



April 1, 2021

Andy Chau
Supervising Pipeline Safety Engineer
State of California, Office of the State Fire Marshal
Pipeline Safety Division
3780 Kilroy Airport Way, Suite 500
Long Beach, CA 90806

Submitted via Overnight Mail and Electronically

Subject: State of California Assembly Bill 864: Coastal Best Available Technology Regulation Section 2113 Implementation Plan to Retrofit with Best Available Technology OSFM Line ID No. 0001 (Plains Pipeline, L.P. Line 903 Gaviota to Sisquoc 30" and Sisquoc to Pentland 30")

Dear Mr. Chau,

California Code of Regulations (CCR), Title 19, Article 7, Section 2113 requires operators of existing pipelines (located near an environmentally and ecologically sensitive area in the coastal zone) to submit a risk analysis and a plan to retrofit existing pipelines with Best Available Technology (BAT).

In compliance with Section 2113, Plains Pipeline, L.P. ("Plains") is submitting for your review, a risk analysis for the subject pipeline. The risk analysis identifies BAT intended to limit and reduce the quantity of release in the event of a spill and describes the timetable for implementation and completion of the identified BAT plan.

If you have any questions, comments, concerns, or require additional information, please contact me at

[REDACTED]

Sincerely,

[REDACTED]

James Buchanan
HSE Senior Regulatory Specialist

Enclosures:

- Registered Agent for Service Documentation
- Outer Continental Shelf Crude Oil Safety Data Sheet
- Flow Diagrams
- Vicinity Map
- BAT Location Maps
- Timetable for Implementation Gantt Chart
- Confidentiality Justification and Redacted Copy

Cc: Cory Thornton, Plains Pipeline, L.P.
Erol Alavi, Plains Pipeline, L.P.
Jon Van Reet, Plains Pipeline, L.P.
Megan Prout, Plains Pipeline, L.P.
Ngiabi Gicuhi, Plains Pipeline, L.P.
Wm. Dean Gore, Jr., Plains Pipeline, L.P.

**Section 2113 Implementation Plan to Retrofit with Best Available Technology
OSFM Line ID No. 0001 (Plains Pipeline, L.P. Line 903 Gaviota to Sisquoc 30” and
Sisquoc to Pentland 30”)**

1. Introductory Material, Certification Statement, and Confidentiality Request

a. Operator Information

Plains Pipeline, L.P. (Operator)
333 Clay Street, Suite 1600
Houston, Texas 77002

OSFM ID No. 0001
L903 Gaviota to Sisquoc 30”
L903 Sisquoc to Pentland 30”

List of contacts and contact information for persons within the operator’s company, and any alternates, responsible for overseeing and conducting the risk analysis

[Redacted contact information]

[Redacted contact information]

[Redacted contact information]

[Redacted contact information]

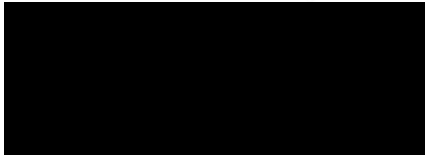
Agent for Service of Process designated to receive legal documents on behalf of the operator

Corporation Service Company Which Will Do Business in California as
CSC- Lawyers Incorporating Service
2710 Gateway Oaks Drive, Suite 150N
Sacramento, California 95833

b. Certification Statement by an executive within the operator’s management structure authorized to fully implement the risk analysis

“I certify, to the best of my knowledge and belief, under penalty of perjury under the laws of the State of California, that the information contained in this risk analysis is true and correct and that the plan is both effective and feasible.”

Signature / Date



03/31/2021

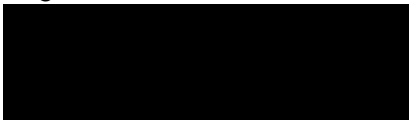
Printed Name, Title

Patrick D. Hodgins
Vice President, Health, Safety &
Environmental

Certification Statement by a person within the operator’s management structure with the requisite training, knowledge, and experience to review a risk analysis for accuracy, effectiveness, and feasibility

“I certify, to the best of my knowledge and belief, under penalty of perjury under the laws of the State of California, that the information contained in this risk analysis is true and correct and that the plan is both effective and feasible.”

Signature / Date



03/31/2021

Printed Name, Title

Wm. Dean Gore, Jr., PE
Director, Special Projects

c. Confidentiality Request



The risk analysis, implementation plan, and attachments contain confidential information exempt from disclosure under the California Public Records Act and other laws. In accordance with 19 CCR 2119, Plains has attached 1) a document identifying the confidential information and providing legal authority for the exemptions, and 2) a complete copy of this submittal depicting the confidential information as redacted.

2. Pipeline Description

a. Relevant pipeline design, construction, and operation information for OSFM Line ID No. 0001 (Line 903 Gaviota to Sisquoc 30” and Sisquoc to Pentland 30”)

	Gaviota to Sisquoc	Sisquoc to Pentland
Year of Construction:	1986	1986

Pipeline Diameter:	30 inches	30 inches
Length of Pipeline:	38.7 miles in length from Gaviota Pump Station to Sisquoc Pump Station. Flow diagrams for the Gaviota and Sisquoc Pump Stations are enclosed for reference.	74.8 miles in length from Sisquoc Pump Station to Pentland Station. Flow diagrams for the Sisquoc and Pentland Pump Stations are enclosed for reference.
Pipe Grade:	API 5L, Grade X-60, X-65, X-70	API 5L, Grade X-60, X-65, X-70
Wall Thickness:	0.281, 0.344, 0.375, 0.406, 0.438, 0.500, 0.750 inches	0.281, 0.344, 0.375, 0.406, 0.438, 0.500, 0.750 inches
Maximum Operating Pressure (MOP):	960 psig	1,140 psig
Normal Operating Pressure:	640 psig	950 psig
Pipe Seam:	Double submerged arc welded (DSAW) long seam manufactured in 1984 by Sacilor Tubes in France.	Double submerged arc welded (DSAW) long seam manufactured in 1984 by Sacilor Tubes in France
Valves:	8 valves (5 MOV, 3 check)	8 valves (4 MOV, 3 check, 1 manual)
Elevations:	Gaviota: 192 feet ASL Sisquoc: 832 feet ASL Low point: 42 feet ASL High point: 1,425 feet ASL	Sisquoc: 895 feet ASL Pentland: 694 feet ASL Low point: 668 feet ASL High Point: 3,004 feet ASL
Coating:	Coal Tar Urethane	Coal Tar Urethane
Insulation:	1.5 inch thick layer of rigid urethane foam insulation and an outer polyethylene tape.	1.5 inch thick layer of rigid urethane foam insulation and an outer polyethylene tape.
Operating Status:	Line was initially purged on 12/19/15. Line was cleaned, purged, and filled with	Line was initially purged on 04/19/16. Line was cleaned, purged, and filled with

	nitrogen in the summer of 2017.	nitrogen in the summer of 2017.
General Condition of the Pipeline:	Last ILI – DEF/HRMFL 04/29/13. 	Last ILI – DEF/HRMFL 06/12/13. 
Oil Capacity of the Pipeline:	171,205 BBLs	328,810 BBLs
Product:	Crude Oil – OCS (Outer Continental Shelf); See enclosed SDS for characteristics.	Crude Oil – OCS (Outer Continental Shelf); See enclosed SDS for characteristics.
Normal Operating Temperature:	135 degrees Fahrenheit.	135 degrees Fahrenheit.

b. Vicinity Map

The Vicinity Map is provided as a dynamic PDF electronic document. Layers can be turned “on” or “off” and include the following features: distance from the coastal zone, vehicular or rail crossings along the pipeline, nearby residential, commercial, or other populated areas, physical geographic features such as soil and terrain, drainage systems such as small streams and other smaller waterways, potential natural forces inherent in the area, natural and manmade barriers, and potential physical pathways between the pipeline and environmentally and ecologically sensitive areas (EESAs).

