, and historic resources is substantial, significant, and adverse: these impacts would continue to be substantial, significant, and adverse with the consideration of the [TMT] Project and other reasonably foreseeable future actions." (EX A003/R-3 TMT FEIS, S-8).	Not in evidence. Mischaracterization. Misleading. Presented out of context when read together with MKAH's Proposed COL 1046.
1048	187	In comments to the TMT-DEIS, the DLNR Chairperson states: "It is our view that the effect of astronomy development on cultural resources and on the landscape of Mauna Kea has been significant and adverse. While a project such as TMT can bring new resources into play that may mitigate certain cultural impacts and even benefit native Hawaiians, we believe that the project will increase the level of impact on cultural resources, which remains to be significant and adverse." Ex. A004.R-4, FEIS Vol.2, p.17.	Misleading. Presented out of context on the basis that the quoted comments were provided in response to the earlier, draft EIS. In addition, the Applicant responded to said comments by adding Section 3.2.3 into the Final EIS. Ex. A-4/R-4, FEIS Vol. 2, p. 17.

1049	188	The record demonstrates that, if built, the TMT would contribute significant harm to conservation resources on Mauna Kea. The TMT would introduce an 18-story industrial structure to a pristine plateau, increase astronomy-related personnel at the summit by fifty percent, and destroy over 12 acres total. DLNR Comment on the Draft EIS, (Ex A004 FEIS Vol.2, p. 21).	The FEIS was approved and not challenged. False/Inaccurate. Unsupported/Unsubstantiated. Misleading. Partial quotation. Misleading. Presented out of context on the basis that an earlier, draft EIS. In addition, the Applicant responded to said comments and made revisions to Section 3.16 of the Final EIS. The FEIS was approved and not challenged.
1050	188	In light of these substantial, adverse impacts on natural resources, UH/TMT's argument that the project will only have an "incremental impact" is disingenuous. The DLNR staff's elaboration of "incremental" unhelpfully stretches credulity to arrive at a finding of no-significance in regard to HAR §13-5-30(c)(4). In response to the FEIS finding that "impacts that are significant will remain significant with or without the TMT," DLNR staff conclude, "the proposal is not significant in and of itself, but will add incremental impacts to an area that has already undergone significant effects." (Ex A007, B.03aa/R-7 Staff Recommendations at p. 59). For a resource that is already sustaining more adversity than is permitted in the conservation district, any "increment" additional harm is unacceptable. Thus, not only is the proposed TMT improper, but existing development must also be mitigated to bring Mauna Kea conservation district management into compliance with the law. Please see FOF's; 328-350, 436-451, 471-479, 481-490, 609-613, 622-630, 637-642, 683, 849-861, 870-872, 877-902.	Unsupported/Unsubstantiated. False/Inaccurate. See UH-TIO FOF 433-839 (finding that the TMT Project complies with criterion four under HAR § 13-5-30(c)(4); UH-TIO COL 177-217 (concluding the same). See also UH-TIO FOF 340-343 (regarding the OCCCL's recommendation to approve the University's CDUA). Not supported by the reliable, probative and substantial evidence.
1051	188	Among the reasons that UH/TMT had to press beyond an EA to an EIS in	Not in evidence.

		the environmental review process were that the project possibly 1) “[i]nvolves an irrevocable commitment or loss or destruction of any natural or cultural resource” and 2) “[s]ubstantially affects a rare, threatened or endangered species, or its habitat.” (UH Environmental Impact Statement Preparation Notice, September 23, 2008, p. iii, quoting HAR § 11-200-12.) The FEIS addresses adverse impacts on Wēkiu bugs in a combined six acres area of the Northern Plateau and the TMT Access Way. (Ex A003/R-3 FEIS Vol. 1, p. 3-71). Of particular concern is the substantial adverse impact of the TMT access road, which passes between two areas of Wēkiu bug habitat, Pu‘u Hau‘oki and Pu‘u Poli‘ahu, and considering the restricted range of Wēkiu bug habitat, much of which has already been destroyed by BLNR’s mismanagement, the loss of any additional habitat area cannot be anything but significant.	Unsupported/Unsubstantiated. Not supported by the reliable, probative and substantial evidence. UH-TIO FOF 169 (finding, <i>inter alia</i>, that Area E is not considered good wēkiu bug habitat and Project-related disturbance will be minimized by using an existing roadway for access and installation of utilities”); UH-TIO FOF 306 (same); UH-TIO FOF 342(c) (same); 486-490 (same); 492. Not credible. UH-TIO FOF 481 (noting the FWS formally removed the wēkiu bug as a candidate from the Federal Endangered Species Act stating threats to the wēkiu bug did not put the species in danger of extinction throughout all or a significant portion of its range). False/Inaccurate. Unsupported/Unsubstantiated. Not in evidence. See UH-TIO FOF 433-839 (finding that the TMT Project complies with criterion four under HAR § 13-5-30(c)(4); UH-TIO COL 177-217 (concluding the same)).
1052.	189	HAR 13-5-30(c)(4) considers substantial adverse impacts on the area, community, or region – not just the immediate area of the Project. The TMT project would increase land use in surrounding summit areas that are home to a species that have or are candidates for Federal protection under the Endangered Species Act and several species of concern (including snails, bees, moths, and true bugs) in areas that would be more heavily utilized as a consequence of the TMT: the Hale Pohaku area, roads, the utilities maintenance corridor, and in the Batch Plant staging area. Increased usage of facilities will threaten biological resources in these areas as well, such as māmane subalpine woodland (palila habitat), endemic arthropods and snails, na‘ena‘e, silverswords, Hawaiian catchfly and their pollinators, ‘io, and other species. (Ex A003/R-1 FEIS Vol.1, p.	

