07 September 2021

MEMORANDUM

From: Technical Director, Naval Facilities Engineering and Expeditionary Warfare Center
To: [redacted], Navy Petroleum Office

Subj: RED HILL FUEL FACILITY PIPELINE FAILURE FULL SYSTEM INTEGRITY REPORT

Encl: (1) Contractor's Root Cause Analysis dtd 07 September 2021

1. In support of the Navy Petroleum Office investigation of the pipeline failure at the Red Hill Fuel Facility on 06 May 2021, Naval Facilities Engineering and Expeditionary Warfare Center (NAVFAC EXWC) deployed a team of civilian and contractor subject matter experts to: objectively assess the event; provide recommendations to assist in returning the facility to full operability; and determine the cause of the failure.

2. NAVFAC's technical authority personnel with warranting and subject matter expertise over POL infrastructure have reviewed the Root Cause Analysis (enclosure), and concur with the findings.

3. NAVFAC EXWC's next deliverable is the Recommended Repair List. This deliverable will provide corrective recommendations to the JP-5 system and is scheduled for delivery on 14 September 2021.

4. If you have any questions on this report or following actions, my point of contact for this effort is [redacted] [redacted] [redacted].

[redacted]

ROOT CAUSE ANALYSIS OF THE JP-5 PIPELINE DAMAGE

ASSESS TANK 20 PIPING FOR RETURN TO SERVICE
AT RED HILL BULK FUEL STORAGE FACILITY

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September 7, 2021

ACRONYM	DEFINITION
AFHE	Automated Fuel Handling Equipment
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
bbl	Barrel(s)
DBB	Double Block and Bleed
EXWC	Engineering and Expeditionary Warfare Center
FLC	Fleet Logistics Center
JBPHH	Joint Base Pearl Harbor-Hickam
JP-5	Jet Fuel
lbf	Pound Force
lbs	Pounds
MOV	Motor Operated Valve
NAVFAC	Naval Facilities Engineering Command
NC	Normally Closed
NFPA	National Fire Protection Agency
NIWC	Naval Information Warfare Center
NO	Normally Open
PIT	Pressure Indicating Transmitter
psi	Pounds per Square Inch
psig	Pounds Per Square Inch Gauge
RHTF	Red Hill Tank Farm
SCADA	Supervisory Control and Data Acquisition
UGPH	Underground Pumphouse

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ASSESS TANK 20 PIPING FOR RETURN TO SERVICE AT RED HILL BULK FUEL STORAGE FACILITY

I. EXECUTIVE SUMMARY

Brockenbrough was contracted under NAVFAC EXWC Contract No. N39430-20-D-2242, Delivery Order No. N3943021F4122, to determine the root cause of the piping failure at Red Hill Tank Farm (RHTF) that occurred on May 6, 2021, at approximately 18:00 hours. See Appendix 'A' for a basic flow schematic of the system at the time.

Based upon collected field data and discussions with various facility personnel during site visits in June and July of 2021, it has been determined that the JP-5 piping system suffered a significant transient surge pressure at the noted date and time. This surge pressure was primarily caused by disregarding the proper valve sequencing dictated in the specific operations orders.

When all of the valves between a tank's closed skin valve at the RHTF and Surge Tank [redacted] are open except the butterfly valves [redacted], the closed butterfly valves leak. This allows the [redacted] column of JP-5 to sag as it tries to reach equilibrium with the atmospheric pressure on Surge Tank [redacted]. The resulting void, technically a vacuum, created in the piping at upper portions of the RHTF will collapse rapidly if subjected to a high pressure source.

The following is what appears to have happened on May 6th. Towards the end of Evolution 3, the valve lineup below Tank 20 was set as described above for a period of over five minutes creating a vacuum with a volume of 23 bbl. Operations then moved to Evolution 4. As Tank 12 was being prepared for use in Evolution 4, the valve lineup was again set to allow for another five minutes of sag creating an additional 16 bbl of vacuum. When Tank 12's skin valve was opened, the inrush from the head in Tank 12 collapsed the 39 bbl of vacuum. This created a calculated transient surge pressure of approximately 350 psig in only milliseconds, or almost instantaneously, near Tanks 18 and 20. This energy displaced the [redacted] JP-5 mainline piping near Tank 20 at least 16 inches laterally and separated the Dresser couplings at Tanks 18 and 20.

It should be noted that while the incorrect sequencing of the valves was the primary, or root, cause, there were several other contributing factors in addition to the leaking butterfly valves. The AFHE system did not trigger an out-of-balance alarm or low pressure alarm prior to the event, and the use of Dresser couplings in sections of unrestrained pipe profoundly affected the amount of damage.

II. FINDINGS AND OBSERVATIONS

On May 6, 2021, the JP-5 piping system at the RHTF experienced a significant event that caused two Dresser couplings to completely separate and the piping to move enough to damage surrounding features in the area of Tanks 17, 18 ,19, and 20. The event occurred during normal operations, and the operators had no explanation for the cause.

The facility had just completed Evolution 3 that involved moving JP-5 from Tank 12 to Tank 20. See Appendix 'B' for the DFSP Pearl Harbor Specific Operations Order (Evolution 3). Due to the piping and tank arrangement and varying vertical depths of product in the tanks at RHTF, product movements between tanks are often a multi-step process and may require the use of the pumps and surge tanks at the UGPH. In the case of Evolution 3, the final step involved pumping JP-5 from Surge Tank [redacted] to Tank 20.

As Evolution 3 was being completed, the next movement, Evolution 4, was beginning. This evolution was to move product from Tank 12 to Tank 9. See Appendix 'B' for the DFSP Pearl Harbor Specific Operations Order (Evolution 4). This operation also required the use of the UGPH, and the first step was to gravity feed from Tank 12 to Surge Tank [redacted]

At this point there was not anything amiss to the operations personnel as they began opening [redacted], the last valve in the lineup between Tank 12 and Surge Tank 2. However, the event occurred as soon as the product started to flow out of Tank 12. A loud bang was heard by the operator who was in the lower piping tunnel near Tank 18 at the time. When the operator went to investigate, fuel was seen on the floor of the tunnel coming down from Tanks 17 through 20. The evolution was quickly stopped, and the system was secured.

It should be noted that the RHTF has been undergoing tank maintenance for several years. This includes changes to or temporary removals of the piping systems at the tank laterals. At the time of the event, the JP-5 piping systems at Tanks 18, 19, and 20 contained Dresser couplings, and the piping at Tanks 17, 18, and 19 was not connected to the tank. Blind flanges had been installed at the ends of any active piping, but no other arrangements had been made to restrain the system.

The primary physical damage clearly points to a large surge pressure created within the piping system. The damage included:

1. The unrestrained [redacted] piping at Tank 18 separated at the Dresser coupling and fell to the floor. See Photo 1. There did not appear to be any collateral damage.

2. The unrestrained [redacted] piping at Tank 19 moved longitudinally towards Tank 19 and began to separate at the Dresser coupling until it ran into a pipe support preventing it from completely coming apart. The pipe support and some adjacent conduits were bent, but there did not appear to be any additional collateral damage.

3. The [redacted] piping at Tank 20 completely separated at the Dresser coupling. See Photo 2. The only obvious collateral damage was to the tunnel's ceiling system directly above the Dresser coupling. The panels were mechanically damaged by the pressurized liquid.

4. The end of the [redacted] JP-5 mainline piping moved approximately 16 inches laterally towards Tank 19 creating a large indentation in adjacent ductwork and bending the adjacent conduit. See Photo 3.

Since the event, JP-5 Tanks 11, 12, and 20 and their associated piping systems have been secured. JP-5 Tanks 13, 14, 17, 18, and 19 are out of service for unrelated reasons. The remainder of RHTF and UGPH are still in operation but at a limited capacity until the cause is determined and damage is repaired.

(b) (3) (A)

[redacted]

Photo 1 - Tank 18 Piping

This is the section of piping including the Dresser coupling seen at the far end that separated and fell to the floor.

(b) (3) (A)

[redacted]

Photo 2 - Tank 20 Piping

The piping separated at Tank 20's Dresser coupling.

(b) (3) (A)

[redacted]

Photo 3 - Mainline Piping

The end of the (b) (3) (A) [redacted] mainline piping between Tanks 19 and 20 moved approximately 16 inches laterally (to the right) as seen here by the collateral damage to the ductwork.

III. BACKGROUND

Distribution Piping System

There are three fuel products in the distribution piping systems at RHTF: JP-5, F-24, and F-76. The systems connect the RHTF with the UGPH via the lower tunnel that runs approximately [redacted] between the two facilities. At the RHTF, the JP-5's [redacted] mainline pipe runs the entire length of the lower tunnel in the tank farm from Tank 1 to Tank 20 (approximately [redacted]). The JP-5 pipeline then connects with each JP-5 tank via laterals (also referred to as the cross-tunnel piping) using a combination of [redacted] and [redacted] piping.

Within the JP-5 piping system there are numerous valves at both the RHTF and the UGPH. Some of these valves are only for maintenance or emergency purposes, and therefore, they stay open most of the time. These valves are referred to as normally open (NO) valves. The valves that are used to control the flow of JP-5 during each movement of fuel during an evolution are only opened when necessary. These valves are referred to as normally closed (NC) valves.

Each evolution has a specific operations order in which the NC valves are to be opened. The order is very important to control when and where the fuel and its associated pressure, either by pump or static pressure, is applied. The RHTF is very unique in its geographical footprint, elevation changes, physical size, and the volume of fuel within its tanks and piping systems. For this reason, any potential upset in a valve lineup that would not create significant issues at a normal bulk storage fuel facility are multiplied several magnitudes greater at RHTF.

Column Separation

The phenomenon of column separation and vacuum in piping systems and the damaging pressure surges created by it are well documented in scientific and engineering literature. The physics behind the creation of a vacuum in a pipeline vary depending on the situation. Due to the significant elevation change from the RHTF to the UGPH ([redacted]), there is always the potential for a large void or vacuum to be created in the piping system if the valves are not opened in the proper sequence. When the system is then exposed to pressure by opening a valve, the void collapses very rapidly creating a significant surge pressure in milliseconds. It is well known that the energy created this way can damage the pipe and any weaker components in the system.

Vacuum is normally measured as a pressure, however in this report the term also represents the void in the piping created by the column separation. All of the gauging at RHTF is measured in barrels, so the amount of vacuum created is also measured in barrels for simplicity.

IV. ANALYSIS

Physical Damage Assessment

A stress analysis of the mainline and cross-tunnel piping at Tanks 19 and 20 was performed based on measured movements indicated by the collateral damage. The purpose was to determine what forces and pressures the piping experienced during the event.

Pipe stress analysis utilizes analytical methods to determine how a piping system responds to the combination of pipe material, process pressures and temperatures, fluid weight, support methodology, and various potential loading conditions as required per ASME B31.3.

Caesar II software was used to analyze the piping system using 3D beam elements. The piping was modeled in accordance with available drawings and physical data taken during the two site visits. After the model was created, the load cases were defined in accordance with the relevant piping code, ASME B31.3. The software then determined the loads on supports and equipment connections, piping displacements, and pipe stresses for the various load cases defined.

The piping had a lateral displacement in the 'X' direction of approximately 16 inches measured at the blind flange at the end of the [redacted] mainline piping. The piping system at Tanks 19 & 20 were analyzed to determine the approximate forces that resulted in the measured deflection. All piping in the model is [redacted]. The piping was determined to be [redacted] based on the wall thickness determined by the pipe pedigree report dated 2019 and the data taken during the two site visits (see Figure 3 for piping material input). To determine the approximate force, the piping was modeled in the condition just after the surge event with the Dresser coupling separated and no connection between the lateral and Tank 20. A force was applied at the location of the blind flange on the lateral for Tank 19 (see Figure 4), and the resultant displacement was investigated.

The model was operated in an iterative process until a displacement at the [redacted] blind flange (location where displacement was measured in field) was approximately 16-inch (see Figure 1 - Caesar II Model). This force was found to be approximately 78,000 lbf which equates to a pressure of 320 psi on the blind flange adjacent to Tank 19. As seen in Figure 2, the stress concentration was found to be most intense at [redacted] (in the Figure, the color gradient gray/yellow/red indicates increasing stress, with red being the highest stress concentration observed) . Refer to Appendix 'D' for the analysis' full output.

(b) (3) (A) [redacted]

Figure 1 - Caesar II Model

(b) (3) (A) [redacted]

Figure 2 - Caesar Model Showing Stress Intensification at Tees/Joints

(b) (3) (A)

[redacted]

Figure 3 - Basic Inputs for Caesar Model

(b) (3) (A)

[redacted]

Figure 4 - Force Input at Blind Flange Adjacent to Tank 19

Hydraulic and Surge Analysis

The sequence of events on May 6th were hydraulically modelled to determine if the estimated surge matches the measured pipe movement and its associated stress. The hydraulic and surge analysis was conducted independent of the stress analysis.

Introduction

In order to model the surge characteristics from the JP-5 piping located near Tanks 19 and 20, a computer simulation was performed using the KY PIPE 2008: SURGE v. 8.014 computer software program.

The system was modeled using the following steps:

1. First, the system was modeled using a number of pipe segments connected by components and piping junctions between the two tanks. Head losses were calculated using the Hazen Williams equation. The system was then modeled at steady state conditions.

2. Once the steady state conditions were successfully modeled, the next step consisted of modifying the state of one or more components in the system. The modifications to the steady state conditions produces transients throughout the system that can be modeled as a series of waves that travel through the system at the speed of sound. These waves are affected by friction attenuation, junctions, and component state changes.

3. For steady state conditions, the computer program records the pressures and flowrates in every pipe and node throughout the system. For surge analysis, it records the pressures and flowrates for all user defined nodes and updates the data at a specified time increment for a specified node.

4. The last step consisted of formatting and generating the System Report. This report printout consisted of two sections; the first detailed the steady state conditions throughout the system, the second detailed the simulation results. A table was also included showing the maximum and minimum heads (or pressures) encountered over the simulation at every node in the system.

Description of the System

The attached simplified flow schematic, Figure 5, shows the system that was modeled in KY PIPE for computer simulations. It consists of Tank 12 transferring fuel via gravity to Surge Tank [redacted]. The valves at Tank 12 open and close at the times indicated, and the resulting pressure surges are calculated.

The tank, pipe segment and components used to build the model are shown below.

(b) (3) (A)

[redacted]

Figure 5 - Surge Model

Description of System Components

1. Product: Jet Fuel (JP-5), Specific Gravity: 0.84, Kinematic Viscosity: 1.5 X 10-5 ft. 2/sec.

2. Piping: [redacted].

3. Pumps: The scenario modeled in this situation is one in which fuel is transferred using gravity only from Tank 12 to Surge Tank [redacted]. As a result, no pumps have been modeled in this system.

4. Valves: Valves included in this system include butterfly valves, ball valves and double block and bleed valves. The ball valve [redacted] at Tank 12 opens first, the double block and bleed valve [redacted] at Tank 12 then opens. Next the same ball valve starts to close and then the double block and bleed valve begins to close. Finally, the ball valve fully closes, followed by the complete closure of the double block and bleed valve. Butterfly valves [redacted] and [redacted] are modeled as being slightly open for the first 100 seconds of the calculation to simulate leakage past the valves. All other valves are modeled to be fully open. This includes the gate valve [redacted] and the double block and bleed valve [redacted] at Surge Tank [redacted] Valve operation times were taken from Automated Fuel Handling Equipment (AFHE) records at the site. The first operation (the opening of the ball valve) is shown to occur at time = 200 seconds to allow adequate time for the steady state condition to develop. Finally, double block and bleed valves do not open linearly. A majority of the opening time is spent lifting the plug, rather than turning the plug to allow flow through the valve. As a result, the double block and bleed valve is shown opening or closing during the last 14 seconds of its operating time.

Valve operation is summarized below in Table 1. Actual times are taken from reports generated by the AFHE system.

[redacted]

Discussion of Results

The opening of the valves at Tank 12 causes a surge in pressure in the piping system. At the [redacted] mainline piping between Tank 19 and Tank 20, represented by junction J-6, the maximum pressure surge is seen to be 357 psig as indicated in the nodes results shown in Figure 6, and as shown on the graph in Figure 7. The pressure is seen at t = 335, which is approximately 11 seconds after the double block and bleed valve begins to open. Prior to that, the system pressure in that area falls to -14.4 psig, which indicates that a vacuum (referred to in the calculation output as cavitation) has occurred. Refer to Appendix 'E' for the analysis' full output.

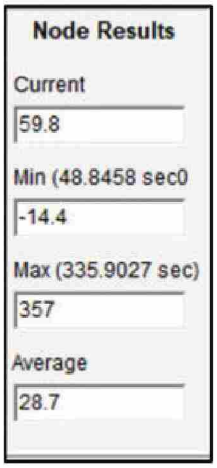
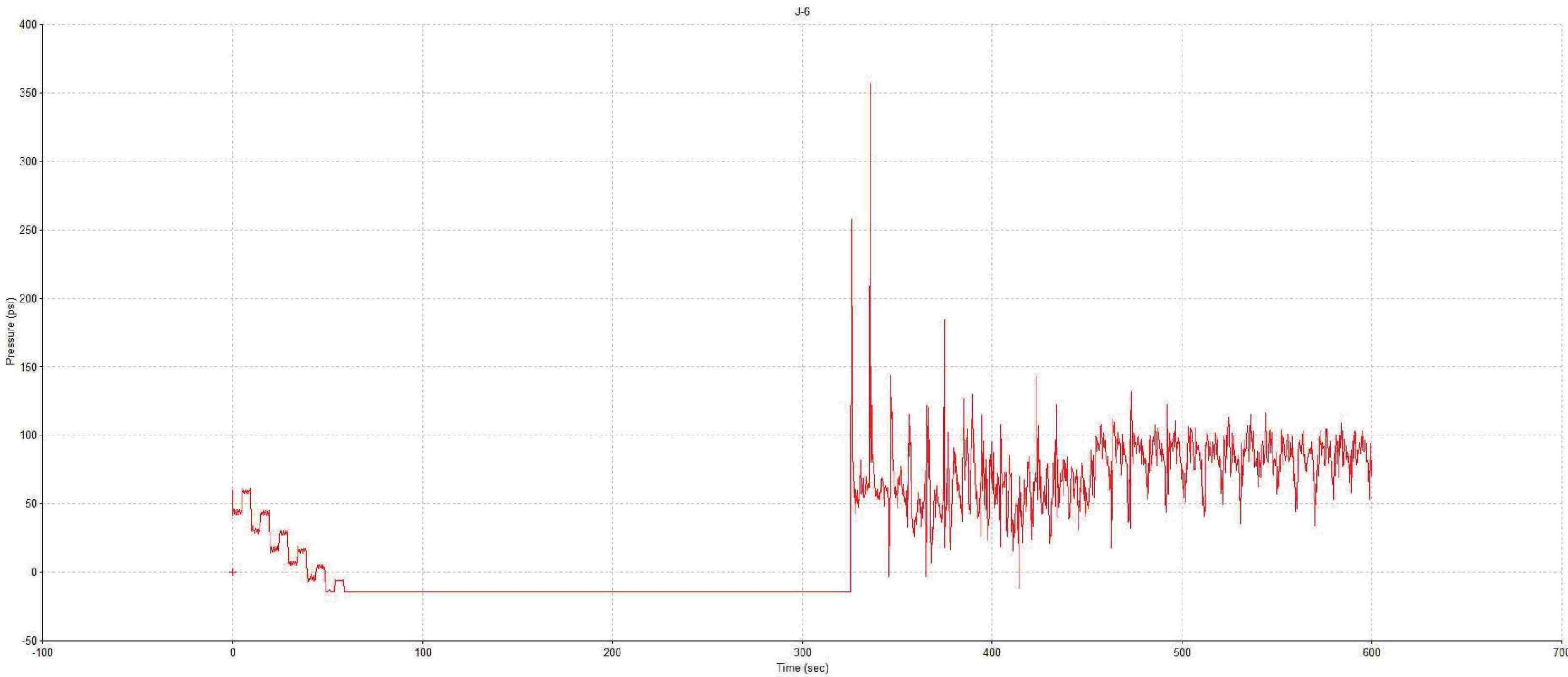


Figure 6 - Node J-6 Pressure Results

Note that this simulation models the system in its current condition and does not consider the failure in the piping system. It is beyond the capability of the surge software to model a rupture in the piping. Everything after the pressure surge, which would have caused the piping failure, indicates pressures that would have been obtained absent the piping failure. The intent of this calculation was to determine the level of the pressure surge that would be responsible for the damage, which was calculated to be 357 psig.

It should also be noted that the software indicated pressure surges elsewhere in the system, including in the area of [redacted]. In reviewing the data from the pressure indicating transmitter, [redacted] which is in the vicinity of the two butterfly valves (on the Tank 20 side), it was found that the AFHE system captured pressure readings from this transmitter only sporadically, with several seconds between pressure readings. At times, the interval between pressure readings was up to 10 seconds. As the pressure surge would have been very short lived (milliseconds), it is likely that the pressure rise occurred during one of these long intervals between pressure readings and was not read by [redacted]. Although these pressure surges were seen in the system, damage was not incurred at these locations since the piping in these areas had been adequately restrained.

Figure 7: Node J-6 Pressure Graph



Valve Analysis

Only four valves were actuated during the timeframe of the event. They are:

1. [redacted] – [redacted] DBB valve at Tank 12.
2. [redacted] – [redacted] ball valve at Tank 12.
3. [redacted] – [redacted] ball valve in the [redacted] Outer Loop section of the UGPH.
4. [redacted] – [redacted] gate valve in the [redacted] branch line in the UGPH that leads to Surge Tank [redacted].

The AFHE system had trouble opening [redacted] for over 30 minutes leading up to the event, and [redacted] had both torque limit and stall alarms just four minutes before the event. We suspect that these problems are not related to the valve or its actuator but are due to the pressure differentials across the valves at the time.

The two valves in the UGPH did not have any issues on May 6, 2021 and operated normally without any alarms.

To confirm that all four valves are operating normally, each one was operated numerous times under no-load conditions during the field investigation trip of July 2021. All four valves performed properly. See the results in Appendix ‘F’. The valves generally do take longer to open/close than what is stamped on the nameplates, but they did not overload based on the measured amperages.

The testing also found that it takes the AFHE system from three to five seconds to sense movement in a valve, and the DBB valve’s plug only rotates during the last 14 seconds when going from 0% to 100% open.

There is no indication that an equipment failure on any of these valves occurred at the time of the event.

AFHE Data Analysis (Sequence of Events)

The recorded data from the AFHE control system was the primary source of data to establish the sequence of events between 17:15:00 and 18:30:00 on May 6, 2021. See Figure 8. This image is an actual snapshot from the AFHE system. Using the system’s event log, alarm log, data logging and charting features, a single chronological order of every event, alarm, and data point during the time frame can be determined. See Appendix ‘G’ for the printed data. This information, along with numerous discussions with FLC operations, FLC maintenance, NIWC, and ENGlobal personnel, has been used to develop the following general sequence shown in Table 2. The AFHE control system does monitor and record every data point that it measures. However, it does not measure/record it at a high enough frequency to detect an event that lasts for only milliseconds (such as a transient surge pressure).

It should be noted that the event occurred during the transition between the last step of Evolution 3 and the first step of Evolution 4. Evolution 3 involved completely filling Tank 20 from Tank 12 in steps using Surge Tank [redacted]. Evolution 4 involved transferring JP-5 from Tank 12 to Tank 9 in steps using Surge Tank [redacted]. Most of the valve lineup was already set from Evolution 3 prior to beginning Evolution 4, and only four valves were actuated during the time frame in question. The general sequence below only addresses the equipment and instrumentation readings that were involved with the event, and we have not included the unrelated events and alarms that occurred.

Figure 8 : AFHE Data Logging Chart

[redacted]

Notes:
1. See Table 2 for keyed notes.
2. Items along the top of the chart were not plotted. The indication is simply indicating the time stamp when the action occurred.

