LCA

INC.

LOSS CONTROL ASSOCIATES INCORPORATED

August 23, 2006

Final Report Alyeska Terminal Visit

Prince William Sound Regional Citizens
Advisory Council (PWSRCAS)
Attn: Tom Kuckertz
339 Hazelet Avenue
PO Box 3089
Valdez, AK 99686

Dear Mr. Kuckertz:

A review of the status of fire protection facilities and fire team readiness was conducted at the Alyeska Pipeline Service Company (Alyeska) Valdez Marine Terminal (VMT) in Valdez, AK, on May 30 to June 1, 2006, by Anthony Semenza and Orville "Bud" Slye, Jr., of Loss Control Associates, Inc. The review included a site visit to the VMT for discussions, facilities review, and meetings with VMT personnel. In addition, a joint meeting was held between VMT fire personnel and the Valdez City Fire Department Fire Chief George Keeney. LCAI appreciates your assistance in organizing our meetings with various VMT personnel which expedited the completion of our visit in a timely and effective process.

The review included an evaluation of the key measures for fire protection of the VMT including the following:

- Review of a proposed extension of storage tank inspection schedule based on fire prevention and fire protection system capability.
- Fire team readiness, training, emergency preparedness and staffing.
- East metering electrical classification requirements in the vicinity of the Pig Trap.
- An assessment of the Valdez (City) Fire Department "mutual aid" capability.

- An assessment of the current adequacy and readiness of fire fighting equipment.

This report summarizes observations, findings, and recommendations developed from the visit and include recommendations as appropriate for changes and/or modifications to programs, equipment or systems as appropriate.

SUMMARY

VMT Fire Brigade readiness and capability has improved based on comparisons with observations made during past visits. The stability gained from increased fire fighter personnel retention has strengthened fire team ability. Consistent training and increased familiarity with VMT operations has resulted in increased awareness of hazards and protective measures. The support from volunteer fire brigade personnel to supplement full time fire fighters during emergencies is essential for successful outcomes in controlling emergencies. The support of VMT management to actively support volunteer fire fighters by allowing personnel to attend training activities and to respond to emergencies has increased VMT Fire Brigade overall capability for handling emergencies. Alyeska management has also actively supported volunteer and paid staff attendance at the Texas A&M Fire school. This training has focused on tactics and fire control methods specifically tailored to the VMT facility.

The most noticeable change observed during this visit is the Valdez Fire Department active coordination and interaction with the VMT Fire Brigade. The Valdez FD is actively committed to support VMT during fire emergencies, a major improvement in coordination between these departments. Training of volunteer and paid municipal fire fighters jointly with VMT personnel at terminal drills and exercises and participation at the Texas A&M Fire School has increased the ability of the municipal fire department to support VMT emergency operations should a major fire event occur.

Terminal fire protection systems have been fully integrated into the VMT Maintenance program. The systems are inspected and tested to meet NFPA Standards, such as NFPA 25, *Inspection, Testing and Maintenance of Water Based Fire Protection Systems*. Non-water based systems (for example, fire extinguishers and dry chemical systems) are inspected and tested based on requirements in the appropriate NFPA inspection and testing requirements and manufacturers recommendations. A review of sample Project Manager (PM) reports determined that the program is very complete. An examination of comments in the PM reports from fire system mechanics and personnel shows that the results of tests and inspections are documented in a complete and thorough manner. Testing and inspection of foam system piping and “spiders” in the crude tanks were also a potential concern due to a change to an annual inspection schedule. A review of records demonstrated that foam “spiders” are

being properly flushed to maintain readiness for foam application. Detailed notes on the system flushing records showed that the systems are not being adversely affected by tank bottoms and the change to an annual frequency is not anticipated to result in blockage of the piping systems.

DETAILED OBSERVATIONS

Detailed observations on fire prevention and protection measures and programs resulting from visits to the VMT and meetings with various VMT personnel and between VMT and the Valdez Fire Department are contained in the following paragraphs:

Review of Extended Tank Inspection Schedule

The primary fire safety concern associated with the proposed extension of the VMT tank inspection cycle to 20 years is the potential fire and safety hazard resulting from corrosion induced openings in the tank roof. LCAI recognizes that these hazards are a potential risk, regardless of the tank inspection cycle, since roof integrity safety is dependent on an effective roof inspection program. Of special concern is the integrity of the roof during snow removal operations with the potential for snow removal personnel to be exposed to vapors that could result in a localized fire on the tank roof. Additionally there are personnel exposure hazards from toxic vapors should they be released when personnel are on the roof.

Alyeska's current tank inspection program includes visual and Ultrasonic Testing for examination of roof plates for thickness and potential spot corrosion. These types of tests should continue on a periodic basis in order to assure that operations on the roof can be conducted without the potential for ignition of exposure to accidental vapor releases.

Recommendation: LCAI is recommending that the current tank snow removal procedures be evaluated to assure that such operations are conducted with the potential for flammable and toxic vapor release included in safety precautions prior to and during snow removal operations.

Practices and procedures for periodic inspection of the tank roofs and for the tank walls above the crude high level should be evaluated to assure the integrity of roof and shell plates as a means to prevent accidental release of vapors. Discussions with VMT personnel indicated that there is an effective means of periodic testing which does not require tank shut down and cleaning as required for an internal tank inspection on a 10 or 20 year basis. Alyeska will verify that an effective program for visual and non invasive techniques can be developed from existing tank inspection procedures appropriately modified for periodic inspection of the tank roofs and wall areas typically not in contact with crude oil.

Mixer Motor Shelters

Shelters have been installed over mixer motors on the crude oil storage tanks in the East Tank Farm. The shelters protect tank shell mounted mixers from ice falling off the tank roofs. Handrails were also removed from the tank roofs further reducing ice accumulation which had also been damaging equipment in the dike area. Mixers are being changed from direct motor drive to belt drives in order to reduce vibration shut down of mixers and to reduce the potential for introduction of air into the tanks during mixer replacement.

Foam Line Flushing (Spider)

A review was made of procedures and records for crude tank foam line (spider legs) flushing. This included a visual inspection of the jump-over piping in the field and a discussion with VMT personnel responsible for the flushing. The procedure currently being used by VMT is very thorough and comprehensive. The scope of the procedure is to flow oil through jump-over piping into the spider legs of the subsurface foam injection system. The condition of the spider piping inside the crude oil tank is then assessed by measurement of flow and pressure made from outside the tank. The procedure involves gravity flowing crude oil from a source tank through the jump-over piping to the spider piping inside the target tank. The tanks being used for this procedure are isolated from the rest of the crude system. The flow rate is calculated from the recorded oil level in each tank with respect to time and is compared with previous results. This preventive maintenance procedure is performed annually on each tank in the crude tank farm. This procedure involving personnel from the Oil Movement Section, Operational Control Center (OCC), and an on-the-site responsible engineer requires coordination between these responsible personnel and a sign-off by each person involved once the work is completed.