1053	189	3-66). Mamane subalpine forest habitat are also anticipated to be disturbed by activities at the Hale Pohaku and a potential TMT Mid-Level facility. (A003/R-1 FEIS Vol.1, p. 3-73). The proposed TMT's failures to comply with CZM policies on scenic open space resources are also evidence of its substantial adverse impacts on viewplanes in the Mauna Kea conservation district, including those use by Native Hawaiian Practitioners. This project will mar the impressive natural viewscape of the summit with even more industrial structures and negatively impact the mauka-to-makai, makai-mauna view planes, the views from Mauna Kea to other sacred sites down the island chain, the views from Mauna Kea to other heiau and those used between pu'u on the mauna, and to important view planes used to track the 26,000-year cycle of the precession of the equinoxes (The Polohiwa) conducted on Mauna Kea. Certain ceremonies will not be able to be done and the practice will be lost. For all who visit the summit to watch sunset, the TMT would be an unavoidable intrusion into the view from Mauna Kea to Haleakala.	False/Inaccurate. Unsupported/Unsubstantiated. Not supported by the reliable, probative and substantial evidence. UH-TIO FOF 417-432; UH-TIO COL 165-176.
1054	190	The context for the TMT's proposal to intrude onto these last few intact viewplanes is the existing interference with natural views of Mauna Kea caused by prior telescope development. "[A]t least one observatory is visible from roughly 43 percent of the island's area." (Ex A009 CDUA, p. 7-2). In this context, the TMT's added percentage of visibility is a substantial adverse impact on viewshed resources. This is particularly true for views from the summit.	False/Inaccurate. Unsupported/Unsubstantiated. Misleading. Presented out of context. See UH-TIO FOF 121, 776, 902.
1055	190	Adding to the concerns for water resources raised by the UH/TMT's failure to satisfy criterion 3 is the fact that the project would introduce other undesirable substances into the Mauna Kea conservation district. The TMT project would require the use, handling and storage of hazardous materials at Mauna Kea including: propylene glycol, acetone, methyl ethyl ketone, at least 2,000 gallons of diesel fuel, ethylene glycol, hydraulic fluid, liquid adhesives, coating metals, acids, paints, solvents, and other cleaning chemicals. (Ex A003/R-3 FEIS Vol. 1, p. 3-129). TMT project managers anticipate the generation of approximately 120 cubic feet of trash	False/Inaccurate. Unsupported/Unsubstantiated. Not supported by the reliable, probative and substantial evidence. UH-TIO FOF 417-432 (finding that the TMT Project complies with criterion three under HAR § 13-5-30(c)(2); UH-TIO COL

		per week. (Ex A003/R-3 FEIS Vol.1, p. 3-129). UH/TMT's promises to comply with regulations for leaks or spills further begs the question of whether these substances should be permitted in a conservation district in the first place. (Ex A003/R-3 FEIS Vol.1, p. 3-125).	165-176 (concluding the same). UH-TIO FOF 824-834, 837. Not credible. UH-TIO FOF 835, 836.
1056	190	UH/TMT admits, even with the proposed mitigation measures, the cumulative impacts on Mauna Kea's conservation district are and will continue to be substantial and adverse. The TMT FEIS states that:	Incomplete.
1057	190	"[T]he cumulative impact of all actions at and near the summit of Maunakea, including the future TMT Observatory [and its proposed mitigation], on cultural resources will continue to be substantial, significant, and adverse[.]" 3-34.	Mischaracterization. Misleading. Presented out of context with MKAH's Proposed COL 1056.
1058	191	This finding is true in relation to cultural, archaeological, and historic resources (p. 3-214), ecosystems (p. 3-217), visual and aesthetic resources (p. 3-101), and geological qualities (p. 3-219). FEIS Vol.1. This means that none of the mitigation measures proposed for the TMT project would be enough to reduce the cumulative impact of telescope activity on Mauna Kea to a less than substantial level. At minimum, the EPA requires that mitigation measures address project-specific impacts, but finds appropriate mitigation efforts that "address cumulative impacts that are caused by activities other than the proposed project." (U.S. Environmental Protection Agency, Office of Federal Activities (2252A). EPA 315-R-99-002, Consideration Of Cumulative Impacts In EPA Review of NEPA Documents (May 1999)).	Incomplete. False/Inaccurate. Misleading. Presented out of context with MKAH's Proposed COL 1056. NEPA does not apply to this project. Not supported by the reliable, probative and substantial evidence.
1059	191	The mitigation measures proposed by UH/TMT are too indirect and insufficient to meet the Supreme Court standard established in Morimoto. In Morimoto v. Bd. of Land & Natural Res., 107 Haw. 296 (2005), the Court found that mitigation measures imposed through HAR § 13-5-42(a)(9) gives the BLNR authority to consider mitigation in assessing a CDUA under HAR § 13-5-30(c)(4). While Morimoto does not explicitly develop standards for mitigation, the mitigation actions considered in that case overcame the HAR 15-3-30(c)(4) requirement because they directly	Mischaracterization False/Inaccurate. Not supported by the reliable, probative and substantial evidence. See UH-TIO COL 113-114 (regarding the Hawaii Supreme Court's decision in