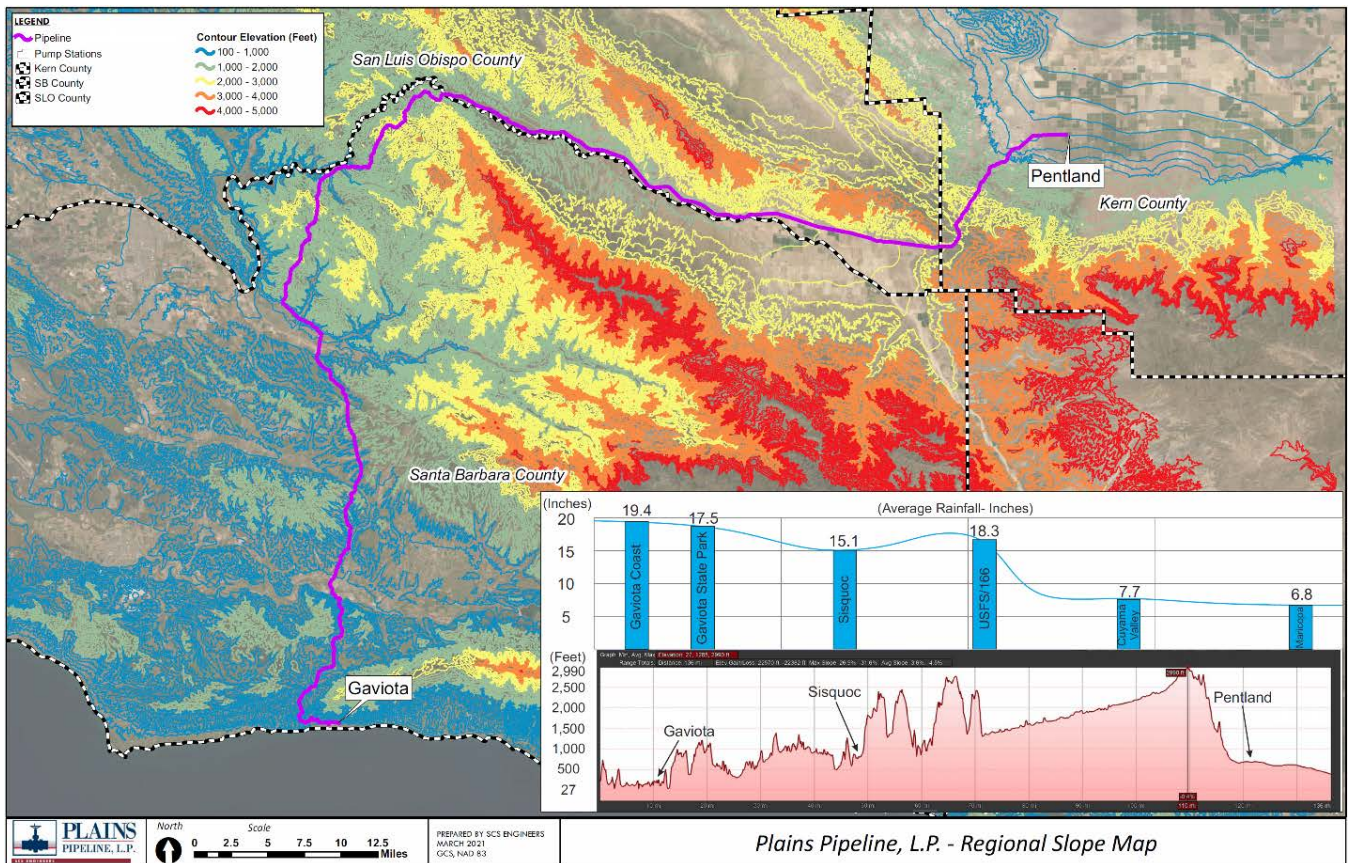
c. Seasonal Hydrographic and Climatic Conditions

The risk analysis for the Line 903 segments (Gaviota Station to Sisquoc Station and Sisquoc Station to Pentland Station) was completed with the inclusion of hydrographic and meteorological conditions specific to the pipeline location. Spill modelling was conducted utilizing United States Geologic Survey (USGS) digital elevation models (DEM) topographic data and water velocity factors (during potential periodic flooding events) to simulate worst-case release scenarios. As illustrated in the following figure, the 113.5 mile length of Line 903 lies within two (2) regions of varying topographic and climate conditions.

Gaviota Pump Station to the Sierra Madre Crest: This section of pipeline begins on the coastal terrace below the southern face of the Santa Ynez Mountains, runs north through undulating topography of the Purisima Hills and San Rafael Mountains, ending at existing Motor Operated Valve (MOV) 3-600 located in just north of the crest of the Sierra Madres Mountains in the Los Padres National Forest. The course of the pipeline in this section is bisected by undulating coastal hills and valleys with dozens of ephemeral drainages. Average annual rainfall rates of 15.1 to 18.3 inches throughout these coastal ranges and valleys contribute to two (2) water courses, Gaviota Creek and the Santa Ynez River, which are capable of persistent flow or pooled water throughout a majority of the year. The pipeline also crosses the Sisquoc River in an area subjected to active aggregate mining.

Sierra Madre Crest to Pentland Station: This section of pipeline begins near existing MOV 3-600 on the northern flank of the Sierra Madre mountains, proceeds in a southeasterly direction along the length of the Cuyama Valley before dropping northeast through Temblor Range and into the southwestern fringes of the San Joaquin Valley. With exception of the transition through the Temblor Range, this section of pipeline is characterized by relatively flat alluvial plain topography and occasionally bisects ephemeral drainages including the Cuyama River. Due to its location within the rain shadow created by the intervening San Rafael and Sierra Madre mountains, annual rainfall rates are considerably lower at 6.8 to 7.7 inches per year. As a result, even named water courses such as the Cuyama River tend to run for short ephemeral periods after sporadic heavy rainfall events.

Figure 2.C.1: Regional Slope & Weather Data Map



d. Baseline Condition and Spill Analysis

19 CCR Section 2111(d)(4) requires the operator to conduct a spill analysis using the baseline condition of the pipeline. The purpose of the spill analysis is to determine whether a release anywhere along the length of a pipeline could impact EESA in the Coastal Zone. First the baseline condition of the pipeline must be identified with respect to leak detection system (LDS) technology, any automated shut-down technology present, the number and location of any isolation valves, and any instrumentation needed to support the LDS. Then the worst case release volume based on the baseline condition of the pipeline must be used to model the trajectory and physical extent of that release and its relationship to EESA in the Coastal Zone.

