APPENDIX HAZ

Hazards and Hazardous Materials Technical Analysis

Martinez Renewable Fuels Project

Hazards and Hazardous Materials Technical Analysis

Tesoro Refining & Marketing Company LLC, an indirect, wholly owned subsidiary of Marathon Petroleum Corporation

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HAZARDS AND HAZARDOUS MATERIALS

1.1 INTRODUCTION

Hazards at a facility can occur due to natural events, such as earthquake, and non-natural events, such as mechanical failure or human error. A hazard analysis generally considers compounds or physical forces that can migrate off-site and result in acute health effects to individuals outside of the proposed project site. The hazards can be defined in terms of the distance that a release would travel, or the number of individuals of the public affected by a maximum single event defined as a "worst-case" scenario. This section discusses existing hazards to the community from potential upset conditions at the facility so as to provide a basis for evaluating the changes in hazards posed by the proposed project.

The major types of public safety risks at the Refinery consist of risk from accidental releases of regulated substances and from major fires and explosions. Shipping, handling, storing, and disposing of hazardous materials inherently poses a certain risk of a release to the environment. The regulated substances currently handled by the Refinery include chlorine, sulfuric acid, hydrogen sulfide, and ammonia. The Refinery also handles petroleum products including propane, butane, isobutane, gasoline, fuel oils, diesel, crude oil, and other products, which, if released, pose a risk of fire and/or explosion at the Refinery. The transportation hazards from transporting hazardous materials are also described below.

1.2 TYPES OF ON-SITE HAZARDS

A hazard analysis generally considers the compounds or physical forces that can migrate off-site and result in acute health effects to individuals outside of the Refinery boundaries. It should be noted that hazards exist to workers on-site. However, the workers have the benefit of training in fire and emergency response procedures, protective clothing, access to respiratory protection, and so forth. Therefore, workers could be exposed to hazards and still be protected because of training and personal protective equipment. The general public does not typically have access to these safety measures and, therefore, could be adversely affected if a hazard situation results in impacts to areas off-site.

The potential hazards associated with industrial activities are a function of the materials being processed, processing systems, and procedures used to operate and maintain the facility. The hazards that are likely to exist are identified by the physical and chemical properties of the materials being handled and their process conditions, and can include the following events:

Exposure to Toxic Gas Clouds: Toxic gas clouds, (gases, e.g., concentrated hydrogen sulfide), could form a dense cloud and migrate off-site, thus, exposing individuals to toxic materials. "Worst-case" conditions tend to arise when very low wind speeds coincide with an accidental release, which can allow the chemicals to accumulate as a dense cloud rather than disperse.

Exposure to Flame Radiation: Flame (thermal) radiation is the heat generated by a fire and the potential impacts associated with exposure to it. Exposure to thermal radiation

would result in burns, the severity of which would depend on the intensity of the fire, the duration of exposure, and the distance of an individual to the fire.

Thermal radiation can be caused by pool fire (fire of spilled material), torch fire (rupture of line followed by ignition), boiling liquid-expanding vapor explosion (BLEVE) of a pressurized storage vessel and/or flash fires (ignition of slow-moving flammable vapors).

Exposure to Explosion Overpressure: Several process vessels containing flammable explosive vapors and potential ignition sources are present at the Refinery. Explosions may occur if the flammable/explosive vapors come into contact with an ignition source. The greatest threat to off-site receptors could occur from a vapor cloud explosion (release, dispersion, and explosion of a flammable vapor cloud), or a confined explosion (ignition and explosion of flammable vapors within a building or confined area). An explosion could cause impacts to individuals and structures in the area due to overpressure.

Exposure to Contaminated Water: An upset condition and spill has the potential to adversely affect ground water and water quality. A spill of hazardous materials could occur under upset conditions, e.g., earthquake, tank rupture, and tank overflow. In the event of a spill, materials could migrate off-site if secondary containment and appropriate spill control measures are not in place.

Secondary effects, such as ash fallout from a fire, may occur as a result of a potential hazard. These effects are incident specific and would vary depending on the type of hazard, chemicals involved, and ambient conditions at the time of the incident. Therefore, these secondary effects are considered speculative and are not analyzed.

1.3 TRANSPORTATION RISKS

1.3.1 TRUCK TRANSPORT

The transportation of hazardous substances poses a potential for fires, explosions, and hazardous materials releases. In general, the greater the vehicle miles traveled, the greater the potential for an accident. Statistical accident frequency varies, (especially for truck transport), and is related to the relative accident potential for the travel route since some freeways and streets are safer than others. The size of a potential release is related to the maximum volume of a hazardous substance that can be released in a single accident, should an accident occur, and the type of failure of the containment structure, e.g., rupture or leak. The potential consequences of the accident are related to the size of the release, the population density at the location of the accident, the specific release scenario, the physical and chemical properties of the hazardous material, and the local meteorological conditions.

The factors that enter into accident statistics include distance traveled and type of vehicle or transportation system. Factors affecting automobiles and truck transportation accidents include the type of roadway; presence of road hazards; vehicle type; maintenance and physical condition; and driver training. A common reference frequently used in measuring risk of an accident is the

number of accidents per million miles traveled. Complicating the assessment of risk is the fact that some accidents can cause significant damage without injury or fatality.

Every time hazardous materials are moved from the site of generation, there are opportunities for accidental (unintentional) releases. The U.S. Department of Transportation (U.S. DOT) conducted a study on the comparative risks of hazardous materials and non-hazardous materials truck shipment accidents and incidents. The Federal Motor Carrier Safety Administration (FMCSA) compared risks of hazardous materials truck shipment accidents and incidents to non-hazardous materials truck shipment accidents and incidents (FMCSA, 2001). The estimated accident rate for trucks (shipping non-hazardous materials) was 0.73 per million miles traveled. The average accident rate for trucks transporting hazardous materials (all hazard classes) was estimated to be 0.32 per million miles traveled (FMCSA, 2001). Though it is difficult to compare hazardous and non-hazardous transport risk, the differences appear to be significant enough to conclude that the magnitude of non-hazardous transport accidents dominates highway transport risk. The specific hazardous material trucking regulations and additional care provided by carriers and shippers of hazardous materials appear to be factors reducing the accident rate for hazardous material shipments (FMCSA, 2001).

The actual occurrence of an accidental release of a hazardous material associated with a traffic accident cannot be predicted. The location of an accident or whether sensitive populations would be present in the immediate vicinity also cannot be identified. In general, the shortest and most direct route that takes the least amount of time would have the least risk of an accident. Hazardous material transporters do not routinely avoid populated areas along their routes, although they generally use approved truck routes that take population densities and residential areas into account.

The hazards associated with the transport of regulated hazardous materials (California Code of Regulations (CCR) Title 19, Division 2, Chapter 4.5 or the CalARP requirements) would include the potential exposure of numerous individuals in the event of an accident that would lead to a spill. Factors such as amount transported, wind speed, ambient temperatures, route traveled, and distance to sensitive receptors are considered when determining the consequence of a hazardous material spill.

1.3.2 RAIL TRANSPORTATION

Train accidents are required to be reported to the Federal Railroad Administration (FRA). Train accident reports identify the causes and contributing factors causing the accident. Rail accidents can stem from human errors (e.g., switching, coupling, transloading, speeding); equipment failures (e.g., crossing guard failures, leaking valve, coupling failure, broken rails, brake failure, corrosion, etc.); system or procedural failures (e.g., interim storage on holding track, routing, emergency response, maintenance, circuitous routing); and external events (vandalism, at-grade crossing, flood, earthquake, fire, bridge failure) (CCPS, 1995).

Depending on the type of hazardous material being transported, transportation of hazardous substances poses a potential for fires, explosions, and hazardous materials releases. In general, the greater the miles traveled the greater the potential for an accident. Statistical accident frequency

varies, but is positively correlated to the number of miles traveled. The size of a potential release is related to the maximum volume of a hazardous substance that can be released in a single accident, should an accident occur, and the type of failure of the containment structure, e.g., rupture or leak. The potential consequences of the accident are related to the size of the release, the population density at the location of the accident, the specific release scenario, the physical and chemical properties of the hazardous material, and the local meteorological conditions.

The FRA regulations on reporting railroad accidents/incidents are found primarily in 49 CFR Part 225. The purpose of the regulations is to provide FRA with accurate information concerning the hazards and risks that exist on the nation's railroads. The FRA uses this information for regulatory and enforcement purposes, and for determining comparative trends of railroad safety. These regulations preempt states from prescribing accident/incident reporting requirements. The FRA compiles data on railroad-related accidents, injuries and fatalities to depict the nature and cause of rail-related accidents and improve safety. Train accident data reported in the United States, and California between 2010 and 2019 are summarized in Table 1. Based on the train accident data for the United States, the train accident rate varied from 2.4 accidents per million miles traveled to 2.9 accidents per million miles traveled over the 10-year period from January 2010 to December 2019. The national train accident rate for 2019 was 2.9 train accidents per million miles traveled. Of the hazmat releases in California, only three accidents involved releases of hazardous materials between 2010 and 2019, with none occurring in 2019.