The procedure provides the operator with a step-by-step guide to insure that the process is being done correctly. This starts with a checklist of tools necessary to complete the task successfully. The procedure is periodically reviewed and updated as appropriate.

The second part of the review was to examine data compiled over the last several years on the flushing of each of the crude storage tanks. This data included the date and time the flushing was conducted, the duration of the actual flush, and data from three minute intervals used to develop flush engineering calculations. A review was also made of data from the previous years' flushing to be sure that the procedure was working as designed.

Vapor Control and Fire Hazard

During the LCAI visit in Valdez, Alyeska was beginning a conceptual design for measures to control vapor in the 80's and 90's tanks. The current operation presents a major fire exposure to personnel and operations located in the area adjacent to the tanks. Of particular concern is the requirement for periodic removal and cleaning of skimmers which requires the presence of personnel on tank roofs for removal and replacement of the skimmer. The constant exposure to vapor in the tanks, often near or within the explosive range, presents a potential for a vapor explosion and or fire. Although it is early in the design process, LCAI endorses RCAC and VMT efforts to correct the hazard and improve methods for vapor mitigation and reduction of the hazard to personnel and Terminal facilities.

VMT Fire Organization Staffing Levels for Emergency Fire Response

A review was conducted to examine Alyeska's VMT Fire Organization in a number of areas including staffing levels of both full time and volunteer emergency responders, emergency planning, training, and mobile and portable firefighting equipment.

Staffing – Although Alyeska experienced high turnover rates of full time and volunteer fire brigade members, the current staffing of full time firefighters has a significantly lower turnover rate than observed in previous years. The average full time firefighter is staying at a minimum of two years, with most staying much longer. This has provided significant continuity in the ability of this group to respond to emergency situations and also to maintain required day-to-day tasks. The staff total of 16 full time firefighters provides for three full time firefighters on the first 12-hour shift (days) and five full time firefighters on the second 12-hour shift (nights) seven days a week. Each of these crews works 14 consecutive days, followed by 14 days off. Each shift has a Captain who provides direction and leadership to the other firefighters. Shift Captains receive direction from VMT's full time Fire Chief, Brian Major. The Fire Chief works a 40-hour work week, but is available to respond for emergencies if necessary. During the time the Fire Chief is not immediately available to respond to emergencies, the Captains assume the role of initial Incident Commander. To better prepare these Captains for that responsibility, Alyeska has provided additional training in Incident Command and Strategy & Tactics.

The volunteer fire brigade consists of approximately sixty five (65) individuals averaging 15 available each shift from Operations, Ballast Water Treatment (BWT), Marine Operations, Oil Movement and Storage (OM&S), Power/Vapor (PH/VR) and Maintenance. The VMT management team has made a commitment to provide the volunteers for emergencies during their work shifts. Both the full time and volunteer fire fighters are equipped with the best available

personal protective equipment which meets or exceeds both OSHA and NFPA guidelines.

Emergency Planning - LCAI reviewed the plans developed by Alyeska to deal with emergency responses expected at the facility. These plans are well written and demonstrate a study of the hazards and conditions that may be experienced. The plans are the basis for training programs of full time and volunteer fire brigade members. These plans include tank fires, spill emergencies, shipboard fires, vehicle accidents, emergency medical responses, structure fires, search and rescue, etc. These plans are reviewed periodically to insure that they are both timely and up-to-date.

Training - VMT provides a comprehensive fire and Emergency Medical Services (EMS) training program for both full time and volunteer fire brigade members. This training includes an annual company off-site fire school conducted at Texas A&M University in College Station, TX. This training is attended on a bi-annual basis by all members. Members of the Valdez Fire Department (VFD) are also included in this training as available. Alyeska also provides on site training on a regular basis using both in-house instructors as well as instructors brought in from recognized fire training organizations. All the training provided is commensurate with the kinds of emergencies anticipated at the VMT facility. The training provided to this group exceeds any OSHA and NFPA recommended guidelines and the full training program has vastly improved from that observed in previous LCAI audit visits.

Mobile and Portable Firefighting Equipment – In the past 4 years, Alyeska has substantially upgraded their fleet of modern well-equipped mobile and portable firefighting apparatus. Alyeska operates four pieces of well-equipped mobile fire apparatus as well as tankers to carry additional foam resources. Several large gallonage mobile nozzles are also available if necessary. Other firefighting equipment such as nozzles, hose, and breathing apparatus all exceed minimum requirements. EMS equipment is also carried on the fire tanks. Foam supplies are more than adequate to deal with any expected full surface storage tank fire as well as any other flammable liquid fire that may occur. This on-site equipment is necessary because of the remote location of the facility and the time necessary to bring in other outside industrial and municipal resources. Additional resources are available from a fleet of tug boats that are equipped with firefighting capabilities including large gallonage nozzles as well as foam inventories. These assets are utilized to support vessel firefighting if necessary.

Electrical Classification Requirements in East Metering

A modification to the electrical tracing on a pig trap piping drain line was reviewed to determine compliance with area classification requirements in the East Metering Building. The recently installed tracing cable, approximately 20 feet in length, was installed in a Class 1, Division 1, area and after installation it

was determined that the cable was not labeled for installation in a Division 1 location. Further investigation determined that the cable was identical to Division 1 equipment; however, to certify the appropriateness of the cable, a site visit by an appropriate UL inspector was required at significantly higher cost than to simply replace the cable with one that was appropriately labeled. The cable is in the process of being replaced with Class I, Division 1, labeled cable with a completion date before the end of the summer.

Review of Joint Response Capability with Valdez Fire Department

LCAI conducted a review of the Valdez Fire Department capability for joint response to an incident at the VMT. This was done primarily because the VMT is in the City of Valdez fire service area and the City has primary responsibility for fire at VMT. VFD provides the only immediate emergency response available to assist VMT. The VFD provides emergency response to fires, EMS, vehicle accidents, search and rescue and other incidents that they may encounter. A meeting was held with Valdez Fire Chief George R. Keeney and key members of his staff to look at their capabilities.

Staffing - The VFD currently consists of nine full-time firefighting positions including the Fire Chief. That number recently was reduced by one over the last month and Chief Keeney has not been granted authorization to fill the vacant position at this time. This reduction in staffing presents challenges to continue to provide services. The VFD also has a volunteer firefighter force of approximately 75 persons. Some of which are dedicated only to EMS emergency response. Currently about 30 volunteer members are fully trained and can respond to all types of emergencies. Fifteen members of the volunteer fire department are individuals who work for VMT either as contractors or full-time Alyeska employees.

Response Support - Under Chief Keeney's leadership, the VFD is committed to responding to and supporting VMT's emergency response organization. Although the response could take up to thirty minutes VFD is committed to providing personnel and equipment to support any emergency response at the VMT. Anytime VFD responds to VMT, a unified command is established and the officers from both organizations work closely together to resolve any emergency situations.

