## 5.15 HAZMAT HANDLING

This section presents a discussion of the potential impacts from storage and use of hazardous materials during construction and operational phases of the Bullard Energy Center (BEC). Design features have been incorporated into the BEC regarding the use of hazardous materials, specifically storage procedures, in order to keep maximum potential impacts below defined thresholds of significance. Hazardous waste generation and management are further discussed in Section 5.14, Waste Management.

The discussion below includes the existing conditions; the environmental consequences associated with hazardous materials usage during construction, and operation of the BEC; cumulative impacts; mitigation measures; and applicable laws, ordinances, regulations and standards (LORS).

### 5.15.1 Affected Environment

The BEC plant site is located on a 12.3-acre parcel further described as Assessors Parcel Number (APN) 505-080-22S. The parcel is zoned M-1 (light industrial use) and is located in an industrial area that is currently used as a truck depot, and construction equipment fabrication and storage yard. Surrounding land uses include vacant land to the north; industrial warehouse to the south; North Golden State Boulevard and railroad right-of-way (ROW) to the east; and Highway 99 and agricultural land to the west. Future residential development in the immediate vicinity of the site is anticipated. Sensitive receptors were not identified in proximity to the BEC. See Section 5.16, Public Health, for additional information on sensitive receptors.

A summary of hazardous materials to be used and stored for construction of BEC is provided in Table 5.15-1, Hazardous Materials and Waste Usage and Storage During Construction. A summary of hazardous materials to be used and stored on site for operation of BEC is provided in Table 5.15-2, Hazardous Materials and Waste Usage and Storage During Operations.

**TABLE 5.15-1**
**HAZARDOUS MATERIALS AND WASTE USAGE AND STORAGE DURING CONSTRUCTION[1]**

| Material | Purpose | Usage/Day | Maximum Stored | Storage Type |
|---|---|---|---|---|
| Acetylene | Welding | As needed | 270 cf | Cylinder |
| Argon | Welding | As needed | 270 cf | Cylinder |
| Diesel fuel oil | Emergency generator | As needed | 2,000 gal | Tank |
| Lubricating oil | Lubricating equipment parts | As needed | | Drum |
| Oxygen – gaseous | Welding operation | As needed | 275 cf | Cylinder |
| Paint | Painting | 25 gal | 100 gal | Can |
| Sodium hydroxide | Spill neutralization | As needed | 2 gal | Carboy |

Notes:
[1] All numbers are approximate.
cf = cubic feet
gal = gallon(s)

**TABLE 5.15-2**
**HAZARDOUS MATERIALS AND WASTE USAGE AND STORAGE DURING OPERATIONS[1]**

| Material | Purpose | Usage/Day | Maximum Stored | Storage Type |
|---|---|---|---|---|
| Acetylene | Welding | As needed | 270 cf | Cylinder |
| $NH_4$ (OH) [19%] | $NO_x$ emissions control | 150 lb/day | 10,000 gal | Aboveground tank |
| Acid (sulfuric of HCL) | Cooling tower pH control | As needed | 3,000 gal | Aboveground tank |
| Argon | Welding | As needed | 270 cf | Cylinder |
| Cleaning chemicals and detergents | Miscellaneous cleaning | As needed | 20 gal | Manufacturer containers |
| Diesel fuel oil | Emergency fire pump. | As needed | 2,000 gal | Tank |
| Dispersant | Prevent particulate settlement deposit on cooling tower basin | As needed | 100 gal | Aboveground container |
| Hydraulic oil | Power transmission medium in hydraulically operated equipment | As needed | 250 gal | 55-gal drums |
| Laboratory reagents | Miscellaneous lab work | As needed | 20 gal liquid<br>100 lb solid | Manufacturers containers |
| Lubricating oil | Bearing and sleeves lubrication | As needed | 12,000 | Lubricating sumps of turbines and 55-gal drums |
| Mineral transformer insulating oil | Provides overheating and insulation protection for transformers | As needed | 30,000 gal | Transformers |
| Nitrogen | Transformers | As needed | 275 cf | Cylinder |
| Scale/corrosion inhibitor | Prevent scale and corrosion in cooling tower circulation water lines | As needed | 100 gal | Aboveground container |
| NaOCl (12% wt) | Biocide for condenser cooling water system water treatment | As needed | 2,500 gal | Aboveground storage tank, plastic |
| Sulfuric acid for station batteries | Electrical/control bldg., combustion turbine, miscellaneous | As needed | 100 gal | Battery |

Notes:
[1] All numbers are approximate.

| | | |
|---|---|---|
| % | = | percent |
| cf | = | cubic feet |
| gal | = | gallon(s) |
| HCl | = | hydrochloride |
| lb | = | pound(s) |
| NaOCl | = | sodium hypochlorite |
| $NH_4$ (OH) | = | aqueous ammonia |
| NOx | = | oxide(s) of nitrogen |
| wt | = | weight |

### 5.15.2 Environmental Consequences

The following sources are referenced in support of the identification and assessment of hazardous materials within this section: *Sax's Dangerous Properties of Industrial Materials* (Lewis 1992) and the *NIOSH Pocket Guide to Chemical Hazards* (National Institute for Occupational Safety and Health [NIOSH] 1997).

#### *5.15.2.1 Construction Phase*

Hazardous materials to be used during construction include gasoline, diesel fuel, oil, lubricants, solvents, adhesives, and paint materials. There are no feasible alternatives to these materials for construction or operation of construction vehicles and equipment. No acutely hazardous materials (AHMs) will be used or stored on site during construction. No storage of hazardous materials is planned outside of the BEC.

In general, construction contractors will utilize lubricating oils, solvents, and other hazardous materials during construction of the BEC. The contractor will be responsible for assuring that the use, storage and handling of these materials will be in compliance with applicable federal, state, and local LORS, including licensing, personnel training, accumulation limits, reporting requirements, and recordkeeping. A Hazardous Materials Business Plan (HMBP) which outlines hazardous materials handling, storage spill response, and reporting procedures will be prepared prior to construction activities.

The following site services will also be provided, either by separate contract or incorporated into individual construction subcontracts for the BEC:

- Environmental health and safety training
- Site security
- Site first aid
- Construction testing (e.g., soil, concrete)
- Furnishing and servicing of sanitary facilities
- Trash collection and disposal
- Disposal of hazardous materials and waste in accordance with local, state, and federal regulations

Small quantities of spilled fuel oil and grease drippings from construction equipment may occur during construction. Such materials generally have a low relative risk to human health and the environment. If there is a large spill, the spill area will be bermed or controlled as quickly as is practical to minimize the footprint of the spill. Contaminated soil materials produced during cleanup of a spill will be placed into drums for off-site disposal as a hazardous waste at a permitted hazardous waste, transfer, storage, and disposal facility. If a spill or leak into the environment involves hazardous materials equal to or greater than the specific reportable quantity, federal, state, and local reporting requirements will be adhered to. In the event of a localized hazardous materials release or fire, the Fresno City Fire Department would respond to the site. The Fresno County Fire Protection Division (FCFPD) will be notified in the event of a release. Contractors will be expected to implement best management practices consistent with

hazardous materials storage, handling, emergency spill response, and reporting specified in the HMBP. Impacts associated with the use of hazardous materials will be insignificant as a result of the applicant implementing the above procedures.

### *5.15.2.2 Operations Phase*

The major hazardous materials to be stored and/or used at the site during BEC site operations are included in Table 5.15-2, Hazardous Materials and Waste Usage and Storage During Operations.