TABLE 1

Summary of National and California Train Accident Data

Category	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Train Accident Data for United States										
Total Accidents/ Incidents[1]	11,6301	11,535	11,079	11,655	12,260	11,850	11,480	11,982	11,820	11,693
Accident Rate[2]	16.5	16.1	15.1	15.6	16.0	16.1	16.6	17.0	16.6	17.3
Train Accidents	1,902	2,032	1,766	1,853	1,886	1,929	1,723	1,787	1,983	1,956
Train Accident Rate[2]	2.7	2.8	2.4	2.5	2.5	2.6	2.5	2.5	2.8	2.9
Train Accidents on Main Line[3]	617	625	510	587	565	540	490	527	537	562
Accident Rate on Main Line	1.0	1.0	0.8	0.9	0.8	0.8	0.8	0.8	0.9	0.9
Hazmat Releases[4]	20	21	26	19	15	12	14	12	20	15
Cars Carrying Hazmat[5]	7,567	7,682	6,897	7,323	7,674	7,903	5,704	6,517	6,480	7,462
Hazmat Cars Damaged/Derailed	722	677	672	839	799	650	565	664	590	745
Hazmat Cars Releasing Contents	39	66	50	79	26	60	20	37	34	27
Total Train Miles[6]	704.8	717.6	731.6	748.5	765.8	738.3	689.6	705.7	711.4	677.5
Train Accident Data for California										
Total Accidents/ Incidents[1]	724	708	828	799	818	871	954	985	950	932
Train Accidents	87	87	87	100	78	97	97	110	106	114
Hazmat Releases	1	0	0	0	0	0	0	1	1	0

Source: Federal Railroad Administration, Office of Safety Analysis data reports. (accessed November 13, 2020) http://safetydata.fra.dot.gov/officeofsafety/publicsite/query/tenyr1a.aspx

(1) Total accident/incidents include train accidents, crossing incidents, and other accidents/incidents.
(2) Events per million train miles.
(3) Number of accidents involving a hazmat release.
(4) Rate of accidents on mainline divided by total train miles – yard switching miles.
(5) Number of rail cars that carried hazardous materials.
(6) Number in million train miles.

1.3.3 MARINE VESSEL TRANSPORT

Many types of marine vessels call at terminals in the Bay Area, including passenger vessels, cargo vessels, tankers, tow/tug vessels, dry cargo barges and tank barges. Table 2 presents data from the U.S. Army Corps of Engineers on inbound vessel visit to the Bay Area between 2000 and 2018. On average , over 70,100 vessel calls per year occurred at terminals in the Bay area. Of these, 23,702 vessels made calls at terminals in the Suisun Bay Channel, which includes the general area of the Avon Terminal.

TABLE 2

Inbound Vessel Traffic in San Francisco Bay 2000 - 2018

Location	Dry Cargo	Tanker	Tow or Tug	Dry Cargo Barge	Liquid Barge	Total Number of Vessels
San Francisco Bay Entrance	46,646	14,551	4,956	245	5,667	72,065
San Francisco Harbor	790,377	202	12,427	3,592	1,274	807,872
Oakland Harbor	222,184	168	39,874	4,568	-	1,446
San Pablo Bay/Mare Island Strait	163,804	7,786	22,331	8,213	6,418	208,462
Richmond	2,583	7,602	77,697	2,844	20,283	111,009
Carquinez Strait	17,031	7,171	22,735	5,649	47,853	100,439
Suisun Bay Channel	3,504	1,807	10,887	5,473	2,031	23,702
Stockton Harbor	1,875	857	818	55	284	3,889
Redwood City	556	-	2.360	852	42	3,810

Source: U.S. Army Corps of Engineers, 2020.

The existing hazards associated with the transport of marine vessels have been evaluated in the EIRs prepared by the California State Land Commission (CSLC) for the renewal of the 30-year operational leases for the Avon and Amorco Marine Terminals (CSLC, 2014 and 2015). The hazards associated with the operation of these terminals are summarized below.

1.3.3.1 Amorco Marine Terminal

Spills may originate from the Amorco Marine Terminal or from the tank vessel and may be due to natural factors (earthquake, tsunami, severe environmental conditions, etc.), human error (berth collision, bad hose connection, ineffective mooring line tending, etc.), or equipment failure. Potential sources of a spill from the Amorco Marine Terminal include drip pans, hydraulic hoses, loading hoses and fittings, pipelines and fittings, and valves. The transfer area on the wharf is impounded by a raised berm that drains into a collection system that engages automatically by level control switches. Collection pans are located under all piping manifolds at the berth and are designed to collect potential drips from bolted flanges, fittings, and expansion joints. The terminal facility includes an emergency shutdown system which includes the activation of the emergency shutdown system able to close the pipeline block valves within 30 seconds.

The Marine Oil Terminal Engineering and Maintenance Standards (MOTEMS) minimum engineering, inspection, and maintenance standards apply to all existing and new marine oil terminals in California, and include criteria for maintenance, inspection, structural and seismic analysis and design; mooring and berthing; geotechnical considerations (including site-specific assessment); and analysis and review of the fire, piping, mechanical, and electrical systems.

Programs have been implemented to assure that the wharf meets all MOTEMS requirements including seismic standards.

A release from a vessel while at the Amorco wharf is also possible. As a worst case, the entire contents of a vessel could be released; however, this is not considered a realistic scenario. The CSLC spill database differentiates between spills from marine terminals and spills from tank vessels at marine terminals. The largest release from a tank vessel in the San Francisco Bay between 1992 and 2001 was 420 gallons of jet fuel oil (10 barrels). The largest release from a tank vessel between 2001 and 2013 was 58,082 gallons of fuel oil (1,383 barrels) in 2007.

The U. S. Coastal Guard, and the Office of Spill Prevention and Response have specified methods for calculating three levels of spill planning volumes for use in determining the minimum amount of spill response equipment/capability that must be available within specified timeframes to respond to the release. These are discussed below:

> **Reasonable Worst-case Discharge.** Under federal and state regulations, Marathon is required to calculate the worst-case discharge volumes from the Amorco Marine Terminal and show what assets Marathon has to respond to such a spill. The worst-case discharge for the Amorco Marine Terminal consists of the volume of the pipeline plus the amount of oil that can be pumped out before the pumps are shut down. The Marathon Oil Spill Response Plan lists the worst-case discharge as 22,178 barrels. The pipeline is equipment with pressure sensors that should detect any large releases very quickly because of the pressure drop. In accordance with regulations, the pipeline is equipment with motor operated valves, which can be activated remotely and closed within 30 seconds.
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> **Maximum Most Probable (Medium Volume) Discharge.** The U.S. Coast Guard defines this discharge as the lesser of 1,200 barrels, or 10 percent of the volume of the worst-case discharge. The worst-case discharge is 22,178 barrels and thus, the maximum most probable discharge is 1,200 barrels.
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> **Average Most Probable (Small Volume) Discharge.** The U.S. EPA defines the average most probable discharge as 50 barrels, not to exceed the worst-case discharge, while the U.S. Coast Guard defines it to be the lesser of 50 barrels or 1 percent of the worst-case discharge (222 barrels in this case). Thus, the average most probable (small) discharge planning volume is 50 barrels.

An oil spill trajectory modeling for a reasonable worst-case oil spill release of 22,178 barrels at the wharf was completed (CSLC, 2014). The area at risk from a release was evaluated using the OILMAP trajectory and fates model. The conservative assumptions were used to develop trajectory plots depicting the projected areas of impact over a 72-hour period, using considerations for seasonal weather conditions. The modeling shows that the greatest spreading toward the west and south occurs during winter conditions, with surface oiling after 3 days spreading as far south as San Mateo and west into the Pacific Ocean. The greatest spreading toward the east would occur during summer conditions, with surface oiling after 3 days spreading to the northern reaches of Honker, Suisun, and Grizzly Bays and further propagation

outside the Carquinez Strait into San Pablo Bay. The CSLC determined that the impacts associated with spills at the Amorco Marine Terminal were significant and unavoidable and numerous mitigation measures were imposed. Since the proposed Marathon Renewable Fuels Project makes no changes to the operation of the marine terminal, the mitigation measures imposed in the CSLC Final EIR are still applicable to the marine terminal and will continue to be imposed. The Renewable Fuels Project makes no changes to these findings.

The following are the measures that would be implemented in the event of a crude oil leak at the Terminal:

- Implement measures to stop the release, e.g., activate the emergency shutdown system.
- Activate the spill response team consisting of spill response personal from the Amorco Marine Terminal as well as the Martinez Refinery, and a third party response team (e.g., Bay Area Ship Services).
- Deploy the containment boom at the Amorco wharf on the down current side of the spill to minimize the oil from drifting to where it could impact sensitive environmental resources and commerce.
- Oil would be recovered with sorbent material and/or skimmers. Dispersants can also be used with U.S. Coast Guard approval.

Oil spill response boats are located in Martinez and available to help deploy booms and include boats equipped with skimmers, booms, and oil storage. The MOTEMS have set minimum requirements for preventative maintenance that includes periodic inspection of all components related to transfer operations. Marathon is required to comply with those requirements as well as with California State Lands Commission's operational requirements.

1.3.3.2 Avon Marine Terminal

Spills may originate from the Avon Marine Terminal or from tank vessels at the Avon Marine Terminal, and may be due to natural factors (earthquake, tsunami, severe environmental conditions, etc.), human error (berth collision, bad hose connection, ineffective mooring line tending, etc.), or equipment failure. Potential sources of a spill from the Avon Marine Terminal include drip pans, hydraulic hoses, loading hoses and fittings, pipelines and fittings, and valves. The transfer area for Berth 1A is impounded by a raised berm that drains into a collection system that engages automatically by level control switches. Collection pans are located under all piping manifolds at the berth and are designed to collect potential drips from bolted flanges, fittings, and expansion joints. As with the Amorco Marine Terminal, the Avon Marine Terminal is required to comply with the MOTEMS requirements, as updated and modified.

The U.S. Coastal Guard, and the Office of Spill Prevention and Response have specified methods for calculating three levels of spill planning volumes for use in determining the minimum amount of spill response equipment/capability that must be available within specified timeframes to respond to the release, as discussed below:

> **Reasonable Worst-case Discharge.** The worst-case discharge for the Avon Marine Terminal consists of the volume of all pipelines that can operate simultaneously, plus the

amount of oil that can be pumped out before the pumps are shut down for each pipeline. The Marathon Oil Spill Response Plan lists the worst-case discharge as 10,443 barrels, which is the sum of 4,236 barrels from the gasoline pipeline and 6,207 barrels from the fuel oil, vacuum gas oil, and black oil line. The pipeline is equipped with pressure sensors that should detect any large releases very quickly because of the pressure drop. In accordance with regulations, the pipeline is equipment with motor operated valves, which can be activated remotely and closed within 30 seconds.

Maximum Most Probable (Medium Volume) Discharge. The U.S. Coast Guard defines this discharge as the lesser of 1,200 barrels or 10 percent of the volume of the worst-case discharge. The worst-case discharge for the Avon Marine Terminal is 6,207 barrels, and thus, the maximum most probable discharge is 621 barrels.