Equipment and Training - VFD has good emergency mobile equipment including fire apparatus, ambulance, hazmat rescue apparatus, water tankers, etc. Mobile fire apparatus and tankers are stationed in unmanned outlying locations and operated by either off-duty full-time personnel or volunteers. EMS services with the ambulance respond out of the main fire station in Valdez. VFD has a good training program for both full-time and volunteer firefighters. The training program is commensurate with emergencies they expect to encounter including emergencies at the VMT. Alyeska provides opportunities for members of the

VFD to attend specialized training at their company fire school held at Texas A&M. VFD also sends a couple of individuals a year funded by a grant program to an industrial school in Elko, NV. There has been a marked improvement in the coordination and cooperation between these two emergency response organizations.

Fixed Fire Protection Systems

An inquiry was made into changes in the condition and readiness of fixed equipment and systems in VMT since the last LCAI visit. The systems and equipment are in effective operational condition and well maintained. There have been no major changes to fixed fire protection systems since the last LCAI visit in 2004 with the exception of the installation of upgrades to the East Metering Building foam system.

A visual inspection was made of the improvements to the East Metering Building foam system using data collected from a full system operational test in 2001. The system improvements include a larger foam concentrate storage tank, fire protection control valve upgrade, and installation of outside headers for transfer of foam concentrate, and supplementing water pressure through fire department connection manifolds. The system design is well arranged to meet foam system requirements for a worst case scenario event in the East Metering Building. New methodology for testing the foam concentrate proportioning system have also been used effectively on the system using technology based on an environmentally friendly test fluid and computerized data collection.

Pre-fire plans have been modified to incorporate the new fire department connections for supplementing the foam concentrate and water pressure for the system.

OBSERVATIONS AND RECOMMENDATIONS

1. Tank Roof Inspections - A periodic program to identify and repair storage tank roof and shell areas should be initiated. The inspection program may be developed from current standard corrosion engineering methods and practices now in place but appropriately modified for non-invasive or visual methods as required for identification of corroded areas in the roof and tank walls above the crude level. The roof and wall inspections should be considered as routine periodic inspections conducted separately from the tank inspection cycle for the remainder of the storage tank.

2. Foam Distribution Piping in Crude Tanks - As a result of this review, LCAI is confident that the flow rates are in line with comparison flushing conducted in tanks in previous tests. Tank flow rates show adequate flushes are being performed. This procedure needs to be continued to be

followed and should be audited on a periodic basis to insure that all foam piping is flushed periodically. **Attachment 1** is a copy of the VMT Preventive Maintenance Work Order outlining this procedure, as well as data from previous tank flushings.

3. VMT Emergency Response - There is no question that the overall VMT emergency response organization is vastly improved over LCAI's previous visit. This is particularly noticeable in the area of staffing, the commitment to free up fire brigade members, training and the improved joint response capabilities of the VFD. This effort needs to continue long term to insure continued improvement in this process.

ATTACHMENT 1

VMT PREVENTIVE MAINTENANCE WORK ORDER

tion Criteria:
ility : VMT Unit : OP System : Division : Area:
tem : Class : Equipment : Component:
Task : 35004190 01 Task Dspln: W/O Orig :
k Type: Major Fail: Major Action:
ation : Loc Group :
ent/Act: Primary E.G.:

ment Maintenance:
ility : VMT Unit : OMS OP System: ET Division : 54 Area:
tem : H Class: Equipment: TANK TK-12 Component:
Name : TANK - CRUDE OIL STORAGE, 510000 BBLS

ation : PEG :
ent/Act: Desc :

Task : 35004190 01 Task Dspln : O Work Type: Task Completion: 04/29/05 Task Status: CLOSED
Orig Date: 03/01/05 Major Failure: Major Action :
k Title : Y1,O,54-TK-12 SPIDER FLUSH

Work Description :

SCOPE:
To flow oil through the Jump Over Piping and evaluate the condition of the spider piping inside the Crude Oil Tank subsurface foam injection system.

NOTE: This model work order applies to the following crude tank spider systems: 54-TK-1 through 54-TK-14 & 55-TK-15 through 55-TK-18.

SPECIAL REQUIREMENT:
SUMMARY:
This procedure involves gravity flowing crude oil from the "Source" tank through the Jump Over piping to the spider piping inside the "Target" tank. These tanks will be isolated from the rest of the crude system. The flow rate is calculated from the recorded oil level in each tank with respect to time and should be compared with previous results.

Work Description :

TANK SELECTION:
This PM procedure is performed for the "Target" tank using a "Source" tank located in the same tank farm. As a guide, Table A below summarizes the likely choices for the "Target" and "Source" tanks. Other "Source" tanks may be used with the prior approval of the responsible engineer if the tank listed is not available. Subsitute "Source" tanks will be closest available tank available to the "Target" tank and at the same elevation. In general, the "Source" tanks in Table A are the "sister" tank to the "Target" except for "Target" tanks 2, 4, 13 and 14, which have special considerations related to relief and water draw functions.

"Source" Tank:
"Target" Tank:

PERSONNEL:
OMS Tank Farm Operator
OCC Controller
Responsible Engineer

PARTS/MATERIALS/TOOLS:
Small Ladder as needed to access 12" Ball Valve in Jump Over Piping

PREPARATION:
001: Coordinate the schedule of this PM with OCC to assure that constraints such as inventory, tanker loading and header isolation can be accommadated.

002: Provide OCC with a copy of this procedure.

003: Coordinate with OCC to adjust tank levels appropriately prior to this procedure. (Reference Prepartion section below for levels.)

004: Request that OCC notify the Information Systems Coordinator that Enraf tank level data from the "Target" tank will be needed at one-minute intervals from the MV-20,000 during the procedure.

005: Verify that all mixers on "Source" and "Target" tanks are turned off

Work Description :

at least one hour prior to beginning this procedure.

PREREQUISITES:

001: Verify that oil level (elevation) is "Source" tank is 19.75 to 20.25 feet above that in "Target" tank. (Differential head may be greater but will extend duration of procedure approximately 1.5 hours per additional foot.)

002: Verify that "Target" tank level is at least 5 feet.

003: Ensure that one crude header connecting the tanks (or isolated portion) is available and shall be isolated from the rest of the crude oil system for the duration of this procedure.

004: Notify OCC Lead, OCC Information Systems Coordinator and PV prior to beginning work.

NOTE: Monitoring the relief system will be required when Tanks 1 or 3 are "Target" tanks to ensure no mainline relief activity. Isolation from the relief header is not required. It is also not necessary to "drop tank bottoms" prior to performing this procedure.

START OF PROCEDURE:

001: Verify that all items in the prerequisite section are complete.

002: Open 12" Jump Over line block valve to "Target" tank and notify OCC controller.

003: Request OCC controller to complete steps 004 through 018.

004: Verify that "Target" tank's 36" inlet valve is closed.

005: Record initial level of "Source" tank and date and time from Enraf: ft. Date: Time:

006: Record "Source" tank temperature from Enraf: degrees F.