As noted above, this pipeline is broken into two segments: Gaviota Station to Sisquoc Station and Sisquoc Station to Pentland Station. The spill analysis for each of these segments is summarized below.

Spill Analysis – Gaviota to Sisquoc

The Gaviota to Sisquoc segment lies partially within the boundaries of the Coastal Zone. Consequently, Plains made the conservative assumption that any release from the

portion of this pipeline that lies within the Coastal Zone will impact an EESA in the Coastal Zone. However, a substantial portion of this pipeline segment lies outside the Coastal Zone, so a spill analysis (see below) was conducted on that portion of the pipeline segment to determine if the baseline condition for this portion of the pipeline segment would yield a worst case discharge volume that could travel to and impact an EESA in the Coastal Zone. Section 2111(d)(4) states that the spill analysis is intended to be used as the baseline for which best available technologies may be used to reduce the quantity of the release in the event of a release. Since this pipeline segment lies partially within the Coastal Zone and any release from it would impact an EESA in the Coastal Zone, the focus of the Risk Analysis for this pipeline segment would be the evaluation of BAT additions to this pipeline segment that would serve to reduce the quantity of release in the event of a release. The baseline condition of the Gaviota to Sisquoc pipeline segment and the worst case discharge volumes based on the baseline condition are described more fully in the Risk Analysis section below.

Spill Analysis – Sisquoc to Pentland

The Sisquoc to Pentland segment of this pipeline lies entirely outside of the Coastal Zone. As a result, a spill analysis (see below) was performed to determine if the baseline condition for this pipeline segment would yield a worst case discharge volume that could travel to and impact an EESA in the Coastal Zone. The baseline condition of the Sisquoc to Pentland pipeline segment and the worst case discharge volumes based on the baseline condition are described more fully in the Risk Analysis section below.

Plains retained American Innovation (AI) to perform spill trajectory analyses utilizing their proprietary spill trajectory model for the Sisquoc to Pentland segment of Line 903 and the portion of the Gaviota to Sisquoc segment that lies outside the Coastal Zone. Spill trajectories were determined at points every 30 meters along the pipeline segment. The trajectory modeling relied on a number of publicly available datasets (e.g. coastal zone, boundaries, terrain data, stream and water body data, etc.), along with release volume and location data from the worst case discharge calculations.

AI utilized five methods to determine what locations along the pipeline segment could release into an EESA in the Coastal Zone:

- Direct Analysis: Identifies portions of a pipeline that cross directly through a Coastal Zone;
- Indirect Analysis: Identifies portions of a pipeline outside the Coastal Zone boundary but could impact an EESA in the Coastal Zone because of proximity (variable, and depends upon a number of factors);

- Terrain Analysis: Identifies portions of a pipeline that could release sufficient volume to travel overland along existing topography (including any man-made structures or conveyances that could inhibit or accentuate flow) to impact an EESA in the Coastal Zone;
- Direct Watershed Analysis: Identifies portions of a pipeline that cross directly through a water feature that drains to an EESA in the Coastal Zone within a specified distance (35 miles used as a conservative assumption); and
- Indirect Watershed Analysis: Identifies sections of a pipeline that could release sufficient volume to travel overland along existing topography (including any man-made structures or conveyances that could inhibit or accentuate flow) into a water feature that drains to an EESA in the Coastal Zone.

In conducting the spill analysis, certain assumptions were made, including:

- The worst case release was assumed to be a full guillotine-type rupture of the pipeline segment as a conservative assumption.
- No allowance was made for product absorption in the soil or biomass, or evaporation during the release event as a conservative assumption.
- Plains included any small streams and any man-made culverts, ditches, or conveyances that could act as a conduit to an EESA in the Coastal Zone in the spill trajectory modelling.
- The Watershed Analyses assumed that a release reaching a waterway could travel 35 miles as a default value in the trajectory modeling. This default distance was derived based on an assumed maximum stream velocity of 8.75 mph during a flooding event and four hours (two times the average response time) for response teams to arrive and deploy spill response equipment to stop further transport.
- Where available, the trajectory model utilized a one meter digital elevation model (DEM) in the spill analysis. Where a one meter DEM was not available, a ten meter DEM was used.

The Spill Analysis conducted for the Line 903 segments found that a worst case discharge volume, based on the baseline condition for these pipeline segments (described more completely in the Risk Analysis section below), released from several locations along the pipeline segment would impact an EESA in the Coastal Zone.

Section 3 below presents the BAT additions proposed by Plains to reduce the quantity of release from both the Gaviota to Sisquoc and Sisquoc to Pentland portions of the Line 903 pipeline segment. Section 4 below presents the Risk Analysis that compares the

estimated worst case discharge for the current baseline condition of both portions of the Line 903 pipeline segment to the BAT or retrofit condition of each with all of the proposed BAT elements installed.

3. Proposed Best Available Technology (BAT)

a. Introduction to and Definition of Proposed BAT

Plains has defined BAT for Line 903 as a combination of several elements working together. These elements include:

█ [REDACTED]

█ [REDACTED]

█ [REDACTED]

█ [REDACTED]

[REDACTED]

█ [REDACTED]

█ [REDACTED]

█ [REDACTED]

[REDACTED]

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Plains is proposing to retrofit Line 903 with these BAT elements to bring it into conformance with Plain’s definition of BAT for Line 903. The Risk Analysis presented below compares the baseline condition of Line 903 with the retrofit condition of the pipeline segments after installation of all of the proposed BAT elements. The following tables summarize the results of the Risk Analysis for these two conditions.

Table 4.A.1: Risk Analysis Summary Table

OSFM ID No. 0001 (Line 903 Gaviota to Sisquoc 30”)

	Baseline Condition Existing L903 Gaviota to Sisquoc	Retrofit with BAT Proposed L903 Gaviota to Sisquoc	Reduction in Time/Volume Resulting from BAT Retrofit
Maximum leak detection time, hours			
Maximum shut-down response time, hours			
Maximum flow rate, barrels/hour	1,450	1,450	0
Drain down volume, barrels	9,640	6,132	3,508
Reasonable worst- case discharge volume, barrels	10,481	6,320	4,161

Table 4.A.2: Risk Analysis Summary Table

OSFM ID No. 0001 (Line 903 Sisquoc to Pentland 30”)

	Baseline Condition Existing L903 Sisquoc to Pentland	Retrofit with BAT Proposed L903 Sisquoc to Pentland	Reduction in Time/Volume Resulting from BAT Retrofit
Maximum leak detection time, hours			
Maximum shut-down response time, hours			
Maximum flow rate, barrels/hour	1,450	1,450	0
Drain down volume, barrels	41,899	14,935	26,964
Reasonable worst- case discharge volume, barrels	42,740	15,269	27,471

b. Risk Analysis Methodology and Findings

The following describes how each of the risk analysis metrics included in the Risk Analysis Summary Tables were determined:

- *Maximum Leak Detection Time*

Maximum Leak Detection Time is defined as the time from when the pipeline release begins to when it has been detected. Detected in this case means when the LDS employed on that pipeline segment identifies a release and notifies the operator through an alarm.