Average Most Probable (Small Volume) Discharge. The U.S. Coast Guard defines the average most probable discharge as 50 barrels or 1 percent of the worst-case discharge (62 barrels in this case). Thus, the average most probable (small) discharge planning volume is 50 barrels.

Several oil spill trajectory models previously conducted for projects at nearby locations were evaluated to consider the potential extent of impacts that could occur from a range of spill scenarios at the Avon Marine Terminal. These models and their relevance to the Avon Marine Terminal lease renewal environmental impact analysis are summarized in the following paragraphs. Each of the models simulated a crude oil spill; an equivalent spill of gasoline from the Avon Marine Terminal would be expected to impact a smaller area than shown by modeling because gasoline is less persistent than crude oil. The modeled oil spill trajectories did not account for oil spill response measures, and therefore, are very conservative.

The Shore Terminals, LLC, Marine Oil Terminal Lease Renewal EIR (SCH No. 33 2001042022) (CSLC 2004) presented the results of oil spill trajectory modeling for a 5,830-barrel crude oil spill from the Plains Products Terminal located approximately 0.5 mile west of the Avon Marine Terminal. Using OILMAP, summer and winter trajectory modeling was conducted. The modeling showed that after 3 days, surface oiling could reach the Pittsburg area to the east and just past the Carquinez Bridge into the eastern portion of the San Pablo Bay to the west. During the winter, the oil could also reach the Pittsburg area to the east, but could extend much further into the San Pablo Bay to the west, extending to the Richmond Bridge. The worst-case discharge for crude oil for the Avon Marine Terminal operations would be 6,207 barrels, which is approximately 6 percent more than the modeled release. Given the approximately similar volume and the proximity of the modeled spill location to the Avon Marine Terminal, a similar modeling methodology for a crude oil worst-case discharge from the Avon Marine Terminal would be expected to yield similar results.

As reported above, oil spill trajectory modeling for a 22,178-barrel crude oil release at the Amorco Marine Terminal, which is located approximately 2 miles west of the Avon Marine Terminal, west of the Benicia-Martinez Bridge. The modeling shows that the greatest spreading toward the west and south occurs during winter conditions, with surface oiling after 3 days spreading as far south as San Mateo and west into the Pacific Ocean. The greatest spreading

toward the east would occur during summer conditions, with surface oiling after 3 days spreading to the northern reaches of Honker, Suisun, and Grizzly Bays. The modeled release volume is greater than the worst-case discharge for crude oil for the Avon Marine Terminal operations; however, a release of this magnitude would be possible under extremely low-probability accident scenarios that could occur, such as a large release from a vessel approaching or moored at the Avon Marine Terminal. **The CSLC determined that the impacts associated with spills at the Avon Marine Terminal were significant and unavoidable and numerous mitigation measures were imposed. Since the proposed Marathon Renewable Fuels Project makes no changes to the operation of the marine terminal, the mitigation measures imposed in the CSLC Final EIR are still applicable to the marine terminal and will continue to be imposed. The Renewable Fuels Project makes no changes to these findings.**

Pursuant to CSLC regulations (Cal. Code Regs., tit. 2, § 2395), the Avon Marine Terminal is an "onshore marine terminal subject to high-velocity currents," and therefore, is required to provide sufficient boom appropriate to the conditions at the Avon Marine Terminal, trained personnel, and equipment maintained in a standby condition at the berth for the duration of the entire transfer operation, so that a length of at least 600 feet of boom can be deployed within 30 minutes of a spill. Third-party response companies are also used to meet these requirements.

Marathon's response to a release would be a function of the type of product released, the amount of product released, and the environmental conditions present at the time of release. In particular, responses to releases of highly volatile products—such as gasoline—are significantly different than responses to persistent materials such as crude oil and diesel fuel. In general, booms are not deployed to contain highly volatile materials because of the flammable nature of the product. In addition, highly volatile materials tend to evaporate quickly. Typical responses to each type of release are discussed below.

Gasoline and other light hydrocarbons float on the water and are extremely flammable. Containment of these materials may allow explosive concentrations to accumulate. The preferred response is to knock down the vapors, protect shorelines from fouling, and allow evaporation to occur. The following are the general guidelines for a spill of gasoline and other light hydrocarbons):

- Identify the source and stop discharge, if possible.
- Eliminate sources of vapor cloud ignition. Use waterfog (a type of firefighting technique using a nozzle setting that creates a fog-type mist) to knock down vapors and disperse material, if available.
- Stay upwind and evacuate nonessential personnel.
- Advise neighboring operations of any threat to their property or personnel.
- Advise boats operating in the area of potential danger and direct them out of the area.
- Determine the direction and expected duration of spill movement.
- Request the U.S. Coast Guard to control marine vessel traffic in the area.
- Review the location of environmentally and economically sensitive areas. Utilize trajectory analysis to assist in prediction of potentially impacted areas. Determine which of these areas may be threatened by the spill and direct contractors to proceed with boom and skimmers to these specified locations.

- Obtain Explosimeter and other air sampling equipment to assure areas are safe to enter for continued response operations.

The steps that Marathon would take to respond to an oil spill at the Avon Marine Terminal are essentially the same as those describe above for the Amorco Marine Terminal.

1.3.4 PIPELINE RISKS

The U.S. DOT Pipeline and Hazardous Material Safety Administration (PHMSA) keeps detailed pipeline incident and mileage reports to chart fatalities, injuries, property damage, and loss of barrels of product resulting from pipeline incidents.

Pipeline accident events, referred to as "significant incidents" by the PHMSA, include all incidents reported by a pipeline operator when any of the following conditions are met: (1) fatality or injury requiring in-patient hospitalization (also referred to as a "serious incident"); (2) $50,000 or more in total costs; (3) highly volatile liquid releases of five barrels or more or other liquid releases of 50 barrels or more; and/or (4) liquid releases resulting in an unintentional fire or explosion.

Table 3 shows the total number of incidents each year between 2010 and 2019 for onshore hazardous liquid pipelines, including crude oil and petroleum products, in California. The PHMSA data show that over a 10-year period (2010 - 2019), a total of 231 incidents were reported, none of which resulted in fatalities or serious injuries. These 231 incidents resulted in 13,621 gross barrels spilled, and a net loss of 2,993 barrels (barrels not recovered). Approximately 80 percent of the hazardous materials that were spilled was crude oil, with 83 percent of the barrels lost being crude oil. According to the U.S. DOT Incident and Mileage Reports, California contains 6,525 miles of hazardous liquid pipelines, transporting primarily crude oil and petroleum products.

TABLE 3

California Hazardous Liquid Onshore Pipeline Incidents (2010 – 2019)

Year	Number	Fatalities	Injuries	Gross Barrels Spilled	Net Barrels Lost	Barrels Spilled Crude Oil	Barrels Lost of Crude Oil
2010	15	0	0	982	163	793	36
2011	24	0	0	272	128	212	112
2012	22	0	0	777	23	691	2
2013	17	0	0	813	35	547	15
2014	28	0	0	2,648	299	1,534	3
2015	25	0	0	4,709	2,163	4,560	2,160
2016	23	0	0	2,207	165	1,874	164
2017	29	0	0	533	8	267	5
2018	27	0	0	468	0	306	0
2019	21	0	0	212	9	164	3
Totals	231	0	0	13,621	2,993	10,948	2,500

3 Year Average (2017 – 2019)	19	0	0	404	6	245	3
5 Year Average (2015 – 2019)	21	0	0	1,626	469	1,343	466
10 Year Average (2010 – 2019)	21	0	0	1,362	309	1,095	250

Source: PHMSA, 2020.

1.4 EXISTING SOIL AND GROUNDWATER CONTAMINATION

Historic operations at the Refinery have resulted in releases of hazardous materials (primarily petroleum hydrocarbons) to soil and groundwater in some areas at the Refinery. Potentially contaminated sites include proposed project areas as well as non-project areas. In some cases, these past releases deposited petroleum hydrocarbons in soils on-site, which then migrated to underlying groundwater in portions of the Refinery.

The Marathon Martinez Refinery has known groundwater and soil contamination that have been and will continue to be remediated and managed under Regional Water Quality Control Board (RWQCB) oversight. The nature and extent of soil and groundwater contamination at the Refinery has been evaluated. Extensive soil and groundwater investigations have been conducted at the site with the oversight of the RWQCB, and ongoing remedial programs have been implemented to address the identified impacts.

Monitoring and remediation have been performed under Cleanup and Abatement Orders (CAO), and documented in reports publicly available at www.geotracker.waterboards.ca.gov. The Water Quality Control Board's GeoTracker reports that the site is subject to a Cleanup and Abatement Order to address groundwater impacts, which include arsenic, benzene, chromium, gasoline, lead, nickel, other metals, and hydrocarbons. The facility is currently pumping and treating contaminated groundwater and removing free-phase liquid hydrocarbons (SWRCB, 2020). The proposed project would have no impact on these cleanup actions or otherwise adversely affect the existing Cleanup and Abatement Order. The Order will remain in effect and continue to establish requirements for site monitoring and cleanup of existing contamination. As a result, the currently proposed project changes are not expected to have any impact on these cleanup actions or create any additional hazards to the public or the environment associated with cleanup activities.

1.5 EXISTING REFINERY SAFETY SYSTEMS

The Martinez Refinery operates numerous safety systems to minimize the potential for and provide emergency services in the event of an accident or release from the Refinery operations. Existing safety systems are described in this section of the EIR.