TABLE 2 - Sequence of Events				
Time Stamp (interval)	**Figure 8 Keyed Notes**	**Equipment Item**	**Action/Reading**	**Commentary**
17:24:58	1a	[redacted]	Valve is set to open	Once this gate valve in the branch line to Surge Tank [redacted] is opened, all valves between Tank 20 and Surge Tank [redacted] are now open except for the two butterfly valves [redacted]) in the UGPH.
	1b	[redacted]	[redacted]	This pressure represents the full height of Tank 20 on the system between the RHTF and the UGPH. This represents the pressure on the closed butterfly valves that are leaking.
	1c	Tank 20	[redacted]	Tank 20's gross volume is steady at this time and does not start to show the expected decrease in volume for approximately 7.5 minutes. It is believed that the tank is losing volume at this time, and the delayed response is due to the tank gauging's precision and the AFHE polling frequency.
17:25:14 (00:16)	2	Surge Tank [redacted]	[redacted]	Surge Tank [redacted] net volume almost immediately starts to show an increase in volume. This appears to indicate that one or both butterfly valves are leaking. The butterfly valves could not be tested for leakage during the field investigation of July 2021, but FLC will be conducting a test to verify.
17:32:33 (07:19)	3	Tank 20	[redacted]	The AFHE system finally sees the drop in Tank 20's volume that has most likely been occurring since 17:24:58. It loses 44 bbl during this one reading. It finally settles out at [redacted] around 17:45:03 with a total loss of 58 bbl.
17:33:28 (00:55)	4	[redacted]	Valves set to close	The ball valve at Tank 20 (F) begins closing first with the DBB valve (E) starting to close about 1 minute later. Both the tank skin and ball valves are fully closed at 17:35:57.
17:35:41 (02:13)	5	[redacted]	31 psig	While Tank 20's skin and ball valves are closing the pressure in the UGPH drops 94 psi over a period of 82 seconds. This is expected as the 79.3 psi of head from Tank 20 has been removed from the system by the closing of Tank 20's skin and ball valve. An additional 14.7 psi is lost due to the vacuum created by the leaking butterfly valve(s). The pressure essentially remains at this level until the event at 18:11:07.
17:41:38 (05:57)	6a	[redacted]	Valve 0% open	Once this valve is closed, the flow to Surge Tank [redacted] stops as would be expected.
	6b	Surge Tank [redacted]	[redacted]	Surge Tank [redacted]'s volume has settled at this point with a total gain of 81 bbl over 16 minutes. Therefore, a vacuum of approximately 23 bbl (Tank 20's loss of 58 bbl minus Surge Tank [redacted]s gain of 81

TABLE 2 - Sequence of Events				
Time Stamp (interval)	**Figure 8 Keyed Notes**	**Equipment Item**	**Action/Reading**	**Commentary**
				bbl) has formed in the piping at RHTF. AFHE does check for an out-of-balance between tanks during a transfer, but the tolerance is too high to catch this small amount.
18:00:21 (18:43)	7	Evolution 3	Complete	
18:00:52 (00:31)	8	Evolution 4	Start	
18:02:31 (01:39)	9	[redacted]	Valve is set to open	Once this gate valve in the branch line to Surge Tank [redacted] is opened, all valves between RHTF and Surge Tank [redacted] are now open except for the two butterfly valves in the UGPH.
18:03:06 (00:35)	10	Surge Tank [redacted]	[redacted]	Within 35 seconds of opening [redacted], Surge Tank [redacted] starts gaining volume due the leaking butterfly valve(s).
18:07:31 (04:25)	11a	[redacted]	Valve is 0% open	Once this ball valve in the outer loop header is closed, the flow to Surge Tank [redacted] stops as would be expected.
	11b	Surge Tank [redacted]	[redacted]	Surge Tank [redacted]'s volume has settled at this point with a total gain of 16 bbl over 4.5 minutes. The vacuum in the piping at RHTF has now grown to approximately 39 bbl. As noted above, AFHE does check for an out-of-balance between tanks during a transfer, but the tolerance is too high to catch this small amount.
18:09:21 (01:50)	12	[redacted]	100% open	Tank 12's ball valve is fully open.
18:11:01 (01:40)	13	[redacted]	100% open	Tank 12's DBB valve is fully open. It should be noted that field testing indicated that while it takes [redacted] seconds for the motor actuator to completely open the valve, the plug goes from [redacted] open over the last [redacted] seconds. It is impossible to determine the exact moment of the surge, but it most likely occurred between when the valve started opening at 18:10:02 and when the plug first started to rotate at 18:10:46. There is also some lag or latency between when the valve actuator starts and the AFHE system detects the valve moving. Field testing indicated the lag to be about [redacted] seconds.
18:11:07 (00:06)	14	[redacted]	110 psig	Once Tank 12's skin and ball valves are open, the pressure at the UGPH immediately goes from 30 psig to 110 psig in 22 seconds indicating a transient surge pressure in the system. This is approximately when the 39 bbl of vacuum collapses as the head of Tank

TABLE 2 - Sequence of Events				
Time Stamp (interval)	**Figure 8 Keyed Notes**	**Equipment Item**	**Action/Reading**	**Commentary**
				12 is introduced to the system. The transient surge pressure then causes the unrestrained piping to move which separates the Dresser coupling fittings.
18:12:18 (01:11)	15	[redacted]	Valve set to close	Tank 12's ball valve starts closing.
18:12:24 (00:06)	16	[redacted]	Valve set to close	Tank 12's DBB valve starts closing.
18:12:33 (00:09)	17	[redacted]	6 psig	As the valves start closing, the waveform changes and the system reaches its lowest point during the attenuation. This waveform, while not the same magnitude as the model, does mimic the model's shape.
18:12:56 (00:23)	18	Tank 12	[redacted]	Tank 12's net volume finally drops 473 bbl over 50 seconds. It is believed that the tank is losing volume before this time, and as noted above, the delayed response is due to the tank gauging's precision and the AFHE polling frequency.
18:12:57 (00:01)	19	[redacted]	0% open	Tank 12's ball valve is fully closed.
18:13:15 (00:18)	20	[redacted]	0% open	Tank 12's DBB valve is fully closed.
18:25:00 (11:45)	21	[redacted]	43 psig	The pressure has now settled, and it now shows the expected pressure of the head from the piping between UGPH and the ruptured pipe at Tank 18.

V. CONCLUSION

Root Cause

Our assessment of the data determined that the root cause of the event was procedural error. If the personnel had closed all of the normally closed valves at the end of Evolution 3 as prescribed by the operations order and then opened the valves in the prescribed order for Evolution 4, the system would have not experienced the damaging surge. This omission allowed either one or both of the closed butterfly valves in the lineup to leak, causing the column of fuel to sag into Surge Tank [redacted]. This led to a vacuum in the main piping at the top of RHTF that rapidly collapsed when Tank 12 was opened for Evolution 4.

Supporting Evidence

At the end of Evolution 3, the valves in the lineup between Tank 20 and Surge Tank [redacted] were open except for the two butterfly valves for approximately 10 minutes. The AFHE data indicates Surge Tank [redacted] increasing in volume during this time, and it also shows a corresponding drop in Tank 20's volume of approximately the same amount. Therefore, the butterfly valve(s) must have been leaking due to the head from the column of JP-5 from the open Tank 20 (approximately [redacted]). Tank 20's skin and ball valves were then closed, but Surge Tank [redacted] continued to gain volume while none of the RHTF tanks lost any volume and the pressure in the pipeline quickly sagged. This indicates continued leakage around the butterfly valve(s) and the creation of a vacuum. The pocket of vacuum did not stop growing until approximately five minutes later when [redacted] was closed. The presence of this vacuum pocket is corroborated by the expected and immediate drop in pressure at [redacted] from approximately 120 psig to 30 psig.

Approximately 25 minutes later at the official start of Evolution 4 (Tank 12 to Surge Tank [redacted] was re-opened. This made all of the valves in the lineup between RHTF and Surge Tank [redacted] with the exception of the two butterfly valves, open for approximately five additional minutes. The AFHE data indicates a second increase in Surge Tank [redacted]'s volume during this time without the expected decrease in volume by one of the Red Hill tanks. Therefore, the butterfly valve(s) must have been leaking again as the column of JP-5 trapped below all of the tanks' closed skin valves sagged a little more trying to reach its natural state of equilibrium with Surge Tank [redacted].

The large pocket of perfect vacuum was probably created at the highest points in the JP-5 piping (the area of Tanks 17 – 20) while the column of JP-5 sagged through the leaking butterfly valve(s). It is estimated that the pocket was almost 39 bbl (the amount that Surge Tank [redacted] gained after [redacted] closed). When the last remaining closed valve in the lineup for Tank 12 was finally opened to start Evolution 4, the quick opening nature of the double block and bleed valve ([redacted]) allowed a rapid inflow of JP-5 to collapse the pocket of vacuum. The resulting pressure wave from the collapse of the vacuum pocket is what displaced the unrestrained piping and separated the Dresser couplings creating all of the collateral damage.

Contributing Factors

The contributary causes of the piping failure at the RHTF include:

1. The butterfly valves were used for shut-off service during both evolutions, but butterfly valves are not appropriate for bubble-tight shut-off service. Therefore, the leaking butterfly valves contributed to the event.

2. AFHE's out-of-balance alarm during Evolutions 3 and 4 was set to [redacted] Evolution 3 involved an extra 23 bbl flowing into Surge Tank [redacted] (without the corresponding decrease in Tank 12 or Tank 20's volume), and Evolution 4 involved an additional 16 bbl into Surge Tank [redacted]. The lack of an out-of-balance alarm prior to the event was a contributing factor.

3. AFHE's low pressure alarm for [redacted] was set to -9 psig. When the tank skin and ball valves at Tank 20 were closed at the end of Evolution 3, [redacted] indicated a pressure drop from 125 psig down to 31 psig. This rapid drop alone was an indicator of a significant problem, and the 31 psig reading was clearly outside of the usual norm for Evolution 3. The lack of a low pressure alarm for [redacted] prior to the event was another contributing factor.

4. The use of Dresser couplings in sections of unrestrained piping was a contributing factor in this case. The physical damage seen at Tanks 17 – 20 would not have occurred if the piping systems had been fully installed and inherently restrained by connection to the tanks.

AFHE Data Discrepancies

The pressure at [redacted] dropped rapidly after the skin and ball valves at Tank 20 were closed as would be expected if the butterfly valve(s) were leaking. However, the pressure only sagged to 31 psig, while physics would say that the column of JP-5 should drop to about 40 feet above the level of Surge Tank [redacted] (14.7 psig). Our assumption is that while the butterfly valve(s) leak when there is 120 psi on the system, they don't appear to leak when only seeing 31 psig.

A vacuum was being created during the periods that Surge Tank [redacted] was gaining volume without a corresponding loss from the RHTF. In both instances of this, [redacted] did not see an appreciable drop in pressure. This is because the pipeline at RHTF is only sloped [redacted], so the total 39 bbl of vacuum created would only change the pressure a modest 1 psi.

It should be noted that Tank 20's data indicates a single, immediate drop of about 40 bbl followed by another drop of 20 bbl over 2.5 minutes. It appears the rapid drop is not accurate, and it was most likely a steady decrease over the 10-minute timeframe between [redacted]' opening and closing. The misleading rapid drop is simply a function of the gauging system's precision along with the SCADA system's polling speed. These tanks are unique in the world, and the gauging system is a one-of-its-kind with limited precision under extremely rare conditions such as this anomaly. During normal operations, this does not present any problems as the volumes are large enough and occur over a much longer period that are easily measured by the system in real time.

[redacted] shows a maximum pressure of 110 psig at the time of the event and a minimum pressure of 6 psig afterwards while it attenuated the surge over a period of almost 15 minutes. During this time, the interval between SCADA readings was up to 20 seconds. Our model shows the same waveform of the attenuation but with much higher and lower pressures. This is because the model is calculating the pressure every millisecond. We believe the time interval between SCADA readings essentially failed to capture the spikes seen in the model.

Modelling Corroboration

The physical damage that was created during the event left enough evidence to verify the above conclusion. The [redacted] JP-5 mainline pipeline moved laterally 16 inches away from Tank 20 as measured from the large dent in the adjacent ductwork. As noted in Section IV, Physical Damage Assessment, our pipe stress analysis determined that a force of approximately 78,000 lbs was required to move the pipe the 16 inches. The 78,000 lbs of force is equivalent to a pressure of [redacted] applied to the interior of an [redacted] pipe, and in Section IV, Hydraulic and Surge Analysis, our surge analysis predicted a transient surge pressure of approximately 357 psi created in milliseconds in the piping between Tanks 19 and 20. Therefore, it is reasonable to conclude that the surge pressure's energy created by the collapsing vacuum pocket was powerful enough to move the pipe, separate the Dresser coupling, and create the damage to the adjacent ductwork.

Considering that this analysis ignores any thrust from the fuel leaving the piping at Tank 20's separated Dresser coupling, the pipe should have moved even more. However, a pipe support on the section of pipe going to Tank 19 prevented it. The support has obvious damage from where the pipe's flange hit the support stopping the pipe's trajectory and preventing the Dresser coupling at Tank 19 from separating.

Disclaimer

Report is based on information known as of the date of the report and subject to revision should new information become available.

VI. APPENDICES

APPENDIX 'A' - Master Operational Schematic, Pearl Harbor AFHE

(b) (3) (A)

[redacted]

APPENDIX 'B' - DFSP Pearl Harbor Specific Operations Order

i. **Evolution 3**

NAL

DFSP Pearl Harbor Specific Operations Order

1	Date	05/06/21	Time	~TBD	Location Various	Tran[redacted]fer fuel from JP5 tank RH 12 to STK [redacted], then to RH 20 for Tank Tightness Testing

2 Operation

Set procedure to transfer fuel from RH 12 to STK [redacted]. Once filled, transfer fuel to RH tank 20.

3 References

- DoD 4140.25-M, DoD Management of Bulk Petroleum Products, Natural Gas, and Coal
- 33 CFR Part 154, Facilities Transferring Oil or Hazardous Materials in Bulk
- 29 CFR §1910.38, Occupational Safety and Health Standards
- MIL–STD 3004-1: DoD Standard Practice Quality Assurance for Bulk Fuels, Lubricants, and Related Products
- UFC 3-460-03 Operation and Maintenance: Maintenance of Petroleum Fuel systems
- Operations, Maintenance, Environmental, and Safety Plan (OMES)

4 Personnel Assignments

- WG-11 Control Operator
- WG-09/WG-08 Pump Operator
- One Kuahua rover to check pipeline during the fill process
- One Red Hill Rover to monitor the source tank as required by Papa.

5	Issue Tank	RH [redacted], STK [redacted]	6	Receipt Tank	STK [redacted], RH 20	7	Volume/Qty	~TBD bbl.

8 Communications Plan

Handheld radios on channel 5-a

9 Tools and Materials

- Hard Hat if in the Red Hill Tunnel Complex
- Portable radios

10 Preliminary

This fuel transfer is for Tank Tightness Testing. Transfer fuel from RH 12 to STK [redacted]; then fill tanks RH 20 to its High Operating Limit.

11 Operational Procedure

FILL SURGE TANK [redacted]

- Source tank is RH 12.
- Receipt tank is Surge Tank #[redacted]
- Con[redacted]ol operator will make preparations to transfer JPS fuel from Red Hill tank 10 to STK[redacted]. He will notify the Red Hill rover that fuel transfer is about to start.
- Control operator will line up the piping and valve systems as follows:

[redacted]

FILL RH 20

- Issue tank is STK[redacted]
- Receipt tank is RH 20. **Hi[redacted] limit is [redacted].**
- Use JPS transfer pumps [redacted] as applicable
- Control operator will make preparations to transfer JP-S fuel from STK[redacted] to RH 20. Papa will notify both the Red Hill and the Kuahua rovers when fuel transfer is about to start.
- Control Operator will line up the piping and valve systems as follows:

[redacted]

- The pump suction is from the inside line and will discharge to the outside line, then to RH 20:

[redacted]

- Control operator and the rovers will verify that all other valves remain closed.
- Once the control operator opens up the skin valve of the source and destination tanks, both rovers will verify that the valves are open.
- **Fill RH 20 up to its high operating limit and STOP pumping. DO NOT EXCEED THE HIGH OPERATING LIMIT**

- Once the transfer is complete, close all valves and return the piping system to its normal configuration.
- Once the transfer is complete, close all valves and proceed to the next tank.

12 Quality Plan

1. None

13 Emergency Response Plan

a. Stop all transfer operations and close all valves.
b. Notify the chain of command of the emergency and respond to the emergency with clean up material and containers and drip pans as required by the emergency.
c. If needed, make alignment preparations to pump the fuel back to the source tank.

14 Safety Plan

a. Maintain communication between the control room operator and all involved parties.
b. Do not lose focus or become complacent.
c. Do not be impatient. Think all steps through.
d. Accidents happen without warning. Be aware of your surroundings. Do not become distracted.
e. Be aware of strange sounds or smells.
f. Remain calm in an emergency.
g. The worker must be able to react quickly and properly in a safe mode.
h. Contact Control Room Operator by radio to secure the operation. Slowly close valves, taking at least 15 seconds to shut the valve completely. Inform the Fuel Supervisors of the situation.
i. Anyone has the authority and responsibility to call a halt to an operation if they believe an unsafe condition exists.

15 ORM

Overall RAC code of: RAC 3 Mitigated to a RAC 4

Hazard Threat/effect	Assess	RAC	Risk Control Action	Re-assess	Residual	Supervision
Leak at pipe flanges.	D, I	3	Area manned and monitored by, qualified operators	D, II	4	YES
Overfill the tank.	C, III	4	Area manned and monitored, qualified operators, Certified AFHE overfill protection	D, III	5	YES

Risk Assessment Matrix		PROBABILITY			
		Frequency of Occurrence Over Time			
		A Likely	B Probable	C May	D Unlikely
I	Loss of Mission Capability, Unit Readiness or Asset; Death	1	1	2	3
II	Significantly Degraded Mission Capability or Unit Readiness; Severe Injury or Damage	1	2	3	4
III	Degraded Mission Capability or Unit Readiness; Minor Injury or Damage	2	3	4	5
IV	Little or No Impact to Mission Capability or Unit Readiness; Minimal Injury or Damage.	3	4	5	5

Risk Assessment Codes

1 – Critical 2 – Serious 3 – Moderate 4 – Minor 5 – Negligible

Prepared By: [redacted]

[redacted] Supervisor

Approved by: [redacted]

[redacted] Bulk Fuel Operations Supervisor

ii. Evolution 4

DFSP Pearl Harbor Specific Operations Order

COPY

1	**Date**	05/06/21	**Time**	~TBD	**Location** Various	Transfer fuel from JP5 tank RH 12 to STK [redacted], then to RH 09 for Tank Tightness Testing

2	**Operation**
	Set procedure to transfer fuel from RH 12 to STK [redacted]. Once filled, transfer fuel to RH tank 09
3	**References**
	• DoD 4140.25-M, DoD Management of Bulk Petroleum Products, Natural Gas, and Coal • 33 CFR Part 154, Facilities Transferring Oil or Hazardous Materials in Bulk • 29 CFR §1910.38, Occupational Safety and Health Standards • MIL–STD 3004-1: DoD Standard Practice Quality Assurance for Bulk Fuels, Lubricants, and Related Products • UFC 3-460-03 Operation and Maintenance: Maintenance of Petroleum Fuel systems • Operations, Maintenance, Environmental, and Safety Plan (OMES)
4	**Personnel Assignments**
	• WG-11 Control Operator • WG-09/WG-08 Pump Operator • One Kuahua rover to check pipeline during the fill process • One Red Hill Rover to monitor the source tank as required by Papa.

5	**Issue Tank**	RH 12, STK [redacted]	6	**Receipt Tank**	STK [redacted], RH 09	7	**Volume/Qty**	~TBD bbl.

8	**Communications Plan**
	Handheld radios on channel 5-a
9	**Tools and Materials**
	• Hard Hat if in the Red Hill Tunnel Complex • Portable radios
10	**Preliminary**
	This fuel transfer is for Tank Tightness Testing. Transfer fuel from RH 12 to STK [redacted]; then fill tanks RH 09 to its High Operating Limit.
11	**Operational Procedure**
	FILL SURGE TANK [redacted]

- Source tank is RH 12.
- Receipt tank is Surge Tank #[redacted]
- Control operator will make preparations to transfer JP5 fuel from Red Hill tank 10 to STK[redacted]. He will notify the Red Hill rover that fuel transfer is about to start.
- Control operator will line up the piping and valve systems as follows:

[redacted] (normally open)

FILL RH 09

- Issue tank is STK[redacted]
- Receipt tank is RH 09. **High operating limit is [redacted].**
- Use JP5 transfer pumps [redacted] as applicable
- Control operator will make preparations to transfer JP-5 fuel from STK[redacted] to RH 09. Papa will notify both the Red Hill and the Kuahua rovers when fuel transfer is about to start.
- Control Operator will line up the piping and valve systems as follows:

[redacted]

- The pump suction is from the inside line and will discharge to the outside line, then to RH 20:

[redacted]

- Control operator and the rovers will verify that all other valves remain closed.
- Once the control operator opens up the skin valve of the source and destination tanks, both rovers will verify that the valves are open.
- **Fill RH 09 up to its high operating limit and STOP pumping. DO NOT EXCEED THE HIGH OPERATING LIMIT**

	• Once the transfer is complete, close all valves and return the piping system to its normal configuration. • Once the transfer is complete, close all valves and proceed to the next tank.
12	**Quality Plan**
	1. None
13	**Emergency Response Plan**
	a. Stop all transfer operations and close all valves. b. Notify the chain of command of the emergency and respond to the emergency with clean up material and containers and drip pans as required by the emergency. c. If needed, make alignment preparations to pump the fuel back to the source tank.
14	**Safety Plan**
	a. Maintain communication between the control room operator and all involved parties. b. Do not lose focus or become complacent. c. Do not be impatient. Think all steps through. d. Accidents happen without warning. Be aware of your surroundings. Do not become distracted. e. Be aware of strange sounds or smells. f. Remain calm in an emergency. g. The worker must be able to react quickly and properly in a safe mode. h. Contact Control Room Operator by radio to secure the operation. Slowly close valves, taking at least 15 seconds to shut the valve completely. Inform the Fuel Supervisors of the situation. i. Anyone has the authority and responsibility to call a halt to an operation if they believe an unsafe condition exists.
15	**ORM**
	Overall RAC code of: RAC 3 Mitigated to a RAC 4

Hazard Threat/effect	Assess	RAC	Risk Control Action	Re-assess	Residual	Supervision
Leak at pipe flanges.	D, I	3	Area manned and monitored by, qualified operators	D, II	4	YES
Overfill the tank.	C, III	4	Area manned and monitored, qualified operators, Certified AFHE overfill protection	D, III	5	YES

Risk Assessment Matrix		PROBABILITY Frequency of Occurrence Over Time			
		A Likely	B Probable	C May	D Unlikely
I	Loss of Mission Capability, Unit Readiness or Asset; Death	1	1	2	3
II	Significantly Degraded Mission Capability or Unit Readiness; Severe Injury or Damage	1	2	3	4
III	Degraded Mission Capability or Unit Readiness; Minor injury or Damage	2	3	4	5
IV	Little or No Impact to Mission Capability or Unit Readiness; Minimal Injury or Damage.	3	4	5	5

Risk Assessment Codes
1 – Critical 2 – Serious 3 – Moderate 4 – Minor 5 – Negligible

Prepared By: [redacted]

[redacted] – FDSO Supervisor

Approved by: [redacted]

[redacted], Bulk Fuel Operations Supervisor

APPENDIX 'C' - Government Furnished Information Listing

Government Furnished Information Listing

1. DFSP Pearl Harbor Specific Operations Order (Evolution 3); May 6, 2021.
2. DFSP Pearl Harbor Specific Operations Order (Evolution 4); May 6, 2021.
3. Pipe Stress Analysis Red Hill Lower Tunnel Piping, Tanks 1 to 16; April 2004; Draft; Weston Solutions.
4. Hydraulic Analysis and Dynamic Transient Surge Evaluation; September 2010; Final Report; Enterprise Engineering, Inc.
5. AFHE Data – Alarm Logs, Event Logs, and Data Export.
6. Red Hill Skin Valve Piping Analytical Review of Piping Configuration; 23 June 1999; Thermal Engineering Corporation.
7. Red Hill Skin Valve Piping Addendum to the Analytical Review of Piping Configuration; 12 November 1999; Thermal Engineering Corporation.
8. Inspection and Repair of Red Hill Pipelines – Technical Note; March, 8 2019; Enterprise Engineering, Inc.
9. Inspection and Repair of Red Hill Pipelines – Pipe Pedigree Report; April 2019; Enterprise Engineering, Inc.

APPENDIX 'D' - Stress Analysis Output

CAESAR II Ver.12.00.00.4000, (Build 200403) Date: AUG 5, 2021 Time: 7:49

Job Name: 21-032 STRESS ANALYSIS

DISPLACEMENTS REPORT: Nodal Movements

CASE 1 (OPE) W+T1+P1+F1

Node	DX in.	DY in.	DZ in.	RX deg.	RY deg.	RZ deg.
10	-0.0000	0.0000	-0.0000	0.0000	0.0000	0.0000
20	-1.4350	0.0876	-0.0208	0.1365	2.2677	0.2376
30	-6.7537	0.3917	-0.0521	0.1838	3.5432	0.5940
40	-7.0843	0.4018	0.0409	0.1838	3.5432	0.5609
50	-13.6800	0.7082	-0.0886	0.1518	3.5432	0.5940
60	-15.5970	0.7898	-0.0987	0.1509	3.5432	0.5940
70	-15.9913	0.8066	-0.1008	0.1509	3.5432	0.5940
90	-7.1672	0.4046	0.0666	0.1838	3.5432	0.5108
100	-7.1148	1.7493	-9.8899	0.1838	3.5432	0.4666
110	-7.1096	1.8796	-10.8793	0.1838	3.5432	0.4665
300	-7.2539	-0.0000	10.4559	0.1838	3.5432	-0.0138
310	-7.3582	-0.0413	22.9478	0.1838	3.5432	0.0133
320	-7.3659	-0.0444	23.8136	0.1838	3.5432	0.0118
330	-7.3802	-0.0485	25.2978	0.1838	3.5432	0.0094
340	-33.3802	-0.0412	25.6688	0.1838	3.5432	-0.1306
350	-33.3909	-0.0000	26.7820	0.1838	3.5432	-0.1301
360	-33.4088	0.0676	28.6372	0.1838	3.5432	-0.1289
370	-33.4107	0.0794	28.9619	0.1838	3.5432	-0.1289
400	-7.1050	1.9935	-11.7451	0.1838	3.5432	0.4665

CAESAR II Ver.12.00.00.4000, (Build 200403) Date: AUG 16, 2021 Time: 15:0
Job:: 21-032 STRESS ANALYSIS

RESTRAINTS REPORT: Loads On Restraints
CASE 1 (OPE) W+T1+P1+F1

Node	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.	Restraint Type/Tag
10	-78000	4930	-0	63852.5	1039999.6	67469.7	TYPE=Rigid ANC;
20	0	0	0	0.0	0.0	0.0	TYPE=Rigid +Y;
50	0	0	0	0.0	0.0	0.0	TYPE=Rigid +Y;
100	0	0	0	0.0	0.0	0.0	TYPE=Rigid +Y;
110	0	0	0	0.0	0.0	0.0	TYPE=Rigid +Y;
300	0	-15213	0	0.0	0.0	0.0	TYPE=Rigid +Y;
350	0	-964	0	0.0	0.0	0.0	TYPE=Rigid +Y;

CAESAR II Ver.12.00.00.4000, (Build 200403) Date: AUG 16, 2021 Time: 15:0
Job:: 21-032 STRESS ANALYSIS

GLOBAL ELEMENT FORCES REPORT: Forces on Elements
CASE 1 (OPE) W+T1+P1+F1

Node	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.	Element Name
10	78000	-4930	0	-63852.5	-1039999.6	-67469.7	
20	-78000	5652	-0	35634.9	623999.8	67469.7	
20	78000	-5652	0	-35634.9	-623999.8	-67469.7	
30	-78000	6736	-0	-13915.9	-0.0	67469.7	
30	78000	-8703	0	0.0	0.0	-67469.7	
40	-78000	9030	-0	-0.0	-0.0	-121030.2	
30	0	1967	0	13915.9	-0.0	0.0	
50	-0	-703	-0	-1457.1	0.0	-0.0	
50	0	703	0	1457.1	-0.0	0.0	
60	-0	-353	-0	-93.7	0.0	-0.0	
60	0	353	0	93.7	-0.0	0.0	
70	-0	0	-0	-0.0	0.0	0.0	FLANGE_FLG_300
40	78000	-9030	0	0.0	0.0	121030.2	
90	-78000	9120	-0	0.0	-0.0	-173030.2	
90	0	2120	0	-0.0	-0.0	16602.7	
100	-0	-303	-0	0.0	0.0	-347.4	
100	0	303	0	-0.0	-0.0	347.4	
110	-0	-122	-0	0.0	0.0	-64.0	
90	78000	-11241	0	-0.0	0.0	156427.5	
300	-78000	13137	-0	0.0	-0.0	14215.1	
300	78000	2076	0	-0.0	0.0	-14215.1	
310	-78000	204	-0	0.0	-0.0	-1536.6	
310	78000	-204	0	-0.0	0.0	1536.6	
320	-78000	327	-0	0.0	-0.0	-1219.5	
320	78000	-327	0	-0.0	0.0	1219.5	
330	-78000	480	-0	0.0	-0.0	-413.3	
330	78000	-480	0	-0.0	0.0	413.3	
340	-78000	500	-0	0.0	-0.0	-168.3	
340	78000	-500	0	-0.0	0.0	168.3	
350	-78000	615	-0	0.0	-0.0	668.4	

