

DOT US Department of Transportation  
PHMSA Pipelines and Hazardous Materials Safety Administration  
OPS Office of Pipeline Safety  
Southwest Region

**Principal Investigator** Jocelyn M. Kerl  
**Region Director** R. M. Seeley  
**Date of Report** May 13, 2016  
**Subject** Failure Investigation Report – Centurion Pipeline L.P.

### **Operator, Location, & Consequences**

**Date of Failure** 08/02/15  
**Commodity Released** Crude Oil  
**City/County & State** Denver City/Yoakum/TX  
**OpID & Operator Name** 31888 Centurion Pipeline L.P.  
**Unit # & Unit Name** 36294 West System – New Mexico/Texas  
**SMART Activity #** 151238  
**Milepost / Location** MP 419.74  
Latitude – N 32°.9869'  
Longitude – W -102°.7691'  
Location – 4 miles Northeast of Denver City, Texas  
  
**Type of Failure** Tank Mixer Failure  
**Fatalities** 0  
**Injuries** 0  
**Description of area impacted** Class 1 outside of an HCA  
**Property Damage** \$62,457

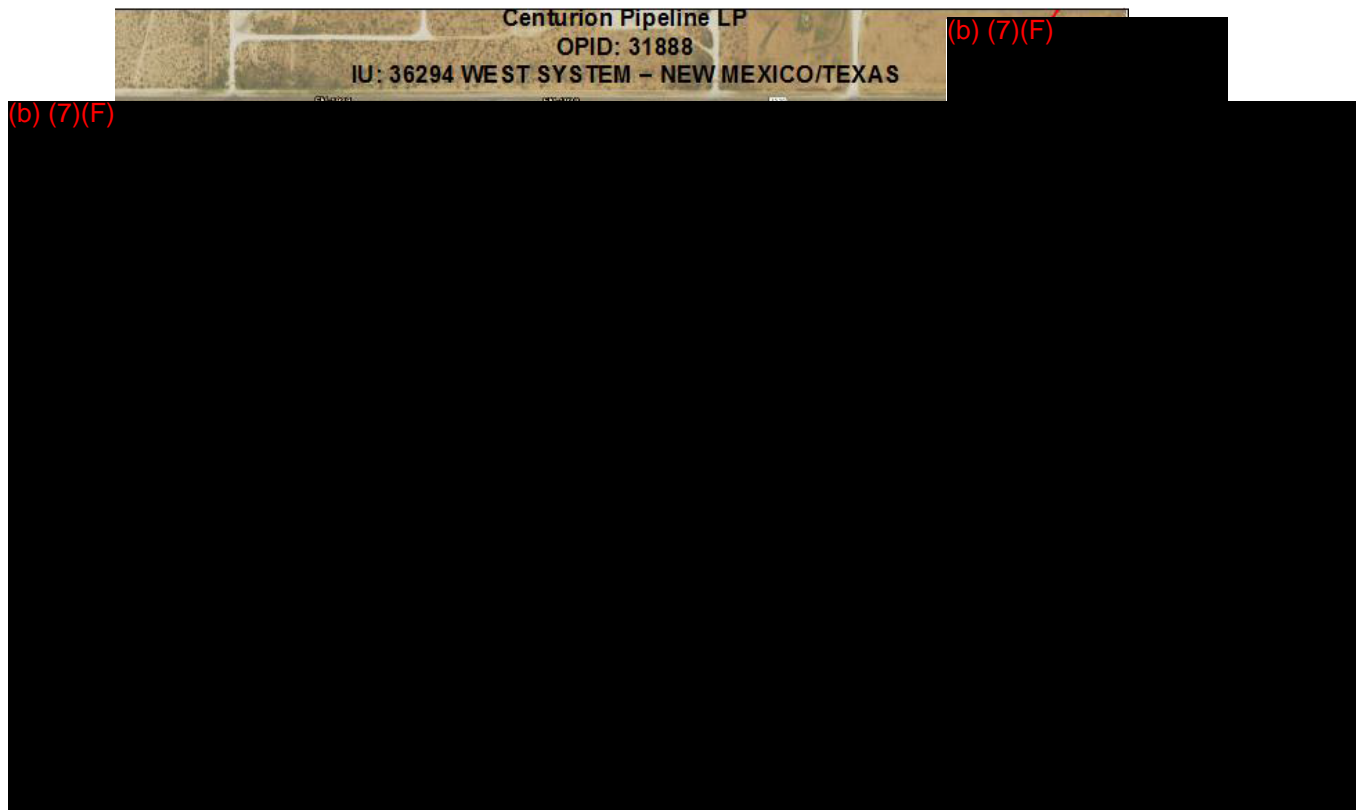
**Failure Investigation Report – Centurion Pipeline L.P.  
Denver City, TX (Yoakum County)**

August 2, 2015

**Executive Summary**

On Sunday, August 2, 2015, at approximately 7:55 a.m. CDT<sup>1</sup>, Centurion Pipeline L.P. (Centurion) identified a release at their Wassom Station. Centurion reported the accident to the NRC at 10:30 a.m. on Aug. 2, 2015 (NRC#1124543) indicating a failure of a tank mixer on Tank 6830 located in the Wassom Station, Yoakum County, TX. PHMSA responded to the site on Monday, Aug. 3, 2015.

The accident occurred in a rural section of Yoakum County and the product was contained within the dike of Tank 6830. The final release was reported to be 321 barrels (bbl) of crude oil. There was no offsite impact as a result of the release. There were no reported fatalities or injuries. The total estimated damages reported on the Form 7000-1 #20150313 were \$62,457.



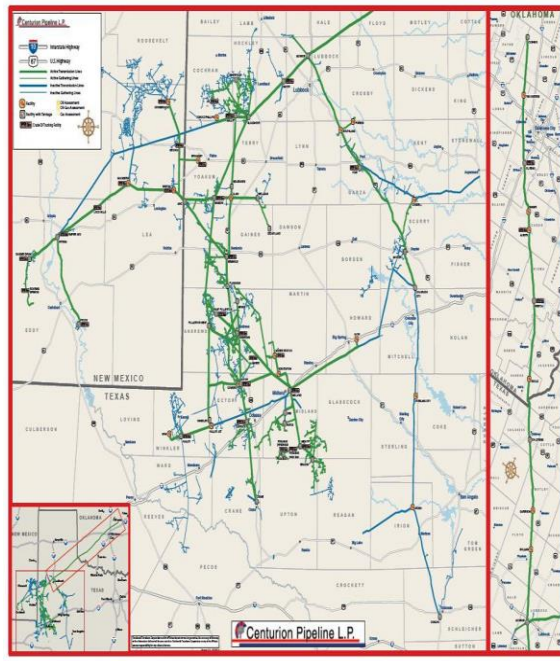
**Figure 1. Aerial Photograph – Pipeline Failure Site**  
Source: NPMS – Centurion Wassom Facility, Denver City, Texas

<sup>1</sup> All times are Central Daylight Time (CDT) unless otherwise noted.