1.5.1 EXISTING FIRE-FIGHTING CAPABILITIES

The Martinez Refinery has several fire pump systems listed in the Table 4.:

TABLE 4

Fire-Fighting Equipment Martinez Refinery

Pump Location	Pump Number	Driver	Rating	Source	Service
5th Street	10121	Automatic Diesel	4000 gpm @ 165 psi	CCWD Industrial Line 30 psi suction pressure	Emergency Operations
Reservoir North End	10294	Automatic Diesel	2000 gpm @165 psi	Reservoir	Emergency Operations
Reservoir North End	10295	Automatic Diesel	2000 gpm @165 psi	Reservoir	Emergency Operations
Avon Wharf West	10314	Automatic Diesel	3500 gpm @ 120 psi	Suisun Bay	Emergency Operations
Avon Wharf East	10315	Automatic Diesel	3500 gpm @ 120 psi	Suisun Bay	Emergency Operations
Tract 4		Manual Diesel	2500 gpm @ 145 psi	Freshwater tanks 38 and 1041	Emergency Operations
Tract 4	9408	Manual Diesel	2500 gpm @ 145 psi	Freshwater tanks 38 and 1041	Emergency Operations
Amorco Wharf	10118	Automatic Diesel	4000 gpm @ 162 psi	Suisun Bay	Emergency Operations
Amorco Shore	10117	Automatic Diesel	4000 gpm @ 165 psi	Tanks B45 & B46	Emergency Operations
Reservoir South End	9160,3978, 3250,	Electric Motors		Reservoir	Daily Maintenance Pressure

1.5.2 DELUGE AND FOAM SYSTEMS

LPG spheres and spheroid tanks are protected with deluge water spray systems. These systems are either automatically or manually deluged. Lines supplied from fire hydrants located around each sphere can supplement the spray system and may provide cooling for piping and structural supports involved in a fire.

Fixed roof storage tanks are generally protected with fixed firefighting foam chambers or subsurface foam capabilities. Covered floating roof tanks are generally equipped with fixed foam systems and foam dams for the seal area of the tank.

1.5.3 FIRE FIGHTING SUPPORT VEHICLES AND EQUIPMENT

The Martinez Refinery has several firefighting support vehicles and equipment listed in Table 5.

TABLE 5

Firefighting Support Vehicles and Equipment

Vehicle	Capacity	Supplies
Engine 1	3,500 gpm	1,000 gal. 1% AFFF/ATC foam.
Engine 6	500 gpm	500 gal. H2O, 30 gal. 1% AFFF/ATC, 350 gpm monitor, Rescue Equipment
Snorkel 75' Aerial	1,500 gpm	1,000 gal. 1% AFFF/ATC foam
Truck 2 Aerial	3,000 gpm	800 gal. 1% AFFF/ATC foam
Foam Tender		3,000 gal. 1% AFFF/ATC foam.
IC Vehicle		Command support materials.
Brush Truck (Ford 550)	60 gpm water pump	500 gal. H20 and Grass fire equipment.
Attack 3 Pickup 4 Door	150-1,000 gpm monitor	80 gal. 1% AFFF/ATC foam Hose bundle, portable Monitor.
Attack 5 Pickup 4 Door	150-1500 gpm Daspit Monitor	Daspit Mounting Plate and Daspit Portable tank rim monitor
Attack 7 Pickup 4 Door	150-1,500 gpm monitor	65 gal. 1% AFFF/ATC foam, portable monitors, hose bundles.
Attack 9 Pickup 4 Door	150-1,500 gpm monitor	80 gallons 1% AFFF/ATC foam, Hose bundle, portable monitor.
Attack 10 Pickup 4 Door	150-1,500 gpm monitor	80 gallons 1% AFFF/ATC foam Hose bundle, portable monitor
L 9000 Tractor	400 ft 5" Hose	Transports foam and pump trailers
Trailer #1		2,000 gal. AFFF/ATC foam, 600' 5" hose, (2) 2000 GPM foam monitors
Trailer #2	450 gpm foam pump	4,200 gal. 3% AFFF/ATC foam,
Trailer #3	450 gpm foam pump	4,000 gal. 3% AFFF/ATC foam Hand portable high volume monitors
Trailer #6	6,000 gpm pump	
Large 5" Hose Trailer	4,000 ft. 5" LDH Hose	Laid in 8 Beds,
Small 5" Hose Trailer #1	800 ft. 5" LDH Hose	Laid in 2 Beds, with hydrant connection kits
Small 5" Hose Trailer #2	800 ft. 5" LDH Hose	Laid in 2 Beds, with hydrant connection kits
3" Hose Trailer	3,200 ft. 3" Hose	Laid in 4 Beds
Portable Monitors /Foam Carts	500 gpm 150 gpm	Pre-positioned at various operating areas

Fire hydrants are located throughout the Refinery, with most potential fire areas covered by at least two hydrants. Fire hydrants are spaced 200 feet apart in the process areas and tank farms.

1.5.4 SPILL RESPONSE

The Refinery is equipped with secondary containment as required in the Spill Response, Control, and Countermeasure Plan. Additional spill response equipment is supplied through commercial contracts with suppliers/contractors that specialize in spill cleanup. Commercial contractors that specialize in oil cleanup are employed to place any additional booms or other spill capture equipment, if necessary, and to remove oil from the water, if the oil is released into waterways.

1.5.5 REFINERY SAFETY PLANS

To comply with the regulations described in Section 1.6, the Martinez Refinery has in place a number of focused safety and emergency response documents. These include:

- Risk Management Plan (RMP)
- California Accidental Release Program (CalARP)
- Spill Prevention Control and Countermeasures Plan
- Facility Response Plan
- Hazardous Waste Contingency Plan
- Safety Plan (under Contra Costa Ordinance 98-48)
- Emergency Response Plan

These documents, along with and other general industry safety standards under Title 8 CCR (e.g. Injury, Illness and Prevention Plan, Confined Space Entry Program, etc.) and Marathon-specific procedures comprise a comprehensive safety and emergency prevention, and response program.

1.6 REGULATORY BACKGROUND

Below is a list of federal, state, and local laws and regulations that apply to Renewable Fuels facilities, such as the one under consideration at Martinez.

1.6.1 FEDERAL REGULATIONS

1.6.1.1 U.S. EPA Emergency Planning and Community Right-to-Know Act (EPCRA)

The objective of the EPCRA is to: (1) allow state and local planning for chemical emergencies, (2) provide for notification of emergency releases of chemicals, and (3) address communities' right-to-know about toxic and hazardous chemicals. EPCRA §302 requires facilities to notify the State Emergency Response Commission and any Local Emergency Response Committees of the presence of any "extremely hazardous substance" (the list of such substances is in 40, CFR Part 355) if it has such a substance in excess of the substance's threshold planning quantity, and directs the facility to appoint an emergency response coordinator. Implementation of EPCRA has been delegated to the State of California. The California Emergency Management Agency requires businesses to develop a Hazardous Materials Business Plan if they handle (including storage) hazardous materials in quantities equal to or greater than 55 gallons, 500 pounds, or 200 cubic feet of gas or extremely hazardous substances above the threshold planning quantity. The Plan includes inventories of hazardous materials, an emergency plan, and implements a training

program for employees. This plan is required to be submitted to the Certified Unified Permitting Agencies (CUPA), which is Contra Costa County Health Services in the Martinez area, for use by State and local emergency response agencies.

1.6.1.2 Department of Transportation Hazardous Materials Regulations (Title 49 CFR Parts 100-185)

The U.S. DOT Hazardous Materials Regulations cover all aspects of hazardous materials packaging, handling, and transportation. Parts 172 (Emergency Response), 173 (Packaging Requirements), 174 (Rail Transportation), 177 (Highway Transportation), 178 (Packaging Specifications) and 180 (Packaging Maintenance) would all apply to the proposed project activities.

1.6.1.3 The Hazardous Materials Transportation Act, (49 CFR 171 Subchapter C)

The Hazardous Materials Transportation Act (HMTA) is the federal legislation that regulates transportation of hazardous materials. The primary objective of the HMTA is to provide adequate protection against the risks to life and property inherent in the transportation of hazardous material in commerce by improving the regulatory and enforcement authority of the Secretary of Transportation. A hazardous material, as defined by the Secretary of Transportation, is any "particular quantity or form" of a material that "may pose an unreasonable risk to health and safety or property." The primary regulatory authorities are the U.S. DOT, the Federal Highway Administration, and the Federal Railroad Administration. The HMTA requires that carriers report accidental releases of hazardous materials to the U.S. DOT at the earliest practical moment (49 CFR Subchapter C). Incidents that must be reported include deaths, injuries requiring hospitalization, and property damage exceeding $50,000. The California Department of Transportation (Caltrans) sets similar standards for trucks in California. The Caltrans and federal regulations are enforced by the California Highway Patrol (CHP).

1.6.1.4 Hazardous Materials and Waste Regulations

Resource Conservation and Recovery Act: The Resource Conservation and Recovery Act of 1976 authorizes the U.S. EPA to control the generation, transportation, treatment, storage, and disposal of hazardous waste. This federal regulation is codified in 40 CFR. In 1984, the Resource Conservation and Recovery Act was amended with addition of the Hazardous and Solid Waste Amendments, which authorized increased enforcement by the U.S. EPA, more strict hazardous waste standards, and a comprehensive underground storage tank program. Likewise, the Hazardous and Solid Waste Amendments focused on waste reduction and corrective action for hazardous releases. The use of certain techniques for the disposal of some hazardous wastes was specifically prohibited by the Hazardous and Solid Waste Amendments. Individual states, including California, may implement their own hazardous waste programs under the Resource Conservation and Recovery Act, with approval by the U.S. EPA. In 1992, the California Department of Toxic Substances Control received authorization from the U.S. EPA to implement the Resources Conservation Recovery Act, Subtitle C requirements and the associated regulations in California.

1.6.1.5 Oil Storage and Pipeline Regulations

Oil Pollution Act: The Oil Pollution Act was signed into law in 1990 to give the federal government authority to better respond to oil spills. The Oil Pollution Act improved the federal government's ability to prevent and respond to oil spills, including provision of money and resources. The Oil Pollution Act provides a mechanism for establishing polluter liability, gives states enforcement rights in navigable waters of a state, mandates the development of spill control and response plans for all vessels and facilities, increases fines and enforcement mechanisms, and establishes a federal trust fund for financing clean-up.

