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## Tables

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The Project will be designed for high reliability and efficiency. A detailed project description is provided in Section 2.0.

## 7.1 ORGANIZATION

Engineering standards and requirements are provided in Appendix B, Design Criteria. Details of the transmission system design are provided in Section 2.1.8.1, Electricity and Transmission Line. An overall description of the power plant design and operation can be found in Section 2.3, Power Generation. Design and engineering information is located in several places within this Revised Application for Certification (AFC) as follows:

Power Generation	Section 2.3.2, Major Power Block Equipment Description; Section 2.3.3, Auxiliary CTG. Additional information is also found in Appendix B, Design Criteria.
Atmospheric Emission	Section 2.3.2.3, Emissions Controls Systems; Section 2.4.13, Emission Monitoring Systems; and Section 5.1, Air Quality.
Waste Disposal System	Section 5.13, Waste Management.
Noise Abatement	Section 5.5, Noise; and Appendix K-2, Noise Technical Report.
Substations/Transformer	Section 2.3.4, Major Electrical Equipment and Systems; Section 4, Electrical Transmission; and Appendix A, Transmission Network Upgrade.
Transmission System	Section 2.3.4, Major Electrical Equipment and Systems; Section 2.1.9.1, Electricity and Transmission Line; and Appendix A, Transmission Network Upgrade.
Reliability	Section 2.8.2, Facility Reliability.
Fire Control System	Section 2.4.11, Fire Protection.

Information regarding design measures to provide for safe Project operation is contained in Section 2.7, Facility Safety Design.

A preliminary geotechnical investigation was performed by URS for the Project Site; the geotechnical investigation and report is included as Appendix P, Geotechnical Investigation.

Additional engineering information is contained in Appendix B, Design Criteria:

Civil Engineering	Appendix B1
Structural Engineering	Appendix B2
Mechanical Engineering	Appendix B3
Electrical Engineering	Appendix B4
Controls Systems	Appendix B5

## 7.2 LAWS, ORDINANCES, REGULATIONS, AND STANDARDS

Laws, Ordinances, Regulations, and Standards (LORS) applicable to the Project are shown in Table 7-1, Applicable Laws, Ordinances, Regulations, and Standards. Please note that the design of structures and facilities will be based on the applicable building codes, specifications, industry standards, and regulations. Building permits will be reviewed during the building permit approval process by Kern County and their contractors.

**Table 7-1  
Applicable Laws, Ordinances, Regulations, and Standards**

Jurisdiction LORS	Applicability	Administering Agency or Professional Association <sup>1</sup>	Required Permit
<b>CIVIL ENGINEERING AND FOUNDATION DESIGN CRITERIA</b>			
<b>Federal</b>			
Title 29, Code of Federal Regulations (CFR) Part 1910, Occupational Safety and Health Standards	Safety and Health	U.S. Department of Labor, Occupational Safety & Health Administration (OSHA)	None
Title 40, Code of Federal Regulations (CFR) Part 112, Oil Pollution Prevention <i>et seq.</i>	Spill Prevention and Countermeasure Plan (SPCC)	U.S. Environmental Protection Agency (USEPA)	None
<b>State</b>			
California Business & Professions Code §6704 <i>et seq.</i> , §§ 6730 and 6736	State Professional Registration	Department of Consumer Affairs, California Board For Professional Engineers and Land Surveyors	None
California Vehicle Code § 35780 <i>et seq.</i>	Permits for heavy truck loads	California Department of Transportation (Caltrans)	Permits for heavy truck loads
California Labor Code § 6500 <i>et seq.</i>	Permit for trenches, scaffolding, false work	California Division of Occupational Safety and Health Administration (Cal/OSHA) Department of Industrial Relations	Permits for trenches, scaffolding, false work
State of California, Department of Transportation (Caltrans) Standard Specifications	Meet Specifications	Caltrans	None
Title 24 California Code of Regulations, California Building Standards Code	Meet Design and Construction requirements	Kern County	Building permit
Title 8, California Code of Regulations (CCR), Division of Occupational Safety and Health	Construction safety orders, general industrial safety orders, and work safety requirements	Cal/OSHA	Building permit for boiler, trenching, and shoring