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## **System Details**

Centurion Pipeline L.P., a wholly-owned subsidiary of Occidental Petroleum, is an oil-gathering, common carrier pipeline and storage operator with more than 2,700 miles of pipelines extending from southeast New Mexico across the Permian Basin of West Texas to Cushing, OK. Targeted destinations for the crude oil are market centers, third party connecting carriers, and ultimately, refineries. Several pipelines both intrastate and interstate transport product into and out of the Wassom Station, which is located at milepost (MP) 419.74 on the Wasson to Slaughter 16-inch system. This station is located approximately 4 miles northeast of Denver City, TX. This is an unmanned station with six tanks located at this facility. The station is remotely operated by the Centurion Control Center (CCC) using a (b) (7)(F) [REDACTED]. The station is maintained by Centurion field personnel headquartered in Lovington, NM, located approximately 45 miles away. Call-outs from the Lovington, NM facility require about one hour for response time to the station.



**Figure 2. Map – The Centurion Pipeline System**

Source: Centurion Pipeline L.P. – <http://www.centurionpipeline.com/about/map.aspx>

## **Pipe Specifications**

The tank involved in the accident was Tank No. 6830 and is used for crude oil service. This tank is approximately 56 feet in height and has a diameter of 120 feet, with an external floating roof. It was constructed in 1947 and its volume is [REDACTED]. A Philadelphia Cutlass Mixer (Model #SA-BSE-8) was installed on Tank 6830 by BP Pipeline prior to the acquisition of the Wasson Facility by Centurion.

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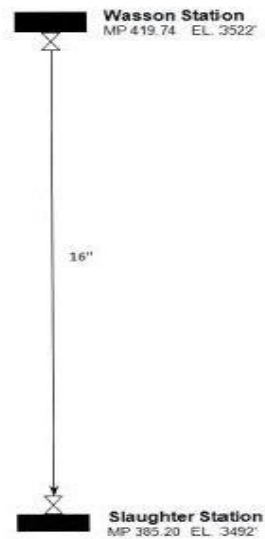
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The release did not occur in, or affect a High Consequence Area (HCA), and the Wasson Station is not subject to the Oil Pollution Act of 1990 (OPA 90).

Centurion Pipeline L.P.

Wasson - Slaughter  
Pipeline-Specific Operations Manual

**Figure 2: System Schematic**



**Figure 3. Pipeline schematic – Wasson Station to Slaughter Station**

Source: Centurion – Wasson Pipeline-Specific Operations Manual

### **Events Leading up to the Failure**

On Saturday, Aug. 1, 2015, the Centurion Measurement Specialist began the monthly task of gauging the tanks at the Wasson Station and completed this activity at approximately 8:15 a.m. During that time, there was no product noted around Tank 6830. Later that evening, at 10:40 p.m., the CCC noted a communication failure and immediately called the I&E Technician. The I&E Technician arrived at Wasson Station shortly after midnight on Sunday, August 2, 2015. While onsite, the I&E technician power-cycled the programmable logic controller (PLC) “off” and then back “on.” The I&E technician verified with the CCC that communications had returned and that they could again remotely monitor the tank level gauges. During the time he was onsite, he stated that there was no indication the mixer was leaking. The I&E Technician departed shortly after 1:55 a.m.

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On Sunday, Aug. 2, 2015, at approximately 7:10 a.m., the CCC again contacted the measurement specialist and stated that a motor operated valve (MOV 24067) for Tank 6719 would not open. At approximately 7:43 a.m., the Measurement Specialist arrived at the Wasson Station. He verified that there was no power to the MOV for the tank.

### **Emergency Response**

At the time the measurement specialist arrived at the Wasson Station, he also smelled the odor of crude oil. He investigated and found that product was leaking at the mixer on Tank 6830. He began emergency response activities and notifications. Centurion Supervision began contacting oil removal and remediation contractors to assist with the clean-up inside the tank dike. By 9:00 am, vacuum trucks arrived to begin removing the surface oil only to determine they would need more hose to accomplish the task. At approximately 9:30 am, sufficient hose had arrived for the vacuum trucks to begin removal of the free oil. During this phase of the cleanup, personnel on-site realized the oil pool in a low area near the dike wall was deeper than anticipated, and that the soil impact was deeper than initially determined. These new facts increased the estimate of the volume released. This discovery required recalculating the release volume and reassessing the cost of cleanup and recovery. At that time Centurion, determined the cost would exceed the \$50,000 threshold which established the need for our initial telephonic report. Centurion contacted the NRC on August 2, 2015 at approximately 10:30am and reported the release. (NRC#1124543) The crude oil product that was released during the accident was recovered by approximately 11:45 am.

### **Investigation Details**

PHMSA Southwest Region (SWR) staff conducted an onsite investigation into the release on Monday, Aug. 3, 2015, after receiving an email notification from the Crisis Management Center on Sunday, Aug. 2, 2015. There were no injuries, fire, evacuations or media coverage associated with the release. Upon arrival, it was noted that the product had been cleaned up and the mixer had been removed from the tank. The control panel is approximately 400 feet away from Tanks 6830 and 6831, which are located in the same secondary containment dike. PHMSA SWR conducted a site visit to the CCC to review the actions and the response of the controllers on duty from Saturday, August 1, 2015, to Monday, August 3, 2015. The investigation focused on the actions of the controllers and the field operators, as well as inspection and maintenance records of Tank 6830 and its associated equipment.

The Centurion Pipeline Control Room Management Manual (rev. 3) was reviewed. TAB #2, Section 2-2.3.7-*Loss of Communications Procedure* provides direction for controllers in the event there is a loss of communications at a station or facility. The procedures state that the outage could be a partial or a total system outage, and give the controller the latitude to make a decision as to whether that outage is of high or low importance. The procedures allowed a 60-minute time interval for the controller to make that determination. The Centurion Controller Event Log/Record for the Wasson to Slaughter system and designated as record PAR ID: 2824 with a start date 08-01-15 (6:00 a.m.) to 08-02-15 (6:00 a.m.), notes

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that at 10:40 p.m. on Saturday, Aug. 1, 2015, Tank 6830 and 6831 experienced a communication failure. The CCC notified the Centurion I&E technician at approximately 10:40 pm, and at 1:55 am, the Wasson Tank communications were back in operation. Centurion controller event log/record PAR ID: 2825 with a start date 08-02-15 (6:00 a.m.) to 08-03-15 (6:00 a.m.), notes that at 7:10 a.m. on Sunday, Aug. 2, 2015, the CCC tried to start the Wasson transfer but the MOV (No. 24067) for Tank No. 6719, did not open and the CCC notified the measurement specialist. The measurement specialist arrived on site at approximately 7:43am. According to the operator, the decrease in volume and decrease in pressure was not significant enough to trigger a SCADA alarm. The Centurion controller contacted field personnel per the procedures outlined in Centurion's CRM; Section 2.3.7. Field personnel were notified and arrived within an hour of notification.

The last API 653 **Out-of-Service** Inspection of Tank 6830 was conducted on June 8, 2005 (Job No. 2111-7045). The report shows that the mixer was inspected, checked for proper mounting flange and support, leakage, shell distortion, and passed as "OK". The last API 653 **In-Service** Inspection of the tank was February 24, 2012. The Nozzle and Appurtenance Inspection Checklist Item No. 60 included in the inspection showed that there were indications of leakage around man ways, nozzles, flanges, valves and appurtenances (including reinforcement, bolting, gaskets, seals, and mixers) as "Acceptable". The report included a picture of the mixer installed at that time. It appears to be the same Philadelphia type mixer that experienced the seal failure on Sunday, August 2, 2015. The monthly inspection records for Tank 6830 were reviewed and did not show any problem noted related to the mixer. The tank inspections (Out-of-Service and In-Service) were performed within the required intervals and did not detect any problems with the tank mixer.

