



VENOCO, INC.

**DOT Hazardous Liquid Pipelines
Operations & Maintenance Procedures**

Holly to Ellwood 6" Wet Oil

Ellwood Line 96 Oil Transfer 6" Dry Oil

Venoco Inc.
Ellwood Hazardous Liquid Pipeline
Pipeline Specific O&M (PSOM)

**Ref: 49 CFR 191, 195
& Ca Gov Codes 51010-51019.1**

Updated: 2016

Sec #17

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17.01 PURPOSE, SCOPE, AND ANNUAL REVIEW

17.01.1 REFERENCES

49 CFR, sections 195.402(a), 195.402(c)(4), 195.402(c)(13), and California Government Code 51010-51019.1.

17.01.2 PURPOSE

The purpose of this section is to define the information requirements specific to the Ellwood hazardous liquid jurisdictional pipeline facilities. This section of the O&M manual is referred to as the Pipeline Specific Operations and Maintenance Manual (PSOM). Each pipeline facility supervisor shall review these minimum requirements and write procedures and requirements specific to the facility. The PSOM table of contents contains all the procedures that shall be developed or reviewed for facility specific requirements. In addition, section 3.06 of the O&M Manual shall be used as a guide when developing the PSOM.

17.01.3 RESPONSIBILITY FOR IMPLEMENTATION

The Pipeline Compliance Coordinator is responsible for implementation of this procedure.

17.01.4 SCOPE AND POLICY

The Operating & Maintenance Plan for the Ellwood hazardous liquid pipeline has been prepared by its operator, Venoco Inc., in compliance with the regulatory requirements of the Research and Special Programs Administration (RSPA), Department of Transportation (DOT), 49 CFR Part 195 and California State Fire Marshall, California Government Code sections 51010 through section 51019.1. This manual reflects practices which follow the federal safety standards as set forth by the Natural Gas Pipeline Safety Act of 1968, the Hazardous Materials Transportation Act of 1974, and the Pipeline Safety Act of December 2002.

It is the policy of Venoco to strive for the safety of life, protection of the environment, and protection of property. This PSOM provides a comprehensive operating guide for the Ellwood hazardous liquid pipelines. The plan defines the roles and responsibilities and lines of authority of operations personnel. Procedures for the safe operation and maintenance of the pipelines during both normal and abnormal operating conditions are also provided. This PSOM also establishes written procedures to minimize the hazard resulting from an emergency (e.g., gas release, fire, explosion, natural disaster). See section 17.09.

17.01.5 ANNUAL REVIEW of PSOM

This PSOM section of the O&M Manual shall be reviewed annually, not to exceed 15 months, for completeness and accuracy by the Pipeline Compliance Coordinator and the Operations Supervisor. The plan shall be revised as necessary, and personnel shall be made aware of these changes, as required. All approved revisions/updates shall be distributed to holders of the Operating & Maintenance Plan via the notice provided in section 17.02. All revisions shall be documented in tab #2 of this O&M Manual and/or with a record to the DOT files. Use form #17.01A in the PSOM appendix to document the annual review.

17.01.6 PERIODIC REVIEW OF WORK PERFORMED BY OPERATORS [195.402(c)(13)]

It is the primary responsibility of the Operations Supervisor to periodically review the work performed by operators. The intent of this review is to determine the effectiveness of the procedures used in normal operations and maintenance and modifying the procedures when deficiencies are found. Use form #17.01B in the PSOM appendix to document this review.

17.01.07 TRAINING

Training shall be conducted for following personnel performing pipeline activities covered by this O&M Manual:

- New employees
- Change in job assignment or transfer
- Reasonable cause (see company Operator Qualification (OQ) Plan)
- Management of change (see company OQ Plan)

Use form #17.01C in the PSOM appendix to document this training.

17.01.08 FACILITIES REQUIRING IMMEDIATE RESPONSE TO PREVENT HAZARDS TO THE PUBLIC

In accordance with 195.402(c)(4), the Ellwood PSOM section 17.09 defines facilities which are located in areas that require an immediate response by Venoco to prevent hazards to the public if the pipeline facilities failed or malfunctioned.

UPDATE NOTICE

This update notice is for all holders of the Operating & Maintenance Plan for the Ellwood hazardous liquid pipelines.

Revision Number 8
Date Jan 2016

Attached are revised pages of the Operating & Maintenance Plan which have been assigned to you. Please remove pages in your book and replace with these revisions. When this is done, record the revision in the "Revision History" (tab #2) of your O&M manual.

Remove Old Pages
(page numbers)

All Sections

Replace with Revised Pages
(new page number and date)

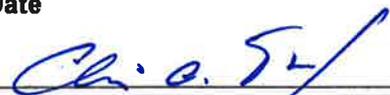
All Sections

**Signature & Date of Person Who
Conducted Annual Review of
O & M Manual:**



Signature - Facilities Operations Supervisor
1/25/16

Date



Signature - Pipeline Coordinator

1.20.2016

Date

DISTRIBUTION LOG

Set # **Name** **Comments**

Venoco:

1. Platform Holly Control Room
2. Ellwood Supervisor
3. Elwood Control Room
4. Pipeline Compliance Coordinator

Outside Agencies:

5. SBC Energy division
6. SBC Building and Safety
7. SBC Fire Department – PSD – Public Service Division
8. SBC Office of Emergency Management – OEM
9. SBC Air Pollution Control District

17.03.01.01

PLATFORM HOLLY OIL PIPELINE

Name of Facility	Platform Holly Oil Pipeline
Business Address	Venoco Inc. Ellwood Onshore Facility 7979 Hollister Avenue Goleta, CA 93117
Business Telephone	(805) 961-2339
Fax No.	(805) 961-2380
24-Hour Operator	Platform Holly
Contact	(805) 961-2360 (Platform Holly) (805) 961-2375 (Ellwood Onshore Facility)

Location of Facility Located on California State Offshore Leases PRC 3242 and PRC 3120, in the Santa Barbara Channel, approximately 10,000 feet southwest of Coal Oil Point, Santa Barbara County, California. The pipeline originates at Platform Holly located at: Latitude 34° 23' 23.2" N. and Longitude 119° 54' 19.7" W. The route of the pipeline sweeps in a northerly direction directly toward the Ellwood Onshore Facility located at 7979 Hollister Ave., Goleta, California.

Type of Facility	Crude oil/water emulsion transfer line.
Pipeline Length	16,030 feet (3.04 miles)
Pipeline Size	6 inch (nominal diameter)

Throughput 16,000 barrels per day of emulsion

**PLATFORM HOLLY OIL PIPELINE
(cont'd)**

Date of Installation 1966

**California State Fire
Marshal ID No.** 0740-0909

**Maximum Operating
Pressure** 650 psig

**Normal Operating
Pressure** 120 psig

Grade and Type of Pipe 6.625" x 0.280 W.T. API 5L Gr. B

External Coating X-Tru coat

Valve Information Type of valves: ball valves (WKM)

Location of valves: A block valve is located at the pig launcher on platform and at the pig receiver at the Ellwood Onshore Facility.

Pump Information Reda multi-stage centrifugal pump

17.03.02

ELLWOOD PIPELINE, INC.
CRUDE OIL PIPELINES

Name of Facility	EPI-Line 96
Name and Address of Owner	Ellwood Pipeline, Inc. (EPI) 6267 Carpinteria Ave. Carpinteria, CA 93013
Operator	Venoco Inc. 6267 Carpinteria Ave. Carpinteria, CA 93013
Business Telephone	(805) 961-2339
24 Hour Emergency Phone	(805) 961-2375
Corporate Mailing Address	6267 Carpinteria Ave. Carpinteria, CA 93013
Person to Contact in Regard to Plan	Keith Wenal (805) 745-2259

17.03.02.01

EPI-Line 96

Name of Facility	EPI-Line 96
Business Address	Ellwood Pipeline, Inc. 6267 Carpinteria Ave. Carpinteria, CA 93013
Business Telephone	Ellwood Onshore Facility (805) 961-2339
Fax No.	Ellwood Onshore Facility (805) 961-2349
24-Hour Emergency	Ellwood Onshore Facility
Contact	(805) 961-2375
24-Hour Emergency Notification Number	(888) 836-6261
Dig Notification Number	Underground Service Alert (USA) (800) 422-4133 or (800) 227-2600

Location of Facility The Onshore Oil Transfer Pipeline Line 96 runs west from the Ellwood Onshore Facility located at 7979 Hollister Ave., Goleta, California to the Plains All American Pipeline L.P. 24" mainline pipeline within the Tautrim property located at 12100 Calle Real Rd., Goleta, California. The pipeline route runs north from the Ellwood Onshore Facility, crosses the Union Pacific Railroad tracks and California State Highway 101, then turns in a westerly direction predominantly along Calle Real Rd. on the north side of Highway 101 all the way to the Tautrim property approximately ½ mile east of Refugio Rd. where the line turns north into the Tautrim property and ties into the Plains Pipeline L.P. (PAAPLP).

Type of Facility	Oil pipeline.
Pipeline Length	47,440 feet (8.98 miles)
Pipeline Size	6 inch (nominal diameter)
Throughput	Batch operation, 150 barrels per hour during shipping
Date of Installation	2011

**ELLWOOD ONSHORE OIL TRANSFER PIPELINE
(cont'd)**

Maximum Operating Pressure	1440 psig
Normal Operating Pressure	600 - 900 psig
Grade and Type of Pipe	6.625" O.D. x 0.280 wt. API 5L-X52
External Coating	Fusion Bonded Epoxy
Valve Information	<p>Manual operated system mainline block valves are located in the pig launching valve vault located at MP (Mile Post) 0.0 outside the Ellwood Onshore Facility, and at the aboveground Tautrim pig receiver and meter facility located at MP 8.98.</p> <p>Remote controlled motor operated system mainline valves are located inside valve vaults at MP 0.89, MP 2.73, MP 5.67, and MP 8.21. Also at the Tautrim pig receiver station.</p>
Type of valve:	Full opening ball valves
Check Valves	System check valves are located at the pump 203 discharge inside the Ellwood Onshore Facility and at MP 0.5 (Tecolote Creek), MP 1.56 (eagle Canyon), MP 3.32 (Dos Pueblos Canyon), MP 6.15 (Las Llagas Canyon), MP 8.58 (Corral Canyon) and at the aboveground Tautrim pig receiver and meter facility at MP 8.98.
Pump Information	Two LACT pumps: Goulds 12,000-bpd charge pump and Liestritz 6000 BPD pipeline pump.

17.03.03 GENERAL PIPELINE DESCRIPTIONS

This section describes the crude oil pipelines associated with the Ellwood Field production and they are as follows:

- Platform Holly Oil Pipeline
- Ellwood Onshore Oil Transfer Pipeline (Line 96)

17.03.03A General Pipeline Description – Platform Holly Oil Pipeline

The Platform Holly Oil Pipeline is a 6" pipeline approximately 16,030 feet in length that transports crude oil/water emulsion from Platform Holly to the Ellwood Onshore Facility. See Drawing F-9760-7 in Appendix for a flow diagram of this system.

At Platform Holly, the pumping operation is automatically controlled, and flow is started in response to level in Surge Tank V-109 and V-110. The flow rate is approximately 16,000 BPD of emulsion and normal operating pressure is between 120 to 200 psig. On Platform Holly, the pipeline is equipped with a LACT unit and instrumentation to allow Platform Holly to monitor flow rates and pressures. Also included is a pig launcher for smart pig inspections and cleaning.

At the Ellwood Onshore Facility, the crude is sent through a series of heat exchangers and treaters to separate the crude/water emulsions. After this, the crude enters a stripper to remove hydrogen sulfide and is further processed through holding tanks T-203 and T-204 and afterwards is transferred into tank T-202 for shipment to the Plains All American LP 24" Mainline pipeline.

The incoming crude shipments from Platform Holly are monitored by tank gauging and compared to the Platform Holly for leak detection. The pipeline within the Ellwood Onshore Facility is equipped with a pig receiver and instrumentation to allow the Ellwood Onshore Facility control center to monitor pressures.

17.03.03B General Pipeline Description-- Ellwood Pipeline, Inc. – Line 96

The EPI-Line 96 pipeline is owned by Ellwood Pipeline, Inc. and operated by Venoco Inc. The line is composed of approximately 8.98 mi. of nominal 6" pipeline that transports crude from the Ellwood Onshore Facility, through the EPI-Line 96 pipeline into the Plains Pipeline L.P. 24" mainline pipeline tie-in at the Tautrim location at 12100 Calle Real Rd., Goleta, California.

Crude shipping is by batch operation. The pumping operation is automatically controlled from the Ellwood Onshore Facility, and flow is started in response to level in Shipping Tank T-202. **The flow rate ranges between 80 to 400 barrels per hour (BPH) per daily production, operating requirements and the normal operating pressure ranges from 600 to 900 psig.** The pipeline remains in service and under pressure between shipments. A computational pipeline monitoring system (CPM) is installed and is operational for this pipeline system. The pipeline is equipped with pig launchers or receivers for smart pigging or running scraper and brush pigs.

17.03.04A Valve Stations and Connections – Platform Holly Oil Pipeline

There are two WKM ball valves; that is, a block valve at the pig launcher on the platform and a block valve on the pig receiver at the Ellwood Onshore Facility. Both platform and onshore

facility are manned 24 hours a day, seven days a week and access is restricted to authorized personnel.

17.03.04B Valve Stations and Connections – Ellwood Pipeline, Inc. – Line 96

Between the Ellwood Onshore Facility and the Plains All American Pipeline (PAAPLP) L.P. 24" mainline pipeline tie-in, there are both manual & motor operated mainline block valve stations and several check valves that are described in more detail in the following tables. Safe entry into the valve vaults and isolation of the valves takes less than one hour to complete depending on the valve location.

Valve	Milepost	Approx. Location	Vents	Type of Vault	Comments
6" 600# mainline manual block valve (No 1293)	0.00	7979 Hollister Ave. Goleta, CA Adjacent to north gate entrance to Ellwood Onshore Facility	(2) 2" 600# valves	Concrete with lockable steel cover	
6" 600# mainline check valve	0.5	On west side of Tecolote Creek on the north side of Calle Real Rd. in Goleta	(2) 2" Threaded O ring (TOR's) for taps.	Direct Burial	
6" 600# mainline motor operated block valve	0.89	Vault located on Parsons property 8501 Calle Real Rd Goleta, CA; west of Farren Rd.	(2) 2" 600# valves,	Concrete with lockable steel cover.	
6" 600# mainline check valve	1.56	On west of Eagle Canyon in the private road north of State Hwy 101	(2) 2" TOR's for taps.	Direct Burial	
6" 600# mainline motor operated block valve	2.73	Vault located on Osgood property 8960 Calle Real Rd Goleta, CA; east of Dos Pueblos Canyon Rd.	(2) 2" 600# valves	Concrete with lockable steel cover.	

6" 600# mainline check valve	3.32	On west side of Dos Pueblos Canyon west of Dos Pueblos Canyon Rd.	(2) 2" TOR's for taps.	Direct Burial	
6" 600# mainline motor operated block valve	5.67	Vault located on Edwards property 10730 Calle Real Rd Goleta, CA; south of El Capitan Rd.; east of the Rancho Canada Del Corral property line	(2) 2" 600# valves.	Concrete with lockable steel cover.	
6" 600# mainline check valve	6.25	On west side of Las Llagas Canyon on the north side of the bike path west of El Capitan off-ramp	(2) 2" TOR's for taps.	Direct Burial	
6" 600# mainline motor operated block valve	8.21	Vault located on Tuatrim property 12100 Calle Real Rd Goleta, CA; north side of Calle Real Rd. east of Corral Canyon Rd.	(2) 2" 600# valves	Concrete with lockable steel cover.	
6" 600# mainline check valve	8.58	On west side of Corral Canyon on the north side of Calle Real Rd. west of Corral Canyon Rd.	(2) 2" TOR's for taps.	Direct Burial	
(3) 6" 600# mainline manual operated block valves; (1) 6" 600# motor operated block valve	8.98	Aboveground pig receiver & meter facility located on Tautrim property 12750 Calle Real Rd.	Various vents & drains associated with facility piping		

17.03.05 CATHODIC PROTECTION

All of the pipelines are equipped with cathodic protection and are monitored in accordance with Section 6.0 of the O&M Manual. Rectifiers, other current sources, and test stations are as follows:

Platform Holly Oil Pipeline:

Milepost	Description	Location
0.000	Four Rectifiers and Test Station	Located on Platform Holly
3.030	Test Station	Located at Ellwood Onshore Facility upstream of pig receiver.

Ellwood Pipeline, Inc. – Line 96:

This pipeline is protected with sacrificial anodes. All installed Test Station locations include two 40lb. D3 High Potential Packaged Magnesium anodes. Test Stations are located at the following station (footage) locations:

0+10	200+78	359+89
12+11	225+27	386+48
23+00	247+85	408+03
38+34	259+24	429+86
42+04	273+51	438+00
43+52	290+20	440+78
81+15	298+03	467+43
95+80	306+42	473+40
118+00	317+81	474+40
143+00	325+00	
173+45	341+00	

17.03.06 PUMPS

Platform Holly Oil Pipeline:

At Platform Holly, the shipping pump P-200, the Reda Shipping Pump is automatically started based on a level switch from surge tanks V-109 and V-110. P-200 is a kinetic energy type pump and is not capable of exceeding the pipeline MAOP. A low pressure shutdown set at 50 PSI and a high pressure shutdown set at 500 PSI are in place to protect the system, the alarms and shutdowns are monitored by Platform Holly personnel. The normal shipping flow rate is 510 barrels per hour at a discharge pressure of 120 to 200 psig.

Ellwood Pipeline, Inc. – Line 96:

At the Ellwood Onshore Facility, Pipeline Pump P-203 delivers oil into the pipeline. This pump is fed from LACT 1 Charge Pump P-222. The pipeline is provided with a full flow relief valve set at 1200 psig and a high pressure alarm set at 1100 psig. The normal shipping flow rate is approximately 150 barrels per hour or 3600 bbls/day.

17.03.07 MAXIMUM ALLOWABLE OPERATING PRESSURE (MAOP) AND MAXIMUM OPERATING PRESSURE (MOP)

17.03.07A Platform Holly Oil Pipeline

Per DOT Regulations 49 CFR, Part 195.406, the Maximum Allowable Operating Pressure (MAOP) is determined by the lesser of: a) the internal design pressure of the pipe as determined in accordance with DOT CFR Part 195.106, b) 80% of the test pressure, or c) the design pressure of any other component of the pipeline, including fitting and valve ratings. Additionally, since this pipeline is under the jurisdiction of the California State Lands Commission, the MAOP cannot exceed 67% of the test pressure according to the State Lands Commission Regulations, Article 3.3, Section 2132(h)(6)(C).

Record data indicates that the pipeline is 0.280 wall thickness, Grade B pipe. This pipe has a Specified Minimum Yield Strength of 35,000 PSI. Per Part 195.106, this pipe is good for an internal design pressure of 1775 psig based on a design factor of 0.60 for the riser. The flange and valves are ANSI 600#, which are usable for operation up to 1440 psig. However, the MAOP based on 67% of the lowest deadweight reading from the most recent hydro test was determined to be 650 psig. Therefore, since the criteria of 67% of the test pressure controls, the MAOP of the pipeline is 650 psig.

Venoco has arbitrarily set the Maximum Operating Pressure (MOP) for this pipeline to be 650 psig, which is equal to the MAOP. Normally, the Platform Holly Oil Pipeline operates at 120 psig.

17.03.07B Ellwood Pipeline, Inc. – Line 96

The EPI-Line 96 pipeline is hydro tested from Ellwood Onshore Facility to the tie-in at Plains Pipeline (PAAPLP) LP. The Maximum Allowable Operating Pressure (MAOP) of this pipeline was determined to be 1440 psig. The EPI-Line 96 pipeline typically operates at approx. 900 psig. The pipeline is equipped with overpressure protection as discussed in Section 8 of the O&M Manual.

17.03.08 COMMUNICATIONS

Personnel in the field can communicate with Platform Holly, the Ellwood Onshore Facility, and the Carpinteria office via paging service, cellular phones, and mobile radio. A computational pipeline monitoring system (CPM) with integrated Supervisory Control and Data Acquisition (SCADA) is installed for the Ellwood Onshore Transfer pipeline which continually monitors, collects and communicates information to the Ellwood Onshore Facility control room.

17.03.08A Mobile Radio

Operating personnel have mobile radio communications with the supervisor, operators, and mechanics.

All radio transmissions must comply with FCC regulations and may be heard by anyone monitoring that system. It is essential that all transmissions be conducted in a businesslike, courteous, and confident manner which will be a credit to the company's employees. Only messages directly related to safety, the protection of lives and property, and normal plant and pipeline operations should be transmitted.

17.03.08B Paging Service

A paging service is used to page ("beep") supervisors and area foremen.

17.03.08C Cellular Phones

Mobile and portable cellular phone communications are provided for operations.

17.03.09 BREAKOUT TANKS

There are no DOT jurisdictional breakout tanks associated with any of the Ellwood hazardous liquid pipelines.

17.04 UPDATING MAPS AND RECORDS

17.04.1 References

49 CFR, section 195.404 and 195.402(c)(1).

17.04.2 Purpose

The purpose of this procedure is to provide guidelines for maintaining and updating DOT pipeline maps and records.

