

8.12 Hazardous Materials Handling

8.12.1 Introduction

This subsection evaluates the potential effects on human health and the environment from the storage and use of hazardous materials in conjunction with the Walnut Energy Center (WEC). Subsection 8.12.2 presents the laws, ordinances, regulations, and standards (LORS) applicable to hazardous materials, Subsection 8.12.3 describes the existing environment that may be affected, and Subsection 8.12.4 identifies potential impacts on that environment and on human health from WEC development. Subsection 8.12.5 discusses the offsite migration modeling protocol, Subsection 8.12.6 discusses fire and explosion risk. Subsection 8.12.7 investigates potential cumulative impacts, and Subsection 8.12.8 presents proposed mitigation measures. Subsection 8.12.9 describes the agencies involved and provides agency contacts. Subsection 8.12.10 describes permits required and the permit schedule. Subsection 8.12.11 provides the references used to develop this subsection.

8.12.2 Laws, Ordinances, Regulations, and Standards

The storage and use of hazardous materials and acutely hazardous materials at WEC are governed by federal, state, and local laws. Applicable laws and regulations address the use and storage of hazardous materials to protect the environment from contamination; they are also intended to protect facility workers and the surrounding community from exposure to hazardous and acutely hazardous materials. The applicable LORS are summarized in Table 8.12-1.

TABLE 8.12-1
Applicable Laws, Ordinances, Regulations, and Standards

LORS	Purpose	Applicability (AFC Section Explaining Conformance)
Federal		
CERCLA/SARA		
Section 302	Requires certain planning activities when EHS are present in excess of TPQ. WEC will have ammonia and sulfuric acid in excess of the TPQ.	An RMP will be prepared to describe planning activities (Subsection 8.12.8.4.2).
Section 304	Requires notification when there is a release of hazardous material in excess of its RQ.	An HMBP will be prepared to describe notification and reporting procedures (Subsection 8.12.8.4.1).
Section 311	Requires MSDS for every hazardous material to be kept onsite and submitted to SERC, LEPC, and the local fire department.	The HMBP to be prepared will include MSDSs and procedures for submission to agencies (Subsection 8.12.8.4.1).
Section 313	Requires annual reporting of releases of hazardous materials.	The HMBP to be prepared will describe reporting procedures (Subsection 8.12.8.4.1).

TABLE 8.12-1
Applicable Laws, Ordinances, Regulations, and Standards

LORS	Purpose	Applicability (AFC Section Explaining Conformance)
Clean Air Act (CAA)	Requires an RMP if listed hazardous materials are stored at or above a TPQ.	An RMP will be prepared (Subsection 8.12.8.4.2).
Clean Water Act (CWA)	Requires preparation of an SPCC plan if oil is stored above certain quantities.	An SPCC Plan will be prepared (Subsection 8.12.8.4.3).
State		
Health and Safety Code, Section 25500, et seq.	Requires preparation of an HMBP if hazardous materials are handled or stored in excess of threshold quantities.	An HMBP will be prepared (Subsection 8.12.8.4.1).
CalARP Program. Health and Safety Code, Section 25531 through 25543.4	Requires registration with local CUPA or lead agency and preparation of an RMP if acutely hazardous materials are handled or stored in excess of TPQs.	An RMP will be prepared that will describe procedures for registration with Stanislaus County CUPA (Subsection 8.12.8.4.2).
Aboveground Petroleum Storage Act	Requires entities that store petroleum in ASTs in excess of certain quantities to prepare an SPCC Plan.	An SPCC Plan will be prepared (Subsection 8.12.8.4.3).
Safe Drinking Water and Toxics Enforcement Act (Proposition 65)	Requires warning to persons exposed to a list of carcinogenic and reproductive toxins and protection of drinking water from same toxins.	The site will be appropriately labeled for chemicals on the Proposition 65 list (Subsection 8.12.8.4.4).
Local		
City of Turlock Municipal Code, Chapter 4-3	Adopts Uniform Fire Code with some amendments. Permit required for storage, handling or use of Class II, Class III-A, and Class III-B liquids in excess of 25 gallons in a building or 55 gallons outside a building	WEC will obtain a permit if needed. (Subsection 8.12.2.4)

AST	Aboveground Storage Tank
CalARP	California Accidental Release Program
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CUPA	Certified Unified Program Agency
EHS	Extremely hazardous substance
HMBP	Hazardous Materials Business Plan
LEPC	Local Emergency Planning Committee
MSDS	Material Safety Data Sheet
RMP	Risk Management Plan
RQ	Reportable Quantity
SARA	Superfund Amendments and Reauthorization
SERC	State Emergency Response Commission
SPCC	Spill Prevention Control and Countermeasures
TPQ	Threshold Planning Quantity

8.12.2.1 Federal

Hazardous materials are governed under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the Clean Air Act (CAA), and the Clean Water Act (CWA).

8.12.2.1.1 CERCLA

The Superfund Amendments and Reauthorization Act of 1986 (SARA), an amendment to CERCLA, governs hazardous materials. The applicable part of SARA for WEC is Title III, otherwise known as the Emergency Planning and Community Right-To-Know Act of 1986 (EPCRA). Title III requires states to establish a process for developing local chemical emergency preparedness programs and to receive and disseminate information on hazardous materials present at facilities in local communities. The law provides primarily for planning, reporting, and notification concerning hazardous materials. Key sections of the law are:

- Section 302 – requires that certain emergency planning activities be conducted when Extremely Hazardous Substances (EHSs) are present in excess of their Threshold Planning Quantities (TPQs). EHSs and their TPQs are found in Appendices A and B of 40 CFR Part 355.
- Section 304 – Requires immediate notification to the Local Emergency Planning Committee (LEPC) and the State Emergency Response Commission (SERC) when a hazardous material is released in excess of its Reportable Quantity (RQ). If a CERCLA-listed hazardous substance RQ is released, notification must also be given to the National Response Center in Washington, D.C. (RQs are listed in 40 CFR Part 302, Table 302.4). These notifications are in addition to notifications given to the local emergency response team or fire personnel.
- Section 311 – Requires that either Material Safety Data Sheets (MSDSs) for all hazardous materials or a list of all hazardous materials be submitted to the SERC, LEPC, and local fire department.
- Section 313 – Requires annual reporting of hazardous materials released into the environment either routinely or as a result of an accident.

8.12.2.1.2 Clean Air Act

Regulations (40 CFR 68) under the CAA are designed to prevent accidental releases of hazardous materials. The regulations require facilities to develop a Risk Management Plan (RMP) if they store designated materials above threshold quantities. The RMPs must include hazard assessments and response programs to prevent accidental releases of certain chemicals. Section 112(r)(5) of the CAA discusses the regulated chemicals. These chemicals are listed in 40 CFR 68.130. Anhydrous ammonia is a listed substance with a threshold quantity of 10,000 pounds.

8.12.2.1.3 Clean Water Act

The Spill Prevention Control and Countermeasures (SPCC) program under the CWA is designed to prevent or contain the discharge or threat of discharge of oil into navigable waters or adjoining shorelines. Regulations under the CWA (40 CFR 112) require facilities to prepare a written SPCC Plan if they store oil and its release would pose a threat to navigable waters. The SPCC program is applicable if a facility has a single oil aboveground storage

tank (AST) with a capacity greater than 660 gallons, total AST storage greater than 1,320 gallons, or underground storage capacity greater than 42,000 gallons.

Other related federal laws that address hazardous materials but do not specifically address their handling are the Resource Conservation and Recovery Act (RCRA), which is discussed in Subsection 8.13, and the Occupational Safety and Health Act (OSHA), which is discussed in Subsection 8.7.

8.12.2.2 State

California laws and regulations relevant to hazardous materials handling at WEC include Health and Safety Code Section 25500 (hazardous materials), Health and Safety Code Section 25531 (acutely hazardous materials), and the Aboveground Petroleum Storage Act (petroleum in aboveground tanks).