The past record inspections and the P&ID diagrams show that the mixer that failed on Tank 6830 prior to the accident was a Philadelphia Cutlass Mixer. Centurion reported on Form PHMSA F7000.1, Number 20150313, that the mixer was installed in 2005. Centurion stated that they had not experienced any previous problems with this type of mixer and that they had been in the process of installing mixers of a different model as tank mixers go out or are added to tanks. Centurion stated that the decision to install different type mixers was initiated prior to this accident.

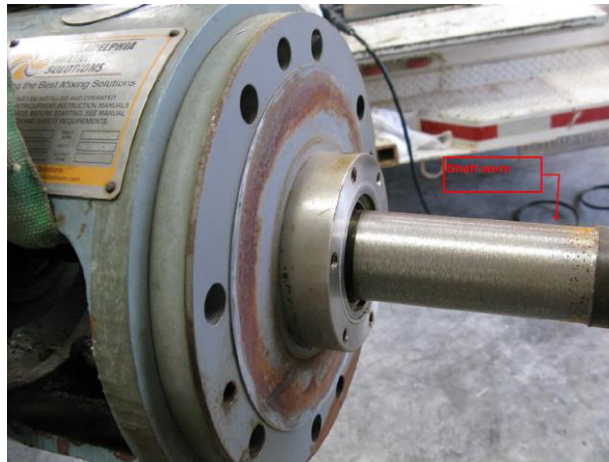
Previous PHMSA records show that on October 11, 2010, Centurion Pipeline experienced a mixer failure on a tank at the Slaughter Station in Sundown, TX (NRC Report No. 956628). According to the 2010 PHMSA investigation, the failure occurred on a Jensen Variable Angle Mixer, 650-VA-25/2H-6862. The leak was caused by a broken Jensen mixer snap ring. This snap ring failed causing the mixer to separate from the tank and allowed the crude oil release.

The replacement Jensen Mixer for Tank 6830 was purchased in August 2013 and has the new pin design.

### **Failure Analysis**

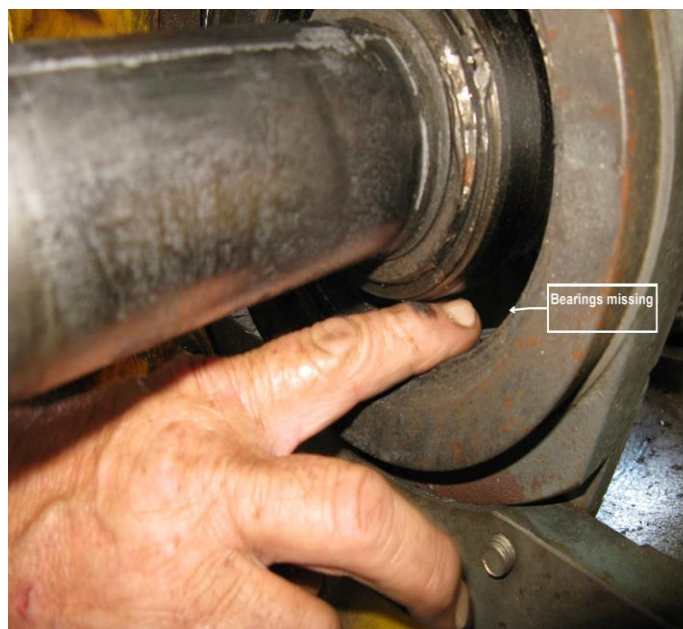
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Centurion personnel conducted a failure investigation of the mixer. Centurion disassembled the mixer and found that, there was a failure of the sealed outboard bearing, which lead to the failure of the oil shut-off device. (see Appendix C)



**Figure 4. Photograph – Worn Mixer Shaft**

Source: Failure Analysis of Centurion Pipeline – Wasson Station Tank 6830 Mixer Failure Investigation



**Figure 5. Photograph – Missing bearings on Mixer**

Source: Failure Analysis of Centurion Pipeline – Wasson Station Tank 6830 Mixer Failure Investigation

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**Summary of Initial Start-Up and Return-to-Service**

Centurion replaced the Philadelphia Cutlass (F) Fixed-Angle Side Entry Mixer with a Jensen Series Variable Angle Mixer on Monday, August 3, 2015 and Tank 6830 was returned to service. (See Appendix D)

**Conclusions**

The investigation identified that the cause of the accident was the failure of one of the sealed-for-life bearings on the Philadelphia Cutlass mixer. The design of the Philadelphia Cutlass Mixer was not a factor in this accident.

**Appendices**

- A      NRC Report
- B      Operator Accident/Incident Report – PHMSA Form F 7100.2
- C      Operator Failure Investigation Report
- D      Drawing of Jensen VA Mixer





(Version 4.0.0 PROD )

## HMIS-&gt;INCIDENTS-&gt;TELEPHONICS

[Rules of Behavior](#)[Home](#)[Logout](#)[Menu](#)[\[Return to Search\]](#)

NRC Number: 1124543  
Call Date: 08/02/2015 Call Time: 11:30:00

**Caller Information**

First Name: OSWALD Last Name: CUNNINGHAM  
Company Name: CENTURION PIPELINE L.P.  
Address: 5 GREENWAY PLAZA  
City: HOUSTON State: TX  
Country: USA Zip: 77046  
Phone 1: 7134972016 Phone 2: 8325840097  
Organization Type: PRIVA Is caller the spiller? ☒ Yes ☐ No ☐ No Response  
Confidential: ☐ Yes ☒ No ☐ No Response

**Discharger Information**

First Name: OSWALD Last Name: CUNNINGHAM  
Company Name: CENTURION PIPELINE L.P.  
Address: 5 GREENWAY PLAZA  
City: HOUSTON State: TX  
Country: USA Zip: 77046  
Phone 1: 7134972016 Phone 2: 8325840097  
Organization Type: PRIVA

**Spill Information**

State: TX County: YOAKUM  
Nearest City: DENVER CITY Zip Code:

**Location**

TANK FARM

Spill Date: 08/02/2015 (mm/dd/yyyy) Spill Time: 08:15:00 (24hh:mm:ss)

DTG Type: <- Select DTG Type - >

Incident Type: Storage Tanks Reported Incident Type: STORAGE TANKS

**Description**

CALLER IS REPORTING THAT A SEAL FAILED ON A MIXER RESULTING IN A SPILL OF CRUDE OIL FROM A STORAGE TANK.

**Materials Involved**

Material / Chris Name	Chris Code	Total Qty.	Water Qty.
OIL: CRUDE	OIL	350 BARREL(S)	

Medium Type: <- Select Medium - >

**Additional Medium Information:**

CONTAINMENT SYSTEM

Injuries:

Fatalities:

Evacuations: ☐ Yes ☒ No ☐ Unknown No. of Evacuations:   
Damages: ☐ Yes ☒ No ☐ Unknown Damage Amount:   
Federal Agency Notified: ☐ Yes ☐ No ☒ Unknown State Agency Notified: ☐ Yes ☐ No ☒ Unknown  
Other Agency Notified: ☐ Yes ☐ No ☒ Unknown

Remedial Actions

MATERIAL SPILLED INTO SECOND CONTAINMENT, CLEAN UP CREW ON-SITE, CLEAN UP UNDERWAY. THE TANK IS BEING PUMPED OUT.