The LDS employed on Line 903 when it last operated was a volume balance (VB) CPM system configured to balance it with the portion of Line 901 from Plains' Las Flores Station to Plains' Gaviota Station. While VB CPM is a tried and true technology that meets pipeline safety regulations, [REDACTED]

[REDACTED]

[REDACTED]

The maximum leak detection time for a full line rupture was computed by taking the leak detection threshold estimated according to API TR 1149 in bbls and dividing it by the full line flowrate in bbls/hr.

- *Maximum Shut-Down Response Time*

Maximum Shut-Down Response Time is defined as the time between when a leak alarm is triggered and the valves on the pipeline segment have fully closed.

For the purposes of calculating the maximum shut-down response time in the Risk Analysis, the baseline condition was assumed to be six minutes. This consisted of three minutes for the operator to recognize and validate the alarm and then to initiate the shutdown sequence, and three minutes for the valves to fully close once the shutdown sequence is initiated.

The baseline case further assumed the absence of the ability to automatically initiate a pipeline segment shut down sequence without Operator action. It also relies upon the existing isolation valves and the existing flow meters at Plains' Las Flores Station and Plains' Pentland Station.

[REDACTED]

This upgrade results in a significant reduction in the maximum shut-down response time over the baseline condition.

- *Maximum Flow Rate*

Maximum flow rate was determined from historical flow data and the average maximum flow rate in that pipeline segment. This maximum flowrate was used for both Risk Analysis conditions (baseline and BAT/retrofit).

- *Worst Case Drain-Down Volume and Worst Case Discharge Volume*

Worst Case Volume is a quantity that can be theoretically calculated at any point along a pipeline based on several parameters. These parameters include pipe diameter and wall thickness, product flow rate and valve closure response times (including both leak detection and shut-down response times) for a worst-case volume release, pipeline elevation data, and the existence and location of valves that can act to isolate individual sections of pipe.

The following tables provide a listing of the existing valves on Line 903 (both portions) and the valves proposed as one of the BAT elements. The tables also provide the location of each valve based on the distance from the pipeline segment origination points at Plains' Gaviota and Sisquoc Stations, the location of each valve by its latitude and longitude, the valve type, and whether it is existing or proposed. The location and number of valves was determined through an Emergency Flow Restriction Device assessment focused on minimizing the volume of a potential release and the potential impact to the Coastal Zone.

The worst-case discharge volume can be calculated for any point along a pipeline segment and consists of the sum of two calculations: the volume of the initial loss occurring from the moment the release begins to the moment the isolation valves have closed, and the volume of drain down at a given point on the pipeline. The calculation is as follows:

- DD = Drain Down Volume
- MLDT = Maximum Leak Detection Time
- MSDRT = Maximum Shut-Down Response Time
- MFR = Maximum Flow Rate
- WCD = Worst Case Discharge (bbls)
- $WCD = [(MLDT + MSDRT) \times MFR] + DD$

For the purposes of the Risk Assessment for Line 903, a guillotine failure severing the pipeline completely was assumed. The Risk Intelligence Platform (RIPL) model was used to calculate the Worst Case Discharge Volume and Drain-Down Volume every 30 meters along each portion of the pipeline segment defined by isolation valves. The location along each isolation portion of the pipeline segment that yielded the largest worst case volume was then noted.

The following tables list each of the isolation portions for the BAT (or retrofit) condition of the specific pipeline segment, the location of the beginning and end of each isolation portion measured in feet downstream of the pipeline segment origination points at Plains' Gaviota and Sisquoc Stations, and the worst case discharge volume and drain-down volume for each isolation portion.

c. Risk Analysis Conclusions

As the Risk Analysis Summary table clearly illustrates, installation of the BAT components proposed for Line 903 reduces the worst case discharge volume for both portions of Line 903 from their respective baseline cases. Installation of the proposed BAT elements on the Gaviota to Sisquoc portion of Line 903 reduced the baseline worst case volume of 10,481 bbls to 6,320 bbls, a 40% reduction. Installation of the proposed BAT elements on the Sisquoc to Pentland portion of Line 903 reduced the baseline worst case volume of 42,740 bbls to 15,269 bbls, a 64% reduction.

This analysis assumes that Plains can secure permits and access to install the proposed valves and associated power access, instrumentation, and communication devices as well as the additional flow measurement equipment at Plains' Gaviota and Sisquoc Stations.

5. Timetable for Implementation

- a. Describe the timetable for implementation and completion of the identified BAT plan. This plan shall include key milestones and, at a minimum, consider the following: purchase of equipment, acquisition of permits, and securing qualified individuals for construction

Please reference the enclosed Gantt chart, which provides the estimated schedule and anticipated tasks involved to implement and complete the identified BAT plan. Key milestones include receiving Office of the State Fire Marshal concurrence and acceptance of the risk analysis and supplemental implementation plan, obtaining regulatory permits and surface sites for BAT installation, procurement of BAT-related equipment, and the initiation and completion of construction to install the identified BAT. Delays in securing permits and access for BAT installation, among other factors, may result in delays to the BAT implementation schedule. Should Plains experience significant delays it will notify the Office of the State Fire Marshall. 2113(c)(2)(B).

Enclosures

Registered Agent for Service Documentation



Secretary of State

1505

Registered Corporate Agent for Service of Process Certificate (Registered Corporations ONLY)

IMPORTANT — Read Instructions before completing this form.

Filing Fee – \$30.00

Copy Fees – First page \$1.00; each attachment page \$0.50; Certification Fee - \$5.00 plus copy fees

Who Can File? Any active corporation that is registered with the California Secretary of State can file this Form 1505 to become authorized to be a corporate agent for service of process for other business entities that are registered with the Secretary of State. To check the status of your corporation, and to ensure you are entering the exact name of the corporation and the correct 7-digit Secretary of State file number, go to BusinessSearch.sos.ca.gov.

FILED
Secretary of State
State of California
A0852950
Filing Number
02/10/2021
Filing Date

This Space For Office Use Only

1. Corporate Name (Enter the exact name of the corporation as it is recorded with the California Secretary of State.)

CORPORATION SERVICE COMPANY WHICH WILL DO BUSINESS IN CALIFORNIA AS CSC - LAWYERS INCORPORATING SERVICE

2. 7-Digit Secretary of State Entity Number

C1592199

3. Address for Service of Process

(Enter the complete street address in California of the office where any entity that named your corporation as agent for service of process may be served with process.) Do not enter a P.O. Box or "in care of" an individual or entity.

Table with 4 columns: Street Address, City, State, Zip Code. Values: 2710 Gateway Oaks Drive, Suite 150N; Sacramento; CA; 95833

4. Authorized Employees

(Enter the names of all persons employed by your corporation who are authorized to accept delivery of any copy of service of process, at the address entered in Item 3 above, on any entity who has designated your corporation as its agent for service of process. Must enter at least 1 person. If there are more than 3, see Instructions.)

Table with 4 columns: First Name, Middle Name, Last Name, Suffix. Row 1: See attached list, empty, empty, empty

5. Statement of Consent (Do not alter the Statement of Consent.)

This corporation consents that delivery of a copy of service of process to an authorized employee at the address designated in item 3 shall constitute delivery of any such copy to the corporation, as the agent for service of process.