		ameliorated harmful impacts of road construction on endangered palila habitat and those actions were specifically implemented by the appropriate agency. In that case, the U.S. Fish and Wildlife Services had issued a Biological Opinion (BO) in which the agency agreed that redesigning the highway project to provide for more habitat and reintroduction of endangered species would mitigate project-related disturbances to palila and <i>Silene hawaiiensis</i> .	Morimoto).
1060	192	By contrast, the TMT project has not designed mitigation actions in accord with guiding documents. For example, the Cultural Impact Assessment (CIA) specifically "recommended that the TMT Observatory project be built on a recycled site of an outdated telescope on the summit instead of Area E" and to "develop a paradigmatic shift in how they ["Project proponents"] engage with the community in a way that truly recognizes cumulative impacts[.]" (Ex. A005/R-5 FEIS Appendix D - CIA for the TMT Observatory and TMT Mid-Level Facility Project, p. 204-5).	Mischaracterization. False/Inaccurate. Not supported by the reliable, probative and substantial evidence. Not credible. UH-TIO COL 386 (noting that a number of Petitioners and Opposing Intervenor actively participated in the EIS process for the TMT Project, including submitting comments on the DEIS, and consulting for the cultural impact assessment). Unsupported/Unsubstantiated. UH-TIO FOF 304-330 (regarding TMT Project mitigation measures). Mischaracterization. False/Inaccurate. Not supported by the reliable, probative and substantial evidence. Not in evidence. UH-TIO FOF 937-1000 (finding that the proposed land use will not be materially detrimental to the public
1061	192	The range of mitigation measures offered by UH/TMT (furnishing items with a sense of place, ride-sharing, repaving roads, funding education programs, monitoring Wekiu bugs, painting facilities, complying with laws, etc., do not directly address the harm caused by the proposed TMT or telescope activities in general nor those impacts to Native Hawaiian Practitioners and their use and access.	

1062.	192	The "primary mitigation" for TMT impacts on visual and scenic resources offered by UH/TMT is their decision to locate the project outside of the summit ridge. (Ex A001/R-1 CDUA, p. 4-30). UH/TMT says they now finally recognize that Kukahau'ula is an important traditional cultural property. (Ex A001/R-1 CDUA, p. A-8). They claim it is because Kukahau'ula is so important that they chose to locate the TMT on the plateau. We are not convinced.	health, safety, and welfare). Mischaracterization. UH-TIO FOF 169, 309, 310, 313, 342(c), 686, 848, 852, 901, 904, 905; UH-TIO COL 225. False/Inaccurate. Irrelevant/Inapplicable. Not credible. UH-TIO FOF 604 (regarding testimony of Dr. Abad admitting that the CDUA did in fact address areas of concern in a larger region outside of the project area, outside the MKSR, and within the historic district, including Lake Waiau and Kūkahau'ula). Mischaracterization. False/Inaccurate. Not supported by the reliable, probative and substantial evidence. Irrelevant/Inapplicable. Not credible. UH-TIO FOF 307 (Prof. Fujikane, an English professor and a witness for KAHEA, opined that locating the TMT Project on the Northern Plateau should not be considered a mitigation measure because there was no room for the TMT Project on the summit. Tr. 1/9/17 at
1063.	192	UH/TMT has not shown that locating the TMT on the ridge would have been desirable or even possible. It is unlikely that the five-acre TMT could have been located on the summit ridge, so the fact that it is not proposed to be located there cannot be claimed as a mitigation measure for its unsightliness. The decision to locate the TMT on the northern plateau more reasonably proceeds from UH's finding that locating the TMT in the summit region is not deemed good sites for the TMT project all were within "Area E" on the northern plateau. (TMT FEIS, p. 4-5.) The few mitigation measures proposed for the TMT project do not directly address the anticipated harms caused by the proposal.	

1064.	193	The proposed TMT would not be compatible with the wide open and natural space that is the northern plateau of Mauna Kea. It is important to remember that it is the conservation district that is the locality to be considered, not the existing telescopes (many of which were retroactively permitted after construction). UH/TMT contends that the TMT project - comprised of more than 12.5 acres (4.9.ac. for the observatory, 3.6 ac. for the access way, 4 ac. for the batch plant staging area, and a utilities corridor (that intrudes into the Natural Area Reserve) - and 400 foot corridor along Mauna Kea access road) must be assessed in the context of existing buildings (i.e. other observatories), otherwise the HAR §13-5-30(c)(5) criterion would be senseless because nothing could ever be built in a Conservation District. (Ex A001/R-1 CDUA, p. 18).	225:25-226:7. This statement is in direct contradiction with the credible testimony of Hayes that the TMT Project could have been considered for the summit. <i>See</i> Tr. 10/25/16 at 209:21-210:7. Her testimony also ignores the Master Plan which specified Area E as a preferred location for a next generation large telescope because of the minimum impact on existing facilities, wēkiu bug habitat, archaeological sites, and viewplanes while providing suitable observation viewing conditions. Ex. C-2 (WDT Sanders) at 4.). Vague/Ambiguous. This COL appears to refer to Criterion 5, as set forth in HAR § 13-5-30(c)(5). UH Hilo has satisfied this criterion. See UH-TIO FOF 840-867, COL 218-226. Unsupported/Unsubstantiated. See UH-TIO FOF 433-839, COL 177-217. Citation does not support proposition.
1065.	193	UH/TMT's interpretation ignores HAR §13-5-30(b), which establishes at the outset that generally, "[l]and uses shall not be undertaken in the conservation district" and further, if they are to occur, land uses must be evaluated to ensure that no adverse and significant impacts occur. <i>Id.</i>	False/Inaccurate. Unsupported/Unsubstantiated. Misleading. Partial quotation. HAR § 13-5-30(b) provides that "unless provided in this chapter [i.e., through conservation district use permits], land uses shall not be