The Oil Pollution Act also establishes the National Oil Spill Liability Trust Fund to provide financing for cases in which the responsible party is either not readily identifiable, or cannot pay the cleanup/damage costs. In addition, the Oil Pollution Act expands provisions of the National Oil and Hazardous Substances Pollution Contingency Plan, more commonly called the National Contingency Plan, requiring the federal government to direct all public and private oil spill response efforts. The Oil Pollution Act also requires area committees, composed of federal, state, and local government officials, to develop detailed, location-specific area contingency plans. In addition, the Oil Pollution Act directs owners and operators of vessels, and certain facilities that pose a serious threat to the environment, to prepare their own specific facility response plans. The Oil Pollution Act increases penalties for regulatory non-compliance by responsible parties; gives the federal government broad enforcement authority; and provides individual states the authority to establish their own laws governing oil spills, prevention measures, and response methods.

U.S. Department of Transportation, Office of Pipeline Safety: The Office of Pipeline Safety, within the U.S. DOT, PHMSA, has jurisdictional responsibility for ensuring the safe and secure movement of hazardous liquid and gas through pipelines under its jurisdiction in the United States. Title 49 of the U.S.C. relates to the role of transportation, including pipelines, in the United States. 49 CFR Parts 190-199 establish minimum pipeline safety standards. The Office of the State Fire Marshal works in partnership with the PHMSA to assure pipeline operators are meeting requirements for safe, reliable, and environmentally sound operation of their facilities for intrastate pipelines within California.

> **49 CFR Part 190 – Pipeline Safety Procedures:** 49 CFR Part 190 outlines the pipeline safety programs and rulemaking procedures utilized by the Pipeline and Hazardous Materials Safety Administration under Title 49 U.S.C. 60101 et seq. (pipeline safety laws) and Title 49 U.S.C. 5101 et seq. (hazardous material transportation laws).
>
> **49 CFR Part 194 – Response Plans for Onshore Oil Pipelines:** 49 CFR Part 194 outlines requirements for oil spill response plans to reduce/mitigate the environmental impact of oil discharges from onshore oil pipelines. 49 CFR Part 194 covers general response plan requirements as well as reporting and approval procedures for onshore oil pipelines.
>
> **49 CFR Part 195 – Transportation of Hazardous Liquids by Pipeline:** 49 CFR Part 195 contains regulations authorized by the Hazardous Liquid Pipeline Safety Act of 1979

for the design, construction, testing, operation, and maintenance of pipelines, including pressure testing requirements for pipeline components (valves, pumps, and tie-ins) as well as above ground breakout tanks. 49 CFR Part 195 also prescribes safety standards and reporting requirements for pipeline facilities used in the transportation of hazardous liquids or carbon dioxide, and outlines procedures for pipeline facility operations and maintenance, including but not limited to, qualifications of pipeline personnel and pipeline corrosion control. Because the requirements found within 49 CFR Part 195 are applicable only to interstate pipelines, the pipelines included as part of the proposed project would not be regulated under this provision, but would be regulated by the California Pipeline Safety Act and the Pipeline Safety Division of the Office of the State Fire Marshal.

49 CFR Part 195(b) – Hazardous Liquid Accident Database: 49 CFR Part 195(b) requires liquid pipeline operators to report any spills and/or accidents to the U.S. DOT if they meet one or more of the following criteria: (1) explosion or fire not intentionally set by the operator; (2) loss of 50 or more barrels of hazardous liquid or carbon dioxide; (3) escape to the atmosphere of more than five barrels a day of highly volatile liquids; (4) death of any person; (5) bodily harm to any person resulting in loss of consciousness, a person is required to be carried from the scene, a person requires medical treatment, or a person is disabled and prevented from normal duties or the pursuit of normal activities beyond the day of the accident; or (6) estimated property damage, including cost of clean-up and recovery, value of lost product, and damage to the property of the operator or others, or both, exceeding $50,000.

1.6.1.6 Accidental Release – Risk management Plans (40 CFR Part 68)

The RMP rule requires facilities that use extremely hazardous substances to develop a Risk Management Plan which identifies the potential effects of a chemical accident, identifies steps the facility is taking to prevent an accident, and spells out emergency response procedures should an accident occur. These plans provide information to local fire, police, and emergency response personnel to prepare for and respond to chemical emergencies in their community. The RMP rule was built upon existing industry codes and standards. It requires facilities that use listed regulated Toxic or Flammable Substances for Accidental Release Prevention to develop an RMP and submit that plan to EPA.

1.6.1.7 Other Federal Regulations

Chemical Facility Anti-Terrorism Standards: The Chemical Facility Anti-terrorism Standards are a set of U.S. Government security regulations for high-risk chemical facilities such as chemical plants, electrical generating facilities, refineries, and universities. The Federal Department of Homeland Security promulgated the final rule containing the Chemical Facility Anti-terrorism standards in 2007. This rule established risk-based performance standards for the security of chemical facilities. It requires covered chemical facilities to prepare Security Vulnerability Assessments, which identify facility security vulnerabilities, and to develop and implement Site Security Plans.

Spill Prevention, Control, and Countermeasure (SPCC) Rule (40 CFR Part 112): The SPCC rule includes requirements for oil spill prevention, preparedness, and response to prevent oil discharges to navigable waters and adjoining shorelines. The rule requires specific facilities to prepare, amend, and implement SPCC Plans. SPCC Plans require applicable facilities to take steps to prevent oil spills including: (1) using suitable storage containers/tanks; (2) providing overfill prevention, e.g., high-level alarms; (3) providing secondary containment for bulk storage tanks; (4) providing secondary containment to catch oil spills during transfer activities; and (5) periodically inspecting and testing pipes and containers. The SPCC rule is part of the Oil Pollution Prevention regulations.

1.6.2 STATE REGULATIONS

1.6.2.1 Hazardous Materials and Waste Regulations

California Hazardous Waste Control Law: The California Hazardous Waste Control Law is administered by the California Environmental Protection Agency (CalEPA) to regulate hazardous wastes within the State of California. While the California Hazardous Waste Control Law is generally more stringent than the Resource Conservation and Recovery Act, both the state and federal laws apply in California. The Department of Toxic Substance Control (DTSC), one of six departments that comprises the CalEPA, is the primary agency in charge of enforcing both the federal and state hazardous materials laws in California. The DTSC regulates hazardous waste, oversees the cleanup of existing contamination, and pursues avenues to reduce hazardous waste produced in California. The DTSC regulates hazardous waste in California under the authority of the Resource Conservation and Recovery Act, the California Hazardous Waste Control Law, and the California Health and Safety Code. Under the direction of the CalEPA, the DTSC maintains the Cortese and Envirostor databases of hazardous materials and waste sites as specified under Government Code §65962.5.

The Hazardous Waste Control Law (22 CCR Chapter 11, Appendix X) also lists 791 chemicals and approximately 300 common materials which may be hazardous; establishes criteria for identifying, packaging, and labeling hazardous wastes; prescribes management controls; establishes permit requirements for treatment, storage, disposal, and transportation; and identifies some wastes that cannot be disposed of in landfills.

California Occupational Safety and Health Administration (CalOSHA): CalOSHA is the primary agency responsible for worker safety in the handling and use of chemicals in the workplace. CalOSHA requires the employer to monitor worker exposure to listed hazardous substances and notify workers of exposure (8 CCR Sections 337-340). The regulations specify requirements for employee training, availability of safety equipment, accident-prevention programs, and hazardous substance exposure warnings. The CalOSHA standards are generally more stringent than federal regulations.

Hazardous Materials Release Notification: Many state statutes require emergency notification of a hazardous chemical release, including:

- California Health and Safety Code §§ 25270.7, 25270.8, and 25507;

- California Vehicle Code § 23112.5;
- California Public Utilities Code § 7673 (General Orders #22-B, 161);
- California Government Code §§ 51018 and 8670.25.5(a);
- California Water Code §§ 13271 and 13272; and,
- California Labor Code § 6409.1(b)10.

California Accident Release Prevention (CalARP) Program: The CalARP Program (19 CCR Division 2, Chapter 4.5) requires the preparation of Risk Management Plans (RMPs). RMPs are documents prepared by the owner or operator of a stationary source and contain detailed information including: (1) regulated substances held on-site at the stationary source; (2) off-site consequences of an accidental release of a regulated substance; (3) the accident history at the stationary source; (4) the emergency response program for the stationary source; (5) coordination with local emergency responders; (6) hazard review or process hazard analysis; (7) operating procedures at the stationary source; (8) training of the stationary source's personnel; (9) maintenance and mechanical integrity of the stationary source's physical plant; and (10) incident investigation.

Hazardous Materials Disclosure Program: The Unified Program administered by the State of California consolidates, coordinates, and makes consistent the administrative requirements, permits, inspections, and enforcement activities for the state's environmental and emergency management programs, which include: Hazardous Materials Release Response Plans and Inventories (business plans), the CalARP Program, the Underground Storage Tank Program, the Aboveground Petroleum Storage Tank Program, the Hazardous Waste Generator and On-site Hazardous Waste Treatment (tiered permitting) Programs, and the California Uniform Fire Code, Hazardous Material Management Plans and Hazardous Material Inventory Statements. The Unified Program is implemented at the local government level by CUPAs. Contra Costa County is the CUPA for the county.

Hazardous Materials Management Act: The State of California (California Health and Safety Code Division 20, Chapter 6.95) requires any business that handles more than a specified amount of hazardous or extremely hazardous materials, termed a "reportable quantity," to submit a Hazardous Materials Business Plan to its CUPA. Business plans must include an inventory of the types, quantities, and locations of hazardous materials at the facility. Businesses are required to update their business plans at least once every three years and the chemical portion of their plans every year. Also, business plans must include emergency response plans and procedures to be used in the event of a significant or threatened significant release of a hazardous material. These plans must identify the procedures to follow for immediate notification to all appropriate agencies and personnel of a release, identification of local emergency medical assistance appropriate for potential accident scenarios, contact information for all company emergency coordinators, a listing and location of emergency equipment at the business, an evacuation plan, and a training program for business personnel. The requirements for hazardous materials

business plans are specified in the California Health and Safety Code as noted above and 19 CCR.