6. Read and Sign Below (See Instructions. Office or title not required. Do not use a computer generated signature.)

I am a corporate officer and am authorized to sign on behalf of the corporation. Jackie Smetana, Executive Vice President

Signature

Type or Print Name

Kaitlyn Mannix
Becky DeGeorge
Koy Saechao
Lai Saevang
Nicole Stauss
Kevin Bautista
Trudy Desbiens
Susie Vang
Catherine Webb
Roxie Taylor
Fanny Xiong
Melissa Vang
Dona Niemeyer
Melissa DeKoven
Carolyn Valle
Kaci Ransom
Kan Pen
Kelli Shortte
Annette Kuhlman
Arrielle Garcia
Brejet Stephens
Crystal Chapman
Janette Mcintyre
Jerome Suarez
Jonel Yelverton-
Reis
Kayla Vue
Laurie Tolman
Mindy Fay
Rafael Munoz
Samantha Alterman
Samantha Wiltz
Sherie Hinton
Parid Kurbini
Vivien Mitchell

Outer Continental Shelf Crude Oil Safety Data Sheet

EXXON COMPANY, U.S.A.
A DIVISION OF EXXON CORPORATION

OCS-Las Flores
Use per Exxon 9/20/95
CRUDE OIL

BEL.
EMC
PNT.
LAB.
TLJ.
BND

DATE ISSUED: 08/09/95
SUPERSEDES DATE: 09/22/93

MATERIAL SAFETY DATA SHEET

EXXON COMPANY, U.S.A.

P. O. BOX 2180

HOUSTON, TEXAS 77252-2180

A. IDENTIFICATION AND EMERGENCY INFORMATION

PRODUCT NAME
Crude Oil

CHEMICAL NAME
Crude Oil

CAS NUMBER
8002-05-9

PRODUCT APPEARANCE AND ODOR
Dark Liquid
Strong hydrocarbon solvent odor

MEDICAL EMERGENCY TELEPHONE NUMBER
(713) 656-3424

B. COMPONENTS AND HAZARD INFORMATION

COMPONENTS	CAS No. OF COMPONENTS	APPROXIMATE CONCENTRATION
Crude oil - a naturally occurring combination of hydrocarbons. It consists predominately of paraffins, cyclo-paraffins, cyclic aromatic hydrocarbons having carbon numbers greater than C1. May also contain small amounts of benzene, hydrocarbons, sulfur and oxygenated compounds. All components of this product are listed on the U. S. TSCA inventory.	8002-05-9	100%

See Section E for health and hazard information

See Section H for additional Environmental Information.

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM (HMIS)

Health	Flammability	Reactivity	BASIS
1	3	0	Recommended by Exxon

EXPOSURE LIMIT FOR TOTAL PRODUCT
Not established for total product

The airborne benzene level shall not exceed
1 ppm for an 8-hour workday; 5 ppm STEL

OSHA Regulation 29 CFR 1910.1028

mddccr/shared/msds/crudeoil

1 of 7

Date Issued: 8/9/95
Supersedes: 9/22/93

C. PRIMARY ROUTES OF ENTRY AND EMERGENCY AND FIRST AID PROCEDURES**EYE CONTACT**

If hot product is splashed into eyes, flush with clear water and contact physician immediately. If splashed into eyes, flush with clear water for 15 minutes or until irritation subsides. If irritation persists, call a physician.

SKIN CONTACT

Immediately contact a physician for treatment of thermal burns. In case of skin contact with product under other conditions, wash thoroughly with soap and water. Removal of product from skin may be aided by use of waterless hand cleaner. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

INHALATION

If overcome by vapor, remove from exposure and call a physician immediately. If breathing is irregular or has stopped, start resuscitation; administer oxygen, if available.

INGESTION

If ingested, DO NOT induce vomiting; call a physician immediately.

D. FIRE AND EXPLOSION HAZARD INFORMATION**FLASH POINT**

Less than 16°C (60°F) to greater than 93°C (200°F) PMCC

AUTOIGNITION TEMPERATURE

Not Determined

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) - HAZARD IDENTIFICATION

Health 1	Flammability 3	Reactivity 0	BASIS NFPA
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HANDLING PRECAUTIONS

Keep product away from heat sparks, pilot lights, static electricity, and open flame.

FLAMMABLE OR EXPLOSIVE LIMITS (APPROXIMATE PERCENT BY VOLUME IN AIR)

Estimated Values: Lower Flammable Limit: 0.6% Upper Flammable Limit: 15%

HOT CRUDE FLASH WARNING

Studies have shown that relatively low flash point substances, such as low boiling hydrocarbons, may accumulate in the vapor space of crude tanks and bulk transport compartments. Such vapors may exhibit flammability characteristics of a significantly lower flash product than would be indicated by the flash test. As a precaution, keep ignition sources away from vents and openings, including prevention of accumulation of pyrophoric iron sulfide.

EXTINGUISHING MEDIA AND FIRE FIGHTING PROCEDURES

Foam, water spray (fog), dry chemical, carbon dioxide and vaporizing liquid type extinguishing agents may all be suitable for extinguishing fires involving this type of product, depending on size or potential size of fire and circumstances related to the situation. Plan fire protection and response strategy through consultation with local fire protection authorities or appropriate specialists.

The following procedures for this type of product are based on the recommendations in the National Fire Protection Association's "Fire Protection Guide on Hazardous Materials", Tenth Edition (1991):

Use water spray, dry chemical, foam, or carbon dioxide. Water or foam may cause frothing. Use water to keep fire-exposed containers cool. Water spray may be used to flush spills away from exposures. Minimize breathing gases, vapor, fumes or decomposition products. Use supplied-air breathing equipment for enclosed or confined spaces or as otherwise needed.

NOTE: The inclusion of the phrase "water may be ineffective" is to indicate that although water can be used to cool and protect exposed material, water may not extinguish the fire unless used under favorable conditions by experienced fire fighters trained in fighting all types of flammable liquid fires.

DECOMPOSITION PRODUCTS UNDER FIRE CONDITIONS

Fumes, smoke, carbon monoxide, aldehydes and other decomposition products, in the case of incomplete combustion.

"EMPTY" CONTAINER WARNING

"Empty" containers retain residue (liquid and/or vapor) and can be dangerous.

DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION; THEY MAY EXPLODE AND CAUSE INJURY OR DEATH. Do not attempt to clean since residue is difficult to remove.

"Empty" drums should be completely drained, properly bunged and promptly returned to a drum reconditioner. All other containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations. For work on tanks refer to Occupational Safety and Health Administration regulations, ANSI Z49.1, and other governmental and industrial references pertaining to cleaning, repairing, welding, or other contemplated operations.

E. HEALTH AND HAZARD INFORMATION

VARIABILITY AMONG INDIVIDUALS

Health studies have shown that many petroleum hydrocarbons pose potential human health risks which may vary from person to person. As a precaution, exposure to liquids, vapors, mists or fumes should be minimized.

EFFECTS OF OVEREXPOSURE (SIGNS AND SYMPTOMS OF EXPOSURE)

High vapor concentrations are irritating to the eyes and the respiratory tract, may cause headaches and dizziness, are anesthetic, may cause unconsciousness, and may have other central nervous system effects including death. **CAUTION:** Product sometimes shipped hot; protect against burns.