17.04.3 Responsibilities for Updating Maps and Records

The Facility Engineer in charge of the jurisdictional pipelines shall keep current and comprehensive construction records, maps, and operating history and this information shall be available for use by the appropriate pipeline operations personnel. These records are kept in the facility DOT files.

17.04.4 Tracking and Documentation of Updates to Construction Maps and Records

The Company shall use the pipeline Management of Change procedure to initiate, review, approve, and track changes to construction maps and records.

17.05 NORMAL SHUTDOWN AND START-UP

17.05.1 References and Related Documents

1. 49 CFR, sections 195.402(c)(7).
2. Purging
3. MAOP
4. Pressure Monitoring
5. MAOP
6. Emergency Valve Procedures
7. Prevention of Accidental Ignition
8. Regulator Station

17.05.2 Purpose

This procedure is written for the startup of new pipelines and the shutdown of pipelines for normal maintenance in a manner designed to assure operation with Maximum Allowable Operating Pressure (MAOP) limits and account for variations in altitude along the pipelines. In addition other sections of the Operating and Maintenance Procedure shall also be followed with particular attention paid to the sections on Purging of Pipelines, Maximum Allowable Operating Pressure, Pressure Monitoring, Repair Procedures, Prevention of Accidental Ignition, Regulator Station Inspection, and Emergency Valve Procedure. The Emergency Action Plan (EAP) and Oil Spill Contingency Plan shall be followed in the case of pipeline emergencies.

17.05.3 Responsibility for Implementation

The Operations Supervisor or in his absence the Lead Operator is responsible for implementation of this procedure.

17.05.4 General

The person responsible for the operation of the pipeline shall prepare a written set of instructions for the startup or shutdown of the pipeline. Procedures shall be designed to provide safety during maintenance and operations and shall include provisions on how to perform the work in a manner designed to assure operation within the established MAOP.

17.05.5 Start Up of a New Pipeline

The person in charge of placing the pipeline in service shall establish written procedures for commissioning the new pipeline and placing it in service. The procedures shall be discussed with operating personnel prior to the startup operations. The procedures shall include provisions for:

1. Reviewing the Company O&M Manual to ensure it addresses operations, maintenance, and emergency procedures for the new pipeline.
2. Inspecting all control and overpressure protection devices required for the start-up of the new pipeline, including the testing of set pressures and the checking of capacities, if necessary.
3. Reviewing the Company O&M Manual for purging procedures, purging times and liquid volumes.
4. Reviewing Company Emergency Manual for notification procedures.
5. Establishing communication with field personnel and pipeline control personnel.
6. Controlling the purge flow rate when pressurizing the pipeline and monitoring pressures until normal operation is established.
7. After completing purge and load operations, all valves are to be checked to be sure that they are in the proper operating position before leaving the scene. If facilities have been altered so that pressures, volumes, or over pressure protection devices have been affected, the Operations Supervisor is responsible for ensuring that properly calibrated and installed over pressure protection devices protect all affected pipe segments.
8. Updating maps and other pertinent operating records.

17.05.6 Shutdown of Pipeline for Normal Maintenance

A written plan shall be prepared to provide for the shutdown of liquid flow in the pipeline segment. The plan shall designate personnel responsible for the various aspects of the shutdown. The following are among the factors to be considered in the planning:

1. Facilities affected by the shutdown.
2. Sequence of operating valves and control devices.
3. Verification of valve closure by:
 - a. Counting turns to close.
 - b. Block and bleed techniques.
 - c. Observation of position indicators.
 - d. Timing.
4. Automatic valves.
5. Settings of affected safety devices, regulators and control devices.
6. Switching of meter stations.

7. Installation of stopping equipment.
8. Supply of liquid to customers.
9. Liquid flow capacity of affected equipment and facilities.
10. Monitoring of pressures during each phase of the operation.
11. Blow down location, conditions and procedures.
12. Venting and control of any leakage past closed valves and closures.
13. Purging conditions and procedures.
14. Repressurizing for return to service.
15. Alternate liquid flow control procedures to be used in an emergency.

During the planning, it shall be determined if there is any additional work, which needs to be performed which would also require a shutdown. If practical, this additional work shall be incorporated in the plan. This will reduce the number of shutdowns and thereby enhance the overall continuity and safety of the pipeline operation.

Schedule the shutdown at the most advantageous time and as far in advance as possible. The following are among the factors to be considered in the scheduling:

1. Pipeline liquid flow and load conditions.
2. Special operating problems.
3. Customer liquid demands, if applicable.
4. Continuity of service to customers, if applicable.
5. Coordination with liquid customers and interconnecting operators.
6. Condition of readiness at work sites.
7. Availability of materials, personnel and equipment.
8. Weather conditions.
9. Time of year.

Established company safety procedures shall be used for cutting and welding operations, for the venting of liquid leakage, and for maintaining safe liquid conditions during the progress of the work.

A positive method shall be provided for preventing pressure buildup against temporary or unbraced end closures. End closures, which are to be operated under pressure, shall be braced or anchored.

Bonding cables, grounding rods or grounding mats shall be used to minimize hazards from electricity.

The Operations Supervisor shall determine when the facility is ready to return to service.

Established procedures shall be followed to purge, repressure and return all facilities to normal operation.

These procedures shall consider the potential for unknown hazards and include evacuation of personnel from excavations until all conditions are determined to be safe.

Flow rates shall be carefully controlled during Repressurizing, and pressures shall be monitored until normal operations have been established.

Pressure limiting stations, district regulator stations, relief valves, automatic valves and other control equipment shall be returned to their normal settings.

17.05.7 Start Up and Shutdown Briefing

A startup and shutdown briefing shall be conducted by the supervisor in charge before the actual startup or shutdown. This meeting shall include such topics as the following.

1. Work assignments.
2. Duties to be performed and order of performance.
3. Means of communication.
4. Pressure limits to be maintained.
5. Normal and abnormal conditions that may be expected.
6. Alternate procedures in the event of an emergency.
7. Appropriate governmental agencies , if necessary, and other pipeline operators that shall be notified.

17.05.8 Action Required by Pipeline Personnel Before Start Up or Shutdown

The operator shall:

1. Ensure proper functioning and serviceability of valves, and other devices, which will be used to block or control the liquid, making inspections and doing necessary servicing.
2. Place under manual control those automatic valves, which might be adversely affected.
3. Adjust or change the settings of pressure limiting stations, district regulator stations, relief stations, relief valves and other control equipment (as required) to maintain safe pressures throughout the system.
4. Take precautions to minimize fire hazard where liquid hydrocarbons can be expected at a pipeline cut.

5. Account for variations in altitude along the pipelines.
6. Do as much of the following work (as is practical or necessary and consistent with safe operating practices) prior to the startup or shutdown.
 - a. Excavate, identify and verify the pipeline at the work site.
 - b. Clean and inspect the exterior of the pipe.
 - c. Check pipe for undersize or oversize.
 - d. Install taps for blow downs or vents.
 - e. Install bypass equipment.
 - f. Install fittings for line stoppers.
 - g. Deactivate rectifiers.
 - h. Arrange for nondestructive testing.
 - i. Check availability and operating condition of required work equipment.
 - j. Provide and check fire extinguishers.
 - k. Calibrate pressure test gauges and recorders, and assure that their connections are not obstructed.
 - l. Check liquid detection equipment for satisfactory condition and availability, and the availability of personnel qualified to operate the equipment.
 - m. Provide for first aid equipment, supplies and protective clothing.

17.05.9 Action Required by Pipeline Control Before Startup or Shutdown

Before commencing the start up or shutdown, the person in charge at Pipeline Control shall determine that:

1. All personnel and equipment are at assigned locations.
2. Everything is ready at the job sites.
3. Conditions in the liquid system are conducive to satisfactory start up or shutdown.

17.05.10 Action Required by Pipeline Control during Startup or Shutdown

Liquid pressures in the system shall be continuously monitored. Pressures shall be maintained within the prescribed limits during the period from the startup or shutdown.

Where line packing is necessary or desirable or where the start up or shutdown may cause a pressure buildup, special attention shall be taken to avoid exceeding maximum allowable operating pressures.

When the startup or shutdown will cause installed pressure regulating or overpressure protection devices to be ineffective, the procedures established shall at least provide that:

1. Operations are carried out by personnel qualified by training and/or experience.
2. Personnel are instructed in the operating characteristics of the components of the pipeline facilities affected.
3. Pressures in the affected facility are continuously monitored utilizing gauges (which shall be selected after considering pressure levels and degree of control required).
4. Communications are established to insure proper coordination of work.
5. Valves used for manually throttling pressures are constantly attended.

17.05.11 NORMAL PIPELINE OPERATION

17.05.11A Platform Holly Oil Pipeline

Under normal operating conditions, the pipeline from Platform Holly to the Ellwood Onshore Facility is operated as follows:

1. After the Reda oil shipping pump (P-200) and the oil pipeline 6" ESD valve and manual isolation valve status are verified open, manually start P-200 based on an adequate level in Surge Tank V-110. Following initial start, shipping is controlled by VSD-200 via LCV-110A (oil to EOF) and LCV-110 (recycle to Surge Tank) based on level in V-110.
2. The Platform Holly operations will monitor and record the pipeline pressure, flow rate and sales chart every two hours. The Ellwood Onshore Facility monitors the incoming pressure and Shipping Tank level. Normal pipeline operations are 120 to 200 psi shipping pressure and maximum of 16,000 barrels per day flow rate.
3. The Platform Holly shipping operation will automatically shut down based on a low level in Surge Tank V-110.

17.05.11B Ellwood Pipeline Inc. – Line 96

Under normal operating conditions, the pipeline from the Ellwood Onshore Facility to the PAAPLP pipeline is operated as follows:

1. The Operator verifies LACT Unit #1 pump (P-222) status and pipeline valve alignment.
2. The Operator verifies pipeline pump P-203 is operating and notes the flowrate and pressure.
 - a. Flowrate is based on a number of factors such as daily oil production and status of pipeline operation: batch versus continuous flow.

- b. Normal flowrate will be from 80 to 400 barrels per hour, per daily operating requirements.
 - c. Pipeline pressure is dependent on flowrate, oil temperature, and current operating pressure of the PAAPLP pipeline.
 - d. Normal pressure for hot oil will be 600 to 900 psig. This pressure will be slightly higher if shipping cold oil, such as on pipeline start-up after an extended shutdown.
3. Pipeline delivery rate is based on shipping tank level; either on automatic level control or automatic low level shutdown.
- a. When operating under automatic low level shutdown, the shipping pump P-203 will operate per manual rate setpoint. The pump will shut down when the shipping tank reaches a low level of 4 ft.
 - b. When operating under automatic level control, the tank level controller will maintain the speed of P-203 to match production into the tank.
4. The Operator verifies NGL/LPG pumps P-245A and P-245B operation.
- a. NGL flowrate is normally set to maintain a steady level in the NGL vessel, V-227. Under normal operation, all NGL recovered from gas processing will be blended into Line 96, with room left to also blend some of the LPG recovered from gas processing.
 - b. LPG flowrate is set so as to not raise the RVP of the shipped oil in Line 96 over 8.6 psia.
5. Pipeline operation is continuously monitored by a computational pipeline monitoring system (CPM), described in detail in Section 17.05.12D.

17.05.12 NORMAL SHUTDOWN AND START-UP

17.05.12A Ellwood Pipeline Inc. - Line 96

Normal Start-Up Procedure

1. Confirm start-up clearance from Supervisor or Lead Operator;
2. Confirm start-up clearance from County of Santa Barbara and City of Goleta if following seismic event detection;
3. Confirm equipment is ready for startup
 - Check CPM.
 - If CPM shutdown indicated, verify start-up with Operations Supervisor before proceeding.
 - After approval from Operations Supervisor, reset the "Pressure/Flow Deviation S/D" button on the "Line 96 Leak Detect" screen.
 - If no CPM initiated shutdown is indicated, or after authorization to start by Operations supervisor, proceed to next step.
 - Verify all instruments and control valves are working prior to startup

- Verify electrical service and instrument air are available
- Verify P-203 seal chamber is filled with buffer fluid, and pressure is set at 180 psig.
- Notify PAAPLP of pending startup.

4. Prepare LACT Unit for startup

- Verify Line 96 is ready to receive oil (shutdown valves at PAAPLP delivery point and intermediate valve boxes are open)
- Open LACT oil inlet valve at selected tank
- Verify Line 96 Pipeline oil outlet manual block valves are open
- Verify BS&W meter is operational
- Verify Wet Oil Tank T-204 inlet valves are open to receive oil from divert line
- Line up and verify cooling water through P-203 seal pot.
- Verify oil is dry, <3% BS&W
- Position LACT Unit #1 control panel for startup
- Verify SAMPLER switch is sealed in AUTO position
- Place Charge Pump P-222 switch in AUTO position
- Verify Charge Pump P-222 is running
- P-222 flow should initially divert to T-204 until it verifies the oil is dry (<3% BS&W)
- Verify cut monitor directs flow out of divert and to LACT meter

5. Start Pipeline Pump P-203

- Select proper tank LIC 202A, 202B or 203A in PLC to control P-203. Alternatively place P-203 in manual, 50% flowrate.
- Open P-203 suction and discharge valves. Verify that there is no reverse flow.
- Verify LCV-202 is lined up
- Verify PSV-100 is lined up and its block valves are car sealed open
- Press Shipping Pump P-203 start switch when ready to start pump
- Verify flow and pressure.

Note: P-203 Shipping Pump is a Screw Type Pump with very close internal clearances. Care should be taken to limit the amount of BS&W to less than 3% when using P-203.

6. Start NGL/LPG Injection. The following steps assume P-245A is to be used. The steps will be identical for use of P-245B.

- Lineup V-227 (NGL) or V-218 (LPG) to NGL/LPG pump P-245A. Check that all manual block valves for the lineup are open.
- With Shipping Pump P-203 operating, set HS-245A to the proper tank: V-227 or V-218.
- Verify that suction pressure on P-245A is the same as the supply vessel pressure.
- Have inside operator set FIC-245A at the desired rate, and select the pump to operate.
- SDV-245 will open to allow NGL/LPG flow to the LACT Skid.
- Check that the green Permits Clear light comes on.
- Push the start button for P-245A. Pump will start and run to control injection rate.
- Verify flow and pressure.

Normal Shutdown Procedure

1. SCADA will automatically shutdown P-203 at 4' 0" tank level. P-245A and P-245B will also shutdown, and SDV-245 will close whenever P-203 shuts down.
2. For manual shutdown, prepare for LACT Unit shutdown
 - Coordinate with Ellwood management on shutdown
 - Shutdown of oil from Platform Holly may be necessary as tankage inventories rise
3. Shutdown NGL/LPG injection pumps P-245 A and P-245B (press stop buttons at pumps).
 - Verify SDV-245 closed.
 - Block in P-245A and P-245B discharge valves.
 - Turn HS-245A and HS-245B to neutral position (neither V-227 nor V-218 is selected for P-245A or P-245B).
4. Position LACT Unit #1 control panel for shutdown, DWG F-9760-7
 - Press P-203 stop switch.
 - Verify P-203 shutdown
 - Verify SDV-984 closes.
 - Close manual block valve at P-203 discharge.
 - Shutdown P-222 (turn switch from auto to off).
 - Record shipping meter reading
 - If shutdown will be extended, block in cooling water to P-203 seal pot.
5. Isolate system, DWG F-9760-7
 - block oil pipeline valve PCV-26 to Line 96
 - block LACT oil inlet valve at selected tank

17.05.12C Platform Holly Oil Pipeline

Start-up procedure:

- Startup the Platform using the Platform Holly Shutdown and Startup Procedure;
- Notify Ellwood Onshore Facility of impending startup of the pipeline (oil to shore);
- Open 6" pipeline isolation valve and 6" ESD valve.
- Establish levels in Surge Tank V-110.
- Notify Ellwood, verify that onshore valves are open.
- Start P-200 REDA shipping pump to the pipeline.
- Normal operating conditions are 120 - 200 psig shipping pressure and maximum of 16,000 BPD.

Shutdown procedure:

- Notify Ellwood of impending shutdown.
- Following the Platform Holly Controlled Shutdown Procedure, shutdown the platform.
- Shut down the Reda pump (P-200) after minimum levels are reached in the surge tanks and maximum spillback is reached on LCV-110.
- Close oil pipeline 6" ESD valve.
- Close oil pipeline 6" manual isolation valve.

17.05.12D Computational Pipeline Monitoring (CPM). Reference 49 CFR 195.134, 195.444 CPM Leak Detection

Ellwood Onshore Oil Transfer Pipeline (Line 96) Leak Detection

A leak detection system has been designed and installed for the purpose of monitoring and detecting leaks associated with the Ellwood Onshore Oil Transfer Pipeline complying with API 1130 requirements. The system is designed to use both pressure/flow monitoring and volumetric balancing methods. The system consists of a number of Supervisory Control And Data Acquisition (SCADA) components which are integrated into the EOF process control system "Wonderware". The SCADA components consist of two programmable logic controllers (PLC), flow meters, and pressure and temperature transmitters located at both ends of the pipeline: at EOF and at the tie-in point to the PAAPLP. The CPM system provides 24/7 real time surveillance of the pipeline consisting of continuous calculations to monitor over and short measurement, pipeline pressure and flow, and system functionality. The CPM operates continuously during batch shipping operations as well as when the pipeline is static between batches or when isolated and idle. The CPM system has a sensitivity of +/- 30 barrels.

CPM and SCADA Alarms

Preset alarms points are set based on normal operating ranges and are annunciated in the EOF control room. All CPM and SCADA alarms are displayed on the Wonderware “Line 96 Leak Detec” and the “Alarm Summary ” screens. All alarms are audible in the EOF control room and must be acknowledged by the control room operator. Operator response to alarms is discussed in Section 17.08.11 Abnormal Operations. All CPM and SCADA alarms are logged on an “Alarm Summary “page and retained historically for a period of three years.

Flow and Pressure Alarms for Shipping

Pressure and flow alarms are set to monitor pipeline shipping from EOF. Per Condition 70, pressure and flow alarms must be set to trigger at 10% deviation outside of normal operating range; and shutdown shipping at 15% deviation outside of normal operations for 5 secs or more. Current settings can be found in Section 17.08.11F.

Flow and Pressure Alarms for Receiving

Pressure and flow alarms are set to monitor pipeline receiving at the PAAPLP tie-in. Per Condition 70, pressure and flow alarms must be set to trigger at 10% deviation outside of normal operating range; and shutdown shipping at 15% deviation outside of normal operations for 5 seconds or more. Current settings can be found in Section 17.08.11F.

Operation

The Ellwood Onshore Transfer pipeline (Line 96) CPM requires minimal operator interface. The system operates continuously without operator intervention. Once the CPM system is on line the operator monitors pipeline “Line 96 Leak Detect” screen and responds to system alarms. Operator response to alarms is discussed in Section 17.08.11F.

Resetting the CPM Meter k-Factor

Following each monthly proving of the EOF LACT meter, the Operator shall update the CPM system by inputting a new “k-Factor” in the as named box on the “Line 96 Leak Detect” screen. Resetting the “k-Factor” ensures system accuracy of the CPM flow meters at EOF and at the PAAPLP tie-in.

CPM Initial Testing and Retesting

The CPM system shall be tested initially to verify its expected performance. The system will be retested every 5 years to demonstrate effectiveness by either removing a predetermined quantity or by simulation. Successful detection of a pipeline leak within the test interval satisfies periodic testing.

Testing of CPM system effectiveness must be recorded and maintained until the next system test. The test record must include:

- Date, time and duration ;
- Method, location and description of commodity;
- Operating conditions
- Alarm summary of the test; and
- A performance analysis of the CPM and operation personnel.
- Any remedial measures taken as a result of the test.

CPM Routine Maintenance

Routine maintenance of the CPM system components is managed through the EOF computerized maintenance management system (CMMS). When maintenance is identified by the operator a work order is completed and processed through the CMMS. All system calibration is performed by qualified facility or contractor instrument and electrical crafts persons.

CPM Operator Training

All EOF operating personnel receive training on the pipeline system and the CPM system. Training on the pipeline is completed through structured On-the-job training (OJT) during which facility operators acquire knowledge on the pipeline shipping and receiving equipment, pipeline operating conditions and emergency response actions. Operating personnel receive additional training on the components of the CPM system, monitoring the CPM system and response to alarms and abnormal conditions. In accordance with 49 CFR Part 195 Subpart G, under Venoco's Pipeline Operator Qualification Program new and transferred employees must be qualified initially prior to performing covered pipeline tasks and recertified every 3 years thereafter. Refresher training is also conducted for system changes and whenever deemed necessary.

17.06 PIGGING OPERATIONS

17.06.1 References

49 CFR, sections 195.426.

17.06.2 Purpose

The purpose of this procedure is to define proper operation and maintenance of the pig launcher and receiver.

17.06.3 Responsibility for Implementation

The Operations Supervisor is responsible for implementation of this procedure.

17.06.4 General

Both the Platform Holly Oil Pipeline and the Ellwood Oil Transfer Pipeline Line 96 are piggable to run instrumented tools (smart pigs) and cleaning scrapers in the pipelines to minimize any debris build-up by using scraper and brush pigs. Pigging is also used to purge the pipeline of oil to facilitate maintenance and to purge the pipeline of air, water, or nitrogen when returning the pipeline to service. The Platform Holly Oil Pipeline is piggable from the Platform Holly launcher to the Ellwood Onshore Facility receiver. The Ellwood Oil Transfer Pipeline Line 96 is piggable from the Ellwood Onshore Facility to the Plains All American Pipeline LP 24" Mainline pipeline.

