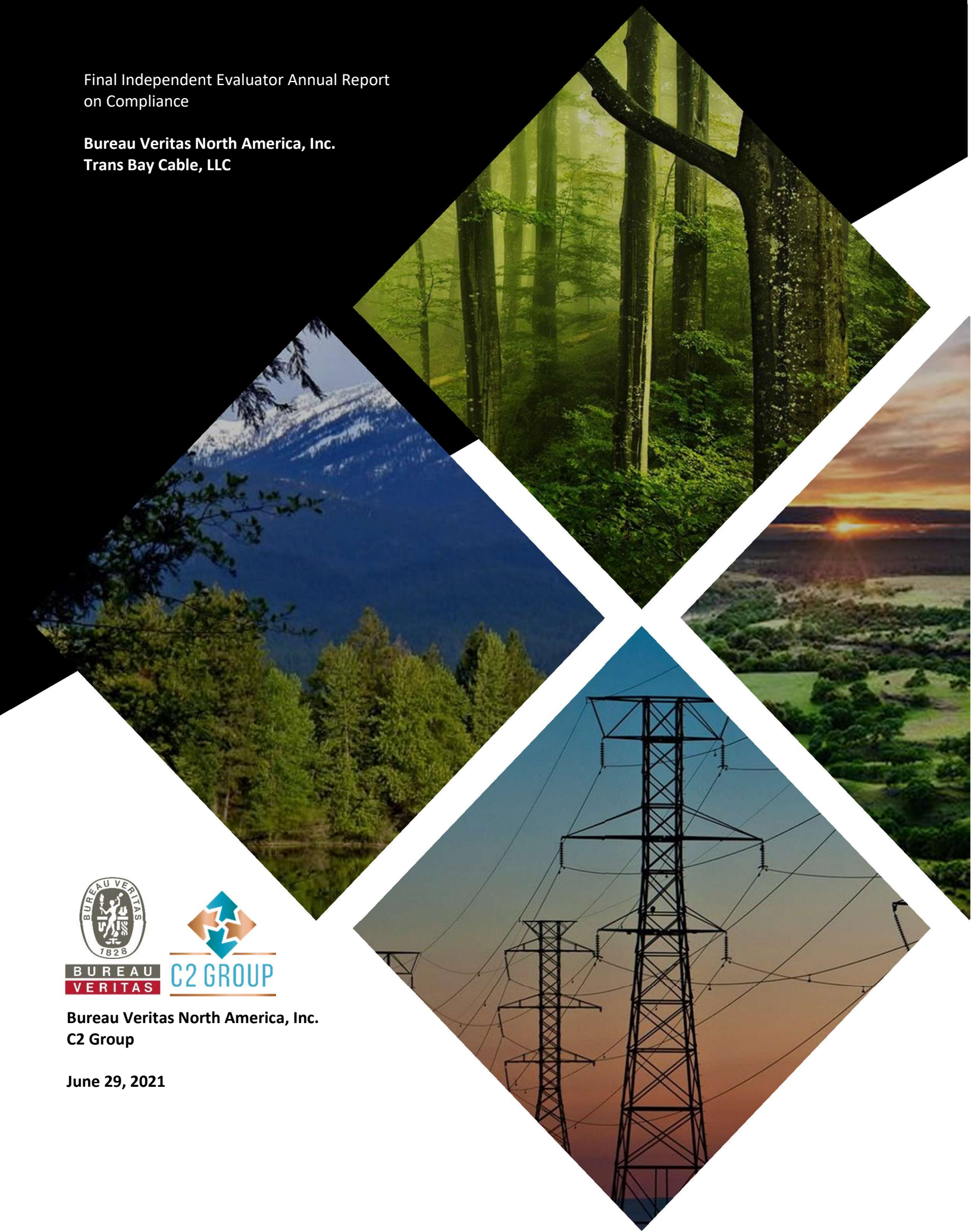
Final Independent Evaluator Annual Report
on Compliance

Bureau Veritas North America, Inc.
Trans Bay Cable, LLC



Bureau Veritas North America, Inc.
C2 Group

June 29, 2021

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Disclaimer

This report has been compiled through the process of observation and the review of provided documents. The information is intended to serve only as a guide to assist with achieving compliance with regulatory requirements instituted by the California Public Utilities Commissions (CPUC) Wildfire Safety Division (WSD) for an independent evaluation of electric utility providers Wildfire Mitigation Practices. Bureau Veritas North America, Inc. (BVNA) is not the designer, implementer, or Wildfire Mitigation Plan (WMP) owner. It is not responsible for its content, implementation, and liabilities, obligations, or responsibilities arising therein.

The report reflects only those conditions and practices that could be ascertained through observation at the evaluation time. This report is limited to those items specifically identified herein or as may be further required by CPUC at the evaluation time. The report does not represent that dangers, hazards, and exposures do not exist. BVNA shall only be responsible for the performance of the services identified or defined in our specific scope of services.

BVNA does not assume any responsibility for inaccurate, erroneous, or false information, expressed or implied, given to the BVNA as the Independent Evaluator (IE). In addition, BVNA shall have no responsibility to any third party or for any other matters not directly caused by BVNA or that are beyond the reasonable control of BVNA. BVNA's liability is limited to the cost of the services expressed herein or otherwise agreed to by BVNA by a separate written contract.

1 Executive Summary

Background

Pursuant to P.U. Section 8386.3(c)(2)(B)(i), BVNA has been selected as an I.E., to review and assess Trans Bay Cable, LLC's (TBC) 2020 WMP. In carrying out the stipulations of Resolution WSD-012 and April 6 Guidance Document, BVNA has evaluated TBC's compliance with its 2020 WMP, reviewed TBC's quality assurance and quality control (QA/QC) programs outlined for support of WMP initiatives, and examined its WMP funding activities.

Scope

Pursuant to the WSD's Final Independent Evaluator Scope of Work (SOW) for the Review of Compliance with 2020 WMP issued on April 21, 2021, BVNA, in partnership with C2 Group (C2), have reviewed TBC's 2020 WMP and supplemental documents (see Appendix A) for verification of compliance, validation of QA/QC programs, and assessment of the utility funding activities related to WMP.

Trans Bay Cable, LLC

As described within the TBC Annual Report on Compliance (ARC) for 2020 dated March 2021, TBC is a subsidiary of NextEra Energy Transmission, LLC. TBC is a 53-mile, ~400 MW, high voltage, direct-current High-Voltage Direct Current (HVDC) submarine transmission cable buried at various depths beneath the San Francisco Bay Waters, with Alternating/Direct Current (AC/DC) converter stations (or substations) at each end. TBC's transmission cable extends from Pittsburg, California, where its' system's eastern converter station is located, to the company's Potrero converter station and 115kV High Voltage A.C. Underground Cable in San Francisco, California. TBC interconnects with Pacific Gas and Electric (PG&E) substations in Pittsburg and San Francisco via underground A.C. transmission cables. All above-ground transmission infrastructure is fully contained within the walls of the systems converter stations.