GLOBAL ELEMENT FORCES REPORT: Forces on Elements
CASE 1 (OPE) W+T1+P1+F1

Node	FX lb.	FY lb.	FZ lb.	MX ft.lb.	MY ft.lb.	MZ ft.lb.	Element Name
350	78000	349	0	-0.0	0.0	-668.4	
360	-78000	-158	-0	0.0	-0.0	34.5	
360	78000	158	-0	-0.0	0.0	-34.5	
370	-78000	-0	0	0.0	-0.0	0.0	FLANGE_FLG_300
110	0	122	0	-0.0	-0.0	64.0	
400	0	0	0	0.0	-0.0	0.0	

CAESAR II Ver.12.00.00.4000, (Build 200403) Date: AUG 16, 2021 Time: 15:0
Job:: 21-032 STRESS ANALYSIS

B31.3 STRESSES REPORT: Stresses on Elements
CASE 1 (OPE) W+T1+P1+F1

```
Piping Code (1 of 1): B31.3 -2018, Aug 30, 2019

The SLP column shows the longitudinal pressure stress.

Highest Stresses: (lb./sq.in.)
F/A                         7945.0       @Node    320
Bending                   204924.1       @Node     10
Torsion                     6634.7       @Node     10
SIF/Index In-Plane             1.0       @Node     10
SIF/Index Out-Plane            1.0       @Node     10
SIF/Index Torsion              1.0       @Node     10
SIF/Index Axial                1.0       @Node     10
```

Node	SLP lb./sq.in.	F/A lb./sq.in.	Bending lb./sq.in.	Torsion lb./sq.in.	SIF/Index In-Plane	SIF/Index Out-Plane	SIF/Index Torsion	SIF/Index Axial	Code lb./sq.in.
10		0.0	204924.1	6634.7	1.000	1.000	1.000	1.000	205353.2
20		0.0	122923.3	-6634.7	1.000	1.000	1.000	1.000	123637.4
20		0.0	122923.3	6634.7	1.000	1.000	1.000	1.000	123637.4
30		0.0	2736.9	-6634.7	1.000	1.000	1.000	1.000	13548.7
30		624.3	13269.4	0.0	1.000	1.000	1.000	1.000	13893.7
40		647.7	23803.3	-0.0	1.000	1.000	1.000	1.000	24451.0
30		0.0	2736.9	-0.0	1.000	1.000	1.000	1.000	2736.9
50		0.0	286.6	0.0	1.000	1.000	1.000	1.000	286.6
50		0.0	286.6	-0.0	1.000	1.000	1.000	1.000	286.6
60		0.0	18.4	0.0	1.000	1.000	1.000	1.000	18.4
60									
70									
40		647.7	23803.3	0.0	1.000	1.000	1.000	1.000	24451.0
90		654.2	34030.2	-0.0	1.000	1.000	1.000	1.000	34684.4

CAESAR II Ver.12.00.00.4000, (Build 200403) Date: AUG 16, 2021 Time: 15:0
Job:: 21-032 STRESS ANALYSIS

B31.3 STRESSES REPORT: Stresses on Elements
CASE 1 (OPE) W+T1+P1+F1

Node	SLP lb./sq.in.	F/A lb./sq.in.	Bending lb./sq.in.	Torsion lb./sq.in.	SIF/Index In-Plane	SIF/Index Out-Plane	SIF/Index Torsion	SIF/Index Axial	Code lb./sq.in.
90		-0.0	3265.3	-0.0	1.000	1.000	1.000	1.000	3265.3
100		-0.0	68.3	0.0	1.000	1.000	1.000	1.000	68.3
100		-0.0	68.3	-0.0	1.000	1.000	1.000	1.000	68.3
110		-0.0	12.6	0.0	1.000	1.000	1.000	1.000	12.6
90		5595.1	30764.9	0.0	1.000	1.000	1.000	1.000	36360.0
300		5595.1	2795.7	-0.0	1.000	1.000	1.000	1.000	8390.8
300		5595.1	2795.7	0.0	1.000	1.000	1.000	1.000	8390.8
310		5595.1	302.2	-0.0	1.000	1.000	1.000	1.000	5897.3
310		5595.1	302.2	0.0	1.000	1.000	1.000	1.000	5897.3
320		7945.0	486.4	-0.0	1.000	1.000	1.000	1.000	8431.4
320		7945.0	486.4	0.0	1.000	1.000	1.000	1.000	8431.4
330		7945.0	164.8	-0.0	1.000	1.000	1.000	1.000	8109.8
330									
340									
340		7945.0	67.1	0.0	1.000	1.000	1.000	1.000	8012.1
350		7945.0	266.5	-0.0	1.000	1.000	1.000	1.000	8211.6
350		7945.0	266.5	0.0	1.000	1.000	1.000	1.000	8211.6
360		7945.0	13.8	-0.0	1.000	1.000	1.000	1.000	7958.8
360									
370									
110		-0.0	12.6	-0.0	1.000	1.000	1.000	1.000	12.6
400		0.0	0.0	0.0	1.000	1.000	1.000	1.000	0.0

APPENDIX 'E' - Surge Analysis Output

```
* * * * * * * * * * * *  S U R G E  * * * * * * * * * * * * *
*                                                              *
*  Transient Flow Modeling Software                            *
*                                                              *
*  CopyRighted by KYPIPE LLC (www.kypipe.com)                  *
*  Version: 8.014  01/11/2016                                  *
*  Company:  AustinBroc    Serial #:  592067                   *
*  Interface:  Classic                                         *
*  Licensed for Pipe2008                                       *
*                                                              *
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

INPUT:  g:\21 jobs\21-032 assess tank 20 piping - red hill\calcs\m\21-032 surge
analysis\21-032_s.DAT
OUTPUT: g:\21 jobs\21-032 assess tank 20 piping - red hill\calcs\m\21-032 surge
analysis\21-032_s.OUT

RUN DATE =     08/05/21
RUN TIME =     22:29:53

**************************************************************
                       SYSTEM DATA
**************************************************************

 THE FOLLOWING DEFAULT OVERRIDES HAVE BEEN DEFINED:

     Liquid Specific Gravity =  0.839999974
             Cavitation Head =  7.76000023E-02
       Time Increment Factor =  1
      Flow Conversion Factor =  448.859985
      Head Conversion Factor =  1.00000000

 -----------------------------------------------------
 # of Increments for Cavity collapse:  1
     CV Setting for Inertial effects:  0.00000000E+00
 -----------------------------------------------------
 ----------------------------------------------
 Pressure Sensitive Demands at Junction Nodes.
 Exit Head =  0.00000000E+00
 ----------------------------------------------

 Total Simulation Time =   600.0 sec
 Time Increment        = 0.00280 sec

 ENGLISH UNITS ARE SPECIFIED:
 FLOW in Gallons/Minute  &  HEAD in feet

 ----------------------------------------
  Dynamic Friction Option Selected.
  Pipe resistance changes with flowrate.
 ----------------------------------------


 NUMBERS OF SPECIFIC ELEMENTS:

  Line Segments =  19    Components      =   6
  Junctions     =  13    Bypass Lines    =   0
  Side Orifices =   0    Relief Valves   =   0
  Check Valves  =   0    Variable Inputs =   4

================================================================================
```

LineSegment Data

****

LINE SEGMENT DATA

****

POSITION OF END NODES		TRAVEL INCREMENTS	C/GA	INITIAL FLOWRATE	SEGMENT RESISTANCE	WAVE SPEED
Tank 12	I-AV-1	1	[redacted]			
O-AV-1	I-AV-2	1				
O-AV-2	J-3	3				
J-1	J-2	1				
J-3	J-1	1716				
J-2	I-AV-3	1				
O-AV-3	J-4b	1				
J-4b	J-4c	2				
J-4c	J-4e	1				
J-4e	I-AV-5	1				
O-AV-5	J-4f	1				
J-4f	J-4g	15				
J-4g	I-AV-4	4				
J-1	J-4	1				
O-AV-4	Tank 2	1				
I-AV-6	J-5	1				
J-4	O-AV-6	1				
J-5	J-4c	2				
J-3	J-6	20				

Total Number of Time Increments: 3549
(Limit is: 400,000)

==

Component Data

****

COMPONENT DATA

****

COMPONENT CHARACTERISTICS AND INITIAL CONDITIONS:

POS. #1	POS. #2	-- CHARACTERISTICS -- (A)	(B)	(C)	INITIAL FLOW	HEAD #1	HEAD #2
I-AV-1	O-AV-1	0.00	0.00	-0.346E-01	[redacted]		
I-AV-2	O-AV-2	0.00	0.00	-0.123E-01			
I-AV-3	O-AV-3	0.00	0.00	-0.903E+03			
I-AV-5	O-AV-5	0.00	0.00	-0.123E-01			
I-AV-4	O-AV-4	0.00	0.00	-0.123E-01			
I-AV-6	O-AV-6	0.00	0.00	-0.365E+05			

==

Junction Data

****

JUNCTION DATA

****

JUNCTION NUMBER INITIAL INITIAL CONNECTING

(b) (3) (A)

LOCATION	OF LEGS	[redacted]	DEMAND	POSITIONS	
Tank 12	0		0.000		
Tank 2	0		0.000		
J-1	3		0.005	27	34
J-2	2		0.000	28	
J-3	3		0.000	26	38
J-4	2		0.000	35	
J-5	2		0.000	36	
J-6	1		0.000		
J-4b	2		0.000	29	
J-4c	3		0.000	30	37
J-4e	2		0.000	31	
J-4f	2		0.000	32	
J-4g	2		0.000	33	

Protection Data

Variable Input Data

VARIABLE INPUT DATA

INPUT # 1:

A VARIABLE AREA VALVE IS SPECIFIED AT POSITION #: I-AV-1
REFERENCE VALUE FOR VALVE RESISTANCE (R=1) = 0.03458

TIME - RATIO INPUT DATA:

TIME	RATIO
0.000	0.0000
324.000	0.0000
338.000	1.0000
458.000	1.0000
472.000	0.0000

Following initial value is calculated for this variable input:
... This should agree with initial value previously defined (in parentheses)
Initial valve resistance = 0.00 (0.0346)

INPUT # 2:

REFERENCE VALUE FOR VALVE RESISTANCE (R=1) = 0.01233
A BALL VALVE IS AT POSITION I-AV-2

TIME	RATIO
0.0000	0.0000
200.0000	0.0000
203.8000	0.0430
207.6000	0.1136
211.4000	0.2031
215.2000	0.3062
219.0000	0.4188
222.8000	0.5371
226.6000	0.6578
230.4000	0.7773
234.2000	0.8924
238.0000	1.0000

415.0000	1.0000
418.9000	0.8924
422.8000	0.7773
426.7000	0.6578
430.6000	0.5371
434.5000	0.4188
438.4000	0.3062
442.3000	0.2031
446.2000	0.1136
450.1000	0.0430
454.0000	0.0000

Following initial value is calculated for this variable input:
... This should agree with initial value previously defined (in parentheses)
Initial valve resistance = 0.00 (0.0123)

INPUT # 3:

REFERENCE VALUE FOR VALVE RESISTANCE (R=1) = 0.03417
A BUTTERFLY VALVE IS AT POSITION I-AV-3

TIME	RATIO
0.0000	0.0031
100.0000	0.0031
100.1000	0.0025
100.2000	0.0020
100.3000	0.0015
100.4000	0.0011
100.5000	0.0008
100.6000	0.0005
100.7000	0.0003
100.8000	0.0001
100.9000	0.0000
101.0000	0.0000

Following initial value is calculated for this variable input:
... This should agree with initial value previously defined (in parentheses)
Initial valve resistance = 0.00 (903.3859)

INPUT # 4:

REFERENCE VALUE FOR VALVE RESISTANCE (R=1) = 1.38097
A BUTTERFLY VALVE IS AT POSITION I-AV-6

TIME	RATIO
0.0000	0.0031
100.0000	0.0031
100.1000	0.0025
100.2000	0.0020
100.3000	0.0015
100.4000	0.0011
100.5000	0.0008
100.6000	0.0005
100.7000	0.0003
100.8000	0.0001
100.9000	0.0000
101.0000	0.0000

Following initial value is calculated for this variable input:
... This should agree with initial value previously defined (in parentheses)
Initial valve resistance = 0.00 (36507.4766)

===

Initial Conditions

****

**** SUMMARY OF INITIAL CONDITIONS FOR LINE SEGMENTS ****

****

END POSITION DESIGNATIONS: J - JUNCTION, C - COMPONENT, S - SDO
* - THIS DENOTES AN UNDESIGNATED END POSITION (UNACCEPTABLE) - CORRECT DATA

------ END POSITIONS ------ #1	#2	FLOW #1 to #2	------ HEAD ------ #1	#2	HEAD LOSS	ELEVATION DIFFERENCE
Tank 12 J	I-AV-1 C	(b) (3) (A) [redacted]				
O-AV-1 C	I-AV-2 C					
O-AV-2 C	J-3 J					
J-1 J	J-2 J					
J-3 J	J-1 J					
J-2 J	I-AV-3 C					
O-AV-3 C	J-4b J					
J-4b J	J-4c J					
J-4c J	J-4e J					
J-4e J	I-AV-5 C					
O-AV-5 C	J-4f J					
J-4f J	J-4g J					
J-4g J	I-AV-4 C					
J-1 J	J-4 J					
O-AV-4 C	Tank 2 J					
I-AV-6 C	J-5 J					
J-4 J	O-AV-6 C					
J-5 J	J-4c J					
J-3 J	J-6 J					

===

Tabulated Results

****

****** FLOWRATE AND PRESSURE RESULTS ******

****

TIME	Head at J-6	Head at J-3	Head at J-1
0.000	(b) (3) (A) [redacted]		
0.498			
0.997			
1.495			
1.994			
2.492			
2.990			
3.489			
3.987			
4.486			
4.984			
5.482			
5.981			
6.479			
6.978			
7.476			
7.974			

(b) (3) (A)

8.473 [redacted]
8.971
9.470
9.968
10.466
10.965
11.463
11.962
12.460
12.958
13.457
13.955
14.454
14.952
15.450
15.949
16.447
16.946
17.444
17.942
18.441
18.939
19.438
19.936
20.434
20.933
21.431
21.930
22.428
22.926
23.425
23.923
24.421
24.920
25.418
25.917
26.415
26.913
27.412
27.910
28.409
28.907
29.405
29.904
30.402
30.901
31.399
31.897
32.396
32.894
33.393
33.891
34.389
34.888
35.386
35.885
36.383
36.881
37.380
37.878
38.377
38.875
39.373

(b) (3) (A)

39.872 [redacted]
40.370
40.869
41.367
41.865
42.364
42.862
43.361
43.859
44.357
44.856
45.354
45.853
46.351
46.849
47.348
47.846
48.345
48.843
49.341
49.840
50.338
50.837
51.335
51.833
52.332
52.830
53.329
53.827
54.325
54.824
55.322
55.821
56.319
56.817
57.316
57.814
58.313
58.811
59.309
59.808
60.306
60.805
61.303
61.801
62.300
62.798
63.297
63.795
64.293
64.792
65.290
65.789
66.287
66.785
67.284
67.782
68.281
68.779
69.277
69.776
70.274
70.772

(b) (3) (A)

71.271 [redacted]
71.769
72.268
72.766
73.264
73.763
74.261
74.760
75.258
75.756
76.255
76.753
77.252
77.750
78.248
78.747
79.245
79.744
80.242
80.740
81.239
81.737
82.236
82.734
83.232
83.731
84.229
84.728
85.226
85.724
86.223
86.721
87.220
87.718
88.216
88.715
89.213
89.712
90.210
90.708
91.207
91.705
92.204
92.702
93.200
93.699
94.197
94.696
95.194
95.692
96.191
96.689
97.188
97.686
98.184
98.683
99.181
99.680
100.178
100.676
101.175
101.673
102.172

102.670 (b) (3) (A) [redacted]
103.168
103.667
104.165
104.664
105.162
105.660
106.159
106.657
107.156
107.654
108.152
108.651
109.149
109.648
110.146
110.644
111.143
111.641
112.140
112.638
113.136
113.635
114.133
114.632
115.130
115.628
116.127
116.625
117.123
117.622
118.120
118.619
119.117
119.615
120.114
120.612
121.111
121.609
122.107
122.606
123.104
123.603
124.101
124.599
125.098
125.596
126.095
126.593
127.091
127.590
128.088
128.588
129.088
129.588
130.088
130.587
131.087
131.587
132.087
132.586
133.086
133.586

(b) (3) (A)

[redacted]

134.086
134.585
135.085
135.585
136.085
136.584
137.084
137.584
138.084
138.583
139.083
139.583
140.083
140.582
141.082
141.582
142.082
142.581
143.081
143.581
144.081
144.580
145.080
145.580
146.080
146.579
147.079
147.579
148.079
148.578
149.078
149.578
150.078
150.577
151.077
151.577
152.077
152.577
153.076
153.576
154.076
154.576
155.075
155.575
156.075
156.575
157.074
157.574
158.074
158.574
159.073
159.573
160.073
160.573
161.072
161.572
162.072
162.572
163.071
163.571
164.071
164.571
165.070

(b) (3) (A)

[redacted]

165.570
166.070
166.570
167.069
167.569
168.069
168.569
169.068
169.568
170.068
170.568
171.067
171.567
172.067
172.567
173.067
173.566
174.066
174.566
175.066
175.565
176.065
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177.065
177.564
178.064
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192.057
192.557
193.057
193.557
194.056
194.556
195.056
195.556
196.055
196.555

(b) (3) (A)

[redacted]

(b) (3) (A)

[redacted]

228.539
229.039
229.539
230.039
230.538
231.038
231.538
232.038
232.537
233.037
233.537
234.037
234.536
235.036
235.536
236.036
236.536
237.035
237.535
238.035
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239.034
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244.532
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245.531
246.031
246.531
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247.530
248.030
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251.528
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252.528
253.027
253.527
254.027
254.527
255.026
255.526
256.026
256.526
257.025
257.525
258.025
258.525
259.025
259.524

(b) (3) (A)

[redacted]

291.509 (b) (3) (A) [redacted]
292.008
292.508
293.008
293.508
294.007
294.507
295.007
295.507
296.006
296.506
297.006
297.506
298.005
298.505
299.005
299.505
300.004
300.504
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315.997
316.496
316.996
317.496
317.996
318.495
318.995
319.495
319.995
320.494
320.994
321.494
321.994
322.493

(b) (3) (A)

[redacted]

322.993
323.493
323.993
324.493
324.992
325.492
325.992
326.492
326.991
327.491
327.991
328.491
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332.988
333.488
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336.986
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338.486
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347.481
347.981
348.481
348.981
349.480
349.980
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350.980
351.479
351.979
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352.979
353.478
353.978

(b) (3) (A)

354.478
354.978
355.477
355.977
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381.465
381.964
382.464
382.964
383.464
383.963
384.463
384.963
385.463

[redacted]

(b) (3) (A)

385.962
386.462
386.962
387.462
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388.461
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414.948
415.448
415.948
416.448
416.947

[redacted]

417.447 (b) (3) (A) [redacted]
417.947
418.447
418.946
419.446
419.946
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420.945
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445.433
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447.432
447.932
448.432

(b) (3) (A)

448.932
449.431
449.931
450.431
450.931
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453.430
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473.920
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477.418
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478.417
478.917
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480.416 (b) (3) (A) [redacted]
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Max/Min Summary

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SUMMARY OF MAXIMUM AND MINIMUM HEADS:

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Position no.	MaxHead ft	MinHead ft	Time Reverse Grad.	MaxPressure psi	MinPressure psi	MaxTime (sec)	MinTime (sec)
Tank 12	[redacted]		0.000	62.157	62.157	0.00280	0.00280
Tank 2			0.000	2.661	2.661	0.00280	0.00280
I-AV-1			0.022	232.151	-5.724	326.19394	385.45432
I-AV-2			441.806	227.335	-14.391	326.19113	5.31718
I-AV-3			0.414	394.635	-14.391	331.02866	340.70370
O-AV-4			0.011	6.645	-3.551	0.21840	0.07280
O-AV-5			0.980	13.207	-7.255	0.30240	0.44520
O-AV-6			1.039	464.738	-14.391	331.02304	331.16342
J-1			0.272	378.752	-14.391	331.02304	340.72336
J-2			0.305	387.197	-14.391	331.02585	340.70651
J-3			281.926	214.030	-14.391	335.84653	58.53375
J-4			0.532	442.151	-14.391	331.02585	340.69809
J-5			0.258	18.566	-6.096	0.28000	0.12320
J-6			284.007	356.952	-14.391	335.90268	48.84579
J-4b			1.064	15.134	-9.175	0.28560	0.14000
J-4c			1.002	13.739	-8.376	0.27440	0.12880
J-4e			1.014	12.826	-7.437	0.27720	0.45080
J-4f			0.980	13.578	-7.375	0.29960	0.44520
J-4g			0.454	9.642	-7.223	0.98840	0.07840
O-AV-1			0.022	213.474	-14.391	326.19394	5.31998
O-AV-2			441.806	227.156	-14.391	326.19113	48.95499
O-AV-3			0.414	15.325	-9.940	0.28280	0.13440
I-AV-5			0.980	13.208	-7.254	0.30240	0.44520
I-AV-4			0.011	6.645	-3.549	0.21840	0.07280
I-AV-6			1.039	15.229	-10.171	0.28280	0.12040

(b) (3) (A)

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Max/Min Line Pressures

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SUMMARY OF MAX/MIN LINE PRESSURES:

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START NODE	END NODE	MAX PRESS. psi	MIN PRESS. psi	
Tank 12	I-AV-1	232.15	-5.72	
O-AV-1	I-AV-2	227.34	-14.39	Cavitation
O-AV-2	J-3	227.16	-14.39	Cavitation
J-1	J-2	387.20	-14.39	Cavitation
J-3	J-1	378.75	-14.39	Cavitation
J-2	I-AV-3	394.63	-14.39	Cavitation
O-AV-3	J-4b	15.33	-9.94	
J-4b	J-4c	15.13	-9.17	
J-4c	J-4e	13.74	-8.38	
J-4e	I-AV-5	13.21	-7.44	
O-AV-5	J-4f	13.58	-7.38	
J-4f	J-4g	13.58	-7.38	
J-4g	I-AV-4	9.64	-7.22	
J-1	J-4	442.15	-14.39	Cavitation
O-AV-4	Tank 2	6.64	-3.55	
I-AV-6	J-5	18.57	-10.17	
J-4	O-AV-6	464.74	-14.39	Cavitation
J-5	J-4c	18.57	-8.38	
J-3	J-6	356.95	-14.39	Cavitation

Highest Surge Pressure in the Network: 464.74 psi at Node: O-AV-6

Lowest Surge Pressure in the Network: -14.39 psi at Node: I-AV-2

***** END OF THIS SIMULATION *****

END RUN AT TIME 22:32:51

APPENDIX ‘F’ - Valve Testing Results

Valve Testing Results

7/12/2021 & 7/13/2021

Nameplate Data:

(b) (3) (A)

[redacted]