Work Description :

007: Record initial level of "Target" tank and time from Enraf: feet.
Time:

008: Record "Target" tank temperature from Enraf: degrees F.

009: Open header valves to provide the most direct route between "Source" and "Target" tanks while isolating these tanks from the rest of the crude system. Record valve positions in Table A.

NOTE: For example, "A" header valves will be open and "B" header valves will be closed at the "Source" and "Target" tanks. For all other tanks, the "A" header valves must be closed and the "B" header valves may be positioned at OCC's discretion. If valve 54-MOV-746 is used to isolate a section of "A" header, the remainder of the header may also be used at the discretion of OCC.

010: Request that "T-TANK" program be initiated to record tank level data from MV-20,000.

011: Open "Source" tank's 36" inlet valve to start the flow of oil.

012: Flow crude and record data in electronic format (approximately one to two hours).

013: When the difference between tank levels is at least 19.000 feet, record levels and times from Enraf:

"SOURCE" Tank Level: ft Time:
"TARGET" Tank Level: ft Time:

014: Allow 15 minutes after tank differential is 19 feet for "T-TANK" program to record data. Data acquisition is now complete.

015: For "Target" tanks 1 and 3 only, ensure no mainline relief activity occured.

016: Close header and inlet valves used during the evaluation and return

Work Description :

crude piping and 36" inlet valves to normal configuration.

017: Inform PV that the procedure is complete.

018: Restore "Source" and "Target" tank mixers to normal configuration.

019: Close 12" Jump Over line block valve to "Target" tank and notify OCC controller. If procedure will be used on multiple tanks, this step may be performed on all tanks at one time.

020: Obtank tank level data in electronic format from MV-20,000.

021: Provide a copy of this procedure to responsible enginer for review and evaluation.

END OF PROCEDURE

FOR ANY DISCREPANCIES GENERATE A WORK REQUEST FOR A SUPPLEMENTAL WORK ORDER TO ADDRESS THE CONDITION.

THE COMPLETION AND SIGN-OFF OF THIS PM CONSTITUTES A REVIEW OF THE FREQUENCY, SCHEDULE, AND PROCEDURAL CONTENT. ANY CHANGES SHOULD BE PER THE CURRENT PM CHANGE PROCESS.

Journeyman Report :

PM SIGNED BY M WILSON 138578 ON 4/4/05	05/04/05	UVC4267
SIGNED BY OMS SUPERVISOR S GOUDREAU 146779 ON 4/10/05	05/04/05	UVC4267
SIGNED BY FACILITY ENGINEER S TAIT 181313 ON 4/29/05	05/04/05	UVC4267
COMMENTS: SEE ATTACHED DOCUMENT FOR COMMENTS,	05/04/05	UVC4267
CACULATIONS AND CONCLUSIONS.	05/04/05	UVC4267

Work Order Task Instructions

oil system for the duration of this procedure.

004: Notify OCC Lead, OCC Information Systems Coordinator and PV prior to beginning work.

NOTE: Monitoring the relief system will be required when Tanks 1 or 3 are "Target" tanks to ensure no mainline relief activity. Isolation from the relief header is not required. It is also not necessary to "drop tank bottoms" prior to performing this procedure.

START OF PROCEDURE:

001: Verify that all items in the prerequisite section are complete.

002: Open 12" Jump Over line block valve to "Target" tank and notify OCC controller.

003: Request OCC controller to complete steps 004 through 018.

004: Verify that "Target" tank's 36" inlet valve is closed.

005: Record initial level of "Source" tank and date and time from Enraf: ~~5627~~ ft. 25.55 Date: 04·04·05 Time: ~~0608~~ 0117

006: Record "Source" tank temperature from Enraf: ~~58.8~~ degrees F. 58.8

007: Record initial level of "Target" tank and time from Enraf: ~~36.00~~ feet. 5.35
Time:

008: Record "Target" tank temperature from Enraf: ~~58.8~~ degrees F. 54.3

009: Open header valves to provide the most direct route between "Source" and "Target" tanks while isolating these tanks from the rest of the crude system. Record valve positions in Table A.

NOTE: For example, "A" header valves will be open and "B" header valves will be closed at the "Source" and "Target" tanks. For all other tanks, the "A" header valves must be closed and the "B" header valves may be positioned at OCC's discretion. If valve 54-MOV-746 is used to isolate a section of "A" header, the remainder of the header may also be used at the discretion of OCC.

Facility: VMT VALDEZ TERM. WORK MGMT. UNITS
Unit : OMS Project :
Ref Type : Ref No. :
W/O Type: PM Group : V-OMS W/O Dspln : O
Planner : U174755 PETERSON M
W/O Title : Y1,O,54-TK-12 SPIDER FLUSH
W/O Task Title: Y1,O,54-TK-12 SPIDER FLUSH
Written To : TANK - CRUDE OIL STORAGE, 510000 BBL
Task Dspln : O Task Pri: 03 Need Date: 04/30/05

Work Order Package

35004190 01

MASTER
Rpt : TIPMC11
Date: 03/24/05

Alyeska pipeline

Page: 2 4

Work Order Task Instructions

.
010: Request that "T-TANK" program be initiated to record tank level data from MV-20,000.
.
011: Open "Source" tank's 36" inlet valve to start the flow of oil.
.
012: Flow crude and record data in electronic format (approximately one to two hours).
.
013: When the difference between tank levels is at least 19.000 feet, record levels and times from Enraf.
.
"SOURCE" Tank Level: ft 25.59 Time: 0617
"TARGET" Tank Level: ft 5.37 Time: 0717
.
014: Allow 15 minutes after tank differential is 19 feet for "T-TANK" program to record data. Data acquisition is now complete.
.
015: For "Target" tanks 1 and 2 only, ensure no mainline relief activity occurred.
.
016: Close header and inlet valves used during the evaluation and return crude piping and 36" inlet valves to normal configuration.
.
017: Inform RV that the procedure is complete.
.
018: Restore "Source" and "Target" tank mixers to normal configuration.
.
019: Close 12" Jump Over line block valve to "Target" tank and notify OCC controller. If procedure will be used on multiple tanks, this step may be performed on all tanks at one time.
.
020: Obtain tank level data in electronic format from MV-20,000.
.
021: Provide a copy of this procedure to responsible engineer for review and evaluation.
.
END OF PROCEDURE
.
FOR ANY DISCREPANCIES GENERATE A WORK REQUEST FOR A SUPPLEMENTAL WORK ORDER

Facility: VMT VALDEZ TERM. WORK MGMT. UNITS
Unit : OMS Project :
Ref Type: Ref No.:
W/O Type: PM Group : V-OMS W/O Dspln : O
Planner : U174755 PETERSON M
W/O Title : Y1,O,54-TK-12 SPIDER FLUSH
W/O Task Title: Y1,O,54-TK-12 SPIDER FLUSH
Written To : TANK - CRUDE OIL STORAGE, 510000 BBL
Task Dspln : O Task Pri: 03 Need Date: 04/30/05

Work Order Package

35004190 01

MASTER
Rpt : TIPMC11
Date: 03/24/05

Alyeska pipeline

Work Order Task Instructions

TO ADDRESS THE CONDITION.
.
THE COMPLETION AND SIGN-OFF OF THIS PM CONSTITUTES A REVIEW OF THE FREQUENCY, SCHEDULE, AND PROCEDURAL CONTENT. ANY CHANGES SHOULD BE PER THE CURRENT PM CHANGE PROCESS.