8.12.2.2.1 Health and Safety Code Section 25500

This law is found in the California Health and Safety Code, Section 25500, et seq., and in the regulations contained in 19 CCR Section 2620, et seq. The law requires local governments to regulate business storage of hazardous materials in excess of certain quantities. The law also requires that entities storing hazardous materials be prepared to respond to releases. Those using and storing hazardous materials are required to submit an HMBP to their local administering agency (i.e., CUPA). They must also report releases to their CUPA and the Governor's Office of Emergency Services. The threshold quantities for hazardous materials are 55 gallons for liquids, 500 pounds for solids, and 200 cubic feet for compressed gases measured at standard temperature and pressure.

8.12.2.2.2 Health and Safety Code Section 25531

This law regulates the registration and handling of acutely hazardous materials, per California Health and Safety Code, Section 25531, et seq. Acutely hazardous materials are any chemicals designated as an extremely hazardous substance by the USEPA as part of its implementation of SARA Title III. This law expands the programs mandated by Section 25500 of the Health and Safety Code, and overlaps or duplicates some of the requirements of SARA and the CAA. Facilities handling or storing acutely hazardous materials at or above threshold planning quantities must register with their local CUPA and prepare an RMP. The TPQ for ammonia is 500 pounds.

8.12.2.2.3 Aboveground Petroleum Storage Act

This law is found in the Health and Safety Code at Sections 25270 to 25270.13 and is intended to ensure compliance with the federal CWA. The law applies if a facility has an AST with a capacity greater than 660 gallons or a combined AST capacity greater than 1,320 gallons and if there is a reasonable possibility that the tank(s) may discharge oil in "harmful quantities" into navigable waters or adjoining shore lands. If a facility falls under these criteria, it must prepare an SPCC. The law does not cover AST design, engineering, construction, or other technical requirements, which are usually determined by local fire departments.

8.12.2.2.4 Safe Drinking Water and Toxics Enforcement Act (Proposition 65)

This law identifies chemicals that cause cancer and reproductive toxicity, informs the public, and prevents discharge of the chemicals into sources of drinking water. Lists of the chemicals of concern are published and updated periodically. The Act is administered by

California's Office of Environmental Health Hazard Assessment. Some of the chemicals to be used at WEC are on the cancer-causing and reproductive-toxicity lists of the Act.

8.12.2.3 Local

Local agencies usually have the responsibility for administering hazardous materials requirements and ensuring compliance with federal and state laws. City of Turlock Fire Services and the Stanislaus County Department of Environmental Resources are the local agencies with jurisdiction over hazardous materials storage and handling practices. The local requirements that pertain to hazardous materials are discussed below.

8.12.2.3.1 Stanislaus County

The Stanislaus County Department of Environmental Resources (DER) is the designated Certified Unified Program Agency (CUPA) and is responsible for administering HMBPs/HMMPs, SPCC Plans, and RMPs filed by businesses located in the county. The County is also responsible under the CUPA program for underground storage tank compliance. In addition, DER is the regulatory body for all hazardous waste generated in the County (see Subsection 8.13, Waste Management). DER is responsible for ensuring that businesses and industry store and use hazardous materials safely and in conformance with various regulatory codes. DER performs inspections at established facilities to verify that hazardous materials are properly stored and handled and that the types and quantities of materials reported in a firm's HMBP are accurate.

8.12.2.4 Codes

The design, engineering, and construction of hazardous materials storage and dispensing systems will be in accordance with all applicable codes and standards, including the following:

- California Vehicle Code, 13 CCR 1160, et seq. – Provides the CHP with authority to adopt regulations for the transportation of hazardous materials in California.
- Uniform Fire Code, Article 80 – The hazardous materials section of the Fire Code. Local fire agencies or departments enforce this code and can require that an HMBP and a Hazardous Materials Inventory Statement be prepared. This requirement and the Health and Safety Code Section 25500 requirement for an HMBP can usually be satisfied in a single combined document.
- State Building Standard Code, Health and Safety Code Sections 18901 to 18949 – Incorporates the Uniform Building Code (UBC), Uniform Fire Code, and the Uniform Plumbing Code.
- American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section VIII.
- American National Standards Institute (ANSI) K61.1.
- City of Turlock Municipal Code.

8.12.3 Affected Environment

The project site is located in an industrial area of the City of Turlock in Stanislaus County (Figure 2.1-1). There are few sensitive receptor facilities (such as schools, day-care facilities,

convalescent centers, or hospitals) in the vicinity of the project site. The nearest sensitive receptor is the Stanislaus County Child Care Center located approximately 0.5 miles from the project site at 400 North Kilroy Road in Turlock. Sensitive receptors within a 3-mile radius of the project site are shown on Figure 8.6-1 (see Subsection 8.6) and descriptions of the receptors are presented in Table 8.12-2.

TABLE 8.12-2
Sensitive Receptors within a 3-mile Radius of the WEC Site^a

Sensitive Receptor Type	Distance in Miles	Name	Telephone Number	Address
Day-Care Facility	0.5	Stanislaus County Child Care	209-669-6374	400 N. Kilroy Road
Emergency Response Facility	1.0	Turlock Police – Animal Control	209-668-5530	801 S Walnut
Emergency Response Facility	1.0	Turlock Fire Services Station #2	209-668-5580	791 S. Walnut Rd
Day-Care Facility	1.3	Our House Children's Center	209-667-2915	2550 Cherokee Ct.
School	1.3	Osborn Elementary School	209-667-0893	201 N. Soderquist Rd
Day-Care Facility	1.7	Tiny Tot Home Day Care	209-669-0789	Not available
Day-Care Facility	1.7	Turlock Nursery School	209-667-7501	415 Grant St
School	1.8	Wakefield Elementary School	209-667-0895	400 South Ave
Day-Care Facility	1.9	Covenant Park Childrens Campus	209-667-7622	316 S Laurel St
Emergency Response Facility	1.9	Turlock Fire Services Station #4	209-668-5580	2820 N. Walnut Rd
School	2.0	Cunningham Elementary School	209-667-0794	324 W. Linwood Ave
Emergency Response Facility	2.0	Turlock Rural Fire District	209-632-3953	690 W. Canal
Day-Care Facility	2.2	A Special Place	209-667-0322	2490 N. Walnut Rd
Day-Care Facility	2.2	Seashells & Puppy Dog Tails	209-669-9540	2059 Garden Lane
Emergency Response Facility	2.2	Turlock Fire Dept Admin Offices	209-668-5580	156 S Broadway #250
Emergency Response Facility	2.3	Turlock Police Dept	209-668-5550	900 N Palm St
Emergency Response Facility	2.3	Turlock Police Dept	209-668-5550	250 Starr Ave
Emergency Response Facility	2.4	Turlock Police Dept	209-668-5550	291 Starr Ave
School	2.4	Walter M. Brown Elementary	209-634-7231	1400 Georgetown Ave
Day-Care Facility	2.5	Freda's Day Care	209-667-1024	800 W Minnesota Ave
Emergency Response Facility	2.5	Turlock Fire Services Station #1	209-668-5580	271 Minaret Ave
School	2.5	Chatom Elementary School	209-664-8500	7221 Clayton Rd

TABLE 8.12-2
Sensitive Receptors within a 3-mile Radius of the WEC Site^a

Sensitive Receptor Type	Distance in Miles	Name	Telephone Number	Address
School	2.6	Turlock Christian Schools Inc	209-632-2337	1619 E Monte Vista Ave
Day-Care Facility	2.6	Monte Vista Children's Ctr	209-632-8477	1619 E Monte Vista Ave
School	2.6	Crowell Elementary School	209-667-0885	118 North Ave
School	2.6	Northview Christian School	209-634-8083	200 North Ave
School	2.6	Crane Elementary School	209-632-1043	1100 Cahill St
Day-Care Facility	2.7	Sacred Heart Catholic Pre-School	209-667-5512	1250 Cooper Ave
School	2.7	Sacred Heart School	209-634-7787	1225 Cooper Ave
School	3.0	Turlock Junior High School	209-667-0881	3951 N Walnut Rd
School	3.0	Dutcher Elementary School	209-667-8817	1441 Colorado Ave
Hospital	3.0	Emanuel Medical Center	209-667-4200	825 Delbon Ave
Long-Term Health Care Facility	3.0	Turlock Nursing & Rehab Ctr	209-632-3821	1111 E Tuolumne Rd

^a See Figure 8.6-1.