APPENDIX 'G' - AFHE Data

i. Event Log

EventId	GroupName	TagName	LoggingNode	EventType	EventState	EventPriority	EventValue	EventLimit	LimitString	ValueString	OriginationTime	EventStamp	OperatorName	OperatorNode	Comment
527781	(b) (3) (A) [redacted]		PH-VS-APP02	OPR		999	0	0			5/7/2021 3:24:58	5/6/2021 17:24:58	(b) (6) [redacted]	PH-WS-HMI01	Valve Position set to Open
527782	[redacted]		PH-VS-APP02	OPR		999	0	0			5/7/2021 3:33:28	5/6/2021 17:33:28	[redacted]	PH-WS-HMI01	Valve Position set to Close
527783	[redacted]		PH-VS-APP01	OPR		999	0	0			5/7/2021 3:34:19	5/6/2021 17:34:19	[redacted]	PH-WS-HMI01	Audible Alarm Reset
527784	[redacted]		PH-VS-APP01	OPR		999	0	0			5/7/2021 3:34:21	5/6/2021 17:34:21	[redacted]	PH-WS-HMI01	Audible Alarm Reset
527785	[redacted]		PH-VS-APP02	OPR		999	0	0			5/7/2021 3:34:40	5/6/2021 17:34:40	[redacted]	PH-WS-HMI01	Valve Position set to Close
527786	[redacted]		PH-VS-APP01	OPR		999	0	0			5/7/2021 3:35:41	5/6/2021 17:35:41	[redacted]	PH-WS-HMI01	Alarm Acknowledged All Tank-RH-20 From Alarm Detai
527787	[redacted]		PH-VS-APP01	OPR		999	0	0			5/7/2021 3:35:47	5/6/2021 17:35:48	[redacted]	PH-WS-HMI01	Audible Alarm Reset
527788	[redacted]		PH-VS-APP01	OPR		999	0	0			5/7/2021 3:35:50	5/6/2021 17:35:50	[redacted]	PH-WS-HMI01	Audible Alarm Reset
527789	[redacted]		PH-VS-APP02	OPR		999	0	0			5/7/2021 3:36:12	5/6/2021 17:36:12	[redacted]	PH-WS-HMI01	Valve Percent Open Set To: 50%
527790	[redacted]		PH-VS-APP02	OPR		999	0	0			5/7/2021 3:36:55	5/6/2021 17:36:55	[redacted]	PH-WS-HMI01	Valve Percent Open Set To: 50%
527791	[redacted]		PH-VS-APP02	OPR		999	0	0			5/7/2021 3:37:45	5/6/2021 17:37:45	[redacted]	PH-WS-HMI01	Valve Percent Open Set To: 50%
527792	[redacted]		PH-VS-APP02	OPR		999	0	0			5/7/2021 3:37:54	5/6/2021 17:37:54	[redacted]	PH-WS-HMI01	Valve Percent Open Set To: 50%
527793	[redacted]		PH-VS-APP01	OPR		999	0	0			5/7/2021 3:38:53	5/6/2021 17:38:53	[redacted]	PH-WS-HMI01	Evolution Product Type: JP5
527794	[redacted]		PH-VS-APP01	OPR		999	0	0			5/7/2021 3:38:57	5/6/2021 17:38:57	[redacted]	PH-WS-HMI01	Evolution Type: Transfer
527795	[redacted]		PH-VS-APP01	OPR		999	0	0			5/7/2021 3:38:58	5/6/2021 17:38:58	[redacted]	PH-WS-HMI01	Product Filter Selected
527796	[redacted]		PH-VS-APP01	OPR		999	0	0			5/7/2021 3:39:06	5/6/2021 17:39:06	[redacted]	PH-WS-HMI01	Audible Alarm Reset
527797	[redacted]		PH-VS-APP01	OPR		999	0	0			5/7/2021 3:39:18	5/6/2021 17:39:18	[redacted]	PH-WS-HMI01	Evolution Client: JP-5 TRANSFER
527798	[redacted]		PH-VS-APP01	OPR		999	0	0			5/7/2021 3:39:31	5/6/2021 17:39:31	[redacted]	PH-WS-HMI01	Evolution Document Number: NWO
527799	[redacted]		PH-VS-APP01	OPR		999	0	0			5/7/2021 3:39:38	5/6/2021 17:39:38	[redacted]	PH-WS-HMI01	Evolution 4 Tank_RH_12 Selected as Source
527800	[redacted]		PH-VS-APP01	OPR		999	0	0			5/7/2021 3:39:43	5/6/2021 17:39:43	[redacted]	PH-WS-HMI01	Evolution 4 Tank_STK [redacted] Selected as Intermediate
527801	[redacted]		PH-VS-APP01	OPR		999	0	0			5/7/2021 3:39:50	5/6/2021 17:39:50	[redacted]	PH-WS-HMI01	Evolution 4 Tank_RH_09 Selected as Destination
527802	[redacted]		PH-VS-APP02	OPR		999	0	0			5/7/2021 3:40:34	5/6/2021 17:40:34	[redacted]	PH-WS-HMI01	Valve Position set to Close
527803	[redacted]		PH-VS-APP02	OPR		999	0	0			5/7/2021 3:41:54	5/6/2021 17:41:54	[redacted]	PH-WS-HMI02	Alarm Acknowledged All MOV-01128 From Alarm Detai
527804	[redacted]		PH-VS-APP01	OPR		999	0	0			5/7/2021 3:42:02	5/6/2021 17:42:02	[redacted]	PH-WS-HMI01	Audible Alarm Reset
527805	[redacted]		PH-VS-APP01	OPR		999	0	0			5/7/2021 4:00:21	5/6/2021 18:00:21	[redacted]	PH-WS-HMI01	Complete Evolution
527806	[redacted]		PH-VS-APP01	OPR		999	0	0			5/7/2021 4:00:52	5/6/2021 18:00:52	[redacted]	PH-WS-HMI01	Start Evolution
527807	[redacted]		PH-VS-APP01	OPR		999	0	0			5/7/2021 4:00:59	5/6/2021 18:00:59	[redacted]	PH-WS-HMI01	Log Data Was Selected
527808	[redacted]		PH-VS-APP02	OPR		999	0	0			5/7/2021 4:02:31	5/6/2021 18:02:31	[redacted]	PH-WS-HMI01	Valve Position set to Open
527809	[redacted]		PH-VS-APP02	OPR		999	0	0			5/7/2021 4:03:13	5/6/2021 18:03:13	[redacted]	PH-WS-HMI02	Alarm Acknowledged All MOV-01128 From Alarm Detai
527810	[redacted]		PH-VS-APP02	OPR		999	0	0			5/7/2021 4:03:30	5/6/2021 18:03:30	[redacted]	PH-WS-HMI02	Valve Position set to Open
527811	[redacted]		PH-VS-APP02	OPR		999	0	0			5/7/2021 4:04:01	5/6/2021 18:04:01	[redacted]	PH-WS-HMI02	Valve Position set to Stop
527812	[redacted]		PH-VS-APP02	OPR		999	0	0			5/7/2021 4:04:40	5/6/2021 18:04:40	[redacted]	PH-WS-HMI02	Valve Percent Open Set To: 50%
527813	[redacted]		PH-VS-APP02	OPR		999	0	0			5/7/2021 4:05:52	5/6/2021 18:05:52	[redacted]	PH-WS-HMI02	Valve Percent Open Set To: 50%
527814	[redacted]		PH-VS-APP02	OPR		999	0	0			5/7/2021 4:06:24	5/6/2021 18:06:24	[redacted]	PH-WS-HMI01	Valve Position set to Close
527815	[redacted]		PH-VS-APP02	OPR		999	0	0			5/7/2021 4:06:38	5/6/2021 18:06:38	[redacted]	PH-WS-HMI02	Valve Position set to Open
527816	[redacted]		PH-VS-APP02	OPR		999	0	0			5/7/2021 4:06:58	5/6/2021 18:06:58	[redacted]	PH-WS-HMI02	Valve Position set to Close
527817	[redacted]		PH-VS-APP02	OPR		999	0	0			5/7/2021 4:07:20	5/6/2021 18:07:20	[redacted]	PH-WS-HMI02	Valve Percent Open Set To: 50%
527818	[redacted]		PH-VS-APP02	OPR		999	0	0			5/7/2021 4:07:35	5/6/2021 18:07:35	[redacted]	PH-WS-HMI02	Valve Position set to Stop
527819	[redacted]		PH-VS-APP02	OPR		999	0	0			5/7/2021 4:07:46	5/6/2021 18:07:46	[redacted]	PH-WS-HMI02	Alarm Acknowledged All (b) (3) (A) [redacted] From Alarm Detail
527820	[redacted]		PH-VS-APP02	OPR		999	0	0			5/7/2021 4:07:47	5/6/2021 18:07:47	[redacted]	PH-WS-HMI02	Alarm Acknowledged All (b) (3) (A) [redacted] From Alarm Detail
527821	[redacted]		PH-VS-APP02	OPR		999	0	0			5/7/2021 4:07:54	5/6/2021 18:07:54	[redacted]	PH-WS-HMI02	Valve Position set to Open
527822	[redacted]		PH-VS-APP02	OPR		999	0	0			5/7/2021 4:08:05	5/6/2021 18:08:05	[redacted]	PH-WS-HMI02	Valve Position set to Close
527823	[redacted]		PH-VS-APP02	OPR		999	0	0			5/7/2021 4:08:25	5/6/2021 18:08:25	[redacted]	PH-WS-HMI02	Alarm Acknowledged All (b) (3) (A) [redacted] From Alarm Detail
527824	[redacted]		PH-VS-APP02	OPR		999	0	0			5/7/2021 4:08:26	5/6/2021 18:08:26	[redacted]	PH-WS-HMI02	Alarm Acknowledged All (b) (3) (A) [redacted] From Alarm Detail
527825	[redacted]		PH-VS-APP02	OPR		999	0	0			5/7/2021 4:08:37	5/6/2021 18:08:37	[redacted]	PH-WS-HMI02	Valve Position set to Open
527826	[redacted]		PH-VS-APP02	OPR		999	0	0			5/7/2021 4:10:02	5/6/2021 18:10:02	[redacted]	PH-WS-HMI02	Valve Position set to Open
527827	[redacted]		PH-VS-APP02	OPR		999	0	0			5/7/2021 4:12:11	5/6/2021 18:12:11	[redacted]	PH-WS-HMI02	Valve Position set to Close
527828	[redacted]		PH-VS-APP02	OPR		999	0	0			5/7/2021 4:12:17	5/6/2021 18:12:17	[redacted]	PH-WS-HMI02	Valve Position set to Close
527829	[redacted]		PH-VS-APP01	OPR		999	0	0			5/7/2021 4:13:09	5/6/2021 18:13:09	[redacted]	PH-WS-HMI01	Audible Alarm Reset
527830	[redacted]		PH-VS-APP01	OPR		999	0	0			5/7/2021 4:13:28	5/6/2021 18:13:28	[redacted]	PH-WS-HMI01	Evolution Product Type: None
527831	[redacted]		PH-VS-APP01	OPR		999	0	0			5/7/2021 4:13:31	5/6/2021 18:13:31	[redacted]	PH-WS-HMI01	Evolution Type: Transfer
527832	[redacted]		PH-VS-APP01	OPR		999	0	0			5/7/2021 4:13:32	5/6/2021 18:13:32	[redacted]	PH-WS-HMI01	Product Filter Selected
527833	[redacted]		PH-VS-APP01	OPR		999	0	0			5/7/2021 4:13:49	5/6/2021 18:13:49	[redacted]	PH-WS-HMI01	Evolution Client: JP-5 TRANSFER
527834	[redacted]		PH-VS-APP01	OPR		999	0	0			5/7/2021 4:13:54	5/6/2021 18:13:54	[redacted]	PH-WS-HMI01	Evolution Document Number: NWO
527835	[redacted]		PH-VS-APP01	OPR		999	0	0			5/7/2021 4:13:55	5/6/2021 18:13:55	[redacted]	PH-WS-HMI01	Evolution P-Code: N/A
527836	[redacted]		PH-VS-APP01	OPR		999	0	0			5/7/2021 4:14:04	5/6/2021 18:14:04	[redacted]	PH-WS-HMI01	Evolution 5 Tank_RH_20 Selected as Source
527837	[redacted]		PH-VS-APP01	OPR		999	0	0			5/7/2021 4:14:15	5/6/2021 18:14:15	[redacted]	PH-WS-HMI01	Evolution 5 Tank_STK [redacted] Selected as Destination
527838	[redacted]		PH-VS-APP01	OPR		999	0	0			5/7/2021 4:16:35	5/6/2021 18:16:35	[redacted]	PH-WS-HMI01	Set Pump To Off
527839	[redacted]		PH-VS-APP01	OPR		999	0	0			5/7/2021 4:17:54	5/6/2021 18:17:54	[redacted]	PH-WS-HMI01	Complete Evolution
527840	[redacted]		PH-VS-APP01	OPR		999	0	0			5/7/2021 4:18:41	5/6/2021 18:18:41	[redacted]	PH-WS-HMI01	Start Evolution
527841	[redacted]		PH-VS-APP01	OPR		999	0	0			5/7/2021 4:18:45	5/6/2021 18:18:45	[redacted]	PH-WS-HMI01	Log Data Was Selected
527842	[redacted]		PH-VS-APP02	OPR		999	0	0			5/7/2021 4:19:47	5/6/2021 18:19:47	[redacted]	PH-WS-HMI02	Valve Position set to Close
527843	[redacted]		PH-VS-APP02	OPR		999	0	0			5/7/2021 4:19:59	5/6/2021 18:19:59	[redacted]	PH-WS-HMI02	Valve Position set to Close
527844	[redacted]		PH-VS-APP02	OPR		999	0	0			5/7/2021 4:20:07	5/6/2021 18:20:07	[redacted]	PH-WS-HMI02	Valve Position set to Close
527845	[redacted]		PH-VS-APP02	OPR		999	0	0			5/7/2021 4:20:13	5/6/2021 18:20:13	[redacted]	PH-WS-HMI02	Valve Position set to Close
527846	[redacted]		PH-VS-APP02	OPR		999	0	0			5/7/2021 4:23:13	5/6/2021 18:23:13	[redacted]	PH-WS-HMI01	Valve Position set to Open
527847	[redacted]		PH-VS-APP02	OPR		999	0	0			5/7/2021 4:23:58	5/6/2021 18:23:58	[redacted]	PH-WS-HMI01	Valve Position set to Close
527848	[redacted]		PH-VS-APP02	OPR		999	0	0			5/7/2021 4:24:07	5/6/2021 18:24:07	[redacted]	PH-WS-HMI01	Valve Position set to Close

ii. Alarm Log

AlarmId	GroupName	TagName	TagType	LoggingNode	Priority	AlarmType	LimitString	ValueString	OriginationTime	EventStamp	ACKTime	NormalTime	UnAckDuration	OperatorName	OperatorNode	AlarmTransition	AlarmState	Comment	AlarmDetailId
16366567	PD06_Valves	(b) (3) (A) [redacted]	S	PH-VS-APP02	500	DSC	TRUE	TRUE	5/7/2021 3:25:11	5/6/2021 17:25:11	25:16.9	25:16.8	000 00:00:06.006	NULL	NULL	NULL	NULL	NULL	6742936
16366568	PD06_Valves		S	PH-VS-APP02	500	DSC	TRUE	TRUE	5/7/2021 3:26:04	5/6/2021 17:26:04	26:11.8	26:11.8	000 00:00:07.992	NULL	NULL	NULL	NULL	NULL	6742939
16366569	PD21_Valves		S	PH-VS-APP02	500	DSC	TRUE	TRUE	5/7/2021 3:33:39	5/6/2021 17:33:39	33:47.0	33:47.0	000 00:00:08.008	NULL	NULL	NULL	NULL	NULL	6742943
16366570	PD21_Tanks		S	PH-VS-APP01	1	DSC	TRUE	TRUE	5/7/2021 3:34:13	5/6/2021 17:34:13	35:43.0	35:26.3	NULL	DefaultUser	PH-WS-HMI01	NULL	NULL	NULL	6742946
16366571	PD21_Valves		S	PH-VS-APP02	500	DSC	TRUE	TRUE	5/7/2021 3:34:36	5/6/2021 17:34:36	34:42.0	34:42.0	000 00:00:06.021	NULL	NULL	NULL	NULL	NULL	6742947
16366572	PD21_Valves		S	PH-VS-APP02	500	DSC	TRUE	TRUE	5/7/2021 3:35:08	5/6/2021 17:35:08	35:16.9	35:16.9	000 00:00:08.969	NULL	NULL	NULL	NULL	NULL	6742950
16366573	PD21_Valves		S	PH-VS-APP02	500	DSC	TRUE	TRUE	5/7/2021 3:35:57	5/6/2021 17:35:57	36:01.9	36:01.9	000 00:00:04.958	NULL	NULL	NULL	NULL	NULL	6742957
16366574	PD02_Valves		S	PH-VS-APP02	1	DSC	Alarm	Alarm	5/7/2021 3:39:01	5/6/2021 17:39:01	41:53.3	03:29.3	000 00:02:52.697	DefaultUser	PH-WS-HMI02	NULL	NULL	NULL	6742960
16366575	PD06_Valves		S	PH-VS-APP02	500	DSC	TRUE	TRUE	5/7/2021 3:40:45	5/6/2021 17:40:45	40:51.7	40:51.7	000 00:00:06.997	NULL	NULL	NULL	NULL	NULL	6742961
16366576	PD06_Valves		S	PH-VS-APP02	500	DSC	TRUE	TRUE	5/7/2021 3:41:38	5/6/2021 17:41:38	41:46.7	41:46.7	000 00:00:08.999	NULL	NULL	NULL	NULL	NULL	6742964
16366577	PD06_Valves		S	PH-VS-APP02	500	DSC	TRUE	TRUE	5/7/2021 4:02:42	5/6/2021 18:02:42	02:51.4	02:51.4	000 00:00:08.997	NULL	NULL	NULL	NULL	NULL	6742971
16366578	PD06_Valves		S	PH-VS-APP02	500	DSC	TRUE	TRUE	5/7/2021 4:03:34	5/6/2021 18:03:34	03:41.4	03:41.4	000 00:00:06.999	NULL	NULL	NULL	NULL	NULL	6742975
16366579	PD02_Valves		S	PH-VS-APP02	500	DSC	TRUE	TRUE	5/7/2021 4:03:37	5/6/2021 18:03:37	03:46.3	03:46.3	000 00:00:09.004	NULL	NULL	NULL	NULL	NULL	6742976
16366580	PD02_Valves		S	PH-VS-APP02	500	DSC	TRUE	TRUE	5/7/2021 4:04:11	5/6/2021 18:04:11	04:16.3	04:16.3	000 00:00:05.006	NULL	NULL	NULL	NULL	NULL	6742981
16366581	PD02_Valves		S	PH-VS-APP02	500	DSC	TRUE	TRUE	5/7/2021 4:04:14	5/6/2021 18:04:14	04:21.3	04:21.3	000 00:00:07.000	NULL	NULL	NULL	NULL	NULL	6742982
16366582	PD02_Valves		S	PH-VS-APP02	500	DSC	TRUE	TRUE	5/7/2021 4:04:48	5/6/2021 18:04:48	04:56.3	04:56.3	000 00:00:07.996	NULL	NULL	NULL	NULL	NULL	6742987
16366583	PD02_Valves		S	PH-VS-APP02	250	DSC	Alarm	Alarm	5/7/2021 4:04:52	5/6/2021 18:04:52	07:46.0	08:11.3	000 00:02:53.709	DefaultUser	PH-WS-HMI02	NULL	NULL	NULL	6742988
16366584	PD02_Valves		S	PH-VS-APP02	250	DSC	Alarm	Alarm	5/7/2021 4:04:57	5/6/2021 18:04:57	07:46.0	08:11.3	000 00:02:48.717	DefaultUser	PH-WS-HMI02	NULL	NULL	NULL	6742991
16366585	PD02_Valves		S	PH-VS-APP02	500	DSC	TRUE	TRUE	5/7/2021 4:04:59	5/6/2021 18:04:59	05:06.3	05:06.3	000 00:00:06.999	NULL	NULL	NULL	NULL	NULL	6742992
16366586	PD22_Valves		S	PH-VS-APP02	500	DSC	TRUE	TRUE	5/7/2021 4:06:36	5/6/2021 18:06:36	06:41.6	06:41.6	000 00:00:06.005	NULL	NULL	NULL	NULL	NULL	6742995
16366587	PD02_Valves		S	PH-VS-APP02	500	DSC	TRUE	TRUE	5/7/2021 4:07:06	5/6/2021 18:07:06	07:11.3	07:11.3	000 00:00:04.996	NULL	NULL	NULL	NULL	NULL	6743000
16366588	PD22_Valves		S	PH-VS-APP02	500	DSC	TRUE	TRUE	5/7/2021 4:07:31	5/6/2021 18:07:31	07:36.6	07:36.6	000 00:00:05.999	NULL	NULL	NULL	NULL	NULL	6743003
16366589	PD02_Valves		S	PH-VS-APP02	500	DSC	TRUE	TRUE	5/7/2021 4:07:31	5/6/2021 18:07:31	07:36.3	07:36.3	000 00:00:05.003	NULL	NULL	NULL	NULL	NULL	6743004
16366590	PD02_Valves		S	PH-VS-APP02	500	DSC	TRUE	TRUE	5/7/2021 4:08:13	5/6/2021 18:08:13	08:21.3	08:21.3	000 00:00:08.006	NULL	NULL	NULL	NULL	NULL	6743013
16366591	PD02_Valves		S	PH-VS-APP02	500	DSC	TRUE	TRUE	5/7/2021 4:08:19	5/6/2021 18:08:19	08:25.0	08:26.3	000 00:00:05.712	DefaultUser	PH-WS-HMI02	NULL	NULL	NULL	6743014
16366592	PD02_Valves		S	PH-VS-APP02	500	DSC	TRUE	TRUE	5/7/2021 4:08:44	5/6/2021 18:08:44	08:51.3	08:51.3	000 00:00:06.996	NULL	NULL	NULL	NULL	NULL	6743019
16366593	PD02_Valves		S	PH-VS-APP02	500	DSC	TRUE	TRUE	5/7/2021 4:09:26	5/6/2021 18:09:26	09:31.3	09:31.3	000 00:00:04.993	NULL	NULL	NULL	NULL	NULL	6743022
16366594	PD02_Valves		S	PH-VS-APP02	500	DSC	TRUE	TRUE	5/7/2021 4:10:12	5/6/2021 18:10:12	10:21.3	10:21.3	000 00:00:09.004	NULL	NULL	NULL	NULL	NULL	6743025
16366595	PD02_Valves		S	PH-VS-APP02	500	DSC	TRUE	TRUE	5/7/2021 4:11:04	5/6/2021 18:11:04	11:11.3	11:11.3	000 00:00:06.998	NULL	NULL	NULL	NULL	NULL	6743028
16366596	PD02_Valves		S	PH-VS-APP02	500	DSC	TRUE	TRUE	5/7/2021 4:12:18	5/6/2021 18:12:18	12:26.2	12:26.2	000 00:00:07.999	NULL	NULL	NULL	NULL	NULL	6743031
16366597	PD02_Valves		S	PH-VS-APP02	500	DSC	TRUE	TRUE	5/7/2021 4:12:24	5/6/2021 18:12:24	12:31.2	12:31.2	000 00:00:07.003	NULL	NULL	NULL	NULL	NULL	6743032
16366598	Evolution		S	PH-VS-APP01	1	DSC	TRUE	TRUE	5/7/2021 4:12:58	5/6/2021 18:12:58	37:26.5	17:57.8	NULL	DefaultUser	NULL	NULL	NULL	NULL	6743039
16366599	PD02_Valves		S	PH-VS-APP02	500	DSC	TRUE	TRUE	5/7/2021 4:13:00	5/6/2021 18:13:00	13:06.2	13:06.2	000 00:00:05.995	NULL	NULL	NULL	NULL	NULL	6743040
16366600	PD02_Valves		S	PH-VS-APP02	500	DSC	TRUE	TRUE	5/7/2021 4:13:19	5/6/2021 18:13:19	13:26.2	13:26.2	000 00:00:06.998	NULL	NULL	NULL	NULL	NULL	6743043
16366601	PD22_Pumps		S	PH-VS-APP01	500	DSC	TRUE	TRUE	5/7/2021 4:16:27	5/6/2021 18:16:27	NULL	16:27.7	NULL	NULL	NULL	NULL	NULL	(b) (3) (A) [redacted] Status: Off, LOR: Remote	6743048
16366602	PD18_Pumps		S	PH-VS-APP01	500	DSC	TRUE	TRUE	5/7/2021 4:16:40	5/6/2021 18:16:40	NULL	16:40.6	NULL	NULL	NULL	NULL	NULL	(b) (3) (A) [redacted]tatus: Off-Cooling 19 sec, LOR: Remote	6743050
16366603	PD22_Valves		S	PH-VS-APP02	500	DSC	TRUE	TRUE	5/7/2021 4:19:55	5/6/2021 18:19:55	20:01.5	20:01.5	000 00:00:05.979	NULL	NULL	NULL	NULL	NULL	6743054
16366604	PD22_Valves		S	PH-VS-APP02	500	DSC	TRUE	TRUE	5/7/2021 4:20:02	5/6/2021 18:20:02	20:11.5	20:11.5	000 00:00:09.004	NULL	NULL	NULL	NULL	NULL	6743057
16366605	PD22_Valves		S	PH-VS-APP02	500	DSC	TRUE	TRUE	5/7/2021 4:20:10	5/6/2021 18:20:10	20:16.5	20:16.5	000 00:00:05.995	NULL	NULL	NULL	NULL	NULL	6743058
16366606	PD22_Valves		S	PH-VS-APP02	500	DSC	TRUE	TRUE	5/7/2021 4:20:29	5/6/2021 18:20:29	20:36.5	20:36.5	000 00:00:06.983	NULL	NULL	NULL	NULL	NULL	6743063
16366607	PD22_Valves		S	PH-VS-APP02	500	DSC	TRUE	TRUE	5/7/2021 4:23:25	5/6/2021 18:23:25	23:31.5	23:31.5	000 00:00:06.021	NULL	NULL	NULL	NULL	NULL	6743066
16366608	PD08_Valves		S	PH-VS-APP02	500	DSC	TRUE	TRUE	5/7/2021 4:24:09	5/6/2021 18:24:09	24:16.2	24:16.2	000 00:00:06.977	NULL	NULL	NULL	NULL	NULL	6743069
16366609	PD09_Valves		S	PH-VS-APP02	500	DSC	TRUE	TRUE	5/7/2021 4:24:16	5/6/2021 18:24:16	24:21.3	24:21.3	000 00:00:05.034	NULL	NULL	NULL	NULL	NULL	6743072
16366610	PD22_Valves		S	PH-VS-APP02	500	DSC	TRUE	TRUE	5/7/2021 4:24:19	5/6/2021 18:24:19	24:26.4	24:26.4	000 00:00:07.008	NULL	NULL	NULL	NULL	NULL	6743073
16366613	PD11_Valves		S	PH-VS-APP02	250	DSC	Alarm	Alarm	5/7/2021 4:24:58	5/6/2021 18:24:58	NULL	25:48.3	NULL	NULL	NULL	NULL	NULL	(b) (3) (A) [redacted] Network Channel A Failed	6743084
16366611	PD08_Valves		S	PH-VS-APP02	500	DSC	TRUE	TRUE	5/7/2021 4:25:07	5/6/2021 18:25:07	25:16.2	25:16.2	000 00:00:09.002	NULL	NULL	NULL	NULL	NULL	6743078
16366612	PD09_Valves		S	PH-VS-APP02	500	DSC	TRUE	TRUE	5/7/2021 4:25:09	5/6/2021 18:25:09	25:16.3	25:16.3	000 00:00:07.009	NULL	NULL	NULL	NULL	NULL	6743079

iii. Data Export

Time	Tag Name	Server	Value	Quality
5/6/2021 17:15:00	(b) (3) (A) [redacted]	PH-VS-SQL	4	Good
5/6/2021 17:15:00		PH-VS-SQL	2	Good
5/6/2021 17:15:00		PH-VS-SQL	107	Good
5/6/2021 17:15:00		PH-VS-SQL	213092	Good
5/6/2021 17:15:00		PH-VS-SQL	272297	Good
5/6/2021 17:15:00		PH-VS-SQL	1233	Good
5/6/2021 17:15:03		PH-VS-SQL	213092	Good
5/6/2021 17:15:03		PH-VS-SQL	1231	Good
5/6/2021 17:15:08		PH-VS-SQL	137	Good
5/6/2021 17:15:14		PH-VS-SQL	1233	Good
5/6/2021 17:15:19		PH-VS-SQL	106	Good
5/6/2021 17:15:20		PH-VS-SQL	110	Good
5/6/2021 17:15:27		PH-VS-SQL	136	Good
5/6/2021 17:15:33		PH-VS-SQL	213092	Good
5/6/2021 17:15:33		PH-VS-SQL	1227	Good
5/6/2021 17:15:38		PH-VS-SQL	107	Good
5/6/2021 17:15:39		PH-VS-SQL	109	Good
5/6/2021 17:15:40		PH-VS-SQL	112	Good
5/6/2021 17:15:43		PH-VS-SQL	1239	Good
5/6/2021 17:15:44		PH-VS-SQL	272297	Good
5/6/2021 17:15:48		PH-VS-SQL	135	Good
5/6/2021 17:15:53		PH-VS-SQL	213092	Good
5/6/2021 17:15:53		PH-VS-SQL	1232	Good
5/6/2021 17:15:57		PH-VS-SQL	108	Good
5/6/2021 17:15:58		PH-VS-SQL	108	Good
5/6/2021 17:15:59		PH-VS-SQL	110	Good
5/6/2021 17:16:03		PH-VS-SQL	1235	Good
5/6/2021 17:16:07		PH-VS-SQL	135	Good
5/6/2021 17:16:14		PH-VS-SQL	1238	Good
5/6/2021 17:16:17		PH-VS-SQL	109	Good
5/6/2021 17:16:18		PH-VS-SQL	109	Good
5/6/2021 17:16:19		PH-VS-SQL	111	Good
5/6/2021 17:16:23		PH-VS-SQL	213092	Good
5/6/2021 17:16:23		PH-VS-SQL	1231	Good
5/6/2021 17:16:27		PH-VS-SQL	134	Good
5/6/2021 17:16:33		PH-VS-SQL	1234	Good
5/6/2021 17:16:36		PH-VS-SQL	109	Good
5/6/2021 17:16:38		PH-VS-SQL	110	Good
5/6/2021 17:16:39		PH-VS-SQL	112	Good
5/6/2021 17:16:43		PH-VS-SQL	1233	Good
5/6/2021 17:16:46		PH-VS-SQL	133	Good
5/6/2021 17:16:53		PH-VS-SQL	1236	Good
5/6/2021 17:16:56		PH-VS-SQL	110	Good
5/6/2021 17:16:57		PH-VS-SQL	110	Good
5/6/2021 17:16:58		PH-VS-SQL	111	Good
5/6/2021 17:17:03		PH-VS-SQL	1239	Good