The following potential hazards associated with the storage of hazardous or acutely hazardous materials were identified:

- Fire and explosion from the use of natural gas, and other gases
- Accidental release of $NH_4$ (OH)

#### *Fire and Explosion Risks*

Natural Gases

Natural gas, which will be used as a fuel for the BEC, poses a fire and/or explosion risk as a result of its flammability. While natural gas is used in significant quantities, it is and will be continuously delivered to the generating plant site through a new pressurized natural gas pipeline and will not be stored on site. The risk of a fire and/or explosion will be minimized through adherence to applicable codes and design features, including isolation valves, and the continued implementation of effective safety management practices.

Other Gases

Other gases expected to be stored and used at BEC include gases typically used for maintenance activities such as shop welding and emissions monitoring. These gases include small amounts of acetylene, argon, carbon monoxide (CO), nitric oxide (NO), nitrogen, and oxygen ($O_2$). The potential impacts presented by the use of these gases are not considered to be significant based on the following:

- A limited quantity of each gas is stored at the facility.
- The gases are stored in Department of Transportation (DOT)-approved safety cylinders, secured to prevent upset and physical damage.
- Incompatible gases (e.g., flammable gases and oxidizers) are stored separately.
- The gases are stored in multiple standard-sized portable cylinders, in contrast to larger cylinders, generally limiting the quantity released from an individual cylinder failure to less than 200 cubic feet.

The potential impacts presented by the use of these gases at the facility will not change and are considered insignificant.

### *Acutely Hazardous Materials*

The chemicals proposed for use at the BEC site are not Regulated Substances subject to the requirements of the California Accidental Release Prevention (CalARP) Program and process safety management (PSM), with the exception of $NH_4$ (OH) (approximately 19 percent solution) which will be stored in a single 10,000-gallon (gal), single-walled aboveground storage tank.

In September 1996, Senate Bill (SB) 1889 was enacted to change the California Health and Safety Code (CHSC) § 25531 *et seq*., replacing the Risk Management and Prevention Program requirements with the Risk Management Plan (RMP) requirements established pursuant to Section 112(r) of the federal Clean Air Act (CAA) (42 USC Section 7412). Pursuant to SB 1889, the California Office of Emergency Services (OES) is required to adopt implementing regulations, initially as emergency regulations, and to seek and maintain delegation of the federal program. The CalARP Program merges federal and state programs for the prevention of accidental releases of regulated toxic and flammable substances. The goal was to eliminate the need for two separate and distinct chemical risk management programs. The CalARP Phase I Final Regulations were approved on November 16, 1998.

The CalARP Program final regulations (CCR Title 19, Division 2, Chapter 4.5) provide two sets of lists of Regulated Substances: one for Federal Regulated Substances and one for State Regulated Substances.

- Section 2770.5 – Tables 1 and 2 of Section 2770.5 list Federal Regulated Substances and threshold quantities for accidental release prevention, including flammable substances. $NH_4$ (OH), hydrochloric acid and sulfuric acid are on the list. The quantities of $NH_4$ (OH), sulfuric acid, and hydrochloric acid proposed for use during BEC operation do not exceed the threshold quantity limits and therefore are not regulated substances in this setting.
- Section 2770.5 – Table 3 of Section 2770.5 lists State Regulated Substances and threshold quantities for accidental release prevention. $NH_4$ (OH), hydrochloric acid, and sulfuric acid are included on this list. The quantities of sulfuric acid and hydrochloric acid proposed for use during BEC operation do not exceed the threshold quantity limits, and therefore are not regulated substances in this setting. The proposed quantity of $NH_4$ (OH) does, however, exceed the threshold quantity limits.

Based on the above regulations and the future use of $NH_4$ (OH) at BEC, an RMP is required and will be submitted to the Fresno County Department of Community Health (FCDCH), Environmental Health Division.

No special regulatory requirements or management practices related to the storage or use of sulfuric acid or hydrochloric acid are anticipated.

An Off-site Consequences Analysis (OCA) for accidental releases of $NH_4$ (OH) has been conducted in accordance with CEC regulations. The analysis is included in Section 5.15.2.3, Off-site Consequence Analysis.

### *Other Hazardous Materials*

No adverse environmental impacts related to other hazardous materials used at the facility are anticipated. Only small quantities of paints, oils, solvents, pesticides, and cleaners, typical of those packaged for retail consumer use, are or will be present during operation of the facility.

Small volumes of petroleum products associated with construction equipment will be on site during construction. As described in Sections 5.15.2.2, Operations Phase, and 5.15.3.1, Construction Phase, long-term or cumulative impacts will be avoided by cleaning up any accidental leaks or spills of these materials as soon as they occur.

#### *Material Safety Data Sheets*

Material Data Safety Sheets (MSDS) for the hazardous materials will be kept on site as required by 29 Code of Federal Regulations (CFR) 1910 Occupational Safety and Health Administration (OSHA) Hazard Communication rules and regulations.

### *5.15.2.3 Off-site Consequence Analysis*

#### *Introduction*

This section of the report discusses the OCA for the $NH_4$ (OH) storage tank on site at BEC located in Fresno, Fresno County, California. An OCA is an analysis intended to provide information about the potential distance a toxic vapor cloud, heat from a fire, or blast waves from an explosion will travel before dissipating to the point that serious injuries from short-term exposures will no longer occur from an accidental chemical release. This OCA has been performed with the intended purpose of providing information to the public of the potential off-site consequences from an accidental release of $NH_4$ (OH) from the storage tank at BEC. Per standard practice and regulatory guidance, the OCA examines a worst-case release scenario and an alternative release scenario to portray the extent of the potential area of impact. Results from the analyses of these scenarios will allow the public of Fresno, California, to be aware of the extent of hazardous conditions generated from an accidental ammonia ($NH_3$) release at the BEC.

BEC will use $NH_4$ (OH), at an average concentration of 19 percent by weight, in the selective catalytic reduction (SCR) technology to control nitrogen oxide ($NO_x$) emissions. To support the SCR with a continuous supply, an $NH_3$ storage tank will be located in the northwestern portion of the facility and will be periodically filled from tanker trucks, at a rate that corresponds to $NH_3$ use in the SCR.

The storage tank proposed for the BEC will be a single-walled, carbon steel, aboveground horizontal tank containing 10,000-gal of $NH_4$ (OH). It will have a cylindrical shape with a 10-foot diameter and 20-foot length and an adjacent $NH_3$ delivery truck loading area. The tank will be surrounded by a secondary containment berm to contain any release from the tank. This secondary containment area will consist of a concrete enclosure with the following dimensions: 25-foot width by 27-foot length x 3.5-foot height. The enclosure will be open to the atmosphere and have an approximate volumetric capacity of 17,719 gal. The secondary containment area will be able to hold the entire contents of the storage tank (10,000 gal) and rainwater from a 24-hour (hr) 25-year (yr) rainfall event (22 CCR 66265.192(j).

### *Regulatory Criterion*

The OCA is regularly performed as a component of the RMP required under the CAA. This OCA has been developed within this report in order to comply with the requirement of providing information to the public regarding the potential off-site consequences of an accidental release of $NH_4$ (OH) from BEC. BEC will require the completion and implementation of an RMP prior to any $NH_4$ (OH) being brought onto the BEC.

Federal RMP regulations for usage of $NH_4$ (OH) stand at a 20,000-pound threshold and at concentrations equal to or greater than 20 percent by weight (19 CCR 2770.5 Table 1). The State of California has more stringent regulations over usage of $NH_4$ (OH). California state regulations, under CalARP, present a threshold for usage of $NH_3$ (in either anhydrous or aqueous forms) at 500 pounds (19 CCR 2770.5 Table 3). Conditions at BEC will be under the federal threshold regulations (based upon concentration of the stored substance), but will exceed state threshold regulations for the usage of $NH_4$ (OH). BEC will store approximately 76,906-pounds of $NH_4$ (OH) at 19 percent concentration by weight.