8.12.4 Potential Environmental and Human Health Effects

Hazardous materials to be used at WEC during construction and operation were evaluated for hazardous characteristics. That evaluation is discussed in this subsection. Some of these materials will be stored at the generating site continuously. Others will be brought onsite for the initial startup and periodic maintenance (every 3 to 5 years). Some materials will be used only during startup. Hazardous materials will not be stored or used in the gas supply line, water supply line, or electric transmission line corridors during operations. Storage locations are described in Table 8.12-3. Table 8.12-4 presents information about these materials, including trade names; chemical names; Chemical Abstract Service (CAS) numbers; maximum quantities onsite; reportable quantities (RQs); La Follette Bill threshold planning quantities (TPQs); and status as a Proposition 65 chemical (a chemical known to be carcinogenic or cause reproductive problems in humans). Toxicity characteristics and the exposure level criteria for acutely hazardous chemicals are shown in Table 8.12-5. Health hazards and flammability data are summarized in Table 8.12-6. Table 8.12-6 also contains information on incompatible chemicals (e.g., sodium hypochlorite and ammonia). Measures to mitigate the potential effects from the hazardous materials are presented in Subsection 8.12.8.

8.12.4.1 Construction Phase

During construction of the project and linear facilities, acutely hazardous materials, as defined in California's Health and Safety Code, Section 25531, will not be used. Therefore, no discussion of acutely hazardous materials storage or handling is included in this subsection.

Hazardous materials to be used during construction of the project and its associated linear facilities will include gasoline, diesel fuel, motor oil, hydraulic fluid, solvents, cleaners, sealants, welding flux, various lubricants, paint, and paint thinner. There are no feasible alternatives to motor fuels and oils for operating construction equipment. The types of paint required are dictated by the types of equipment and structures that must be coated and by the manufacturers' requirements for coating.

The quantities of hazardous materials that will be onsite during construction are small, relative to the quantities used during operation. Construction personnel will be trained to handle the materials properly. The most likely possible incidents will involve the potential for fuels, oil, and grease dripping from construction equipment. The small quantities of fuel, oil, and grease that might drip from construction equipment will have relatively low toxicity and will be biodegradable. Therefore, the expected environmental impact is minimal.

Small oil spills may also occur during onsite refueling. Equipment refueling will be performed away from water bodies to prevent contamination of water in the event of a fuel spill. Therefore, the potential environmental effects from fueling operations are expected to be limited to small areas of contaminated soil. If a fuel spill occurs on soil, the contaminated soil will be placed into barrels or trucks for offsite disposal as a hazardous waste. The worst-case scenario for a chemical release from fueling operations would be a vehicle accident involving a service or refueling truck. Handling procedures for the hazardous materials to be used onsite during construction are presented in Subsection 8.12.8.1.

The quantities of hazardous materials that will be handled during construction are relatively small and Best Management Practices (BMPs) will be implemented by contractor personnel. Therefore, the potential for environmental effects is expected to be small.

8.12.4.2 Operations Phase

Several hazardous materials, including three acutely hazardous materials, will be stored at the generating site during WEC operation. Many of the hazardous materials that will be stored onsite are corrosive and are a threat to humans (particularly workers at the site) if inhaled, ingested, or contacted with the skin. The hazardous characteristics of materials being used at the site are summarized in Table 8.12-6. Table 8.12-6 also contains information on incompatible chemicals (e.g., sodium hypochlorite and ammonia). Mixing incompatible chemicals can generate toxic gases. Measures to keep incompatible chemicals separated include separate storage and containment areas and/or berming (see Subsection 8.12.8).

TABLE 8.12-3
Use and Location of Hazardous Materials

Chemical	Use	Storage Location	State	Type of Storage
Ammonium Bifluoride	Cleaning of HRSG, initial startup and once every 3 to 5 years	Outside, near each HRSG	Solid Crystals	Initial Startup and Periodically Onsite
Anhydrous Ammonia (99% NH ₃)	Control oxides of nitrogen (NO _x) emissions through selective catalytic reduction	Outside, north of cooling tower	Liquid	Continuously Onsite
Anti-Foam (e.g., NALCO 71 D5 ANTIFOAM)	Brine concentrator to control foaming	Water treatment building	Liquid	Continuously Onsite
Antifreeze	Closed loop cooling systems	Water treatment building	Liquid	Continuously Onsite
Calcium Sulfate	Brine concentrator initial startup seeding	Water treatment building	Solid	Initial Startup and Periodically Onsite
Chelating Agents (EDTA)	Brine concentrator cleaner	Water treatment building	Liquid	Continuously Onsite
Citric Acid	Cleaning of HRSG, initial startup and once every 3 to 5 years	Outside, near each HRSG	Solid Powder	Initial Startup and Periodically Onsite
Cleaning chemicals/detergents	Periodic cleaning of HRSG and combustion turbine	Water treatment building and maintenance shop	Liquid	Continuously Onsite
Diesel No. 2	Fuel for fire pump engine/vehicles	Near fire pump	Liquid	Continuously Onsite
Formic acid	Cleaning of HRSG	Outside, near each HRSG	Liquid	Prior to Initial Startup
Hydraulic Oil	High-pressure combustion turbine starting system, turbine control valve actuators	Contained within equipment	Liquid	Continuously Onsite
Hydrochloric Acid	Cleaning of HRSG, initial startup and once every 3 to 5 years; small quantity kept onsite for maintenance	Water treatment building and outside, near each HRSG	Liquid	Initial Startup and Periodically Onsite; Small quantity continuously onsite
Hydroxyacetic acid	Cleaning of HRSGs; small quantity kept onsite for maintenance	Water treatment building and outside, near each HRSG	Solid Crystals	Prior to Initial Startup; Small quantity continuously onsite
Laboratory reagents	Water/wastewater laboratory analysis	Cycle chemical feed building	Liquid and Granular Solid	Continuously Onsite
Lubrication Oil	Lubricate rotating equipment (e.g., gas turbine and steam turbine bearings)	Contained within equipment	Liquid	Continuously Onsite
Mineral Insulating Oil	Transformers/switchyard	Contained within transformers -	Liquid	Continuously Onsite
Neutralizing amines (e.g., NALCO 356)	Corrosion control of condensate piping	Cycle chemical feed building	Liquid	Continuously Onsite
Non-Oxidizing Biocide (e.g., NALCO 7330)	Cooling tower biological control, used periodically	Cooling tower chemical feed area	Liquid	Continuously Onsite

TABLE 8.12-3
Use and Location of Hazardous Materials

Chemical	Use	Storage Location	State	Type of Storage
Oxygen Scavenger (e.g., NALCO ELIMIN-OX)	Oxygen scavenger for use in process feedwater to deaerator	Cycle chemical feed building	Liquid	Continuously Onsite
Scale Inhibitor (Polyacrylate)	Cooling tower scale inhibitor	Cooling tower chemical feed area	Liquid	Continuously Onsite
Sodium Bromide	Cooling tower biocide	Cooling tower chemical feed area	Liquid	Continuously Onsite
Sodium Carbonate	Cleaning of HRSG, initial startup and once every 3 to 5 years	Outside, near each HRSG	Solid Powder	Initial Startup and periodically Onsite
Sodium Hypochlorite (NaOCl)	Biocide for circulating water system and process water pretreatment	Cooling tower chemical feed area and water treatment building	Liquid	Continuously Onsite
Sodium Nitrate	Cleaning of HRSG, initial startup and once every 3 to 5 years	Outside, near each HRSG	Solid Crystals	Initial Startup and Periodically Onsite
Sodium Nitrite	Cleaning of HRSG, initial startup and once every 3 to 5 years	Outside, near each HRSG	Solid	Initial startup and periodically onsite
Sodium Sulfate	Brine concentrator water chemistry adjustment	Water treatment building	Solid	Continuously Onsite
Stabilized Bromine (e.g., NALCO STABREX ST70)	Biocide for circulating water system	Cooling tower chemical feed area	Liquid	Continuously Onsite
Sulfur Hexafluoride	Switchyard/switchgear devices	Contained within equipment	Liquid	Continuously Onsite
Sulfuric Acid (H ₂ SO ₄)	Circulating water pH control	Outside, near cooling tower chemical feed area	Liquid	Continuously Onsite
Trisodium Phosphate (Na ₃ PO ₄) (e.g., NALCO 7208)	Boiler water alkalinity control	Cycle chemical feed building	Liquid	Continuously Onsite