(b) (3) (A)

5/6/2021 17:17:06	[redacted]	PH-VS-SQL	133	Good
5/6/2021 17:17:14		PH-VS-SQL	1235	Good
5/6/2021 17:17:16		PH-VS-SQL	110	Good
5/6/2021 17:17:17		PH-VS-SQL	111	Good
5/6/2021 17:17:18		PH-VS-SQL	113	Good
5/6/2021 17:17:23		PH-VS-SQL	1236	Good
5/6/2021 17:17:26		PH-VS-SQL	132	Good
5/6/2021 17:17:33		PH-VS-SQL	1230	Good
5/6/2021 17:17:37		PH-VS-SQL	111	Good
5/6/2021 17:17:38		PH-VS-SQL	113	Good
5/6/2021 17:17:44		PH-VS-SQL	1237	Good
5/6/2021 17:17:45		PH-VS-SQL	132	Good
5/6/2021 17:17:53		PH-VS-SQL	1230	Good
5/6/2021 17:17:55		PH-VS-SQL	111	Good
5/6/2021 17:17:56		PH-VS-SQL	112	Good
5/6/2021 17:17:57		PH-VS-SQL	112	Good
5/6/2021 17:18:03		PH-VS-SQL	1236	Good
5/6/2021 17:18:05		PH-VS-SQL	131	Good
5/6/2021 17:18:13		PH-VS-SQL	213092	Good
5/6/2021 17:18:15		PH-VS-SQL	112	Good
5/6/2021 17:18:16		PH-VS-SQL	112	Good
5/6/2021 17:18:17		PH-VS-SQL	114	Good
5/6/2021 17:18:23		PH-VS-SQL	1239	Good
5/6/2021 17:18:24		PH-VS-SQL	272297	Good
5/6/2021 17:18:25		PH-VS-SQL	131	Good
5/6/2021 17:18:33		PH-VS-SQL	1235	Good
5/6/2021 17:18:34		PH-VS-SQL	112	Good
5/6/2021 17:18:35		PH-VS-SQL	113	Good
5/6/2021 17:18:36		PH-VS-SQL	113	Good
5/6/2021 17:18:43		PH-VS-SQL	1235	Good
5/6/2021 17:18:45		PH-VS-SQL	130	Good
5/6/2021 17:18:54		PH-VS-SQL	272297	Good
5/6/2021 17:18:54		PH-VS-SQL	113	Good
5/6/2021 17:18:55		PH-VS-SQL	113	Good
5/6/2021 17:18:56		PH-VS-SQL	113	Good
5/6/2021 17:19:03		PH-VS-SQL	1232	Good
5/6/2021 17:19:04		PH-VS-SQL	130	Good
5/6/2021 17:19:14		PH-VS-SQL	1232	Good
5/6/2021 17:19:14		PH-VS-SQL	113	Good
5/6/2021 17:19:15		PH-VS-SQL	114	Good
5/6/2021 17:19:16		PH-VS-SQL	115	Good
5/6/2021 17:19:25		PH-VS-SQL	129	Good
5/6/2021 17:19:33		PH-VS-SQL	1235	Good
5/6/2021 17:19:34		PH-VS-SQL	114	Good
5/6/2021 17:19:35		PH-VS-SQL	114	Good
5/6/2021 17:19:43		PH-VS-SQL	1233	Good
5/6/2021 17:19:44		PH-VS-SQL	272297	Good

(b) (3) (A)

5/6/2021 17:19:45	[redacted]	PH-VS-SQL	129	Good
5/6/2021 17:19:53	[redacted]	PH-VS-SQL	114	Good
5/6/2021 17:19:53	[redacted]	PH-VS-SQL	1236	Good
5/6/2021 17:19:54	[redacted]	PH-VS-SQL	114	Good
5/6/2021 17:19:55	[redacted]	PH-VS-SQL	115	Good
5/6/2021 17:20:03	[redacted]	PH-VS-SQL	129	Good
5/6/2021 17:20:03	[redacted]	PH-VS-SQL	1235	Good
5/6/2021 17:20:12	[redacted]	PH-VS-SQL	115	Good
5/6/2021 17:20:14	[redacted]	PH-VS-SQL	1234	Good
5/6/2021 17:20:14	[redacted]	PH-VS-SQL	272297	Good
5/6/2021 17:20:14	[redacted]	PH-VS-SQL	115	Good
5/6/2021 17:20:15	[redacted]	PH-VS-SQL	116	Good
5/6/2021 17:20:23	[redacted]	PH-VS-SQL	128	Good
5/6/2021 17:20:23	[redacted]	PH-VS-SQL	1237	Good
5/6/2021 17:20:33	[redacted]	PH-VS-SQL	115	Good
5/6/2021 17:20:33	[redacted]	PH-VS-SQL	1236	Good
5/6/2021 17:20:34	[redacted]	PH-VS-SQL	115	Good
5/6/2021 17:20:42	[redacted]	PH-VS-SQL	128	Good
5/6/2021 17:20:43	[redacted]	PH-VS-SQL	272297	Good
5/6/2021 17:20:53	[redacted]	PH-VS-SQL	115	Good
5/6/2021 17:20:53	[redacted]	PH-VS-SQL	1234	Good
5/6/2021 17:20:54	[redacted]	PH-VS-SQL	116	Good
5/6/2021 17:21:02	[redacted]	PH-VS-SQL	128	Good
5/6/2021 17:21:03	[redacted]	PH-VS-SQL	1233	Good
5/6/2021 17:21:03	[redacted]	PH-VS-SQL	272297	Good
5/6/2021 17:21:12	[redacted]	PH-VS-SQL	115	Good
5/6/2021 17:21:13	[redacted]	PH-VS-SQL	115	Good
5/6/2021 17:21:14	[redacted]	PH-VS-SQL	1232	Good
5/6/2021 17:21:22	[redacted]	PH-VS-SQL	127	Good
5/6/2021 17:21:32	[redacted]	PH-VS-SQL	116	Good
5/6/2021 17:21:33	[redacted]	PH-VS-SQL	116	Good
5/6/2021 17:21:33	[redacted]	PH-VS-SQL	1234	Good
5/6/2021 17:21:33	[redacted]	PH-VS-SQL	272297	Good
5/6/2021 17:21:41	[redacted]	PH-VS-SQL	127	Good
5/6/2021 17:21:44	[redacted]	PH-VS-SQL	1236	Good
5/6/2021 17:21:52	[redacted]	PH-VS-SQL	116	Good
5/6/2021 17:21:53	[redacted]	PH-VS-SQL	116	Good
5/6/2021 17:21:53	[redacted]	PH-VS-SQL	1235	Good
5/6/2021 17:22:01	[redacted]	PH-VS-SQL	126	Good
5/6/2021 17:22:03	[redacted]	PH-VS-SQL	1235	Good
5/6/2021 17:22:03	[redacted]	PH-VS-SQL	272297	Good
5/6/2021 17:22:11	[redacted]	PH-VS-SQL	116	Good
5/6/2021 17:22:12	[redacted]	PH-VS-SQL	116	Good
5/6/2021 17:22:13	[redacted]	PH-VS-SQL	1234	Good
5/6/2021 17:22:22	[redacted]	PH-VS-SQL	126	Good
5/6/2021 17:22:23	[redacted]	PH-VS-SQL	1233	Good
5/6/2021 17:22:31	[redacted]	PH-VS-SQL	116	Good

(b) (3) (A)

5/6/2021 17:22:32	[redacted]	PH-VS-SQL	117	Good
5/6/2021 17:22:33	[redacted]	PH-VS-SQL	1235	Good
5/6/2021 17:22:33	[redacted]	PH-VS-SQL	272297	Good
5/6/2021 17:22:41	[redacted]	PH-VS-SQL	126	Good
5/6/2021 17:22:44	[redacted]	PH-VS-SQL	1233	Good
5/6/2021 17:22:51	[redacted]	PH-VS-SQL	117	Good
5/6/2021 17:22:52	[redacted]	PH-VS-SQL	117	Good
5/6/2021 17:22:53	[redacted]	PH-VS-SQL	1234	Good
5/6/2021 17:23:01	[redacted]	PH-VS-SQL	126	Good
5/6/2021 17:23:03	[redacted]	PH-VS-SQL	1235	Good
5/6/2021 17:23:10	[redacted]	PH-VS-SQL	118	Good
5/6/2021 17:23:11	[redacted]	PH-VS-SQL	117	Good
5/6/2021 17:23:13	[redacted]	PH-VS-SQL	1236	Good
5/6/2021 17:23:21	[redacted]	PH-VS-SQL	126	Good
5/6/2021 17:23:23	[redacted]	PH-VS-SQL	272297	Good
5/6/2021 17:23:30	[redacted]	PH-VS-SQL	117	Good
5/6/2021 17:23:31	[redacted]	PH-VS-SQL	118	Good
5/6/2021 17:23:33	[redacted]	PH-VS-SQL	1234	Good
5/6/2021 17:23:41	[redacted]	PH-VS-SQL	125	Good
5/6/2021 17:23:44	[redacted]	PH-VS-SQL	213092	Good
5/6/2021 17:23:44	[redacted]	PH-VS-SQL	1234	Good
5/6/2021 17:23:50	[redacted]	PH-VS-SQL	117	Good
5/6/2021 17:23:51	[redacted]	PH-VS-SQL	117	Good
5/6/2021 17:23:53	[redacted]	PH-VS-SQL	1234	Good
5/6/2021 17:23:53	[redacted]	PH-VS-SQL	272297	Good
5/6/2021 17:23:58	[redacted]	PH-VS-SQL	125	Good
5/6/2021 17:24:03	[redacted]	PH-VS-SQL	1234	Good
5/6/2021 17:24:09	[redacted]	PH-VS-SQL	117	Good
5/6/2021 17:24:10	[redacted]	PH-VS-SQL	117	Good
5/6/2021 17:24:14	[redacted]	PH-VS-SQL	1234	Good
5/6/2021 17:24:19	[redacted]	PH-VS-SQL	125	Good
5/6/2021 17:24:23	[redacted]	PH-VS-SQL	1234	Good
5/6/2021 17:24:24	[redacted]	PH-VS-SQL	272297	Good
5/6/2021 17:24:29	[redacted]	PH-VS-SQL	118	Good
5/6/2021 17:24:30	[redacted]	PH-VS-SQL	118	Good
5/6/2021 17:24:33	[redacted]	PH-VS-SQL	1235	Good
5/6/2021 17:24:38	[redacted]	PH-VS-SQL	125	Good
5/6/2021 17:24:43	[redacted]	PH-VS-SQL	1234	Good
5/6/2021 17:24:48	[redacted]	PH-VS-SQL	119	Good
5/6/2021 17:24:49	[redacted]	PH-VS-SQL	118	Good
5/6/2021 17:24:53	[redacted]	PH-VS-SQL	1234	Good
5/6/2021 17:24:53	[redacted]	PH-VS-SQL	272297	Good
5/6/2021 17:24:58	[redacted]	PH-VS-SQL	125	Good
5/6/2021 17:25:03	[redacted]	PH-VS-SQL	1234	Good
5/6/2021 17:25:08	[redacted]	PH-VS-SQL	118	Good
5/6/2021 17:25:09	[redacted]	PH-VS-SQL	118	Good
5/6/2021 17:25:14	[redacted]	PH-VS-SQL	1234	Good

(b) (3) (A)

5/6/2021 17:25:14	[redacted]	PH-VS-SQL	110	Good
5/6/2021 17:25:23	[redacted]	PH-VS-SQL	1235	Good
5/6/2021 17:25:28	[redacted]	PH-VS-SQL	131	Good
5/6/2021 17:25:29	[redacted]	PH-VS-SQL	130	Good
5/6/2021 17:25:33	[redacted]	PH-VS-SQL	1237	Good
5/6/2021 17:25:37	[redacted]	PH-VS-SQL	112	Good
5/6/2021 17:25:43	[redacted]	PH-VS-SQL	1237	Good
5/6/2021 17:25:47	[redacted]	PH-VS-SQL	128	Good
5/6/2021 17:25:48	[redacted]	PH-VS-SQL	127	Good
5/6/2021 17:25:53	[redacted]	PH-VS-SQL	1237	Good
5/6/2021 17:25:54	[redacted]	PH-VS-SQL	115	Good
5/6/2021 17:26:03	[redacted]	PH-VS-SQL	1239	Good
5/6/2021 17:26:07	[redacted]	PH-VS-SQL	127	Good
5/6/2021 17:26:08	[redacted]	PH-VS-SQL	126	Good
5/6/2021 17:26:14	[redacted]	PH-VS-SQL	272297	Good
5/6/2021 17:26:15	[redacted]	PH-VS-SQL	116	Good
5/6/2021 17:26:23	[redacted]	PH-VS-SQL	1241	Good
5/6/2021 17:26:27	[redacted]	PH-VS-SQL	125	Good
5/6/2021 17:26:28	[redacted]	PH-VS-SQL	124	Good
5/6/2021 17:26:33	[redacted]	PH-VS-SQL	1242	Good
5/6/2021 17:26:36	[redacted]	PH-VS-SQL	117	Good
5/6/2021 17:26:43	[redacted]	PH-VS-SQL	1243	Good
5/6/2021 17:26:44	[redacted]	PH-VS-SQL	125	Good
5/6/2021 17:26:46	[redacted]	PH-VS-SQL	124	Good
5/6/2021 17:26:47	[redacted]	PH-VS-SQL	123	Good
5/6/2021 17:26:53	[redacted]	PH-VS-SQL	213092	Good
5/6/2021 17:26:53	[redacted]	PH-VS-SQL	1244	Good
5/6/2021 17:26:54	[redacted]	PH-VS-SQL	117	Good
5/6/2021 17:27:03	[redacted]	PH-VS-SQL	1245	Good
5/6/2021 17:27:04	[redacted]	PH-VS-SQL	272297	Good
5/6/2021 17:27:04	[redacted]	PH-VS-SQL	124	Good
5/6/2021 17:27:06	[redacted]	PH-VS-SQL	123	Good
5/6/2021 17:27:07	[redacted]	PH-VS-SQL	123	Good
5/6/2021 17:27:13	[redacted]	PH-VS-SQL	213092	Good
5/6/2021 17:27:13	[redacted]	PH-VS-SQL	1246	Good
5/6/2021 17:27:14	[redacted]	PH-VS-SQL	118	Good
5/6/2021 17:27:20	[redacted]	PH-VS-SQL	123	Good
5/6/2021 17:27:23	[redacted]	PH-VS-SQL	1247	Good
5/6/2021 17:27:25	[redacted]	PH-VS-SQL	122	Good
5/6/2021 17:27:26	[redacted]	PH-VS-SQL	122	Good
5/6/2021 17:27:30	[redacted]	PH-VS-SQL	119	Good
5/6/2021 17:27:43	[redacted]	PH-VS-SQL	1250	Good
5/6/2021 17:27:44	[redacted]	PH-VS-SQL	123	Good
5/6/2021 17:27:45	[redacted]	PH-VS-SQL	122	Good
5/6/2021 17:27:46	[redacted]	PH-VS-SQL	122	Good
5/6/2021 17:27:53	[redacted]	PH-VS-SQL	1251	Good
5/6/2021 17:27:54	[redacted]	PH-VS-SQL	119	Good

(b) (3) (A)

5/6/2021 17:28:02	[redacted]	PH-VS-SQL	123	Good
5/6/2021 17:28:03	[redacted]	PH-VS-SQL	1250	Good
5/6/2021 17:28:05	[redacted]	PH-VS-SQL	121	Good
5/6/2021 17:28:06	[redacted]	PH-VS-SQL	121	Good
5/6/2021 17:28:13	[redacted]	PH-VS-SQL	120	Good
5/6/2021 17:28:14	[redacted]	PH-VS-SQL	213092	Good
5/6/2021 17:28:14	[redacted]	PH-VS-SQL	1254	Good
5/6/2021 17:28:22	[redacted]	PH-VS-SQL	122	Good
5/6/2021 17:28:23	[redacted]	PH-VS-SQL	1253	Good
5/6/2021 17:28:24	[redacted]	PH-VS-SQL	122	Good
5/6/2021 17:28:25	[redacted]	PH-VS-SQL	121	Good
5/6/2021 17:28:32	[redacted]	PH-VS-SQL	120	Good
5/6/2021 17:28:33	[redacted]	PH-VS-SQL	1255	Good
5/6/2021 17:28:39	[redacted]	PH-VS-SQL	122	Good
5/6/2021 17:28:43	[redacted]	PH-VS-SQL	1254	Good
5/6/2021 17:28:44	[redacted]	PH-VS-SQL	121	Good
5/6/2021 17:28:45	[redacted]	PH-VS-SQL	121	Good
5/6/2021 17:28:50	[redacted]	PH-VS-SQL	120	Good
5/6/2021 17:28:53	[redacted]	PH-VS-SQL	1256	Good
5/6/2021 17:28:58	[redacted]	PH-VS-SQL	122	Good
5/6/2021 17:29:03	[redacted]	PH-VS-SQL	213092	Good
5/6/2021 17:29:03	[redacted]	PH-VS-SQL	1256	Good
5/6/2021 17:29:04	[redacted]	PH-VS-SQL	122	Good
5/6/2021 17:29:05	[redacted]	PH-VS-SQL	121	Good
5/6/2021 17:29:10	[redacted]	PH-VS-SQL	120	Good
5/6/2021 17:29:13	[redacted]	PH-VS-SQL	1258	Good
5/6/2021 17:29:22	[redacted]	PH-VS-SQL	122	Good
5/6/2021 17:29:23	[redacted]	PH-VS-SQL	121	Good
5/6/2021 17:29:23	[redacted]	PH-VS-SQL	1259	Good
5/6/2021 17:29:24	[redacted]	PH-VS-SQL	121	Good
5/6/2021 17:29:29	[redacted]	PH-VS-SQL	120	Good
5/6/2021 17:29:33	[redacted]	PH-VS-SQL	1261	Good
5/6/2021 17:29:41	[redacted]	PH-VS-SQL	122	Good
5/6/2021 17:29:43	[redacted]	PH-VS-SQL	122	Good
5/6/2021 17:29:43	[redacted]	PH-VS-SQL	1262	Good
5/6/2021 17:29:44	[redacted]	PH-VS-SQL	121	Good
5/6/2021 17:29:47	[redacted]	PH-VS-SQL	120	Good
5/6/2021 17:29:53	[redacted]	PH-VS-SQL	1264	Good
5/6/2021 17:29:54	[redacted]	PH-VS-SQL	272297	Good
5/6/2021 17:29:57	[redacted]	PH-VS-SQL	122	Good
5/6/2021 17:30:03	[redacted]	PH-VS-SQL	121	Good
5/6/2021 17:30:03	[redacted]	PH-VS-SQL	1264	Good
5/6/2021 17:30:04	[redacted]	PH-VS-SQL	121	Good
5/6/2021 17:30:08	[redacted]	PH-VS-SQL	120	Good
5/6/2021 17:30:13	[redacted]	PH-VS-SQL	213092	Good
5/6/2021 17:30:19	[redacted]	PH-VS-SQL	122	Good
5/6/2021 17:30:22	[redacted]	PH-VS-SQL	122	Good

(b) (3) (A)

5/6/2021 17:30:23	[redacted]	PH-VS-SQL	122	Good
5/6/2021 17:30:23	[redacted]	PH-VS-SQL	1264	Good
5/6/2021 17:30:23	[redacted]	PH-VS-SQL	272297	Good
5/6/2021 17:30:27	[redacted]	PH-VS-SQL	120	Good
5/6/2021 17:30:33	[redacted]	PH-VS-SQL	1264	Good
5/6/2021 17:30:38	[redacted]	PH-VS-SQL	122	Good
5/6/2021 17:30:42	[redacted]	PH-VS-SQL	121	Good
5/6/2021 17:30:43	[redacted]	PH-VS-SQL	121	Good
5/6/2021 17:30:43	[redacted]	PH-VS-SQL	213092	Good
5/6/2021 17:30:43	[redacted]	PH-VS-SQL	1270	Good
5/6/2021 17:30:52	[redacted]	PH-VS-SQL	120	Good
5/6/2021 17:30:53	[redacted]	PH-VS-SQL	1269	Good
5/6/2021 17:30:55	[redacted]	PH-VS-SQL	122	Good
5/6/2021 17:31:01	[redacted]	PH-VS-SQL	121	Good
5/6/2021 17:31:02	[redacted]	PH-VS-SQL	121	Good
5/6/2021 17:31:03	[redacted]	PH-VS-SQL	1268	Good
5/6/2021 17:31:10	[redacted]	PH-VS-SQL	121	Good
5/6/2021 17:31:13	[redacted]	PH-VS-SQL	213092	Good
5/6/2021 17:31:14	[redacted]	PH-VS-SQL	1273	Good
5/6/2021 17:31:14	[redacted]	PH-VS-SQL	272297	Good
5/6/2021 17:31:17	[redacted]	PH-VS-SQL	122	Good
5/6/2021 17:31:21	[redacted]	PH-VS-SQL	121	Good
5/6/2021 17:31:22	[redacted]	PH-VS-SQL	121	Good
5/6/2021 17:31:23	[redacted]	PH-VS-SQL	1273	Good
5/6/2021 17:31:27	[redacted]	PH-VS-SQL	121	Good
5/6/2021 17:31:33	[redacted]	PH-VS-SQL	213092	Good
5/6/2021 17:31:33	[redacted]	PH-VS-SQL	1274	Good
5/6/2021 17:31:35	[redacted]	PH-VS-SQL	122	Good
5/6/2021 17:31:40	[redacted]	PH-VS-SQL	121	Good
5/6/2021 17:31:42	[redacted]	PH-VS-SQL	121	Good
5/6/2021 17:31:43	[redacted]	PH-VS-SQL	122	Good
5/6/2021 17:31:43	[redacted]	PH-VS-SQL	1274	Good
5/6/2021 17:31:44	[redacted]	PH-VS-SQL	272297	Good
5/6/2021 17:31:53	[redacted]	PH-VS-SQL	1275	Good
5/6/2021 17:32:00	[redacted]	PH-VS-SQL	121	Good
5/6/2021 17:32:01	[redacted]	PH-VS-SQL	121	Good
5/6/2021 17:32:03	[redacted]	PH-VS-SQL	1278	Good
5/6/2021 17:32:07	[redacted]	PH-VS-SQL	122	Good
5/6/2021 17:32:14	[redacted]	PH-VS-SQL	1277	Good
5/6/2021 17:32:14	[redacted]	PH-VS-SQL	272297	Good
5/6/2021 17:32:18	[redacted]	PH-VS-SQL	121	Good
5/6/2021 17:32:20	[redacted]	PH-VS-SQL	121	Good
5/6/2021 17:32:21	[redacted]	PH-VS-SQL	122	Good
5/6/2021 17:32:23	[redacted]	PH-VS-SQL	1278	Good
5/6/2021 17:32:28	[redacted]	PH-VS-SQL	122	Good
5/6/2021 17:32:31	[redacted]	PH-VS-SQL	121	Good
5/6/2021 17:32:33	[redacted]	PH-VS-SQL	1278	Good

(b) (3) (A)