17.06.5 Pigging Safety Requirements

In addition to the standard Venoco minimum personnel protective equipment, the following shall be provided for this procedure:

- A minimum of two qualified operators must be present during pigging operations.
- Follow appropriate company safety procedures.
- Face shield
- Chemical glove
- SCBA at the scene for emergency use

Caution: The use of unapproved tools such as snipes, pry bar, etc., on the pig receiver door is strictly prohibited.

17.06.7 Launcher and Receiver Trap Maintenance

Each time a trap is pressurized, the pig launcher trap end closure seal shall be checked for tightness.

If leakage is found, the pig launcher trap closure “O” ring shall be replaced. When replacing the “O” ring, the “O” ring groove must be wiped clean of all existing grease and dirt. A new “O” ring shall be greased and installed.

17.06.8

Pigging procedures are maintained at the Ellwood On-shore Facility and the Holly Platform in the Oil Pipeline Operations Procedures Manual.

17.07 DOT INSEPCION AND REPORT SCHEDULE

Refer to the DOT inspection and report schedules following this page.

Form #17.07A	Holly to Ellwood
Form # 17.07B	Ellwood Onshore Transfer EPI – Line 96

17.07.1 References

49 CFR, sections 195.

17.07.2 Purpose

The purpose of this procedure is to provide guidance for scheduling and performance for all the required DOT pipeline operations and maintenance requirements described in 49 CFR subpart F (operations and maintenance) and subpart H (corrosion).

17.07.3 Responsibility for Implementation

The Operations Supervisor is responsible for implementation of this procedure.

Venoco Inc. – Ellwood Hazardous Liquid Pipeline – Holly to Ellwood Facility DOT Inspection and Report Schedule, PSOM #17.07A

Item #	Task Description [195 Regulation]:	Freq.	Form #	O&M Sect #	Who	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Operation & Maintenance:																	
1.	Inspect ROW [412(a)]	26x/yr	17.10.2H	17.10	Oper	See CSLC Title 2. Div. 3 Article 3.3 Section 2132 (h) (6) (D)											
2.	Navigable Water X-ing Insp. [412(b)]	1x/ 5yr	ROV Report	5.03	Oper	See CSLC Title 2. Div. 3 Article 3.3 Section 2132 (h) (6) (A)											
3.	Emergency Valve Inspection [420(b)]	2x/yr	7.01A	7.01	Oper	See CSLC Title 2. Div. 3 Article 3.3 Section 2132 (h) (8) (F)											
5.	Fire Fight Equip. Inspection [430]	1x/yr	Facility Various	14.05	Oper										X		
6.	System Maps, Records, Specs [404(a)]	AR	NA	2.01	Eng												
8.	Record of Repairs/Const [404(c)]	AR	Record	2.01	Oper												
Damage Prevention & Public Ed.:																	
9.	Public Awareness Mailers [440, 442(c)(2)]	1x/2 yr	Record	3.03	PCC			X									
10.	Gov. Liaison [412(c)(12)]	1x/yr	3.04A	3.03	Oper					X							
11.	List of Excavators [442(c)(1)]	1x/yr	3.03B	3.03	PCC			X									
12.	Surveys Results & Conclusions [PSA]	1x/yr	Report	3.03	PCC							X					
13.	Self Assessments [PSA]	1x/2 yr	3.03A	3.03	PCC							X					
14.	One Call Notifications	AR	Records	3.01	Oper												
Corrosion:																	
15.	Exposed Pipe Report (Ext/Int) [569,579(c)]	AR	6.01A/3.01B	6.04	Oper												
16.	Corrosive Liquid Investigation [579(a)]	AR	Report	6.02	Eng												
17.	Int. Corrosion (coupon) [579 (b)]	2x/yr	Report	6.02	Cont				X							X	
18.	CP Survey-Protected Pipe [573(a)]	1x/yr	Report	5.03/6.05	Cont											X	
19.	Rectifier [573 (c)]	6x/yr	6.07A	6.07	Oper	X		X		X		X		X		X	
20.	Atm Corrosion – Onshore [583(a)]	1x/yr	6.01A	6.01	Oper											X	
Plans, Reports, and Reviews:																	
21.	O&M and Corrosion Plan Review [402(a)]	1x/yr	17.01A	PSOM	Oper											X	
22.	Annual Report [49]	1x/yr	RSPA	1.04	PCC			X									
23.	Review Work by Oper[402(c)(13)]	1x/yr	17.01B	PSOM	Oper			X									
24.	Establishing MOP [406]	AR	4.01A	4.01,8.01	Eng												
25.	Incident Report [52 & 54]	AR	1.01B	1.01	PCC												
26.	Safety Related Condition Report [55& 56]	AR	1.02B	1.02	PCC												
27.	Abnormal Operations Report [402(d)(1)]	AR	17.08A	PSOM	Oper												
28.	Failure Investigation [402(c)(5)]	AR	2055	1.03	Eng												
29.	Conversion of Service Report [.5]	AR	12.02A	12.02	Eng												
30.	Abandonment Report [59 & 402(C)(10)]	AR	13.01A	13.01	Eng												

Venoco Inc. – Ellwood Hazardous Liquid Pipeline – Holly to Ellwood Facility DOT Inspection and Report Schedule, PSOM #17.07A

Item #	Task Description [195 Regulation]:	Freq.	Form #	O&M Sect #	Who	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Emergency Response (EAP):																	
31.	Notice of Emergencies [402(e)(1)]	AR		EAP	Oper												
32.	Notification to Fire, Police, etc [402(e)(7)]	AR		EAP	Oper												
33.	Post Accident Review [402(e)(9)]	AR		EAP	SMgr												
34.	EAP Drill or Training [403(a)&(b)]	1x/yr		EAP	SMgr											X	
35.	Verification of Supvr Knowledge [403(c)]	1x/yr		EAP	SMgr												
36.	Hazwoper Refresher [29 CFR 1910.120]	1x/yr		EAP	SMgr												
37.	EAP Equipment Checks [EAP, SLC]	1x/yr		EAP	SMgr												
38.	Verify Approved Contractors [EAP]	1x/yr		EAP	SMgr												
39.	EAP Plan Review [605(a)]	1x/yr		EAP	SMgr												
Liquid Integrity Mgmt (IMP):																	
40.	ID HCAs [452(a) & (b)]	1x/yr	4.01A	Ele. #1.1	PCC												
41.	Update NPMS [452(a) & (b)]	1x/yr		Ele. #1.2	PCC												
42.	Review & Update IMP Plan [452(a)]	1x/yr		Ele. #1.2	PCC												
43.	Hydro Test or Smart Pig [452(c, d, e)]	1x/5 yr		Ele. #2.2	Eng	See CSLC Title 2, Div. 3 Article 3.3 Section 2132 (h) (6) (B)											
44.	Assessment Review [452(g)]	Ongoing		Ele. #3,5	PCC												
45.	Remediation & Repair [452(h)]	AR		Ele. #4	Eng												
46.	Risk Analysis [452(j)]	Ongoing		Ele. #5.3	PCC							X					
47.	Prevention & Mitigation [452(i)]	Ongoing		Ele. #6	PCC												
48.	Program Evaluation - 6 Measures [452(k)]	1x/yr		Ele. #7	PCC												
49.	Program Evaluation – Self Audit [452(k)]	1x/3yr		Ele. #7	PCC												
Operator Qualification (OQ):																	
50.	ID of Covered Tasks & Individuals Performing Covered Tasks [501,505(a)]	1x/yr	CCPO	Ele. #1	PCC												
51.	Review and Update OQ Plan [501,505(a)]	1x/yr	CCPO	Ele. #1	PCC												
52.	Training and Online Testing [503]	1x/3yr	CCPO	Ele. #2	Oper	April or before performing task and at a frequency specific for each task. (see OQ Plan)											
53.	Performance Evaluations & Credentials	1x/3yr	CCPO	Ele. #2	PCC	April or before performing task and at a frequency specific for each task. (see OQ Plan)											
54.	Non-Qualified Individual Site Insp. [505(c)]	Ongoing	CCPO	Ele. #3	PCC												
55.	Performance Contributing to Acc. [505(d)]	AR	CCPO	Ele. #4	Oper												
56.	Reasonable Cause [505(e)]	AR	CCPO	Ele. #5	Oper												
57.	MOC & Comm. Of Change [505(f)]	AR	CCPO	Ele. #6	Oper												
58.	Eval. Intervals & DIF Analysis [505(g)]	AR	CCPO	Ele. #7	PCC												
59.	Monitor OQ Record Status [507]	Ongoing	ISNet	OQ Plan	PCC												
60.	Contractor OQ Verification and Records	4x/yr		OQ Plan	PCC												

Venoco Inc. – Ellwood Hazardous Liquid Pipeline – Holly to Ellwood Facility DOT Inspection and Report Schedule, PSOM #17.07A

Item #	Task Description [195 Regulation]:	Freq.	Form #	O&M Sect #	Who	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
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<i>Agency Specific:</i>						Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
61.	SB County - Daily Visual Pipeline Inspection Report [SB Ord. #2929, c.63]	Daily	17.10.3A	PSOM 17.10.3	Oper	D	D	D	D	D	D	D	D	D	D	D	D
62.	SLC - Daily Discharge Pressures for weekly chart recorder [2132(h)(3)]	Daily	17.10.2A	PSOM 17.10.2	Oper	D	D	D	D	D	D	D	D	D	D	D	D
63.	SLC – Weekly Inspection of Ocean Surface [2132(h)(6)(D)]	Weekly	17.10.2H	PSOM 17.10.2	Cont	Wkly	Wkly	Wkly	Wkly	Wkly	Wkly	Wkly	Wkly	Wkly	Wkly	Wkly	Wkly
64.	SLC - Rectifier Output Log [2132(h)(4)]	Daily	17.10.2C	PSOM 17.10.2	Oper	D	D	D	D	D	D	D	D	D	D	D	D
65.	SLC – Rectifier Inspection [2132(h)(4)]	4x/yr	17.10.2D	PSOM 17.10	Cont	Frequency determined by more stringent DOT requirements. See item #19											
66.	SLC - Integrity Test ILI [2132(h)(6)(B)&(C)]	1x/yr	Report	PSOM 17.10.2	Eng											X	
67.	SLC - ROV Inspection [2132(h)(6)(A)]	1x/yr	Report	PSOM 17.10.2	Oper											X	
68.	SLC – Inspection Reports to SLC (CP, ILI) [2132(h)(7)]	1x/yr	Record	PSOM 17.10.2	Eng												X
69.	SLC – Relief Valve Testing [2132(g)(3)]	2x/yr	7.02A/7.02B	PSOM 17.10.2	Cont	X						X					
70.	SLC – Pressure sensors, shut-in devices, emergency valves tested [2132(h)(8)(F)]	Monthly	Various	PSOM 17.10	Oper	X	X	X	X	X	X	X	X	X	X	X	X

Notes (Frequency):

- AR = As Required
- 1 = Frequency is once per calendar year not to exceed 15 months
- 2 = Recommended frequency as described in O&M procedures
- 3 = Frequency is determined by IMP plan and condition/operation of the pipeline
- 4 = Frequency determined by OQ Plan

Notes (Who):

- PCC = Pipeline Compliance Coordinator
- Oper = Operations
- Eng = Engineering
- Cont = Contractor
- O & C = Operations and/or Contractor
- SMgr = Safety Manager

17.08 ABNORMAL OPERATIONS & EMERGENCY ACTIONS

17.08.1 References

49 CFR, sections 195.402(d), 195.402(e), 195.446(b)(3).

17.08.2 Purpose

The purpose of this procedure is to provide safety when operating design limits have been exceeded.

17.08.3 Responsibility for Implementation

The Operations Supervisor is responsible for implementation of this procedure.

17.08.4 General

An abnormal operation is a non-emergency condition on a hazardous liquid pipeline which occurs when the operating design limits have been exceeded due to pressure, flow rate, or temperature change outside the limits of normal operation. When an abnormal operation occurs, it does not pose an immediate threat to life or property, but could if not promptly corrected.

The procedures in this section are to be followed when an "abnormal operating" condition exists, and when responding to, investigating, and correcting the cause of:

- Unintended closure of valves or shutdowns;
- An increase or decrease in pressure or flow rate outside normal operating limits;
- System Over-Pressure Situation or System Under-Pressure Situation
- Loss of communications with automatic device essential for the operation of the system;
- Operation of any safety device;
- Any other malfunction of a component, deviation from normal operation, or personnel error which may result in a hazard to persons or property.

The individual who receives notification that an abnormal condition exists **shall** notify the Person-In-Charge (PIC)¹. The PIC, upon notification of an abnormal condition **shall** to:

¹ The term "Person-In-Charge" refers to a designated Pipeline Controller or facility Operator with authority and responsibility for pipeline operations.

- ✓ Verify that the condition exists and if necessary respond to the location.
- ✓ Take the necessary steps to rectify the situation which may include the need for additional operational and/or supervisory personnel.
- ✓ Once the situation is rectified, the system shall be checked for variations from normal operation at sufficient critical locations particular to the abnormal condition and the system in which condition occurred. The steps to be taken must ensure the continued integrity and safe operation of all facilities.
- ✓ The PIC must notify the Operations Supervisor that an abnormal event has occurred and the event has been rectified; will notify the discovering person that the situation has been rectified.
- ✓ The Operations Supervisor will decide if further action is necessary.

17.08.5 Prevention of Condition from Recurrence

Once the condition has been investigated, and normal or safe operations are restored, the Operations Supervisor shall determine what measures can be taken to prevent the cause of the condition from recurring. The Operations Supervisor shall also consider whether these measures shall be implemented elsewhere in the pipeline system to avoid similar occurrences of abnormal condition.

17.08.6 Follow-up Monitoring

Various critical locations in the system shall be checked for variations for normal operation after abnormal operation has ended. The extent of follow-up monitoring after the end of an abnormal condition is based on the nature of the condition and the probability that the cause of the condition can recur. The condition is considered corrected when the Operations Supervisor determines at the end of the monitoring period that the pipeline facility has maintained operations within its operating design limits.

17.08.7 Review of Personnel Response

The Operations Supervisor shall undertake a review of personnel response based on the extent of the abnormal condition. The review shall consider the actions taken, and whether the procedures followed were adequate for the given situation or shall be revised to provide more specificity or more flexibility.

The specific steps for review of the procedures during abnormal conditions include;

1. The Lead Operator, or designee, **shall** develop a sequence of events by reviewing logs/records and interviewing appropriate personnel involved in the abnormal condition event.
2. The Operations Supervisor **shall** evaluate the actions (i.e., sequence of events) taken to rectify the abnormal condition to determine if they were adequate.
3. If procedures are determined to be in-adequate, they will be re-written by the Operations Supervisor with input from engineering and appropriate operating personnel.
4. Results of the abnormal condition events **shall** be reviewed with operating personnel.

17.08.8 Abnormal Operation Notification

The Pipeline is monitored by operating personnel who report all abnormal operations to the Operations Supervisor. If further study into the cause or the correction of the condition that caused the abnormal operation is necessary, the Operations Supervisor shall notify the facility engineering staff. Use **Form #17.08A: Abnormal Operations Report** or its equivalent to document the abnormal operating condition.

17.08.9 Remedial Measures

If the operability of a pipeline is impaired as a result of abnormal operations, the affected pipeline operation shall be evaluated and changes made to improve its operation. The Operating and Maintenance Plan shall be updated if necessary and all affected personnel trained on the changes.

17.08.10 Records and Reports

Any reviews performed under this procedure shall be documented and maintained in the DOT records file for a minimum of five years.

PIPELINE SPECIFIC ABNORMAL OPERATIONS GUIDELINES

17.08.11 Pipeline Specific Abnormal Operating Guidelines

PSOM PLAN SECTION	OPERATING & MAINTENANCE PLAN REQUIREMENTS	
	DESCRIPTION	DOT 49 CFR PART 195

17.08.11A	Unintended Closure of Valves	§ 195.402(d)(1, 2, 3)
17.08.11B	Unscheduled Shutdown	§ 195.402(d)(1, 2, 3)
17.08.11C	Abnormal Line Volume Over or Short	§ 195.402(d)(1, 2, 3)
17.08.11D	Abnormal Pressure Changes	§ 195.402(d)(1, 2, 3)
17.08.11E	Loss of Communications	§ 195.402(d)(1, 2, 3)

The pipeline may be subjected to abnormal operating conditions during the shipping operation. Possible abnormal operating conditions, steps to take to prevent their occurrence, and steps to take to correct these abnormal conditions follow.

17. 08.11A Unintended Closure of Valves

Each pipeline is equipped with a pressure safety device, high pressure alarm and shutdown at the shipping pump. The Ellwood Onshore Oil Transfer Pipeline (Line 96) is continuously monitored by CPM. If a valve closes and blocks the flow in a pipeline, an audible alarm will sound (as pressure rises) in the Ellwood facility control room or plant area. The pumps shipping to the Ellwood onshore oil transfer pipeline (P-222) are not capable of exceeding the pipeline or flange pressure ratings.

When a valve malfunction occurs, regardless of the consequences, the Operator is required to report the incident to his supervisor.

17. 08.11B Unscheduled Shutdown

An unintended shutdown could result in abnormal pressure changes. Refer to Section 17.08.11D for recommended procedures.

17. 08.11C Abnormal Line Volume Over or Short

One of the two basic surveillance methods of determining the integrity of a pipeline system is by comparing the volume delivered to the volume received. If there is a difference, it is referred to as over or short. A shortage can be caused by a leak, increased pressure, temperature drop, meter malfunction, fluid change, valve leakage, and errors in calculating volumes. An overage can be caused by a reduction in operating pressure, temperature rise, meter malfunction, fluid change, and errors in calculating volumes. Both overages and shortages are to be analyzed with serious concern.

Platform Holly Oil Pipeline

The operator shall take the following steps if the potential for overages and shortages exist:

- Notify the offshore Supervisor, onshore Supervisor and EOF of the potential overage/shortage and keep them informed.
- Shut down shipping (P-200) and isolate the oil pipeline 6" ESD valve.
- Notify the crew boat to perform a right-of-way survey.
- If leak is found, initiate emergency procedures (see Section 17.09).

17. 08.11D Abnormal Pressure and Flow Changes

Another method of monitoring the integrity of a pipeline system is pressure and flow surveillance. A pressure or flow change can be caused by a leak, a throughput rate change, fluid change (viscosity), pump changes, changes in receiving and delivery locations, control valve malfunctions, and line blockage.

Whenever an abnormal pressure or flow change occurs that cannot be justified as a result of current operating conditions, the Operator is required to determine the cause and take corrective action as necessary.

Platform Holly Oil Pipeline

The operator shall determine the following:

For an increase in pressure (Note: oil shipping is not a steady state operation, pump discharge and pipeline pressure may vary between 200 psi - 500 psig)

- Have the fluid characteristics (viscosity) changed?
- Have any valves malfunctioned or been misaligned?

If the causes of pressure increase (>500 psi) cannot be corrected, the Operator shall:

- Shut down P-200 and close the oil pipeline 6" ESD valve.
- Notify the offshore Supervisor, onshore Supervisor and EOF of shutdown.

The operator shall determine the following:

For a decrease in pressure (Note: oil shipping is not a steady state operation, shipping and pipeline pressure may vary between 100 psig -120 psig decreasing)

- Have the wells started surging?
- Have the fluid characteristics (viscosity) changed?
- Has the pump spillback (LCV-109) changed?
- Have any valves malfunctioned?

If the cause of the pressure loss (< 100 psig) cannot be corrected, the Operator shall:

- Shut down P-200 and close the oil pipeline 6” ESD valve.
- Notify the offshore Supervisor, onshore Supervisor, and EOF of Platform shutdown. Initiate Platform shutdown.
- Notify the crew boat to perform a pipeline right-of-way survey.
- If leak is found, initiate emergency procedures (see Section 17.09).

17. 08.11E Loss of Communications

Platform Holly Oil Pipeline

If there is a loss of verbal communications or loss of pipeline monitoring, the Platform shall immediately shutdown oil shipping operations see Section 4.3 of Operating Procedures Platform Holly.

17. 08.11F Ellwood Onshore Transfer Line SCADA Alarms & Responses

The Ellwood Onshore Transfer Pipeline is monitored continuously for abnormal operating conditions such as overages & shorts, pressure & flow deviations, and system communications. Preset alarms points are set based on normal operating ranges and will be annunciated in the EOF control room and must be acknowledged by the control room operator. All CPM and SCADA alarms are displayed on the Wonderware “Line 96 Leak Detec” and the “Alarm Summary” screens. Operator response to these abnormal conditions is described in the matrix PSOM #17.08.11F-A.

17.08.12 Emergency Actions Taken by a Controller

PSOM PLAN SECTION	OPERATING & MAINTENANCE PLAN REQUIREMENTS	
	DESCRIPTION	DOT 49 CFR PART 195
17.08.12	Emergency actions taken by a Controller	§ 195.402(e)(10)

17.08.12	Controllers role during an emergency	195.446(b)(3)
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17.08.12A General

The individual who receives notification that an emergency exists is to notify the Person-In-Charge (PIC)². The PIC has the authority and is responsible for assessing the situation and taking immediate action during an emergency or if a leak or rupture is suspected.