1066.	193	Problematically, the UH/TMT limits its consideration of the TMT's potential impacts to the Mauna Kea summit region only. This is a very limited area and does not allow for consideration of run-off down into other areas or possible pollution seepage into the land below the summit. Nor is the compatibility of the TMT Utilities Corridor with the existing, adjacent Natural Area Reserve adequately assessed.	undertaken in the conservation district.” (Emphasis added). False/Inaccurate. <i>See</i> UH-TIO FOF 842 (“The appropriate locality to be considered is the summit area of Mauna Kea within the MKSR, and more specifically, the Astronomy Precinct of the MKSR.”); <i>see also</i> UH-TIO FOF 840-841, 843-867; <i>see also</i> UH-TIO COL 218-226. Unsupported/Unsubstantiated. Not supported by the reliable, probative and substantial evidence.
1067.	193	The proposed HELCO substation requires an easement corridor across NARS lands in order to service the TMT. In their comment on the TMT-CDUA, DOFAW drew attention to the disturbances of the NARS that will result from maintenance of utility conduits. DOFAW noted that after twenty years of neglect, “erosion and settling” have occurred in utilities corridor and that “[a]ccess to the pill (sic) boxes will require improvements that might not fall within the 20- foot access corridor, and movement of heavy equipment over unstable terrain.” DOFAW comment letter in Staff Recommendations (Ex A007/R-7, p. 23). UH/TMT’s assurances that TMT-related disturbances of NARS lands that about the construction corridor do not withstand the fact that a CDUP cannot authorize UH/TMT activity in the NAR. The NAR is not leased to the University, nor does the CMP address disturbance mitigation in the NAR. To assume that disturbance outside the easement can be mitigated to the extent possible is an inappropriate and illegal encroachment on lands outside the boundaries of the lease to UH and the anticipated sublease to TMT. The TMT’s incompatibility with the existing uses of the conservation district makes approval of the CDUA improper.	Mischaracterization. False/Inaccurate. Unsupported/Unsubstantiated. Not supported by the reliable, probative and substantial evidence.
1068.	194	Proposed TMT project cannot meet the 5th criteria. Please see FOF; 295, 301-303, and 406-411.	Unsupported/Unsubstantiated.

			See UH-TIO FOF 840-867 (finding that the TMT Project complies with criterion five under HAR § 13-5-30(c)(5); UH-TIO COL 218-226 (concluding the same).
1069	194	The TMT is a man-made structure and while it maybe beautiful to some in a human engineering way, it neither preserves nor improves upon Mauna Kea's natural beauty, which is what the law requires. UH/TMT has not and cannot meet the requirement under the sixth criterion. First, because the TMT is a very large (18 stories) building that is proposed to be sited on the North Plateau, which, significantly, is one of the last un-hindered open space areas with views down to the sea, along the coasts, and across the island chain. The TMT would intrude upon the currently unobstructed view of Haleakala Mountain as well as the primary view of the setting sun from the mountain. It will also obstruct viewplanes used for traditional and cultural spiritual and religious Native Hawaiian practice.	Not credible. False/Inaccurate. Not in evidence. Not credible. UH-TIO FOF 704 ("Pisciotta testified concerning alleged impacts to site plane views. Ex. B.01a (WDT Pisciotta) at 7-9. There is no credible evidence that her viewplanes from the summit ridge area towards Haleakalā or other areas would be materially affected or blocked, or that she could not move her viewing location as needed. <i>See e.g.</i>, Ex. C-19. Pisciotta's cultural concerns were fully considered in the CIA and EIS process where she was interviewed extensively and placed numerous written materials in the record. Ex. A-5/R-5, App. D at 31-39, 100, 131-146, 182-188, 191-193, D-1 to D-9."); UH-TIO FOF 706-707 finding Pisciotta's testimony regarding impediments to cultural practices lacking any credible or verifiable evidence). See also, <i>Kilakila 'O Halekala</i>, 138 Hawaii 383 (2016)
1070	194	When we look out on the plateau where the TMT is proposing to site their	Unsupported/Unsubstantiated.