The primary objective of the OCA is to determine the maximum distance from the release location to the toxic endpoint. The toxic endpoint refers to any point where the concentration of $NH_3$ can potentially reach the threshold level for serious injury from exposure. Federal regulations specify the toxic endpoint for $NH_3$ to be 0.14 milligrams per liter (mg/L) or 200 parts per million (ppm).

### *Calculations and Program Parameters*

Calculations for the rate of dispersion and distance to the toxic endpoint for this OCA were performed using U.S. Environmental Protection Agency's (USEPA) RMP*Comp™ (version 1.07) modeling program. The RMP*Comp™ modeling program uses input parameters and provides results which have been defined as conservative by both USEPA and CalARP program. RMP*Comp™ contains some fixed parameters that cannot be altered and therefore, may not reflect the exact conditions found at the site. These parameters include: concentration levels and meteorological data. Concentrations levels used by the RMP*Comp™ modeling program for $NH_4$ (OH) have a fixed range with a lowest point of 20 percent concentration by weight. While meteorological parameters incorporated into the RMP*Comp™ program, per OCA Guidance, for worst-case and alternative release scenarios are shown in Table 5.15-3, Meteorological Data for Scenarios.

**TABLE 5.15-3**
**METEOROLOGICAL DATA FOR SCENARIOS**

| Meteorological Data for Worst Case Release Scenario | | Meteorological Data for Alternative Release Scenario | |
|---|---|---|---|
| Wind Speed | 1.5 m/s (3.4 mph) | Wind Speed | 3.0 m/s (6.7 mph) |
| Wind Direction | Any | Wind Direction | Any |
| Atmospheric Stability | Pasquill Class F | Atmospheric Stability | Pasquill Class D |
| Temperature | 77.0 ºF (25.0ºC) | Temperature | 77.0 ºF (25.0ºC) |
| Relative Humidity | 50% | Relative Humidity | 50% |

Source: U.S. EPA's RMP*Comp™ Model.
Notes:
% = percent
m/s = meters per second
mph = miles per hour
ºC = degrees Celsius
ºF = degrees Fahrenheit

Based on data recovered from the National Environmental Satellite, Data, and Information Service, meteorological conditions commonly found for Fresno, California, are similar to those established by the RMP*Comp™ program. According to temperature data obtained for Fresno, California, from 1971 to 2000, the average mean daily temperature in the area was approximately 63.2°F and the maximum average daily temperature found during that time was 75.3°F. Data obtained from the National Oceanic and Atmospheric Association during 1998 through 2001 showed the annual average wind speed to be 6.4 meters/second and the lowest average wind speed to be 4.7 meters/second.

The $NH_4$ (OH) that will be stored on site at BEC will have a concentration of 19 percent by weight. Due to RMP*Comp™ restrictions, calculations performed for this OCA were done for $NH_4$ (OH) with a 20 percent concentration. Results from sensitivity analysis showed no appreciable difference between the use of 19 percent and 20 percent $NH_3$ when performing calculations to determine the distance to the toxic endpoint.

Conditions examined for BEC under the worst-case scenario have been directly defined by the RMP*Comp™ program. The RMP*Comp™ program uses OCA Guidance reference tables to calculate the distance to the toxic endpoint of $NH_3$ from an accidental release during a worst-case scenario analysis. During a worst-case scenario it is assumed that the maximum amount of contents within a tank or pipes being examined are spilled into the secondary containment and allowed to evaporate into the air in the surrounding area. The loss of contents is assumed to occur over a period of 10 minutes. Passive mitigation features (such as physical containment enclosures) can be taken into account, but not active features (such as human intervention). The worst-case scenario must be analyzed even if there is no credible series of events that could lead to the release.

In contrast to conditions set by the worst-case scenario, an alternative release scenario is also examined to determine the extent of damage under a more plausible accidental release scenario. Similarly to the worst-case scenario, the RMP*Comp™ program uses OCA Guidance reference tables to calculate the distance to the toxic endpoint of $NH_3$ during an alternative release scenario. It is not necessary to estimate the exact probability of occurrence or to demonstrate how it is more likely to occur than the worst-case scenario. For an alternative release scenario both passive and active mitigation features can be taken into account.

### *Accidental Release Scenarios*

The worst-case release and alternative release scenarios are described in the following sections. Each accidental release scenario consists of a particular series of events that differentiate it from one another, but both the worst-case release and alternative release scenarios share three common characteristics: (1) the toxic endpoint, (2) the height of release, and (3) site topography (or surface roughness).

The toxic endpoint for $NH_3$ in both scenarios is 0.14 mg/L (140 milligrams per cubic meter [$mg/m^3$] or 200 ppm). This concentration was defined through Federal Regulations by the Emergency Response Project Guideline-2 (ERPG-2). ERPG-2 identifies this toxic endpoint standard as the maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to 1-hr without experiencing or developing irreversible or other serious health effects or symptoms which could impair an individual's ability to take protective action.

The accidental $NH_3$ release for both scenarios is assumed to occur at ground level in urban topography. Height of release determination is defined by the location of the $NH_3$ storage tank. The storage tank at BEC will be located on the ground surface. Topographical determination is defined by the site location and its surroundings. The site is located in an area that shows to be quickly expanding as an urban development. Urban topography is characterized as an area surrounded with large buildings or large obstacles that may inhibit wind flow from the area of release.

#### Worst-case Release Scenario

The worst-case release scenario analyzed for purposes of this OCA entails an extreme breach of the tank containing 10,000-gal of $NH_4$ (OH) on site at BEC. In accordance with federal rule 40 CFR §68.25(c), the entire 10,000-gal contents of the tank are assumed to be spilled instantaneously into the secondary containment and evaporate into the ambient air over a 10-minute period. Therefore, the $NH_3$ would be escaping the tank and filling the 675-square-foot diked containment area at a rate of 1,000-gallons per minute (gpm).

Through the use of the RMP*Comp™ program, the distance to the toxic endpoint for this worst-case scenario analysis was determined to be approximately 0.1 mile (0.2 kilometer). The calculated distance to the toxic endpoint was then used to outline a “vulnerability zone” created from an accidental release. This zone is the circular area with a maximum 0.1-mile radius originating from the center of the $NH_3$ tank containment area that will be affected in the event of a catastrophic breach of the $NH_3$ tank. An outline of the identified vulnerability zone is shown in Figure 5.15-1, Zone of Vulnerability.

Data collected for the vulnerability zone surrounding BEC identifies only one public receptor on the property southeast of the site. By definition (40 CFR §60.3) public receptors consist of off-site residences, institutions (e.g., schools, hospitals), industrial, commercial, and office buildings, parks, or recreational areas inhabited or occupied by the public at any time without restriction by the stationary source where members of the public could be exposed to toxic concentrations as a result of an accidental release. The public receptor adjacent to BEC consists of a large industrial facility. In the event of a worst-case scenario release situation, workers within the industrial facility could be affected by an accidental $NH_3$ release due to the facility's location within the vulnerability zone.

No environmental receptors were observed within the vulnerability zone. Locations considered to be environmental receptors consist of natural areas such as national or state parks, forests, monuments or officially designated wildlife sanctuaries, preserves, refuges, and other such wilderness areas that could be exposed at any time to toxic concentrations as a result of an accidental release.