Hazardous Materials Transportation in California: California regulates the transportation of hazardous waste originating or passing through the State in Title 13, CCR. The CHP and Caltrans have primary responsibility for enforcing federal and State regulations and responding to hazardous materials transportation emergencies. The CHP enforces materials and hazardous waste labeling and packing regulations that prevent leakage and spills of material in transit and provide detailed information to cleanup crews in the event of an incident. Vehicle and equipment inspection, shipment preparation, container identification, and shipping documentation are all part of the responsibility of the CHP. Caltrans has emergency chemical spill identification teams at locations throughout the State.

Process Safety Management of Acutely Hazardous Chemicals (CCR § 5189): These regulations contain requirements for preventing or minimizing the consequences of catastrophic releases of toxic, reactive, flammable or explosive chemicals. The establishment of process safety management regulations are intended to eliminate to a substantial degree, the risks to which employees are exposed in petroleum refineries, chemical plants and other facilities. California is a "State Plan" jurisdiction for federal OSHA regulations and this rule is the state version of federal PSM rules.

1.6.2.2 Oil Production and Pipeline Regulations and Oversight

Overview of California Pipeline Safety Regulations: State of California laws found at Part 51010 through 51018 of the Government Code provide specific safety requirements, including: (1) periodic hydrostatic testing of pipelines, with specific accuracy requirements on leak rate determination; (2) hydrostatic testing by state-certified independent pipeline testing firms; (3) pipeline leak detection; and, (4) reporting of all leaks. Recent amendments require pipelines to include means of leak prevention and cathodic protection, with acceptability to be determined by the State Fire Marshal. All new pipelines must also be designed to accommodate passage of instrumented inspection devices (smart pigs) through the pipeline.

Oil Pipeline Environmental Responsibility Act (California Civil Code Section 3333.4): This Act requires every pipeline corporation qualifying as a public utility and transporting crude oil in a public utility oil pipeline system to be held strictly liable for any damages incurred by "any injured party which arise out of, or are caused by, the discharge or leaking of crude oil or any fraction thereof."

1.6.2.3 Local Regulations

Contra Costa County has adopted an industrial safety ordinance (Municipal Code 450-8) that addresses the human factors that lead to accidents. The ordinance requires stationary sources to develop a written human factors program that considers human factors as part of process hazards analyses, incident investigations, training, operating procedures, among others.

1.7 SIGNIFICANCE THRESHOLDS

A project would cause an adverse impact related to hazards and hazardous materials if it would:

- Create a significant hazard to the public or the environment through the routine transport, use or disposal of hazardous materials; or,
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous material into the environment.

1.8 PROJECT HAZARD IMPACTS

The project hazard impacts are focused on whether the project has the potential to create a significant hazard to the public or environment due to the routine transport, use or disposal of hazardous materials or through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.

The potential project hazard impacts associated with the following were determined to be less than significant in the initial study prepared for the project for the following (see Appendix A). No public comments were received to the contrary.

- Emit hazardous emissions within one-quarter mile of an existing or proposed school site.
- Be located on a site that is included on a list of hazardous materials sites complied pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment.
- For a project located within an airport land use plan or, where such a plan has not been adopted, be within two miles of a public airport or public use airport, and result in a safety hazard for people residing or working in the project area.
- Impair implementation or physically interfere with an adopted emergency response plan or emergency evacuation plan.
- Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires.

1.8.1 OVERALL FACILITY HAZARDS

The processing activities under the proposed project would be similar to activities that are currently being conducted at the Refinery. The primary change that would occur at the facility would be a change in feedstock from fossil fuels (crude oil) to renewable sources (rendered fats and vegetable oils) for a transition from fossil fuel petroleum refining into a renewable fuels facility. Some physical changes or modifications are required to change the refining process from fossil fuels to renewable sources. New units that would be constructed include a Thermal Oxidizer, Pretreatment Unit, and Wastewater Treatment Unit. Currently, the Refinery can process up to 161,000 bpd of crude oil. The proposed project will reduce the total amount of refined feedstock processed to 48,000 bpd.

Under Contra Costa County Municipal Code 450-8, the Refinery is classified as an Industrial Safety Ordinance (ISO) facility. Under these regulations, Contra Costa County quantifies the magnitude of hazardous risk with a Hazard Score. The Hazard Score is used to determine if a project would pose a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. The formula for Hazard Score is based on a combination of "Transportation Risk", "Community Risk", and "Facility Risk". The "Transportation Risk" is based on a combination of the type of transport (truck, rail, etc.) and quantity of material transported (new material, 5% increase, 25% increase, etc). The "Community Risk" is based on the type of receptor (sensitive, residential, commercial) and distance of the hazard to the receptor. The "Facility Risk" is based on the size of the project (tons of hazardous materials) and the percent change in hazardous material from the baseline to the project. If more than one category of hazardous material or hazardous waste is used, the Hazard Score is calculated separately for each material category. The material hazard category which results in the highest Hazard Score is the Hazard Score for the project. Per Contra Costa County Municipal Code 84-63.1002(a), a project with a Hazard Score of eighty or more is significant and subject to additional review prior to the issuance of a land use permit.

As previously mentioned, the proposed project will convert the Refinery from fossil fuel refining to renewable fuels facility, however the Renewable Fuels Facility will be designed and constructed to comply with all NFPA codes and regulations as well as ongoing compliance with these same safety codes for existing equipment that will continue to operate. The change from fossil fuel to renewable feedstock will change the Hazard Category of some of the hazardous material. The Hazard Category of the materials that will be affected by the proposed project is either Hazard Category B (flammable liquids) or Hazard Category C (combustible liquids), as defined by the Contra Costa County Municipal Code. The change in hazard category from the conversion from fossil fuels to renewable fuels will either keep the hazard category as Hazard Category B or reduce the hazard of the material to Hazard Category C. Table 6 summarizes the Hazard Scores of all the new or increase in hazardous materials for each transportation mode. All the scores are below eighty, therefore, the magnitude of hazardous risk from the proposed project is considered less than significant under Contra Costa County's municipal code.

TABLE 6

Hazard Score Summary

Transportation Mode	Sensitive Receptor Score	Residential Receptor Score	Commercial Receptor Score
Trucks	58	61	73
Rail	57	64	**76**
Ships	58	61	72

Changing the Refinery from processing crude oil to processing renewable feedstocks will reduce or eliminate certain hazardous and toxic materials at the facility. Renewable feedstocks (vegetable oils, soybean oil, rendered fats, and other miscellaneous renewable feedstocks) are by-products of edible food products and are less hazardous than crude oil. Renewable feedstocks

are less hazardous than crude oil because they essentially have no vapor pressure and, therefore, do not volatilize and are not flammable. There will be a reduction in air toxics such as hydrogen sulfide and benzene handled at the facility, because renewable feedstocks generally do not contain detectable levels of sulfur or benzene which is present in petroleum products. Crude oil contains various types of hydrocarbons including propane and butane which are volatile and flammable, and various types of toxic air contaminants, e.g., benzene and heavy metals. Reductions in hazards have not been assumed in the Hazard Scores included in Table 6.

In addition to the above, a number of refinery units will be shut down resulting in the operation of fewer units, boilers, vessels, towers, columns, fugitive emissions and other similar equipment, generally reducing the overall hazards associated with the operation of the Martinez Facility. Table 7 below summarizes the equipment changes required for the proposed project. The reduction in operating equipment reduces the potential hazards from the facility.

TABLE 7

Summary of Project Changes

Units Shutdown	Units Repurposed/Altered	Units Purchased/Built	Units Kept As-Is (Change in Capacity)
• Delayed Coker • Crude Units No. 3 & No. 50 • No. 4 HDS Unit • Alkylation Unit • No. 4 Gas Plant • No. 2 Catalytic Reformer • No. 3 UOP Platforming Unit • Sulfur Recovery Unit (Chem Plant) • Benzene Saturation Unit • Fluid Catalytic Cracking Unit • Boilers #6 and #7 • #1 and #2 Feed Pre (Vacuum Units)	• No. 3 HDS • No. 1 Hydrogen Plant • Delayed Coker Heater No. 1 to Hot Oil Heater • Hydrocracker 1st Stage • Hydrocracker 2nd Stage • No. 2 HDS • No. 5 Gas Plant • No. 1 Gas Plant • Select Storage Tanks	• Sour Water Stripper Thermal Oxidizer • Pretreatment Unit • Stage 1 Wastewater Treatment Unit	• Loading/unloading facilities • Cooling towers • Flares • No. 1 HDS • Wastewater Treatment Units • No. 2 Hydrogen Plant (third party owned & operated) • Martinez Cogen Plant (third party owned & operated) • Storage tanks not "repurposed or altered"

HDS = Hydrodesulfurization

The proposed project may require changes to existing storage tanks in order to store renewable feedstocks, intermediate products, and final products. Storage tank changes are expected to be limited to modifications to permits to allow the storage of different materials and installation of heating units and mixers to tanks to keep renewable feedstocks in liquid form. The primary change in the storage of material at the Martinez Facility will be that crude oil will no longer be stored onsite. Instead renewable feedstocks (vegetable oils, soybean oil, rendered fats, and other miscellaneous renewable feedstocks) would be used and stored onsite. As discussed above, renewable feedstocks are less hazardous than crude oil, because they essentially have no vapor pressure and, therefore, do not volatilize; and do not contain detectable levels of sulfur or benzene. Therefore, overall there would be a reduction in hazards associated with the use of renewable feedstocks as compared to crude oil.

In the course of doing business, Marathon may continue to use/handle hazardous materials (e.g., fuels to operate equipment). A number of existing regulations apply to the use, handling, storage, and disposal of hazardous materials. Health and Safety Code §25506 specifically requires all businesses handling hazardous materials to submit a business emergency response plan to assist local administering agencies in the emergency release or threatened release of a hazardous material. This plan is expected to require updating to reflect the changes in operations associated with the proposed project.