NATURE OF HAZARD AND TOXICITY INFORMATION

Skin contact with hot product may cause thermal burns. Prolonged or repeated contact with this product at warm or ambient temperatures tends to remove skin oils, possibly leading to irritation and dermatitis.

Eye contact with hot product may cause thermal burns. Contact with this product at warm or ambient temperatures may cause eye irritation but will not damage eye tissue.

This product may contain benzene, CAS #71-43-2, as a natural constituent. Benzene can cause anemia and other blood diseases, including leukemia (cancer of the blood-forming system), after prolonged or repeated exposures at high concentrations (e.g., 50-500 ppm). It has also caused fetal defects in tests on laboratory animals.

Crude Oil has been shown to cause skin cancer in animal tests. In such lifetime skin painting tests the substance was applied to the shaved backs of mice at regular intervals without cleanup between applications. In view of these findings, there may be a potential risk of skin cancer in humans from prolonged and repeated skin contact with this product in the absence of good personal hygiene.

Limited studies on oils that are very active carcinogens have shown that washing the animal's skin with soap and water between applications greatly reduces tumor formation. These studies demonstrate the effectiveness of cleansing the skin after contact.

Potential risks to humans can be minimized by observing good work practices and personal hygiene procedures generally recommended for petroleum products. See Section I for recommended protection and precautions.

PRE-EXISTING MEDICAL CONDITIONS WHICH MAY BE AGGRAVATED BY EXPOSURE

Benzene - Individuals with liver disease may be more susceptible to toxic effects.

Petroleum Solvents/Petroleum Hydrocarbons - Skin contact may aggravate an existing dermatitis.

F. PHYSICAL DATA

THE FOLLOWING DATA ARE APPROXIMATE OR TYPICAL VALUES AND SHOULD NOT BE USED FOR PRECISE DESIGN PURPOSES

BOILING POINT

Gas to 550°C (1000°F +)

VAPOR PRESSURE

Not Available

SPECIFIC GRAVITY (H₂O = 1)

Greater than or equal to 0.7

VAPOR DENSITY (AIR = 1)

Not Available

MOLECULAR WEIGHT

Not Available

PERCENT VOLATILE BY VOLUME

Up to 50%

pH

Essentially Neutral

EVAPORATION RATE @ ATM AND 25°C (77°F)

(n-BUTYL ACETATE = 1)

Not Available

POUR, CONGEALING OR MELTING POINT

Not Available

SOLUBILITY IN WATER

Not Available

VISCOSITY

Not Available

G. REACTIVITY

This product is stable. Hazardous polymerization will not occur. Avoid contact with strong oxidants such as liquid chlorine, concentrated oxygen, sodium hypochlorite or calcium hypochlorite. Hot product in contact with water can cause foaming or sudden evolution of steam which could cause pressure build-up and possibly rupture a tank or vessel.

H. ENVIRONMENTAL INFORMATION

"CLEAN WATER ACT/OIL POLLUTION ACT - This product may be classified as an oil under Section 311 of the Clean Water Act, and under the Oil Pollution Act. Discharges or spills into or leading to surface waters that cause a sheen must be reported to the National Response Center (1-800-424-8802)."

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Shut off and eliminate all ignition sources. Keep people away. Recover free liquid. Add sand, earth or other suitable absorbent to spill area. Minimize breathing vapors. Minimize skin contact. Ventilate confined spaces. Hot product may solidify when cooled. Keep product out of sewers and watercourses by diking or impounding. Advise authorities if product has entered or may enter sewers, watercourses, or extensive land areas.

Assure conformity with applicable governmental regulations. Continue to observe precautions for volatile, flammable vapors from absorbed material.

THE FOLLOWING INFORMATION MAY BE USEFUL IN COMPLYING WITH VARIOUS STATE AND FEDERAL LAWS AND REGULATIONS UNDER VARIOUS ENVIRONMENTAL STATUTES:

REPORTABLE QUANTITY (RQ), EPA REGULATION 40 CFR 302 (CERCLA Section 102)

This product/stream is exempt from CERCLA Reporting Requirements. Refer to Clean Water Act/Oil Pollution Act.

THRESHOLD PLANNING QUANTITY (TPQ), EPA REGULATION 40 CFR 355 (SARA Sections 301-304)

No TPQ for product or any constituent greater than 1% or 0.1% (carcinogen).

TOXIC CHEMICAL RELEASE REPORTING, EPA REGULATION 40 CFR 372 (SARA Section 313)

This product may contain:

- Approximately 0-1% benzene
- Approximately 0-3% cumene
- Approximately 0-2% cyclohexane
- Approximately 0-5% ethylbenzene
- Approximately 0-2% naphthalene
- Approximately 10-20% toluene
- Approximately 15-30% xylene

HAZARDOUS CHEMICAL REPORTING, EPA REGULATION 40 CFR 370 (SARA Sections 311-312)

EPA HAZARD CLASSIFICATION CODE:

Acute Hazard XXX	Chronic Hazard XXX	Fire Hazard XXX	Pressure Hazard	Reactive Hazard	Not Applicable
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I. PROTECTION AND PRECAUTIONS

VENTILATION

Provide ventilation sufficient to prevent exceeding recommended exposure limit or build-up of explosive concentrations of vapor in air. Use explosion-proof equipment.

RESPIRATORY PROTECTION

Use supplied-air respiratory protection in confined or enclosed spaces, if needed.

PROTECTIVE GLOVES

Protect against hot liquid. Use chemical-resistant gloves to avoid skin contact.

EYE PROTECTION

Use splash goggles or face shield when eye contact may occur.

OTHER PROTECTIVE EQUIPMENT

Use chemical-resistant apron or other impervious clothing, if needed, to protect against hot liquid and to avoid skin contact.

WORK PRACTICES / ENGINEERING CONTROLS

Use explosion-proof equipment. No smoking or open lights.

PERSONAL HYGIENE

Minimize breathing vapor, mist or fumes. Avoid prolonged or repeated contact with skin. Remove contaminated clothing; launder or dry-clean before reuse. Remove contaminated shoes and thoroughly clean before reuse; discard if oil-soaked. Cleanse skin thoroughly after contact, before breaks and meals, and at end of work period. Product is readily removed from skin by waterless hand cleaners, followed by washing thoroughly with soap and water.

J. TRANSPORTATION AND OSHA RELATED LABEL INFORMATION**TRANSPORTATION INCIDENT INFORMATION**

For further information relative to handling spills resulting from transportation incidents, refer to latest Department of Transportation Emergency Response Guidebook for Hazardous Materials Incidents (ERG).

DOT IDENTIFICATION NUMBER

Know the flash point for each shipment to accurately classify it into the right category.

Petroleum Crude Oil, 3, UN 1267, PG*

*PG I - Initial Boiling Point \leq 95°F (35°)

*PG II - Initial Boiling Point $>$ 95°F (35°), Flash Point $<$ 73°F (23°C)

*PG III - Initial Boiling Point $>$ 95°F (35°), Flash Point \leq 73°F (23°C)
and \leq 141°F (60.5°C)

OR

Petroleum crude oil, combustible liquid, UN 1267, PG III
(Flash Point $>$ 141°F (60.5°F) and $<$ 200°F (93°)

OR

Not regulated if flash point = $>$ 200°F (93°)

OSHA REQUIRED LABEL INFORMATION

In compliance with hazard and right-to-know requirements, the following OSHA Hazard Warnings should be found on a label, bill of lading or invoice accompanying this shipment.