### Alternative Release Scenario

The $NH_3$ tank located at BEC will receive periodic deliveries of $NH_3$ to replenish its supply. For this OCA, the alternative release scenario entails a spill occurring from the delivery truck transfer hose as the truck is unloading $NH_3$ into the tank. This event assumes the connection between the delivery truck and the tank decouples, spilling all of the contents of the transfer hose (25-feet long with a 2-inch diameter) and a 3-minute release of $NH_3$ at the maximum truck transfer pump rate (100-gpm) before the pump is shut-off. In order to produce a conservative analysis, the shutting of the flow to the tank is the only active mitigation process that will be considered during the alternative release scenario. The alternative release scenario is identified as 300-gal of $NH_4$ (OH) spilling directly into the secondary containment area (675-square feet x 3.5-foot diked area).

Through the use of RMP*Comp™, the distance to the toxic endpoint was determined to be less than (<) 0.1 mile (< 0.16 kilometer). The RMP*Comp™ program provides conservative measurements and states all distances shorter than 0.1 mile be reported as 0.1 mile. Therefore, the reportable distance to the toxic endpoint can be assumed to be 0.1 mile. This reportable distance to the toxic endpoint was then used to determine a "vulnerability zone" created from an accidental release that is more likely to occur than that demonstrated through the worst-case scenario. The vulnerability zone is defined as the circular area with a maximum 0.1-mile radius from the center of the $NH_3$ tank containment area that will be affected by this release. An outline of the identified vulnerability zone is shown in Figure 5.15-1, Zone of Vulnerability.

Similarly to data gathered from the worst-case scenario analysis, data collected for the alternative scenario vulnerability zone surrounding BEC identifies only one public receptor southeast adjacent to the property. By definition (40 CFR §60.3) public receptors consist of off-site residences, institutions (e.g., schools, hospitals), industrial, commercial, and office buildings, parks, or recreational areas inhabited or occupied by the public at any time without restriction by the stationary source where members of the public could be exposed to toxic concentrations as a result of an accidental release. The public receptor adjacent to BEC consists of a large industrial facility. In the event of an alternative scenario release situation, workers within the industrial facility could be affected by an accidental $NH_3$ release due to the facility's location within the vulnerability zone.

No environmental receptors were observed within the vulnerability zone. Locations considered to be environmental receptors consist of natural areas such as national or state parks, forests, monuments or officially designated wildlife sanctuaries, preserves, refuges, and other such wilderness areas that could be exposed at any time to toxic concentrations as a result of an accidental release.

### *Results from OCA Modeling Analyses*

The worst-case and alternative release scenarios have been developed and analyzed in accordance with methods provided in the CCR Title 19, Division 2, Chapter 4.5 ("CalARP Guidelines"), the CFR Title 40, Part 68 ("Chemical Accident Prevention Provisions"), and the Risk Management Program Guidance for Off-site Consequence Analysis (USEPA 1999). All of the input data used to calculate the toxic endpoint distances and the corresponding results generated from the off-site consequence modeling scenarios for both the worst-case and alternative release scenarios are presented in Table 5.15-4, Off-Site Consequence Analysis Data, Methods, and Results for the BEC Project.

## TABLE 5.15-4
## OFF-SITE CONSEQUENCE ANALYSIS DATA, METHODS, AND RESULTS FOR THE BEC PROJECT

| Model Input Data | Units | Worst-Case Scenario | Alternative Scenario |
|---|---|---|---|
| Chemical[1] | --- | $NH_4$ (OH) (20%) | $NH_4$ (OH) (20%) |
| Release form | --- | Liquid | Liquid |
| Dispersion model | --- | RMPComp™ | RMPComp™ |
| Dispersion algorithm | --- | Program Defaults | Program Defaults |
| Release quantity | gal | 10,000[2] | 300 |
| $NH_4$ (OH) release rate | gpm | 1,000 | 100 |
| Dispersion rate (release to outside air) | lb/minute | 14.2 | 17.8 |
| Release time | minutes | 10 | 3 |
| Surface area of spill[3] | $ft^2$ | 675 | 675 |
| Release temperature | ºF | 77 | 77 |
| Release pressure | psig | Atmospheric | Atmospheric |
| Relative humidity | % | 50 | 50 |
| Stability class | --- | F | D |
| Wind speed | m/s | 1.5 | 3 |
| Cloud cover | % | N/A | N/A |
| Surface roughness | --- | Urban | Urban |
| Concentration averaging time | minutes | 10 | 10 |
| Level of concern | ppm | 200 | 200 |
| **Results (Zone of Vulnerability)** | | | |
| Distance to endpoint | mile | 0.1 | < 0.1[5] |
| Public receptors present? | --- | Yes | Yes |
| Ecological receptors present? | --- | No | No |
| Sensitive receptors present? | --- | No | No |
| Major commercial, office, industrial areas present? | --- | Yes | Yes |
| Total residential population[4] | --- | 0 | 0 |

Source: U.S. PA's RMP*Comp™ Model.

Notes:

1 Concentrations of $NH_4$ (OH) on site will be 19% by weight. A 20% concentration by weight was used for the model due to OCA Guidance has detailed chemical properties for this concentration and it is the lowest concentration available in the RMP*Comp™ model program. Sensitivity analysis performed for the 19% and 20% concentrations showed no appreciable difference in the results.

2 The worst-case scenario includes the instantaneous release of 10,000-gal of $NH_4$ (OH). The $NH_3$ is assumed to evaporate over a 10-minute period.

3 Area of spill includes 1,050 $ft^2$ surface area of containment area.

4 Number of residences located within vulnerability zone.

5 The shortest distance RMP*Comp™ calculates the distance to the toxic endpoint is 0.1 mile. All distances shorter than 0.1 mile are shown in the program as < 0.1 mile and are reported as 0.1 mile.

--- = not applicable
% = percent
< = less than
lb = pound(s)
N/A = not applicable
ºF = degrees Fahrenheit
$ft^2$ = square feet
gal = gallon(s)
gpm = gallons per minute
$NH_4$ (OH) = aqueous ammonia
ppm parts per million
psig = pounds per square inch gauge
™ = trademark

### *Conclusions from OCA Modeling Analyses*

The OCA discusses the potential area of impact from accidental release scenarios of $NH_4$ (OH) (19 percent concentration by weight) stored on site at BEC. A worst-case release and an alternative release scenario were analyzed for this OCA. The worst-case scenario consisted of the entire contents of the storage tank (10,000 gal) spilling within 10 minutes into the 675-square foot containment area, which is open to the ambient air. The alternative scenario consisted of 300-gal of $NH_3$ being spilled into the containment area while unloading activities were being affected from the delivery truck to the storage tank.

Distances to the toxic endpoints for both worst-case release and alternative release scenarios were determined through the use of a recognized modeling program. Results from the modeling program calculated the distance to the toxic endpoint for the worst-case scenario analysis to be 0.1 mile (0.2 kilometer). Calculations performed for the alternative release scenario demonstrated the distance to the toxic endpoint to be less than 0.1 mile (<0.16 kilometer). Since the modeling program used provides conservative results, all distances to toxic endpoints calculated to be < 0.1 mile should be reported as 0.1 mile. Therefore, for reporting and analysis purposes, the distance to the toxic endpoint for the alternative release scenario was determined to be 0.1 mile.

The distances to the toxic endpoint determined for each scenario were used to outline the vulnerability zone created from an accidental release of $NH_3$. Receptors in surrounding areas to the site were analyzed to determine if any would fall within the vulnerability zone of either scenario. Only one public receptor was found to lie within the vulnerability zone generated through both the worst-case and alternative release scenarios. The public receptor found in both scenarios' vulnerability zones consisted of a large industrial facility. Workers found within the industrial facility during either a worst-case or alternative release scenarios can potentially be affected by the $NH_3$ release. No environmental receptors were found to exist within the vulnerability area defined by either release scenario, so therefore no natural areas should be affected from an accidental release of $NH_3$. Additional analysis of the extent of the vulnerability zones under both scenarios demonstrates that a portion of Highway 99 may also be affected in the event of an accidental release. The approximate 0.5-mile portion of Highway 99 that is found within both scenarios' vulnerability zones could generate a hazardous situation to any humans that may be present on the highway during an accidental release of $NH_3$.