The use of hazardous materials is Cal/OSHA regulations and procedures, including providing adequate ventilation, using recommended personal protective equipment and clothing, posting appropriate signs and warnings, and providing adequate worker health and safety training. The exposure of employees is regulated by Cal-OSHA in Title 8 of the CCR. Specifically, 8 CCR 5155 establishes permissible exposure levels (PELs) and short-term exposure levels (STELs) for various chemicals. These requirements apply to all employees. The PELs and STELs establish levels below which no adverse health effects are expected. These requirements protect the health and safety of the workers, as well as the nearby population including sensitive receptors.

Facilities using a minimum amount of hazardous materials are required to formulate detailed contingency plans to eliminate, or at least minimize, the possibility and effect of fires, explosion, or spills. In conjunction with the California Office of Emergency Services, local jurisdictions have enacted ordinances that set standards for area and business emergency response plans. These requirements include immediate notification, mitigation of an actual or threatened release of a hazardous material, and evacuation of the emergency area. One such local regulation is the Contra Costa County Industrial Safety Ordinance (ISO). Under Contra Costa County Municipal Code 450-8, the Refinery is classified as an ISO facility. This ordinance expands on the California Accidental Release Prevention Program. The program helps prevent accidental release of hazardous chemicals; improve accident prevention by soliciting participation from industry and the community; require industry to submit a Safety Plan; and conduct audits of the plans and inspections of the industrial plants.

The above regulations provide comprehensive measures to reduce hazards of explosive or otherwise hazardous materials. Continued compliance with these and other federal, state and local regulations and proper operation and maintenance of equipment minimizing the potential impacts of hazardous materials.

1.8.2 TRUCK HAZARDS

Marathon receives various commodities for use in the production of fuels by way of truck transport on a daily basis (see Table 8). Some of the finished commodities produced at the facility are also delivered to end users via truck transport on a daily basis. Trucks associated with the operating refinery were approximately an annual average (2015-2020) of 205 trucks per day (74,894 trucks per year), 37 percent associated with the transport of petroleum coke, 29 percent being used for the delivery of gasoline to the Bay Area, and 13 percent associated with transportation of miscellaneous commodities. Other commodities transported included propane (6 percent), diesel (7 percent), molten sulfur (3 percent), ethanol (3 percent) and sulfuric acid (2 percent).

The truck transport of finished commodities as a result of the project is anticipated to be less than the annual average Refinery operations from 2015 – 2020 (see Table 8). Overall, the project is expected to result in a decrease in truck transport due to the shutdown of the coker and sulfur plant, which previously accounted for a substantial portion of the total truck traffic associated with the delivery of petroleum coke and molten sulfur produced at the facility.

TABLE 8

Summary of Commodities Transported by Truck

Commodity	Annual Trucks Pre-Project*	Annual Trucks Post-Project
Gasoline	21,510	14,600
BioDiesel	89	183
Diesel	4,957	365
Propane	4,368	
Ethanol	2,148	1,460
Miscellaneous	9,915	10,950
Ammonia	470	--
Petroleum Coke	27,752	--
Molten Sulfur	2,103	--
Sulfuric Acid	1,472	--
Renewable Diesel	--	36,502
DMDS	--	45
Citric Acid	--	1,286
Wastewater Solids	**--**	**503**
TOTAL	**74,784**	**65,894**
TOTAL (trucks per day)	**205**	**181**

*Pre-Project is the average annual trucks from October 2015 to September 2020.

Post-project, the majority of truck operations will be to transport renewable diesel and gasoline within the Bay Area. An estimated 181 trucks per day (65,894 trucks per year) will be required

to transport renewable diesel (55 percent of the trucks) and gasoline (22 percent of the trucks) to their distribution locations. Most of the trucks associated with the project are expected to travel within the Bay Area, although some are expected to come from outside the Bay Area.

Based on the above, the hazards associated with truck transport would be expected to decrease because fewer trucks would be transporting materials. Further, the major portion of the trucks would continue to be those associated with the transport of gasoline and diesel into retail locations in the Bay Area, in volumes similar to those currently transported by the Marathon Refinery. No significant increase in hazards associated with truck traffic is expected due to the proposed project.

1.8.3 RAIL TRANSPORTATION HAZARDS

Railcars are used to transport various commodities over longer distances, typically outside the Bay Area, and outside the state of California. The existing operating refinery transports a number of commodities via rail including ammonia, propane/propylene, butanes, and sulfuric acid. Between October 2015 and September 2020, the Refinery transported commodities in approximately 4,256 railcars per year or an average of 12 railcars per day, most of which were used to transport propane and butanes (3,366 railcars per year) (see Table 9).

TABLE 9

Summary of Commodities Transported by Rail Statewide

Commodity	Annual Railcars Pre-Project*	Annual Railcars Post-Project
Propane	233	1,965
Propylene	521	--
Butane/Mixed Butanes/Iso-butanes	2,845	--
Renewable Feedstocks	--	19,746
Ethanol	632	429
Biodiesel	25	51
TOTAL	**4,256**	**22,191**

*Pre-Project is the average annual trucks from October 2015 to September 2020.

As a result of the project, some commodities will no longer be transported via rail, including butane, iso-butane, and propylene. However, rail transport is anticipated to increase post-project due to the movement of the renewable feedstock which includes vegetable oils (e.g., soybean oil and corn oil), rendered fats, and other miscellaneous renewable feedstocks. Following completion of construction of the proposed project, the facility is expected to require approximately 22,191 railcars per year or an average of 61 per day, the majority of which (89 percent or 19,746) are expected to be renewable feedstock coming from the mid-western portion of the United States.

The project is proposing to transport the renewable fuels feedstock via rail to a yet to be determined third party terminal because the Refinery is not equipped to unload renewable

feedstock from rail. The third-party terminals could be as far away as Stockton, at which point the renewable feedstock would be transferred onto a barge (or other vessel type) and delivered to the Marathon facility via the Avon Terminal. Other third-party facilities closer to Martinez could also be used and could include facilities where railcars could be transported to, unloaded, and the feedstock transported to Marathon via existing modes of surface transportation.

The rail traffic directly into the Martinez facility is not expected to substantially change due to the Renewable Fuels operations. The main change is that some renewable fuels feedstock (approximately 3,900 railcars per year) could be delivered to the Martinez Facility via rail. The remainder of the renewable feedstocks would be delivered to a third party terminal. As discussed above, renewable feedstocks (vegetable, beef tallow, etc.) are non-hazardous because they essentially have no vapor pressure and therefore, do not volatilize. Therefore, overall there would be a reduction in hazards associated with the use of renewable feedstocks as compared to crude oil.

Propane would continue to be transported via rail. Railcars containing propane would continue to be directly loaded/unloaded at the Martinez Renewable Fuels Facility. In addition, because propane is currently transported by rail, the consequences of an accidental release of propane would not change and, therefore, the potential hazard impact related to rail transport from the proposed project is less than significant.

1.8.4 MARINE VESSEL HAZARDS

The main change associated with the proposed project is that crude oil, the major portion of which is delivered to the Martinez Facility via marine vessel, will no longer be used as a feedstock. Instead renewable feedstocks will be delivered to the Martinez Facility via marine vessel and rail.

Under the proposed project, the Amorco and Avon Marine Terminals are expected to handle similar throughput volumes, using smaller vessels. Crude oil is typically delivered to the marine terminals by marine tankers with capacities of up to 750,000 barrels per vessel (bbls/vessel). Under the proposed project, the majority of the renewable fuels feedstock is expected to be delivered in smaller barges with capacities of 25,000 to 50,000 bbl/vessel, thus resulting in smaller, but more marine vessels (up to approximately 400 vessels per year) (see Table 10). A smaller percentage of the renewable feedstock will be delivered by smaller tanker vessels with capacities of approximately 260,000 barrels per vessel to Avon. In addition, current petroleum-based terminal operations would continue.

TABLE 10

Summary of Marine Vessel Visits

Marine Terminal	Annual Vessel Visits Pre-Project	Annual Vessel Visits Post-Project
Amorco	90	40
Avon	120	364
TOTAL	**210**	**404**

No major changes are required to the Amorco or Avon Marine Terminals that would change the assumptions used in the modeling conducted for the reasonable worst-case oil spill and release (i.e., the volumes and conditions used to model the oil spills would remain unchanged from the existing conditions). Further, the size of the vessels that would visit the marine terminal are expected to be smaller. Barges in the range of 25,000 to 50,000 bbls would be more frequent visitors to the terminals than tankers with capacities up to 750,000 bbls/vessel. Therefore, the proposed project would not be expected to result in any changes/increases in the portions of the Bay that would be impacted in the event of a spill. In fact, the hazards would be expected to decrease as smaller marine vessels would be used.

Finally, the proposed project would change the feedstocks delivered to the Martinez Facility from crude oil to renewable feedstocks (vegetable oils, soybean oil, rendered fats, and other miscellaneous renewable feedstocks). The renewable feedstocks are less toxic and hazardous than crude oil and would be expected to result in reduced impacts to the environment in the event of a spill. Based on the above, the proposed project is not expected to result in any increase in hazards associated with the transport of material via marine vessel.

1.8.5 PIPELINE HAZARDS

Pipelines are generally considered to be the one of the safest methods to transport liquid bulk materials as they avoid potential accidents associated with truck travel on roads, rail transport, and marine vessel. The proposed project is proposing to use existing pipelines and no new pipelines are included as part of the project. No new pipelines are proposed as part of the project. Further, the transport of renewable feedstock via pipeline would result in fewer hazards than the transport of crude or other petroleum products because the feedstocks are not hazardous and have essentially no vapor pressure. Therefore, the project will not result in any increased hazards associated with the conversion to renewable feedstocks.

1.8.6 HAZARD IMPACTS DURING CONSTRUCTION

The Martinez Facility is known to have groundwater and soil contamination that have been and will continue to be remediated and managed under RWQCB oversight. Extensive soil and groundwater investigations have been conducted at the site with the oversight of the RWQCB as discussed in Subsections 1.4.