5/6/2021 17:32:33	[redacted]	PH-VS-SQL	272253	Good
5/6/2021 17:32:40	[redacted]	PH-VS-SQL	121	Good
5/6/2021 17:32:41	[redacted]	PH-VS-SQL	121	Good
5/6/2021 17:32:43	[redacted]	PH-VS-SQL	1279	Good
5/6/2021 17:32:53	[redacted]	PH-VS-SQL	122	Good
5/6/2021 17:32:53	[redacted]	PH-VS-SQL	1278	Good
5/6/2021 17:32:54	[redacted]	PH-VS-SQL	120	Good
5/6/2021 17:32:59	[redacted]	PH-VS-SQL	121	Good
5/6/2021 17:33:00	[redacted]	PH-VS-SQL	121	Good
5/6/2021 17:33:03	[redacted]	PH-VS-SQL	1281	Good
5/6/2021 17:33:04	[redacted]	PH-VS-SQL	272250	Good
5/6/2021 17:33:12	[redacted]	PH-VS-SQL	122	Good
5/6/2021 17:33:14	[redacted]	PH-VS-SQL	1282	Good
5/6/2021 17:33:17	[redacted]	PH-VS-SQL	121	Good
5/6/2021 17:33:19	[redacted]	PH-VS-SQL	121	Good
5/6/2021 17:33:21	[redacted]	PH-VS-SQL	121	Good
5/6/2021 17:33:23	[redacted]	PH-VS-SQL	1285	Good
5/6/2021 17:33:26	[redacted]	PH-VS-SQL	121	Good
5/6/2021 17:33:33	[redacted]	PH-VS-SQL	122	Good
5/6/2021 17:33:33	[redacted]	PH-VS-SQL	1286	Good
5/6/2021 17:33:33	[redacted]	PH-VS-SQL	272246	Good
5/6/2021 17:33:38	[redacted]	PH-VS-SQL	121	Good
5/6/2021 17:33:39	[redacted]	PH-VS-SQL	122	Good
5/6/2021 17:33:42	[redacted]	PH-VS-SQL	121	Good
5/6/2021 17:33:43	[redacted]	PH-VS-SQL	213092	Good
5/6/2021 17:33:43	[redacted]	PH-VS-SQL	1288	Good
5/6/2021 17:33:44	[redacted]	PH-VS-SQL	122	Good
5/6/2021 17:33:53	[redacted]	PH-VS-SQL	1289	Good
5/6/2021 17:33:58	[redacted]	PH-VS-SQL	121	Good
5/6/2021 17:33:59	[redacted]	PH-VS-SQL	121	Good
5/6/2021 17:34:01	[redacted]	PH-VS-SQL	122	Good
5/6/2021 17:34:03	[redacted]	PH-VS-SQL	1286	Good
5/6/2021 17:34:04	[redacted]	PH-VS-SQL	272245	Good
5/6/2021 17:34:13	[redacted]	PH-VS-SQL	213092	Good
5/6/2021 17:34:13	[redacted]	PH-VS-SQL	1289	Good
5/6/2021 17:34:18	[redacted]	PH-VS-SQL	120	Good
5/6/2021 17:34:19	[redacted]	PH-VS-SQL	121	Good
5/6/2021 17:34:23	[redacted]	PH-VS-SQL	1289	Good
5/6/2021 17:34:24	[redacted]	PH-VS-SQL	272244	Good
5/6/2021 17:34:33	[redacted]	PH-VS-SQL	1294	Good
5/6/2021 17:34:37	[redacted]	PH-VS-SQL	93	Good
5/6/2021 17:34:38	[redacted]	PH-VS-SQL	91	Good
5/6/2021 17:34:43	[redacted]	PH-VS-SQL	213092	Good
5/6/2021 17:34:43	[redacted]	PH-VS-SQL	1290	Good
5/6/2021 17:34:53	[redacted]	PH-VS-SQL	1292	Good
5/6/2021 17:34:54	[redacted]	PH-VS-SQL	272245	Good
5/6/2021 17:34:57	[redacted]	PH-VS-SQL	56	Good

(b) (3) (A)

5/6/2021 17:34:58	[redacted]	PH-VS-SQL	55	Good
5/6/2021 17:35:03	[redacted]	PH-VS-SQL	1294	Good
5/6/2021 17:35:13	[redacted]	PH-VS-SQL	213092	Good
5/6/2021 17:35:14	[redacted]	PH-VS-SQL	1297	Good
5/6/2021 17:35:17	[redacted]	PH-VS-SQL	38	Good
5/6/2021 17:35:18	[redacted]	PH-VS-SQL	38	Good
5/6/2021 17:35:23	[redacted]	PH-VS-SQL	1293	Good
5/6/2021 17:35:24	[redacted]	PH-VS-SQL	272244	Good
5/6/2021 17:35:33	[redacted]	PH-VS-SQL	1297	Good
5/6/2021 17:35:36	[redacted]	PH-VS-SQL	32	Good
5/6/2021 17:35:37	[redacted]	PH-VS-SQL	32	Good
5/6/2021 17:35:41	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:35:44	[redacted]	PH-VS-SQL	1294	Good
5/6/2021 17:35:53	[redacted]	PH-VS-SQL	272243	Good
5/6/2021 17:35:56	[redacted]	PH-VS-SQL	32	Good
5/6/2021 17:35:57	[redacted]	PH-VS-SQL	32	Good
5/6/2021 17:36:03	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:36:03	[redacted]	PH-VS-SQL	1295	Good
5/6/2021 17:36:13	[redacted]	PH-VS-SQL	1300	Good
5/6/2021 17:36:14	[redacted]	PH-VS-SQL	272243	Good
5/6/2021 17:36:14	[redacted]	PH-VS-SQL	32	Good
5/6/2021 17:36:16	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:36:17	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:36:18	[redacted]	PH-VS-SQL	32	Good
5/6/2021 17:36:23	[redacted]	PH-VS-SQL	1297	Good
5/6/2021 17:36:27	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:36:33	[redacted]	PH-VS-SQL	1301	Good
5/6/2021 17:36:35	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:36:36	[redacted]	PH-VS-SQL	32	Good
5/6/2021 17:36:43	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:36:43	[redacted]	PH-VS-SQL	1301	Good
5/6/2021 17:36:44	[redacted]	PH-VS-SQL	272243	Good
5/6/2021 17:36:54	[redacted]	PH-VS-SQL	32	Good
5/6/2021 17:36:55	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:36:56	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:36:58	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:37:00	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:37:03	[redacted]	PH-VS-SQL	1299	Good
5/6/2021 17:37:13	[redacted]	PH-VS-SQL	1299	Good
5/6/2021 17:37:14	[redacted]	PH-VS-SQL	272242	Good
5/6/2021 17:37:14	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:37:15	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:37:23	[redacted]	PH-VS-SQL	1301	Good
5/6/2021 17:37:24	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:37:32	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:37:33	[redacted]	PH-VS-SQL	1301	Good
5/6/2021 17:37:34	[redacted]	PH-VS-SQL	31	Good

(b) (3) (A)

5/6/2021 17:37:35	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:37:43	[redacted]	PH-VS-SQL	1305	Good
5/6/2021 17:37:44	[redacted]	PH-VS-SQL	272242	Good
5/6/2021 17:37:53	[redacted]	PH-VS-SQL	213092	Good
5/6/2021 17:37:53	[redacted]	PH-VS-SQL	1306	Good
5/6/2021 17:37:54	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:37:55	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:37:57	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:38:03	[redacted]	PH-VS-SQL	1302	Good
5/6/2021 17:38:03	[redacted]	PH-VS-SQL	272242	Good
5/6/2021 17:38:06	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:38:13	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:38:14	[redacted]	PH-VS-SQL	1307	Good
5/6/2021 17:38:14	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:38:18	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:38:23	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:38:23	[redacted]	PH-VS-SQL	1303	Good
5/6/2021 17:38:33	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:38:33	[redacted]	PH-VS-SQL	1306	Good
5/6/2021 17:38:33	[redacted]	PH-VS-SQL	272242	Good
5/6/2021 17:38:34	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:38:36	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:38:42	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:38:44	[redacted]	PH-VS-SQL	1305	Good
5/6/2021 17:38:53	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:38:53	[redacted]	PH-VS-SQL	1305	Good
5/6/2021 17:38:54	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:38:57	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:39:02	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:39:03	[redacted]	PH-VS-SQL	1310	Good
5/6/2021 17:39:04	[redacted]	PH-VS-SQL	272241	Good
5/6/2021 17:39:12	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:39:13	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:39:14	[redacted]	PH-VS-SQL	1311	Good
5/6/2021 17:39:18	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:39:23	[redacted]	PH-VS-SQL	1310	Good
5/6/2021 17:39:27	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:39:32	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:39:33	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:39:33	[redacted]	PH-VS-SQL	1309	Good
5/6/2021 17:39:34	[redacted]	PH-VS-SQL	272241	Good
5/6/2021 17:39:43	[redacted]	PH-VS-SQL	1309	Good
5/6/2021 17:39:47	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:39:50	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:39:52	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:39:53	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:39:53	[redacted]	PH-VS-SQL	1309	Good

(b) (3) (A)

5/6/2021 17:40:03	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:40:03		PH-VS-SQL	1309	Good
5/6/2021 17:40:04		PH-VS-SQL	272241	Good
5/6/2021 17:40:11		PH-VS-SQL	30	Good
5/6/2021 17:40:12		PH-VS-SQL	30	Good
5/6/2021 17:40:14		PH-VS-SQL	1314	Good
5/6/2021 17:40:18		PH-VS-SQL	30	Good
5/6/2021 17:40:23		PH-VS-SQL	1313	Good
5/6/2021 17:40:24		PH-VS-SQL	272241	Good
5/6/2021 17:40:28		PH-VS-SQL	30	Good
5/6/2021 17:40:31		PH-VS-SQL	30	Good
5/6/2021 17:40:32		PH-VS-SQL	30	Good
5/6/2021 17:40:33		PH-VS-SQL	30	Good
5/6/2021 17:40:33		PH-VS-SQL	1312	Good
5/6/2021 17:40:42		PH-VS-SQL	30	Good
5/6/2021 17:40:44		PH-VS-SQL	1312	Good
5/6/2021 17:40:50		PH-VS-SQL	30	Good
5/6/2021 17:40:51		PH-VS-SQL	30	Good
5/6/2021 17:40:53		PH-VS-SQL	1316	Good
5/6/2021 17:40:54		PH-VS-SQL	272241	Good
5/6/2021 17:40:56		PH-VS-SQL	30	Good
5/6/2021 17:41:01		PH-VS-SQL	30	Good
5/6/2021 17:41:10		PH-VS-SQL	30	Good
5/6/2021 17:41:11		PH-VS-SQL	30	Good
5/6/2021 17:41:14		PH-VS-SQL	1314	Good
5/6/2021 17:41:19		PH-VS-SQL	30	Good
5/6/2021 17:41:23		PH-VS-SQL	1315	Good
5/6/2021 17:41:23		PH-VS-SQL	272241	Good
5/6/2021 17:41:30		PH-VS-SQL	35	Good
5/6/2021 17:41:31		PH-VS-SQL	36	Good
5/6/2021 17:41:33		PH-VS-SQL	1315	Good
5/6/2021 17:41:35		PH-VS-SQL	37	Good
5/6/2021 17:41:44		PH-VS-SQL	1315	Good
5/6/2021 17:41:44		PH-VS-SQL	272241	Good
5/6/2021 17:41:45		PH-VS-SQL	25	Good
5/6/2021 17:41:49		PH-VS-SQL	31	Good
5/6/2021 17:41:50		PH-VS-SQL	31	Good
5/6/2021 17:41:53		PH-VS-SQL	213092	Good
5/6/2021 17:41:54		PH-VS-SQL	33	Good
5/6/2021 17:42:09		PH-VS-SQL	29	Good
5/6/2021 17:42:10		PH-VS-SQL	28	Good
5/6/2021 17:42:14		PH-VS-SQL	1317	Good
5/6/2021 17:42:14		PH-VS-SQL	272241	Good
5/6/2021 17:42:15		PH-VS-SQL	27	Good
5/6/2021 17:42:24		PH-VS-SQL	33	Good
5/6/2021 17:42:29		PH-VS-SQL	29	Good
5/6/2021 17:42:30		PH-VS-SQL	29	Good

(b) (3) (A)

5/6/2021 17:42:33	[redacted]	PH-VS-SQL	28	Good
5/6/2021 17:42:33		PH-VS-SQL	1319	Good
5/6/2021 17:42:42		PH-VS-SQL	32	Good
5/6/2021 17:42:44		PH-VS-SQL	1315	Good
5/6/2021 17:42:44		PH-VS-SQL	272241	Good
5/6/2021 17:42:48		PH-VS-SQL	31	Good
5/6/2021 17:42:49		PH-VS-SQL	31	Good
5/6/2021 17:42:53		PH-VS-SQL	213092	Good
5/6/2021 17:42:53		PH-VS-SQL	1319	Good
5/6/2021 17:42:59		PH-VS-SQL	29	Good
5/6/2021 17:43:03		PH-VS-SQL	1316	Good
5/6/2021 17:43:08		PH-VS-SQL	32	Good
5/6/2021 17:43:09		PH-VS-SQL	31	Good
5/6/2021 17:43:12		PH-VS-SQL	31	Good
5/6/2021 17:43:14		PH-VS-SQL	1316	Good
5/6/2021 17:43:14		PH-VS-SQL	272241	Good
5/6/2021 17:43:17		PH-VS-SQL	29	Good
5/6/2021 17:43:24		PH-VS-SQL	1318	Good
5/6/2021 17:43:27		PH-VS-SQL	30	Good
5/6/2021 17:43:28		PH-VS-SQL	30	Good
5/6/2021 17:43:33		PH-VS-SQL	1315	Good
5/6/2021 17:43:34		PH-VS-SQL	272240	Good
5/6/2021 17:43:37		PH-VS-SQL	31	Good
5/6/2021 17:43:43		PH-VS-SQL	1315	Good
5/6/2021 17:43:46		PH-VS-SQL	29	Good
5/6/2021 17:43:47		PH-VS-SQL	29	Good
5/6/2021 17:43:48		PH-VS-SQL	29	Good
5/6/2021 17:43:53		PH-VS-SQL	1315	Good
5/6/2021 17:43:55		PH-VS-SQL	31	Good
5/6/2021 17:44:03		PH-VS-SQL	1318	Good
5/6/2021 17:44:04		PH-VS-SQL	272240	Good
5/6/2021 17:44:07		PH-VS-SQL	30	Good
5/6/2021 17:44:08		PH-VS-SQL	30	Good
5/6/2021 17:44:09		PH-VS-SQL	30	Good
5/6/2021 17:44:14		PH-VS-SQL	1316	Good
5/6/2021 17:44:14		PH-VS-SQL	31	Good
5/6/2021 17:44:23		PH-VS-SQL	1316	Good
5/6/2021 17:44:26		PH-VS-SQL	31	Good
5/6/2021 17:44:27		PH-VS-SQL	31	Good
5/6/2021 17:44:33		PH-VS-SQL	1315	Good
5/6/2021 17:44:33		PH-VS-SQL	272240	Good
5/6/2021 17:44:35		PH-VS-SQL	30	Good
5/6/2021 17:44:43		PH-VS-SQL	1315	Good
5/6/2021 17:44:45		PH-VS-SQL	31	Good
5/6/2021 17:44:46		PH-VS-SQL	31	Good
5/6/2021 17:44:47		PH-VS-SQL	30	Good
5/6/2021 17:44:53		PH-VS-SQL	30	Good

(b) (3) (A)

5/6/2021 17:44:53	[redacted]	PH-VS-SQL	213092	Good
5/6/2021 17:44:53	[redacted]	PH-VS-SQL	1316	Good
5/6/2021 17:45:02	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:45:03	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 17:45:03	[redacted]	PH-VS-SQL	272239	Good
5/6/2021 17:45:06	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:45:07	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:45:14	[redacted]	PH-VS-SQL	1318	Good
5/6/2021 17:45:15	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:45:23	[redacted]	PH-VS-SQL	1318	Good
5/6/2021 17:45:23	[redacted]	PH-VS-SQL	272239	Good
5/6/2021 17:45:24	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:45:25	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:45:26	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:45:33	[redacted]	PH-VS-SQL	1316	Good
5/6/2021 17:45:34	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:45:41	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:45:44	[redacted]	PH-VS-SQL	1319	Good
5/6/2021 17:45:45	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:45:46	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:45:48	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:45:53	[redacted]	PH-VS-SQL	1318	Good
5/6/2021 17:45:54	[redacted]	PH-VS-SQL	272239	Good
5/6/2021 17:46:03	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:46:03	[redacted]	PH-VS-SQL	1318	Good
5/6/2021 17:46:04	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:46:06	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:46:13	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:46:14	[redacted]	PH-VS-SQL	1316	Good
5/6/2021 17:46:16	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:46:23	[redacted]	PH-VS-SQL	1318	Good
5/6/2021 17:46:23	[redacted]	PH-VS-SQL	272239	Good
5/6/2021 17:46:24	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:46:25	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:46:31	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:46:33	[redacted]	PH-VS-SQL	1315	Good
5/6/2021 17:46:39	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:46:43	[redacted]	PH-VS-SQL	1318	Good
5/6/2021 17:46:44	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:46:45	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:46:53	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 17:46:54	[redacted]	PH-VS-SQL	272239	Good
5/6/2021 17:46:55	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:46:59	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:47:03	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:47:03	[redacted]	PH-VS-SQL	1316	Good
5/6/2021 17:47:04	[redacted]	PH-VS-SQL	30	Good

(b) (3) (A)

5/6/2021 17:47:12	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:47:14	[redacted]	PH-VS-SQL	1318	Good
5/6/2021 17:47:14	[redacted]	PH-VS-SQL	272239	Good
5/6/2021 17:47:16	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:47:23	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:47:23	[redacted]	PH-VS-SQL	1316	Good
5/6/2021 17:47:24	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:47:30	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:47:33	[redacted]	PH-VS-SQL	1318	Good
5/6/2021 17:47:43	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:47:44	[redacted]	PH-VS-SQL	1316	Good
5/6/2021 17:47:44	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:47:53	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:47:53	[redacted]	PH-VS-SQL	1316	Good
5/6/2021 17:47:53	[redacted]	PH-VS-SQL	272239	Good
5/6/2021 17:48:02	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:48:03	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:48:03	[redacted]	PH-VS-SQL	213092	Good
5/6/2021 17:48:03	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 17:48:10	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:48:11	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:48:14	[redacted]	PH-VS-SQL	1316	Good
5/6/2021 17:48:14	[redacted]	PH-VS-SQL	272239	Good
5/6/2021 17:48:22	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:48:23	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:48:23	[redacted]	PH-VS-SQL	1315	Good
5/6/2021 17:48:26	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:48:33	[redacted]	PH-VS-SQL	1318	Good
5/6/2021 17:48:41	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:48:42	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:48:43	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:48:43	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 17:48:44	[redacted]	PH-VS-SQL	272239	Good
5/6/2021 17:48:53	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:48:53	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 17:48:56	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:49:01	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:49:02	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:49:03	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 17:49:06	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:49:08	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:49:14	[redacted]	PH-VS-SQL	1316	Good
5/6/2021 17:49:14	[redacted]	PH-VS-SQL	272239	Good
5/6/2021 17:49:21	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:49:22	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:49:23	[redacted]	PH-VS-SQL	1316	Good
5/6/2021 17:49:33	[redacted]	PH-VS-SQL	1316	Good

(b) (3) (A)

5/6/2021 17:49:33	[redacted]	PH-VS-SQL	272239	Good
5/6/2021 17:49:34	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:49:38	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:49:41	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:49:42	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:49:44	[redacted]	PH-VS-SQL	1316	Good
5/6/2021 17:49:44	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:49:49	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:49:53	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 17:50:00	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:50:01	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:50:03	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:50:03	[redacted]	PH-VS-SQL	1318	Good
5/6/2021 17:50:04	[redacted]	PH-VS-SQL	272239	Good
5/6/2021 17:50:14	[redacted]	PH-VS-SQL	1318	Good
5/6/2021 17:50:16	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:50:20	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:50:21	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:50:23	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 17:50:33	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 17:50:33	[redacted]	PH-VS-SQL	272239	Good
5/6/2021 17:50:38	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:50:39	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:50:40	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:50:44	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 17:50:49	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:50:53	[redacted]	PH-VS-SQL	272239	Good
5/6/2021 17:50:57	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:50:59	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:51:00	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:51:03	[redacted]	PH-VS-SQL	1318	Good
5/6/2021 17:51:09	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:51:19	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:51:20	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:51:23	[redacted]	PH-VS-SQL	1316	Good
5/6/2021 17:51:27	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:51:32	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:51:33	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 17:51:34	[redacted]	PH-VS-SQL	272238	Good
5/6/2021 17:51:38	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:51:39	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:51:43	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:51:43	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 17:51:53	[redacted]	PH-VS-SQL	1316	Good
5/6/2021 17:51:53	[redacted]	PH-VS-SQL	272238	Good
5/6/2021 17:51:58	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:51:59	[redacted]	PH-VS-SQL	31	Good

(b) (3) (A)

5/6/2021 17:52:03	[redacted]	PH-VS-SQL	1316	Good
5/6/2021 17:52:10	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:52:13	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:52:14	[redacted]	PH-VS-SQL	1318	Good
5/6/2021 17:52:18	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:52:20	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:52:23	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:52:23	[redacted]	PH-VS-SQL	213092	Good
5/6/2021 17:52:23	[redacted]	PH-VS-SQL	1316	Good
5/6/2021 17:52:24	[redacted]	PH-VS-SQL	272238	Good
5/6/2021 17:52:32	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:52:33	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 17:52:37	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:52:38	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:52:41	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:52:44	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 17:52:44	[redacted]	PH-VS-SQL	272238	Good
5/6/2021 17:52:48	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:52:53	[redacted]	PH-VS-SQL	1316	Good
5/6/2021 17:52:57	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:52:58	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:53:00	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:53:03	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 17:53:09	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:53:13	[redacted]	PH-VS-SQL	213092	Good
5/6/2021 17:53:14	[redacted]	PH-VS-SQL	272238	Good
5/6/2021 17:53:16	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:53:17	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:53:20	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:53:23	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 17:53:33	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 17:53:34	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:53:36	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:53:37	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:53:40	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:53:44	[redacted]	PH-VS-SQL	213092	Good
5/6/2021 17:53:44	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 17:53:44	[redacted]	PH-VS-SQL	272238	Good
5/6/2021 17:53:51	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:53:53	[redacted]	PH-VS-SQL	1316	Good
5/6/2021 17:53:56	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:53:57	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:53:59	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:54:03	[redacted]	PH-VS-SQL	1316	Good
5/6/2021 17:54:04	[redacted]	PH-VS-SQL	272238	Good
5/6/2021 17:54:07	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:54:13	[redacted]	PH-VS-SQL	213092	Good

(b) (3) (A)

5/6/2021 17:54:14	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 17:54:15	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:54:16	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:54:21	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:54:23	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:54:23	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 17:54:33	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 17:54:33	[redacted]	PH-VS-SQL	272238	Good
5/6/2021 17:54:35	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:54:36	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:54:44	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 17:54:48	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:54:50	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:54:53	[redacted]	PH-VS-SQL	1316	Good
5/6/2021 17:54:55	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:54:56	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:55:03	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 17:55:03	[redacted]	PH-VS-SQL	272238	Good
5/6/2021 17:55:10	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:55:12	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:55:14	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 17:55:14	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:55:15	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:55:32	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:55:33	[redacted]	PH-VS-SQL	213092	Good
5/6/2021 17:55:33	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 17:55:33	[redacted]	PH-VS-SQL	272238	Good
5/6/2021 17:55:34	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:55:35	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:55:40	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:55:44	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 17:55:49	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:55:53	[redacted]	PH-VS-SQL	213092	Good
5/6/2021 17:55:53	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 17:55:53	[redacted]	PH-VS-SQL	272238	Good
5/6/2021 17:55:54	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:55:55	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:56:03	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 17:56:07	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:56:11	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:56:13	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:56:14	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:56:23	[redacted]	PH-VS-SQL	213092	Good
5/6/2021 17:56:23	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 17:56:23	[redacted]	PH-VS-SQL	272238	Good
5/6/2021 17:56:25	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:56:31	[redacted]	PH-VS-SQL	31	Good

(b) (3) (A)

5/6/2021 17:56:33	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:56:33	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 17:56:34	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:56:37	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:56:44	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 17:56:49	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:56:52	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:56:53	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:56:53	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 17:56:53	[redacted]	PH-VS-SQL	272238	Good
5/6/2021 17:57:00	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:57:03	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 17:57:07	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:57:12	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:57:13	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:57:13	[redacted]	PH-VS-SQL	213092	Good
5/6/2021 17:57:14	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 17:57:14	[redacted]	PH-VS-SQL	272238	Good
5/6/2021 17:57:19	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:57:23	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 17:57:29	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:57:32	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:57:33	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:57:33	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 17:57:43	[redacted]	PH-VS-SQL	213092	Good
5/6/2021 17:57:44	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 17:57:44	[redacted]	PH-VS-SQL	272238	Good
5/6/2021 17:57:49	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:57:50	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:57:51	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:57:52	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:57:53	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 17:58:02	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:58:03	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 17:58:05	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:58:11	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:58:13	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:58:14	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 17:58:14	[redacted]	PH-VS-SQL	272238	Good
5/6/2021 17:58:23	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 17:58:29	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:58:30	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:58:32	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:58:33	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 17:58:41	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:58:43	[redacted]	PH-VS-SQL	213091	Good
5/6/2021 17:58:44	[redacted]	PH-VS-SQL	1317	Good

(b) (3) (A)

5/6/2021 17:58:44	[redacted]	PH-VS-SQL	272238	Good
5/6/2021 17:58:47	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:58:50	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:58:51	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:58:53	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 17:58:59	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:59:03	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 17:59:10	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:59:11	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:59:13	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 17:59:22	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:59:23	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 17:59:24	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:59:29	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:59:30	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:59:32	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:59:33	[redacted]	PH-VS-SQL	213091	Good
5/6/2021 17:59:33	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 17:59:37	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:59:44	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 17:59:49	[redacted]	PH-VS-SQL	31	Good
5/6/2021 17:59:50	[redacted]	PH-VS-SQL	30	Good
5/6/2021 17:59:53	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 18:00:04	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 18:00:04	[redacted]	PH-VS-SQL	272238	Good
5/6/2021 18:00:09	[redacted]	PH-VS-SQL	31	Good
5/6/2021 18:00:10	[redacted]	PH-VS-SQL	31	Good
5/6/2021 18:00:12	[redacted]	PH-VS-SQL	31	Good
5/6/2021 18:00:14	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 18:00:16	[redacted]	PH-VS-SQL	30	Good
5/6/2021 18:00:23	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 18:00:28	[redacted]	PH-VS-SQL	31	Good
5/6/2021 18:00:29	[redacted]	PH-VS-SQL	31	Good
5/6/2021 18:00:32	[redacted]	PH-VS-SQL	30	Good
5/6/2021 18:00:35	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 18:00:35	[redacted]	PH-VS-SQL	272238	Good
5/6/2021 18:00:37	[redacted]	PH-VS-SQL	31	Good
5/6/2021 18:00:45	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 18:00:48	[redacted]	PH-VS-SQL	31	Good
5/6/2021 18:00:49	[redacted]	PH-VS-SQL	31	Good
5/6/2021 18:00:55	[redacted]	PH-VS-SQL	213091	Good
5/6/2021 18:00:55	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 18:00:55	[redacted]	PH-VS-SQL	272238	Good
5/6/2021 18:00:59	[redacted]	PH-VS-SQL	31	Good
5/6/2021 18:01:05	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 18:01:08	[redacted]	PH-VS-SQL	30	Good
5/6/2021 18:01:09	[redacted]	PH-VS-SQL	31	Good