**Table 7-1  
Applicable Laws, Ordinances, Regulations, and Standards**

<b>Jurisdiction LORS</b>	<b>Applicability</b>	<b>Administering Agency or Professional Association<sup>1</sup></b>	<b>Required Permit</b>
State of California, Department of Water Resources	Encroachment Permit	Department of Water Resources Division of Engineering, Real Estate	Encroachment Permit
<b>County</b>			
Title Title 17, Buildings and Construction, Kern County Code, Chapter Chapter 17.20 Plumbing Code	Kern County requires a plumbing permit for the installation of any plumbing, gas, or drainage piping work or any fixture or water heating or treatment equipment in a building or premises as defined in subsection 17.20.060.	Kern County	Plumbing Permit
Title 17, Buildings and Construction, Kern County Code, Chapter 17.28 Grading Code	Kern County requires a grading permit for any excavating or filling or combination thereof except for exempted work as defined in subsection 17.28.040.B.  Grading permit covers drainage requirements	Kern County	Grading permit
<b>Industry</b>			
AASHTO Load and Resistance Factor Design (LRFD) Bridge Design Specifications	Meet Design Criteria	American Association of State Highway and Transportation Officials (AASHTO)	None
Standards and Specifications	Meet Requirements	Asphalt Institute (AI)	None
Standards and Specifications	Meet Requirements	American Concrete Institute (ACI)	None
Standards	Meet Requirements	American National Standards Institute (ANSI)	None

**Table 7-1  
Applicable Laws, Ordinances, Regulations, and Standards**

<b>Jurisdiction LORS</b>	<b>Applicability</b>	<b>Administering Agency or Professional Association<sup>1</sup></b>	<b>Required Permit</b>
Standards, Specifications, and Recommended Practices	Meet Requirements	American Society of Testing and Materials (ASTM)	None
Standards and Specifications	Meet Design and Construction Criteria	American Water Works Association (AWWA)	None
Codes and Standards	Meet Design Criteria	American Welding Society (AWS)	None
Standards	Meet Requirements	Concrete Reinforcing Steel Institute (CRSI)	Building
Standards	Meet Requirements	National Fire Protection Association (NFPA)	
Standards and Specifications	Meet Design Criteria	Steel Structures Painting Council (SSPC)	None
Uniform Plumbing Code 2006	Meet General Regulations	International Association of Plumbing and Mechanical Officials	Building plumbing permit
<b>ENGINEERING GEOLOGY CODES, STANDARDS, AND CERTIFICATIONS</b>			
<b>Federal</b> None Apply			
<b>State</b>			
Warren-Alquist Act, Title 20, Appendix B	Require that the AFC address the geological and seismic aspects of the site	CEC and CCR	None
California Environmental Quality Act (CEQA)	Require that potential significant effects, which include geological hazards, be identified	Office of Planning and Research	None
<b>County</b>			
California State Planning Law, Government Code Section 65302	Requires that seismic safety element be included in the general plan	Kern County	Building

**Table 7-1  
Applicable Laws, Ordinances, Regulations, and Standards**

<b>Jurisdiction LORS</b>	<b>Applicability</b>	<b>Administering Agency or Professional Association<sup>1</sup></b>	<b>Required Permit</b>
California Building Code (CBC), 2007	Certify the placement of earthen fills and the adequacy of the site for structural improvements	Kern County	Building
<b>Industry</b>			
California Business and Professions Code, § 7835	Requires registration for geologists who practice for others	California Building Standards Commission	None
California Building Code (2007 Edition), Chapter 14 & Chapter 18	Earthquake Regulations/Foundations/Excavation and Grading	California Building Standards Commission	Building
<b>STRUCTURAL AND SEISMIC DESIGN CRITERIA</b>			
<b>Federal</b>			
Title 29 Code of Federal Regulations, Part 1910, OSHA	Occupational Safety and Health Standards	OSHA	None
<b>State</b>			
Business and Professions Code § 6704, <i>et seq.</i> ; §§ 6730 and 6736	Requires state registration to practice as a Civil Engineer or Structural Engineer in California	California Building Standards Commission	None
Labor Code § 6500, <i>et seq.</i>	Permit for trenches, demolitions, false work, and scaffolding	Department of Labor & Industry Relations	Permit for trenches, demolitions, false work, and scaffolding
California Building Code (CBC), 2007	Meet standards	Kern County	Building