Additional InfoLatitude

Degrees:  Minutes:  Seconds:  Quadrant:

Longitude

Degrees:  Minutes:  Seconds:  Quadrant:

Distance from City:   Direction:

Section:  Township:


Range:  Milepost:

☐ Rescinded **Comments (max 250 characters)**

<< Previous

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<< Save >>

NOTICE: This report is required by 49 CFR Part 195. Failure to report can result in a civil penalty not to exceed \$100,000 for each violation for each day that such violation persists except that the maximum civil penalty shall not exceed \$1,000,000 as provided in 49 USC 60122.		OMB NO: 2137-0047 EXPIRATION DATE: 07/31/2015	
 U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration	<b>Original Report Date:</b>	08/31/2015	
	<b>No.</b>	20150313 - 20706 ----- (DOT Use Only)	
<b>ACCIDENT REPORT - HAZARDOUS LIQUID PIPELINE SYSTEMS</b>			
A federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a current valid OMB Control Number. The OMB Control Number for this information collection is 2137-0047. All responses to the collection of information are mandatory. Send comments regarding this burden or any other aspect of this collection of information, including suggestions for reducing the burden to: Information Collection Clearance Officer, PHMSA, Office of Pipeline Safety (PHP-30) 1200 New Jersey Avenue, SE, Washington, D.C. 20590.			
<b>INSTRUCTIONS</b>			
<i><b>Important:</b> Please read the separate instructions for completing this form before you begin. They clarify the information requested and provide specific examples. If you do not have a copy of the instructions, you can obtain one from the PHMSA Pipeline Safety Community Web Page at <a href="http://www.phmsa.dot.gov/pipeline/library/forms">http://www.phmsa.dot.gov/pipeline/library/forms</a>.</i>			
<b>PART A - KEY REPORT INFORMATION</b>			
Report Type: (select all that apply)	<b>Original:</b> <input type="checkbox"/> Yes	<b>Supplemental:</b> <input type="checkbox"/>	<b>Final:</b> <input type="checkbox"/>
Last Revision Date:			
1. Operator's OPS-issued Operator Identification Number (OPID):	31888		
2. Name of Operator	CENTURION PIPELINE L.P.		
3. Address of Operator:			
3a. Street Address	5 GREENWAY PLAZA, SUITE 110		
3b. City	HOUSTON		
3c. State	Texas		
3d. Zip Code	77046-7570		
4. Local time (24-hr clock) and date of the Accident:	08/02/2015 07:55		
5. Location of Accident:			
Latitude:	32.989666		
Longitude:	-102.7692504		
6. National Response Center Report Number (if applicable):	1124543		
7. Local time (24-hr clock) and date of initial telephonic report to the National Response Center (if applicable):	08/02/2015 10:30		
8. Commodity released: (select only one, based on predominant volume released)	Crude Oil		
- Specify Commodity Subtype:			
- If "Other" Subtype, Describe:			
- If Biofuel/Alternative Fuel and Commodity Subtype is Ethanol Blend, then % Ethanol Blend:			
- If Biofuel/Alternative Fuel and Commodity Subtype is Biodiesel, then Biodiesel Blend e.g. B2, B20, B100			
9. Estimated volume of commodity released unintentionally (Barrels):	321.00		
10. Estimated volume of intentional and/or controlled release/blowdown (Barrels):			
11. Estimated volume of commodity recovered (Barrels):	165.00		
12. Were there fatalities?	No		
- If Yes, specify the number in each category:			
12a. Operator employees			
12b. Contractor employees working for the Operator			
12c. Non-Operator emergency responders			
12d. Workers working on the right-of-way, but NOT associated with this Operator			
12e. General public			
12f. Total fatalities (sum of above)			
13. Were there injuries requiring inpatient hospitalization?	No		
- If Yes, specify the number in each category:			
13a. Operator employees			
13b. Contractor employees working for the Operator			
13c. Non-Operator emergency responders			
13d. Workers working on the right-of-way, but NOT associated with this Operator			
13e. General public			

13f. Total injuries (sum of above)	
14. Was the pipeline/facility shut down due to the Accident?	Yes
- If No, Explain:	
- If Yes, complete Questions 14a and 14b: (use local time, 24-hr clock)	
14a. Local time and date of shutdown:	08/02/2015 08:15
14b. Local time pipeline/facility restarted:	08/02/2015 13:30
- Still shut down? (* Supplemental Report Required)	
15. Did the commodity ignite?	No
16. Did the commodity explode?	No
17. Number of general public evacuated:	0
18. Time sequence (use local time, 24-hour clock):	
18a. Local time Operator identified Accident - effective 7- 2014 changed to "Local time Operator identified failure":	08/02/2015 07:55
18b. Local time Operator resources arrived on site:	08/02/2015 12:00
<b>PART B - ADDITIONAL LOCATION INFORMATION</b>	
1. Was the origin of the Accident onshore?	Yes
If Yes, Complete Questions (2-12)	
If No, Complete Questions (13-15)	
<b>- If Onshore:</b>	
2. State:	Texas
3. Zip Code:	79323
4. City	Not Within a Municipality
5. County or Parish	Yoakum
6. Operator-designated location:	Milepost/Valve Station
Specify:	Wasson Sta.
7. Pipeline/Facility name:	Tank #6830
8. Segment name/ID:	Artesia to Wasson
9. Was Accident on Federal land, other than the Outer Continental Shelf (OCS)?	No
10. Location of Accident:	Totally contained on Operator-controlled property
11. Area of Accident (as found):	Tank, including attached appurtenances
Specify:	
- If Other, Describe:	
Depth-of-Cover (in):	
12. Did Accident occur in a crossing?	No
- If Yes, specify type below:	
- If Bridge crossing –	
Cased/ Uncased:	
- If Railroad crossing –	
Cased/ Uncased/ Bored/drilled	
- If Road crossing –	
Cased/ Uncased/ Bored/drilled	
- If Water crossing –	
Cased/ Uncased	
- Name of body of water, if commonly known:	
- Approx. water depth (ft) at the point of the Accident:	
- Select:	
<b>- If Offshore:</b>	
13. Approximate water depth (ft) at the point of the Accident:	
14. Origin of Accident:	
- In State waters - Specify:	
- State:	
- Area:	
- Block/Tract #:	
- Nearest County/Parish:	
- On the Outer Continental Shelf (OCS) - Specify:	
- Area:	
- Block #:	
15. Area of Accident:	
<b>PART C - ADDITIONAL FACILITY INFORMATION</b>	
1. Is the pipeline or facility:	Interstate
2. Part of system involved in Accident:	Onshore Breakout Tank or Storage Vessel, including Attached Appurtenances
- If Onshore Breakout Tank or Storage Vessel, Including Attached Appurtenances, specify:	Atmospheric or Low Pressure
3. Item involved in Accident:	Tank/Vessel
- If Pipe, specify:	