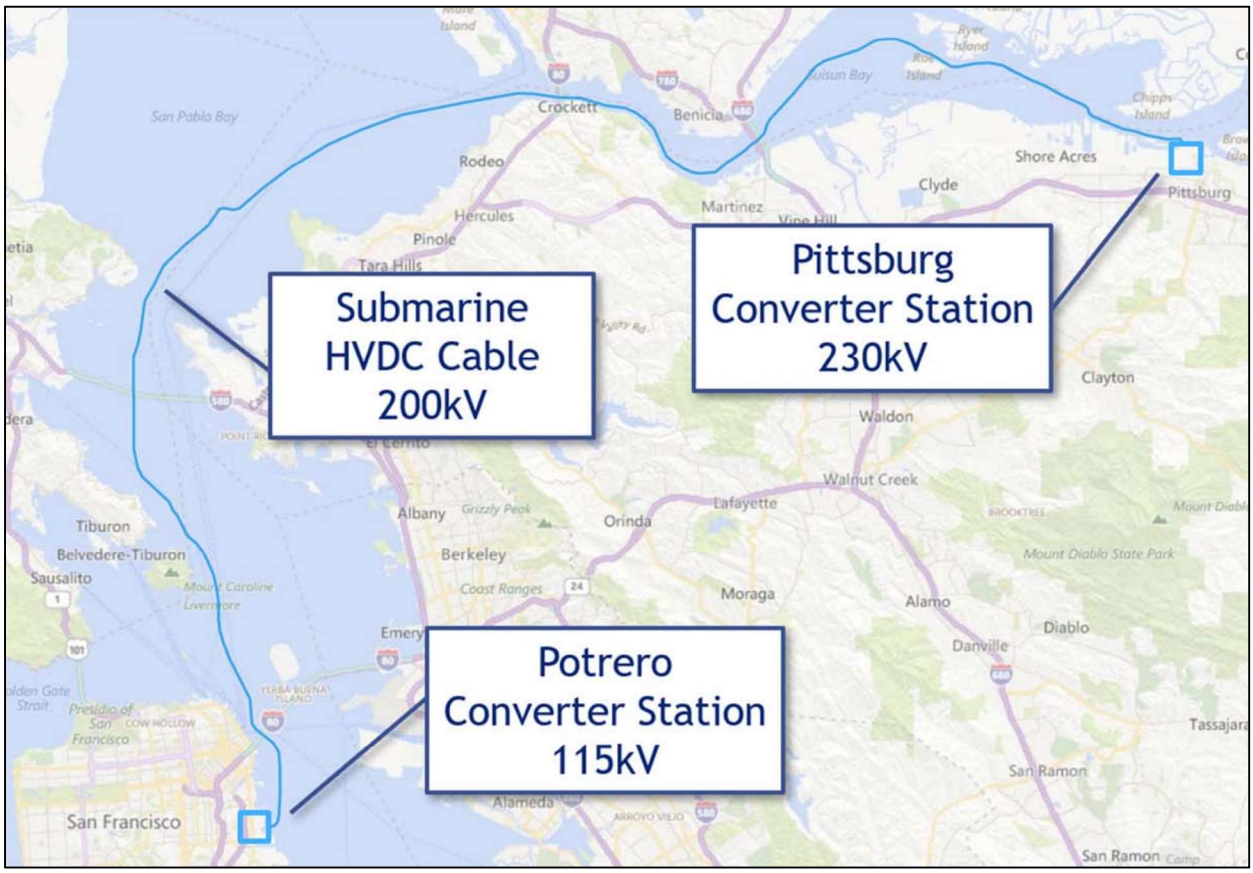
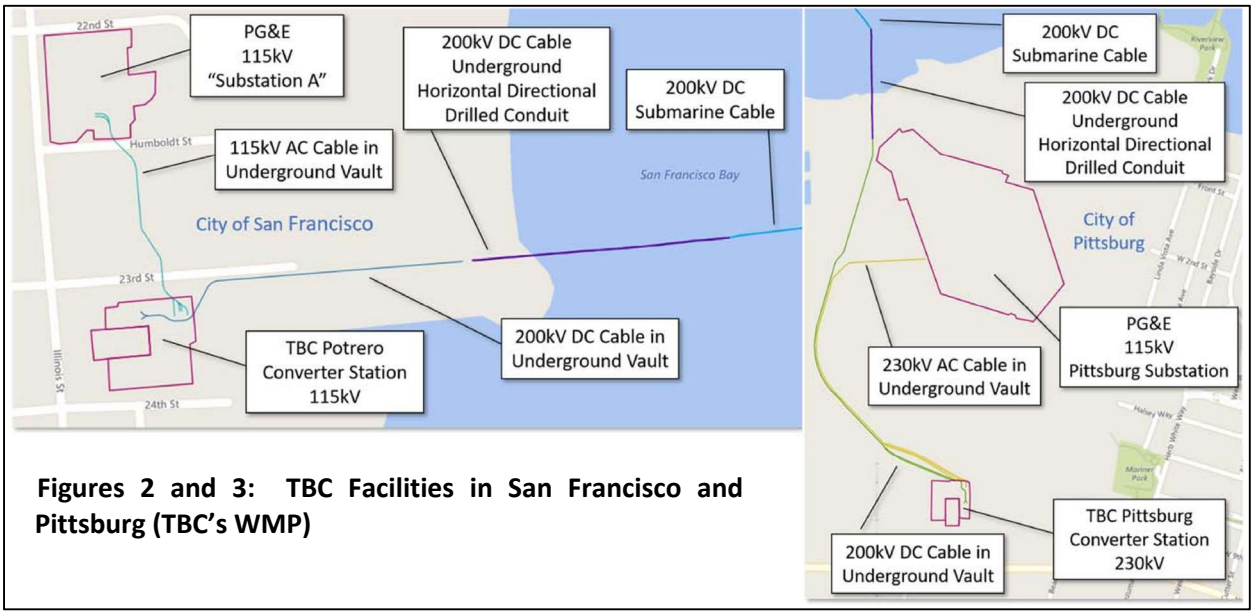


Figure 1: Overview of TBC Facilities and Service Territory (TBC's WMP)

TBC has been in service since November 2010 and is a transmission-only utility with no retail customers, no distribution, and no distribution system. The San Francisco substation is surrounded by an entire urban environment and has no potential of causing a wildfire ignition. The Pittsburg substation is also in an urban setting. It is approximately 1.5-miles from an area designated as Tier 2 (Elevated) High Fire-Threat District (HFTD) per the CPUC published fire threat maps. The TBC transmission facility can transport up to 400-Megawatts between the two PG&E substations and is surrounded by PG&E service territory. Other than the equipment within the substation boundaries, TBC has no overhead lines or equipment and is substantially hardened against wildfires.