DANGER!

EXTREMELY FLAMMABLE

**LONG-TERM, REPEATED EXPOSURE MAY CAUSE
CANCER, BLOOD AND NERVOUS SYSTEM DAMAGE**

CONTAINS: BENZENE

**OVEREXPOSURE MAY CAUSE EYE, SKIN OR
RESPIRATORY TRACT IRRITATION OR DAMAGE,
AND MAY CAUSE HEADACHES, DIZZINESS
OR OTHER ADVERSE NERVOUS SYSTEM
EFFECTS OR DAMAGE, INCLUDING DEATH**

This information and recommendations contained herein are, to the best of Exxon's knowledge and belief, accurate and reliable as of the date issued. Exxon does not warrant or guarantee their accuracy or reliability, and Exxon shall not be liable for any loss or damage arising out of use thereof.

The information and recommendations are offered for the user's consideration and examination, and it is the user's responsibility to satisfy itself that they are suitable and complete for its particular use. If buyer repackages this product, legal counsel should be consulted to insure proper health, safety and other necessary information is included on the container.

The Environmental Information included under Section H thereof as well as the National Fire Protection Association (NFPA) ratings have been included by Exxon Company, U.S.A. in order to provide additional health and hazard classification information. The ratings recommended are based upon the criteria supplied by the developers of these rating systems, together with Exxon's interpretation of the available data.

FOR ADDITIONAL INFORMATION ON HEALTH EFFECTS CONTACT:

Director of Industrial Hygiene
Exxon Company, USA
Room 3180, Exxon Building
P. O. Box 2180
Houston, Texas 77252-2180
(713) 656-2443

Flow Diagrams

PENTLAND PUMP STATION FLOW DIAGRAM

REV.	DATE	DRAFT	CHECKED	APP'D.
23	11/16/20	JM	JM	JMG
22	05/28/20	JM	JM	JRD
21	04/14/20	JM	JM	JRD
20	01/13/20	JM	JM	JRD
19	11/12/19	BP	JM	JRD
18	10/21/19	BP	JM	JRD
17	09/23/19	BP	JM	JRD
REV.	DATE	DRAFT	CHECKED	APP'D.

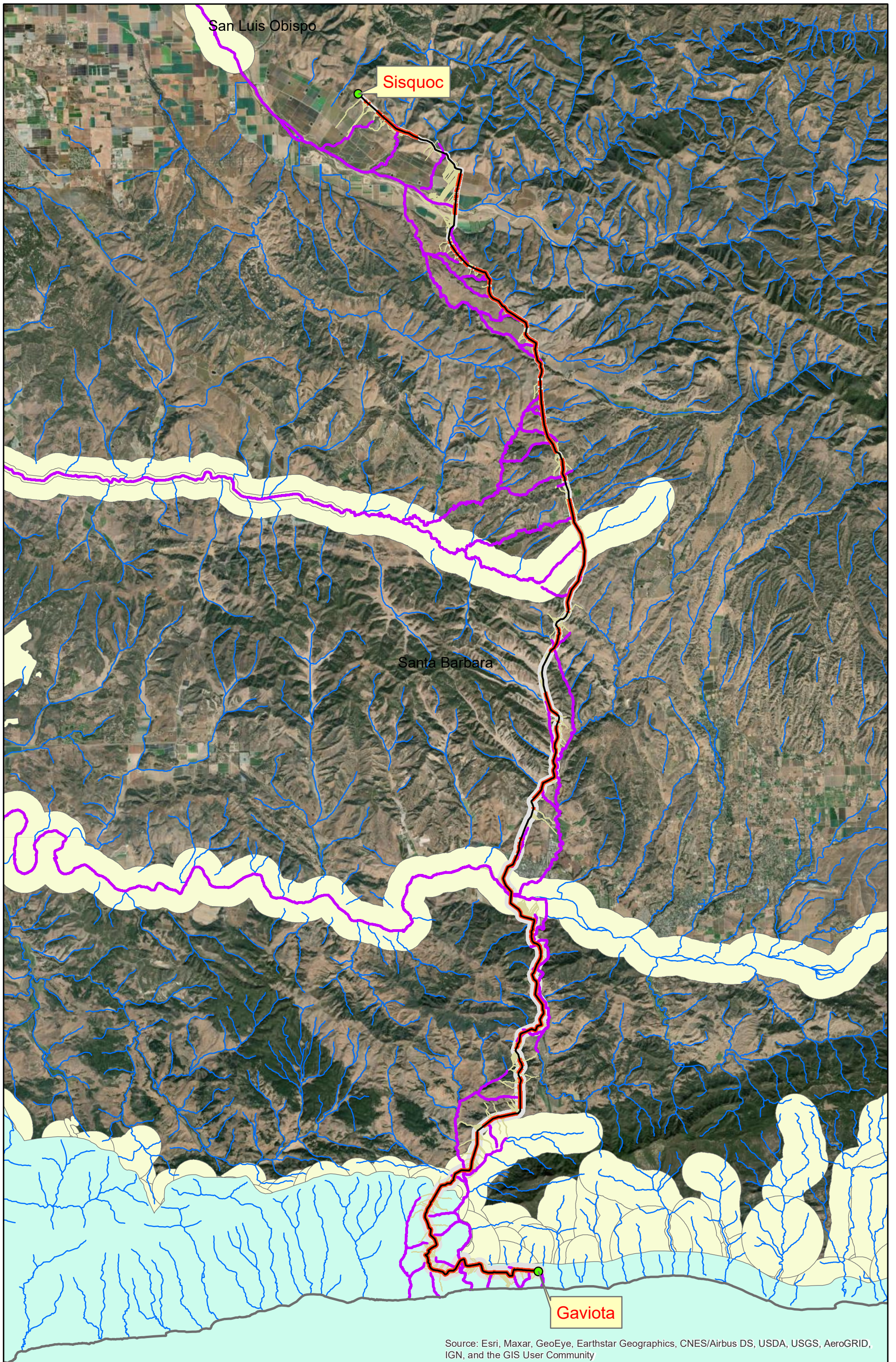
CONFIDENTIAL
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DATE	BY	REVISION
11/16/20	JM	JM
05/28/20	JM	JM
04/14/20	JM	JM
01/13/20	JM	JM
11/12/19	BP	JM
10/21/19	BP	JM
09/23/19	BP	JM
DATE	DRAFT	CHECKED

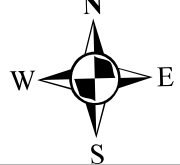
PLANS
PENTLAND PUMP STATION
BAKERSFIELD PL DISTRICT
WESTERN PL DIVISION
PROCESS FLOW DIAGRAM

DATE	BY	REVISION
11/16/20	JM	JM
05/28/20	JM	JM
04/14/20	JM	JM
01/13/20	JM	JM
11/12/19	BP	JM
10/21/19	BP	JM
09/23/19	BP	JM
DATE	DRAFT	CHECKED