3a. Nominal diameter of pipe (in):	
3b. Wall thickness (in):	
3c. SMYS (Specified Minimum Yield Strength) of pipe (psi):	
3d. Pipe specification:	
3e. Pipe Seam , specify:	
- If Other, Describe:	
3f. Pipe manufacturer:	
3g. Year of manufacture:	
3h. Pipeline coating type at point of Accident, specify:	
- If Other, Describe:	
- If Weld, including heat-affected zone, specify. If Pipe Girth Weld, 3a through 3h above are required:	
- If Other, Describe:	
- If Valve, specify:	
- If Mainline, specify:	
- If Other, Describe:	
3i. Manufactured by:	
3j. Year of manufacture:	
- If Tank/Vessel, specify:	Mixer
- If Other - Describe:	
- If Other, describe:	
4. Year item involved in Accident was installed:	2005
5. Material involved in Accident:	Carbon Steel
- If Material other than Carbon Steel, specify:	
6. Type of Accident Involved:	Leak
- If Mechanical Puncture – Specify Approx. size:	
in. (axial) by	
in. (circumferential)	
- If Leak - Select Type:	Other
- If Other, Describe:	Tank Mixer failure
- If Rupture - Select Orientation:	
- If Other, Describe:	
Approx. size: in. (widest opening) by	
in. (length circumferentially or axially)	
- If Other – Describe:	
<b>PART D - ADDITIONAL CONSEQUENCE INFORMATION</b>	
1. Wildlife impact:	No
1a. If Yes, specify all that apply:	
- Fish/aquatic	
- Birds	
- Terrestrial	
2. Soil contamination:	Yes
3. Long term impact assessment performed or planned:	No
4. Anticipated remediation:	Yes
4a. If Yes, specify all that apply:	
- Surface water	
- Groundwater	
- Soil	Yes
- Vegetation	
- Wildlife	
5. Water contamination:	No
5a. If Yes, specify all that apply:	
- Ocean/Seawater	
- Surface	
- Groundwater	
- Drinking water: (Select one or both)	
- Private Well	
- Public Water Intake	
5b. Estimated amount released in or reaching water (Barrels):	
5c. Name of body of water, if commonly known:	
6. At the location of this Accident, had the pipeline segment or facility been identified as one that "could affect" a High Consequence Area (HCA) as determined in the Operator's Integrity Management Program?	No
7. Did the released commodity reach or occur in one or more High Consequence Area (HCA)?	No
7a. If Yes, specify HCA type(s): (Select all that apply)	
- Commercially Navigable Waterway:	
Was this HCA identified in the "could affect"	

determination for this Accident site in the Operator's Integrity Management Program?	
- High Population Area:	
Was this HCA identified in the "could affect" determination for this Accident site in the Operator's Integrity Management Program?	
- Other Populated Area	
Was this HCA identified in the "could affect" determination for this Accident site in the Operator's Integrity Management Program?	
- Unusually Sensitive Area (USA) - Drinking Water	
Was this HCA identified in the "could affect" determination for this Accident site in the Operator's Integrity Management Program?	
- Unusually Sensitive Area (USA) - Ecological	
Was this HCA identified in the "could affect" determination for this Accident site in the Operator's Integrity Management Program?	
8. Estimated cost to Operator – effective 12-2012, changed to "Estimated Property Damage":	
8a. Estimated cost of public and non-Operator private property damage paid/reimbursed by the Operator – effective 12-2012, "paid/reimbursed by the Operator" removed	\$ 0
8b. Estimated cost of commodity lost	\$ 2,650
8c. Estimated cost of Operator's property damage & repairs	\$ 26,589
8d. Estimated cost of Operator's emergency response	\$ 3,218
8e. Estimated cost of Operator's environmental remediation	\$ 30,000
8f. Estimated other costs	\$ 0
Describe:	
8g. Estimated total costs (sum of above) – effective 12-2012, changed to "Total estimated property damage (sum of above)"	\$ 62,457
<b>PART E - ADDITIONAL OPERATING INFORMATION</b>	
1. Estimated pressure at the point and time of the Accident (psig):	3.00
2. Maximum Operating Pressure (MOP) at the point and time of the Accident (psig):	14.70
3. Describe the pressure on the system or facility relating to the Accident (psig):	Pressure did not exceed MOP
4. Not including pressure reductions required by PHMSA regulations (such as for repairs and pipe movement), was the system or facility relating to the Accident operating under an established pressure restriction with pressure limits below those normally allowed by the MOP?	No
- If Yes, Complete 4.a and 4.b below:	
4a. Did the pressure exceed this established pressure restriction?	
4b. Was this pressure restriction mandated by PHMSA or the State?	
5. Was "Onshore Pipeline, Including Valve Sites" OR "Offshore Pipeline, Including Riser and Riser Bend" selected in PART C, Question 2?	No
- If Yes - (Complete 5a. – 5f below) effective 12-2012, changed to "(Complete 5.a – 5.e below)"	
5a. Type of upstream valve used to initially isolate release source:	
5b. Type of downstream valve used to initially isolate release source:	
5c. Length of segment isolated between valves (ft):	
5d. Is the pipeline configured to accommodate internal inspection tools?	
- If No, Which physical features limit tool accommodation? (select all that apply)	
- Changes in line pipe diameter	
- Presence of unsuitable mainline valves	
- Tight or mitered pipe bends	
- Other passage restrictions (i.e. unbarred tee's, projecting instrumentation, etc.)	
- Extra thick pipe wall (applicable only for magnetic flux leakage internal inspection tools)	
- Other -	
- If Other, Describe:	
5e. For this pipeline, are there operational factors which significantly complicate the execution of an internal inspection tool run?	

- If Yes, Which operational factors complicate execution? <i>(select all that apply)</i>	
- Excessive debris or scale, wax, or other wall buildup	
- Low operating pressure(s)	
- Low flow or absence of flow	
- Incompatible commodity	
- Other -	
- If Other, Describe:	
5f. Function of pipeline system:	> 20% SMYS Regulated Trunkline/Transmission
6. Was a Supervisory Control and Data Acquisition (SCADA)-based system in place on the pipeline or facility involved in the Accident?	Yes
If Yes -	
6a. Was it operating at the time of the Accident?	Yes
6b. Was it fully functional at the time of the Accident?	Yes
6c. Did SCADA-based information (such as alarm(s), alert(s), event(s), and/or volume calculations) assist with the detection of the Accident?	Yes
6d. Did SCADA-based information (such as alarm(s), alert(s), event(s), and/or volume calculations) assist with the confirmation of the Accident?	Yes
7. Was a CPM leak detection system in place on the pipeline or facility involved in the Accident?	Yes
- If Yes:	
7a. Was it operating at the time of the Accident?	Yes
7b. Was it fully functional at the time of the Accident?	Yes
7c. Did CPM leak detection system information (such as alarm(s), alert(s), event(s), and/or volume calculations) assist with the detection of the Accident?	No
7d. Did CPM leak detection system information (such as alarm(s), alert(s), event(s), and/or volume calculations) assist with the confirmation of the Accident?	No
8. How was the Accident initially identified for the Operator?	Ground Patrol by Operator or its contractor
- If Other, Specify:	
8a. If "Controller", "Local Operating Personnel", including contractors", "Air Patrol", or "Ground Patrol by Operator or its contractor" is selected in Question 8, specify:	Operator employee
9. Was an investigation initiated into whether or not the controller(s) or control room issues were the cause of or a contributing factor to the Accident?	No, the Operator did not find that an investigation of the controller(s) actions or control room issues was necessary due to: (provide an explanation for why the Operator did not investigate)
- If No, the Operator did not find that an investigation of the controller(s) actions or control room issues was necessary due to: <i>(provide an explanation for why the operator did not investigate)</i>	Leak not associated with operational functions of Control Room
- If Yes, specify investigation result(s): <i>(select all that apply)</i>	
- Investigation reviewed work schedule rotations, continuous hours of service (while working for the Operator), and other factors associated with fatigue	
- Investigation did NOT review work schedule rotations, continuous hours of service (while working for the Operator), and other factors associated with fatigue	
Provide an explanation for why not:	
- Investigation identified no control room issues	
- Investigation identified no controller issues	
- Investigation identified incorrect controller action or controller error	
- Investigation identified that fatigue may have affected the controller(s) involved or impacted the involved controller(s) response	
- Investigation identified incorrect procedures	
- Investigation identified incorrect control room equipment operation	
- Investigation identified maintenance activities that affected control room operations, procedures, and/or controller response	
- Investigation identified areas other than those above:	
Describe:	
<b>PART F - DRUG &amp; ALCOHOL TESTING INFORMATION</b>	