TABLE 8.12-4
TID, Walnut Energy Center Chemical Inventory

Trade Name	Chemical Name	CAS Number	Maximum Quantity Onsite	CERCLA SARA RQ ^a	RQ of Material as Used Onsite ^b	LaFollette Bill TPQ ^c	Prop 65
Acutely Hazardous Materials							
Anhydrous Ammonia	Anhydrous Ammonia	7664-41-7 (NH ₃)	10,200 gal.	100 lb.	100 lb.	500 lb.	No
Neutralizing Amines (e.g., NALCO 356)	Cyclohexylamine (20 to 40%)	108-91-8	400 gal.	10,000 lb.	25,000 lb.	10,000 lb.	No
	Morpholine (5 to 10%)	110-91-8		d	d	d	No
Sulfuric Acid	Sulfuric Acid (93%)	7664-93-9	8,000 gal.	1,000 lb.	1,075 lb.	1,000 lb.	No
Hazardous Materials							
Ammonium Bifluoride	Ammonium Bifluoride	1341-49-7	200 lbs. initially and once every 3 to 5 years	100 lb.	100 lb.	d	No
Anti-Foam (e.g., NALCO 71 D5 ANTIFOAM)	Hydrotreated light distillate (10-20%)	6742-47-8	400 gal.	d	d	d	No
	n-Decanol (1-5%)	112-30-1		d	d	d	No
	n-Octanol (5-10%)	118-87-5		d	d	d	No
Antifreeze	Propylene Glycol	57-55-6	55 gal.	d	d	d	No
Calcium Sulfate	Calcium Sulfate	10101-41-4	4,000 lbs.	d	d	d	No
Chelating Agents	Ethylenediaminetetra-acetic acid (EDTA)	60-00-4	55 gal.	5,000 lb.	5,000 lb.	d	No
Citric Acid	Citric Acid	77-92-9	100 lb.	d	d	d	No
Cleaning Chemicals/Detergents	Various	None	100 gal.	d	d	d	No
Diesel No. 2	Oil	None	500 gal.	42 gal. ^{e,f}	42 gal. ^{e,f}	d	Yes

TABLE 8.12-4
TID, Walnut Energy Center Chemical Inventory

Trade Name	Chemical Name	CAS Number	Maximum Quantity Onsite	CERCLA SARA RQ ^a	RQ of Material as Used Onsite ^b	LaFollette Bill TPQ ^c	Prop 65
Formic Acid	Formic Acid	64-18-6	600 lb. prior to startup; 100 gal. on a regular basis	5,000 lb.	5,000 lb.	^d	No
Hydraulic Oil	Oil	None	500 gal.	42 gal. ^{e,f}	42 gal. ^{e,f}	^d	No
Hydrochloric Acid	Hydrochloric Acid (30%)	7647-01-0	10,000 lb. initially and once every 3 to 5 years; 55 gal. on a regular basis	5,000 lb.	16,667 lb.	^d	No
Hydroxyacetic Acid	Gyrolc Acid	None	1000 lb. prior to startup; 100 gal. on a regular basis	^d	^d	^d	No
Laboratory Reagents (liquid)	Various	None	10 gal.	^d	^d	^d	No
Laboratory Reagents (solid)	Various	None	100 lb.	^d	^d	^d	No
Lubrication Oil	Oil	None	15,000 gal.	42 gal. ^{e,f}	42 gal. ^{e,f}	^d	Yes
Mineral Insulating Oil	Oil	8012-95-1	70,000 gal.	42 gal. ^{e,f}	42 gal. ^{e,f}	^d	Yes
Non-Oxidizing Biocide (e.g., NALCO 7330)	5-Chloro-2-Methyl-4-Isothiazolin-3-one (1.1%)	26172-55-4	200 gal.	^d	^d	^d	No
	2-Methyl-4-Isothiazolin-3-one (0.3%)	2682-20-4		^d	^d	^d	No
Oxygen Scavenger (e.g., NALCO ELIMIN-OX)	Carbohydrazide	497-18-7	400 gal.	^d	^d	^d	No
Scale Inhibitors (various)	Polyacrylate	Various	1,500 gal.	^d	^d	^d	No
Sodium Bromide	Sodium Bromide	7647-15-6	6,000 gal.	^d	^d	^d	No

TABLE 8.12-4
TID, Walnut Energy Center Chemical Inventory

Trade Name	Chemical Name	CAS Number	Maximum Quantity Onsite	CERCLA SARA RQ ^a	RQ of Material as Used Onsite ^b	LaFollette Bill TPQ ^c	Prop 65
Sodium Carbonate (Soda Ash)	Sodium Carbonate	497-19-8	1,000 lb. Initially and once every 3 to 5 years	d	d	d	No
Sodium Hypochlorite (Bleach)	Sodium Hypochlorite (12.5%)	7681-52-9	8,000 gal.	100 lb.	1,000 lb.	d	No
Sodium Nitrate	Sodium Nitrate	7631-99-4	500 lb. initially and once every 3 to 5 years	d	d	d	No
Sodium Nitrite	Sodium Nitrite	7632-00-0	500 lb. initially and once every 3 to 5 years	100 lb.	100 lb.	d	No
Sodium Sulfate	Sodium Sulfate	7757-82-6	4,000 lb.	d	d	d	No
Stabilized Bromine (NALCO STABREX ST70)	Sodium Hydroxide (1 to 5%)	1310-73-2	2,000 gal.	1,000 lb.	20,000 lb.	d	No
	Sodium Hypobromite (10 to 50%)	13824-96-9		d			
Sulfur Hexafluoride	Sulfur Hexafluoride	2551-62-4	200 lb.	d	d	d	No
Trisodium Phosphate	Sodium Phosphate, Tribasic	7601-54-9	400 gal.	5,000 lb.	5,000 lb.	d	No

^a Reportable quantity for a pure chemical, per the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) [Ref. 40 CFR 302, Table 302.4]. Release equal to or greater than RQ must be reported. Under California law, any amount that has a realistic potential to adversely affect the environment or human health or safety must be reported.

^b Reportable quantity for materials as used onsite. Since some of the hazardous materials are mixtures that contain only a percentage of a reportable chemical, the reportable quantity of the mixture can be different than for a pure chemical. For example, if a material only contains 10% of a reportable chemical and the RQ is 100 lb., the reportable quantity for that material would be (100 lb.)/(10%) = 1,000 lb.

^c Threshold Planning Quantity [Ref. 40 CFR Part 355, Appendix A]. If quantities of extremely hazardous materials equal to or greater than TPQ are handled or stored, they must be registered with the local Administering Agency.

^d No reporting requirement. Chemical has no listed RQ or TPQ.

^e State reportable quantity for oil spills that will reach California state waters [Ref. CA Water Code Section 13272(f)]

^f Per the California Water Quality Control Board Region 5, they would like all oil spills to surface water reported, even if they are less than the state reportable quantity of 42 gallons.