	project-- it is not just that it will now be blocking our eyes (depending on where we are looking from) but it will be the most dominant feature in our eyes and therefore the most dominant feature in our customary and traditional view plane. It is this view plane that we use to look and to honor the high maunas down the island chain. (Written testimony of Paul Neves, Exhibit F-1)	Not credible. UH-TIO FOF 747 (finding in part "Neves testified that the TMT Project will obstruct his view of Haleakalā from the summit ridge area of Mauna Kea and will be a dominant feature. However, he did not demonstrate or show how the TMT Observatory would block those views, especially since it will be below the summit ridge. He also testified that a view plane is not by sight alone. WDT Neves at 4. His practices include pilgrimages to Mauna Kea, approximately four times per year, though he admits that one need not always travel to the Mauna Kea summit to conduct these practices. He has practiced from his home, and states that offerings can be made at lower elevations. He also admitted that there is no one particular place that you need to stand on Mauna Kea in order to view Haleakalā. Tr. 1/31/17 at 202:4-20, 207:3-10, 219:1-10, 245:5-20."). Irrelevant/Inapplicable. Unsupported/Unsubstantiated. Not supported by the reliable, probative and substantial evidence. Unsupported/Unsubstantiated. Not supported by the reliable, probative and substantial evidence. UH-TIO FOF 775-795 (finding that the
1071.	194	It is our position that any appropriate development in the conservation district must preserve or improve upon the natural characteristics of the district -- that is the only way this criterion "makes sense." UH/TMT Brief, p. 18. The TMT proposal far exceeds the scope and degree of what could reasonably be deemed appropriate development on the pristine northern plateau of Mauna Kea.
1072.	195	The proposed TMT would adversely impact viewplanes towards and away from the summit, increase noise levels and material pollutant levels, and permanently disrupt critical habitat for species that are Federally listed pursuant to the Endangered Species Act. (Ex A003/R-3 FEIS Vol. 1, p. S-12 through S-19). The DLNR staff's evaluation of the project under HAR

		§13-5-30(c)(6) criterion thus erroneously “concluded that the TMT will not have a significant impact on the environmental or cultural characteristics of the land.” (Ex A007/R-7 Staff Recommendations, p. 59).	TMT Project will not have a substantial adverse impact on the visual resources of Mauna Kea. UH-TIO FOF 868-913(finding that the TMT Project preserves the natural beauty and open space characteristics of the physical and environmental aspects of the land); UH-TIO COL 227-257 (concluding the same).
1073.	195	Erroneously, DLNR staff recommends supporting the TMT as a “a series of trade-offs” in which development in new areas would be accompanied by the migration of observatories away from the Kukahau ‘ula summit. Id. Staff Recommendations, p. 59. The physical and environmental aspects of the land are neither preserved nor improved upon by the proposed new development and therefore the Agency’s “support[t] for the concept of moving observatories” is irrelevant to whether or not the proposed TMT meets this sixth criterion.	Unsupported/Unsubstantiated. UH-TIO FOF 340-343 (regarding the OCCCL’s recommendation to approve the University’s CDUA).
1074.	195	The DLNR staff further erred by considering a pay-to-degrade rationale. Id. Staff Recommendations, p. 59 (“It should be noted that TMT is committed to paying a ‘substantial’ amount of sublease rent in exchange for the site”). BLNR cannot accept a payment of cash in exchange for permission to destroy the very resources it is mandated to protect. If applicants were allowed to meet the conservation district permit criteria through payment, then these criteria would be meaningless in evaluating any project that promised to generate capital. No matter how much TMT promises to pay, it cannot satisfy criterion 6 and the UH/TMT CDUA should be denied	False/Inaccurate. Not supported by the reliable, probative and substantial evidence. Inaccurate. Misleading. Presented out of context.
1075.	195	Proposed TMT project cannot meet the 6th criteria. Please see FOF’S 481-516, 855-856	Unsupported/Unsubstantiated. UH-TIO FOF 868-913 (finding that the TMT Project complies with the sixth criterion under HAR § 13-5-30(c)); UH-TIO COL 227-256 (concluding the same).

1076.	196	The TMT CDUA erroneously concluded that the "proposed TMT project does not involve the subdivision of land." CDUA, 2-28. Subdivision disposes of control over a land parcel so that more and different entities can make separate uses of the land and thus creates a greater capacity for land use that specifically cuts against conservation purposes. The Mauna Kea conservation district has been repeatedly subdivided through subleases between BLNR, UH, and telescope operators in order to facilitate increased telescope activity there. The TMT sublease would further parcel the original lot leased to UH in 1968 (Lease No. S-4191). Agreements like this dispose of the original parcel in ways that intensify land use in violation of HAR §13-5-30(c)(7) ("subdivision of land will not be utilized to increase the intensity of land uses in the conservation district"). Because the proposed TMT CDUA is premised on a subdivision of land that will intensify land use, the BLNR cannot approve it without abusing its discretion. Further UH has drawn arbitrary maps to describe claims to lands leased from the BLNR. See, CDUA p. 75-79 ref. MK MP2000. Areas such as the "Astronomy Precinct" and the "UH Management Area" are within the	Not credible. UH-TIO FOF 704 (finding no credible evidence to support Pisciotta's testimony that viewplanes from the summit ridge area towards Haleakalā or other areas would be materially affected or blocked, or that she could not move her viewing location as needed. <i>See e.g.</i>, Ex. C-19., and noting that Pisciotta's cultural concerns were fully considered in the CIA and EIS process where she was interviewed extensively and placed numerous written materials in the record. Ex. A-5/R-5, App. D at 31-39, 100, 131-146, 182-188, 191-193, D-1 to D-9."). False/Inaccurate.
1077.	196	Further UH has drawn arbitrary maps to describe claims to lands leased from the BLNR. See, CDUA p. 75-79 ref. MK MP2000. Areas such as the "Astronomy Precinct" and the "UH Management Area" are within the	Unsupported/Unsubstantiated. Not supported by the reliable, probative and substantial evidence. UH-TIO FOF 914-936; UH-TIO COL 257-272. Mischaracterization. False/Inaccurate.