17.08.12B Specific Controller Actions

The PIC upon notification of an emergency shall:

- ✓ Assess the situation and ensure the safety of all personnel
- ✓ Shutdown pumps or compressors to stop or reduce flow
- ✓ Isolate or control the affected pipeline by closing main-line valves remotely or dispatching personnel to manually close valves
- ✓ Make all immediate internal and externally notifications
 - 9-1-1
 - Alert IIRT and facility personnel
 - Notify OSRO or spill clean-up contractor
 - Notify external agencies (NRC, Cal-EMA, etc.)
- ✓ Consult facility Emergency Action Plan or Oil Spill Contingency Plan as appropriate.

In the event an evacuation of the control room, the Lead Operator or Controller shall:

- ✓ ESD the operating facility and/or pipeline and close main-line valves.
- ✓ Evacuate the control room and/or facility according to the facility Evacuation Plan.

In the event of a pipeline SCADA or communications system failure, the Lead Operator or Controller shall:

- ✓ ESD the operating facility and/or pipeline and close main-line valves.
- ✓ Notify the Operations Supervisor

² The term "Person-In-Charge" refers to a designated Pipeline Controller or facility Operator with authority and responsibility for pipeline operations.

Ellwood Pipeline Inc. - Line 96 SCADA System Response Matrix

Tag #	Event	Setpoint	Time	Action	Alarm Summary	Operators' Response
PSH-984	Hi Pressure at EOF	1100 PSIG	0 sec	Alarm	Activated when the pressure is above setpoint.	<p>This is not a pipeline leak.</p> <ol style="list-style-type: none"> 1. Check flow trend on Wonderware. 2. Check valves and pressures on Line 96 system at PAAPLP, EOF and Intermediate Block Valves. 3. If high pressure at PAAPLP, call them to determine cause. 4. Repair the system as necessary.
PSH-1041	Hi Pressure at PAAPLP	900 PSIG	0 sec	Alarm	Activated when the pressure is above setpoint.	<p>This is not a pipeline leak.</p> <ol style="list-style-type: none"> 1. Check flow trend on Wonderware. 2. Check valves and pressures on Line 96 system at PAAPLP, EOF and Intermediate Block Valves. 3. If high pressure at PAAPLP, call them to determine cause. 4. Repair the system as necessary.
PSHH-984	Hi Pressure at EOF	1200 PSIG	0 sec	Shutdown	<p>Activated when the pressure is above shutdown setpoint and P-203 is on.</p> <p>Shutdown P-203 and close SDV-984 at EOF.</p>	<p>This is not a pipeline leak.</p> <ol style="list-style-type: none"> 1. Check flow trend on Wonderware. 2. Check valves and pressures on Line 96 system at PAAPLP, EOF and Intermediate Block Valves and determine cause. 3. Call PAAPLP to determine cause of high pressure. 4. Document actions and report causes found to the Operations Supervisor and Lead Operator for review. 5. Repair the system as necessary. 6. Operations Supervisor and PIC will review actions taken and causes found and determine if start up is authorized. Both the Operations Supervisor and PIC must approve start up.

Operations Supervisor can be designated alternate
PIC is Person in Charge

Ellwood Pipeline Inc. - Line 96 SCADA System Response Matrix

Tag #	Event	Setpoint	Time	Action	Alarm Summary	Operators' Response
PSHH-1041	Hi Pressure at PAAPLP	990 PSIG	5 sec	Shutdown	<p>Activated when the pressure is above shutdown setpoint for 5 seconds and P-203 is on.</p> <p>Shutdown P-203 and close SDV-984 at EOF.</p>	<p>This is not a pipeline leak.</p> <ol style="list-style-type: none"> 1. Check flow trend on Wonderware. 2. Check valves and pressures on Line 96 system at PAAPLP, EOF and Intermediate Block Valves and determine cause. 3. Call PAAPLP to determine cause of high pressure. 4. Document actions and report causes found to the Operations Supervisor and Lead Operator for review. 5. Repair the system as necessary. 6. Operations Supervisor and PIC will review actions taken and causes found and determine if start up is authorized. Both the Operations Supervisor and PIC must approve start up.
PSL-984	Low Pressure at EOF	600 PSIG	0 sec	Alarm	Activated when the pressure is below alarm setpoint and P-203 is on.	<ol style="list-style-type: none"> 1. Check flow trend on Wonderware. 2. Check pressure profile of pipeline from EOF to PAAPLP. 3. If low pressure at PAAPLP, call PAAPLP to determine cause.
PSL-1041	Low Pressure at PAAPLP	550 PSIG	0 sec	Alarm	Activated when the pressure is below alarm setpoint and P-203 is on.	<ol style="list-style-type: none"> 1. Check flow trend on Wonderware. 2. Check pressure profile of pipeline from EOF to PAAPLP. 3. If low pressure at PAAPLP, call PAAPLP to determine cause.

Ellwood Pipeline Inc. - Line 96 SCADA System Response Matrix

Tag #	Event	Setpoint	Time	Action	Alarm Summary	Operators' Response
PSLL-984	Low Pressure at EOF	500 PSIG	5 sec	Shutdown	<p>Activated when the discharge pressure is below S/D setpoint for 5 seconds and P-203 is on.</p> <p>Shutdown P-203 and close all pipeline shutdown valves.</p>	<p>This could be a pipeline leak.</p> <ol style="list-style-type: none"> 1. Check flow trend on Wonderware. 2. Check pressure profile of pipeline from EOF to PAAPLP. 3. If low pressure at PAAPLP, call PAAPLP to determine cause. 4. Dispatch operators to visually inspect in plant system and pipeline route. 5. If leak is observed, call 9-1-1 and initiate Oil Spill and Emergency Action Plan. 6. Repair the system as necessary. 7. Operations Supervisor and PIC will review actions taken and causes found and determine if start up is authorized. Both the Operations Supervisor and PIC must approve start up.
PSLL-1041	Low Pressure at PAAPLP	500 PSIG	5 sec	Shutdown	<p>Activated when the discharge pressure is below S/D setpoint for 5 seconds and P-203 is on.</p> <p>Shutdown P-203 and close all pipeline shutdown valves.</p>	<p>This could be a pipeline leak.</p> <ol style="list-style-type: none"> 1. Check flow trend on Wonderware. 2. Check pressure profile of pipeline from EOF to PAAPLP. 3. If low pressure at PAAPLP, call PAAPLP to determine cause. 4. Dispatch operators to visually inspect in plant system and pipeline route. 5. If leak is observed, call 9-1-1 and initiate Oil Spill and Emergency Action Plan. 6. Repair the system as necessary. 7. Operations Supervisor and PIC will review actions taken and causes found and determine if start up is authorized. Both the Operations Supervisor and PIC must approve start up.

Operations Supervisor can be designated alternate
PIC is Person in Charge

Ellwood Pipeline Inc. - Line 96 SCADA System Response Matrix

Tag #	Event	Setpoint	Time	Action	Alarm Summary	Operators' Response
FSH-220	Hi Flowrate at EOF	425 BPH	0 sec	Alarm	Activated when the flow rate is above alarm setpoint.	<p>This is not a pipeline leak.</p> <ol style="list-style-type: none"> 1. Check flow trend on Wonderware. 2. Check flow control operation of P-203. 3. Check valves and instruments at PAAPLP and EOF.
FSH-1037	Hi Flowrate at PAAPLP	425 BPH	0 sec	Alarm	Activated when the flow rate is above alarm setpoint.	<p>This is not a pipeline leak.</p> <ol style="list-style-type: none"> 1. Check flow trend on Wonderware. 2. Check flow control operation of P-203. 3. Check valves and instruments at PAAPLP and EOF.
FSSH-220	Hi Flowrate at EOF	450 BPH	5 sec	Shutdown	<p>Activated when the flow rate is above shutdown setpoint and has exceeded it for 5 seconds or more.</p> <p>Shutdown P-203 and close SDV-984 at EOF.</p>	<p><u>This is not a pipeline leak.</u></p> <ol style="list-style-type: none"> 1. Operator to check flow trend on Wonderware. 2. Check flow control operation of P-203. 3. Repair the system in time to resume shipments before tanks at EOF are full. 4. Operations Supervisor and PIC will review actions taken and causes found and determine if start up is authorized. <u>Both the Operations Supervisor and PIC must approve start up.</u>

Ellwood Pipeline Inc. - Line 96 SCADA System Response Matrix

Tag #	Event	Setpoint	Time	Action	Alarm Summary	Operators' Response
FSSH-1037	Hi Flowrate at PAAPLP	450 BPH	5 sec	Shutdown	Activated when the flow rate is above shutdown setpoint and has exceeded it for 5 seconds or more. Shutdown P-203 and close SDV-984 at EOF.	<u>This is not a pipeline leak.</u> 1. Operator to check flow trend on Wonderware. 2. Check flow control operation of P-203. 3. Repair the system in time to resume shipments before tanks at EOF are full. 4. Operations Supervisor and PIC will review actions taken and causes found and determine if start up is authorized. <u>Both the Operations Supervisor and Lead Operator must approve start up.</u>
FSL-220	Low Flowrate at EOF	80 BPH	0 sec	Alarm	Activated when the flow rate as measured at EOF or at PAAPLP is below alarm setpoint and P-203 has been on for 120 seconds.	1. Operator to check flow trend on Wonderware. 2. Check P-203 controls for proper operation and set point.
FSL-1037	Low Flowrate at PAAPLP	80 BPH	0 sec	Alarm	Activated when the flow rate as measured at EOF or at PAAPLP is below alarm setpoint and P-203 has been on for 120 seconds.	1. Operator to check flow trend on Wonderware. 2. Check P-203 controls for proper operation and set point.
FSL-220	Low Flowrate at EOF	70 BPH	5 sec	Shutdown	Activated when the flow rate at EOF is below S/D setpoint for 5 seconds and P-203 has been on for 120 seconds. Shutdown P-203 and close SDV-984 at EOF.	<u>This is not a pipeline leak.</u> 1. Operator to check flow trend on Wonderware. 2. Check P-203 controls for proper operation and set point. 3. Operations Supervisor and PIC will review actions taken and causes found and determine if start up is authorized. <u>Both the Operations Supervisor and PIC must approve start up.</u>

Ellwood Pipeline Inc. - Line 96 SCADA System Response Matrix

Tag #	Event	Setpoint	Time	Action	Alarm Summary	Operators' Response
FSSL-1037	Low Flowrate at PAAPLP	70 BPH	5 sec	Shutdown	<p>Activated when the flow rate at PAAPLP is below S/D setpoint for 5 seconds and P-203 has been on for 120 seconds.</p> <p>Shutdown P-203 and close all pipeline shutdown valves.</p>	<p>Operator to check flow trend on Wonderware.</p> <p><u>If flow at EOF is also low, this is not a pipeline leak.</u></p> <ol style="list-style-type: none"> 1. Check P-203 controls for proper operation and set point. 2. Operations Supervisor and Lead Operator will review actions taken and causes found and determine if start up is authorized. <u>Both the Operations Supervisor and PIC must approve start up.</u> <p><u>If flow at EOF is not low, then this indicates a possible pipeline leak.</u></p> <ol style="list-style-type: none"> 1. Check flow trend on Wonderware. 2. Dispatch operators to visually inspect in plant system and pipeline route. 3. If leak is observed, call 9-1-1 and initiate Oil Spill and Emergency Action Plan. 4. Document actions and report causes found to the Operations Supervisor and Lead Operator for review. 5. Repair the system as necessary. 6. Operations Supervisor and PIC will review actions taken and causes found and determine if start up is authorized. <u>Both the Operations Supervisor and PIC must approve start up.</u>
N/A	AC Power Failure	N/A	0 sec	Shutdown	<p>Activated when there has been a loss of 120 VAC power to the UPS for the PLC and Communications Equipment for the system.</p> <p>Shutdown P-203 and close SDV-984 at EOF.</p>	<p><u>This is not a pipeline leak.</u></p> <ol style="list-style-type: none"> 1. Call out Instrumentation/electrical as necessary to repair SCADA in time to allow Line 96 shipment before EOF tankage is full.

Ellwood Pipeline Inc. - Line 96 SCADA System Response Matrix

Tag #	Event	Setpoint	Time	Action	Alarm Summary	Operators' Response
N/A	PLC Battery Low	N/A	0 sec	Alarm	Activated when the PLC battery power voltage is too low. Shutdown P-203 and close SDV-984 at EOF.	<u>This is not a pipeline leak.</u> 1. Call out Instrumentation/electrical as necessary to repair SCADA in time to allow Line 96 shipment before EOF tankage is full.
N/A	UPS Failure	N/A	0 sec	Shutdown	Activated when the UPS serving the system has a failure. Shutdown P-203 and close SDV-984 at EOF.	<u>This is not a pipeline leak.</u> 1. Call out Instrumentation/electrical as necessary to repair SCADA in time to allow Line 96 shipment before EOF tankage is full.
N/A	Loss of Comm to PLC at PAAPLP	N/A	60 sec	Shutdown	Activated when the EOF PLC fails to either write to, or read from the PLC at PAAPLP. Also, if the value for the PPLC PLC clock does not change for 50 seconds. These indicate a loss in communications. Shutdown P-203 and close SDV-984 at EOF.	<u>This is not a pipeline leak.</u> 1. Operator to check values on Wonderware Pressure, Temperature and Flow. 2. Call out Instrumentation/electrical as necessary to repair SCADA in time to allow Line 96 shipment before EOF tankage is full.

Ellwood Pipeline Inc. - Line 96 SCADA System Response Matrix

Tag #	Event	Setpoint	Time	Action	Alarm Summary	Operators' Response
N/A	Seismic Alarm	13% of G	0 sec	Shutdown	<p>Activated when there is a seismic event with an acceleration equal to or greater than setpoint.</p> <p>Shutdown P-203 and close all shutdown valves in the pipeline.</p>	<p><u>Possible pipeline leak due to seismic damage.</u></p> <ol style="list-style-type: none"> 1. Check flow trend on Wonderware. 2. Notify County and City. 3. Dispatch operators to visually inspect in plant system and pipeline route. 4. If leak is observed, call 9-1-1 and initiate Oil Spill and Emergency Action Plan. 5. Operations Supervisor and PIC will review actions taken and causes found and determine if start up is authorized. <u>Both the Operations Supervisor and PIC must approve start up.</u> 6. <u>Must get permission from County and City for re-start.</u> 7. Must drive Line 96 for 2 hours once oil shipment resumes.

Ellwood Pipeline Inc. - Line 96 SCADA System Response Matrix

Tag #	Event	Setpoint	Time	Action	Alarm Summary	Operators' Response
N/A	Five (5) Minute Flow Deviation Alarm	+/- 20 BBL	5 min	Alarm, Ops shutdown if minus	<p>Activated when the difference between the cumulative metering at EOF and PLPP, during a 5 minute period, is greater than setpoint.</p> <p>If minus, shutdown P-203 and close all shutdown valves in the pipeline.</p>	<p>If the Deviation is a (-) number, this could be a leak.</p> <ol style="list-style-type: none"> 1. Check flow trend and pressure profile of the line from EOF to PAAPLP. 2. Shut down P-203 and all pipeline shutdown valves. 3. Dispatch operators to visually inspect in plant system and pipeline route. 4. If leak is observed, call 9-1-1 and initiate Oil Spill and Emergency Action Plan. 5. Repair the system as necessary. 6. Operations Supervisor and PIC will review actions taken and causes found and determine if start up is authorized. Both the Operations Supervisor and PIC must approve start up. <p>If the Deviation is a (+) number, this is not a leak.</p> <ol style="list-style-type: none"> 1. Call Instrumentation/Electrical. 2. Monitor the EOF oil storage system until the SCADA is repaired.

Ellwood Pipeline Inc. - Line 96 SCADA System Response Matrix

Tag #	Event	Setpoint	Time	Action	Alarm Summary	Operators' Response
N/A	One (1) Hour Flow Deviation Alarm	+/- 10 BBL	1 hr	Alarm, Ops shutdown if minus	<p>Activated when the difference between the cumulative metering at EOF and PLPP, during a 1 hour period, is greater than setpoint.</p> <p>If minus, shutdown P-203 and close all shutdown valves in the pipeline.</p>	<p>If the Deviation is a (-) number, this could be a leak.</p> <ol style="list-style-type: none"> 1. Check flow trend and pressure profile of the line from EOF to PAAPLP. 2. Shut down P-203 and all pipeline shutdown valves. 3. Dispatch operators to visually inspect in plant system and pipeline route. 4. If leak is observed, call 9-1-1 and initiate Oil Spill and Emergency Action Plan. 5. Repair the system as necessary. 6. Operations Supervisor and PIC will review actions taken and causes found and determine if start up is authorized. Both the Operations Supervisor and Lead Operator must approve start up. <p>If the Deviation is a (+) number, this is not a leak.</p> <ol style="list-style-type: none"> 1. Call Instrumentation/Electrical. 2. Monitor the EOF oil storage system until the SCADA is repaired.

Ellwood Pipeline Inc. - Line 96 SCADA System Response Matrix

Tag #	Event	Setpoint	Time	Action	Alarm Summary	Operators' Response
N/A	Minus (-) 20 BBL/Day Flow Deviation for 24 Hours	- 20 BBL	24 hr	Alarm	Activated when the difference between the cumulative metering at EOF and PLPP is equal to or greater than -20 BBL/Day for 24 continuous hours.	<ol style="list-style-type: none"> 1. Check flow trend and pressure profile of the line from EOF to PAAPLP. 2. Dispatch operators to visually inspect in plant system and pipeline route. 3. If leak is observed, call 9-1-1 and initiate Oil Spill and Emergency Action Plan. 4. Repair the system as necessary. 5. Operations Supervisor and PIC will review actions taken and causes found and determine if start up is authorized. Both the Operations Supervisor and Lead Operator must approve start up.
N/A	Minus (-) 20 BBL/Day Flow Deviation for 48 Hours	- 20 BBL	48 hr	Ops Shutdown	<p>Activated when the difference between the cumulative metering at EOF and PLPP is equal to or greater than -20 BBL/Day for 48 continuous hours.</p> <p>Shutdown P-203 and close all shutdown valves in the pipeline.</p>	<ol style="list-style-type: none"> 1. Check flow trend and pressure profile of the line from EOF to PAAPLP. 2. Shut down P-203 and all pipeline shutdown valves. 3. Dispatch operators to visually inspect in plant system and pipeline route. 4. If leak is observed, call 9-1-1 and initiate Oil Spill and Emergency Action Plan. 5. Repair the system as necessary. 6. Operations Supervisor and PIC will review actions taken and causes found and determine if start up is authorized. Both the Operations Supervisor and PIC must approve start up.

Ellwood Pipeline Inc. - Line 96 SCADA System Response Matrix

Tag #	Event	Setpoint	Time	Action	Alarm Summary	Operators' Response
N/A	24 Hour Flow Deviation Alarm	+/- 30 BBL	24 hr	Alarm, Ops shutdown if minus	<p>Activated when the difference between the cumulative metering EOF and PLPP, during a 24 hour period, is greater than setpoint.</p> <p>If minus, shutdown P-203 and close all shutdown valves in the pipeline.</p>	<p>If the Deviation is a (-) number, this could be a leak.</p> <ol style="list-style-type: none"> 1. Check flow trend and pressure profile of the line from EOF to PAAPLP. 2. Shut down P-203 and all pipeline shutdown valves. 3. Dispatch operators to visually inspect in plant system and pipeline route. 4. If leak is observed, call 9-1-1 and initiate Oil Spill and Emergency Action Plan. 5. Repair the system as necessary. 6. Operations Supervisor and PIC will review actions taken and causes found and determine if start up is authorized. Both the Operations Supervisor and PIC must approve start up. <p>If the Deviation is a (+) number, this is not a leak.</p> <ol style="list-style-type: none"> 1. Call Instrumentation/Electrical. 2. Monitor the EOF oil storage system until the SCADA is repaired.

Revisions

02/01/2012 - Updated pressure alarms and shutdowns based on initial operation.

09/11/2014 - Global change, PPLP to PAAPLP. Corrected Deviation (+) number on +/- 30 BBL to Not a leak.

17.09 EMERGENCY PROCEDURES

17.09.1 References

49 CFR, sections 195.402(c)(4), 195.402(c)(5), 195.402(c)(6) & 195.402(e).

17.09.2 Purpose

The purpose of this manual is to provide procedures to be followed by pipeline operating personnel in any emergency involving the PHMSA jurisdictional pipelines. These procedures are written to assure the welfare and safety of the public and all emergency response personnel. This plan is designed to meet the requirements of the Pipeline and Hazardous Materials Safety Administration (PHMSA) for hazardous liquid pipeline emergencies as outlined in 49 CFR 195.402(e).

17.09.3 Responsibility for Implementation

The Operations Supervisor is responsible for implementation of this procedure.