TABLE 8.12-5
Acutely Hazardous Materials

Name	Toxic Effects	Exposure Levels
Anhydrous Ammonia	Toxic effects for contact with pure liquid or vapor causes eye, nose, and throat irritation, skin burns, and vesiculation. Ingestion or inhalation causes burning pain in mouth, throat, stomach, and thorax, constriction of thorax, and coughing followed by vomiting blood, breathing difficulties, convulsions, and shock. Other symptoms include dyspnea, bronchospasms, pulmonary edema, and pink frothy sputum. Contact or inhalation overexposure can cause burns of the skin and mucous membranes, and headache, salivation, nausea, and vomiting. Other symptoms include labored breathing, bloody mucous discharge, bronchitis, laryngitis, hemmoptysis, and pneumonitis. Damage to eyes may be permanent, including ulceration of conjunctiva and cornea and corneal and lenticular opacities.	Occupational Exposures PEL = 35 mg/m ³ OSHA TLV = 18 mg/m ³ ACGIH TWA = 18 mg/m ³ NIOSH STEL = 35 mg/m ³ Hazardous Concentrations IDLH = 300 ppm LD ₅₀ = 350 mg/kg - oral, rat ingestion of 3 to 4 ml may be fatal Sensitive Receptors ERPG-1 = 25 ppm ERPG-2 = 200 ppm ERPG-3 = 1,000 ppm
Sulfuric Acid	Irritates eyes, nose, and throat. Ingestion and inhalation may cause pulmonary edema, bronchitis, emphysema, conjunctivitis, stomatis, dental erosion, and tracheobronchitis. Contact causes severe burns of the skin and eyes, and dermatitis.	Occupational Exposures PEL = 1 mg/m ³ OSHA STEL = 3 mg/m ³ Hazardous Concentrations IDLH = 80 mg/m ³ TCLO = 3 mg/m ³ /24 weeks inhalation human LDLO = 135 mg/kg – man Sensitive Receptors ERPGs = Not Available
Cyclohexylamine	Caustic/corrosive to skin, eyes, and mucous membranes. Systemic effects include nausea, vomiting, anxiety, restlessness, and drowsiness.	Occupational Exposures PEL = 40 mg/m ³ OSHA TLV = 40 mg/m ³ ACGIH TWA = 10 ppm STEL = None set Hazardous Concentrations LD ₅₀ = 779 mg/kg – oral, albino rates LD ₅₀ = 2,055 mg/kg – dermal, albino rabbits Sensitive Receptors ERPGs = Not Available

ACGIH	American Conference of Government Industrial Hygienists
ERPG	Emergency Response Planning Guideline
ERPG-1	Maximum airborne concentration below which nearly all individuals could be exposed for up to 1 hour without experiencing other than mild transient adverse health effects
ERPG-2	Maximum airborne concentration below which nearly all individuals could be exposed for up to 1 hour without developing irreversible or serious health effects
ERPG-3	Maximum airborne concentration below which nearly all individuals could be exposed for up to 1 hour without experiencing life-threatening health effects
IDLH	Immediately dangerous to life and health
LD ₅₀	Dose lethal to 50 percent of those tested
LDLO	Lowest published lethal dose
mg/kg	Milligrams per kilogram
mg/m ³	Milligrams per cubic meter
NIOSH	National Institute of Occupational Safety and Health
PEL	OSHA permissible exposure limit for 8-hr workday
ppm	parts per million
STEL	Short-term exposure limit, 15-min. exposure
TCLO	Lowest published toxic concentration
TLV	ACGIH threshold limit value for 8-hr workday
TWA	NIOSH time-weighted average for 8-hr workday

TABLE 8.12-6
Toxicity of Hazardous and Acutely Hazardous Materials

Hazardous Materials	Physical Description	Health Hazard	Reactive & Incompatibles	Flammability ^a
Anhydrous Ammonia	Colorless gas with pungent odor	<i>Corrosive:</i> Irritation to permanent damage from inhalation, ingestion, and skin contact.	Acids, halogens (e.g., chlorine), strong oxidizers, salts of silver and zinc.	Combustible, but difficult to burn
Ammonium Bifluoride	White crystals	<i>Corrosive, Toxic:</i> Caustic poison and strong irritant.	None.	Non-flammable
Anti-Foam (e.g., NALCO 71 D5 Antifoam)	Clear, light yellow	Causes irritation to skin and eyes	Strong oxidizers (e.g., chlorine, peroxides, chromates, nitric acid, perchlorates, concentrated oxygen, permanganates)	Combustible
Antifreeze	Colorless, odorless viscous liquid	Causes irritation	Strong oxidizing agents	Combustible
Calcium Sulfate	White granules; odorless	May cause impaired sense of smell and taste, respiratory tract irritation, dermatitis and conjunctivitis	Diazomethane (vapor) and Phosphorous (red)	Non-flammable
Chelating Agent (EDTA)	White powder, odorless	Dust may be irritating to eyes and mucous membranes	None specified	Non-flammable
Citric Acid	Translucent crystals	None.	None.	Non-flammable
Cleaning Chemicals/Detergents	Liquid	Refer to individual chemical labels.	Refer to individual chemical labels.	Refer to individual chemical labels
Diesel No. 2	Oily, light liquid	May be carcinogenic.	Sodium hypochlorite.	Flammable
Oxygen Scavenger (e.g., NALCO ELIMIN-OX)	Colorless liquid	<i>Toxic:</i> Slightly toxic, low human hazard.	Mineral acids, nitrites, and strong oxidizers.	Non-flammable
Formic Acid	Colorless, fuming liquid	<i>Corrosive:</i> Irritant to skin and tissue.	Strong oxidizers, strong caustics, concentrated sulfuric acid.	Combustible
Hydraulic Oil	Oily, dark liquid	Hazardous if ingested.	Sodium hypochlorite.	Combustible
Hydrochloric Acid	Colorless, pungent, fuming liquid	<i>Strongly Corrosive and Toxic:</i> Toxic by ingestion. Strong irritant to eyes and skin.	Metals, hydroxides, amines, alkalis.	Non-flammable
Hydroxyacetic Acid	Colorless crystals	<i>Corrosive and Toxic:</i> Toxic by inhalation, ingestion, and dermal contact. Irritant to skin and tissue.	Strong bases, strong reducing and oxidizing agent.	Combustion is possible at elevated temperatures or if in contact with an ignition source

TABLE 8.12-6
Toxicity of Hazardous and Acutely Hazardous Materials

Hazardous Materials	Physical Description	Health Hazard	Reactive & Incompatibles	Flammability^a
Laboratory Reagents	Liquid and solid	Refer to individual chemical labels.	Refer to individual chemical labels.	Refer to individual chemical labels
Lubrication Oil	Oily, dark liquid	Hazardous if ingested.	Sodium hypochlorite.	Flammable
Mineral Insulating Oil	Oily, clear liquid	Minor health hazard.	Sodium hypochlorite.	Can be combustible, depending on manufacturer
Neutralizing Amine (e.g., NALCO 356)	Clear, light yellow/green liquid	<i>Corrosive</i> : Irritation to eyes and skin. Can cause kidney damage.	Strong oxidizers and acids. SO ₂ or acidic bisulfite products.	Flammable
Non-Oxidizing Biocide (e.g., NALCO 7330)				
Scale Inhibitors (various)	Yellow green liquid	<i>Corrosive and Toxic</i> : Slight to moderate toxicity. Irritation to skin and eyes.	Strong acids.	Non-flammable
Sodium Bromide	White crystals, granules, or powder; odorless	Causes irritation to skin, eyes, and respiratory tract. Can cause damage to central nervous system if ingested.	Acids, alkaloidal and heavy metal salts, oxidizers, and bromine trifluoride	Non-flammable
Sodium Carbonate	White crystals or powder	<i>Corrosive and Toxic</i> : Mildly toxic by ingestion. Irritation to skin and eyes.	Aluminum, Phosphorus (V) Oxide, Sulfuric Acid, Fluorine, Lithium, 2,4,6-trinitrotoluene.	Non-flammable
Sodium Hypochlorite (Bleach)	Pale green; sweet, disagreeable odor. Usually in solution with H ₂ O or sodium hydroxide.	<i>Corrosive and Toxic</i> : Toxic by ingestion. Strong irritant to tissue.	Ammonia and organic materials.	Fire risk when in contact with organic materials
Sodium Nitrate	Colorless Crystals	<i>Toxic</i> : Mildly toxic by ingestion.	Acetic Anhydride, Aluminum Powder, Antimony Powder, Barium Thiocyanate, Cyanides, Bitumen, Boron Phosphide, Magnesium, Metal Amidosulfates, Organic Matter, Perosyformic Acid, Sodium Hypophosphite, Wood.	Non-flammable
Sodium Nitrite	White or slightly yellow, hygroscopic; odorless	Causes irritation of skin, eyes, and respiratory tract.	Acids, ammonium compounds, reducing agents, high heat, and sources of ignition	Non-combustible