### *5.15.2.4 Cumulative Impacts*

The City of Fresno was contacted regarding future projects with the potential to handle hazardous materials in quantities that would create a potential cumulative impact in combination with the BEC. No large-scale industrial developments are planned in the near future. Based on this information, no significant cumulative impacts due to hazardous material handling are expected from future projects in combination with BEC.

Cumulative impacts considered for BEC focused on accidental releases of hazardous materials. Specifically, the increased risk to public health and safety when multiple facilities handling hazardous materials were considered together with the project.

The hazardous material that has the greatest potential to migrate off site is $NH_4$ (OH). To determine cumulative impacts, other sites in the vicinity of the project as well as planned projects with the potential to handle $NH_4$ (OH) were identified and analyzed. In addition, sites handling hazardous materials that could negatively interact with $NH_3$ and with the potential for off-site migration were identified, analyzed, and discussed in Section 5.15.2, Environmental Consequences. Based on results of the OCA for the $NH_4$ (OH) release scenario and the evaluation of other projects in the area, cumulative hazardous materials impacts for BEC are expected to be insignificant.

### 5.15.3 Mitigation Measures

The CEC standard conditions provide appropriate mitigation and compliance conditions that ensure that the BEC utilizes hazardous materials in compliance with all applicable LORS, and in a manner than ensures no significant environmental impacts.

#### *5.15.3.1 Construction Phase*

During construction, hazardous materials to be stored on site will be limited to small quantities of paint, coatings, adhesives, and emergency refueling containers. These materials will be stored in a locked utility shed or in a secured fenced area with secondary containment. It is anticipated that fuels, lubricants, and other various fluids needed for operation of construction equipment will be transported to the construction site on an as-needed basis by equipment service trucks. Personnel working on the project during construction will be trained in handling hazardous materials, and will be alerted to dangers associated with these materials. An on-site safety officer will be designated to implement health and safety guidelines and contact emergency response personnel and the local hospital, if necessary.

Construction contractors for BEC will be required to develop standard operating procedures for servicing and fueling construction equipment. These procedures will, at a minimum, include the following:

<u>HAZMAT-1</u>

The following measures will be implemented related to fueling and maintenance of vehicles and equipment:

- No smoking, open flames, or welding will be allowed in the fueling/services areas.
- Servicing and fueling of vehicles and equipment will occur only in designated areas.
- Fueling service and maintenance will be conducted only by authorized, trained personnel.
- Refueling will be conducted only with approved pumps, hoses, and nozzles.
- All disconnected hoses will be handled in a manner to prevent residual fuel and fluids from being released into the environment.
- Catchpans will be placed under equipment/hose connections to catch potential spills during fueling and servicing.
- Service trucks will be provided with fire extinguishers and spill containment equipment, such as absorbents, shovels, and containers.

- Service trucks will not remain on the job site after fueling and service are complete.

HAZMAT-2

Spills that occur during vehicle maintenance will be cleaned up immediately, and contaminated soil will be containerized and sent for subsequent evaluation and off-site disposal. A log of all spills and cleanup actions will be maintained.

HAZMAT-3

Emergency telephone numbers will be available on site for the fire department, police, local hospitals, ambulance service(s), and environmental regulatory agencies.

HAZMAT-4

Containers used to store hazardous materials will be properly labeled and kept in good condition.

It is anticipated that these standard operating procedures will minimize the potential for incidents involving hazardous materials during construction.

### *5.15.3.2 Operational Phase*

A listing of anticipated hazardous materials to be used on site can be found in Table 5.15-2, Hazardous Materials and Waste Usage and Storage During Operations. General mitigation measures are detailed below for containerized and bulk hazardous materials.

#### *General Mitigation Measures*

HAZMAT-5: Containerized Materials

Containerized materials will typically consist of returnable tanks (approximately 100-gal capacity), 55-gal drums, or 5-gal pails of lubricants and oils, and smaller containers of paints and solvents. These materials will be managed as described below to mitigate potential releases.

- Hazardous materials will be stored in accordance with applicable regulations and codes, i.e., the Uniform Fire Code (UFC).
- Trucks delivering hazardous materials will be parked adjacent to the usage area or storage area where the chemicals are to be stored to minimize potential unloading and transportation accidents.
- Incompatible materials will be stored separately.
- Containerized hazardous materials will be stored in original containers appropriately designed for the individual characteristics of the contained material. Containers will be labeled with contents and identification of fire hazards as required by National Fire Protection Association (NFPA) 704.
- Containers of flammable materials will be stored in inflammable storage cabinet(s) when not in use.

- Hazardous materials will be stored within secondary containment structures, typically constructed of sealed concrete. These structures will have capacity for the largest container plus an allowance for rainwater equivalent to a 24-hr, 50-yr storm, if the area is outdoors. Alternatively, containerized hazardous materials may also be stored in commercially available hazardous materials storage sheds with built-in secondary containment.
- Commercially available secondary containment pallets may also be used for containers stored in warehouse facilities to augment other spill control measures.
- Empty containers, especially portable tanks and drums, will be emptied, drained, and returned to the supplier for reuse to the maximum extent possible or recycled off site.
- Pollution prevention efforts such as replacement of hazardous materials with less hazardous materials, reduction of hazardous waste generation volumes, and recycling will be employed at the facility, as practical.

HAZMAT-6: Bulk Hazardous Materials

Bulk hazardous materials at the facility will consist primarily of $NH_4$ (OH) for emissions control of the SCR system. This material will be stored in an aboveground storage tank with secondary containment of 110 percent of the tank volume plus an allowance for rainwater for a 24-hr, 25-yr storm. Hazardous materials will be managed as described below to mitigate the potential for releases to the environment.

Each bulk chemical storage tank will be equipped with a local level gauge and a level switch. The level switch is interlocked with the storage tank high- and low-level alarms and the metering pump controls. The storage tank high-level alarm rings at the local common alarm panel when the storage tank level reaches the high-level set point. The storage tank low-level alarm rings at the local feed system control panel when the storage tank liquid level reaches the low-level set point.

Associated skid-mounted equipment includes the feed pumps, valves, interconnecting piping, controls, etc. A separate control panel is mounted on each chemical equipment skid. Controls, instrumentation, and interlocks are provided for safe operation of the equipment during all modes of operation. The metering pumps will also be located within the secondary containment and will be elevated to prevent flooding during rainstorms.

$NH_4$ (OH) (19 percent) will be stored on-site in one 10,000-gal tank. The tank will be single-walled and surrounded by a secondary containment berm. The $NH_4$ (OH) will be delivered to the facility in tank trucks.

Out-of-doors secondary containment will employ a valve to empty the containment of rainwater, after a visual inspection to evaluate potential for contamination. The valve will be equipped with a lock and will remain locked shut unless rainwater is being actively emptied from the secondary containment. Contaminated water will run through the oil-water separator or will be disposed of off site, as appropriate.

Tank trucks will be unloaded in a tank truck unloading area. This unloading area will be paved with concrete and with sufficient secondary containment to hold the contents of the worst-case release scenario.

The $NH_3$ truck unloading pad will be equipped with an underground containment vault. This vault will be specifically designed for minimization of $NH_3$ evaporation in case of $NH_4$ (OH) spills during truck unloading operations.