Figures 2 and 3: TBC Facilities in San Francisco and Pittsburg (TBC's WMP)

Key Findings

As described in further detail within Section 3, I.E., compliance review has found that the 2020 WMP and data found in supplemental documents (see Appendix A), along with confirmation of verifiable field goals, TBC is found to be substantially in compliance with the 2020 WMP:

1. Risk Assessment and Mapping: Through continuing risk assessment TBC maintains engagement to evaluate risks through weather assessments and conditions where red flag warnings (RFW) may limit operations.
2. Situational Awareness and Forecasting: Install a cable monitoring system to track various cable conditions in real-time and install transformer monitoring to aid real-time monitoring of the transformer health. TBC expects increased situational awareness and forecasting resultant from these system upgrades will further reduce ignition probabilities and improve response times if there is an ignition.
3. Grid Design and System Hardening: TBC's Pittsburg Facility provides inherent system hardening due to the undergrounding and submergence of its conductors beneath Bay Waters. All other equipment at the Pittsburg Facility is located within its 12-foot tall perimeter concrete wall or its AC/DC Converter Building.
4. Vegetation Management and Inspections: TBC's Pittsburg Facility is located in an urban/industrial environment demonstrated by its surrounding auto salvage yards. TBC's limited footprint, which is within its perimeter wall, vegetation management is limited to the interior yard area. Therefore, vegetation management is limited to the control and elimination of grass vegetation within the boundaries of its perimeter wall, which includes all ground areas.
5. Emergency Planning and Preparedness: TBC maintains an Emergency Action Plan (EAP) specific to its operations. TBC's emergency planning limits are communication and coordination with California Independent System Operator (CAISO) and PG&E.
6. Site Fire Environment Risk Assessment: TBC completed a third-party wildfire risk assessment provided by Jensen Hughes of its Pittsburg Converter station in Q4 2020. The assessment evaluated local fire response capabilities and resources, and response time. TBC undertook efforts to review and

incorporate pertinent recommendations in its plans for enhancing fire safety control measures in the near, mid-term, and long term. TBC has already completed one of the initiatives to support fire response: purchasing a foam trailer for the Pittsburg Facility to ensure adequate and ready suppression resources are available on-site to address a fire instigated by a failed transformer. TBC anticipates that the additional suppression capacity of the foam trailers will be effective in minimizing damage/fire spread caused by transformer failure instigated ignitions and maximizing the efficacy of response efforts.

7. WMP Activities were funded and verified with TBC Annual Report on Compliance (ARC) for 2020 dated March 2021 and confirmed with reported actuals from the TBC Q1 2021 Quarterly Data Report dated March 4, 2021. Per Subject Matter, Expert (SME) conducted interviews on June 10, 2021 (see Table 2: 2020 WMP Funding Verification Summary.
8. Through the SME interview with TBC's Operations Manager and Regional and Business Manager and review of confidential documents received, TBC's QA/QC procedures and protocols comply with the 2020 WMP.

2 Introduction

A review of all documents supporting the implementation of the 2020 WMP strategic initiatives has been conducted. BVNA provides the following, I.E., evaluation report (Report) describing the technical review and findings.

TBC is a transmission-only utility operating since 2010. TBC is a 53-mile, +/- 200-kV D.C. electrical transmission cable with fiber optic communication cables bundled together and buried in the San Francisco Bay. TBC extends from the cities of Pittsburg, California, to San Francisco, California. TBC interconnects with PG&E substations in Pittsburg (230-kV A.C.) and San Francisco (115-kV A.C.) via underground A.C. transmission cables.

The San Francisco substation is surrounded by an entire urban environment and has no potential of causing a wildfire ignition. The Pittsburg substation is also in an urban setting, and it approximately 1.5-miles from an area designated as Tier 2 (Elevated) HFTD per the CPUC published fire threat maps. The TBC Pittsburg Converter Station operates in a medium-density urban area adjacent to West Pittsburg, a high-risk community-identified within the WUI (Wildland-Urban Interface). In this place, homes and wildlands intermix, as published in the Federal Register in 2001. Cities proximate to the Pittsburg Converter Station are also shown in the California Department of Forestry and Fire Protection (CAL FIRE), Fire and Resource Assessment Program (FRAP) Northern California Communities at Risk from Wildfire map. TBC notes that in conducting its risk analysis, it has considered WUI as defined by CAL FIRE.

The TBC Pittsburg Converter Station operates proximate to an area with vegetative fuels. The bulk of the biomass of these fuels results from the watch catch coincident with a U.S. Army Corps of Engineers (USACE) emplaced drainage infrastructure that serves the City of Pittsburg. Various native and non-native species of trees, shrubs, and grasses grow in this five (5) acre area.

TBC's underground cable infrastructure in Pittsburg passes underneath areas proximate to vegetative fuels, primarily marsh scrub. The cable is buried at a nominal depth of three (3)- to eleven (11)-feet and in steel-reinforced concrete vaults covered with fluidized thermal backfill and appropriate markings to warn excavators. These transmission lines are contained within XLPE insulating materials and steel cable armor that prevent contact with combustible materials.

TBC's facilities include A.C. cable risers with associated bus work, transformers, AC-to-DC converter equipment, and D.C. cable risers with associated bus work. Their Pittsburg facility has a control center staffed 24/7/365. It monitors the condition of their cable and substation equipment and the shipping traffic within the San Francisco Bay adjacent to their submarine cable. As mentioned above, they are in the process of installing class B foam fighting trailers in both of their substations.

TBC is actively managing construction where the SOW is the retrofitting of their transformer foundations for seismic upgrades. The TBC facilities were de-energized until the completion of TBC's facility improvements.

TBC filed Data Collection for WMP report to meet the requirement specified in the CPUC efforts to develop metrics in Docket No. 19-05-036. This initial Plan adopted the applicable standard metrics set by the CPUC. Unlike other utilities that are substantially larger, TBC facilities do not encompass wildlands. TBC also has no overhead lines, with the majority of all transmission elements being either underground, underwater, or both. The above precludes the necessity for a Vegetation Management Program as the opportunity for a bare conductor from TBC's system to interact with vegetation is remote.

TBC's fire prevention performance metrics focus on utilizing existing operational data, metrics, and practices to focus on general fire prevention and maintaining equipment integrity to preclude potential ignition events resulting from equipment derangement or dis-operation. TBC also focuses on the risk of uncoordinated excavation that could damage underground cable infrastructure as a possible source of fire risk. This philosophy of fire prevention has proven to be successful to date. The established performance metrics outlined in the 2020 WMP demonstrate an approach of improving awareness of operational conditions associated with fire ignition monitoring and fire mitigation, preventing ignition events. Identifying, documenting, tracking, and monitoring possible ignition sources that result in the highest risk for faults may develop flame, sparks, arcs, or similar ignition vulnerabilities.

As TBC is a transmission-only utility, TBC does not have distribution customers. Therefore, those items outlined in PUC section 8386 and the WMP Guidelines relevant to customer communication do not apply, and no reference was made to the Public Safety Power Shutoff (PSPS). The report does include:

- Approach and methodology evaluating the Plan's comprehensiveness
- TBC's Plan elements and their fulfillment of initiatives and metrics included QA/QC provisions outlined within the Plan
- Determinations and results

BVNA's expertise as the, I.E., in these critical elements, helped facilitate the team's review to determine the comprehensiveness of TBC's WMP. While not all of these strategies were necessary to confirm TBC's fulfillment of their WMP, due to that facility size, location, and system or operational characteristics,

BVNA's understanding of collected utility strategies demonstrated throughout the state are summarized below:

- **Inspection and maintenance of distribution transmission and substation assets** including conducting system patrols and ground inspections, using technological inspection tools, managing predictive and electrical preventative maintenance, and conducting vegetation inspections and management, vulnerability detection such as Light Detection and Ranging (LiDAR) inspection; and geospatial and topography identification, geographic information system(GIS) mapping data. A key component is identifying collected data elements through each program and understand how that data is used and shared to improve utility practices.
- **Vegetation management** includes routine preventative maintenance; corrective and off-cycle tree work; emergency vegetation clearance, prioritized portions of the service territory that lie in Tier 2 & 3 HFTD, quality control processes; and resource protection plag animal and avian mitigation programs.
- **System hardening** includes pole replacement, non-expulsion equipment, advanced fuses, tree attachment removal, less flammable transformer oil, covered wire and wire wrap, and undergrounding where cost is beneficial.
- **Operational practices** including communications and mustering plans under varying degrees of wildfire risk. Plans to deactivate automatic reclosers, de-energizing "at risk" area powerlines based on the type of Facility (overhead bare conductions, high voltage, etc.), tree and vegetation density, available dry fuel, and other factors that make specific locations vulnerable to wildfire risk.
- **Situational awareness** including obtaining information from devices and sensors on the actual system, weather, and other wildfire conductivity conditions, two-way communication with agenciesand key personnel. Programs such as online feeds and websites such as the National Fire Danger Rating System (NFDRS). Situational awareness should help achieve a shared understanding of actual conditions and improve collaborative planning and decision-making.
- **De-Energization actions** triggered and prioritized by forecasted extreme fire weather conditions: imminent extreme fire weather conditions; validated extreme fire weather conditions; and plans for re-energization when weather subsides to safe levels. Manual or automatic capabilities exist for implementation.
- **Advanced Technologies** including Distribution Fault Anticipation technology, tree growth regulators, pulse control fault interrupters, oblique and hyperspectral imagery; advanced transformer fluids; advanced LiDAR, and advanced Supervisory Control and Data Acquisition (SCADA), to reduce electrical ignition while also helping to mitigate power outages and equipment damage.
- **Emergency Preparedness, Outreach, and Response communications** before, during, and after emergencies, including but not limited to engaging with key stakeholders that include criticalfacilities and served customers; local governments, critical agencies such as CAL FIRE, local law enforcement agencies, and other first responders, hospitals, local emergency planning committees, other utility providers, CAISO, and the utility's respective Board. Coordination agreements such as Mutual Aid or Assistance should be leveraged. A community outreach plan should inform and engage first responders, local leaders, land managers, business owners, and others.

3 Independent Evaluator Review of Compliance

With an accelerated timeframe for the evaluation of TBC's compliance with the 2020 WMP, the overall approach to verify compliance included the review and assessment of multiple WMP activities through data requests, SME interviews, review of publicly available documents, and conducting an on-site facility assessment that documented and validated those items outlined in TBC's 2020 WMP.

At the commencement of the evaluation, the, I.E. initiated the assessment by reviewing TBC's 2020 WMP and all publicly available documents listed in Appendix A to identify TBC's stated 2020 WMP goals. For 2020 WMP activities described in the WMP, but not provided within the publicly available records, the I.E., submitted data requests and conducted SME interviews to verify activities stated within the 2020 WMP (See Appendix D for Data Requests Submitted and Responses). Along with document analysis, data requests, and the SME interviews, the I.E., conducted a site visit to the single TBC facility known as the Pittsburg Converter Station located at 570 W. 10th Street, Pittsburg, CA. to collect images and evaluate compliance with the 2020 WMP activities or initiatives identified during the, I.E., initial review. The analysis and critical findings for each respective section are detailed further within Section 3 Independent Evaluator Review of Compliance section within this report.

3.1 WMP Activity Completion

WMP activities outlined in TBC's 2020 WMP are not specific to defined metrics outlined on April 21, 2021, Public Utility Commission, Final IE SOW for Review of compliance with 2020 WMP document. Due to the limited scale and scope of TBC's operations, TBC's inherent hardening to wildfire risks due to being underground or submerged, and having no transmission infrastructure in wildlands or a WUI, TBC does not maintain a program specifically geared towards wildfire mitigation. As a result, TBC did not identify specific wildfire mitigation initiatives in its 2020 WMP.

To meet the requirements of SB 901 and P.U. Code §8386, TBC has developed objectives that are directly related to maximizing fire prevention efforts, such as containing a fire to the Facility and implementing fire extinguishing strategies to minimize the potential of spread of fire due to facility fault extending to its surrounding environment. In addition, TBC has improved awareness and has employed rapid communication of the start of fire by facility monitoring. TBC has committed to construct, maintain, and operate its transmission facilities in a manner that minimizes the risk of catastrophic wildfire posed by its transmission facilities. The WMP sets forth the methodology for assessing the risk of wildfire ignition, leverages preventative strategies and protocols currently in place for fire prevention, directives for operational response in the event of a wildfire or wildfire conditions, and system restoration.

WMP category activities that are related to reducing fire potential and those that improve the discovery of fire:

Table 1 – WMP Categories to Be Reviewed

2020 WMP Section	WMP Category
5.3.1	Risk and Mapping
5.3.2	Situational Awareness
5.3.3	Grid Design and System Hardening
5.3.5	Vegetation Management
5.3.9	Emergency Planning
5.3.10	Site Fire Environment Risk Assessment

Performance of the above activities is assessed in the following sections of this report. Completion of these activities and adherence to applicable protocols and procedures are summarized in Section 4 Conclusion.

3.1.1 Sampling Methodology and Discussion

Evaluation of TBC's Pittsburg Facility included our field visit to the Facility. Our goal was to observe, assess, and qualify items referenced within the 2020 Wildfire Mitigation Plan. Things that are not verifiable in the field, through available public information, data requests, and SME interviews, were verified.

Sampling percentages do not apply for this Facility as we observed the Facility in its entirety. On-site information was captured during the field visit, which included an SME interview with TBC personnel. Pictures of all pre-identified items were captured, and a summary field report was produced, providing all I.E., 's findings.

TBC Pittsburg - IE Field Visit on May 25, 2021, 10:00 AM to 11:30 AM

Field Visit Attendees:

- Michael Blunt, TBC Operations Manager
- Lenneal Gardner, TBC Regulatory and Business Manager
- Marc Underwood, BVNA PM
- Tom Lyons, EE, BVNA
- Chris Friesen, C2
- Jim Colla, BVNA Forestry Manager
- Marine Lemoine, BVNA Forestry Project Manager

Facility Audit, Inside Concrete Perimeter Wall

Introduction

Mr. Blunt escorted the BVNA and C2, and Mr. Gardner at TBC's Pittsburg AC/DC Converter station, referred to as the Pittsburg Facility. The site visit intends to confirm the completion of prescribed initiatives found in TBC 2020 WMP.

Upon arrival at the Pittsburg Facility, the Facility is a secured facility surrounded by a Twelve (12) feet high solid concrete wall with access provided by a solid metal vehicle gate located at the southeast corner of the Facility. All ground surfaces within the concrete perimeter walls are either hardscape (concrete or asphalt) or covered with gravel. Several areas within the Facility are observed with dried grass that varies in height from a couple of inches to approximately three (3) feet in height. The Facility is currently not in operation and is de-energized due to ongoing construction work.