TABLE 8.12-6
Toxicity of Hazardous and Acutely Hazardous Materials

Hazardous Materials	Physical Description	Health Hazard	Reactive & Incompatibles	Flammability^a
Sodium Sulfate	White granular solid with no odor	<i>Toxic:</i> Causes irritation of skin, eyes, and respiratory tract. May be harmful if swallowed. Potential carcinogen.	Aluminum powder and molten sodium sulfate	Non-flammable
Sodium Sulfite	White crystals or powder with no odor	May cause irritation of skin, eyes, and mucous membranes. Ingestion may cause gastrointestinal irritation.	Strong oxidizing agents and strong acids	Non-flammable
Stabilized Bromine (e.g., NALCO STABREX ST70)	Clear, light yellow liquid.	<i>Corrosive:</i> Irritant to eyes and skin. Harmful if ingested or inhaled.	Strong acids. Organic materials. Sodium hypochlorite.	Non-flammable
Sulfur Hexafluoride	Colorless gas with no odor.	Hazardous if inhaled.	Disilane.	Non-flammable
Sulfuric Acid	Colorless, dense, oily liquid.	<i>Strongly Corrosive:</i> Strong irritant to all tissue. Minor burns to permanent damage to tissue.	Organic materials, chlorates, carbides, fulminates, metals in powdered form. Reacts violently with water.	Non-flammable
Trisodium Phosphate	Colorless crystals.	<i>Corrosive and Toxic:</i> Toxic by ingestion. Irritant to tissue.	None.	Non-flammable

Data were obtained from Material Safety Data Sheets (MSDSs) and Lewis (1991).

^a Per Department of Transportation regulations, under 49 CFR 173: "Flammable" liquids have a flash point less than or equal to 141°F; "Combustible" liquids have a flash point greater than 141° F.

Potential environmental and/or human health effects could be caused by accidental releases, accidental mixing of incompatible chemicals, fires, and injury to facility personnel from contact with a hazardous material. The accidental release of the acutely hazardous material anhydrous ammonia might present the most serious potential for effects on the environment and/or human health.

Pure ammonia (NH₃) is a volatile, acutely hazardous chemical that is stored under pressure as a liquid and becomes a toxic gas if released. The odor threshold of ammonia is about 5 ppm, and minor irritation of the nose and throat will occur at 30 to 50 ppm. Concentrations greater than 140 ppm will cause detectable effects on lung function even for short-term exposures (0.5 to 2 hours).

At higher concentrations of 700 to 1,700 ppm, ammonia gas will cause severe effects; death occurs at concentrations of 2,500 to 7,000 ppm. The hazard to facility workers will be mitigated by facility safety equipment, hazardous materials training, and emergency response planning (see Subsection 8.7, Worker Health and Safety). In a catastrophic accident, toxic ammonia gas could migrate offsite and affect the health of humans at locations surrounding the facility (see Subsection 8.12.5). Facility design will minimize the potential for harm to humans located offsite (see Subsection 8.12.8.2).

Neutralizing amines (e.g., NALCO 356) contain cyclohexylamine, which is classified as an acutely hazardous material. Cyclohexylamine is corrosive to the eyes and skin and, depending on the length of exposure, can cause permanent eye damage and third degree burns to the skin. However, this chemical is not particularly volatile, and is soluble in water, which constitutes 50 to 75 percent of NALCO 356. The maximum quantity of neutralizing amines stored onsite will be 800 gallons and the maximum quantity of pure cyclohexylamine will be 320 gallons. Because of the low volatility of these chemicals and the relatively small quantities stored, the offsite threat is considered small.

Sulfuric acid, an acutely hazardous material, is a very corrosive chemical that can cause severe harm to humans if ingested, inhaled, or contacted. However, sulfuric acid has a very low vapor pressure and will not readily volatilize upon release. Therefore, the potential for harm to humans offsite is minimal.

The remaining materials in Table 8.12-4 are also considered to be hazardous, but they pose less threat to humans than anhydrous ammonia, cyclohexylamine, and sulfuric acid. Some materials (ammonium bifluoride, citric acid, sodium carbonate, and sodium nitrate) will be used at the site only during initial startup and during periodic maintenance (once every 3 to 5 years). Therefore, the potential for environmental or health effects will exist only during those rare occasions when the materials are onsite.

8.12.5 Offsite Migration Modeling

Because there is some human activity in the vicinity of the proposed WEC site, a vulnerability analysis will be performed during the Application for Certification (AFC) process. The analysis will assess the risk to humans at various distances from the site if a spill or rupture of the anhydrous ammonia storage tank were to occur or if a spill from the supply truck were to occur while refilling the storage tank. The modeling protocol for the offsite consequences analysis for ammonia is presented in Appendix 8.12A.

The worst-case modeling scenario assumes the anhydrous ammonia storage tank is punctured, and the entire contents are released. It will be assumed that the liquid ammonia completely evaporates within ten minutes. Other parameters include an atmospheric stability classification of "F" and a wind speed of 1.5 meter/second. A distribution of the ammonia plume will be presented at a concentration of 75 ppm. Based upon the modeling results, the risk of exposure to ammonia from a tank or hose rupture will be evaluated.

8.12.6 Fire and Explosion Risk

As shown in Table 8.12-6, many of the hazardous materials are non-flammable. Anhydrous ammonia, which constitutes the largest quantity of hazardous materials onsite (except for the mineral oil in the transformers), is incombustible in its liquid state. Ammonia evaporating as a gas from a leak or spill of the anhydrous solution is combustible within a narrow range of concentrations in air. However, the evaporation rate is sufficiently low that the lower explosive limit (LEL) will not be reached. Formic acid is combustible, but it will only be onsite prior to initial startup. The lubrication oil, diesel fuel, and neutralizing amines are flammable and will be handled in accordance with a HMBP to be approved by Stanislaus County. Hydraulic oil, which is classified as combustible, will also be handled in compliance with the HMBP. With proper storage and handling of flammable materials in accordance with the HMBP, the risk of fire and explosion at the generating facility should be minimal.

The natural gas that will provide WEC with fuel for the combustion turbines is flammable and could leak from the supply line that brings gas from PG&E's main pipeline. The risk of leakage is the normal type of risk encountered with transmitting natural gas via pipeline. Proper design, construction, and maintenance of the line will minimize leaks and the risk of fire or explosion. The line will be buried primarily in or adjacent to roadways.

The closest fire station is the City of Turlock Fire Services Station No. 2 at 791 South Walnut Road in Turlock. In addition, Station No. 4 at 2820 North Walnut Road, Turlock, will provide assistance if needed (McDaniel 2002).

8.12.7 Cumulative Impacts

The primary potential cumulative impact from the use and storage of hazardous materials will be a simultaneous release from two or more sites of a chemical that will migrate offsite. Potentially, the two or more migrating releases could combine, thereby posing a greater threat to the offsite population than a single release by any single site. Hazardous materials that do not migrate, such as sulfuric acid, will not present a potential cumulative impact. The hazardous material with the potential to migrate offsite from WEC is anhydrous ammonia. To determine the potential for cumulative impacts, other sites in the vicinity that store and use ammonia must be identified and analyzed. In addition, other chemicals in the vicinity with the ability to migrate offsite that could combine or interact with released ammonia must be identified and analyzed.

Numerous other facilities in Stanislaus County handle, store, emit, or release ammonia. Ammonia is an ingredient in fertilizer and is sometimes used for refrigeration, making it a fairly common chemical in an agricultural and food producing region, such as Stanislaus County. Anhydrous ammonia has historically been used as a fertilizer on the 69-acre parcel

on which the project site is located. It is also commonly used on numerous other agricultural fields in the project vicinity. A number of fertilizer mixers, food processors, and vintners located within Stanislaus County have reported releases of ammonia, under the USEPA's Toxic Release Inventory program. Most of these facilities were located in the City of Modesto, which is more than 10 miles from the proposed project site.