Task Requirements

FAC.	REG/REQ	VALUE	COMMENTS
VMT	13AAC50	025	
VMT	NFPA	0011	(1998) SECTION 8-1

QC Requirements/Comments

NO QC REQUIREMENTS FOR THE WORK ORDER TASK

Work Completion Signatures

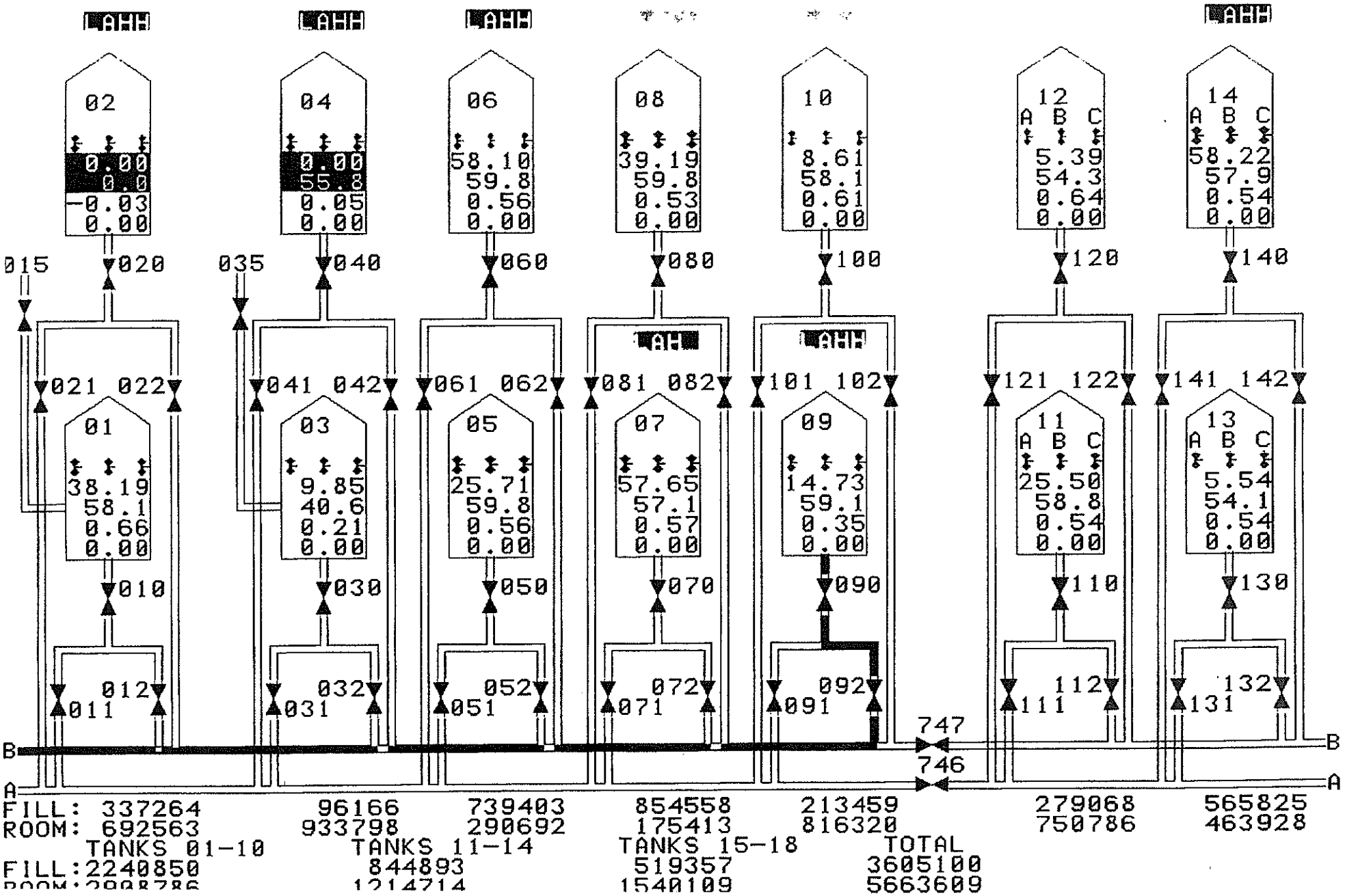
Name/Badge	Function/Dept.	Date/Hours Worked
M.L. Watson / 138578	QAC	04-04-05
[illegible] / 146779	OMS	4-10-05
[illegible] / 181313	Engineer / OES	4-29-05