		Mauna Kea Conservation District. Per HRS §205-2; the Land Use Commission (LUC) is the state agency tasked with not only establishing conservation districts but that holds the sole power to determine the boundaries of said districts. The Mauna Kea Conservation District was adopted in 1961, but the LUC never created either an "Astronomy Precinct" or a "UH Management Area."	UH-TIO FOF 914-936; UH-TIO COL 257-272.
1078	196	A "subdivision" is an enumerated form of land use in the conservation district rules, along with permanently placing materials, grading, and erecting or demolishing structures, all of which have been consequences of development on Mauna Kea. HAR §13-5-2(1994). A "subdivision" is the division of a parcel of land into more than one parcel. HAR §15-3-2.	Not in dispute. UH-TIO FOF 914-936; UH-TIO COL 257-272. UH has not applied for subdivision of conservation lands. Hence there is no effort to utilize subdivision into separate parcels in this proceeding.
1079	197	Under "Uniform Land Sales Practices" HRS §484-1 (2011), "subdivision" of lands are those enacted for the purpose of disposition ("includ[ing] sale, lease, assignment, award by lottery, or any other transaction concerning a subdivision, if undertaken for gain or profit) into two or more lots, parcels, units, or interests[.]". Id. UH has undertaken sublease agreements to gain telescope resources, viewing time, and other benefits and thus disposed of Mauna Kea conservation district land parcels to other telescope vendors.	False/Inaccurate. UH-TIO FOF 914-936; UH-TIO COL 257-272.
1080	197	There are currently 13 subleases for telescope facilities on the land leased to the University in the Mauna Kea conservation district. (Ex. B.28 CMP, page 6-1)	Incomplete. UH-TIO FOF 270 (finding that although there are 13 telescopes currently present on Mauna Kea, the addition of TMT is needed because it has capabilities that are unique from the existing telescopes).
1081	197	Four of the 13 telescopes with subleases are; Caltech (California Institute of Technology),(B.01ac), Gemini /NSF (B.01ad), Japan (Subaru) (B.01ae), and SERC (JCMT) (B.01af)	Irrelevant/Inapplicable.
1082	197	HAR 13-5-30(c)(7) states that "subdivision of land will not be utilized to increase the intensity of land uses in the conservation district."	Not in dispute, but more accurately stated in UH-TIO FOF 914, UH-TIO COL 257. See response to FOF #1078.

1083	197	HAR 13-5-2 defines "subdivision" to mean "a division of a parcel of land into more than one parcel."	Not in dispute. See UH-TIO FOF 915.
1084	197	HAR 13-5 provides no exceptions to this rule.	Incomplete. See UH-TIO FOF 914, UH-TIO COL 257
1085	197	Webster's Merriam Dictionary defines "division" as something that "divides, separates or marks off," as in a "border." (See, http://www.merriam-webster.com/thesaurus/division , accessed November 14, 2011)	Irrelevant/Inapplicable. UH-TIO FOF 914-936; UH-TIO COL 257-272.
1086	197	The University of Hawai'i at Hilo (UH-Hilo) is the Applicant of Conservation District Use Application HA-3568 ("CDUA") - Thirty Meter Telescope. (Ex R-1/B.30 p1 of Item K-1 CDUA)	Not in dispute.
1087	197	The Agent (signatory) for the Applicant UH-Hilo on CDUA HA-3568 is Dr. Donald Straney, Chancellor. (Ex R-1/B.30 p1 of Item K-1, CDUA)	Not in dispute, but more accurately stated in UH-TIO COL 416-419 (regarding UH Hilo's Authority to execute the CDUA).
1088	197	Dr. Donald Straney is the Chancellor of UH-Hilo. (Ex R-1/B.30 p.1, K-1, CDUA)	Not in dispute, but more accurately stated in UH-TIO COL 416-419 (regarding UH Hilo's Authority to execute the CDUA).
1089	198	The Applicant, University of Hawai'i at Hilo, is seeking a Conservation District Use Permit (CDUP) relative to CDUA HA-3568 on behalf of TMT Observatory Corporation ("TMT"). (Ex R-1/B.30 p.13, K-1 CDUA)	Mischaracterization. UH-TIO FOF 1.
1090	198	The TMT was founded by the California Institute of Technology, the University of California, and the Association of Canadian Universities for Research in Astronomy. (Ex R-1/B.30 p.13, K-1 CDUA)	Inaccurate/False. See UH-TIO FOF 192. Incomplete.
1091	198	HAR §13-5-30(c)(7) specifically guards against the intensification of land use that is usually, but not exclusively, associated with the subdivision of land. UH subleases intensified land use by increasing the burden of vehicles, visitors, and long-term personnel that will use access roads, sewage, electricity, utilities, and base-level and mid-level facilities. Land use in the Mauna Kea Science Reserve has the hallmarks of a subdivision: facilities and improvements cost sharing, planned development, and	Misleading. Presented out of context. UH-TIO COL 420-426. Mischaracterization. UH-TIO FOF 914-936 (finding that the TMT Project complies with the seventh criterion under HAR § 13-5-30(c)(7); UH-TIO COL 257-272 (concluding the same).