(b) (3) (A)

5/6/2021 18:01:16	[redacted]	PH-VS-SQL	213091	Good
5/6/2021 18:01:16	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 18:01:23	[redacted]	PH-VS-SQL	31	Good
5/6/2021 18:01:26	[redacted]	PH-VS-SQL	31	Good
5/6/2021 18:01:26	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 18:01:28	[redacted]	PH-VS-SQL	31	Good
5/6/2021 18:01:30	[redacted]	PH-VS-SQL	31	Good
5/6/2021 18:01:36	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 18:01:36	[redacted]	PH-VS-SQL	272238	Good
5/6/2021 18:01:45	[redacted]	PH-VS-SQL	31	Good
5/6/2021 18:01:47	[redacted]	PH-VS-SQL	31	Good
5/6/2021 18:01:48	[redacted]	PH-VS-SQL	31	Good
5/6/2021 18:01:56	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 18:01:56	[redacted]	PH-VS-SQL	272238	Good
5/6/2021 18:02:04	[redacted]	PH-VS-SQL	31	Good
5/6/2021 18:02:05	[redacted]	PH-VS-SQL	31	Good
5/6/2021 18:02:07	[redacted]	PH-VS-SQL	31	Good
5/6/2021 18:02:08	[redacted]	PH-VS-SQL	31	Good
5/6/2021 18:02:16	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 18:02:16	[redacted]	PH-VS-SQL	272238	Good
5/6/2021 18:02:25	[redacted]	PH-VS-SQL	30	Good
5/6/2021 18:02:26	[redacted]	PH-VS-SQL	31	Good
5/6/2021 18:02:27	[redacted]	PH-VS-SQL	31	Good
5/6/2021 18:02:36	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 18:02:39	[redacted]	PH-VS-SQL	31	Good
5/6/2021 18:02:46	[redacted]	PH-VS-SQL	26	Good
5/6/2021 18:02:46	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 18:02:47	[redacted]	PH-VS-SQL	25	Good
5/6/2021 18:02:50	[redacted]	PH-VS-SQL	24	Good
5/6/2021 18:02:56	[redacted]	PH-VS-SQL	1317	Good
5/6/2021 18:03:00	[redacted]	PH-VS-SQL	34	Good
5/6/2021 18:03:04	[redacted]	PH-VS-SQL	31	Good
5/6/2021 18:03:06	[redacted]	PH-VS-SQL	31	Good
5/6/2021 18:03:06	[redacted]	PH-VS-SQL	213091	Good
5/6/2021 18:03:06	[redacted]	PH-VS-SQL	1318	Good
5/6/2021 18:03:15	[redacted]	PH-VS-SQL	29	Good
5/6/2021 18:03:16	[redacted]	PH-VS-SQL	1318	Good
5/6/2021 18:03:24	[redacted]	PH-VS-SQL	32	Good
5/6/2021 18:03:26	[redacted]	PH-VS-SQL	32	Good
5/6/2021 18:03:28	[redacted]	PH-VS-SQL	32	Good
5/6/2021 18:03:34	[redacted]	PH-VS-SQL	29	Good
5/6/2021 18:03:36	[redacted]	PH-VS-SQL	1319	Good
5/6/2021 18:03:37	[redacted]	PH-VS-SQL	6	Good
5/6/2021 18:03:43	[redacted]	PH-VS-SQL	18	Good
5/6/2021 18:03:44	[redacted]	PH-VS-SQL	31	Good
5/6/2021 18:03:45	[redacted]	PH-VS-SQL	31	Good
5/6/2021 18:03:46	[redacted]	PH-VS-SQL	24	Good

(b) (3) (A)

5/6/2021 18:03:56	[redacted]	PH-VS-SQL	1320	Good
5/6/2021 18:03:56	[redacted]	PH-VS-SQL	30	Good
5/6/2021 18:04:02	[redacted]	PH-VS-SQL	55	Good
5/6/2021 18:04:03	[redacted]	PH-VS-SQL	30	Good
5/6/2021 18:04:04	[redacted]	PH-VS-SQL	30	Good
5/6/2021 18:04:06	[redacted]	PH-VS-SQL	213091	Good
5/6/2021 18:04:06	[redacted]	PH-VS-SQL	1321	Good
5/6/2021 18:04:07	[redacted]	PH-VS-SQL	56	Good
5/6/2021 18:04:11	[redacted]	PH-VS-SQL	31	Good
5/6/2021 18:04:14	[redacted]	PH-VS-SQL	50	Good
5/6/2021 18:04:16	[redacted]	PH-VS-SQL	272238	Good
5/6/2021 18:04:20	[redacted]	PH-VS-SQL	30	Good
5/6/2021 18:04:23	[redacted]	PH-VS-SQL	30	Good
5/6/2021 18:04:24	[redacted]	PH-VS-SQL	30	Good
5/6/2021 18:04:26	[redacted]	PH-VS-SQL	1322	Good
5/6/2021 18:04:26	[redacted]	PH-VS-SQL	272238	Good
5/6/2021 18:04:29	[redacted]	PH-VS-SQL	31	Good
5/6/2021 18:04:36	[redacted]	PH-VS-SQL	1323	Good
5/6/2021 18:04:36	[redacted]	PH-VS-SQL	272238	Good
5/6/2021 18:04:43	[redacted]	PH-VS-SQL	30	Good
5/6/2021 18:04:44	[redacted]	PH-VS-SQL	30	Good
5/6/2021 18:04:45	[redacted]	PH-VS-SQL	3	Good
5/6/2021 18:04:46	[redacted]	PH-VS-SQL	1324	Good
5/6/2021 18:04:47	[redacted]	PH-VS-SQL	272238	Good
5/6/2021 18:04:49	[redacted]	PH-VS-SQL	12	Good
5/6/2021 18:04:54	[redacted]	PH-VS-SQL	31	Good
5/6/2021 18:04:56	[redacted]	PH-VS-SQL	272238	Good
5/6/2021 18:05:02	[redacted]	PH-VS-SQL	30	Good
5/6/2021 18:05:03	[redacted]	PH-VS-SQL	30	Good
5/6/2021 18:05:06	[redacted]	PH-VS-SQL	1325	Good
5/6/2021 18:05:06	[redacted]	PH-VS-SQL	272238	Good
5/6/2021 18:05:10	[redacted]	PH-VS-SQL	30	Good
5/6/2021 18:05:16	[redacted]	PH-VS-SQL	1325	Good
5/6/2021 18:05:16	[redacted]	PH-VS-SQL	272238	Good
5/6/2021 18:05:22	[redacted]	PH-VS-SQL	30	Good
5/6/2021 18:05:23	[redacted]	PH-VS-SQL	30	Good
5/6/2021 18:05:26	[redacted]	PH-VS-SQL	213091	Good
5/6/2021 18:05:26	[redacted]	PH-VS-SQL	1326	Good
5/6/2021 18:05:26	[redacted]	PH-VS-SQL	272238	Good
5/6/2021 18:05:29	[redacted]	PH-VS-SQL	30	Good
5/6/2021 18:05:36	[redacted]	PH-VS-SQL	1326	Good
5/6/2021 18:05:36	[redacted]	PH-VS-SQL	272238	Good
5/6/2021 18:05:36	[redacted]	PH-VS-SQL	30	Good
5/6/2021 18:05:42	[redacted]	PH-VS-SQL	30	Good
5/6/2021 18:05:43	[redacted]	PH-VS-SQL	30	Good
5/6/2021 18:05:46	[redacted]	PH-VS-SQL	213091	Good
5/6/2021 18:05:46	[redacted]	PH-VS-SQL	1327	Good

(b) (3) (A)

5/6/2021 18:05:46	[redacted]	PH-VS-SQL	272238	Good
5/6/2021 18:05:48	[redacted]	PH-VS-SQL	30	Good
5/6/2021 18:05:49	[redacted]	PH-VS-SQL	30	Good
5/6/2021 18:05:56	[redacted]	PH-VS-SQL	1327	Good
5/6/2021 18:05:56	[redacted]	PH-VS-SQL	272238	Good
5/6/2021 18:06:01	[redacted]	PH-VS-SQL	30	Good
5/6/2021 18:06:02	[redacted]	PH-VS-SQL	30	Good
5/6/2021 18:06:06	[redacted]	PH-VS-SQL	1329	Good
5/6/2021 18:06:06	[redacted]	PH-VS-SQL	272238	Good
5/6/2021 18:06:07	[redacted]	PH-VS-SQL	30	Good
5/6/2021 18:06:14	[redacted]	PH-VS-SQL	29	Good
5/6/2021 18:06:16	[redacted]	PH-VS-SQL	213091	Good
5/6/2021 18:06:16	[redacted]	PH-VS-SQL	1329	Good
5/6/2021 18:06:16	[redacted]	PH-VS-SQL	272238	Good
5/6/2021 18:06:21	[redacted]	PH-VS-SQL	30	Good
5/6/2021 18:06:22	[redacted]	PH-VS-SQL	30	Good
5/6/2021 18:06:26	[redacted]	PH-VS-SQL	1330	Good
5/6/2021 18:06:26	[redacted]	PH-VS-SQL	272238	Good
5/6/2021 18:06:26	[redacted]	PH-VS-SQL	30	Good
5/6/2021 18:06:35	[redacted]	PH-VS-SQL	30	Good
5/6/2021 18:06:36	[redacted]	PH-VS-SQL	272238	Good
5/6/2021 18:06:40	[redacted]	PH-VS-SQL	30	Good
5/6/2021 18:06:41	[redacted]	PH-VS-SQL	30	Good
5/6/2021 18:06:46	[redacted]	PH-VS-SQL	1331	Good
5/6/2021 18:06:46	[redacted]	PH-VS-SQL	272238	Good
5/6/2021 18:06:52	[redacted]	PH-VS-SQL	29	Good
5/6/2021 18:06:53	[redacted]	PH-VS-SQL	30	Good
5/6/2021 18:06:56	[redacted]	PH-VS-SQL	1331	Good
5/6/2021 18:06:56	[redacted]	PH-VS-SQL	272238	Good
5/6/2021 18:07:00	[redacted]	PH-VS-SQL	30	Good
5/6/2021 18:07:01	[redacted]	PH-VS-SQL	30	Good
5/6/2021 18:07:03	[redacted]	PH-VS-SQL	48	Good
5/6/2021 18:07:06	[redacted]	PH-VS-SQL	1332	Good
5/6/2021 18:07:07	[redacted]	PH-VS-SQL	29	Good
5/6/2021 18:07:17	[redacted]	PH-VS-SQL	272237	Good
5/6/2021 18:07:20	[redacted]	PH-VS-SQL	16	Good
5/6/2021 18:07:20	[redacted]	PH-VS-SQL	32	Good
5/6/2021 18:07:21	[redacted]	PH-VS-SQL	33	Good
5/6/2021 18:07:23	[redacted]	PH-VS-SQL	12	Good
5/6/2021 18:07:26	[redacted]	PH-VS-SQL	1333	Good
5/6/2021 18:07:26	[redacted]	PH-VS-SQL	272237	Good
5/6/2021 18:07:26	[redacted]	PH-VS-SQL	37	Good
5/6/2021 18:07:30	[redacted]	PH-VS-SQL	0	Good
5/6/2021 18:07:36	[redacted]	PH-VS-SQL	1333	Good
5/6/2021 18:07:36	[redacted]	PH-VS-SQL	272237	Good
5/6/2021 18:07:36	[redacted]	PH-VS-SQL	26	Good
5/6/2021 18:07:39	[redacted]	PH-VS-SQL	28	Good

(b) (3) (A)

5/6/2021 18:07:40	[redacted]	PH-VS-SQL	29	Good
5/6/2021 18:07:45		PH-VS-SQL	32	Good
5/6/2021 18:07:46		PH-VS-SQL	1333	Good
5/6/2021 18:07:46		PH-VS-SQL	272237	Good
5/6/2021 18:07:53		PH-VS-SQL	29	Good
5/6/2021 18:07:56		PH-VS-SQL	1334	Good
5/6/2021 18:07:56		PH-VS-SQL	272237	Good
5/6/2021 18:07:59		PH-VS-SQL	30	Good
5/6/2021 18:08:00		PH-VS-SQL	30	Good
5/6/2021 18:08:06		PH-VS-SQL	1333	Good
5/6/2021 18:08:06		PH-VS-SQL	29	Good
5/6/2021 18:08:06		PH-VS-SQL	272237	Good
5/6/2021 18:08:11		PH-VS-SQL	9	Good
5/6/2021 18:08:16		PH-VS-SQL	1334	Good
5/6/2021 18:08:16		PH-VS-SQL	31	Good
5/6/2021 18:08:18		PH-VS-SQL	0	Good
5/6/2021 18:08:19		PH-VS-SQL	30	Good
5/6/2021 18:08:20		PH-VS-SQL	30	Good
5/6/2021 18:08:25		PH-VS-SQL	29	Good
5/6/2021 18:08:26		PH-VS-SQL	213091	Good
5/6/2021 18:08:26		PH-VS-SQL	1333	Good
5/6/2021 18:08:33		PH-VS-SQL	30	Good
5/6/2021 18:08:36		PH-VS-SQL	1333	Good
5/6/2021 18:08:38		PH-VS-SQL	30	Good
5/6/2021 18:08:39		PH-VS-SQL	30	Good
5/6/2021 18:08:40		PH-VS-SQL	31	Good
5/6/2021 18:08:43		PH-VS-SQL	5	Good
5/6/2021 18:08:46		PH-VS-SQL	1334	Good
5/6/2021 18:08:54		PH-VS-SQL	29	Good
5/6/2021 18:08:56		PH-VS-SQL	1333	Good
5/6/2021 18:08:56		PH-VS-SQL	37	Good
5/6/2021 18:08:58		PH-VS-SQL	30	Good
5/6/2021 18:08:59		PH-VS-SQL	44	Good
5/6/2021 18:09:00		PH-VS-SQL	30	Good
5/6/2021 18:09:03		PH-VS-SQL	30	Good
5/6/2021 18:09:06		PH-VS-SQL	1334	Good
5/6/2021 18:09:10		PH-VS-SQL	29	Good
5/6/2021 18:09:16		PH-VS-SQL	85	Good
5/6/2021 18:09:16		PH-VS-SQL	1334	Good
5/6/2021 18:09:17		PH-VS-SQL	272237	Good
5/6/2021 18:09:17		PH-VS-SQL	30	Good
5/6/2021 18:09:18		PH-VS-SQL	30	Good
5/6/2021 18:09:19		PH-VS-SQL	90	Good
5/6/2021 18:09:19		PH-VS-SQL	30	Good
5/6/2021 18:09:21		PH-VS-SQL	99	Good
5/6/2021 18:09:26		PH-VS-SQL	1334	Good
5/6/2021 18:09:29		PH-VS-SQL	29	Good

(b) (3) (A)

5/6/2021 18:09:36	[redacted]	PH-VS-SQL	1333	Good
5/6/2021 18:09:36		PH-VS-SQL	272237	Good
5/6/2021 18:09:37		PH-VS-SQL	30	Good
5/6/2021 18:09:38		PH-VS-SQL	30	Good
5/6/2021 18:09:40		PH-VS-SQL	30	Good
5/6/2021 18:09:46		PH-VS-SQL	1333	Good
5/6/2021 18:09:50		PH-VS-SQL	30	Good
5/6/2021 18:09:56		PH-VS-SQL	1333	Good
5/6/2021 18:09:56		PH-VS-SQL	272237	Good
5/6/2021 18:09:57		PH-VS-SQL	30	Good
5/6/2021 18:09:58		PH-VS-SQL	30	Good
5/6/2021 18:10:00		PH-VS-SQL	30	Good
5/6/2021 18:10:06		PH-VS-SQL	1333	Good
5/6/2021 18:10:09		PH-VS-SQL	5	Good
5/6/2021 18:10:12		PH-VS-SQL	29	Good
5/6/2021 18:10:16		PH-VS-SQL	18	Good
5/6/2021 18:10:16		PH-VS-SQL	213091	Good
5/6/2021 18:10:16		PH-VS-SQL	1333	Good
5/6/2021 18:10:16		PH-VS-SQL	30	Good
5/6/2021 18:10:16		PH-VS-SQL	272237	Good
5/6/2021 18:10:17		PH-VS-SQL	30	Good
5/6/2021 18:10:19		PH-VS-SQL	23	Good
5/6/2021 18:10:26		PH-VS-SQL	1333	Good
5/6/2021 18:10:26		PH-VS-SQL	30	Good
5/6/2021 18:10:32		PH-VS-SQL	31	Good
5/6/2021 18:10:35		PH-VS-SQL	52	Good
5/6/2021 18:10:36		PH-VS-SQL	1334	Good
5/6/2021 18:10:36		PH-VS-SQL	272237	Good
5/6/2021 18:10:36		PH-VS-SQL	30	Good
5/6/2021 18:10:38		PH-VS-SQL	59	Good
5/6/2021 18:10:38		PH-VS-SQL	31	Good
5/6/2021 18:10:45		PH-VS-SQL	30	Good
5/6/2021 18:10:46		PH-VS-SQL	1334	Good
5/6/2021 18:10:55		PH-VS-SQL	92	Good
5/6/2021 18:10:56		PH-VS-SQL	272237	Good
5/6/2021 18:10:56		PH-VS-SQL	33	Good
5/6/2021 18:10:57		PH-VS-SQL	37	Good
5/6/2021 18:10:58		PH-VS-SQL	98	Good
5/6/2021 18:11:01		PH-VS-SQL	100	Good
5/6/2021 18:11:06		PH-VS-SQL	1334	Good
5/6/2021 18:11:07		PH-VS-SQL	110	Good
5/6/2021 18:11:15		PH-VS-SQL	44	Good
5/6/2021 18:11:16		PH-VS-SQL	1334	Good
5/6/2021 18:11:16		PH-VS-SQL	35	Good
5/6/2021 18:11:17		PH-VS-SQL	31	Good
5/6/2021 18:11:26		PH-VS-SQL	1333	Good
5/6/2021 18:11:26		PH-VS-SQL	101	Good

(b) (3) (A)

5/6/2021 18:11:35	[redacted]	PH-VS-SQL	41	Good
5/6/2021 18:11:36	[redacted]	PH-VS-SQL	213091	Good
5/6/2021 18:11:36	[redacted]	PH-VS-SQL	1333	Good
5/6/2021 18:11:36	[redacted]	PH-VS-SQL	44	Good
5/6/2021 18:11:45	[redacted]	PH-VS-SQL	91	Good
5/6/2021 18:11:46	[redacted]	PH-VS-SQL	1334	Good
5/6/2021 18:11:55	[redacted]	PH-VS-SQL	52	Good
5/6/2021 18:11:56	[redacted]	PH-VS-SQL	1334	Good
5/6/2021 18:11:56	[redacted]	PH-VS-SQL	60	Good
5/6/2021 18:12:04	[redacted]	PH-VS-SQL	85	Good
5/6/2021 18:12:06	[redacted]	PH-VS-SQL	213092	Good
5/6/2021 18:12:06	[redacted]	PH-VS-SQL	1333	Good
5/6/2021 18:12:13	[redacted]	PH-VS-SQL	54	Good
5/6/2021 18:12:14	[redacted]	PH-VS-SQL	57	Good
5/6/2021 18:12:15	[redacted]	PH-VS-SQL	63	Good
5/6/2021 18:12:16	[redacted]	PH-VS-SQL	1334	Good
5/6/2021 18:12:18	[redacted]	PH-VS-SQL	94	Good
5/6/2021 18:12:21	[redacted]	PH-VS-SQL	80	Good
5/6/2021 18:12:24	[redacted]	PH-VS-SQL	98	Good
5/6/2021 18:12:26	[redacted]	PH-VS-SQL	1333	Good
5/6/2021 18:12:31	[redacted]	PH-VS-SQL	87	Good
5/6/2021 18:12:31	[redacted]	PH-VS-SQL	59	Good
5/6/2021 18:12:33	[redacted]	PH-VS-SQL	6	Good
5/6/2021 18:12:34	[redacted]	PH-VS-SQL	7	Good
5/6/2021 18:12:35	[redacted]	PH-VS-SQL	79	Good
5/6/2021 18:12:35	[redacted]	PH-VS-SQL	51	Good
5/6/2021 18:12:35	[redacted]	PH-VS-SQL	12	Good
5/6/2021 18:12:36	[redacted]	PH-VS-SQL	213092	Good
5/6/2021 18:12:36	[redacted]	PH-VS-SQL	1333	Good
5/6/2021 18:12:42	[redacted]	PH-VS-SQL	82	Good
5/6/2021 18:12:46	[redacted]	PH-VS-SQL	1333	Good
5/6/2021 18:12:52	[redacted]	PH-VS-SQL	6	Good
5/6/2021 18:12:53	[redacted]	PH-VS-SQL	44	Good
5/6/2021 18:12:53	[redacted]	PH-VS-SQL	10	Good
5/6/2021 18:12:53	[redacted]	PH-VS-SQL	8	Good
5/6/2021 18:12:54	[redacted]	PH-VS-SQL	14	Good
5/6/2021 18:12:56	[redacted]	PH-VS-SQL	212623	Good
5/6/2021 18:12:56	[redacted]	PH-VS-SQL	1333	Good
5/6/2021 18:12:57	[redacted]	PH-VS-SQL	36	Good
5/6/2021 18:12:57	[redacted]	PH-VS-SQL	1	Good
5/6/2021 18:13:00	[redacted]	PH-VS-SQL	0	Good
5/6/2021 18:13:02	[redacted]	PH-VS-SQL	82	Good
5/6/2021 18:13:06	[redacted]	PH-VS-SQL	1333	Good
5/6/2021 18:13:06	[redacted]	PH-VS-SQL	272237	Good
5/6/2021 18:13:11	[redacted]	PH-VS-SQL	9	Good
5/6/2021 18:13:12	[redacted]	PH-VS-SQL	5	Good
5/6/2021 18:13:13	[redacted]	PH-VS-SQL	13	Good

(b) (3) (A)

5/6/2021 18:13:14	[redacted]	PH-VS-SQL	19	Good
5/6/2021 18:13:15	[redacted]	PH-VS-SQL	1	Good
5/6/2021 18:13:16	[redacted]	PH-VS-SQL	1333	Good
5/6/2021 18:13:21	[redacted]	PH-VS-SQL	76	Good
5/6/2021 18:13:26	[redacted]	PH-VS-SQL	212619	Good
5/6/2021 18:13:26	[redacted]	PH-VS-SQL	1333	Good
5/6/2021 18:13:26	[redacted]	PH-VS-SQL	272237	Good
5/6/2021 18:13:31	[redacted]	PH-VS-SQL	11	Good
5/6/2021 18:13:33	[redacted]	PH-VS-SQL	19	Good
5/6/2021 18:13:34	[redacted]	PH-VS-SQL	27	Good
5/6/2021 18:13:36	[redacted]	PH-VS-SQL	1334	Good
5/6/2021 18:13:41	[redacted]	PH-VS-SQL	74	Good
5/6/2021 18:13:46	[redacted]	PH-VS-SQL	1333	Good
5/6/2021 18:13:50	[redacted]	PH-VS-SQL	13	Good
5/6/2021 18:13:52	[redacted]	PH-VS-SQL	17	Good
5/6/2021 18:13:53	[redacted]	PH-VS-SQL	24	Good
5/6/2021 18:13:56	[redacted]	PH-VS-SQL	212621	Good
5/6/2021 18:13:56	[redacted]	PH-VS-SQL	1334	Good
5/6/2021 18:14:00	[redacted]	PH-VS-SQL	72	Good
5/6/2021 18:14:06	[redacted]	PH-VS-SQL	1333	Good
5/6/2021 18:14:10	[redacted]	PH-VS-SQL	16	Good
5/6/2021 18:14:12	[redacted]	PH-VS-SQL	23	Good
5/6/2021 18:14:13	[redacted]	PH-VS-SQL	30	Good
5/6/2021 18:14:16	[redacted]	PH-VS-SQL	1334	Good
5/6/2021 18:14:19	[redacted]	PH-VS-SQL	70	Good
5/6/2021 18:14:26	[redacted]	PH-VS-SQL	212617	Good
5/6/2021 18:14:29	[redacted]	PH-VS-SQL	18	Good
5/6/2021 18:14:32	[redacted]	PH-VS-SQL	28	Good
5/6/2021 18:14:33	[redacted]	PH-VS-SQL	36	Good
5/6/2021 18:14:36	[redacted]	PH-VS-SQL	1333	Good
5/6/2021 18:14:39	[redacted]	PH-VS-SQL	68	Good
5/6/2021 18:14:46	[redacted]	PH-VS-SQL	212615	Good
5/6/2021 18:14:46	[redacted]	PH-VS-SQL	1333	Good
5/6/2021 18:14:48	[redacted]	PH-VS-SQL	20	Good
5/6/2021 18:14:51	[redacted]	PH-VS-SQL	27	Good
5/6/2021 18:14:52	[redacted]	PH-VS-SQL	34	Good
5/6/2021 18:14:56	[redacted]	PH-VS-SQL	1334	Good
5/6/2021 18:14:58	[redacted]	PH-VS-SQL	66	Good
5/6/2021 18:15:06	[redacted]	PH-VS-SQL	1333	Good
5/6/2021 18:15:08	[redacted]	PH-VS-SQL	22	Good
5/6/2021 18:15:11	[redacted]	PH-VS-SQL	31	Good
5/6/2021 18:15:12	[redacted]	PH-VS-SQL	38	Good
5/6/2021 18:15:16	[redacted]	PH-VS-SQL	212616	Good
5/6/2021 18:15:16	[redacted]	PH-VS-SQL	1333	Good
5/6/2021 18:15:18	[redacted]	PH-VS-SQL	64	Good
5/6/2021 18:15:26	[redacted]	PH-VS-SQL	1334	Good
5/6/2021 18:15:27	[redacted]	PH-VS-SQL	24	Good

(b) (3) (A)