**Table 7-1  
Applicable Laws, Ordinances, Regulations, and Standards**

<b>Jurisdiction LORS</b>	<b>Applicability</b>	<b>Administering Agency or Professional Association<sup>1</sup></b>	<b>Required Permit</b>
Title 24 (CCR), minimum legal building requirements	Adopts current edition of California Building Code as minimum legal building standard	Kern County	Building
Standard Specifications	Meet Specifications	California Department of Transportation	None
Title 8 CCR § 1500, <i>et seq.</i> ; § 2300, <i>et seq.</i> ; and § 3200, <i>et seq</i> describe general construction safety orders, industrial safety orders, and work safety requirements and procedures	Requirements as applicable	Cal/OSHA	None
<b>Industry</b>			
Building Code Requirements for Reinforced Concrete (ACI 318-05)	Meet Design Criteria	ACI	Building
Building Code Requirements for Concrete Masonry Structures (ACI 530-05)	Meet Design Criteria	ACI	Building
Environmental Engineering Concrete Structures (ACI 350-06)	Meet Design Criteria	ACI	Building
Specification for Structural Steel Buildings (S360-05)	Meet Design Criteria	American Institute of Steel Construction (AISC)	Building
Code of Standard Practice for Steel Buildings and Bridges (S303-05)	Meet Design Criteria	AISC	Building
Manual of Steel Construction, 13th Edition (AISC 325-05)	Meet Design Criteria	AISC	Building
AISC Earthquake Design Manual (AISC 327-05)	Meet Design Criteria	AISC	Building
North American Specification for the Design of Cold-Formed Steel Structural Members, (NAS-01)	Meet Design Criteria	American Iron and Steel Institute (AISI)	Building

**Table 7-1  
Applicable Laws, Ordinances, Regulations, and Standards**

<b>Jurisdiction LORS</b>	<b>Applicability</b>	<b>Administering Agency or Professional Association<sup>1</sup></b>	<b>Required Permit</b>
Structural Welding Code-Steel	Meet Design Criteria	AWS	Building
Reinforced Masonry Engineering Handbook	Meet Design Criteria	Masonry Institute of America (MIA)	Building
Standard Specification for Carbon Structural Steel (ASTM A36-05)	Meet Specifications	ASTM	Building
Specification for Pipe, Steel, Black and Hot-Dipped, Zinc Coated, Welded and Seamless (ASTM A53-07)	Meet Specifications	ASTM	Building
Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes (ASTM A500-07)	Meet Specifications	ASTM	Building
Specification for Coatings of Zinc Mechanically Deposited on Iron and Steel (ASTM B695-04)	Meet Specifications	ASTM	Building
Specification for Carbon Steel Bolts and Studs (ASTM A307-07)	Meet Specifications	ASTM	Building
Specification for Zinc (Hot-Dipped Galvanized) Coatings on Iron and Steel Products (ASTM A123-02)	Meet Specifications	ASTM	Building
Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware (ASTM A153-07)	Meet Specifications	ASTM	Building
Specification for Steel Wire, Plain, for Concrete Reinforcement (ASTM A82-07)	Meet Specifications	ASTM	Building
Standard Specification for Steel Welded Wire Fabric, Plain, for Concrete Reinforcement (ASTM A185-07)	Meet Specifications	ASTM	Building

**Table 7-1  
Applicable Laws, Ordinances, Regulations, and Standards**

<b>Jurisdiction LORS</b>	<b>Applicability</b>	<b>Administering Agency or Professional Association<sup>1</sup></b>	<b>Required Permit</b>
Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement (ASTM A615/A615M-08)	Meet Specifications	ASTM	Building
American Association of State Highway and Transportation Officials (AASHTO), LRFD Bridge Design Specifications, 4th edition 2008 Interim Revisions	Meet Design Criteria	AASHTO	Building
Standards for Welding Steel Tanks (AWWA D100-2005)	Meet Design Criteria	AWWA	Building
Standards for Prestressed Concrete Pressure Pipe, Steel Cylinder Type for Water and Other Liquids (AWWA C301-99)	Meet Design Criteria	AWWA	Building
Standards for Reinforced Concrete Water Pipe-Noncylinder Type, Not Prestressed (AWWA C302-04)	Meet Design Criteria	AWWA	Building
Heating, Ventilating, and Air Conditioning Guide	Meet Design Criteria	American Society of Heating, Refrigeration, and Air Conditioning Engineers	Building
<b>ELECTRICAL ENGINEERING DESIGN CRITERIA</b>			
<b>Industry</b>			
Standards	Electrical Specifications	American National Standards Institute (ANSI)	
Standards	Electrical Specifications	Institute of Electrical and Electronics Engineers (IEEE)	
Standards	Electrical Specifications	National Electrical Manufacturers Association (NEMA)	
Standards	Electrical Specifications	ASTM	