17.09.4 RISK AND HAZARD ANALYSIS

A failure or malfunction of any of the pipeline facilities, which are located in areas that requires an immediate response by personnel of the Ellwood Onshore Facility. These pipelines are located in close proximity to residential areas and environmentally sensitive habitats. Hazard analysis (HAZOP/MOC) has been conducted of each pipeline to identify: (1) potential hazards, (2) safeguards in place to prevent the potential hazard from occurring, and after considering safeguards (3) minimizing the potential for hazards identified under paragraph 195.402 (c)(4) and the possibility of recurrence of accidents analyzed under paragraph 195.402 (c)(5). (4) Also included in the analysis are possible mitigation measures for any remaining hazards

17.09.5 SUMMARY CONTENTS

PSOM PLAN SECTION	PSOM/Emergency Plan Requirements	
	DESCRIPTION	DOT 49 CFR PART 195
17.09.6	Notification and Communications	§ 195.402(e)(1)
17.09.7	Emergency Response Procedures	§ 195.402(e)(2)
17.09.8	Response Resources	§ 195.402(e)(3)
17.09.9	Emergency Shutdown or Pressure Reduction Procedure	§ 195.402(e)(4), (e)(10)
17.09.10	Control of Hazardous Liquid	§ 195.402(e)(5)
17.09.9	Minimization of Public Exposure	§ 195.402(e)(6)
17.09.11	Government Liaison and Unified Command	§ 195.402(c)(12), (e)(7)
17.09.12	Pipeline Transporting Highly Volatile Liquid	§ 195.402(e)(8)
17.09.13	Post Accident Review	§ 195.402(c)(5), (e)(9)

17.09.6 NOTIFICATIONS AND COMMUNICATIONS

The company has in place a set of well-defined internal and external notification procedures. Procedures for receiving, identifying and classifying notices of actual or potential emergency incidents both internally and to local fire, police, and State, and Federal public officials agencies are described in the South Ellwood Field Oil Spill Contingency Plan.

The notification procedures referred to above establish a clear order of priority for notification. The notification procedures must be followed to completion. If the responsible person is unable to notify a person listed, then the next delegated or assigned responsible person must make the notifications (if any) for that person.

A designated company person is required to complete the company “Incident Report” form to provide accurate incident information for the initial notification to federal, state, and local agencies. Initial notifications shall not be delayed pending collection of all information on the form.

A 24-hour notification number is maintained at the Ellwood Onshore Facility to receive notices of emergency events. This number and a 24-hour, toll-free, emergency notification number is

posted along Ellwood Onshore Oil Transfer Pipeline (Line 96) and at the gates to the Ellwood Onshore Facility.

17.09.7 EMERGENCY RESPONSE PROCEDURES

The South Ellwood Field Oil Spill Contingency Plan contains information and prepared action checklists to ensure prompt and effective response to possible hazardous liquid pipeline emergencies and events affecting pipeline facilities.

17.09.8 REPONSE RESOURCES

17.09.8A Personnel

An emergency response organization consisting of two interrelated response teams, an Initial Incident Response Team (IIRT) and a Sustained Incident Response Team (SIRT) have been established to respond to all pipeline emergencies. Additional resources are also available from outside contractors, and utilities, when necessary. Call lists are provided for outside agencies and stakeholders who may be needed to provide resources, coordination or information necessary to adequately respond to a pipeline emergency.

17.09.8B Equipment and Supplies

Response equipment and supplies, fire protection and control equipment, and safety instruments, spill and clean-up equipment that are available to response personnel are listed in the Oil Spill Contingency Plan. Call lists are provided for suppliers of equipment, manpower, and specialized service resources that may be may be needed to adequately respond to a pipeline emergency.

17.09.9 EMERGENCY RESPONSE

Emergency response procedures such as control of released hazardous liquid, minimization of public exposure to injury and probability of accidental ignition through evacuation and traffic control are described in the South Ellwood Field Oil Spill Contingency Plan including. Actions required to be taken by a controller during an emergency such as emergency shutdown or pressure reduction are described in PSOM Sect 17.05 & 17.08.

17.09.10 CONTROL of HAZADOUS LIQUID

Initial spill response procedures, isolation, containment and clean-up techniques are described in the South Ellwood Field Oil Spill Contingency Plan.

17.09.11 GOVERNMENT LIAISON AND UNIFIED COMMAND

A set of well-defined external notification procedures is in place. Procedures for reporting an emergency to local, State, and Federal agencies are described in the South Ellwood Field Oil Spill Contingency Plan.

A response organization consisting of two interrelated response teams, an Initial Response Team and a Sustained Response Team, has been established to respond to an oil spill at any of its facilities. This organization is structured for inclusion and participation in a Unified Command System with fire, police, and other appropriate public officials and agencies.

Face to face meetings are conducted annually with fire, police, and other appropriated public officials to ensure coordinated response efforts. Emergency response drills are conducted annually by Venoco and its contractors to ensure response preparedness and to comply with State and Federal and local regulations. Local, State, and Federal representatives involved in spill/emergency response participate in these exercises to ensure coordinated response efforts. The drill exercise and the debriefing that follow allow Venoco response personnel to establish and maintain liaison with regulatory personnel, to learn about available resources, and new and/or effective response procedures.

17.09.12 PIPELINE TRANSFER of HIGHLY VOLATILE LIQUID

Ellwood pipelines do not transport highly volatile liquid.

17.09.13 POST ACCIDENT REVIEW

Procedures for incident analysis and review are provided in the general section of the pipeline O&M plan and the South Ellwood Field Oil Spill Contingency Plan.

17.10.1 CALIFORNIA STATE FIRE MARSHAL (CSFM) REQUIREMENTS

17.10.1.1 REFERENCES

California Government Code, Chapter 5.5, Section 51013.5 (see table below for specific regulations).

17.10.1.2 PURPOSE

The purpose of this procedure is to implement the additional California State Fire Marshall (CSFM) requirements at this facility.

17.10.1.3 RESPONSIBILITY FOR IMPLEMENTATION

The Operations Supervisor is responsible for implementation of this procedure.

TABLE 17.10-1
SUMMARY OF O&M MANUAL ADDITIONAL CSFM REQUIREMENTS

O&M Sect #	DESCRIPTION	DOT 49 CFR PART 192	CSFM Ca Gov Code Chapter 5.5 Sect. 51013.5	ADDITIONAL CSFM REQUIREMENTS:
17.10.1	Pressure test. Smart pig may be used if a waiver is obtained from the CSFM.	195.300-310	51013.5(d)	Pressure test required 1x/5 years for lines greater than 10 years old. High risk lines will be tested 1x/2yr if required by CSFM.
17.10.1	Notify CSFM at least 3 working days prior to conducting the pressure test.		51014.3	
17.10.1	Pressure testing shall be certified by a CSFM approved independent testing company.		51014.5	
17.10.1	No shrubbery or shielding shall be installed on the pipeline easement which would impair aerial observation.		51014.6	
17.10.1	Provide fire department with map, description of product transported, and a contingency plan for pipeline emergencies.		51015(a)	
17.10.1	Offer to meet with local fire department once per year to review pipeline contingency plan.		51015(c)	
17.10.1	Each operator notified by CSFM, shall prepare a wellhead protection plan and submit to CSFM within 180 days. Plans must be reviewed once every 5 years.		51017.1	

17.10.1.4 HYDROSTATIC TESTING

Purpose

To establish procedures to comply with hydrostatic testing requirements of pipeline safety regulations. The hydrostatic is conducted to verify that the pipeline can be operated safely at the operating pressure. The test is also required for obtaining certification to operate the pipeline under the California Safety Act of 1981.

References

Federal Pipeline Safety Regulations, CFR, Title 49 Subpart E - Hydrostatic Testing, Part 195.300. Pressure tests shall be conducted in accordance with the above federal pipeline safety requirements commencing with Part 195.300.

17.10.1.4A CALIFORNIA GOVERNMENT CODE, Chptr 5.5, Sec 51013.5 - TESTING

The test pressure for each pressure test must be maintained throughout the part of the system being tested for at least 4 continuous hours at a pressure equal to 125%, or more, of the maximum operating pressure. Pressure tests shall not show an hourly change for each section of the pipeline under test at the time in excess of either 10 gallons or the sum of 1 gallon and an amount computed at a rate in gallons per mile equivalent to one-tenth of the nominal internal diameter of the pipe in inches.

- (a) Every pipeline not provided with properly sized automatic pressure relief devices or properly designed pressure limiting devices shall be hydrostatically tested annually.
- (b) Every pipeline over 10 years of age and not provided with effective cathodic protection shall be hydrostatically tested every 3 years.
- (c) Every pipeline over 10 years of age and provided with effective cathodic protection shall be hydrostatically tested every 5 years.
- (d) In addition, the California State Fire Marshall (CSFM) may require any pipeline subject to the California Pipeline Safety Act to be pressure tested.
- (e) The CSFM may authorize the use of liquid petroleum having a flashpoint over 140 degrees F as the test medium.
- (f) The CSFM and the local fire department having fire suppression responsibilities shall be notified at least three working days prior to the test. CSFM Long Beach office

- shall be notified at (562) 497-9100 and a test identification number shall be requested. The notification shall include the following information:
- (1) The name, address and telephone number of the pipeline operator (Venoco Inc.).
 - (2) The specific location of the pipeline section to be tested and the location of the test equipment.
 - (3) The date and time the test is to be conducted.
 - (4) Test medium.
 - (5) The name and the telephone number of the independent testing firm or person responsible for certification of the test results.
- (g) The test results shall be submitted to CSFM within 30 days of test completion by the independent testing firm selected from a list supplied by the CSFM. Independent testing firms are certified by the CSFM annually.
- (h) The CSFM may review the results of the test. The test report submitted for the CSFM's review shall include the following:
- (1) The date of the test.
 - (2) A description of the pipeline tested, including a map of suitable scale showing the route of the pipeline.
 - (3) The results of the test.
 - (4) Any other test information requested by the CSFM.
- (i) Should a pipeline leak, explosion, or fire occur during the performance of the test, refer to the procedures in Section 17.09.
- (j) Any pipe section considered to be used for replacement in an emergency shall be pre-tested and stored in a safe area. All the testing and notifications and test results shall be in compliance with the above requirements.
- (k) In accordance with Section 51013.5(i) in the California Government Code, the pipeline may be tested by an instrumented internal inspection device upon prior approval from the California State Fire Marshal.

17.10.1.4B PIPELINE SYSTEM SEGMENTING

If necessary, the pipeline manager shall determine the number of segments into which the pipeline system should be divided for periodic hydrostatic testing purposes. In selecting these segments, similarity of operating pressures, proximity to each other, and the ability to isolate each segment shall be considered. Once the segments have been identified, then each segment shall be tested separately and as an independent test from the other segments.

Testing Medium

Under certain conditions, the California State Fire Marshal's Pipeline Safety Division will permit an operator to pressure test a pipeline with a hydrocarbon fluid. If the Venoco Inc. should decide to pressure test with a hydrocarbon fluid, then a request must be made to the Pipeline Safety Division to obtain a waiver. Otherwise, water shall be the testing medium for the hydro test.

Preparing for the Test

Each segment to be tested shall be isolated from the system. As a first attempt, isolation shall be achieved by closing the segment limit valves and testing against closed valves. All relief valves in the segment shall be reset to a pressure level above that of the test pressure, or they shall be removed and blind flanges installed in their place. If during the test, excessive pressure losses are observed (beyond the allowable leak rates and after the segment pressure has been compensated for variations in segment temperature) and there are no traceable leaks from the segment, the most likely pressure loss is through the segment limit valves. The suspected valves shall be tightened and another attempt made to test the segment. If the second attempt fails, then the segment limit valves shall be removed, blind flanges installed in their place, and the segment tested again.

Testing

After a segment has been isolated, its pressure shall be raised to the specified test pressure by injecting additional fluid by a properly sized pump through a valved port in the segment. Once test pressure has been attained, the pressure of the segment shall be monitored by a calibrated deadweight tester and recorded by a calibrated pressure recorder of suitable pressure range. The segment's temperature shall be monitored by a calibrated temperature recorder placed at such a location that it reads as closely as possible the true temperature of the test fluid. The temperature monitoring location should be representative of the whole segment.

Test results, along with the documentation required in the Codes, shall be submitted to the Fire Marshal's Office within 60 days of the test..

17.10.1.4C HYDRO TEST SCHEDULE AND LINE STATUS

Ellwood Onshore Oil Transfer Pipeline (Line 96)

This pipeline falls under the jurisdiction of the California State Fire Marshal (CSFM) and, according to the California Government Code, Chapter 5.5, Part 51013.5.d, is hydrostatically tested every five years. If a leak should occur due to corrosion or pipe defect, the pipeline will then be put on the California State Fire Marshal's list of high risk pipelines. The pipeline would then have to be hydro-tested every two years, and it can only be removed from the list if it has no further reportable leaks for five years. All hydro-tests shall be for a continuous eight hours at a minimum pressure of 125% or more of the MAOP in accordance with § 51014. The successful test results are filed in **Folder A-13: Hydrostatic or Integrity Testing**.

The Ellwood Onshore Oil Transfer Pipeline is tested by Venoco, Inc.. The record and results of the successful hydro test inspection are documented within a formal report provided by the inspection vendor and filed in **Folder A-13: Hydrostatic or Integrity Testing**. The Facility Engineer shall coordinate the conducting of the inspection, review the results, determine if any remedial actions are necessary, ensure that any determined remedial action is completed, and submit the inspection report to the CSFM within 60 days of completing the survey. A copy is also sent to the company central files. Copies are also sent to the City of Goleta and the Santa Barbara County Planning and Development Department. Records are maintained onsite for the life of the pipeline.

Platform Holly Oil Pipeline

This pipeline also falls under the primary jurisdiction of the CSFM; however, the pipeline runs across California state lands property; therefore, since this pipeline is piggable, CSLC regulation § 2132(h)(6)(B) requires that the pipeline be inspected at a minimum of one year intervals with an electronic survey tool also known as a smart pig. An external inspection by remote operating vehicle (ROV) is completed annually as well. The frequency of inspections may be reduced depending upon the degree of corrosion, damage or hazardous condition observed. The results of the smart pig and ROV inspections are documented within a formal inspection report provided by the inspection vendor. The Facility Engineer shall coordinate the conducting of the inspections, review the results, determine if any remedial actions are necessary, ensure that any determined remedial action is completed, and submits the successful hydro test or smart pig inspection report for the Holly Oil Pipeline to the CSLC within 60 days of completing the inspection. A copy is also sent to the company central files. Copies are also sent to the Santa Barbara County Planning and Development Department. Integrity test report summaries are maintained onsite for the life of the pipeline.

Record Keeping

All records are maintained at the onsite facility and copies forwarded to the Venoco central files and the Pipeline Compliance Coordinator.

17.10.2 CALIFORNIA STATE LANDS COMMISSION (CSLC) REQUIREMENTS

17.10.2.1 REFERENCES

2 CCR Division 3 Article 3.3 Section 2132 (see table below for specific regulations).

17.10.2.2 PURPOSE

The purpose of this procedure is to implement the additional CSLC requirements at this facility.

17.10.2.3 RESPONSIBILITY FOR IMPLEMENTATION

The Operations Supervisor is responsible for implementation of this procedure.

TABLE 17.10-2
SUMMARY OF O&M MANUAL ADDITIONAL SLC REQUIREMENTS

O&M Sect #	DESCRIPTION	DOT 49 CFR PART 195	SLC TITLE 2, DIV. 3, ART. 3.3 2132	ADDITIONAL SLC REQUIREMENTS:
2.01	Maintain Daily Discharge Pressure Log	404(b)(1)	2132 (h)(3)	System for transmitting information for safe operation
8.01	Maximum Allowable Operating Pressure (MAOP)	406	2132(h)(2)	MAOP limited by: 1) ANSI Code B31.4, Liquid 2) ANSI Code B31.8, Gas 3) Design pressure of any component 4) 67% of hydro test pressure (CSLC not DOT)
5.03	Line Patrol and Leak Survey	404,412	2132(h)(6) (D)	Weekly surface inspection
7.01, 7.02	Valve and Pressure Device Maintenance	420,428	2132(h)(8)(F)	1) H/L pressure shut-in sensor 2) Auto shut-in valve offshore 3) Shut-in valve and input sources 4) Remote shut-in valve or check valve at or near receiving facility 5) Oil pumps and gas compressors equipped with H/L pressure shut-in 6) All pressure sensors, shut-in devices, & auto shut-in valves shall be tested monthly and witnessed by CSLC staff
EAP	Communications	408	2132(h)(3)	Transmit info for safe operation
6.03, 6.05, 6.06, 6.07, 6.09	External Corrosion Control	401,563,567,573,575,577,,569,571,579,561,559,557,581,583,587,589	2132(h)(4) &(7)	1) Qtrly rectifier inspection by qualified electrical inspector 2) Daily rectifier output
17.10.2	ROV Sub Sea Inspection for Damage, Corrosion, and Hazardous Conditions	412	2132(h)(6)(A)	Annual ROV sub sea inspection

IMP Plan Element #2	Electrical Survey or Pressure Test, Pipeline Inspection Schedule and Line Status	452	§2132(h)(6) (B)	Annual electrical survey or pressure test at 1.5x MAOP (Note, inspection frequency can be reduced upon request if no corrosion observed.)
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17.10.2.4 LINE PATROL AND LEAK SURVEY [2 CCR 2132(h)(6)(D)]

Offshore Pipeline Leak & Right-of-Way Survey

A line patrol is conducted weekly by the Boat Captain and by the Operator (onshore portion) of the Holly Oil Pipeline to observe surface conditions on and adjacent to the right-of-way. For the Holly Oil Pipeline, the required frequency for line patrols and leak surveys is determined by CSLC Regulation §2132(h)(6). Immediately following the survey, the patrol person is required to prepare a report of conditions using Form #17.10.2H Offshore Pipeline Leak & Right-of-Way Survey.

Applicable Forms

#17.10.2H Offshore Pipeline Leak & Right-of-Way Survey

Record Keeping

All reports shall be maintained for 5 years.

**17.10.2.5 PRESSURE DEVICE AND VALVE INSPECTION AND MAINTENANCE
[2 CCR 2132(h)(8)(F)]**

Pressure Device Inspection and Maintenance

The frequency of inspection for all pressure-safety sensors and control devices, and emergency shut-in (ESD) valves for the Platform Holly Oil Pipeline shall be monthly. The frequency of inspection for the pressure relief valves on the Platform Holly Produced Gas Pipeline shall be every 6 months. The Safety Tester shall complete forms #7.01A or #7.02A and #17.10.2B to document this inspection.

Applicable Forms

Report Forms are found in the forms section of the General O&M manual and this PSOM. Forms include:

- #7.01A** Valve Inspection and Maintenance
- #7.02A** Relief Valve Report
- #17.10.2B** Pressure Control Device Inspection

Record Keeping

All reports shall be maintained for 5 years.

17.10.2.6 EXTERNAL CORROSION CONTROL [2 CCR 2132(h)(4)&(h)(7)]

Monitoring Of External Corrosion Control Requirements

The rectifier output shall be recorded daily for the Holly Oil Pipeline. Venoco shall take remedial action promptly to correct any deficiencies indicated by the monitoring. The Operator shall complete Form #17.10.2C and file maintained onsite. The rectifier shall be inspected every three months for proper operation by a Qualified Electrical Inspector. This inspection shall be recorded on Form #17.10.2D or vendor equivalent form, and file maintained onsite.

Applicable Forms

#17.10.2C	Daily Rectifier Output Log
#17.10.2D	Quarterly Rectifier Inspection

Record Keeping

All reports shall be maintained for 5 years.

Annual Cathodic Protection System Survey

The Facility Engineer shall coordinate the conducting of the annual cathodic protection system survey, review the results, determine if any remedial actions are necessary, ensure that any determined remedial action is completed, and submit the survey report and any remedial actions taken for the Holly Oil Pipeline to the CSLC within 60 days of completing the inspection.

Record Keeping

All reports shall be maintained for the life of the pipeline.

17.10.2.7 OFFSHORE PIPELINE EXTERNAL INSPECTION (ROV) [2 CCR 2132(h)(6)(A)]

Platform Holly to Ellwood Onshore Facility Remote Operating Vehicle (ROV) Inspection

The Platform Oil Pipeline and corridor is inspected by remote operating vehicle to look for evidence of damage, corrosion, and conditions which may be hazardous to the pipeline. The report results of the inspection are documented within a formal report provided by the inspection vendor and filed in **Folder A-13: Hydrostatic or Integrity Testing**. The Facility Engineer shall coordinate the conducting of the inspections, review the results, determine if any remedial actions are necessary, ensure that any determined remedial action is completed, and submit the ROV report for the Holly Oil Pipeline to the CSLC within 60 days of completing the inspection. A copy is also sent to the company central files. Copies are also sent to the Santa Barbara County Planning and Development Department. Records are maintained for the life of the pipeline.

17.10.2.8 PIPELINE INTEGRITY TESTING [2 CCR 2132(h)(6)(B)]

Platform Holly Oil Pipeline In-Line Inspection (ILI)

This pipeline runs across California state lands property; therefore, since this pipeline is piggable, CSLC regulation § 2132(h)(6)(B) requires that the pipeline be inspected at a minimum of one year intervals with an electronic In-Line Inspection (ILI) survey tool also known as a smart pig. The frequency of inspection may be reduced depending upon the degree of corrosion, damage or hazardous condition observed. The record and results of the smart pig inspections are documented within a formal inspection report provided by the inspection vendor and are filed in **Folder A-13: Hydrostatic or Integrity Testing**. The Facility Engineer shall coordinate the conducting of the inspection, review the results, determine if any remedial actions are necessary, ensure that any determined remedial action is completed, and submit the inspection report to the CSLC within 60 days of completing the survey. A copy is also sent to the company central files. Copies are also sent to the California State Fire Marshal, City of Goleta, and the Santa Barbara County Planning and Development Department. Records are maintained onsite for the life of the pipeline.