5/6/2021 18:15:31	[redacted]	PH-VS-SQL	36	Good
5/6/2021 18:15:32		PH-VS-SQL	42	Good
5/6/2021 18:15:36		PH-VS-SQL	1333	Good
5/6/2021 18:15:36		PH-VS-SQL	272237	Good
5/6/2021 18:15:37		PH-VS-SQL	62	Good
5/6/2021 18:15:46		PH-VS-SQL	212616	Good
5/6/2021 18:15:46		PH-VS-SQL	1333	Good
5/6/2021 18:15:47		PH-VS-SQL	25	Good
5/6/2021 18:15:50		PH-VS-SQL	34	Good
5/6/2021 18:15:51		PH-VS-SQL	39	Good
5/6/2021 18:15:56		PH-VS-SQL	1334	Good
5/6/2021 18:15:56		PH-VS-SQL	272237	Good
5/6/2021 18:15:57		PH-VS-SQL	60	Good
5/6/2021 18:16:06		PH-VS-SQL	212616	Good
5/6/2021 18:16:06		PH-VS-SQL	1334	Good
5/6/2021 18:16:06		PH-VS-SQL	27	Good
5/6/2021 18:16:10		PH-VS-SQL	38	Good
5/6/2021 18:16:11		PH-VS-SQL	42	Good
5/6/2021 18:16:16		PH-VS-SQL	59	Good
5/6/2021 18:16:17		PH-VS-SQL	1333	Good
5/6/2021 18:16:17		PH-VS-SQL	272237	Good
5/6/2021 18:16:26		PH-VS-SQL	1333	Good
5/6/2021 18:16:26		PH-VS-SQL	28	Good
5/6/2021 18:16:29		PH-VS-SQL	36	Good
5/6/2021 18:16:30		PH-VS-SQL	40	Good
5/6/2021 18:16:35		PH-VS-SQL	58	Good
5/6/2021 18:16:36		PH-VS-SQL	212616	Good
5/6/2021 18:16:45		PH-VS-SQL	29	Good
5/6/2021 18:16:46		PH-VS-SQL	1333	Good
5/6/2021 18:16:49		PH-VS-SQL	39	Good
5/6/2021 18:16:50		PH-VS-SQL	43	Good
5/6/2021 18:16:55		PH-VS-SQL	57	Good
5/6/2021 18:16:56		PH-VS-SQL	1334	Good
5/6/2021 18:16:56		PH-VS-SQL	272237	Good
5/6/2021 18:17:04		PH-VS-SQL	31	Good
5/6/2021 18:17:06		PH-VS-SQL	212616	Good
5/6/2021 18:17:06		PH-VS-SQL	1333	Good
5/6/2021 18:17:09		PH-VS-SQL	41	Good
5/6/2021 18:17:10		PH-VS-SQL	45	Good
5/6/2021 18:17:14		PH-VS-SQL	55	Good
5/6/2021 18:17:16		PH-VS-SQL	1333	Good
5/6/2021 18:17:17		PH-VS-SQL	272237	Good
5/6/2021 18:17:24		PH-VS-SQL	32	Good
5/6/2021 18:17:26		PH-VS-SQL	212616	Good
5/6/2021 18:17:26		PH-VS-SQL	1334	Good
5/6/2021 18:17:28		PH-VS-SQL	40	Good
5/6/2021 18:17:29		PH-VS-SQL	43	Good

(b) (3) (A)

5/6/2021 18:17:34	[redacted]	PH-VS-SQL	55	Good
5/6/2021 18:17:36		PH-VS-SQL	1334	Good
5/6/2021 18:17:36		PH-VS-SQL	272237	Good
5/6/2021 18:17:44		PH-VS-SQL	32	Good
5/6/2021 18:17:47		PH-VS-SQL	1334	Good
5/6/2021 18:17:47		PH-VS-SQL	272237	Good
5/6/2021 18:17:48		PH-VS-SQL	42	Good
5/6/2021 18:17:49		PH-VS-SQL	45	Good
5/6/2021 18:17:53		PH-VS-SQL	54	Good
5/6/2021 18:17:56		PH-VS-SQL	212616	Good
5/6/2021 18:17:56		PH-VS-SQL	1333	Good
5/6/2021 18:18:03		PH-VS-SQL	33	Good
5/6/2021 18:18:06		PH-VS-SQL	1334	Good
5/6/2021 18:18:08		PH-VS-SQL	43	Good
5/6/2021 18:18:09		PH-VS-SQL	46	Good
5/6/2021 18:18:13		PH-VS-SQL	53	Good
5/6/2021 18:18:16		PH-VS-SQL	1333	Good
5/6/2021 18:18:22		PH-VS-SQL	34	Good
5/6/2021 18:18:27		PH-VS-SQL	1334	Good
5/6/2021 18:18:27		PH-VS-SQL	42	Good
5/6/2021 18:18:28		PH-VS-SQL	44	Good
5/6/2021 18:18:32		PH-VS-SQL	52	Good
5/6/2021 18:18:37		PH-VS-SQL	1334	Good
5/6/2021 18:18:42		PH-VS-SQL	34	Good
5/6/2021 18:18:47		PH-VS-SQL	1333	Good
5/6/2021 18:18:47		PH-VS-SQL	43	Good
5/6/2021 18:18:48		PH-VS-SQL	46	Good
5/6/2021 18:18:52		PH-VS-SQL	51	Good
5/6/2021 18:18:57		PH-VS-SQL	1334	Good
5/6/2021 18:19:02		PH-VS-SQL	35	Good
5/6/2021 18:19:06		PH-VS-SQL	42	Good
5/6/2021 18:19:07		PH-VS-SQL	1334	Good
5/6/2021 18:19:07		PH-VS-SQL	44	Good
5/6/2021 18:19:12		PH-VS-SQL	51	Good
5/6/2021 18:19:17		PH-VS-SQL	212616	Good
5/6/2021 18:19:17		PH-VS-SQL	1334	Good
5/6/2021 18:19:21		PH-VS-SQL	36	Good
5/6/2021 18:19:26		PH-VS-SQL	43	Good
5/6/2021 18:19:27		PH-VS-SQL	1333	Good
5/6/2021 18:19:27		PH-VS-SQL	45	Good
5/6/2021 18:19:30		PH-VS-SQL	50	Good
5/6/2021 18:19:37		PH-VS-SQL	212616	Good
5/6/2021 18:19:37		PH-VS-SQL	1333	Good
5/6/2021 18:19:40		PH-VS-SQL	36	Good
5/6/2021 18:19:46		PH-VS-SQL	44	Good
5/6/2021 18:19:47		PH-VS-SQL	212616	Good
5/6/2021 18:19:47		PH-VS-SQL	1333	Good

	(b) (3) (A)			
5/6/2021 18:19:47	[redacted]	PH-VS-SQL	46	Good
5/6/2021 18:19:49	[redacted]	PH-VS-SQL	50	Good
5/6/2021 18:19:57	[redacted]	PH-VS-SQL	212616	Good
5/6/2021 18:19:57	[redacted]	PH-VS-SQL	1333	Good
5/6/2021 18:20:00	[redacted]	PH-VS-SQL	37	Good
5/6/2021 18:20:05	[redacted]	PH-VS-SQL	43	Good
5/6/2021 18:20:06	[redacted]	PH-VS-SQL	45	Good
5/6/2021 18:20:07	[redacted]	PH-VS-SQL	212616	Good
5/6/2021 18:20:07	[redacted]	PH-VS-SQL	1333	Good
5/6/2021 18:20:10	[redacted]	PH-VS-SQL	49	Good
5/6/2021 18:20:17	[redacted]	PH-VS-SQL	212616	Good
5/6/2021 18:20:19	[redacted]	PH-VS-SQL	37	Good
5/6/2021 18:20:25	[redacted]	PH-VS-SQL	44	Good
5/6/2021 18:20:26	[redacted]	PH-VS-SQL	46	Good
5/6/2021 18:20:27	[redacted]	PH-VS-SQL	1334	Good
5/6/2021 18:20:28	[redacted]	PH-VS-SQL	49	Good
5/6/2021 18:20:37	[redacted]	PH-VS-SQL	212616	Good
5/6/2021 18:20:39	[redacted]	PH-VS-SQL	38	Good
5/6/2021 18:20:45	[redacted]	PH-VS-SQL	45	Good
5/6/2021 18:20:46	[redacted]	PH-VS-SQL	46	Good
5/6/2021 18:20:49	[redacted]	PH-VS-SQL	49	Good
5/6/2021 18:20:57	[redacted]	PH-VS-SQL	212616	Good
5/6/2021 18:20:57	[redacted]	PH-VS-SQL	1333	Good
5/6/2021 18:20:58	[redacted]	PH-VS-SQL	38	Good
5/6/2021 18:21:04	[redacted]	PH-VS-SQL	44	Good
5/6/2021 18:21:05	[redacted]	PH-VS-SQL	45	Good
5/6/2021 18:21:07	[redacted]	PH-VS-SQL	1333	Good
5/6/2021 18:21:09	[redacted]	PH-VS-SQL	48	Good
5/6/2021 18:21:17	[redacted]	PH-VS-SQL	212616	Good
5/6/2021 18:21:17	[redacted]	PH-VS-SQL	1333	Good
5/6/2021 18:21:18	[redacted]	PH-VS-SQL	39	Good
5/6/2021 18:21:24	[redacted]	PH-VS-SQL	45	Good
5/6/2021 18:21:25	[redacted]	PH-VS-SQL	46	Good
5/6/2021 18:21:27	[redacted]	PH-VS-SQL	1333	Good
5/6/2021 18:21:28	[redacted]	PH-VS-SQL	48	Good
5/6/2021 18:21:37	[redacted]	PH-VS-SQL	212616	Good
5/6/2021 18:21:37	[redacted]	PH-VS-SQL	1334	Good
5/6/2021 18:21:38	[redacted]	PH-VS-SQL	39	Good
5/6/2021 18:21:44	[redacted]	PH-VS-SQL	45	Good
5/6/2021 18:21:45	[redacted]	PH-VS-SQL	46	Good
5/6/2021 18:21:47	[redacted]	PH-VS-SQL	1333	Good
5/6/2021 18:21:47	[redacted]	PH-VS-SQL	272237	Good
5/6/2021 18:21:48	[redacted]	PH-VS-SQL	47	Good
5/6/2021 18:21:57	[redacted]	PH-VS-SQL	1334	Good
5/6/2021 18:21:58	[redacted]	PH-VS-SQL	39	Good
5/6/2021 18:22:03	[redacted]	PH-VS-SQL	44	Good
5/6/2021 18:22:04	[redacted]	PH-VS-SQL	46	Good

	(b) (3) (A)			
5/6/2021 18:22:07	[redacted]	PH-VS-SQL	212616	Good
5/6/2021 18:22:07	[redacted]	PH-VS-SQL	1333	Good
5/6/2021 18:22:07	[redacted]	PH-VS-SQL	47	Good
5/6/2021 18:22:17	[redacted]	PH-VS-SQL	1333	Good
5/6/2021 18:22:17	[redacted]	PH-VS-SQL	40	Good
5/6/2021 18:22:23	[redacted]	PH-VS-SQL	45	Good
5/6/2021 18:22:24	[redacted]	PH-VS-SQL	46	Good
5/6/2021 18:22:27	[redacted]	PH-VS-SQL	1333	Good
5/6/2021 18:22:27	[redacted]	PH-VS-SQL	47	Good
5/6/2021 18:22:37	[redacted]	PH-VS-SQL	212616	Good
5/6/2021 18:22:37	[redacted]	PH-VS-SQL	1333	Good
5/6/2021 18:22:37	[redacted]	PH-VS-SQL	40	Good
5/6/2021 18:22:42	[redacted]	PH-VS-SQL	44	Good
5/6/2021 18:22:43	[redacted]	PH-VS-SQL	45	Good
5/6/2021 18:22:46	[redacted]	PH-VS-SQL	47	Good
5/6/2021 18:22:47	[redacted]	PH-VS-SQL	1333	Good
5/6/2021 18:22:57	[redacted]	PH-VS-SQL	40	Good
5/6/2021 18:23:02	[redacted]	PH-VS-SQL	44	Good
5/6/2021 18:23:03	[redacted]	PH-VS-SQL	46	Good
5/6/2021 18:23:05	[redacted]	PH-VS-SQL	46	Good
5/6/2021 18:23:07	[redacted]	PH-VS-SQL	1333	Good
5/6/2021 18:23:16	[redacted]	PH-VS-SQL	40	Good
5/6/2021 18:23:17	[redacted]	PH-VS-SQL	1333	Good
5/6/2021 18:23:22	[redacted]	PH-VS-SQL	44	Good
5/6/2021 18:23:23	[redacted]	PH-VS-SQL	44	Good
5/6/2021 18:23:27	[redacted]	PH-VS-SQL	1333	Good
5/6/2021 18:23:32	[redacted]	PH-VS-SQL	35	Good
5/6/2021 18:23:37	[redacted]	PH-VS-SQL	1333	Good
5/6/2021 18:23:41	[redacted]	PH-VS-SQL	49	Good
5/6/2021 18:23:42	[redacted]	PH-VS-SQL	49	Good
5/6/2021 18:23:47	[redacted]	PH-VS-SQL	212616	Good
5/6/2021 18:23:47	[redacted]	PH-VS-SQL	1334	Good
5/6/2021 18:23:51	[redacted]	PH-VS-SQL	38	Good
5/6/2021 18:23:57	[redacted]	PH-VS-SQL	1335	Good
5/6/2021 18:24:01	[redacted]	PH-VS-SQL	47	Good
5/6/2021 18:24:02	[redacted]	PH-VS-SQL	47	Good
5/6/2021 18:24:07	[redacted]	PH-VS-SQL	212616	Good
5/6/2021 18:24:07	[redacted]	PH-VS-SQL	1336	Good
5/6/2021 18:24:10	[redacted]	PH-VS-SQL	40	Good
5/6/2021 18:24:17	[redacted]	PH-VS-SQL	1336	Good
5/6/2021 18:24:21	[redacted]	PH-VS-SQL	45	Good
5/6/2021 18:24:22	[redacted]	PH-VS-SQL	45	Good
5/6/2021 18:24:27	[redacted]	PH-VS-SQL	212616	Good
5/6/2021 18:24:27	[redacted]	PH-VS-SQL	1337	Good
5/6/2021 18:24:30	[redacted]	PH-VS-SQL	41	Good
5/6/2021 18:24:37	[redacted]	PH-VS-SQL	212616	Good
5/6/2021 18:24:37	[redacted]	PH-VS-SQL	1338	Good

(b) (3) (A)

5/6/2021 18:24:40	[redacted]	PH-VS-SQL	45	Good
5/6/2021 18:24:41	[redacted]	PH-VS-SQL	44	Good
5/6/2021 18:24:42	[redacted]	PH-VS-SQL	44	Good
5/6/2021 18:24:47	[redacted]	PH-VS-SQL	212616	Good
5/6/2021 18:24:47	[redacted]	PH-VS-SQL	1339	Good
5/6/2021 18:24:50	[redacted]	PH-VS-SQL	41	Good
5/6/2021 18:24:57	[redacted]	PH-VS-SQL	212616	Good
5/6/2021 18:24:57	[redacted]	PH-VS-SQL	1340	Good
5/6/2021 18:25:00	[redacted]	PH-VS-SQL	44	Good
5/6/2021 18:25:01	[redacted]	PH-VS-SQL	44	Good
5/6/2021 18:25:02	[redacted]	PH-VS-SQL	44	Good
5/6/2021 18:25:07	[redacted]	PH-VS-SQL	212616	Good
5/6/2021 18:25:07	[redacted]	PH-VS-SQL	1340	Good
5/6/2021 18:25:08	[redacted]	PH-VS-SQL	42	Good
5/6/2021 18:25:17	[redacted]	PH-VS-SQL	212616	Good
5/6/2021 18:25:17	[redacted]	PH-VS-SQL	1341	Good
5/6/2021 18:25:19	[redacted]	PH-VS-SQL	43	Good
5/6/2021 18:25:20	[redacted]	PH-VS-SQL	43	Good
5/6/2021 18:25:27	[redacted]	PH-VS-SQL	1342	Good
5/6/2021 18:25:29	[redacted]	PH-VS-SQL	42	Good
5/6/2021 18:25:37	[redacted]	PH-VS-SQL	212616	Good
5/6/2021 18:25:37	[redacted]	PH-VS-SQL	1342	Good
5/6/2021 18:25:38	[redacted]	PH-VS-SQL	43	Good
5/6/2021 18:25:39	[redacted]	PH-VS-SQL	43	Good
5/6/2021 18:25:40	[redacted]	PH-VS-SQL	43	Good
5/6/2021 18:25:47	[redacted]	PH-VS-SQL	212616	Good
5/6/2021 18:25:47	[redacted]	PH-VS-SQL	1343	Good
5/6/2021 18:25:48	[redacted]	PH-VS-SQL	42	Good
5/6/2021 18:25:57	[redacted]	PH-VS-SQL	212616	Good
5/6/2021 18:25:57	[redacted]	PH-VS-SQL	1344	Good
5/6/2021 18:25:59	[redacted]	PH-VS-SQL	43	Good
5/6/2021 18:26:00	[redacted]	PH-VS-SQL	43	Good
5/6/2021 18:26:07	[redacted]	PH-VS-SQL	212616	Good
5/6/2021 18:26:07	[redacted]	PH-VS-SQL	1345	Good
5/6/2021 18:26:10	[redacted]	PH-VS-SQL	42	Good
5/6/2021 18:26:17	[redacted]	PH-VS-SQL	212616	Good
5/6/2021 18:26:17	[redacted]	PH-VS-SQL	1346	Good
5/6/2021 18:26:18	[redacted]	PH-VS-SQL	43	Good
5/6/2021 18:26:19	[redacted]	PH-VS-SQL	43	Good
5/6/2021 18:26:21	[redacted]	PH-VS-SQL	43	Good
5/6/2021 18:26:25	[redacted]	PH-VS-SQL	42	Good
5/6/2021 18:26:27	[redacted]	PH-VS-SQL	212616	Good
5/6/2021 18:26:27	[redacted]	PH-VS-SQL	1346	Good
5/6/2021 18:26:37	[redacted]	PH-VS-SQL	212616	Good
5/6/2021 18:26:37	[redacted]	PH-VS-SQL	1347	Good
5/6/2021 18:26:38	[redacted]	PH-VS-SQL	43	Good
5/6/2021 18:26:39	[redacted]	PH-VS-SQL	43	Good

(b) (3) (A)

5/6/2021 18:26:47	[redacted]	PH-VS-SQL	212616	Good
5/6/2021 18:26:47	[redacted]	PH-VS-SQL	1347	Good
5/6/2021 18:26:48	[redacted]	PH-VS-SQL	42	Good
5/6/2021 18:26:52	[redacted]	PH-VS-SQL	43	Good
5/6/2021 18:26:57	[redacted]	PH-VS-SQL	212616	Good
5/6/2021 18:26:57	[redacted]	PH-VS-SQL	1349	Good
5/6/2021 18:26:58	[redacted]	PH-VS-SQL	43	Good
5/6/2021 18:26:59	[redacted]	PH-VS-SQL	43	Good
5/6/2021 18:27:02	[redacted]	PH-VS-SQL	43	Good
5/6/2021 18:27:07	[redacted]	PH-VS-SQL	212616	Good
5/6/2021 18:27:07	[redacted]	PH-VS-SQL	1349	Good
5/6/2021 18:27:11	[redacted]	PH-VS-SQL	42	Good
5/6/2021 18:27:17	[redacted]	PH-VS-SQL	212616	Good
5/6/2021 18:27:17	[redacted]	PH-VS-SQL	1350	Good
5/6/2021 18:27:17	[redacted]	PH-VS-SQL	43	Good
5/6/2021 18:27:18	[redacted]	PH-VS-SQL	43	Good
5/6/2021 18:27:24	[redacted]	PH-VS-SQL	43	Good
5/6/2021 18:27:27	[redacted]	PH-VS-SQL	212616	Good
5/6/2021 18:27:27	[redacted]	PH-VS-SQL	1350	Good
5/6/2021 18:27:27	[redacted]	PH-VS-SQL	42	Good
5/6/2021 18:27:37	[redacted]	PH-VS-SQL	212616	Good
5/6/2021 18:27:37	[redacted]	PH-VS-SQL	1352	Good
5/6/2021 18:27:37	[redacted]	PH-VS-SQL	42	Good
5/6/2021 18:27:38	[redacted]	PH-VS-SQL	43	Good
5/6/2021 18:27:39	[redacted]	PH-VS-SQL	42	Good
5/6/2021 18:27:47	[redacted]	PH-VS-SQL	212616	Good
5/6/2021 18:27:47	[redacted]	PH-VS-SQL	1352	Good
5/6/2021 18:27:51	[redacted]	PH-VS-SQL	43	Good
5/6/2021 18:27:57	[redacted]	PH-VS-SQL	212616	Good
5/6/2021 18:27:57	[redacted]	PH-VS-SQL	1353	Good
5/6/2021 18:27:57	[redacted]	PH-VS-SQL	42	Good
5/6/2021 18:27:59	[redacted]	PH-VS-SQL	43	Good
5/6/2021 18:28:02	[redacted]	PH-VS-SQL	42	Good
5/6/2021 18:28:07	[redacted]	PH-VS-SQL	212616	Good
5/6/2021 18:28:07	[redacted]	PH-VS-SQL	1354	Good
5/6/2021 18:28:07	[redacted]	PH-VS-SQL	272237	Good
5/6/2021 18:28:08	[redacted]	PH-VS-SQL	43	Good
5/6/2021 18:28:16	[redacted]	PH-VS-SQL	43	Good
5/6/2021 18:28:17	[redacted]	PH-VS-SQL	212616	Good
5/6/2021 18:28:17	[redacted]	PH-VS-SQL	1355	Good
5/6/2021 18:28:17	[redacted]	PH-VS-SQL	43	Good
5/6/2021 18:28:19	[redacted]	PH-VS-SQL	42	Good
5/6/2021 18:28:27	[redacted]	PH-VS-SQL	212616	Good
5/6/2021 18:28:27	[redacted]	PH-VS-SQL	1356	Good
5/6/2021 18:28:30	[redacted]	PH-VS-SQL	43	Good
5/6/2021 18:28:36	[redacted]	PH-VS-SQL	43	Good
5/6/2021 18:28:37	[redacted]	PH-VS-SQL	212616	Good

	(b) (3) (A)			
5/6/2021 18:28:37	[redacted]	PH-VS-SQL	1356	Good
5/6/2021 18:28:37	[redacted]	PH-VS-SQL	42	Good
5/6/2021 18:28:44	[redacted]	PH-VS-SQL	42	Good
5/6/2021 18:28:47	[redacted]	PH-VS-SQL	1357	Good
5/6/2021 18:28:49	[redacted]	PH-VS-SQL	43	Good
5/6/2021 18:28:55	[redacted]	PH-VS-SQL	42	Good
5/6/2021 18:28:56	[redacted]	PH-VS-SQL	43	Good
5/6/2021 18:28:57	[redacted]	PH-VS-SQL	212616	Good
5/6/2021 18:28:57	[redacted]	PH-VS-SQL	1357	Good
5/6/2021 18:28:57	[redacted]	PH-VS-SQL	43	Good
5/6/2021 18:29:03	[redacted]	PH-VS-SQL	42	Good
5/6/2021 18:29:07	[redacted]	PH-VS-SQL	212616	Good
5/6/2021 18:29:07	[redacted]	PH-VS-SQL	1358	Good
5/6/2021 18:29:07	[redacted]	PH-VS-SQL	272237	Good
5/6/2021 18:29:15	[redacted]	PH-VS-SQL	42	Good
5/6/2021 18:29:16	[redacted]	PH-VS-SQL	42	Good
5/6/2021 18:29:17	[redacted]	PH-VS-SQL	212616	Good
5/6/2021 18:29:17	[redacted]	PH-VS-SQL	1359	Good
5/6/2021 18:29:17	[redacted]	PH-VS-SQL	43	Good
5/6/2021 18:29:22	[redacted]	PH-VS-SQL	42	Good
5/6/2021 18:29:27	[redacted]	PH-VS-SQL	212616	Good
5/6/2021 18:29:27	[redacted]	PH-VS-SQL	1360	Good
5/6/2021 18:29:27	[redacted]	PH-VS-SQL	272237	Good
5/6/2021 18:29:35	[redacted]	PH-VS-SQL	42	Good
5/6/2021 18:29:36	[redacted]	PH-VS-SQL	42	Good
5/6/2021 18:29:37	[redacted]	PH-VS-SQL	212616	Good
5/6/2021 18:29:37	[redacted]	PH-VS-SQL	1360	Good
5/6/2021 18:29:42	[redacted]	PH-VS-SQL	43	Good
5/6/2021 18:29:47	[redacted]	PH-VS-SQL	212616	Good
5/6/2021 18:29:47	[redacted]	PH-VS-SQL	1361	Good
5/6/2021 18:29:54	[redacted]	PH-VS-SQL	43	Good
5/6/2021 18:29:55	[redacted]	PH-VS-SQL	42	Good
5/6/2021 18:29:57	[redacted]	PH-VS-SQL	212616	Good
5/6/2021 18:29:57	[redacted]	PH-VS-SQL	1362	Good
5/6/2021 18:29:57	[redacted]	PH-VS-SQL	272237	Good
5/6/2021 18:29:58	[redacted]	PH-VS-SQL	43	Good
5/6/2021 18:29:59	[redacted]	PH-VS-SQL	42	Good
5/6/2021 18:30:00	[redacted]	PH-VS-SQL	1	Good
5/6/2021 18:30:00	[redacted]	PH-VS-SQL	0	Good
5/6/2021 18:30:00	[redacted]	PH-VS-SQL	43	Good
5/6/2021 18:30:00	[redacted]	PH-VS-SQL	212616	Good
5/6/2021 18:30:00	[redacted]	PH-VS-SQL	272237	Good
5/6/2021 18:30:00	[redacted]	PH-VS-SQL	1363	Good

VII. REFERENCES AND CRITERIA

The following primary references and criteria documents have been utilized in the overall facility inspection and evaluation:

ASME B31.3	Process Piping, 2016 Edition
ASTM A53	Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless
NFPA 30	Flammable and Combustible Liquids Code
NFPA 750	Standard on Water Mist Fire Protection Systems
MIL-HDBK-1022	Petroleum Fuel Facilities (superseded by UFC 3-460-01 - Design: Petroleum Fuel Facilities)