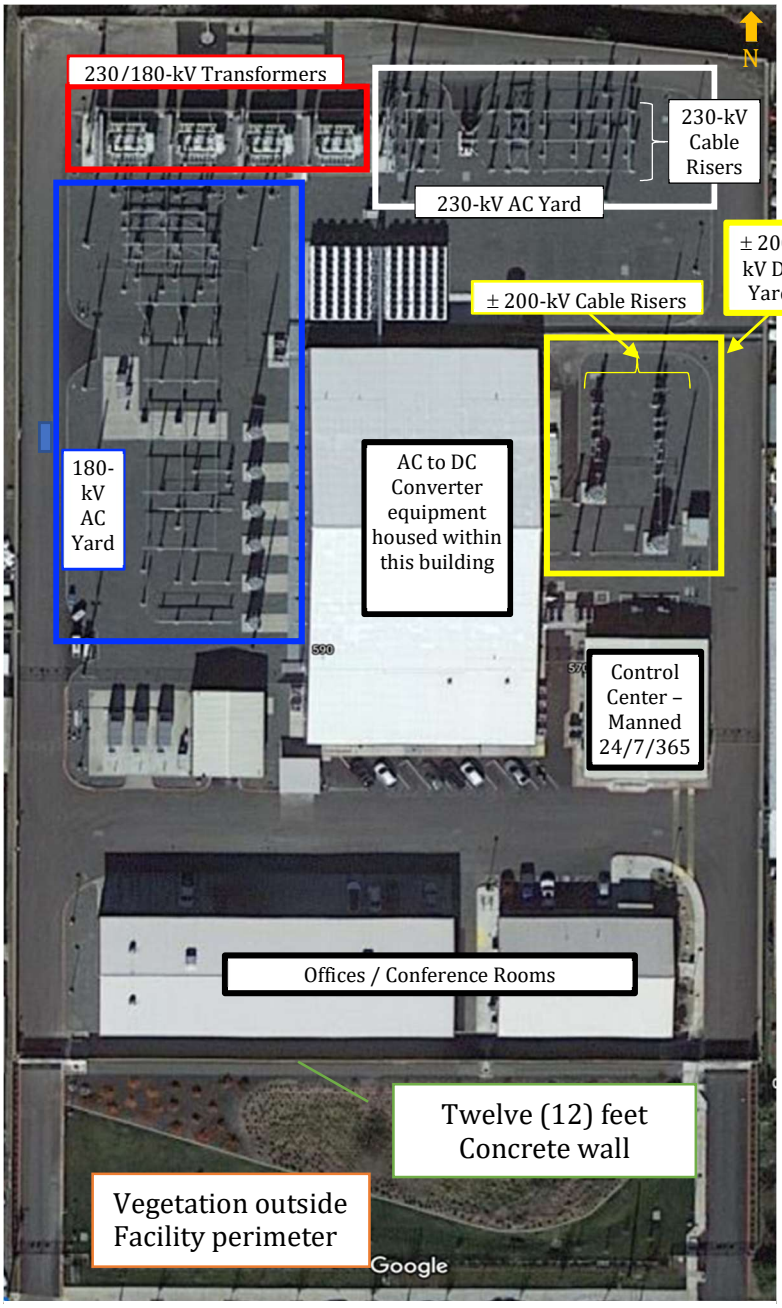


Figure 4: Equipment layout of TBC's Pittsburg Substation (Google Earth).

Figure 5. Grass growing within Facility

Items currently under construction:

- Transformer oil monitoring
- Transformer seismic retrofit (four (4) transformers total)
- Assembly and placement of the class B foam trailer for use during firefighting operations

Figure 6. Seismic Retrofit for Transformers.

Figure 7. Assembly of Foam Trailer

Upon completing the yard areas' assessment, the I.E., team and the TBC representatives proceeded to enter the A.C. to D.C. Converter Equipment building. TBC's above-ground air-insulated conductors and bus-work infrastructure are fully contained within the boundaries of the Converter Station.

Outside Facility Perimeter

Surrounding the exterior of the Pittsburg facility immediately east and west are auto salvage yards. North of the substation, there is what appears to be a vegetation swale for drainage. The south wall of the Facility has a four (4) foot wide gravel barrier between the wall and landscape vegetation.

Their Control Center is operated 24/7/365. 5.3.3 Infrared Inspections of distribution electric lines and equipment: Trans Bay has installed visual, ultraviolet, and infrared cameras inside their AC/DC converter buildings that provide continuous monitoring of the equipment. They also have cameras that have views of both inside and outside of their facilities.

3.1.2 Quantifiable Goal/Target – Field Verifiable

Activities

5.3.2 Situational Awareness and Forecasting: Through an SME interview, it was indicated that cable monitoring to track various cable conditions had been installed. It was observed during the field assessment the installation of transformer oil/gas monitoring and the structure of multiple cameras exterior and interior of the Facility. Interior cameras to the AC/DC Converter Building are visual, infrared, and ultraviolet capable of detecting critical conditions within the building that might result in conditions associated with fire. All cable, transformer, and oil monitoring and all cameras are reporting to the facility site Control Center. All monitoring is supervised by the Pittsburg Facilities Site Control Center that is occupied 24/7/365.

5.3.3 Grid Design and System Hardening: All TBC transmission lines are underground or buried in San Francisco Bay. Therefore, all risks of a condition leading to ignition and fire extension to the wildland are not present. Due to the narrow operational platform of TBC, there are no transmission or distribution lines. Inspection of the Pittsburg Facility confirmed that all circuits or conductors are undergrounded or submerged, and all associated AC/DC equipment is contained within the Pittsburg Facility where separation of the facility and landscape vegetation and wildland is provided by the presence of a Twelve (12) foot tall concrete perimeter wall.

5.3.5 Vegetation Management and Inspections: All of the surface areas in the TBC Facility are either hardscape (concrete/asphalt) or covered with gravel. During the site assessment, it was observed that dried grass vegetation is present within the Facility's boundary. Before reactivation of the Facility, removing all dried vegetation and combustible material from construction activities will require removal. This should be the limit of any and all vegetation management for the Pittsburg Facility.

In addition, it was also observed that the southern wall of the Pittsburg Facility has a four (4) foot wide gravel barrier inside and outside of the perimeter wall. The properties immediately east and west of the Pittsburg Facility are industrial and are defined as auto salvage yards.

Findings

Through site assessment and observation, along with the review of documentation and SME interviews, the Pittsburg Facility meets the outlined activities of TBC's 2020 WMP. An exception that requires remedy is the presence of dried grass and combustible construction material within the Facility.

3.1.3 Quantifiable Goal/Target – Not Field Verifiable

Activities

These activities are not present in the 2020 WMP activities. Therefore, this subject is not applicable or covered in this report.

Findings

These activities are not present in the 2020 WMP activities. Therefore, this subject is not applicable or covered in this report.

3.1.4 Small (less than 100 items) Volume Quantifiable Goal/Target

Activities

5.3.2 Situational Awareness and Forecasting: TBC has installed visual, ultraviolet, and infrared cameras inside their AC/DC converter buildings that provide continuous equipment monitoring. In addition, visual cameras have been installed exterior to the AC/DC Converter Building with views of inside and outside of the Pittsburg Facility. The Pittsburg Facility Control Center is staffed and monitors all cameras 24/7/365. During the site assessment, it was observed that TBC is installing cable and transformer oil gas monitoring systems.