1. As a result of this Accident, were any Operator employees tested under the post-accident drug and alcohol testing requirements of DOT's Drug & Alcohol Testing regulations?	No
- If Yes:	
1a. Specify how many were tested:	
1b. Specify how many failed:	
2. As a result of this Accident, were any Operator contractor employees tested under the post-accident drug and alcohol testing requirements of DOT's Drug & Alcohol Testing regulations?	No
- If Yes:	
2a. Specify how many were tested:	
2b. Specify how many failed:	
<b>PART G – APPARENT CAUSE</b>	
<b>Select only one box from PART G in shaded column on left representing the APPARENT Cause of the Accident, and answer the questions on the right. Describe secondary, contributing or root causes of the Accident in the narrative (PART H).</b>	
<b>Apparent Cause:</b>	G6 - Equipment Failure
<b>G1 - Corrosion Failure</b> - only one <b>sub-cause</b> can be picked from shaded left-hand column	
<b>Corrosion Failure – Sub-Cause:</b>	
<b>- If External Corrosion:</b>	
1. Results of visual examination:	
- If Other, Describe:	
2. Type of corrosion: <i>(select all that apply)</i>	
- Galvanic	
- Atmospheric	
- Stray Current	
- Microbiological	
- Selective Seam	
- Other:	
- If Other, Describe:	
3. The type(s) of corrosion selected in Question 2 is based on the following: <i>(select all that apply)</i>	
- Field examination	
- Determined by metallurgical analysis	
- Other:	
- If Other, Describe:	
4. Was the failed item buried under the ground?	
- If Yes :	
<input type="checkbox"/> 4a. Was failed item considered to be under cathodic protection at the time of the Accident?	
If Yes - Year protection started:	
4b. Was shielding, tenting, or disbonding of coating evident at the point of the Accident?	
4c. Has one or more Cathodic Protection Survey been conducted at the point of the Accident?	
If "Yes, CP Annual Survey" – Most recent year conducted:	
If "Yes, Close Interval Survey" – Most recent year conducted:	
If "Yes, Other CP Survey" – Most recent year conducted:	
- If No:	
4d. Was the failed item externally coated or painted?	
5. Was there observable damage to the coating or paint in the vicinity of the corrosion?	
<b>- If Internal Corrosion:</b>	
6. Results of visual examination:	
- Other:	
7. Type of corrosion <i>(select all that apply):</i> -	
- Corrosive Commodity	
- Water drop-out/Acid	
- Microbiological	
- Erosion	
- Other:	
- If Other, Describe:	
8. The cause(s) of corrosion selected in Question 7 is based on the following <i>(select all that apply):</i> -	
- Field examination	
- Determined by metallurgical analysis	
- Other:	



- If Other, Describe:	
9. Location of corrosion (select all that apply): -	
- Low point in pipe	
- Elbow	
- Other:	
- If Other, Describe:	
10. Was the commodity treated with corrosion inhibitors or biocides?	
11. Was the interior coated or lined with protective coating?	
12. Were cleaning/dewatering pigs (or other operations) routinely utilized?	
13. Were corrosion coupons routinely utilized?	
<b>Complete the following if any Corrosion Failure sub-cause is selected AND the "Item Involved in Accident" (from PART C, Question 3) is Tank/Vessel.</b>	
14. List the year of the most recent inspections:	
14a. API Std 653 Out-of-Service Inspection	
- No Out-of-Service Inspection completed	
14b. API Std 653 In-Service Inspection	
- No In-Service Inspection completed	
<b>Complete the following if any Corrosion Failure sub-cause is selected AND the "Item Involved in Accident" (from PART C, Question 3) is Pipe or Weld.</b>	
15. Has one or more internal inspection tool collected data at the point of the Accident?	
15a. If Yes, for each tool used, select type of internal inspection tool and indicate most recent year run: -	
- Magnetic Flux Leakage Tool	Most recent year:
- Ultrasonic	Most recent year:
- Geometry	Most recent year:
- Caliper	Most recent year:
- Crack	Most recent year:
- Hard Spot	Most recent year:
- Combination Tool	Most recent year:
- Transverse Field/Triaxial	Most recent year:
- Other	Most recent year:
Describe:	
16. Has one or more hydrotest or other pressure test been conducted since original construction at the point of the Accident?	
If Yes -	
Most recent year tested:	
Test pressure:	
17. Has one or more Direct Assessment been conducted on this segment?	
- If Yes, and an investigative dig was conducted at the point of the Accident::	
Most recent year conducted:	
- If Yes, but the point of the Accident was not identified as a dig site:	
Most recent year conducted:	
18. Has one or more non-destructive examination been conducted at the point of the Accident since January 1, 2002?	
18a. If Yes, for each examination conducted since January 1, 2002, select type of non-destructive examination and indicate most recent year the examination was conducted:	
- Radiography	Most recent year conducted:
- Guided Wave Ultrasonic	Most recent year conducted:
- Handheld Ultrasonic Tool	Most recent year conducted:
- Wet Magnetic Particle Test	Most recent year conducted:
- Dry Magnetic Particle Test	Most recent year conducted:
- Other	Most recent year conducted:
Describe:	