The containment vault noted in the above paragraph will be sealed with a non-reactive concrete coating to minimize potential migration of liquids from the vault into the surrounding soil. This vault will be emptied using a vacuum truck after a spill event has occurred. The truck pad will be covered to prevent the accumulation of rainwater in the vault.

Seismic loads for hazardous materials storage and containment areas will be determined by the static lateral force procedures of the Uniform Building Code (UBC) and site-specific design features will be incorporated into these storage facilities. These structures will be designed and constructed in accordance with applicable codes, regulations, and standards.

Underground piping and piping runs outside of secondary containment structures will be constructed with single-wall (secondary containment) piping to minimize the potential for releases and enable the facility staff to detect leaks, when and if they should occur.

### HAZMAT-7: Personnel Training and Equipment

Personnel working with chemicals will be trained in proper handling and emergency response to chemical spills or accidental releases. Additionally, designated personnel will be trained as a plant hazardous materials response team.

Safety equipment will be provided for use as required during chemical containment and cleanup activities, and will include safety showers and eyewash stations. Service water hose connections will be provided near chemical usage and storage areas to allow flushing of chemical spills, if needed.

### HAZMAT-8: Hazardous Materials Management – Plans and Procedures

Several programs will address hazardous materials storage locations: emergency response procedures, employee training requirements, hazard recognition fire safety, first-aid/emergency medical procedures, hazardous materials release containment/control procedures, hazard communication training, personnel protective equipment, training, and release reporting requirements. These programs will include the HMBP, workers safety program, fire response program, plant safety program, and facility standard operating procedures. The HMBP will include procedures on hazardous materials handling, use, and storage; emergency response, spill prevention, and control; and training, record keeping, and reporting.

As discussed previously, an RMP for $NH_4$ (OH) will also be prepared.

### HAZMAT-9: Spill Response Procedures

The following describes the general spill response procedures for BEC. Personnel will be trained in spill response reporting and cleanup procedures. The facility will maintain on site one or more spill response kits. These kits will contain absorbents appropriate for the hazardous materials kept on site and each kit will be clearly designated for the type of spilled material it should be used for. Typically these kits contain a barrel, shovel, and absorbents. In addition, the facility will maintain a supply of gloves and protective clothing for use during spill response events.

Personnel discovering a spill will report to the on-shift Control Room Operator. The Control Room Operator will notify the Operations Superintendent or the Plant Manager. The Superintendent or Manager will function as the On-site Coordinator and will be in charge of activities related to spill containment, control and cleanup, and regulatory agency reporting, if needed.

The On-site Coordinator will assess the situation, contain the leak or spill, begin cleanup operations with on-site staff or off-site contractors, as needed, and collect information for reporting, if needed. The following information will be needed for reporting:

- Type of chemical released
- Amount of release or spill, i.e., volume and description, liquid, vapor, etc.
- Direction of release and distance traveled if the release is outside the secondary containment
- Cause of spill or release
- Potential hazard to off-site personnel and local water bodies, including groundwater
- Actions undertaken to mitigate the spill or release

Outside authorities, e.g., the FCFPD, Emergency Medical Assistance, OES, RWQCB, and California Department of Fish and Game (CDFG), will be contacted if required by laws and regulations, or as deemed necessary by the On-site Coordinator.

In the case of a small spill involving 55 gal or less of liquid hazardous materials, the spill would typically be retained by a secondary containment structure. This type of spill would be confined to as small a space as possible using absorbent pigs or pillows, and be cleaned up with properly trained employees using absorbents available on site. Similarly, small spills outside of secondary containment structures could be cleaned up by trained employees with on-site spill kit equipment.

Larger spills would normally be contained within secondary containment and would be cleaned up by outside contractors using trained spill response personnel if on-site employees could not handle the spill using available on-site spill response equipment.

Waste generated from spill cleanup will be placed in closed, labeled containers, typically 55-gal drums or roll-off containers. Labeling will include the name of the facility (BEC), date of start of accumulation, name of the spilled material, and Hazardous Waste identification language from CCR 22 66262.32, and the established DOT shipping name, as needed.

Collected waste would be properly disposed of off site at an approved recycling, landfill, or other appropriate disposal facility. Off-site transportation of spill wastes will be contracted with a licensed hazardous materials transportation company. Hazardous waste spill cleanup residues will be properly manifested.

### 5.15.4 Applicable Laws, Ordinances, Regulations, and Standards

The LORS applicable to BEC are discussed in this section in the context of hazardous materials handling. Construction and operation of BEC will be in accordance with all applicable LORS pertaining to hazardous materials.

Federal, state, and local laws will govern the storage and use of hazardous materials and acutely hazardous materials at BEC. Applicable laws and regulations address the use and storage of hazardous materials to protect the environment from contamination, and facility workers and the surrounding community from exposure to hazardous and acutely hazardous materials. The applicable LORS related to hazardous materials handling are summarized in Table 5.15-5, LORS Applicable to Hazardous Materials Handling.

**TABLE 5.15-5**
**LORS APPLICABLE TO HAZARDOUS MATERIALS HANDLING**

| LORS | Applicability | Conformance (Section) |
|---|---|---|
| **Federal** | | |
| CAA (40 CFR 68) | Requires an RMP if listed hazardous materials are stored above TQ | Section 5.15.4.1 |
| SARA Title III, Section 302 | Requires certain planning activities when hazardous materials are present in excess of TQ | Section 5.15.4.1 |
| SARA Title III, Section 304 | Requires notification if there is a release of hazardous materials in excess of TQ | Section 5.15.4.1 |
| SARA Title III, Section 311 | MSDSs to be kept on site for each hazardous material. Required to be submitted to the Fresno County Fire Department District, Mendota Station 96 | Section 5.15.4.1 |
| SARA Title III, Section 313 | Requires annual reporting of releases of hazardous materials | Section 5.15.4.1 |
| 29 CFR, Section 1910.120, OSHA; Cal/OSHA | Describes worker safety and health procedures and safe handling of hazardous materials and wastes | Sections 5.15.4.1 and 5.15.4.2 |
| U.S. DOT Regulations, 49 CFR 171-177 | Governs the transportation of hazardous materials, including the marking of the transportation vehicles | See Section 5.15.4.1 |
| **State** | | |
| Health and Safety Code Section 25500, *et seq.* (Waters Bill) | Requires preparation of an HMBP if hazardous materials are handled or stored in excess of TQ | Section 5.15.4.2 |
| Health and Safety Code Section 25531, *et seq*. (La Follette Bill) | Requires registration of facility with local authorities and preparation of an RMP if hazardous materials stored or handled in excess of TQ | Section 5.15.4.2 |
| CCR, Title 8, Section 5189 | Facility owners are required to implement safety management plans to ensure safe handling of hazardous materials | Section 5.15.4.2 |
| California UBC | Requirements regarding the storage and handling of hazardous materials | Section 5.15.4.2 |
| California Government Code Section 65850.2 | Restricts issuance of COD until facility has submitted an RMP | Section 5.15.4.2 |
| **Local** | | |
| Fresno County Department of Community Health, Environmental Health Division | Requires new/modified businesses to complete a hazardous materials business, and RMP prior to final plan/permit approval | Section 5.15.4.3 |

**TABLE 5.15-5**
**LORS APPLICABLE TO HAZARDOUS MATERIALS HANDLING**

| LORS | Applicability | Conformance (Section) |
|---|---|---|
| **Industry Standards** | | |
| UFC, (Articles 79 and 80) | Requirements for secondary containment, monitoring, etc., for extremely hazardous materials | Section 5.15.4.4 |