The closest facility of concern is Super Store Industries Turlock Dairy Division at 2600 Spengler Way in Turlock. (USEPA 2002) This facility reported releases of ammonia in 1994, but has not done so recently. It is located approximately 0.5 miles from the proposed project site. Simultaneous releases from this facility and the proposed WEC facility could cause cumulative impacts, if the migrating clouds merged. Other facilities in the area of the project site store ammonia that could potentially migrate and make a minor contribution to a cumulative release. Such facilities include Turlock Cold Storage at 107 South Kilroy Road, Turlock, located 0.6 miles from the proposed site. In addition, the Foster Turkey Products Plant 1 at 545 C Street in Turlock, which last reported an ammonia release in 1996, is located approximately 2.8 miles from the proposed project site.

8.12.8 Proposed Mitigation Measures

The following subsections present measures that the Applicant would implement during project construction and operation phases to mitigate risks in handling hazardous materials, particularly the risk of inadvertent spills or leaks that might pose a hazard to human health or the environment.

8.12.8.1 Construction Phase

During facility construction, hazardous materials stored onsite will include small quantities of paints, thinners, solvents, cleaners, sealants, lubricants, and 5-gallon emergency fuel containers. This subsection describes measures that will be taken to mitigate potential risks from hazardous material usage. Paints, thinners, solvents, cleaners, sealants, and lubricants will be stored in a locked utility building. These materials will be handled per the manufacturers' directions and will be replenished as needed. The emergency fuel containers will be Department of Transportation (DOT)-approved, 5-gallon safety containers, secured to the construction equipment. The emergency fuel will be used only when regular vehicle fueling is unavailable.

Fuel, oil, and hydraulic fluids will be transferred directly from a service truck to construction equipment tanks and will not otherwise be stored onsite. Fueling will be performed by designated, trained service personnel either before or at the end of the workday. Service personnel will follow standard operating procedures (SOPs) for filling and servicing construction equipment and vehicles. The SOPs, which are designed to reduce the potential for incidents involving the hazardous materials, include the following:

- Refueling and maintenance of vehicles and equipment will occur in designated areas that are equipped with spill control features (e.g., berms, paved surfaces, spill response kits, etc.).
- Vehicle and equipment service and maintenance will be conducted by authorized personnel only.

- Refueling will be conducted only with approved pumps, hoses, and nozzles.
- Catch-pans will be placed under equipment to catch potential spills during servicing.
- All disconnected hoses will be placed in containers to collect residual fuel from the hose.
- Vehicle engines will be shut down during refueling.
- No smoking, open flames, or welding will be allowed in refueling or service areas.
- Refueling will be performed away from bodies of water to prevent contamination of water in the event of a leak or spill.
- When refueling is completed, the service truck will leave the project site.
- Service trucks will be provided with fire extinguishers and spill containment equipment, such as absorbents.
- Should a spill contaminate soil, the soil will be put in containers for offsite disposal as a hazardous waste.
- All maintenance and refueling areas will be inspected monthly. Results of inspections will be recorded in a logbook that will be maintained onsite.

Small spills will be contained and cleaned up immediately by trained, onsite personnel. Larger spills will be reported via emergency phone numbers to obtain help from offsite containment and cleanup crews. Personnel working on the project during the construction phase will be trained in handling of and the dangers associated with hazardous materials. An onsite health and safety person will be designated to implement health and safety guidelines and contact emergency response personnel and the local hospital, if necessary.

If a spill involves hazardous materials equal to or greater than the specific reportable quantity, all federal, state, and local reporting requirements will be followed. The California Water Code, Section 13272(f), establishes a reportable quantity of 42 gallons for spills of petroleum products in water bodies. However, the California Water Quality Control Board Region 5 has jurisdiction for the project site and it would like all oil spills affecting surface water to be reported. In the event of a fire or injury, the local fire department will be called (City of Turlock Fire Services Station at 791 South Walnut Road).

8.12.8.2 Operation Phase

During WEC operation, some hazardous and acutely hazardous materials will be stored onsite. Listed below are management and mitigation measures for minimizing the risks of hazardous-material handling during facility operation.

8.12.8.2.1 Anhydrous Ammonia

The anhydrous ammonia storage and handling facilities will be equipped with continuous tank level monitors, temperature and pressure monitors and alarms, and excess flow and emergency block valves. Secondary containment will be provided. If there is an inadvertent release from the storage tank, the liquid will be contained within the secondary containment structure. Vapor detection equipment will be installed to detect escaping ammonia and activate alarms.

8.12.8.2.2 Cyclohexylamine

Cyclohexylamine in the form of neutralizing amines will be fed into the condenser hotwell or condensate piping to control corrosion. The feed equipment will consist of a storage tank, pumps, leak detection system, alarm system, and fire detection system. The chemical will be stored in containers of suitable size (e.g., 200- to 400-gallon totes) located in the Cycle Chemical Feed Building. The totes will be located above concrete containment areas with sufficient capacity to contain the full quantity of a tank in the event of a spill or tank rupture.

8.12.8.2.3 Sulfuric Acid

Sulfuric acid will be fed into the circulating water system in proportion to makeup water flow for alkalinity reduction; this will be done to control the scaling tendency of the circulating water within an acceptable range. The acid feed equipment will consist of an acid storage tank, chemical metering pumps, a leak detection system, and an alarm system. An 8,000-gallon storage tank will be located near the cooling tower circulating water pumps in a concrete containment area; the area will have sufficient capacity to contain the full tank contents plus accumulated rainfall for 24 hours during a 25-year storm.

8.12.8.2.4 Hazardous Materials

Of the other hazardous materials that are continuously used onsite, one merits additional discussion because of the quantity of material stored. Sodium hypochlorite will be added to the circulating water as a biocide. The system will consist of an 8,000-gallon storage tank, chemical metering pumps, and a leak detection system and alarm system. The tank will be located above concrete containment areas with sufficient capacity to contain the full tank contents plus accumulated rainfall for 24 hours during a 25-year storm.

All hazardous materials will be handled and stored in accordance with applicable codes and regulations. All containers used to store hazardous materials will be inspected regularly for signs of leaking or failure. Incompatible materials will be stored in separate storage and containment areas. Areas susceptible to potential leaks and/or spills will be paved and bermed. Containment areas may drain to a collection area, such as an oil/water separator or a waste collection tank. Piping and tanks will be protected from potential traffic hazards by concrete or pipe-type traffic bollards and barriers.

If a spill involves hazardous materials equal to or greater than the specific reportable quantity all federal, state, and local reporting requirements will be followed. The California Water Code, Section 13272(f), establishes a reportable quantity of 42 gallons for spills of petroleum products in water bodies. However, the California Water Quality Control Board Region 5 has jurisdiction for the project site and they would like all oil spills affecting surface water to be reported.

A worker safety plan, in compliance with applicable regulations, will be implemented. It will include training for contractors and operations personnel. Training programs will include safe operating procedures, the operation and maintenance of hazardous materials systems, proper use of personal protective equipment (PPE), fire safety, and emergency communication and response procedures. All plant personnel will be trained in emergency procedures, including plant evacuation and fire prevention. In addition, designated personnel will be trained as members of a plant hazardous material response team; team members will receive the first responder and hazardous material technical training to be

developed in the HMBP (Subsection 8.12.8.4). For emergency spills, the City of Turlock Fire Services has four firefighters who have completed formal training in Hazardous Materials Incident Response. These firefighters are members of a countywide Hazardous Materials (Haz Mat) Team. The Haz Mat Team will identify the type and source of the hazardous material, oversee evacuation of people, and confine the spilled material, if possible. Cleanup of the material is the responsibility of the facility causing the spill. The City of Turlock Fire Services Station No. 2, located at 791 S. Walnut Road in Turlock, is the nearest station to the proposed project site. Backup is provided by Station No. 4 at 2820 N. Walnut Road. In addition, the City of Turlock Fire Services has mutual-aid agreements with the Mountain View Fire District (McDaniel 2002).

8.12.8.3 Transportation/Delivery of Hazardous Materials

Hazardous and acutely hazardous materials will be delivered periodically to WEC. Transportation will comply with the applicable regulations for transporting hazardous materials, including DOT, U.S. Environmental Protection Agency (USEPA), California Department of Toxic Substances Control (DTSC), CHP, and California State Fire Marshal. Under the California Vehicle Code, the CHP has the authority to adopt regulations for transporting hazardous materials in California. The CHP can issue permits and specify the route for hazardous material delivery. The key acutely hazardous material that will be delivered to WEC is anhydrous ammonia, and the Vehicle Code has special regulations for the transportation of hazardous materials that pose an inhalation hazard (Vehicle Code Section 32100.5). These and other regulations concerning any of the other hazardous materials delivered to WEC will be fully satisfied.