Vicinity Map



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



L903 Gaviota to Sisquoc 30in	
Plains2021C-02_0000040	Scale: 1 in = 2 miles
	Sheet No.: 1/2

- Centerline
- Affecting Coastal Zone
- NHDFlowline
- Roads
- Rail Roads
- Affected Flowline
- Terrain Paths
- Spray/Pooling Radius
- CCC
- EESACZ
- Other Populated Area
- High Population Areas

Seismic Shaking Intensity

- Extreme
- Light
- Moderate
- Not Felt
- Severe
- Strong
- Very Strong
- Violent

Mean Rainfall (in)

Rainfall (in)

- 11.691000 - 24.980000
- 25.040000 - 36.446000
- 36.463000 - 47.333000
- 47.360000 - 60.091000
- 60.136000 - 75.645000
- 75.715000 - 92.636000
- 92.694000 - 109.416000
- 109.463000 - 130.010000
- 130.298000 - 162.604000
- 163.290000 - 216.127000

Landslide Susceptibility

- Other Populated Area
- High Population Areas
- High incidence
- High susceptibility, moderate incidence
- High susceptibility, low incidence
- Moderate incidence
- Moderate susceptibility, low incidence
- Low incidence
- No data

Segment:
L903 Gaviota to Sisquoc 30in

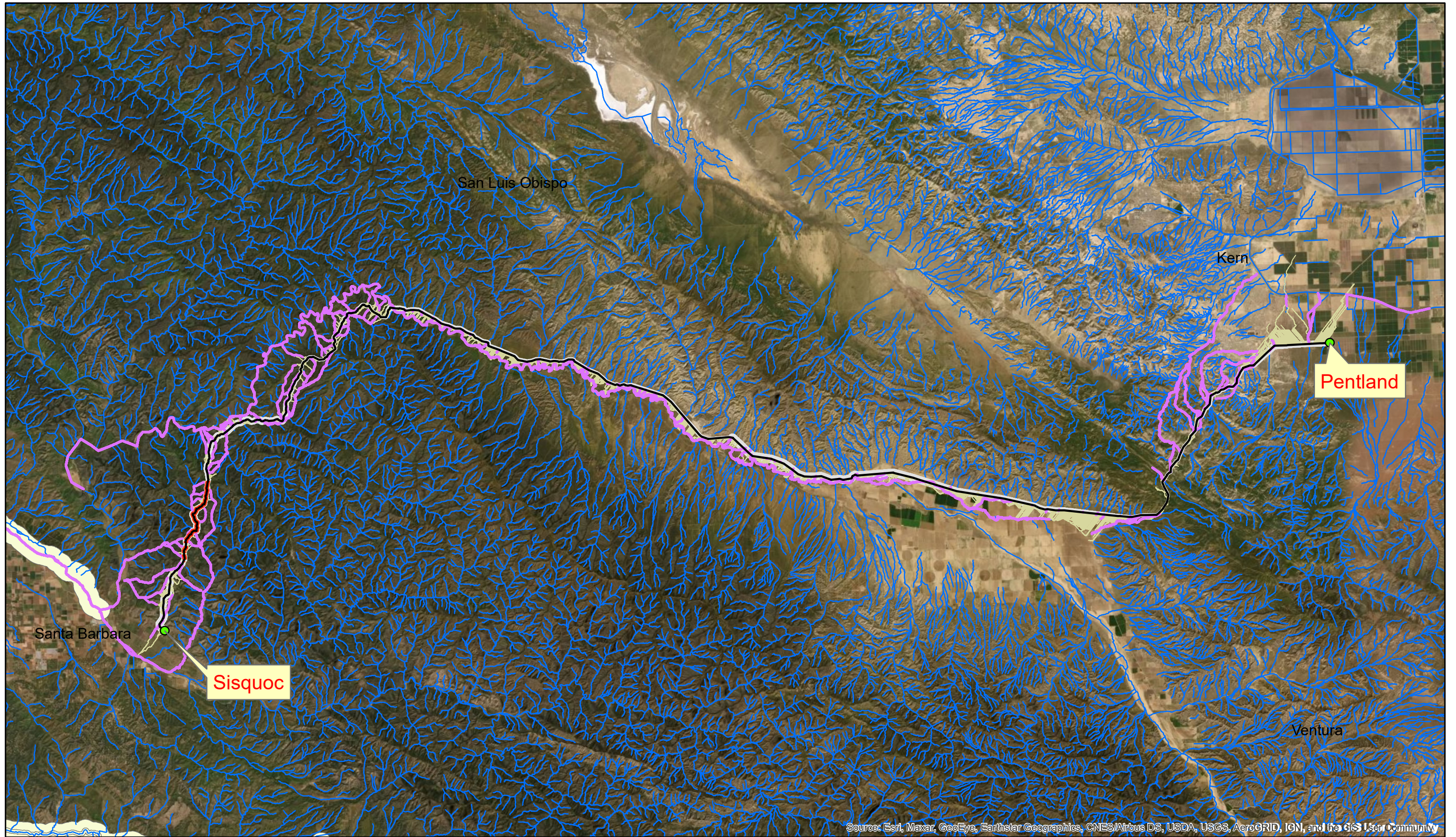
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LEGEND

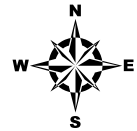
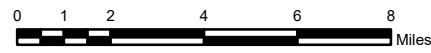
Owner:



Plains2021C-02_0000041



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



L93 Sisquoc to Pentland 30in

1 in = 4 miles

Sheet No.: 1/2

- Centerline
- Affecting Coastal Zone
- NHDFlowline
- Roads
- Rail Roads
- Affected Flowline
- Terrain Paths
- Spray/Pooling Radius
- CCC
- EESACZ
- Other Populated Area
- High Population Areas

Seismic Shaking Intensity

- Extreme
- Light
- Moderate
- Not Felt
- Severe
- Strong
- Very Strong
- Violent

Mean Rainfall (in)

Rainfall (in)

- 11.691000 - 24.980000
- 25.040000 - 36.446000
- 36.463000 - 47.333000
- 47.360000 - 60.091000
- 60.136000 - 75.645000
- 75.715000 - 92.636000
- 92.694000 - 109.416000
- 109.463000 - 130.010000
- 130.298000 - 162.604000
- 163.290000 - 216.127000

Landslide Susceptibility

- Other Populated Area
- High Population Areas
- High incidence
- High susceptibility, moderate incidence
- High susceptibility, low incidence
- Moderate incidence
- Moderate susceptibility, low incidence
- Low incidence
- No data

Segment:
L903 Sisquoc to Pentland 30in

Sheet No: 2/2

LEGEND

Owner:



Plains2021C-02_0000043

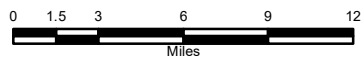
BAT Location Map

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Line 903 BAT Location Map

Implementation Plan	Scale: 1:230,000
Santa Barbara, California	Sheet No.: 1/2



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PLAINS
ALL AMERICAN
PIPELINE, L.P.

Line 903 BAT Location Map

Implementation Plan

Scale: 1:430,000

Cuyama Valley, California

Sheet No: 2/2

Timetable for Implementation Gantt Chart