Notes:

| | | | | | |
|---|---|---|---|---|---|
| CCA | = | Clean Air Act | OSHA | = | Occupational Safety and Health Administration |
| CCR | = | California Code of Regulations | RMP | = | Risk Management Plan |
| CFR | = | Code of Federal Regulations | SARA | = | Superfund Amendments and Reauthorization Act of 1986 |
| COD | = | Commercial Operating Date | | | |
| DOT | = | Department of Transportation | TQ | = | threshold quantities |
| HMBP | = | Hazardous Materials Business Plan | UBC | = | Uniform Building Code |
| LORS | = | laws, ordinances, regulations, and standards | UFC | = | Uniform Fire Code |
| MSDS | = | material safety data sheet | U.S. | = | United States |

### *5.15.4.1 Federal*

The Superfund Amendments and Reauthorization Act of 1968 (SARA) Title III (Sections 302, 304, 311, and 313) and regulations pursuant to the CAA of 1990 (40 CFR 68) established a nation-wide emergency planning and response program, and imposed reporting requirements for businesses that store, handle, or produce significant quantities of extremely hazardous materials. The Acts require the states to implement a comprehensive system to inform local agencies and the public when a significant quantity of such materials is stored or handled at a facility (see 40 CFR, Section 68.115). The requirements of these Acts are reflected in the CHSC, Section 25531 *et seq*.

Title 49, CFR, Parts 171-177, govern the transportation of hazardous materials, the types of materials defined as hazardous, and the marking of the transportation vehicles.

### *5.15.4.2 State*

The CHSC, Section 25500, requires companies that handle hazardous materials in sufficient quantities to develop a HMBP. The HMBP includes basic information on the location, type, quantity, and health risks of hazardous materials handled, stored, used, or disposed of that could be accidentally released into the environment. It also includes a plan for training new personnel, and for annual training of all personnel in safety procedures to follow in the event of a release of hazardous materials. It also includes an emergency response plan and identifies the business representative able to assist emergency personnel in the event of a release. BEC will develop a HMBP prior to construction and operation of BEC.

The CHSC, Section 25531, directs facility owners storing or handling acutely hazardous materials in reportable quantities to develop an RMP and submit it to appropriate local authorities, USEPA, and the designated local Administering Agency for review and approval. The RMP includes: an evaluation of the potential impacts associated with an accidental release, the likelihood of an accidental release occurring, the magnitude of potential human exposure,; any pre-existing evaluations or studies of the material, the likelihood of the substance being handled in the manner indicated, and the accident history of the material. This new, recently developed program supersedes the California Risk Management and Prevention Plan and is known as the CalARP. BEC will develop and submit an RMP prior to operation of BEC.

The CCR, Title 8, Section 5189, requires facility owners to develop and implement effective Safety Management Plans to ensure that large quantities of hazardous materials are handled safely. While such requirements primarily provide for the protection of workers, they also indirectly improve public safety and are coordinated with the RMP process.

California Government Code Section 65850.2, states that a city or county shall not issue a final certificate of occupancy unless there is verification that the applicant has met the applicable requirements of Health and Safety Code, Section 25531 and requirements, if any, for a permit from the air pollution control district.

The UBC contains requirements regarding the storage and handling of hazardous materials. The Chief Building Official must inspect and verify compliance with these requirements prior to issuance of an occupancy permit.

#### *5.15.4.3 Local*

The designated certified unified program agency (CUPA) for the BEC site is the FCDCH and is responsible for (1) the implementation of the HMBP and emergency response plan, and (2) the storage of hazardous materials in underground storage tanks and cleanup of petroleum releases. The FCDCH, Environmental Health Division will be contacted in the event of a release of hazardous wastes or materials to the environment. The city also assumes enforcement responsibility for the implementation of CCR, Title 23.

#### *5.15.4.4 Industry Standards*

The UFC contains provisions regarding the storage and handling of hazardous materials. These provisions are contained in Articles 79 and 80. Article 80 was extensively revised in the latest edition (1994). These articles contain requirements that are generally similar to those contained in the California Health and Safety Code Section 25531 *et seq*. The UFC does, however, contain unique requirements for secondary containment, monitoring, and treatment of toxic gases emitted through emergency venting. These unique requirements are generally restricted to extremely hazardous materials.

### 5.15.5 Agencies and Agency Contacts

There are a number of federal and state agencies that regulate hazardous materials, including USEPA at the federal level and the California/EPA at the state level. However, local agencies are the primary enforcers of hazardous materials laws. For the BEC site, the local agency is the FCDCH, Environmental Health Division and the contact is shown in Table 5.15-6, Agency Contacts.

**TABLE 5.15-6**
**AGENCY CONTACTS**

| Agency | Contact | Title | Telephone |
|---|---|---|---|
| FCDCH, Environmental Health Division | Gustavo Gomez or Specialist On Call | Hazardous Materials Specialist | 559-445-3271 |
| Fresno City Fire Department | Randy Bruegman | Fire Chief | 559-621-4000 |
| DTSC | Noel Laverty | DTSC Duty Officer<br>Clovis Field Office | 916-255-3618<br>559-297-3901 |

Notes:
DTSC = Department of Toxic Substances Control
FCDCH = Fresno County Department of Community Health

### 5.15.6 Permits Required and Permit Schedule

The BEC will develop a HMBP prior to construction activities.

The BEC will submit an RMP prior to the storage of $NH_4$ (OH) on site. See Table 5.15-7, Permit Table for Hazardous Materials, for a list of potential permit requirements.

**TABLE 5.15-7**
**PERMIT TABLE FOR HAZARDOUS MATERIALS**

| Jurisdiction | Potential Permit Requirement |
|---|---|
| Federal | No permits required |
| State | No permits required |
| Local | Hazardous Materials Business Plan, Risk Management Plan |

### 5.15.7 References

Lees, F. P. 1983. *Loss Prevention in the Process Industries*. Volumes I and II. Butterworths.

Lewis, Richard J., Sr. 1992. *Sax's Dangerous Properties of Industrial Materials. Eighth Edition.* Van Nostrand Reinhold. New York, New York.

National Institute of Occupational Safety and Health. 1997. NIOSH Pocket Guide to Chemical Hazards. DHHS Publication No. 97-140. U.S. Government Printing Office. Washington, D.C.

U.S. Environmental Protection Agency. 1999. Risk Management Program Guidance for Offsite Consequence Analysis. EPA Document EPA550B99009. April 1999.

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——. 1995. SCREEN3 Model User's Guide. EPA-454/B-95-004. September 1995.

——. 1993. Guidance on the Application of Refined Dispersion Models to Hazardous/Toxic Air Pollutant Releases. EPA-454/R-93-002. April 30, 1993.

Wray, Thomas, K. 1991. "HazMat Chemist: Ammonia." *HazMat World*. p. 86. November.