		defined, independent property interests. These facilitate coordinated, simultaneous activities on different regions of land in ways that intensify land use.	
1092.	198	The proposed TMT Project cannot meet the 7th criteria. Please see; FOF's 649-661	Unsupported/Unsubstantiated. Not credible. UH-TIO FOF 914-936 (finding that the TMT Project complies with the seventh criterion under HAR § 13-5-30(c)(7).; UH-TIO COL 257-272 (concluding the same). See response to FOF #1078.
1093.	198	The TMT proposal would increase the storage of hazardous wastes in the conservation district and poses unknown threats to aquifers; it therefore threatens public health and safety. The TMT will also increase the visibility of observatory construction on and from the mountain, which is already substantially adverse. Despite these examples of material detriment, UH/TMT asserts "the Project will be an enormous benefit to the public welfare" because it will entail employment opportunities and generally "bring significant funds to Hawai'i." UH/TMT Brief, p.11. Although "public welfare" is one purpose of maintaining the conservation district, UH/TMT erroneously interprets this term to mean financial benefit, in order to fit their proposal.	Mischaracterization. False/Inaccurate. UH-TIO FOF 824 (finding that no hazardous waste is anticipated to be generated at the TMT Observatory); 825-839 (regarding solid waste and wastewater). Unsupported/Unsubstantiated. Not supported by the reliable, probative and substantial evidence.
1094.	199	"Public welfare" does not mean job-creation or money generation. "The concept of welfare was added [to the conservation district mission] to include the notion of aesthetics -- preserving Hawaii's unique natural beauty." (Please see EX B03t Department of Land and Natural Resources, State of Hawaii. "Conservation District Review Project: The Discussion Draft." November 1993. Prepared by Gail W. Atwater, consultant, p. 16). Thus, the Rule intends that the public welfare will be served by conserving natural beauty in the conservation district, as opposed to using conservation lands for economic development.	Mischaracterization. False/Inaccurate. UH-TIO COL 273-293. Not credible. UH-TIO FOF 349. See also <i>Kilakila o Halekala</i> , 138 Hawaii 383 (2016)

1095	199	HAR §15-3-30(c)(8) is concerned with public health, which includes that of Native Hawaiians. "Native Hawaiians are members of the general public and in addition have traditional and customary rights that are legally protected." Telescope construction on Mauna Kea's upper regions is materially detrimental to the health of the Hawaiian people. "Native Hawaiians have watched the University repeatedly erect telescopes on Mauna Kea over and against their protests and patient explanations of this site's sacred importance. This ongoing violation of Hawaiians' religious and cultural attachments to Mauna Kea is linked to a colonial, systemic deprivation of self-determination that is materially detrimental to Native Hawaiian health[.]" (Statement of Dr. Liu, Exhibit F-3)	Not in evidence. HRS § 91-9(g) prohibits consideration of matters not in the record Unsupported/Unsubstantiated. Not credible. UH-TIO FOF 937-1000 (finding that the TMT Project is not materially detrimental to the public health, safety, and welfare and, therefore, the TMT Project satisfies the eight criterion under HAR §13-5-30(c)(8); UH-TIO COL 273-293 (concluding the same)).
1096	199	The federal government recognizes, "the health and well-being of the Native Hawaiian people is intrinsically tied to their deep feelings and attachment to the land[.]" "Apology Bill", Pub. L. 203-150 (1993). This attachment is not merely sentimental or romantic; and it links Mauna Kea and the physical, mental, and collective health of Native Hawaiians, individually and as a people.	Irrelevant/Inapplicable. Unsupported/Unsubstantiated. Not supported by the reliable, probative and substantial evidence. UH-TIO FOF 344- 1000; UH-TIO COL 126-293.
1097	199	Observatory development on Mauna Kea's upper regions is materially detrimental to the health, safety, and welfare of the general public of Hawaii. In the Native Hawaiian worldview, people are to live in harmony with the natural and sacred environment. When that harmony is tipped out of balance, nature strives to restore it.	Unsupported/Unsubstantiated. Not supported by the reliable, probative and substantial evidence. UH-TIO FOF 344-1000(finding that UH Hilo has demonstrated by a preponderance of the evidence that the TMT Project meets the eight criteria to support recommendation of approval of the CDUA and issuance of a CDUP); UH-TIO COL 126-293 (concluding the same). Not credible. UH-TIO COL 355-385.