Completion Comments on Work Performed

COMMENTS: E/B

CPU –
BKP

EAST TANK FARM

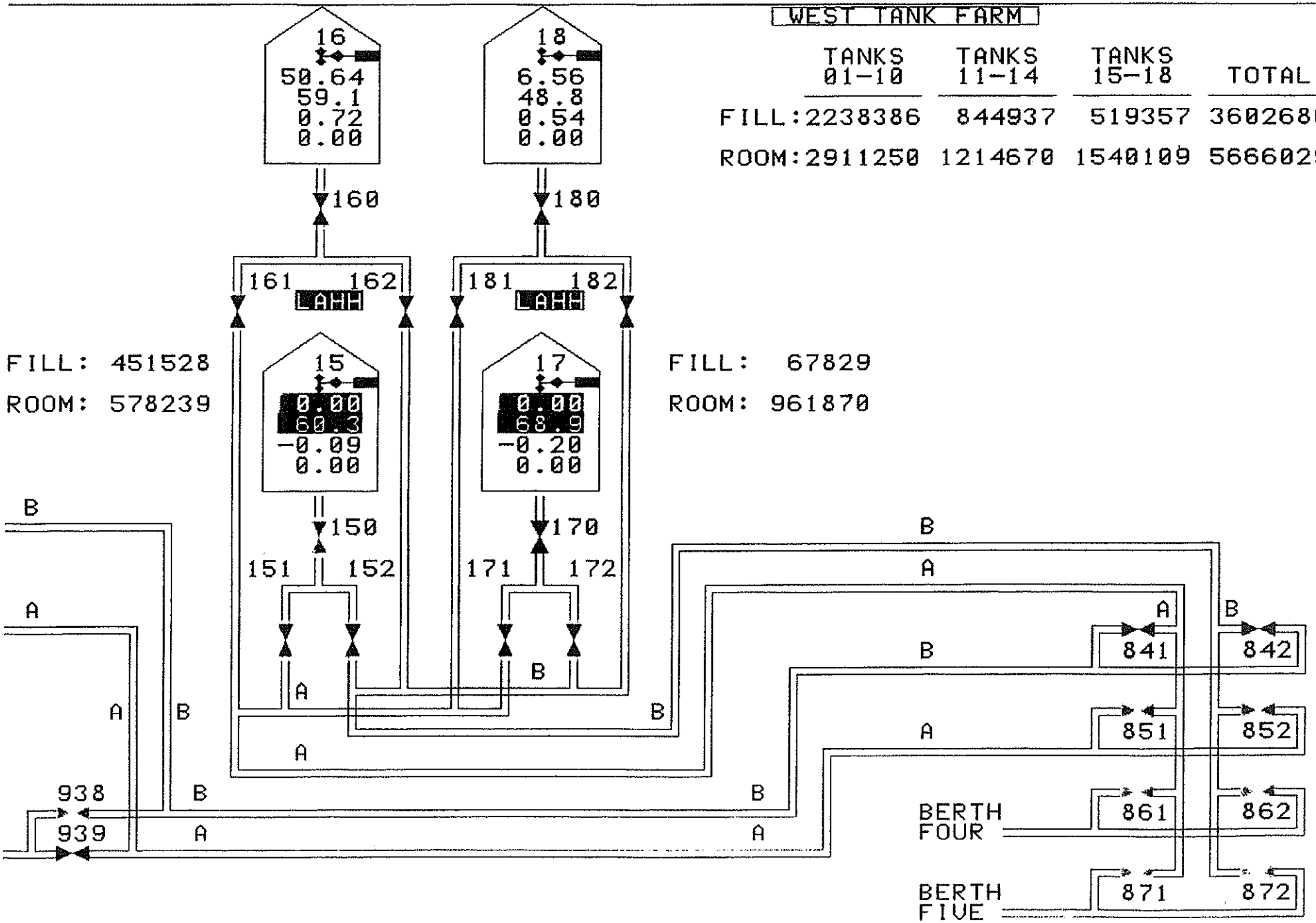


	TANKS 01-10	TANKS 11-14	TANKS 15-18	TOTAL
FILL:	2240850	844893	519357	3605100
ROOM:	2888786	1214714	1540109	5663609

FILL:	337264	96166	739403	854558	213459	279068	565825
ROOM:	692563	933798	290692	175413	816320	750786	463928

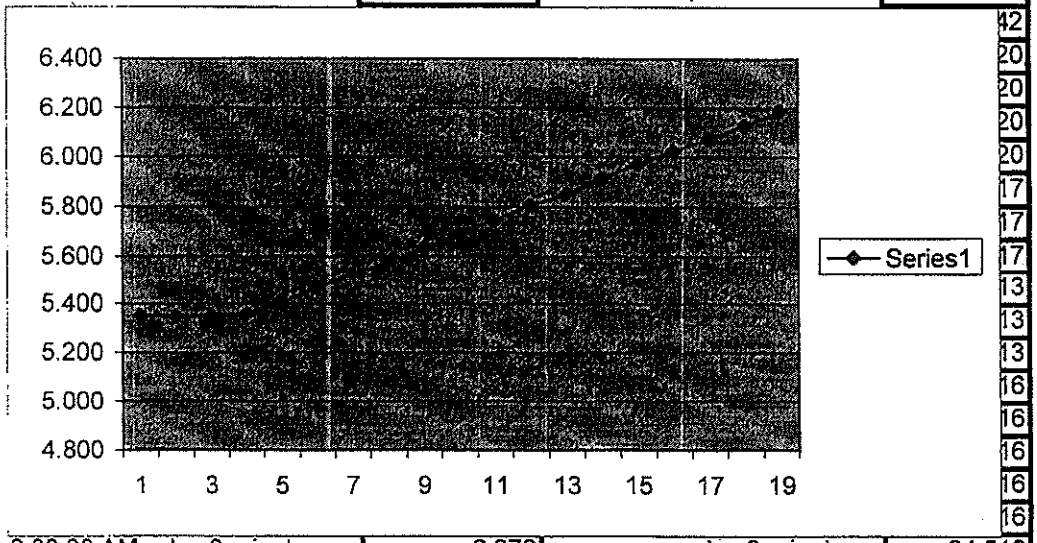
01:23:31
04/04/05
MONDAY
CPU - A
BKP HOT

T COPY



Start	Date Time	4-Apr-05 1:17:00	-Enter Start Date and Time of flush -Enter Target Tank and Source Tank		
	Target Tank	12		Source Tank	11
0	Opening Level	5.351	42	plus 1 minute	25.547
1	plus 1 minute	5.351	43	plus 1 minute	25.547
2	plus 1 minute	5.351	44	plus 1 minute	25.547
3	plus 1 minute	5.351	45	plus 1 minute	25.547
4	plus 1 minute	5.351	46	plus 1 minute	25.547
5	plus 1 minute	5.351	47	plus 1 minute	25.547
6	plus 1 minute	5.351	48	plus 1 minute	25.547
7	plus 1 minute	5.351	49	plus 1 minute	25.547
8	plus 1 minute	5.351	50	plus 1 minute	25.540
9	plus 1 minute	5.359	51	plus 1 minute	25.530
10	plus 1 minute	5.377	52	plus 1 minute	25.516
11	plus 1 minute	5.392	53	plus 1 minute	25.502
12	plus 1 minute	5.409	54	plus 1 minute	25.486
13	plus 1 minute	5.428	55	plus 1 minute	25.467
14	plus 1 minute	5.446	56	plus 1 minute	25.448
15	plus 1 minute	5.465	57	plus 1 minute	25.430
16	plus 1 minute	5.483	58	plus 1 minute	25.409
17	plus 1 minute	5.503	59	plus 1 minute	25.392
18	plus 1 minute	5.522	60	plus 1 minute	25.374
19	plus 1 minute	5.540	61	plus 1 minute	25.352
20	plus 1 minute	5.558	62	plus 1 minute	25.332
21	plus 1 minute	5.579	63	plus 1 minute	25.313
22	plus 1 minute	5.596	64	plus 1 minute	25.297
23	plus 1 minute	5.618	65	plus 1 minute	25.276
24	plus 1 minute	5.634	66	plus 1 minute	25.258
25	plus 1 minute	5.655	67	plus 1 minute	25.240
26	plus 1 minute	5.673	68	plus 1 minute	25.222
27	plus 1 minute	5.692	69	plus 1 minute	25.202
28	plus 1 minute	5.710	70	plus 1 minute	25.183
29	plus 1 minute	5.730	71	plus 1 minute	25.164
30	plus 1 minute	5.748	72	plus 1 minute	25.145
31	plus 1 minute	5.767	73	plus 1 minute	25.126
32	plus 1 minute	5.786	74	plus 1 minute	25.107
33	plus 1 minute	5.807	75	plus 1 minute	25.088
34	plus 1 minute	5.824	76	plus 1 minute	25.070
35	plus 1 minute	5.843	77	plus 1 minute	25.054
36	plus 1 minute	5.853	78	plus 1 minute	25.034
37	plus 1 minute	5.879	79	plus 1 minute	25.016
38	plus 1 minute	5.899	80	plus 1 minute	24.995
39	plus 1 minute	5.916	81	plus 1 minute	24.977
40	plus 1 minute	5.933	82	plus 1 minute	24.958
41	plus 1 minute	5.955	83	plus 1 minute	24.940