Integrity test report summaries are maintained onsite for the life of the line and are submitted to the CSLC within 60 days of completion. A copy is also sent to the Santa Barbara County Planning and Development Department and company central files.

17.10.2.9 SYSTEM OF COMMUNICATION FOR SAFE OPERATION [2 CCR 2132(h)(3)]

Maintain Daily Discharge Pressure Log

Venoco shall have a communication system for the transmission of the information required for the safe operation of the Holly Oil pipeline. This pipeline operating system generates a daily discharge pressure log of the Holly Oil pipeline shipping pump. This log is reviewed and filed on-site for a period of one year. The record is then transferred to Ellwood Onshore Facility and maintained for a period of two years. Then, the record is transferred to Carpinteria Central Files for a period of two more years.

17.10.3 CITY OF GOLETA REQUIREMENTS

17.10.3.1 REFERENCES

County of Santa Barbara Ordinance, #2919 (as adopted by the City of Goleta)

17.10.3.2 PURPOSE

The purpose of this procedure is to implement the additional City requirements at this facility.

17.10.3.3 RESPONSIBILITY FOR IMPLEMENTATION

The Operations Supervisor is responsible for implementation of this procedure.

**Table 17.10-3
O&M MANUAL SBC ADDITIONAL REQUIREMENTS**

O&M Sect #	DESCRIPTION	DOT 49 CFR PART 195	Ordinance #2919	ADDITIONAL SBC REQUIREMENTS:
5.03	Line Patrol and Leak Survey	404,412	Condition #63	Daily inspection of surf zone

17.10.3.4 SURF ZONE INSPECTION

In addition to the California State Lands Commission (CSLC) requirement of weekly inspections, the Holly Oil Pipeline shall be inspected daily by the Operator. This is a visual inspection of the pipeline from the surf zone back to the Ellwood Facility. The inspection shall include the following items:

- Time and date of the inspection.
- Name of person conducting the inspection.
- Burial status of pipeline.
- Length of pipeline exposed (if any).
- Estimated wave height.
- Any evidence of pipeline movement.

The Operations Supervisor shall administer the program and ensure that all inspections are conducted and recorded. Records for the visual inspections shall be maintained on site.

Refer to the Emergency Action Plan South Ellwood Field to address potential emergencies.

Applicable Forms

#17.10.3A SBC Pipeline Inspection Report (daily visual)

RECORD KEEPING

Records of each leak discovered, repair made, and nondestructive test and pressure test conducted, must be made and filed. The file must be maintained for the useful life of the line.

17.11 SLC REQUIREMENTS

17.11.1 References

2 CCR Division 3 Article 3.3 Section 2132 (see table below for specific regulations).

17.11.2 Purpose

The purpose of this procedure is to implement the additional SLC requirements at this facility.

17.11.3 Responsibility for Implementation

The Operations Supervisor is responsible for implementation of this procedure.

**TABLE 17.11-1
SUMMARY OF O&M MANUAL ADDITIONAL SLC REQUIREMENTS**

O&M Sect #	DESCRIPTION	DOT 49 CFR PART 195	SLC TITLE 2, DIV. 3, ART. 3.3 2132	ADDITIONAL SLC REQUIREMENTS:
8.01	Maximum Allowable Operating Pressure (MAOP)	406	2132(h)(2)	MAOP limited by: 1) ANSI Code B31.4, Liquid 2) ANSI Code B31.8, Gas 3) Design pressure of any component 4) 80% of hydro test pressure
5.03	Line Patrol and Leak Survey	404,412	2132(h)(6)(D)	Weekly surface inspection
7.01, 7.02	Valve and Pressure Device Maintenance	420,428	2132(h)(8)(F)	1) H/L pressure shut-in sensor 2) Auto shut-in valve offshore 3) Shut-in valve and input sources 4) Remote shut-in valve or check valve at or near receiving facility 5) Oil pumps and gas compressors equipped with H/L pressure shut-in 6) All pressure sensors, shut-in devices, & auto shut-in valves shall be tested monthly and witnessed by SLC staff
EAP	Communications	408	2132(h)(3)	Transmit info for safe operation
6.03, 6.05, 6.06, 6.07 6.09	External Corrosion Control	401,563,567,573,575,577,,569,571,579,561,559,557,581,583,587,589	2132(h)(4) &(7)	1) Qtrly rectifier inspection by qualified inspector 2) Daily rectifier output
17.11	ROV Sub Sea Inspection for Damage, Corrosion, and Hazardous Conditions	412	2132(h)(6)(A)	Annual ROV sub sea inspection
IMP Plan Element #2	Electrical Survey or Pressure Test, Pipeline Inspection Schedule and Line Status	452	§2132(h)(6)(B)	Annual electrical survey or pressure test at 1.5x MAOP (Note, inspection frequency can be reduced upon request if no corrosion observed.)

17.11.4 LINE PATROL AND LEAK SURVEY [2 CCR 2132(h)(6)(D)]

A line patrol is conducted weekly by the Boat Captain and by the Operator (onshore portion) of the Holly Oil Pipeline to observe surface conditions on and adjacent to the right-of-way. For the Holly Oil Pipeline, the required frequency for line patrols and leak surveys is determined by CSLC Regulation §2132(h)(6). Immediately following the survey, the patrol person is required to prepare a report of conditions using O&M Form **#5.03A Pipeline Inspection Report**.

Record Keeping

All reports shall be maintained for the life of the pipeline.

17.11.5 PRESSURE DEVICE AND VALVE INSPECTION AND MAINTENANCE [2 CCR 2132(h)(8)(F)]

Pressure Device Inspection and Maintenance

The frequency of inspection for all pressure-safety sensors and control devices, and emergency shut-in (ESD) valves for the Platform Holly Oil Pipeline shall be monthly. The frequency of inspection for the pressure relief valves on the Platform Holly Produced Gas Pipeline shall be every 6 months. The Tester shall complete form #17.11B, #7.01A or #7.02A and documented.

Applicable Forms

Report Forms are found in the forms section of the O&M manual. Forms include:

#17.11B	Pressure Control Device Inspection
#7.01A	Valve Inspection and Maintenance
#7.02A	Relief Valve Report

Record Keeping

All reports shall be maintained for the life of the pipeline.

17.11.6 EXTERNAL CORROSION CONTROL [2 CCR 2132(h)(4)&(h)(7)]

Monitoring Of External Corrosion Control Requirements

The rectifier output shall be recorded daily for the Holly Oil Pipeline. Venoco shall take remedial action promptly to correct any deficiencies indicated by the monitoring. The Operator shall complete O&M Form #17.10D and file accordingly.

Applicable Forms

#17.11C Rectifier Output Log

Annual Cathodic Protection System Survey

The Facility Engineer shall submit the annual cathodic protection system survey report for the Holly Oil Pipeline to California State Lands Commission within 60 days of completing the survey.

Record Keeping

All reports shall be maintained for the life of the pipeline.

**17.11.7 OFFSHORE PIPELINE EXTERNAL INSPECTION (ROV)
[2 CCR 2132(h)(6)(A)]**

Remote Operating Vehicle Inspection

The Platform Oil Pipeline and corridor is inspected by remote operating vehicle to look for evidence of damage, corrosion, and conditions which may be hazardous to the pipeline. The results of the inspection are documented within a formal report and filed in **Folder A-13: Hydrostatic or Integrity Testing**. The Facility Engineer administers the inspection, ensures that any remedial action is completed and shall submit the ROV inspection report for the Holly Oil Pipeline to California State Lands Commission within 60 days of completing the survey. Records are maintained for the life of the pipeline.

**17.11.8 Pipeline Integrity Testing [2 CCR 2132(h)(6)(B)]
Platform Holly Oil Pipeline**

This pipeline runs across California state lands property; therefore, since this pipeline is piggable, CSLC regulation § 2132(h)(6)(B) requires that the pipeline be inspected at a minimum of one year intervals with an electronic survey tool also known as a smart pig. The frequency of inspection may be reduced depending upon the degree of corrosion, damage or hazardous condition observed. The results of the smart pig inspections are documented within a formal inspection report.

The Facility Engineer administers the program and ensures that all inspections and tests are conducted and test results are filed in **Folder A-13: Hydrostatic or Integrity Testing**.

Venoco engineering reviews the test reports and determines if any remedial measures should be completed.

Integrity test report summaries are maintained onsite for the life of the line and are submitted to the CSLC within 60 days of completion. A copy is also sent to the Santa Barbara County Planning and Development Department and company central files.

Ellwood Marine Terminal Loading Line

The marine terminal loading line falls under the primary jurisdiction of the California State Lands Commission (CSLC), however U.S Coast Guard retains some dual jurisdiction. In accordance with California State Lands Commission (CSLC) regulation § 2564 for Class II pipelines, and U. S. Coast Guard regulation § 156.170 the loading line will be static liquid pressure tested annually to 1.5 times the maximum allowable operating pressure (MAOP) for a continuous four hours. The test results are filed in **Folder A-13: Hydrostatic or Integrity Testing**.

The Operations Supervisor administers the program and ensures that all inspections and tests are conducted and recorded. Test reports are maintained on-site for the life of the line and reviewed by the facilities engineering staff. The annual hydrostatic or integrity test reports are submitted to the California State Lands Commission within 60 days of completion and the Santa Barbara County Energy Division.

17.11.9 Daily Discharge Pressures [2 CCR 2132(h)(3)]

Recording of Daily Discharge Pressures

The Operator records the daily discharge pressure of the Holly Oil pipeline shipping pump and record using O&M Form #17.11A Operating Pressure Log.

Each of the appendix items is a folder where records are to be kept for each pipeline. In most of these folders, there is a blank form which may be used to generate the record form at the required interval. For those folders without a blank form, a written report shall be filed in the folder at the required inspection intervals.

<u>Appendix Form #:</u>	<u>Time Kept</u>	<u>Description</u>
8.01A	Life	MOP Determination – Line 96
17.01A	5 years	Annual Review of the O&M Manual
17.01B	5 years	Liquid O&M Review Work Performed by Operators
17.01C	5 years	Personnel Training Attendance List
17.08A	Life of pipeline	Abnormal Operations Report
17.10.2A	2 years	Pipeline Operating Pressure Log
17.10.2B	2 years	Pressure Control Device Inspection
17.10.2C	5 years	Daily Rectifier Output Log (Required Daily)
17.10.2D	5 years	Quarterly Rectifier Inspection (Required Every Three Months)
17.10.2H	5 years	Offshore Pipeline Leak & Right-of-Way Survey
17.10.3A	Life of pipeline	SBC Pipeline Inspection Report (Daily Visual)
7000.1		Annual Report for Calendar Year 2014 Hazardous Liquid Pipeline Systems
MAOP		DOT Pipeline MAOP / MOP Calculation

**PIPELINE QUALIFICATION RECORD
FOR HAZARDOUS LIQUID PIPELINES**

OPERATING SYSTEM	6" Line 96 Ellwood to Tautrim (PAAPL Tie-In)
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1. System Information	
a. Main Line System	6" Line 96
b. Segment	Ellwood Onshore Facility to Tautrim Receiver Station
c. AFE No.	EL11FC0573
d. Date	January 20, 2012
e. Drawing References	6" Crude Oil Pipeline Dwg #3895-G-001

2. Pipe Summary	
a. Size O.D. ()	6.625
b. Wall Thickness (<i>if unknown, see 195.106(c),(d)</i>)	0.280
c. Specification (API-5L, ASTM A53, etc.)	API 5LX-52 PSL2
d. Grade (B, X42, etc.)	X-52 PSL2
e. Pipe Class (SMLS, ERW, etc.)	ERW
f. Length ()	47,277 Feet
g. DOT Class Location	N/A for DOT 195
h. Maximum Operating Temperature (°)	130°F
i. Pipe Manufacturer	California Steel
j. Year Manufactured	2009
k. Manufacturing Location	Fontana, CA
l. Year Purchased	2009
m. Method of Transportation	Truck

3. Design Data	
a. Yield Strength, "S" (<i>see 195.106(b)</i>)	52,000 psi
b. Design Factor, "F" (<i>see 195.106(a)</i>)	0.72
c. Seam Joint Factor, "E" (<i>see 195.106(e)</i>)	1.0
d. ASME/ANSI Flange Rating (#)	ANSI 600# RF

4. Corrosion Data			
a. Pipe Coated (Yes/No)	Yes		
b. Coating Material	14 mil Fusion Bond Epoxy		
c. Method of Application	Powder Epoxy Sprayed on Heated Pipe		
d. Cathodic Protection (Yes/No) (If yes, date started)	Yes		
e. Type	Magnesium Anode		
f. Corrosion Tests	Sta 0 to Sta 160	Sta 161 to Sta 320	Sta 321 to Sta 472
(1) Soil Resistivity ohm/cm	2,600	1,200	1,200
(2) P/S Potential	-1,640	-1,650	-1,660
g. Pipe Coated By	ShawCor		
h. Field Joint Coating	Fusion Bond Epoxy by ARB		
i. Other CP Facilities	CP Test Stations		

5. Construction Data	
a. General	
(1) Contractor	ARB
(2) Date Started	10/03/2011
(3) Date Completed	01/13/2012
(4) Depth of Cover ()	3' minimum

<u>Construction Data (Continued)</u>	
b. Welding Data	
(1) Company Inspector	Jerry Jeffreys
(2) Inspection Company	Westex
(3) Type of Inspection	100% X-ray
c. Pressure Test Data	
(1) Tested By	Akri Hydrotesting
(2) Witnessed By	Jerry Jeffreys
(3) Type	Hydrotest
(4) Test Pressure ()	2,161 psig
(5) Test Medium	Water
(6) Test Date	01/18/2012
(7) Test Duration (hr.)	8 hours
(8) Pressure Chart Make	Barton 242E / 265
(9) Temperature Chart Make	Barton 265
* (10) Accepted Test Pressure, "TP" ()	2,067 psig (at P/L high point)
* Note: If there are significant elevation changes along the pipeline and a liquid is used as the test medium, the accepted test pressure will vary due to changes in hydrostatic head, and this variance must be taken into account when determining the MOP.	

6. <u>MOP Determination</u>	
a. Pipe Design Pressure = $(2St/D) \times F \times E$ (see 195.106)	3,165 psig
b. For converted pipe where one or more of the factors the equation from Item (a) above is unknown, Pipe Design Pressure is:	New Pipe, Not Converted
(1) 80% of the first test pressure that produces yield (per N5.0 in appendix N of ASME B31.8), reduced by design factors of 195.106(a) and (e), or N/A	N/A

<u>MOP Determination (Continued)</u>	
(2) If pipe is 12.75" (324 mm) O.D. or less, and is not tested to yield, Pipe Design Pressure = 200 PSIG (1379 kPa), or N/A (See 195.406(a)(1))	N/A
c. Lowest Flange Pressure Rating	1,440 psig @ 130°F
d. Design pressure of any component, if less than flange pressure rating (PSIG), or N/A	N/A
e. Maximum pressure substantiated by pipeline pressure test = 80% of test pressure (see 195.406(a)(3))	1,653 psig
f. If component not pressure tested with the rest of the pipeline, maximum pressure substantiated by component pressure test = 80% of factory test pressure or prototype test pressure, or N/A (see 195.406(a)(4))	1,696 psig (3" Smith Meter)
g. For pipelines under 195.302(b)(1) and (b)(2)(i) that have not been pressure tested per Item (e) above, 80% of the test pressure or highest operating pressure to which the pipeline was subjected for four (4) or more continuous hours that can be demonstrated by recording charts or logs made at the time the test or operations were conducted, or N/A (see 195.406(a)(5))	N/A
h. The maximum safe pressure as determined by the operator considering operating history, or N/A	N/A
i. System Maximum Operating Pressure, "MOP" = Lowest of Items (a) through (h) above	1,440 psig @ 130°F
j. System Operating Pressure, "OP"	900 psig
k. MOP Certified By	Bill Heuer
l. Date	1/19/2012

<u>7. Miscellaneous Calculations</u>	
a. Operating Pressure Hoop Stress (%S) = $(OP \times D / 2t) \times (100 / S)$	20.5%
b. Test Pressure Hoop Stress (%S) = $(TP \times D / 2t) \times (100 / S)$	49.2%
c. MOP Hoop Stress (%S) = $(MOP \times D / 2t) \times (100 / S)$	32.8%

VENOCO
Liquid O&M Procedures – Review Work Performed by Operators
Form #17.01B

Reference: 49 CFR 195.402(c)(13)

Date Revised: Feb 2012, Rev #1

Frequency: This review shall be performed annually or on a more frequent basis if conditions warrant.

Action: A company supervisor shall review work performed by operators to determine the effectiveness and adequacy of the procedures used in normal operations and maintenance. The procedures should be modified when deficiencies are found.

Name and number of procedure(s) reviewed:

Where procedures adequate? (circle one) Yes No (If no, comments required below.)

Comments: Comments on any discrepancies found in the procedures. Describe discrepancies and recommended action to correct the discrepancy.

Follow Up _____
Action: Procedure Revised By (signature)

Date

Signatures _____
& Date: Review Completed By (signature)

Date

PERSONNEL TRAINING ATTENDANCE LIST
FORM 17.01C
(Not Exceeding 15 Months, But At Least Twice Per Calendar Year)

Course Title: _____ Course No.: _____ Course Location/Code: _____
 Sponsored By: _____ Instructor: _____ Asst. Instructor(s): _____
 Course Date: _____ Course Length: _____ Course Cost: _____

	FULL NAME	SOCIAL SECURITY NO	JOB TITLE	WORK LOCATION	SIGNATURE
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
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19					
20					

Card Issued: _____ Diplomas Issued: _____ Input Date: _____

VENOCO INC.
ABNORMAL OPERATION REPORT
FORM 17.08A
(As Required)

Line _____ Date _____

Describe abnormal operation. Provide supporting data, such as copies of pressure recorder charts, photos, etc.

Suspected cause or reason for abnormal operation: _____

Repairs or procedure changes required: _____

Date repairs / procedure changes made: _____

Approved _____ Date _____

**VENOCO INC.
PIPELINE OPERATING PRESSURE LOG**

**FORM 17.10.2A
(REQUIRED DAILY)**

PIPELINE SYSTEM: _____

DATE MO-DAY-YR	BY WHO	STATION	ACTUAL READING (PSIG)	NORMAL RANGE (PSIG)	COMMENTS

VENOCO, INC.
Quarterly Rectifier Inspection
Form 17.10.2D

[Completed 4x per year as per CSLC Title 2 Division 3 Article 3.3 Section 2132 (h) (4)]

WARNING! This equipment poses an electrical shock hazard and the following should only be attempted by qualified personnel.

Always **FIRST** touch the Rectifier with the back of your hand to ensure there is no unknown or unintended electrical charge prior to opening.

Inspection Date _____ Qualified Electrical Inspector Name _____

Company Rectifier Number (equipment identifier) _____

Location (area, stationing, mile post, address) _____

Facilities Protected (pipelines, structures) _____

Rectifier Make (manufacturer) _____ Model/Serial Number _____

Type (DC, pulse, air cooled, oil cooled) _____

Rating _____ Volts _____ Amps Phase _____

Stack Type (silicon, selenium) _____

Shunt Type _____ Resistance _____ Ohms Shunt Rating _____ Amps

Power Supply (AC, solar, thermoelectric) _____

AC Meter Number _____

TAP SETTINGS

Existing COURSE _____ FINE _____

Adjusted COURSE _____ FINE _____

METER READINGS

Existing Readings _____ Volts _____ Amps

Verified Readings _____ Volts _____ Amps

New Readings _____ Volts _____ Amps

COMMENTS _____

Ground-bed Type (deep well, shallow well, distributed, skid) _____

of Functioning Anodes _____ Anode Type (graphite, high silicon iron, metal oxide) _____

Total Anode Output _____ Amps Total Anode Resistance _____ Ohms

VENOCO, INC.
Quarterly Rectifier Inspection
Form 17.10.2D

RECTIFIER INSPECTION CHECKLIST

(If answering "NO" to any of the following questions, explain in **COMMENTS** section below.)

MOUNTING

	YES	NO	N/A
Is rectifier mounted securely?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is the rectifier level & straight?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SECURITY

Is lock in place to prevent unintended opening?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are door latches working properly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is the enclosure tight & dry?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Does everything about the rectifier appear to be normal and safe?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

POWER SOURCE

Does the A.C. circuit breaker disconnect properly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Does the internal power safety switch disconnect power properly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

WIRING

Are wire labels in place?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are wire labels legible?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are negative & positive leads attached tightly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are all electrical connections secure & tight?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is cabinet grounding OK?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are conduits fastened properly and tightly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is lightning protection intact?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are fuses intact (not blown) and working properly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

OPERATION AND MAINTENANCE

Is rectifier inside cabinet clean?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Does rectifier have adequate ventilation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are screened openings clear & free of obstructions?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Does the operation of the rectifier appear to be normal?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is the temperature of the rectifier normal?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Does rectifier contain instruction manual & wiring diagrams inside of cabinet?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are voltage & current readings within the rectifier unit ratings? If not, turn A.C. power "OFF" immediately.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Does the phase and voltage of the A.C. power supply correspond to the A.C. ratings of the rectifier?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are voltage tap setting adjusting knobs only hand tight?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
For the OIL IMMersed UNIT, is the oil tank clean?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is transformer oil clean and not contaminated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is the transformer oil tank filled to the proper level?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are all repairs and/or adjustments properly completed prior to re-energizing rectifier?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Can the rectifier resume operating without further maintenance or repair?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

COMMENTS

VENOCO, INC.
Quarterly Rectifier Inspection
Form 17.10.2D

WARNING! This equipment poses an electrical shock hazard and the following should only be attempted by qualified personnel.