As indicated in the SME interview during the site assessment, it was confirmed that TBC is in the process of improving fault Indicators for detecting faults on transmission lines and equipment by the installation of a fiber-optic based cable monitoring system which allows TBC to monitor the D.C. cable for physical vibration, temperature and abnormal electrical discharge at the cable terminations. This system can detect changes to the cable, which could indicate a compromised condition that could be the precursor to an ignition event.

Findings

Through site assessment and observation, along with the review of documentation and SME interview process, the Pittsburg Facility meets the outlined activities of TBC's 2020 WMP.

3.1.5 Qualitative Goal/Target

5.3.1 Risk Assessment and Mapping: Information was provided through SME interviews with TBC representatives that indicated TBC evaluates risk through weather assessments and considers conditions where RFW may limit operations due to TBC connections with PG&E.

5.3.9 Emergency Planning and Preparedness: TBC also maintains compliance with Safety regulations outlined by the Occupational Safety and Health Administration by maintaining an Emergency Action Plan (EAP). The EAP outlines communication protocols with CAISO and PG&E.

5.3.10 Site Fire Environment Risk Assessment: TBC provided information outlined the completed third-party wildfire risk assessment for the Pittsburg Facility. The review outlined local fire response capabilities, resources, and response times. This report outlined the need for foam extinguishing media to support fire operations in a transformer failure resulting in a fire.

Findings

Through the review of confidential documentation and SME interviews, the activities associated with Risk Management and Emergency Planning, and facility evaluation by the third-party analysis, it is found that the Pittsburg Facility meets the outlined activities of TBC's 2020 WMP.

3.2 Verification of Funding

Table 2: 2020 WMP Funding Verification Summary

Initiative Category	2020 Initiative Number	Initiative Name	2020 WMP Page Number	Funding discrepancy amount	Detail on funding discrepancy
Grid Operations	5.3.6	Grid Operations and Protocols Stationed and on-call ignition prevention and suppression resources and services	Page 68	<$22,000>	TBC's Response via SME: "The spend in question was in connection with the procurement for Class B Foam trailers. The authorized budget limit was $222,000, however upon final delivery and completion of the procurement of the trailers, the spend was approximately $22,000 under the authorized budget."

A comparative financial analysis was completed between TBC's ARC Report Dated March 2021 and the Quarter 1 2021 Quarter Data Report Dated March 4, 2021, as summarized within the Appendix TBC Financial Analysis document. Through a comparative analysis of publicly available information reported by TBC, it is demonstrated that funding activities are associated with Risk and Mapping, Situational Awareness, and Grid Design and System Hardening.

However, as described in the above funding verification table, TBC underfunded 5.3.6 Grid Operations and Protocols, Stationed and On-Call Ignition Prevention and Suppression Resources and Services by $22,000. This underspend was listed within the 2020 TBC's ARC Report that "... measures in 2020 were completed under plan costs." Per the SME Interview conducted on June 10 with Michael Blunt, TBC's Operations Manager, and Lenneal Gardner, TBC's Regional & Business Manager, the WMP Initiative Grid Operations costs came under the anticipated budget and aligned with the 2020 WMP stated goals. Additionally, upon delivery and receipt of the Foam Trailers (observed on-site per the TBC Pittsburg, I.E., Field Visit Described within this report), costs came under the anticipated budget for purchasing the indicated Foam Trailers. The purchase of two Foam Trailers is for the Pittsburg and San Francisco Facilities.

The detailed information regarding the underspend relating to the purchase of the Foam Trailers, the, I.E., has confirmed that TBC complies with the 2020 WMP by funding the 2020 WMP initiatives.

3.3 Verification of QA/QC Programs

As stated within the 2020 WMP, the TBC's Environmental, Health, and Safety (EH&S) Manager "manages TBC's general fire prevent plan, leads training, and assesses overall program compliance." To verify the QA/QC programs, the I.E. conducted an SME Interview on June 10 with Michael Blunt, TBC's Operations Manager, and Lenneal Gardner, TBC's Regional & Business Manager. During the interview, the WMP Activity 5.3.6 Grid Operations and Protocols have confirmed the methods of review associated with the QA/QC program process and procedures. The SME interview resulted in shared samples of their confidential monthly and weekly visual inspection reports and checklists utilized by the TBC on-site staff for equipment and facility inspections. After each inspection frequency, the appropriate monthly and weekly inspection report is completed. Staff notifies TBC's Operational Manager immediately of any deficiencies discovered during the inspection to determine an immediate resolution.

In addition, during the same interview, confidential Health and Safety Training information was reviewed that depicted training associated with the provisions outlined in TBC's EAP that describes TBC's yearly training plan for staff. The training provided ensures that TBC personnel is trained on the procedures, protocols, and requirements of the EAP for safety and conformance with California Occupational Safety and Health Administration (CAL OSHA) requirements. Additionally, Task Guides were presented that identify detailed training manuals for TBC staff related to using asset monitoring software and responding to facility emergencies such as fires and seismic impacts. TBC's Operations Manager also indicated that TBC has a direct point of contact with PG&E to receive notifications of any potential PG&E Public Safety Power Shutdowns (PSPS) impacting the Facility.

Findings

Through the SME interview and the receipt and review of TBC's confidential documents, it is found that TBC remains in compliance with the QA/QC procedures and protocols for 2020 WMP activities.

3.4 Vegetation Management Assessment

Due to the scale, scope, and nature of TBC's operation at the Pittsburg Facility, the range of metrics applicable to TBC's Wildfire Mitigation Plan is more limited than other utilities with substantially larger operating areas encompass wildlands. TBC has no overhead transmission or distribution lines, with the majority of all transmission elements of the system being either underground or underwater. This would preclude TBC from maintaining a Vegetation Management Program as the opportunity for a bare conductor from TBC's system to interact with vegetation is remote.

BVNA conducted a site assessment of the TBC's Pittsburg Facility and confirmed the facility risk to wildland vegetation is limited. The Pittsburg Facility is surrounded by a twelve (12) foot high concrete perimeter wall, thus creating a fire barrier between the surrounding area and the TBC facility. It was observed within the Facility's concrete perimeter wall that the facility surface areas were made up of either hardscape (concrete/asphalt) or covered with gravel. At the time of the site visit, the Facility was de-energized and was undergoing construction activities. Due to construction activities, combustible construction materials and packaging are present throughout areas of the Facility. Also, present within the Facility was dried grassy vegetation varying in height and density throughout the yard areas.

Upon review of documentation and SME interview, it is evident due to the limited nature of TBC's Pittsburg Facility, no Vegetation Management Plan is maintained. During BVNA site assessment, the presence of combustible construction materials and dried grassy vegetation within the Facility was observed; the existence of this material is an abnormal occurrence. Before reactivation of the Facility, removing all dried vegetation and combustible construction material will require removal and disposal. In addition, vegetation treatments will be needed to eliminate and maintain a vegetation-free environment within the Facility. This should be the limit of any vegetation management for the TBC Pittsburg Facility.

In addition to the site assessment, BVNA Certified Forester conducted a complete review of the TBC Risk Mitigation Plan. He confirmed that the risk of fire from the TBC Pittsburg Facility is low to not present due to the nature of the operations at the facility and facility hardening.