Adequacy Issue: Adequate ____ Inadequate ____

# DATA ADEQUACY WORKSHEET

Revision No. ____ Date ____

Technical Area: **Hazardous Materials Handling** Project: ____ Technical Staff: ____

Project Manager: ____ Docket: ____ Technical Senior: ____

| SITING REGULATIONS | INFORMATION | AFC PAGE NUMBER AND SECTION NUMBER | ADEQUATE YES OR NO | INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS |
|---|---|---|---|---|
| Appendix B (g) (1) | ...provide a discussion of the existing site conditions, the expected direct, indirect and cumulative impacts due to the construction, operation and maintenance of the project, the measures proposed to mitigate adverse environmental impacts of the project, the effectiveness of the proposed measures, and any monitoring plans proposed to verify the effectiveness of the mitigation. | Section 5.15.1, 5.15.2 and 5.15.3. | | |
| Appendix B (g) (10) (A) | A list of all materials used or stored on-site which are hazardous or acutely hazardous, as defined in Title 22, California Code of Regulations, § 66261.20 et seq., and a discussion of the toxicity of each material. | Section 5.15.2.1 and 5.15.2.2, 5.16.2.1 Table 5.15-1, 5.15-2 and 5.16-1 | | |
| Appendix B (g) (10) (B) | A map at a scale of 1:24,000 depicting the location of schools, hospitals, day-care facilities, emergency response facilities and long-term health care facilities, within the area potentially affected by any release of hazardous materials. | Figure 5.16-1 | | |
| Appendix B (g) (10) (C) | A discussion of the storage and handling system for each hazardous material used or stored at the site. | Section 5.15.2.1, 5.15.2.2 and 5.15.3.2.1 Table 5.15-1 and 5.15-2 | | |
| Appendix B (g) (10) (D) | The protocol that will be used in modeling potential consequences of accidental releases that could result in off site impacts. Identify the model(s) to be used, a description of all input assumptions, including meteorological conditions. The results of the modeling analysis can be submitted after the AFC is complete. | Section 5.15.2.3 | | |
| Appendix B (g) (10) (E) | A discussion of whether a risk management plan (Health and Safety Code § 25531 et seq.) will be required, and if so, the requirements that will likely be incorporated into the plan. | Section 5.15.3.2.1 | | |

Adequacy Issue: Adequate ____ Inadequate ____

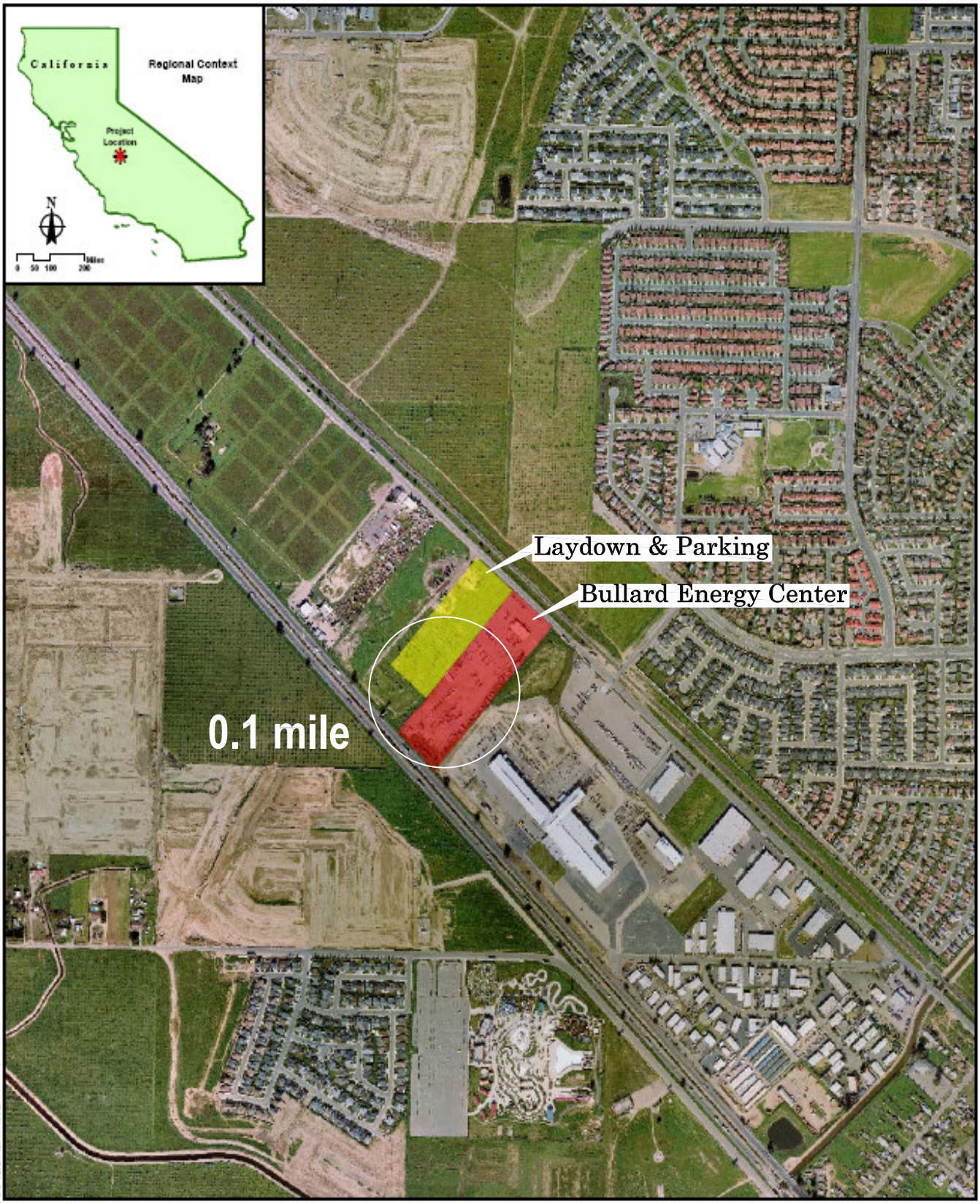
# DATA ADEQUACY WORKSHEET

Revision No. ____ Date ____

Technical Area: **Hazardous Materials Handling** Project: ____ Technical Staff: ____

Project Manager: ____ Docket: ____ Technical Senior: ____

| SITING REGULATIONS | INFORMATION | AFC PAGE NUMBER AND SECTION NUMBER | ADEQUATE YES OR NO | INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS |
|---|---|---|---|---|
| Appendix B (g) (10) (F) | A discussion of measures proposed to reduce the risk of any release of hazardous materials. | Section 5.15.3.2.1 | | |
| Appendix B (g) (10) (G) | A discussion of the fire and explosion risks associated with the project. | Section 5.15.2.2.1 | | |
| Appendix B (h) (1) (A) | Tables which identify laws, regulations, ordinances, standards, adopted local, regional, state, and federal land use plans, and permits applicable to the proposed project, and a discussion of the applicability of each. The table or matrix shall explicitly reference pages in the application wherein conformance, with each law or standard during both construction and operation of the facility is discussed; | Section 5.15.4<br>Table 5.15-4 | | |
| Appendix B (h) (1) (B) | Tables which identify each agency with jurisdiction to issue applicable permits and approvals or to enforce identified laws, regulations, standards, and adopted local, regional, state and federal land use plans, and agencies which would have permit approval or enforcement authority, but for the exclusive authority of the commission to certify sites and related facilities. | Section 5.15.4.5<br>Table 5.15-5 | | |
| Appendix B (h) (2) | A discussion of the conformity of the project with the requirements listed in subsection (h)(1)(A). | Section 5.15.2, 5.15.3 and 5.15.4 | | |
| Appendix B (h) (3) | The name, title, phone number, and address, if known, of an official within each agency who will serve as a contact person for the agency. | Table 5.15-5 | | |
| Appendix B (h) (4) | A schedule indicating when permits outside the authority of the commission will be obtained and the steps the applicant has taken or plans to take to obtain such permits. | Table 5.15-6 | | |




G:\gis\projects\1577\2890605\aerial.mxd

500 0 500 1000 Feet

SCALE: 1" = 1,000' (1:12,000)

N

SOURCES:
Airphoto USA (color aerial Feb. 2005);
Western Mapping Center (aerial 1998);
Streetmap USA (streets); US Dept of Agriculture, Natural Resources Conservation Service (Web Soil Survey 2006, http:/websoilsurvey.nrcs.usda.gov.app/.)

**Zone of Vulnerability**

Bullard Energy Center

URS

FIGURE 5.15-1