Start	Date	4-Apr-05		
	Time	1:17		
	Target Tank	12	Source Tank	11
1:17:00 AM	Opening Level	5.351	Opening Level	25.547
1:20:00 AM	plus 3 minutes	5.351	plus 3 minutes	25.547
1:23:00 AM	plus 3 minutes	5.351	plus 3 minutes	25.547
1:26:00 AM	plus 3 minutes	5.359	plus 3 minutes	25.530
1:29:00 AM	plus 3 minutes	5.409	plus 3 minutes	25.486
1:32:00 AM	plus 3 minutes	5.465	plus 3 minutes	25.430
1:35:00 AM	plus 3 minutes	5.522	plus 3 minutes	25.374
1:38:00 AM	plus 3 minutes	5.579	plus 3 minutes	25.313
1:41:00 AM	plus 3 minutes	5.634	plus 3 minutes	25.258
1:44:00 AM	plus 3 minutes	5.692	plus 3 minutes	25.202
1:47:00 AM	plus 3 minutes	5.748	plus 3 minutes	25.145
1:50:00 AM	plus 3 minutes	5.807	plus 3 minutes	25.088
1:53:00 AM	plus 3 minutes	5.853	plus 3 minutes	25.034
1:56:00 AM	plus 3 minutes	5.916	plus 3 minutes	24.977
1:59:00 AM	plus 3 minutes	5.973	plus 3 minutes	24.921
2:02:00 AM	plus 3 minutes	6.026	plus 3 minutes	24.865
2:05:00 AM	plus 3 minutes	6.074	plus 3 minutes	24.819
2:08:00 AM	plus 3 minutes	6.130	plus 3 minutes	24.763
2:11:00 AM	plus 3 minutes	6.186	plus 3 minutes	24.710
2:14:00 AM	plus 3 minutes	6.243	plus 3 minutes	24.653
2:17:00 AM	plus 3 minutes	6.287	plus 3 minutes	24.607



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3:08:00 AM	plus 3 minutes	6.376	plus 3 minutes	24.516
3:11:00 AM	plus 3 minutes	6.376	plus 3 minutes	24.516
3:14:00 AM	plus 3 minutes	6.376	plus 3 minutes	24.516
3:17:00 AM	plus 3 minutes	6.376	plus 3 minutes	24.516
3:20:00 AM	plus 3 minutes	6.376	plus 3 minutes	24.516

Crude Tank Spider Flush Engineering Calculations:

TANK: **TO:** 12 FROM: 11

WO #: 35004190
DATE: 4/4/2005 START: 1:17

TIME		TARGET LEVEL				TIME		TARGET LEVEL			
START	END	LOWER	UPPER	CHANGE	**RATE**	START2	END2	LOWER2	UPPER2	CHANGE2	RATE2
1:29 AM	1:32 AM	5.4089	5.4650	0.0560	9861.328	1:35 AM	1:38 AM	5.5220	5.5790	0.0570	10033.2

COMPARISON WITH PREVIOUS YEARS DATA:

W0#: 34001996
DATE: 4/9/2004

2004 HISTORICAL	2005 AVG	% DIFFERENCE
10,101	9947	0.9848

CONCLUSION AND RECOMMENDATIONS:

Flow rates are in line with the comparison flush.
Tank flow rates show an adequate flush was performed.
No further action is required.

Facility: VMT VALDEZ TERM. WORK MGMT. UNITS
Unit : OMS Project :
Ref Type: Ref No.:
W/O Type: MO Group : W/O Dspln :
Planner : U174755 PETERSON M
W/O Title : CRUDE STORAGE TANK SPIDER FLUSH
W/O Task Title: Y1,O,CRUDE STORAGE TANK SPIDER FLUSH
Written To : CRUDE STORAGE TANK SPIDER FLUSH
Task Dspln : O Task Pri: 03 Need Date:

Work Order Package

31018667 01

Rpt : TIPMC11
Date: 05/30/06

Alyeska pipeline

Work Order Task Written To

Facility : VMT
Division :
Equipment :
Work Item :
Equip. Tag:
UTC :
Catalog ID:
Client/Act:
Location : 54-TK-1 THRU 54-TK-10
Cost Centr:
Percentage: 100.000

Unit : OMS
Area :
Component:
Eqt. List:
Alt:
Tbl/Brkdwn: (Past 12 mo)
Job Type : PM UCR:
Activity :
Acct No. : GL 019

Op Sys :
Sys/Cls:
Ops Review Reqd:
User Def:
03

Work Order Task Instructions

SCOPE:
To flow oil through the Jump Over Piping and evaluate the condition of the spider piping inside the Crude Oil Tank subsurface foam injection system.

NOTE: This model work order applies to the following crude tank spider systems: 54-TK-1 through 54-TK-14 & 55-TK-15 through 55-TK-18.

SPECIAL REQUIREMENT:
SUMMARY:
This procedure involves gravity flowing crude oil from the "Source" tank through the Jump Over piping to the spider piping inside the "Target" tank. These tanks will be isolated from the rest of the crude system. The flow rate is calculated from the recorded oil level in each tank with respect to time and should be compared with previous results.

TANK SELECTION:
This PM procedure is performed for the "Target" tank using a "Source" tank located in the same tank farm. As a guide, Table A below summarizes the likely choices for the "Target" and "Source" tanks. Other "Source" tanks may be used with the prior approval of the responsible engineer if the tank listed is not available. Subsitute "Source" tanks will be closest available tank available to the "Target" tank and at the same elevation. In general, the "Source" tanks in Table A are the "sister" tank to the "Target" except for "Target" tanks 2, 4, 13 and 14, which have special considerations re-

Work Order Task Instructions

lated to relief and water draw functions.

.

"Source" Tank:
"Target" Tank:

.

PERSONNEL:
OMS Tank Farm Operator
OCC Controller
Responsible Engineer

.

PARTS/MATERIALS/TOOLS:
Small Ladder as needed to access 12" Ball Valve in Jump Over Piping

.

PREPARATION:
001: Coordinate the schedule of this PM with OCC to assure that constraints such as inventory, tanker loading and header isolation can be accommadated.

.

002: Provide OCC with a copy of this procedure.

.

003: Coordinate with OCC to adjust tank levels appropriately prior to this procedure. (Reference Prepartion section below for levels.)

.