Always FIRST touch the Rectifier with the back of your hand to ensure there is no unknown or unintended electrical charge prior to opening.

RECTIFIER ADJUSTMENTS

WARNING! Turn "OFF" the A.C. power, external to the unit, prior to tampering with the A.C. power supply terminals of the rectifier A.C. circuit. **CONTACT WITH THIS HIGH VOLTAGE CAN PRODUCE SEVERE OR FATAL SHOCK.**

1. Record existing course & fine tap settings, and the D.C. ammeter & voltage readings on instrument panel.
2. Turn "OFF" the A.C. power at the external circuit breaker AND the unit internal safety switch.
3. Before Increasing the coarse control tap setting, always return fine control setting to lowest position.
4. Change the coarse and/or fine control tap settings to next estimated higher position, and hand-tighten.
5. Turn A.C. power "ON" at the unit internal safety switch AND the external circuit breaker.
IF THE VOLTAGE AND/OR AMPERAGE EXCEEDS THE UNIT MAXIMUM RATINGS, IMMEDIATELY TURN POWER "OFF"!
6. Again, check and record D.C. ammeter and voltage readings on instrument panel.
7. Repeat steps 1 through 6. With coarse control at the estimated lowest setting, increase fine control setting in progressive steps throughout its full range and record D.C. output voltmeter and ammeter in this manner until current output is obtained.

	YES	NO	N/A
Are voltage tap setting adjusting knobs only hand tight?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
For 3 phase units, are all similar (coarse or fine) voltage tap settings on the same "step" in all phases before A.C. power is turned "ON"?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are voltage & current readings, and ambient temperature within the rectifier unit ratings? If not, turn A.C. power "OFF" immediately.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

COMMENTS

RECTIFIER TROUBLE SHOOTING

1. NO D.C. CURRENT, OR D.C. VOLTAGE OUTPUT.

CHECK: A.C. overload protection for blown fuses or tripped circuit breaker. Check A.C. power supply.

2. D.C. VOLTAGE, BUT NO D.C. CURRENT READING.

CHECK: D.C. ammeter. Check D.C. connections and external D.C. circuit for electrical continuity.

3. D.C. CURRENT READING, BUT NO D.C. VOLTAGE READING.

CHECK: Check D.C. Voltmeter.

4. MAXIMUM RATED D.C. VOLTAGE CANNOT BE ATTAINED.

CHECK: Check A.C. line voltage. Check voltage adjustment settings for maximum. Check accuracy of D.C. Voltmeter.

5. MAXIMUM RATED D.C. CURRENT CANNOT BE OBTAINED AT MAXIMUM D.C. VOLTAGE.

CHECK: Check load resistance of external D.C. circuit.

6. OVERLOAD PROTECTION TRIPS REPEATEDLY.

CHECK: Determine and resolve cause before attempting further operation of rectifier.

Venoco Inc.
Offshore Pipeline Leak & Right-of-Way Survey

Month/Year _____

From: Platform Holly to Ellwood

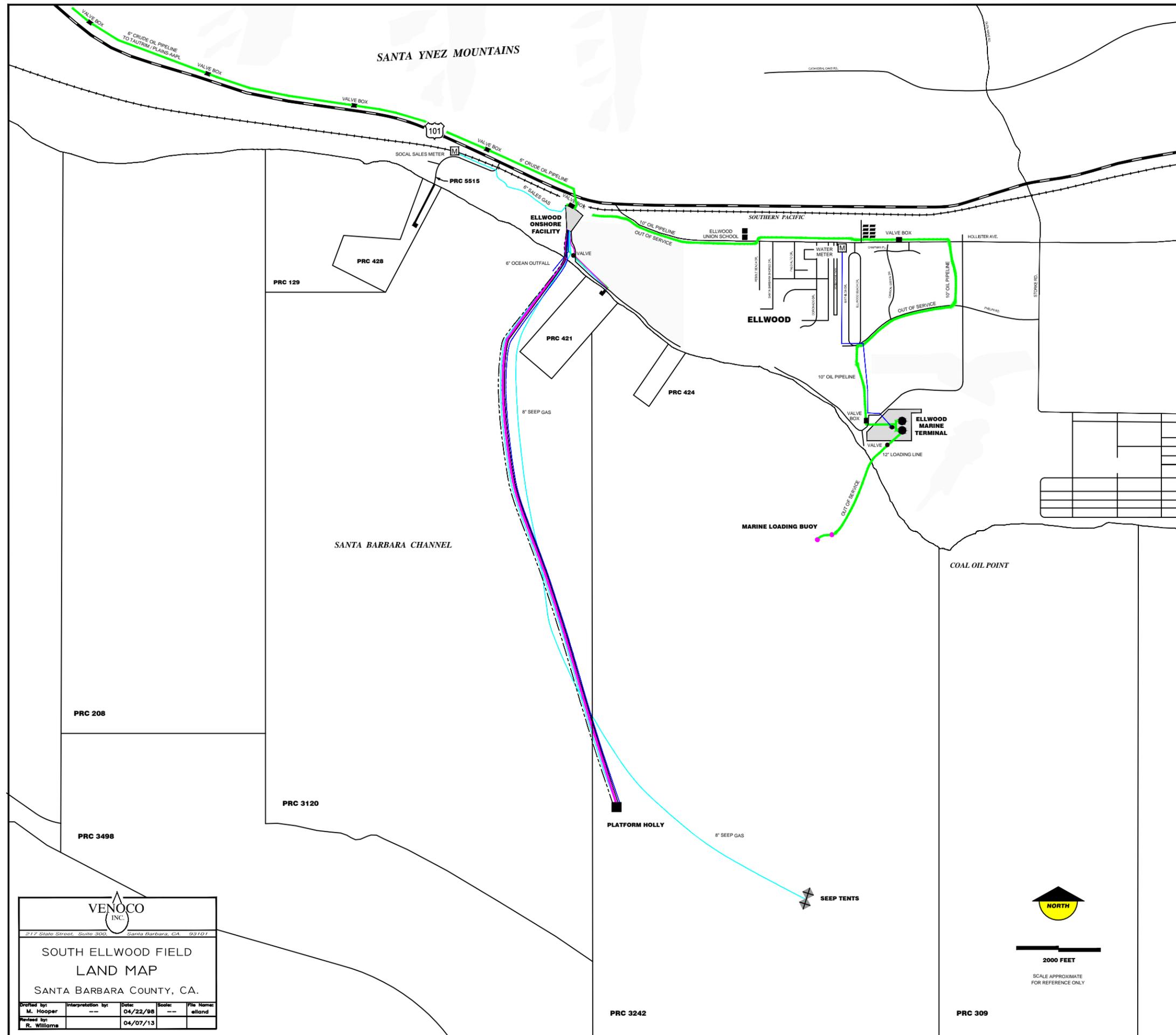
Lines surveyed: Platform Holly – Ellwood 6” Oil & 6” Gas By: Crew Boat

	DATE	TIME	VESSEL	CAPTAIN	WEATHER/SEA CONDITIONS	HOLLY/EOF
WEEK 1						
WEEK 2						
WEEK 3						
WEEK 4						
WEEK 5						

REMARKS:

NOTES:

1. Forwarded completed forms to Pipeline Compliance Coordinator and EOF Operations.
2. Captain of the vessel will enter the data into his daily log.

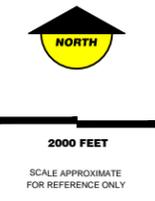


VENOCO
INC.

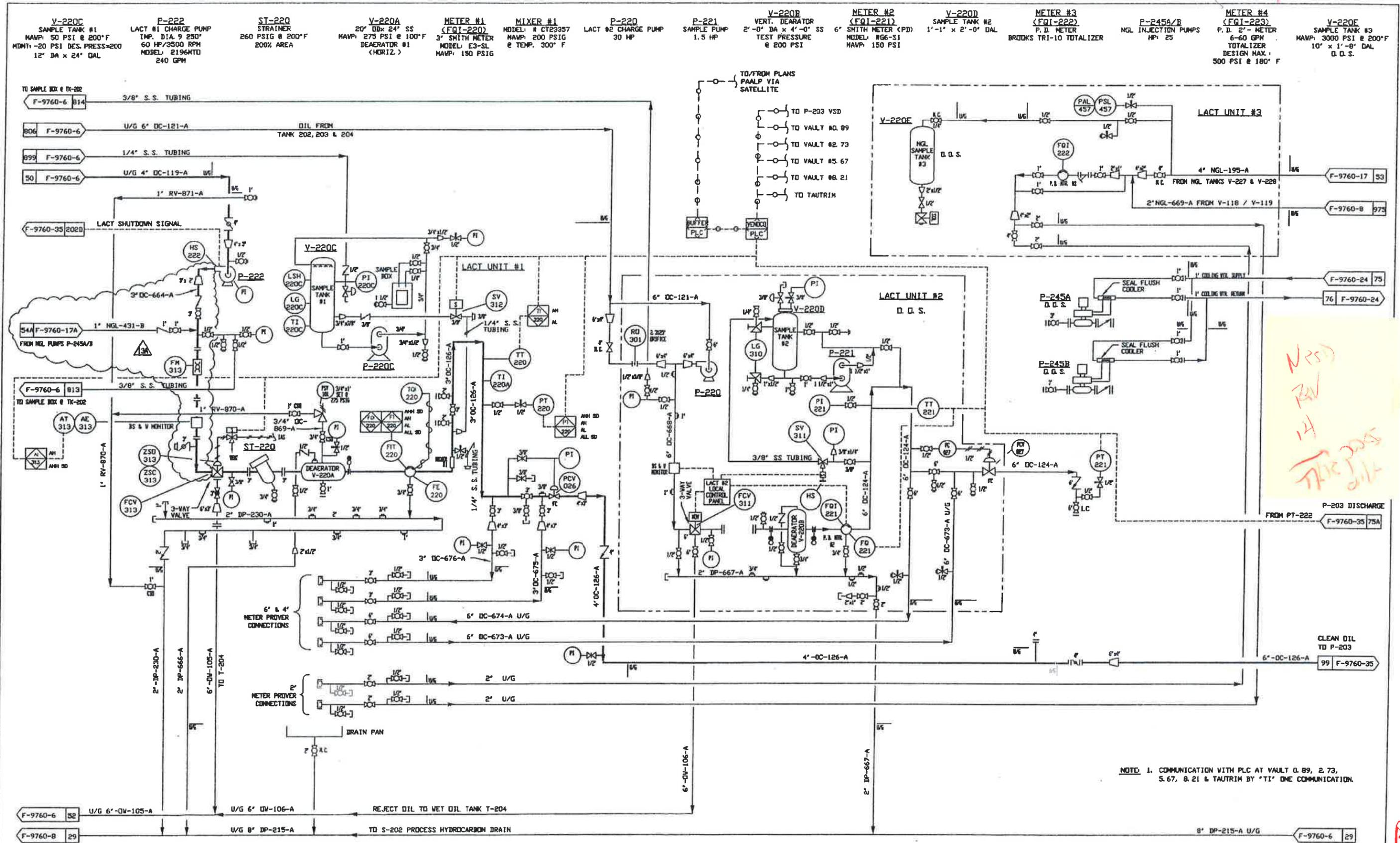
217 State Street, Suite 300, Santa Barbara, CA 93101

**SOUTH ELLWOOD FIELD
LAND MAP
SANTA BARBARA COUNTY, CA.**

Drafted by:	Interpretation by:	Date:	Scale:	File Name:
M. Hooper	---	04/22/98	---	ellond
Revised by:		04/07/13		
R. Williams				



Drawn by: oic 1/19/95



N 250
REV
14
THE 2005
DIT

Rev
14
is
the
latest

CONFIDENTIAL
This drawing is based on licensed information and is not to be used other than in the operation & maintenance of the plant for which it was prepared. This drawing is the sole property of Venoco Inc.

MECHANICAL FLOW DIAGRAM
LACT UNITS #1, #2 & #3
ELLWOOD ONSHORE FACILITIES

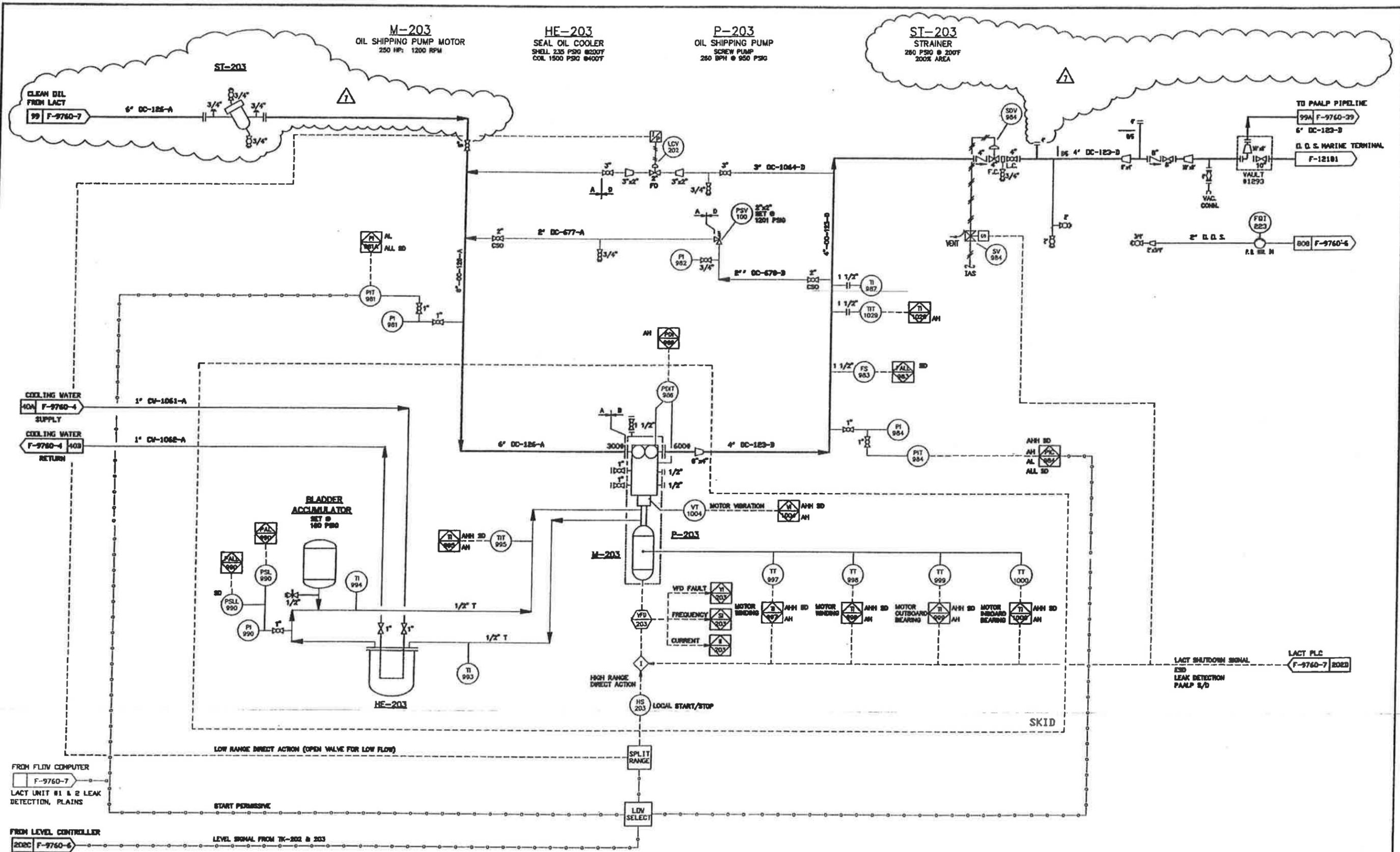
VENOCO INC.
6267 Carpinteria Ave Suite 100 Carpinteria CA. 93019

Mark	Date	Revision
13A	10/22/13	ADDED FLOW MIXER & 1" LINE FROM NGL INJECTION PUMPS P-245A/B
13	04/24/13	REMOVED LACT # 2 CONNECTION & ADDED NUMBER TO Y-STRAINER
12	02/16/12	REVISED PIPELINE ALARMS
11	01/23/12	REMOVED OUT OF SERVICE PIPING AT P-245A/B AND ADDED FLOW CONTROL INSTRUMENTS PER OIL PIPELINE PROJECT

ENGINEERING RECORD					
INIT.	DATE	INIT.	DATE	Drawn By	Date
				MLL	2-01-95
				Revised	2-01-95
				Project Engr.	G. Barkier
				Scale	NONE
				Dwg. No.	F-9760-7

13A

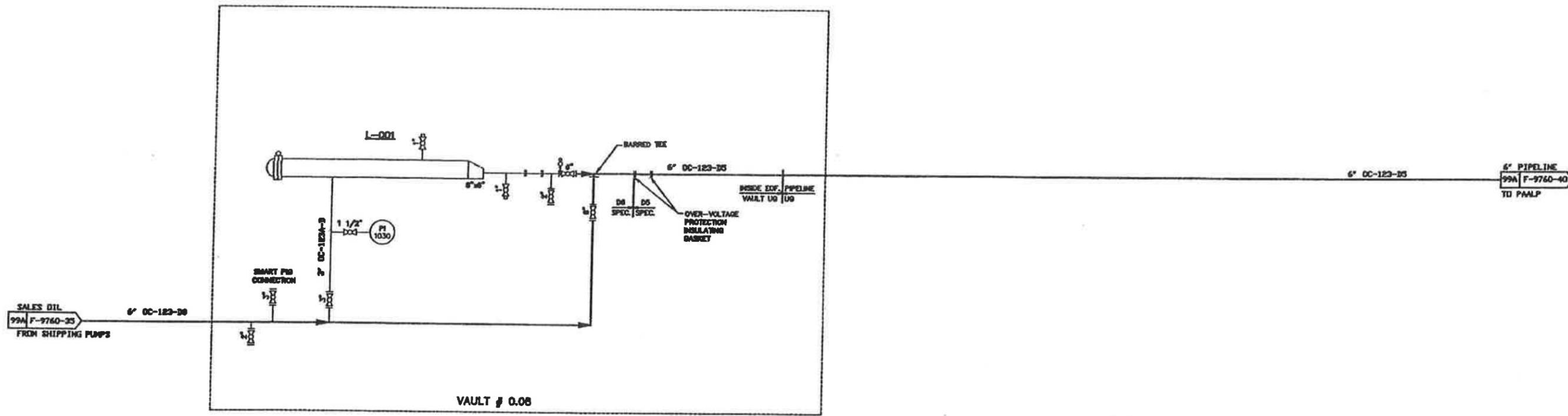
TOC



CONFIDENTIAL				MECHANICAL FLOW DIAGRAM				VENOCO INC.				ENGINEERING RECORD																																																											
This drawing is based on information furnished to us and is not to be used for any other purpose without our written consent. This drawing is the property of Venoco Inc.				OIL SHIPPING PUMP P-203 ELLWOOD ONSHORE FACILITIES				6267 Carpinteria Ave Ste 100, Carpinteria CA, 93013				<table border="1"> <tr> <td>7</td> <td>04/24/12</td> <td>ADDED Y-CORNER</td> <td>NEW</td> <td>REW</td> <td></td> <td></td> <td></td> <td>Drawn By</td> <td>REW</td> <td>Date</td> <td>5/07/09</td> <td></td> <td></td> </tr> <tr> <td>8</td> <td>03/18/12</td> <td>REVISED PIPELINE ALARMS</td> <td>NEW</td> <td>REW</td> <td></td> <td></td> <td></td> <td>Revised</td> <td>-</td> <td>Scale</td> <td>NONE</td> <td></td> <td></td> </tr> <tr> <td>9</td> <td>01/24/12</td> <td>AS-BUILT EXISTING VALVES & ADDED NEW ALARMS</td> <td>NEW</td> <td>REW</td> <td></td> <td></td> <td></td> <td>Project Engr.</td> <td>CHRIS FOX</td> <td>Dwg. No.</td> <td>F-9760-35</td> <td></td> <td></td> </tr> <tr> <td>4</td> <td>12/21/11</td> <td>ADDED VALVE PLEBS</td> <td>NEW</td> <td>CF</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>				7	04/24/12	ADDED Y-CORNER	NEW	REW				Drawn By	REW	Date	5/07/09			8	03/18/12	REVISED PIPELINE ALARMS	NEW	REW				Revised	-	Scale	NONE			9	01/24/12	AS-BUILT EXISTING VALVES & ADDED NEW ALARMS	NEW	REW				Project Engr.	CHRIS FOX	Dwg. No.	F-9760-35			4	12/21/11	ADDED VALVE PLEBS	NEW	CF									
7	04/24/12	ADDED Y-CORNER	NEW	REW				Drawn By	REW	Date	5/07/09																																																												
8	03/18/12	REVISED PIPELINE ALARMS	NEW	REW				Revised	-	Scale	NONE																																																												
9	01/24/12	AS-BUILT EXISTING VALVES & ADDED NEW ALARMS	NEW	REW				Project Engr.	CHRIS FOX	Dwg. No.	F-9760-35																																																												
4	12/21/11	ADDED VALVE PLEBS	NEW	CF																																																																			

TOC

L-001
 OIL PIG LAUNCHER
 TDW D2000 CLOSURE
 1415 PSIG @ 150° F
 8" DIA X 3 FT



CONFIDENTIAL
 This drawing is based on information as shown in the specification & requirements of the plant for which it was prepared. This drawing is the sole property of Venoco Inc.