<b>G2 - Natural Force Damage</b> - only one <b>sub-cause</b> can be picked from shaded left-handed column	
<b>Natural Force Damage – Sub-Cause:</b>	
<b>- If Earth Movement, NOT due to Heavy Rains/Floods:</b>	
1. Specify:	
- If Other, Describe:	
<b>- If Heavy Rains/Floods:</b>	
2. Specify:	
- If Other, Describe:	
<b>- If Lightning:</b>	
3. Specify:	
<b>- If Temperature:</b>	
4. Specify:	
- If Other, Describe:	
<b>- If Other Natural Force Damage:</b>	
5. Describe:	
<b>Complete the following if any Natural Force Damage sub-cause is selected.</b>	
6. Were the natural forces causing the Accident generated in conjunction with an extreme weather event?	
6a. If Yes, specify: <i>(select all that apply)</i>	
- Hurricane	
- Tropical Storm	
- Tornado	
- Other	
- If Other, Describe:	
<b>G3 - Excavation Damage</b> - only one <b>sub-cause</b> can be picked from shaded left-hand column	
<b>Excavation Damage – Sub-Cause:</b>	
<b>- If Previous Damage due to Excavation Activity: Complete Questions 1-5 ONLY IF the "Item Involved in Accident" (from PART C, Question 3) is Pipe or Weld.</b>	
1. Has one or more internal inspection tool collected data at the point of the Accident?	
1a. If Yes, for each tool used, select type of internal inspection tool and indicate most recent year run: -	
- Magnetic Flux Leakage	Most recent year conducted:
- Ultrasonic	Most recent year conducted:
- Geometry	Most recent year conducted:
- Caliper	Most recent year conducted:
- Crack	Most recent year conducted:
- Hard Spot	Most recent year conducted:
- Combination Tool	Most recent year conducted:
- Transverse Field/Triaxial	Most recent year conducted:
- Other	Most recent year conducted:
Describe:	
2. Do you have reason to believe that the internal inspection was completed BEFORE the damage was sustained?	
3. Has one or more hydrotest or other pressure test been conducted since original construction at the point of the Accident?	
- If Yes:	
Most recent year tested:	
Test pressure (psig):	
4. Has one or more Direct Assessment been conducted on the pipeline segment?	
- If Yes, and an investigative dig was conducted at the point of the Accident:	
Most recent year conducted:	
- If Yes, but the point of the Accident was not identified as a dig site:	
Most recent year conducted:	
5. Has one or more non-destructive examination been conducted at the point of the Accident since January 1, 2002?	

5a. If Yes, for each examination, conducted since January 1, 2002, select type of non-destructive examination and indicate most recent year the examination was conducted:	
- Radiography	Most recent year conducted:
- Guided Wave Ultrasonic	Most recent year conducted:
- Handheld Ultrasonic Tool	Most recent year conducted:
- Wet Magnetic Particle Test	Most recent year conducted:
- Dry Magnetic Particle Test	Most recent year conducted:
- Other	Most recent year conducted:
Describe:	
<b>Complete the following if Excavation Damage by Third Party is selected as the sub-cause.</b>	
6. Did the operator get prior notification of the excavation activity?	
6a. If Yes, Notification received from: <i>(select all that apply)</i> -	
- One-Call System	
- Excavator	
- Contractor	
- Landowner	
<b>Complete the following mandatory CGA-DIRT Program questions if any Excavation Damage sub-cause is selected.</b>	
7. Do you want PHMSA to upload the following information to CGA-DIRT (www.cga-dirt.com)?	
8. Right-of-Way where event occurred: <i>(select all that apply)</i> -	
- Public	
- If "Public", Specify:	
- Private	
- If "Private", Specify:	
- Pipeline Property/Easement	
- Power/Transmission Line	
- Railroad	
- Dedicated Public Utility Easement	
- Federal Land	
- Data not collected	
- Unknown/Other	
9. Type of excavator:	
10. Type of excavation equipment:	
11. Type of work performed:	
12. Was the One-Call Center notified?	
12a. If Yes, specify ticket number:	
12b. If this is a State where more than a single One-Call Center exists, list the name of the One-Call Center notified:	
13. Type of Locator:	
14. Were facility locate marks visible in the area of excavation?	
15. Were facilities marked correctly?	
16. Did the damage cause an interruption in service?	
16a. If Yes, specify duration of the interruption (hours)	
17. Description of the CGA-DIRT Root Cause <i>(select only the one predominant first level CGA-DIRT Root Cause and then, where available as a choice, the one predominant second level CGA-DIRT Root Cause as well):</i>	
Root Cause:	
- If One-Call Notification Practices Not Sufficient, specify:	
- If Locating Practices Not Sufficient, specify:	
- If Excavation Practices Not Sufficient, specify:	
- If Other/None of the Above, explain:	
<b>G4 - Other Outside Force Damage - only one sub-cause can be selected from the shaded left-hand column</b>	
<b>Other Outside Force Damage – Sub-Cause:</b>	
<b>- If Damage by Car, Truck, or Other Motorized Vehicle/Equipment NOT Engaged in Excavation:</b>	
1. Vehicle/Equipment operated by:	
<b>- If Damage by Boats, Barges, Drilling Rigs, or Other Maritime Equipment or Vessels Set Adrift or Which Have Otherwise Lost Their Mooring:</b>	
2. Select one or more of the following IF an extreme weather event was a factor:	
- Hurricane	
- Tropical Storm	
- Tornado	

- Heavy Rains/Flood	
- Other	
- If Other, Describe:	
<b>- If Previous Mechanical Damage NOT Related to Excavation: Complete Questions 3-7 ONLY IF the "Item Involved in Accident" (from PART C, Question 3) is Pipe or Weld.</b>	
3. Has one or more internal inspection tool collected data at the point of the Accident?	
3a. If Yes, for each tool used, select type of internal inspection tool and indicate most recent year run:	
- Magnetic Flux Leakage	
Most recent year conducted:	
- Ultrasonic	
Most recent year conducted:	
- Geometry	
Most recent year conducted:	
- Caliper	
Most recent year conducted:	
- Crack	
Most recent year conducted:	
- Hard Spot	
Most recent year conducted:	
- Combination Tool	
Most recent year conducted:	
- Transverse Field/Triaxial	
Most recent year conducted:	
- Other	
Most recent year conducted:	
Describe:	
4. Do you have reason to believe that the internal inspection was completed BEFORE the damage was sustained?	
5. Has one or more hydrotest or other pressure test been conducted since original construction at the point of the Accident?	
- If Yes:	
Most recent year tested:	
Test pressure (psig):	
6. Has one or more Direct Assessment been conducted on the pipeline segment?	
- If Yes, and an investigative dig was conducted at the point of the Accident:	
Most recent year conducted:	
- If Yes, but the point of the Accident was not identified as a dig site:	
Most recent year conducted:	
7. Has one or more non-destructive examination been conducted at the point of the Accident since January 1, 2002?	
7a. If Yes, for each examination conducted since January 1, 2002, select type of non-destructive examination and indicate most recent year the examination was conducted:	
- Radiography	
Most recent year conducted:	
- Guided Wave Ultrasonic	
Most recent year conducted:	
- Handheld Ultrasonic Tool	
Most recent year conducted:	
- Wet Magnetic Particle Test	
Most recent year conducted:	
- Dry Magnetic Particle Test	
Most recent year conducted:	
- Other	
Most recent year conducted:	
Describe:	
<b>- If Intentional Damage:</b>	
8. Specify:	
- If Other, Describe:	
<b>- If Other Outside Force Damage:</b>	
9. Describe:	
<b>G5 - Material Failure of Pipe or Weld - only one sub-cause can be selected from the shaded left-hand column</b>	
<b>Use this section to report material failures ONLY IF the "Item Involved in Accident" (from PART C, Question 3) is "Pipe" or "Weld."</b>	
<b>Material Failure of Pipe or Weld – Sub-Cause:</b>	
1. The sub-cause shown above is based on the following: <i>(select all that apply)</i>	