Findings

Through the site assessment, SME interview, and the receipt and review of TBC's confidential documents, it is found that the Pittsburg Facility operational profile under normal operations lacks proximity to vegetative fuels confirming information found within section 2.6 of the WPM. The confirmation of the site location and condition validates the wildfire risk assessment findings outlined within the 2020 WPM. These findings preclude TBC's need for a Vegetation Mitigation/Management Plan. However, due to the Facility's current conditions related to the shut down and construction activities is necessary to conduct a removal of combustible construction debris and material; along with the removal and treatment of the dried grassy vegetation present throughout the yards within the yard perimeter wall. Since the combustible materials are abnormal, it is determined that TBC remains in compliance with TBC's 2020 WMP.

4 Conclusion

Through, I.E., site assessment, SME interviews, data requests, and review, TBC has either completed activities outlined in their 2020 WMP or is in the process of completion. TBC interconnects with PG&E substations in both Pittsburg and San Francisco via underground A.C. transmission cables. All above-ground transmission infrastructure is fully contained within the walls of the systems converter stations. TBC's has no transmission or distribution line. All current-carrying conductors are contained entirely within the footprint of the AC/DC Converter Station perimeter twelve (12) feet concrete wall.

TBC categories within the WMP include:

- Risk Assessment and Mapping
- Situational Awareness and Forecasting
- Grid Design and System Hardening
- Vegetation Management and Inspections
- Emergency Planning and Preparedness
- Site Fire Environment Risk Assessment

These activities outlined under the categories in TBC's 2020 WMP have been review and confirmed by the, I.E., and have been demonstrated to meet the intent of reducing or eliminating the impact of the fire that would have a likelihood of extending from the TBC Facility and engaging off-site fuels. TBC fire prevention metrics focus on utilizing actual operational data, metrics, and practices to focus on general fire prevention and maintaining equipment integrity to preclude the potential for ignition events. This philosophy of fire prevention has been demonstrated to be successful. Equipment monitoring and awareness activities are critical to TBC's ongoing success in fire mitigation.

5 Appendix

- Appendix A – List of Supplemental Documents Reviewed
- Appendix B – Field Photos and Descriptions from Field Visit May 25, 2021
- Appendix C – List of 2020 WMP Activities
- Appendix D – Data and Interview Request
- Appendix E – Financial Analysis

Appendix A List of Supplemental Documents Reviewed

Documents Reviewed	Document Date
TBC 2020 Annual Report on Compliance	Mar-21
TBC Health & Safety Plan TBC-HS-103 Fire Prevention Plan Annex A WMP	2021
2021TBC-Attachment-B_QuarterlyReport	2021
TBC Q1_2021-Quarterly_Initiative_Update	2021
TBC Q1_2021_Quarterly_Data_Report	2021
TBC Health & Safety Plan TBC-HS-103 Fire Prevention Plan Annex A WMP Updated	2020
TBC TBC_2020_Wildire_Mitigation_Plan_Data_Tables_Updated	2020
TBC Health & Safety Plan TBC-HS-103 Fire Prevention Plan Annex A WMP Original	2020
TBC Wildfire Mitigation Plan Attachment_1_Data Tables Original	2020
TBC Data Request Response – 02.28.2020	Feb-20
TBC Item Index TBC-43879-E-2 - 2020 Data Table Clean	2020
TBC Item Index TBC-43879-E-2 - 2020 Data Table Revised	2020
TBC Item Index TBC-43879-E-2 - 2020 Data Table Revised	2020
TBC Data Request Response - 03.18.2020	Mar-20
TBC Item Index TBC-43903-Y-16 - TBC Asset Schema	2020
Confidential: OJT Guide 50 - System Operator Task 1.2.3 Monitor Ship Traffic Using Asset Monitoring Software and Respond to Any Potentially Problematic Conditions as Warranted	Feb-21
Confidential: OJT Guide 50 - System Operator Task 3.3.2 Respond to Facility Emergencies (e.g., fire to structures, seismic impacts, etc.)	Feb-21
Confidential: Monthly Inspection of Watch Pittsburg Report	Nov-20
Confidential: Weekly Pittsburg Inspection of the Watch	Jan-21
Confidential: TBC Health and Safety Training Emergency Action Plan	2019

Appendix B Field Descriptions from Field Visit May 25, 2021

Photo Image No.	Photo Description
1	Cable Sample
2	Southwest station view
3	West station view
4	Transformer Seismic upgrades
5	Seismic North view
6	Northeast station view
7	AC Risers
8	DC Risers
9	Converter outside
10	Converter room
11	UV IF Monitoring
12	Air filtering
13	Converter West AC side
14	Exterior area
15	Front Drainage Area
16	Foam Trailer