MECHANICAL FLOW DIAGRAM
 OIL PIG LAUNCHER
 ELLWOOD ONSHORE FACILITIES



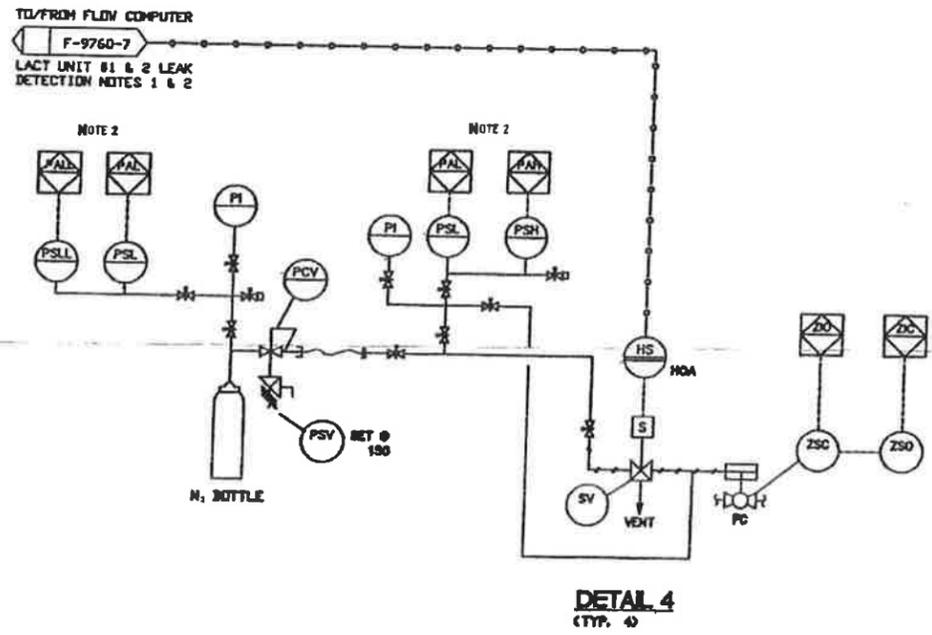
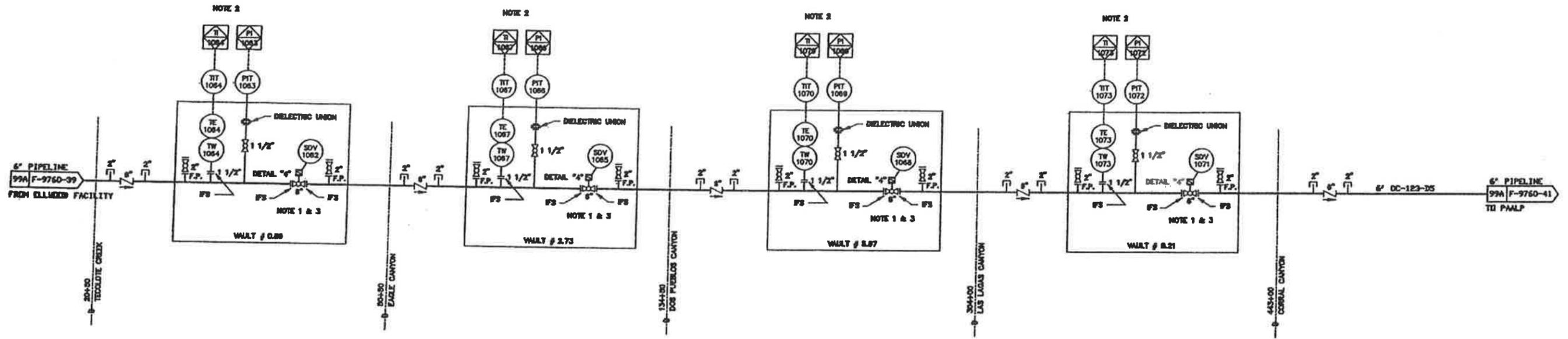
6267 Carpinteria Ave Suite 100, Carpinteria CA, 93013

Work	Date	Revision	By	App'd
4	01/24/12	AS-BUILT	NEW	REV
3	08/31/11	WEGOP MODIFICATIONS	ACS	REV
2	06/30/11	MOVED BRIN VALVE	NEW	REV
1	08/24/11	ADDED OVER VOLTAGE PROTECTION SPOOL	NEW	REV

ENGINEERING RECORD											
INIT.	DATE	INIT.	DATE	Drawn By	REW	Date	6/21/11	Revised	07/05/11	Scale	NONE
				Project Engr. <td>BEV <td>Deg. No. <td>F-9760-39 <td></td> <td></td> <td></td> <td></td> </td></td></td>	BEV <td>Deg. No. <td>F-9760-39 <td></td> <td></td> <td></td> <td></td> </td></td>	Deg. No. <td>F-9760-39 <td></td> <td></td> <td></td> <td></td> </td>	F-9760-39 <td></td> <td></td> <td></td> <td></td>				

NOTES:

1. VALVES WILL SHUT IF PIPELINE LEAK DETECTION SYSTEM SENSES A PIPE LEAK SIGNAL IS GENERATED FROM EOF PLC AND TELEMETERED TO EACH VALVE STATION.
2. PLC INPUTS ARE TELEMETERED FROM EACH VALVE STATION TO THE EOF PLC.
3. EACH SOV INSULATED W/IFC'S ALSO THERMOWELLS W/TRANSMITTERS.



NUMBERING				
DEVICE	TAG	TAG	TAG	TAG
SV	1082	1085	1088	1071
HS	1082	1085	1088	1071
ZSC	1082	1085	1088	1071
ZSO	1082	1085	1088	1071
PSL	1082	1085	1088	1071
PSH	1082	1085	1088	1071
PSL	1082A	1085A	1088A	1071A
PSLL	1082A	1085A	1088A	1071A
PCV	1082	1085	1088	1071
PSV	1082	1085	1088	1071

TOC

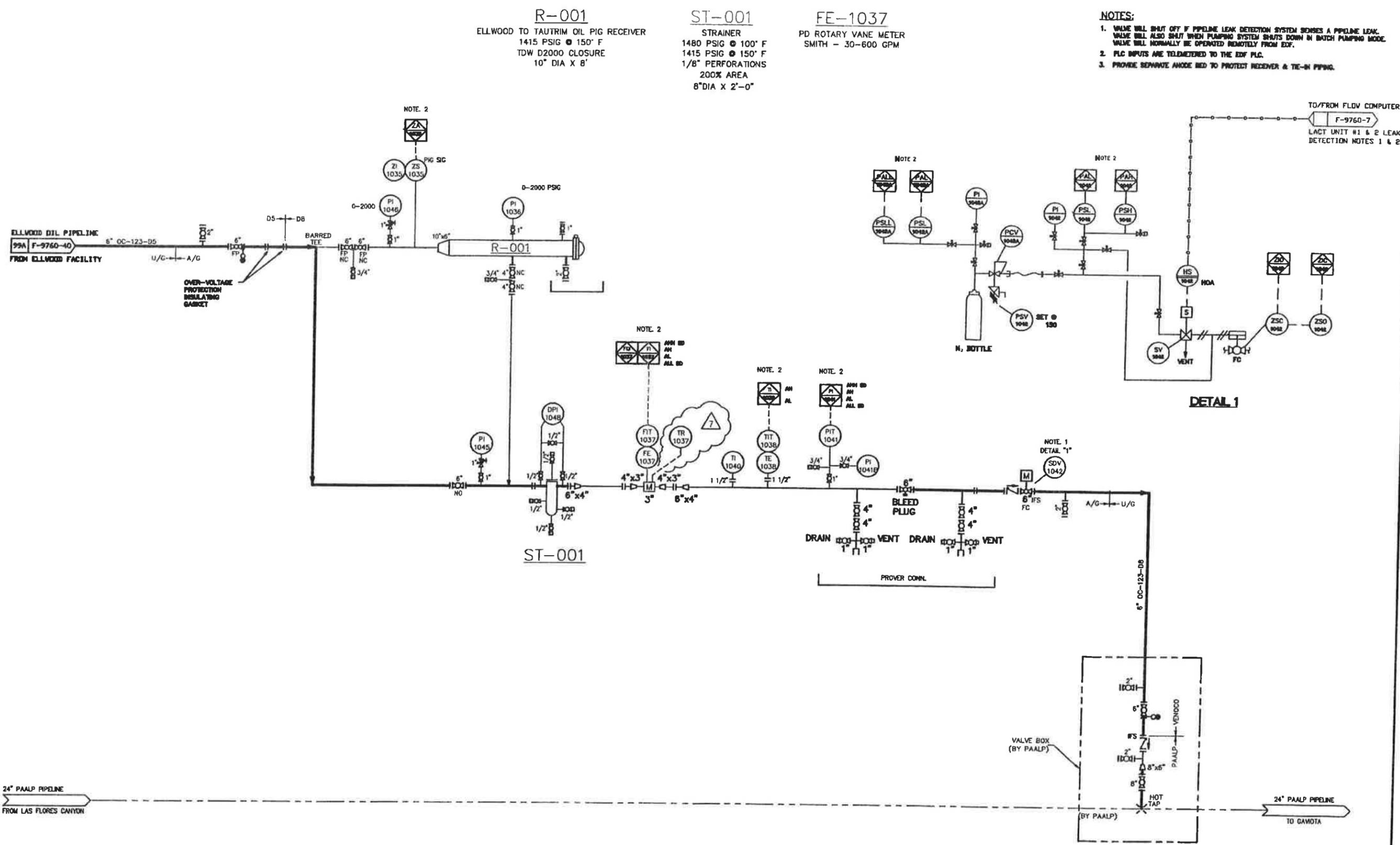
**MECHANICAL FLOW DIAGRAM
REMOTE VALVE SITES
FROM ELLWOOD ONSHORE FACILITIES**

VENOCO
INC.

6287 Carpinteria Ave Suite 100, Carpinteria CA, 93013

Work	Date	Revision	By	App'd
4	03/18/12	AS-BUILT	REV	REV
3	11/18/11	REVISED INSTRUMENTATION	REV	REV
2	08/31/11	W/LOOP MODIFICATIONS	REV	REV
1	08/22/11	ADDED PRESSURE TIPS AT CHECK VALVES	REV	REV

ENGINEERING RECORD					
INIT.	DATE	INIT.	DATE	Drawn By	Date
				ERF	12/15/08
				Revised	Scale NONE
				Project Engr.	Dir. No. F-9760-40



R-001

ELLWOOD TO TAUTRIM OIL PIG RECEIVER
1415 PSIG @ 150° F
TDW D2000 CLOSURE
10" DIA X 8'

ST-001

STRAINER
1480 PSIG @ 100° F
1415 PSIG @ 150° F
1/8" PERFORATIONS
200% AREA
8" DIA X 2'-0"

FE-1037

PD ROTARY VANE METER
SMITH - 30-600 GPM

NOTES:

1. VALVE WILL SHUT OFF IF PIPELINE LEAK DETECTION SYSTEM SENSES A PIPELINE LEAK. VALVE WILL ALSO SHUT WHEN PUMPING SYSTEM SHUTS DOWN IN BATCH PUMPING MODE. VALVE WILL NORMALLY BE OPERATED REMOTELY FROM EDF.
2. PLC INPUTS ARE TELEMETERED TO THE EDF PLC.
3. PROVIDE SEPARATE ANODE BED TO PROTECT RECEIVER & TIE-IN PIPING.

DETAIL 1

CONFIDENTIAL
This drawing is based on assumed information & is not to be used otherwise in the operation & maintenance of the plant, for which it was prepared. This drawing is the sole property of Venoco Inc.

**MECHANICAL FLOW DIAGRAM
PIG RECEIVER @ TAUTRIM PAALP TIE-IN
FROM ELLWOOD ONSHORE FACILITIES**



6257 Carpinteria Ave Suite 100 Carpinteria, CA. 93013

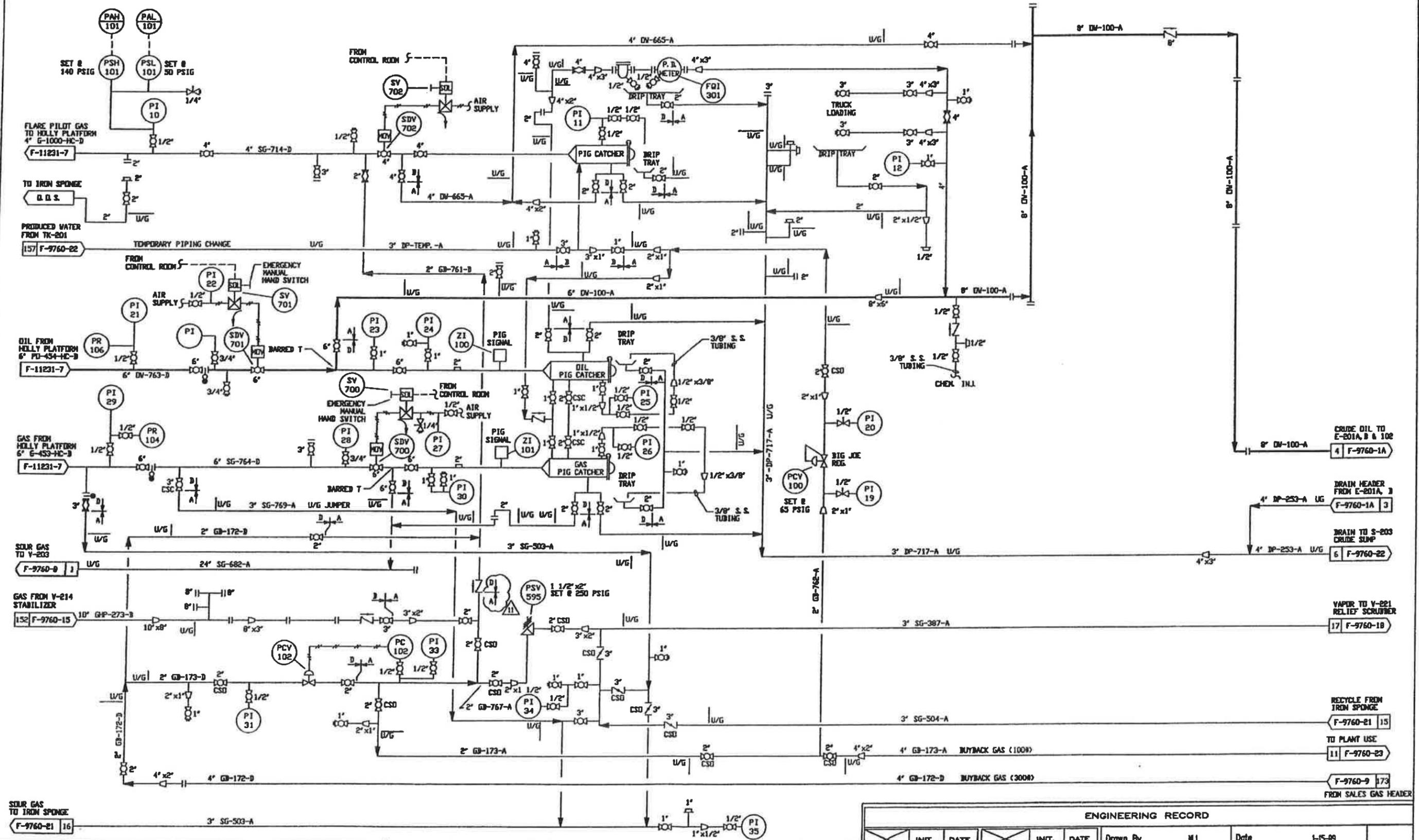
Mark	Date	Revision	By	App'd
7	02/26/14	ADDED TEMPERATURE RECORDER TR-1037	NEW	REV
8	03/18/12	AS-BUILT	NEW	REV
8	11/16/11	REMOVED SIZE OF BLEED RING DRAIN CONNECTION FROM 1/2" TO 3/4"	NEW	REV

ENGINEERING RECORD			
INIT.	DATE	INIT.	DATE

Drawn By	WW	Date	8/9/07
Revised	CF	Scale	NONE
Project Engr.	REV	Des. No.	F-9760-41

STRAINER
MAMP 1480 PSI

POSITIVE DISPLACEMENT METER
MAMP 1440 PSI



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MECHANICAL FLOW DIAGRAM
PIG CATCHERS
ELLWOOD ONSHORE FACILITIES



6267 Carpinteria Ave. Suite 100 Carpinteria, CA 93013

REV	DATE	BY	APP'D
11	09/12/12	AS-BUILT SPEC. CHANGE	
10	11/05/06	ADDED CHECK VALVE @ CHECK INH POINT & REVISED PIG CAT. BRANDS.	
9	08/23/07	CHANGE LINE NO FROM 8\"/>	

ENGINEERING RECORD					
INIT.	DATE	INIT.	DATE	Drawn By	Date
				MLL	1-15-89
DRAWN		ENGINEER		Revised	3-15-95
ELEC.		CONST.		Scale	NINE
PROJECT ENGINEER		OPERAT'NS		Project Engr.	G. Barker
				Dwg. No.	F-9760-1

Pipeline Data for Santa Barbara Channel Pipelines

Rosen

Location	Pipeline	Nominal Size	OD in.	Riser wall	Riser Min. ID	Wall (inches)	PL ID in.	Length (miles)	Length (feet)	Area (sq. in.)	Volume (cu. ft)	Volume (bbls)	Volume (bbl/mile)	Tool to Use	Min. Speed (mph)	Medium for Log	Volume for Min. (bbl/day)	Normal Volume (bbls)	Hours at Minimum Rate	Volume to Add (bbls)	Min. Speed (mph)	Volume for Min. (bbl/day)	
Gail M-28	Oil	8	8.625	0.5	7.625	0.5	7.625	6.14	32,419	45.66	10,280	1,831	298	Magnetic	0.7	Oil	5,010	4,200	8.8	296	1.09	7,801	
Minimum ID is 7.34" miter joint 5' in front of receiver.																							
Gail	HP Gas	8	8.625	0.5	7.625	0.5	7.625	6.14	32,419	45.66	10,280	1,831	298	Magnetic	0.7	Water	5,010	0	8.8	1,831	1.09	7,801	
Gail	LP Gas	8	8.625	0.5	7.625	0.5	7.625	6.14	32,419	45.66	10,280	1,831	298	Magnetic	0.7	Water	5,010	0	8.8	1,831	1.09	7,801	
Grace	Gas	10	10.75	0.688	9.374	0.365	10.02	15.37	81,142	78.85	44,433	7,914	515	Magnetic	0.7	Oil	8,651	4,200	22.0	4,072	1.09	13,471	
Grace	Oil	12	12.75	0.625	11.5	0.375	12	11.85	62,550	113.10	49,127	8,749	739	Ultrasonic	0.45	Water	7,977	0	26.3	8,749	1.09	19,321	
	Oil	10	10.75	N/A	N/A	0.365	10.02	3.52	18,592	78.85	10,181	1,813	515	Ultrasonic	0.45	Water	5,561	0	7.8	1,813	1.09	13,471	
	Hope bypass spool	10.75				0.5	9.75	<<----- actually measured 9.55" by guage pig															
12/10 Combination Line								Total	15.37	81,142		59,308	10,563								10,563		
Holly	Gas	6	6.625	0.28	6.065	0.28	6.065	3.00	15,840	28.89	3,178	566	189	Ultrasonic	0.5	Water	2,264	0	6.0	566	1.09	4,935	
Holly	Oil	6	6.625	0.28	6.065	0.28	6.065	3.00	15,840	28.89	3,178	566	189	Ultrasonic	0.5	Water	2,264	0	6.0	566	1.09	4,935	

Other Information

Constants Used

5.6148 cubic feet per barrel
25.4 mm per inch (need to look up)

Pipeline MAOP Data

Location	Size	PL	Normal Press. psig	MAOP psig
Gail	8"	Oil	600	1776
Gail	8"	HP Gas	170	1480
Gail	8"	LP Gas	160	740
Grace	10"	Oil	250	740
Grace	12"/10"	Gas	155	710

1340

Pipeline Receiver and Launchers

Line	Service	Orig	Launch	Length	End	Receiver	Length
8"	Oil	Gail	M-28	12' 1"	Grace	M-50	12'6"
8"	HP Gas	Gail	M-30	12'	Grace	M-49	13'9"
8"	LP Gas	Gail	M-29	12'3"	Grace	M-51	12'6"
10"	Oil	Grace	M-1	14'8"	Carp	M-1	20'+
12"/10"	Gas	Grace	M-2	14'8"	Carp	M-2	21'2"

Pipe Grades

Line	Service	Orig	Grade	Conc.	Yield	Comment
8"	Oil	Gail	X-52	No	52,000	
8"	HP Gas	Gail	X-52	No	52,000	
8"	LP Gas	Gail	X-52	No	52,000	
10"	Oil	Grace	X-46	No	46,000	
12"/10"	Gas	Grace	X-46	14'8"	46,000	12" line
12"/10"	Gas	Grace	B	No	35,000	10" line