8.12.8.4 Hazardous Materials Plans

Hazardous materials handling and storage, and training in the handling of hazardous materials will be set forth in more detail in hazardous materials plans that will be developed by the Applicant.

8.12.8.4.1 Hazardous Materials Business Plan

A Hazardous Materials Business Plan (HMBP) is required by Title 19 California Code of Regulations (CCR) and the Health and Safety Code (Section 25504). The plan will include an inventory and location map of hazardous materials onsite and an emergency response plan for hazardous materials incidents. The topics to be covered in the plan are:

- Facility identification
- Emergency contacts
- Inventory information (for every hazardous material)
- Material Safety Data Sheets (MSDSs) for every hazardous material
- Site map
- Emergency notification data
- Procedures to control actual or threatened releases
- Emergency response procedures
- Training procedures
- Certification

The HMBP will be filed with Stanislaus County, the designated CUPA for the project site.

8.12.8.4.2 Risk Management Plan/Process Safety Management Plan

A Risk Management Plan (RMP) is required for substances listed in 40 CFR Section 68.130 that exceed designated threshold levels. Because an acutely hazardous material (anhydrous ammonia) will be stored and used at WEC in quantities exceeding the threshold, an RMP will be required, in addition to an HMBP. The requirements for an RMP are found in 40 CFR 68 Subpart G and under California's Accidental Release Prevention Program (CalARP) pursuant to Health and Safety Code Sections 25331 through 25543.3. The California program is similar to the federal program but may be more stringent in some areas. There are three programs under 40 CFR 68 and the RMP requirements that increase in stringency from Program 1 to Program 3. Program 1 applies to facilities where, under a worst-case release assessment, the distance to any public receptor cannot fall within the toxic endpoint release concentration for ammonia of 0.14 mg/L of air. This is about 200 ppm at standard conditions for temperature and pressure. Program 3 applies where a chemical is stored at or above its threshold quantity (TQ). Program 2 is for facilities that do not fit into Programs 1 or 3. The TQ for anhydrous ammonia is 10,000 pounds under federal regulations and 500 pounds under state regulations.

The RMP will be filed with the Stanislaus County Department of Environmental Resources, the designated CUPA for the project site. The RMP will cover acutely hazardous materials that can produce toxic clouds when inadvertently released. The RMP will include a hazard assessment to evaluate the potential effects of accidental releases; a program for preventing accidental releases; and a program for responding to accidental releases to protect human health and the environment.

The basic elements of an RMP are:

- Description of the facility
- Accident history of the facility
- History of equipment used at the facility
- Design and operation of the facility
- Site map(s) of the facility
- Piping and instrument diagrams of the facility
- Seismic analysis
- Hazard and operability study
- Prevention program
- Consequence analysis
- Offsite consequence analysis
- Emergency response
- Auditing and inspection
- Recordkeeping
- Training
- Certification

A Process Safety Management Plan (PSMP) will be required under OSHA because the OSHA regulations require PSM for storage of anhydrous ammonia at quantities above 10,000 pounds. The requirements for a PSMP are very similar to those for an RMP, but an offsite consequence analysis is not required for the PSMP.

8.12.8.4.3 Spill Prevention Control and Countermeasure Plan

Federal and California regulations require a Spill Prevention Control and Countermeasures (SPCC) Plan if petroleum products above certain quantities are stored in ASTs. Both federal and state laws apply only to petroleum products that might be discharged to navigable waters. If stored quantities are equal to or greater than 660 gallons for a single tank, or equal to or greater than 1,320 gallons total, an SPCC Plan must be prepared. The key elements of an SPCC Plan are:

- Name, location, and telephone number of the facility
- Spill record of the facility and lessons learned
- Analysis of the facility, including:
 - Description of the facilities and engineering calculations
 - Map of the site
 - Storage tanks and containment areas
 - Fuel transfer and storage and facility drainage
 - Prediction and prevention of potential spills
- Spill response procedures
- Agency notification
- Personnel training and spill prevention

WEC will store up to 15,000 gallons of turbine lubrication oil onsite. The nearest waterway is the Turlock Main Canal, which is approximately 0.5 miles from the project site. The banks of the canal are elevated, such that local drainage only enters the canal from pumps. The San Joaquin River is located approximately 18 miles west of the project site. Due to the distance, the WEC will not be required to prepare an SPCC Plan, unless the Regional Water Quality Control Board determines that a Plan is necessary.

8.12.8.4.4 Proposition 65

The facility will use lubricating and turbine oils and diesel fuel. These materials are included in the State of California's Prop 65 list of chemicals known to the state to cause cancer under "soots, tars, or mineral oils." The site will be appropriately labeled for all chemicals on the Proposition 65 list.

8.12.8.5 Monitoring

An extensive monitoring program will not be required, because environmental effects during the construction and operation phases of the facility are expected to be minimal. However, sufficient monitoring will be performed during both of these phases to ensure that the proposed mitigation measures are complied with and that they are effective in mitigating any potential environmental effects.

8.12.9 Involved Agencies and Agency Contacts

Several agencies regulate hazardous materials, and they will be involved in regulating the hazardous materials stored and used at WEC. At the federal level, the USEPA will be involved; at the state level, the California Environmental Protection Agency (CalEPA) will be involved. However, local agencies primarily enforce hazardous materials laws. For WEC, the primary local agency with jurisdiction will be the Stanislaus County Department of Environmental Resources. The persons to contact are listed in Table 8.12-7.

TABLE 8.12-7
Agency Contacts for WEC Hazardous Materials Handling

Issue	Agency	Address	Person Contacted	Title	Telephone
Hazardous Materials Business Plan and Risk Management Plan	County of Stanislaus Department of Environmental Resources, Hazardous Materials Program	3800 Cornucopia Way, Suite C Modesto, CA 95358	Jim Simpson	Hazardous Materials Program Manager	209-525-6753
Fire Dept. Permits	City of Turlock Fire Services	156 S. Broadway, Ste. 250 Turlock, CA 95380	Jerry McDaniel	Fire Marshall	209-668-5580
Hazardous Materials Response ^a	Stanislaus County Hazardous Materials Response Team	—	—	—	911

^a Hazardous Materials Response Team will respond to 911 calls for hazardous materials releases, but the site has to provide spill cleanup team or contractor

8.12.10 Permits Required and Permit Schedule

Stanislaus County and the City of Turlock require the following permits listed in Table 8.12-8.

TABLE 8.12-8
Permits Required and Permit Schedule for WEC Hazardous Material Handling

Permit	Schedule	Applicability	Agency Contact
Hazardous Materials Storage Permit	Prior to storage of hazardous materials at the site.	Requires that businesses obtain permits for hazardous materials storage.	County of Stanislaus Dept. of Environmental Resources Jim Simpson Hazardous Materials Program Manager 3800 Cornucopia Way, Suite C Modesto, CA 95358
Class II, Class III-A, and Class III-B Liquids Storage Permit	Prior to storage of greater than 25 gallons inside or 55 gallons outside of these materials at the site	Requires that businesses obtain permits for combustible materials storage	Jerry McDaniel Fire Marshall City of Turlock Fire Services 156 S. Broadway, Ste. 250 Turlock, CA 95380

8.12.11 References

Lewis, R.J. Sr. 1991. *Hazardous Chemical Desk Reference*, 2nd Edition.

McDaniel, J. 2002. Telephone conversation with Jerry McDaniel, City of Turlock Fire Services, August 30.

U.S. Department of Health and Human Services, Public Health Service Centers for Disease Control. National Institute for Occupational Safety and Health. 1990. NOSH Pocket Guide to Chemical Hazards.

U.S. Environmental Protection Agency (USEPA). 2002. Envirofacts Data Warehouse and Applications. URL: <http://www.epa.gov/enviro>. Also <http://oaspub.epa.gov/ceppo>.