Photos

1	Cable Sample

2	Southwest Station View

3	West Station View

4	Transformer Seismic Upgrades

5	Seismic North View

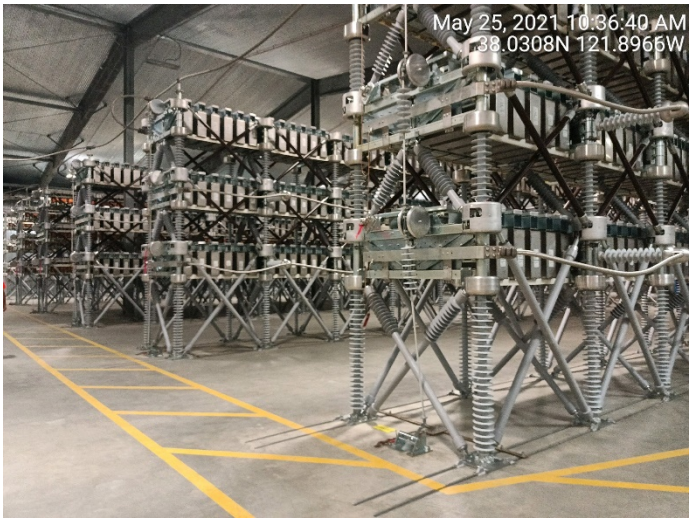
6	Northeast Station View

Photos – Continued

7	AC Risers

8	DC Risers

9	Converter Outside

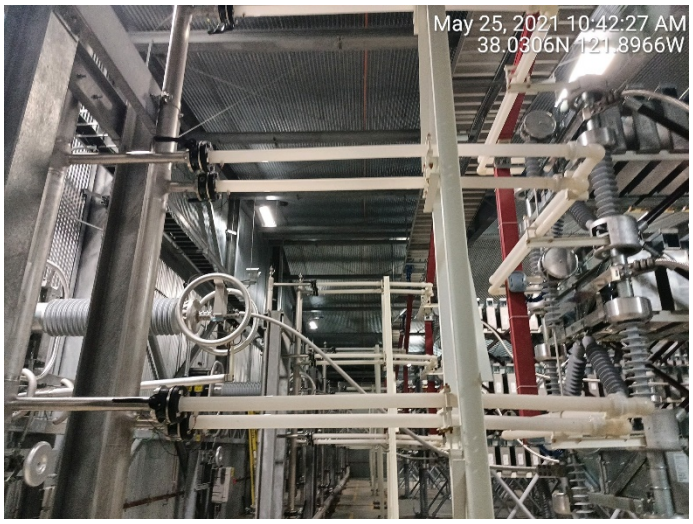


10	Converter Room

11	UV/IF Monitoring

12	Air Filtering

Photos - Continued



13	Converter West AC Side

14	Converter Room Extinguisher

15	Front Drainage Area

16	Foam Trailer

Appendix C List of 2020 WMP Activities

SOW Category	2020 WMP Activities	WMP Table # / Category	2020 Initiative No.	Imitative Activity
WMP Activity Completion	1. Large Volume/Field Verifiable	Situational Awareness and Forecasting	5.3.2.1.4	Trans Bay has installed visual, ultraviolet, and infrared cameras inside their AC/DC converter buildings that provide continuous equipment monitoring. They also have cameras that have views of both inside and outside of their facilities.
WMP Activity Completion	2. Large Volume/Not Field Verifiable	Grid Design And System Hardening	5.3.3.8	All of Trans Bay's transmission lines are either underground or buried in San Francisco Bay
WMP Activity Completion	2. Large Volume/Not Field Verifiable	Asset Management and Inspections	5.3.4.12	All of Trans Bay's transmission lines are either underground or buried in San Francisco Bay
WMP Activity Completion	2. Large Volume/Not Field Verifiable	Asset Management and Inspections	5.3.4.15	Trans Bay has multiple cameras with views both inside and outside of their substations. These cameras are monitored 24/7/365, and the Pittsburgh Substation is manned 24/7/365
WMP Activity Completion	2. Large Volume/Not Field Verifiable	Vegetation Management and Inspections	5.3.5.3.	All of the surface areas in the Trans Bay substations are either hardscape (concrete/asphalt) or covered with gravel. The southern wall of the Pittsburgh Substation facility has a four (4) foot wide gravel barrier both inside and outside of the wall
WMP Activity Completion	3. Small (Less than 100 Items) Volume Quantifiable	Grid Operations and Protocols	5.3.6.6	Trans Bay is in the process of installing foam fire suppression trailers in both of its substations
WMP Activity Completion	4. Qualitative Goal	Situational Awareness and Forecasting	5.3.2.2	Trans Bay has installed visual, ultraviolet, and infrared cameras inside their AC/DC converter buildings that provide continuous equipment monitoring. They also have cameras that have views of both inside and outside of their facilities. Their Control Center is staffed 24/7/365. They are in the process of installing cable and transformer oil gas monitoring systems.
WMP Activity Completion	4. Qualitative Goal	Situational Awareness and Forecasting	5.3.2.3	They are in the process of installing a fiber-optic-based cable monitoring system that allows Trans Bay to monitor the D.C. cable for physical vibration, temperature, and abnormal electrical discharge at the

				cable terminations. The system can detect changes to the cable, which might be an indication of a compromised condition which could be the precursor to an ignition event
WMP Activity Completion	4. Qualitative Goal	Situational Awareness and Forecasting	5.3.2.5	Trans Bay has cameras that are monitored 24/7/365, and the Pittsburgh Substation is manned 24/7/365

APPENDIX D DATA REQUEST

Data Request Number: 001
Name: Omneya B. Salem
Title: Financial Audit Lead

Data Request Date: 06.01.2021
Email: omneya.salem@conekt2.biz
Phone #: 858-449-8118

Program Target	Units	Sections	Target	Actual	Method	Data Request	Trans Bay Cable Response
Emergency Planning and Preparedness	N/A	N/A	N/A	N/A	N/A	Requesting Training documents associated with the Enhanced Fire Awareness, Prevention, and Training Campaigns for TBC Operations Staff, including: TBC-HS-103 Fire Prevention TBC-HS-200 Emergency Action Plan TBC-OP-004 Emergency Operations TBC-MP-741 Fire System TBC-OP- 020 Asset Monitoring & Protection	Documents are provided via email along with this response.
Grid Operations & Operating Protocols	N/A	Financials	222,000	200,000	Review Documentation	Requesting explanation/further clarification to the Underspend amount of $22,000 shown on ARC Report Dated March 2021 under Detailed Description for Grid Operations	The spend in question was in connection with the procurement for Class B Foam trailers. The authorized budget limit was $222,000; upon final delivery and completion of the procurement of the trailers, the spend was approximately $22,000 under the official budget.
QA/QC Programs	N/A	N/A	N/A	N/A	SME Interview	SME Interview with EH&S Manager for QA/QC Process for the WMP Implementation/Verification	SME Interview scheduled for June 10 at 2:00 pm P.T.

APPENDIX E FINANCIAL ANALYSIS

TBC Financial Audit Analysis (Spend in thousand $)

From ARC Report Dated March 2021					From Q1 2021 Quarterly Data Report Dated March 4, 2021					IE ARC Financial Audit Analysis		
#	WMP Category	2020 WMP Planned	2020 Actual	Difference	Actual CAPEX	Actual OPEX	Total Actual	Difference from 2020 WMP Planned	HWT Comments	2020 WMP Activities	Failed to Fund WMP Activity?	IE Findings
1	Risk and Mapping	$ 200	$ 200	$ -	$ 200	$ -	$ 200	$ -	The initiative consisted of an overall wildfire mitigation assessment of Pittsburg Convertor station	4. Qualitative Goal	No	Verified through the Updated 2020 WMP Plan TBC-HS-103 Page 99 Section 2.1
2	Situational Awareness	$ 2,800	$ 2,800	$ -	$ 2,800	$ -	$ 2,800	$ -	The initiative consisted of two projects: Real-time Cable monitoring and Transformer monitoring. Both completed in 2020	1. Large Volume/ Field Verifiable	No	Field verified per, I.E., Field Visit on May 25, 2021
3	Grid Design and System Hardening	$ 8,100	$ 8,100	$ -	$ 8,100	$ -	$ 8,100	$ -	The initiative consisted of seismic upgrades to transformer pads. It began in 2020 with projected completion in 2021	1. Large Volume/ Field Verifiable	No	Field verified per I.E., Field Visit on May 25, 2021.

4	Asset Management and Inspections	$ -	$ -	$ -	$ -	$ -	$ -	$ -	N/A	N/A	N/A	N/A
5	Vegetation Management	$ -	$ -	$ -	$ -	$ -	$ -	$ -	N/A	N/A	N/A	N/A
6	Grid Operations	$ 222	$ 200	$ 22	$ 222	$ -	$ 222	$ -	Initiatives consist of four projects: Foam trailers, completed in 2020; Cylinder enclosure projected 2021; Spare Parts Building suppression system launched 2022, and Aux Room barrier projected 2021	3. Small Volume/ Quantifiable	No	TBC's Response "The spend in question was in connection with the procurement for Class B Foam trailers. The authorized budget limit was $222,000, however upon final delivery and completion of the procurement of the trailers, the spend was approximately $22,000 under the authorized budget."
7	Data Governance	$ -	$ -	$ -	$ -	$ -	$ -	$ -	N/A	N/A	N/A	N/A
8	Resource Allocation	$ -	$ -	$ -	$ -	$ -	$ -	$ -	N/A	N/A	N/A	N/A
9	Emergency Planning	$ -	$ -	$ -	$ -	$ -	$ -	$ -	N/A	N/A	N/A	N/A
10	Stakeholder Cooperation and Community Engagement	$ -	$ -	$ -	$ -	$ -	$ -	$ -	N/A	N/A	N/A	N/A
	Total	**$11,322**	**$11,300**	**$22**	**$11,322**	**$ -**	**$11,322**	**$ -**				