- Field Examination	
- Determined by Metallurgical Analysis	
- Other Analysis	
- If "Other Analysis", Describe:	
- Sub-cause is Tentative or Suspected; Still Under Investigation (Supplemental Report required)	
<b>- If Construction, Installation, or Fabrication-related:</b>	
2. List contributing factors: <i>(select all that apply)</i>	
- Fatigue or Vibration-related	
Specify:	
- If Other, Describe:	
- Mechanical Stress:	
- Other	
- If Other, Describe:	
<b>- If Environmental Cracking-related:</b>	
3. Specify:	
- If Other - Describe:	
<b>Complete the following if any Material Failure of Pipe or Weld sub-cause is selected.</b>	
4. Additional factors: <i>(select all that apply)</i> :	
- Dent	
- Gouge	
- Pipe Bend	
- Arc Burn	
- Crack	
- Lack of Fusion	
- Lamination	
- Buckle	
- Wrinkle	
- Misalignment	
- Burnt Steel	
- Other:	
- If Other, Describe:	
5. Has one or more internal inspection tool collected data at the point of the Accident?	
5a. If Yes, for each tool used, select type of internal inspection tool and indicate most recent year run:	
- Magnetic Flux Leakage	
Most recent year run:	
- Ultrasonic	
Most recent year run:	
- Geometry	
Most recent year run:	
- Caliper	
Most recent year run:	
- Crack	
Most recent year run:	
- Hard Spot	
Most recent year run:	
- Combination Tool	
Most recent year run:	
- Transverse Field/Triaxial	
Most recent year run:	
- Other	
Describe:	
6. Has one or more hydrotest or other pressure test been conducted since original construction at the point of the Accident?	
- If Yes:	
Most recent year tested:	
Test pressure (psig):	
7. Has one or more Direct Assessment been conducted on the pipeline segment?	
- If Yes, and an investigative dig was conducted at the point of the Accident -	
Most recent year conducted:	
- If Yes, but the point of the Accident was not identified as a dig site -	
Most recent year conducted:	
8. Has one or more non-destructive examination(s) been conducted at the point of the Accident since January 1, 2002?	
8a. If Yes, for each examination conducted since January 1, 2002, select type of non-destructive examination and indicate most recent year the examination was conducted: -	

- Radiography	
Most recent year conducted:	
- Guided Wave Ultrasonic	
Most recent year conducted:	
- Handheld Ultrasonic Tool	
Most recent year conducted:	
- Wet Magnetic Particle Test	
Most recent year conducted:	
- Dry Magnetic Particle Test	
Most recent year conducted:	
- Other	
Most recent year conducted:	
Describe:	
<b>G6 – Equipment Failure</b> - only one <b>sub-cause</b> can be selected from the shaded left-hand column	
<b>Equipment Failure – Sub-Cause:</b>	Other Equipment Failure
<b>- If Malfunction of Control/Relief Equipment:</b>	
1. Specify: <i>(select all that apply)</i> -	
- Control Valve	
- Instrumentation	
- SCADA	
- Communications	
- Block Valve	
- Check Valve	
- Relief Valve	
- Power Failure	
- Stopple/Control Fitting	
- ESD System Failure	
- Other	
- If Other – Describe:	
<b>- If Pump or Pump-related Equipment:</b>	
2. Specify:	
- If Other – Describe:	
<b>- If Threaded Connection/Coupling Failure:</b>	
3. Specify:	
- If Other – Describe:	
<b>- If Non-threaded Connection Failure:</b>	
4. Specify:	
- If Other – Describe:	
<b>- If Other Equipment Failure:</b>	
5. Describe:	Seal and bearings on Tank mixer failed.
<b>Complete the following if any Equipment Failure sub-cause is selected.</b>	
6. Additional factors that contributed to the equipment failure: <i>(select all that apply)</i>	
- Excessive vibration	
- Overpressurization	
- No support or loss of support	
- Manufacturing defect	
- Loss of electricity	
- Improper installation	
- Mismatched items (different manufacturer for tubing and tubing fittings)	
- Dissimilar metals	
- Breakdown of soft goods due to compatibility issues with transported commodity	
- Valve vault or valve can contributed to the release	
- Alarm/status failure	
- Misalignment	
- Thermal stress	
- Other	Yes
- If Other, Describe:	Seal on Mixer equipment
<b>G7 - Incorrect Operation</b> - only one <b>sub-cause</b> can be selected from the shaded left-hand column	
<b>Incorrect Operation – Sub-Cause:</b>	

<b>- If Tank, Vessel, or Sump/Separator Allowed or Caused to Overfill or Overflow</b>	
1. Specify:	
- If Other, Describe:	
<b>- If Other Incorrect Operation</b>	
2. Describe:	
<b>Complete the following if any Incorrect Operation sub-cause is selected.</b>	
3. Was this Accident related to <i>(select all that apply)</i> : -	
- Inadequate procedure	
- No procedure established	
- Failure to follow procedure	
- Other:	
- If Other, Describe:	
4. What category type was the activity that caused the Accident?	
5. Was the task(s) that led to the Accident identified as a covered task in your Operator Qualification Program?	
5a. If Yes, were the individuals performing the task(s) qualified for the task(s)?	
<b>G8 - Other Accident Cause</b> - only one <b>sub-cause</b> can be selected from the shaded left-hand column	
<b>Other Accident Cause – Sub-Cause:</b>	
<b>- If Miscellaneous:</b>	
1. Describe:	
<b>- If Unknown:</b>	
2. Specify:	
<b>PART H - NARRATIVE DESCRIPTION OF THE ACCIDENT</b>	
<p>At approximately 08:15 a.m. (Central time) on August 2, 2015, a Centurion employee observed that Tank No. 6830 at the Wasson Station was leaking from the mixer. With assistance from the Region Manager, a vacuum truck was used to collect spilled oil, and the tank was pumped out to lower the oil level in the tank and all incoming flow of oil was blocked from Artesia, NM.</p> <p>Communication with Houston Control room and Centurion's Asset Integrity department was initiated. The volume spilled inside the tank dike was measured and found to be about 314 barrels at 10:30 a.m., so the spill was reported to the National Response Center by Cutty Cunningham at 10:30 AM (Central time).</p> <p>At 13:30 p.m. August 4, 2015, the mixer for Tank No. 6830 was replaced and refilling the tank was commenced with incoming crude from Artesia, NM</p>	
<b>PART I - PREPARER AND AUTHORIZED SIGNATURE</b>	
Preparer's Name	Cutty Cunningham
Preparer's Title	Manager Asset Integrity
Preparer's Telephone Number	(713)497-2016
Preparer's E-mail Address	Cutty_Cunningham@OXY.com
Preparer's Facsimile Number	(713)215-7455
Authorized Signer Name	Cutty Cunningham
Authorized Signer Title	Manager Asset Integrity
Authorized Signer Telephone Number	(713)497-2016
Authorized Signer Email	Cutty_Cunningham@OXY.com
Date	08/20/2015

## **Appendix C**

# **Operator Failure Investigation Report**

This document is on file at PHMSA



## **Appendix D**

### **Drawing of Jensen VA Mixer**

This document is on file at PHMSA