1098	200	The mountain of Wakea is one of those sacred natural environments that commands great respect. As UH/TMT has admitted, the construction of telescopes on this mountain is undermining the balance between humanity and nature. Construction of the TMT would further this state of disharmony. Ethnocentric methods for assessing materially detrimental impacts on sites of historic significance are inappropriate	Mischaracterization. False/Inaccurate. Not supported by the reliable, probative and substantial evidence. Unsupported/Unsubstantiated. UH-TIO COL 355-385.
1099	200	UH/TMT purports to have evaluated TCP's against adverse impacts, but has failed to apply the correct standard of evaluation. Instead the UH/TMT's inability to allow for Native Hawaiian views of the sacred significance of Mauna Kea cause them to apply ethnocentric approaches to evaluations of the TMT's impacts on Native Hawaiians. "Ethnocentrism means viewing the world and the people in it only from the point of view of one's own culture and being unable to sympathize with the feelings, attitudes, and beliefs of someone who is a member of a different culture. It is particularly important to understand, and seek to avoid, ethnocentrism in the evaluation of traditional cultural properties." (Patricia Parker and Thomas King, "Guidelines for Evaluating and Documenting Traditional Cultural Properties, U.S. Department of the Interior National Park Service. National Register Bulletin 38, 10 (Revised 1998) (please see B.01p Bulletin 38, p.4))	Mischaracterization. False/Inaccurate. Not credible. Not supported by the reliable, probative and substantial evidence. Unsupported/Unsubstantiated. UH-TIO FOF 342(c) , 532, 538, 539, 579.
1100	200	Native Hawaiian assertions that the telescopes desecrate a sacred cultural resource are not, as UH/TMT insists, matters of "opinion" that are counterbalanced by other Native Hawaiians who view the TMT project as a much needed economic development project or otherwise benign. (please see A001/R-1 the CDUA, p. 3-13).	Mischaracterization. Not supported by the reliable, probative and substantial evidence. False/Inaccurate. The fact that certain individuals may hold and/or express such religious or spiritual beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of the belief is factual.

1101	200	The Desecration Statute under HRS Chapter 711-1107, also defines what constitutes desecration, and detractor of the sacred landscape fits the criteria. UH/TMT flouts guidelines for approaching conflicting claims over sites of cultural significance for Native groups. "Where one individual or group asserts that a property has traditional cultural significance, and another asserts that it does not or where there is disagreement about the nature or extent of a property's significance, the motives and values of the parties, and the cultural constraints operating on each, must be carefully analyzed." In the instant case, the motives and values of TMT supporters are explicitly linked to a need to increase employment opportunities and funding for research and education as seen in the PUEO group. The motives and values of Native Hawaiian cultural practitioners who testify in opposition to Mauna Kea are equally plain: they are motivated to preserve Mauna Kea's natural resources and cultural significance. For the purposes of evaluating a proposed conservation district land use, testimony motivated by conservation agendas should given more weight than those explicitly motivated by economic concerns.	Lack of Jurisdiction. <i>See</i> UH-TIO COL 392-407; <i>see also</i> UH-TIO FOF 542, 942-947. Irrelevant/Inapplicable. Lack of jurisdiction. Not credible. <i>See</i> UH-TIO COL 392-407; <i>see also</i> UH-TIO FOF 542, 942-947. Not supported by the reliable, probative and substantial evidence.
1102	201	The motives and values of Native Hawaiian cultural practitioners who testify in opposition to Mauna Kea are equally plain: they are motivated to preserve Mauna Kea's natural resources and cultural significance. For the purposes of evaluating a proposed conservation district land use, testimony motivated by conservation agendas should given more weight than those explicitly motivated by economic concerns.	Mischaracterization Unsupported/Unsubstantiated and self-serving. UH-TIO COL 355-382 (concluding, inter alia, to withhold approval of the TMT Project based on the Petitioners and Opposing Intervenor's arguments that their religious beliefs and practices should hold veto power over all uses of the lands of Mauna Kea would violate the Establishment Clause of the federal and state constitutions, and is hereby rejected."). The fact that certain individuals may hold and/or express such religious or spiritual

			beliefs is not in dispute, but the legal impact of such beliefs is clearly in dispute. There is no reliable probative and substantial evidence that the substance of the belief is factual.
1103.	201	TMT proposed project cannot meet the 8th criteria. Please see; FOF 849-869.	Unsupported/Unsubstantiated. Not supported by the reliable, probative and substantial evidence. Not credible. UH-TIO FOF 937-1000 (finding that the TMT Project is not materially detrimental to the public health, safety, and welfare and, therefore, the TMT Project satisfies the eight criterion under HAR §13-5-30(c)(8); UH-TIO COL 273-293 (concluding the same).
1104.	201	Based of the Finding of Fact and Conclusions of Law above the Thirty Meter Telescope Conservation District Use Application (CDUA) should be DENIED.	Unsupported/Unsubstantiated. Not supported by the reliable, probative and substantial evidence. Not credible.

BOARD OF LAND AND NATURAL RESOURCES

STATE OF HAWAII

IN THE MATTER OF

Contested Case Hearing Re Conservation
District Use Application (CDUA) HA-3568 for
the Thirty Meter Telescope at the Mauna Kea
Science Reserve, Ka'ohe Mauka, Hāmakua,
Hawai'i, TMK (3) 4-4-015:009

Case No. BLNR-CC-16-002

CERTIFICATE OF SERVICE

CERTIFICATE OF SERVICE

The undersigned certifies that the above-referenced document was served upon the
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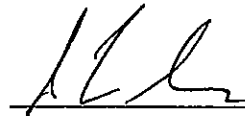
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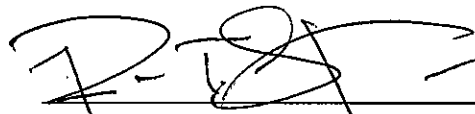
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