**Table 7-1  
Applicable Laws, Ordinances, Regulations, and Standards**

<b>Jurisdiction LORS</b>	<b>Applicability</b>	<b>Administering Agency or Professional Association<sup>1</sup></b>	<b>Required Permit</b>
Standards	Electrical Specifications	Underwriters Laboratories (UL)	
Standards	Electrical Specifications	Factory Mutual (FM)	
Standards	Electrical Specifications	Occupational Safety and Health Act (OSHA)	
Standards	Electrical Specifications	National Fire Protection Association (NFPA)	
Standards	Electrical Specifications	North American Electrical Reliability Corporation (NERC)	
Standards	Electrical Specifications	American Petroleum Institute (API)	
Standards	Electrical Specifications	National Electrical Safety Code (NESC) (only for 230 kilovolt work)	
Standards	Electrical Specifications	National Electrical Code (NEC)	
Standards	Electrical Specifications	Insulated Cable Engineers Association (ICEA)	
Standards	Electrical Specifications	Association of Edison Illuminating Companies (AEIC) (for medium voltage cable only)	
Standards	Electrical Specifications	Illuminating Engineering Society of North America (IESNA)	
Standards	Electrical Specifications	International Electrotechnical Commission (IEC) standards may be used on motors and other electrical equipment such as large synchronous motor starting Load Commutated Inverter (LCI) manufactured outside of the United States.	

**Table 7-1  
Applicable Laws, Ordinances, Regulations, and Standards**

Jurisdiction LORS	Applicability	Administering Agency or Professional Association <sup>1</sup>	Required Permit
<b>MECHANICAL ENGINEERING DESIGN CRITERIA</b>			
<b>State</b>			
Title 8 California Code of Regulations (CCR) Division 1, Chapter 4, subchapters 4 – 7	Meet Standards	Cal/OSHA	Permits for boiler and asbestos contractor
Flammable Liquids, Gases, and Vapors, Chapter 27 Fire Protection, Division 1, Chapter 4, subchapter 7, Group 27	Meet Standards, Prepare Risk Management Plan	Kern County Department of Environmental Health	None
<b>Industry</b>			
Design Specifications	Meet Specifications	American Boiler Manufacturer's Association (ABMA)	
Design Specifications	Meet Specifications	Antifriction Bearing Manufacturers Association (AFBMA)	
Design Specifications	Meet Specifications	American Gear Manufacturers Association (AGMA)	
Design Specifications	Meet Specifications	Air Movers Control Association (AMCA)	
Design Specifications	Meet Specifications	American National Standards Institute (ANSI)	
Design Specifications	Meet Specifications	American Petroleum Institute (API)	
Design Specifications	Meet Specifications	American Society of Civil Engineers (ASCE)	
Design Specifications	Meet Specifications	American Society of Heating, Refrigeration and Air Conditioning (ASHRAE)	
Design Specifications	Meet Specifications	American Society of Mechanical Engineers (ASME)	

**Table 7-1  
Applicable Laws, Ordinances, Regulations, and Standards**

<b>Jurisdiction LORS</b>	<b>Applicability</b>	<b>Administering Agency or Professional Association<sup>1</sup></b>	<b>Required Permit</b>
Design Specifications	Meet Specifications	American Society for Nondestructive Testing (ASNT)	
Design Specifications	Meet Specifications	American Society for Testing Materials (ASTM)	
Design Specifications	Meet Specifications	American Welding Society (AWS)	
Design Specifications	Meet Specifications	American Water Works Association (AWWA)	
Design Specifications	Meet Specification	Compressed Gas Association (CGA)	
Design Specifications	Meet Specifications	Expansion Joint Manufacturing Association (EJMA)	
Design Specifications	Meet Specifications	Heat Exchanger Institute (HEI)	
Design Specifications	Meet Specifications	Hydraulic Institute Standards (HI)	
Design Specifications	Meet Specifications	Institute of Electrical and Electronics Engineers (IEEE)	
Design Specifications	Meet Specifications	Instrument Society of America (ISA)	
Design Specifications	Meet Specifications	Manufactures Standardization Society of the Valve and Fitting Industry (MMS)	
Design Specifications	Meet Specifications	Cooling Tower Institute (CTI)	
Design Specifications	Meet Specifications	National Fire Protection Association (NFPA)	
Design Specifications	Meet Specifications	National Bureau of Standards (NBS)	
Design Specifications	Meet Specifications	National Electrical Code (NEC)	
Design Specifications	Meet Specifications	National Electrical Manufactures Association (NEMA)	
Design Specifications	Meet Specifications	Pipe Fabrication Institute (PFI)	
Design Specifications	Meet Specifications	Steel Structures Painting Council (SSPC)	