The construction phase of the proposed project may require construction workers to excavate soil for the construction of foundations for the Pretreatment Unit. Therefore, construction workers could encounter contaminated soils and groundwater during site excavation. Generally, a hazards analysis focuses on impacts to off-site receptors because they are unlikely to have undergone safety training or have safety equipment available in the event of a hazard event. On-site workers are provided with protection against many types of hazard impacts as a result of having access to safety equipment, participating in safety exercises, and undergoing profession-specific training to safely work around the potentially hazardous conditions that exist within a refinery. Further, extensive rules, regulations, laws, and other requirements are in place, specifically designed to ensure a safe working environment for industrial workers, including refinery workers and construction workers. The following analysis of potential hazard impacts during construction identifies potential hazards during construction and whether such hazards could pose significant risks to off-site receptors. Effects of any construction hazards identified will also be evaluated for construction workers.

All excavated soil will be handled per the Refinery's Management Plan for Excavated Soil. This plan details the process for soil handling, excavation planning and soil management, and minimization of VOC emissions and fugitive-dust controls. The Management Plan for Excavated Soil will be followed prior to and during the excavation of soil within the Martinez Refinery property boundaries, consistent with any refinery excavation projects. Site characterization sampling will be taken throughout the construction zone to develop a project-specific Soil Management Plan.

The total depth of excavations necessary to install the foundations for the proposed project components are expected to be four feet deep with pilings drilled to approximately 30 feet. While groundwater is not expected to be encountered during excavations for foundations, it is possible that contaminated groundwater may be encountered during construction of pilings. Pilings would be required to support the new units, e.g., the Pretreatment Unit. During the installation of pilings, if contaminated groundwater is encountered, it would be handled in accordance with Refinery operating procedures to collect the fluid in a sealed container and process the collected fluid in the on-site wastewater treatment plant. Construction workers that may encounter contaminated water are required by applicable laws to wear personal protection equipment such as respirators, gloves, coveralls, boots, hard hats, etc. (see the discussion under Health and Safety Plans below). Workers will also be required to handle contaminated soil in accordance with a variety of safety procedures including the Resources Conservation and Recovery Act and Hazardous Waste Control Law (see the summary of those requirements in the bullet points below).

Construction workers at the Refinery and other locations are protected by numerous existing rules, regulations and requirements and have been professionally trained to safely work around the potentially hazardous conditions that exist within a refinery. The Martinez Refinery complies with existing laws and regulations that address the discovery and remediation of contaminated sites, including the discovery of such sites during construction activities. The Refinery complies with existing laws that require health and safety plans, worker training, and various other activities which serve to protect workers from exposure to contamination and are summarized below. Compliance with these laws will ensure that any off-site receptor or worker

exposure is less than significant. The principle laws relative to worker safety are summarized in the following bullet points.

- **Hazardous Waste Operations and Emergency Response Standard (HAZWOPER, Fed-OSHA, 29 CFR 1910.120):** The HAZWOPER Standard applies to employees who are exposed or potentially exposed to hazardous substances, including hazardous waste, and who are engaged in clean-up operations. Facilities that use, store, manufacture, handle, process, or move hazardous materials (including remediation operations) are required to conduct employee safety training, have available and know how to use safety equipment, prepare illness prevention programs, provide hazardous substance exposure warnings, prepare emergency response plans, and prepare a fire prevention plan (29 CFR Part 1910). In California, Cal-OSHA assumes primary responsibility for enforcing workplace safety regulations (Cal-OSHA, HAZWOPER, 8 CCR 5192).

- **Cal-OSHA:** Safety requirements to protect employees, including construction workers, from potential exposure to hazardous substances are enforced by Cal-OSHA in Title 8 of the CCR. Specifically, 8 CCR 5155 establishes permissible exposure levels (PELs) and short-term exposure levels (STELs) for various chemicals including petroleum hydrocarbons. These requirements apply to all construction and exposure, whether contamination is discovered as part of construction or from other activities such as direct chemical use. The PELs and STELs establish levels below which no adverse health effects are expected. These requirements protect the health and safety of the workers and, by limiting workplace concentrations, limits potential exposures to nearby populations, including sensitive receptors.

- **Health and Safety Plans (HASP):** HASPs are prepared on a site-specific basis for contaminated sites and are developed in accordance with guidelines set forth in 8 CCR 5192 and 29 CFR 1910.120. HASPs include a review of site-specific hazards and evaluation of the potential for chemical inhalation, ingestion, and absorption hazards, as well as a review of physical hazards (heat, slips, trips, falls, and noise) at the site. HASPs outline the required monitoring at the site for chemical exposures, particulate/dust, noise, and other site-specific hazards. For example, photoionization detectors (PIDs) are often used to monitor for vapors in the worker's breathing zone. Readings above 75 ppm for more than one minute generally require the use of respirators with organic vapor cartridges. Additional controls and measures are required when higher vapor readings are detected, e.g., full-face respirators, removal of workers from the site, etc. The use of respiratory protection minimizes worker exposures in the event that high levels of contaminants are encountered. HASPs outline requirements for training workers engaged in field activities on the potential health and safety hazards associated with their job function, in compliance with the HAZWOPER (29 CFR 1910.120) and other applicable OSHA standards. Other general health and safety requirements included in HASPs and enforced at contaminated worksites include site safety meetings, the use of personal protective equipment (e.g., gloves, coveralls, boots, hard hats, etc.), decontamination procedures, disposal procedures, communication procedures, emergency procedures, and recordkeeping requirements.

- **Resource Conservation and Recovery Act and Associated Hazardous and Solid Waste Amendments, 40 CFR 260:** RCRA created a major federal hazardous waste regulatory program that is administered by the U.S. EPA. The goal of RCRA, a federal statute passed in 1976, is the protection of human health and the environment, the reduction of waste, the conservation of energy and natural resources, and the elimination of the generation of hazardous waste as expeditiously as possible. The Hazardous and Solid Waste Amendments of 1984 significantly expanded the scope of RCRA by adding new corrective action requirements, land disposal restrictions, and technical requirements. The corresponding regulations in 40 CFR 260-299 provide the general framework for managing hazardous waste, including requirements for entities that generate, store, transport, treat, and dispose of hazardous waste. RCRA sets standards for transporters of hazardous waste. Hazardous waste removed from generating sites must be transported by licensed hazardous waste transporters. Transported materials must be accompanied by hazardous waste manifests. U.S. EPA approved California's program to implement federal hazardous waste regulations as of August 1, 1992.

- **Hazardous Waste Control Law (California Health and Safety Code, Chapter 6.5):** California's program to implement the federal RCRA requirements is referred to as the Hazardous Waste Control Law (HWCL) and administered by the Cal-EPA, DTSC. DTSC has adopted extensive regulations governing the generation, transportation, and disposal of hazardous wastes to implement the federal RCRA cradle-to-grave waste management system in California aimed at protecting human health and the environment. California hazardous waste regulations can be found in Title 22, CCR Division 4.5, Environmental Health Standards for the Management of Hazardous Wastes. The HWCL regulations establish requirements for identifying, packaging, and labeling hazardous wastes. They prescribe management practices for hazardous wastes; establish permit requirements for hazardous waste treatment, storage, disposal, and transportation; and identify hazardous wastes that cannot be disposed of in landfills. Hazardous waste is tracked from the point of generation to the point of disposal or treatment using hazardous waste manifests. The manifests list a description of the waste, its intended destination, and regulatory information about the waste. In addition, California regulates the transportation of hazardous waste originating or passing through the state (13 CCR Title 13).

As discussed in the CARB Air Quality and Land Use Handbook: A Community Health Perspective, health risk decreases rapidly with distance (e.g., for gasoline dispensing stations, which handle light hydrocarbons, health risks at 500 feet from the source are less than one in one million) (CARB, 2005). Therefore, exposure to VOC emissions from contaminated soil during construction activities by off-site residential receptors is expected to be less than significant because the distances to residential receptors are over one mile (e.g., Vine Hill area) from construction areas. Similarly, exposure to VOC emissions from contaminated groundwater during construction activities by off-site residential receptors, which are located over one mile from construction areas, is expected to be less than significant as well, because of the distance between construction activities and residential receptors.

The above analysis also demonstrates that existing laws, rules, and regulations that apply to the Refinery requiring safety equipment, professional safety training, etc., are expected to minimize worker exposure to VOC soil and groundwater contamination during construction. Further, if VOC contamination is encountered, monitoring and remediation required by existing laws, rules, and regulations would be expected to minimize the potential for worker exposure. Compliance with these laws will minimize the potential for worker exposure to less than significant. Finally, off-site exposure to hazardous levels of hydrocarbon emissions from contaminated soil and groundwater is not expected due to the existing laws, rules, and regulations that apply to the Refinery that minimize the potential for off-site exposure and the distance between the construction areas and the residential receptors. Therefore, on-site and off-site exposures to VOC contaminated soil and groundwater during construction activities for the proposed project are concluded to be less than significant.

1.9 MITIGATION MEASURES/CONCLUSIONS

The proposed Renewable Fuels Project is expected to reduce the overall hazards associated with producing fuels because crude oil will no longer be used at the Martinez Facility. No significant impacts were identified; therefore, no mitigation measures are required.

1.10 CONCLUSIONS

The proposed Renewable Fuels Project is expected to reduce the overall hazards associated with producing fuels because crude oil will no longer be used to produce the fuels at the Martinez Facility. Rather, renewable feedstocks, such (e.g., vegetable oils, beef tallow, etc.) will be used which have essentially no vapor pressure and, therefore, do not volatilize and are not flammable. There will be a reduction in air toxics such as hydrogen sulfide and benzene handled at the facility, because renewable feedstocks generally do not contain detectable levels of sulfur or benzene which is present in petroleum products. Crude oil contains various types of hydrocarbons that are volatile and flammable, and various types of toxic air contaminants, e.g., benzene and heavy metals. Converting the Refinery to a Renewable Fuels Facility will reduce the overall hazards. Overall, transportation hazards are also expected to decrease due to a decrease in the feedstocks and products that are transported to the facility and due to a decrease in the hazards associated with renewable feedstocks as opposed to crude feedstock. Therefore, the proposed project is not expected to result in any significant adverse hazards and hazardous materials impacts.

1.11 REFERENCES

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