**Table 7-1  
Applicable Laws, Ordinances, Regulations, and Standards**

<b>Jurisdiction LORS</b>	<b>Applicability</b>	<b>Administering Agency or Professional Association<sup>1</sup></b>	<b>Required Permit</b>
Design Specifications	Meet Specifications	Tubular Exchanger Manufacturers Association (TEMA)	
Design Specifications	Meet Specifications	Uniform Fire Code (UFC)	
Design Specifications	Meet Specifications	Underwriters Laboratory (UL)	
<b>SYSTEM CONTROL ENGINEERING DESIGN CRITERIA</b>			
<b>Industry</b>			
Design Specifications	Meet Specifications	ANSI/ISA	
Design Specifications	Meet Specifications	ASME	
Design Specifications	Meet Specifications	National Electric Code (NEC)	
Design Specifications	Meet Specifications	National Electric Manufacturers Association (NEMA)	
Design Specifications	Meet Specifications	National Electric Safety Code (NESC)	
Design Specifications	Meet Specifications	National Fire Protection Association (NFPA)	
Design Specifications	Meet Specifications	American Petroleum Institute (API)	
Design Specifications	Meet Specifications	Process Industry Practice (PIP)	

Note:

<sup>1</sup> Please note that the design of all structures and facilities will be based on building codes, specifications, industry standards, and regulations and will be reviewed during the building permit approval process by Kern County.

## 7.3 INVOLVED AGENCIES AND AGENCY CONTACTS

Agency contacts regarding Project design are presented in Table 7-2, Involved Agencies and Agency Contacts.

**Table 7-2  
Involved Agencies and Agency Contacts**

<b>Agency</b>	<b>Contact/Title</b>	<b>Telephone</b>
Kern County Building Inspection Division 2700 "M" Street, Suite 100 Bakersfield, CA 93301	Charles Lackey Director	(661) 862-8650
Kern County Planning Department 2700 "M" Street, Suite 100 Bakersfield, CA 93301	Lorelei H. Oviatt, AICP Division Chief	(661) 862-8866
Caltrans North Region Permits Office MS# 41 1823 14th Street Sacramento, CA 942874	Kien Le	(916) 322-6001
San Joaquin Valley Air Pollution Control District Southern Region 34946 Flyover Court 2700 "M" Street, Suite 275 Bakersfield, CA 93308	Leonard Scandura, PE Supervising Air Quality Engineer	(661) 392-5601
U.S. Environmental Protection Agency Air Permits Office 75 Hawthorne Street San Francisco, CA 94105	Gerardo Rios Chief, Permits Office Air Division	(415) 972-3974
California Energy Commission 1519 Ninth Street Sacramento, CA 95814	Eileen Allen Facilities Siting Program Manager	(916) 654-4082
California Department of Fish and Game Central Region Headquarters Office 1234 E. Shaw Avenue Fresno, CA 93710	Julie Vance Senior Environmental Scientist	(559) 243-4014 x222
County of Kern, Environmental Health Services Department (EHSD) 2700 M Street, Suite 300 Bakersfield, CA 93301	Matthew Constantine Director	(661) 862-8700
State of California, Central Valley Regional Water Quality Control Board 1685 E Street Fresno, CA 93706	Doug Patterson Senior Water Resource Control Engineer	(559) 445-5146
California Occupational Safety & Health Administration District Office 6150 Van Nuys Boulevard, Suite 405 Van Nuys, CA 91401		(818) 901-5403
Department of Water Resources Division of Engineering, Real Estate Board 1416 19th Street P.O. Box 942836 Sacramento, CA 94236-0001	San Joaquin Field Division 4201 Sabodan Street Bakersfield, CA 93313	(661) 858-5513