004: Request that OCC notify the Information Systems Coordinator that Enraf tank level data from the "Target" tank will be needed at one-minute intervals from the MV-20,000 during the procedure.

.

005: Verify that all mixers on "Source" and "Target" tanks are turned off at least one hour prior to beginning this procedure.

.

PREREQUISITES:
001: Verify that oil level (elevation) is "Source" tank is 19.75 to 20.25 feet above that in "Target" tank. (Differential head may be greater but will extend duration of procedure approximately 1.5 hours per additional foot.)

.

002: Verify that "Target" tank level is at least 5 feet.

.

003: Ensure that one crude header connecting the tanks (or isolated portion) is available and shall be isolated from the rest of the crude

Work Order Task Instructions

oil system for the duration of this procedure.

004: Notify OCC Lead, OCC Information Systems Coordinator and PV prior to beginning work.

NOTE: Monitoring the relief system will be required when Tanks 1 or 3 are "Target" tanks to ensure no mainline relief activity. Isolation from the relief header is not required. It is also not necessary to "drop tank bottoms" prior to performing this procedure.

START OF PROCEDURE:

001: Verify that all items in the prerequisite section are complete.

002: Open 12" Jump Over line block valve to "Target" tank and notify OCC controller.

003: Request OCC controller to complete steps 004 through 018.

004: Verify that "Target" tank's 36" inlet valve is closed.

005: Record initial level of "Source" tank and date and time from Enraf: ft. Date: Time:

006: Record "Source" tank temperature from Enraf: degrees F.

007: Record initial level of "Target" tank and time from Enraf: feet. Time:

008: Record "Target" tank temperature from Enraf: degrees F.

009: Open header valves to provide the most direct route between "Source" and "Target" tanks while isolating these tanks from the rest of the crude system. Record valve positions in Table A.

NOTE: For example, "A" header valves will be open and "B" header valves will be closed at the "Source" and "Target" tanks. For all other tanks, the "A" header valves must be closed and the "B" header valves may be positioned at OCC's discretion. If valve 54-MOV-746 is used to isolate a section of "A" header, the remainder of the header may also be used at the discretion of OCC.

Facility: VMT VALDEZ TERM. WORK MGMT. UNITS
Unit : OMS Project :
Ref Type: Ref No.:
W/O Type: MO Group : W/O Dspln :
Planner : U174755 PETERSON M
W/O Title : CRUDE STORAGE TANK SPIDER FLUSH
W/O Task Title: Y1,O,CRUDE STORAGE TANK SPIDER FLUSH
Written To : CRUDE STORAGE TANK SPIDER FLUSH
Task Dspln : O Task Pri: 03 Need Date:

Work Order Package

31018667 01

Rpt : TIPMC11
Date: 05/30/06

Alyeska pipeline

Work Order Task Instructions

010: Ensure that PI is available to record tank level data from MV-20,000.

011: Open "Source" tank's 36" inlet valve to start the flow of oil.

012: Flow crude and record data in electronic format (approximately one to two hours).

013: When the difference between tank levels is at least 19.000 feet, record levels and times from Enraf:

"SOURCE" Tank Level: ft Time:
"TARGET" Tank Level: ft Time:

014: Allow 15 minutes after tank differential is 19 feet for PI to record data. Data acquisition is now complete.

015: For "Target" tanks 1 and 3 only, ensure no mainline relief activity occured.

016: Close header and inlet valves used during the evaluation and return crude piping and 36" inlet valves to normal configuration.

017: Inform PV that the procedure is complete.

018: Restore "Source" and "Target" tank mixers to normal configuration.

019: Close 12" Jump Over line block valve to "Target" tank and notify OCC controller. If procedure will be used on multiple tanks, this step may be performed on all tanks at one time.

020: Obtain tank level data in electronic format from PI.

021: Provide a copy of this procedure to responsible enginer for review and evaluation.

END OF PROCEDURE

FOR ANY DISCREPANCIES GENERATE A WORK REQUEST FOR A SUPPLEMENTAL WORK ORDER TO ADDRESS THE CONDITION.

Facility: VMT VALDEZ TERM. WORK MGMT. UNITS
Unit : OMS Project :
Ref Type: Ref No.:
W/O Type: MO Group : W/O Dspln :
Planner : U174755 PETERSON M
W/O Title : CRUDE STORAGE TANK SPIDER FLUSH
W/O Task Title: Y1,O,CRUDE STORAGE TANK SPIDER FLUSH
Written To : CRUDE STORAGE TANK SPIDER FLUSH
Task Dspln : O Task Pri: 03 Need Date:

Work Order Package

31018667 01

Rpt : TIPMC11
Date: 05/30/06

Alyeska pipeline

Work Order Task Instructions

.
THE COMPLETION AND SIGN-OFF OF THIS PM CONSTITUTES A REVIEW OF THE FREQUENCY, SCHEDULE, AND PROCEDURAL CONTENT. ANY CHANGES SHOULD BE PER THE CURRENT PM CHANGE PROCESS.

Task Requirements

FAC.	REG/REQ	VALUE	COMMENTS
VMT	13AAC50	025	
VMT	NFPA	0011	(1998) SECTION 8-1

QC Requirements/Comments

NO QC REQUIREMENTS FOR THE WORK ORDER TASK

Work Completion Signatures

Name/Badge	Function/Dept.	Date/Hours Worked

Completion Comments on Work Performed

COMMENTS:

Facility: VMT VALDEZ TERM. WORK MGMT. UNITS
Unit : OMS Project :
Ref Type: Ref No.:
W/O Type: MO Group : W/O Dspln :
Planner : U174755 PETERSON M
W/O Title : CRUDE STORAGE TANK SPIDER FLUSH
W/O Task Title: Y1,O,CRUDE STORAGE TANK SPIDER FLUSH
Written To : CRUDE STORAGE TANK SPIDER FLUSH
Task Dspln : O Task Pri: 03 Need Date:

Work Order Package

31018667 01

Rpt : TIPMC11
Date: 05/30/06

Alyeska pipeline

Completion Comments on Work Performed

***** E N D O F R E P O R T *****

Y1,O,TANK SPIDER FLUSH PM

EVALUATION of RESULTS

To be completed by Responsible Engineer.

Using the electronic data recorded from the MV-20,000 for the "Target" tank, calculate the flow rate for two 3-minute periods.

Note: For instances when Tanks 1 or 3 were the "Target" tanks and mainline relief activity occurred, use the data collected for the "Source", rather than the "Target" Tank in this evaluation.

___ 1.Select two levels that occurred at 3-minute intervals.

Lower Level: _____ ft. at Time: _____:_____

Upper Level: _____ ft. at Time + 3 minutes: _____:_____

___ 2.Calculate the Change in Tank Level.

Change in Tank Level = Upper Level – Lower Level

Change in Tank Level = _____ ft. - _____ ft. = _____ ft.

___ 3.Calculate Flow Rate #1 during this 3-minute period:

$$\text{Flow Rate \#1} = \frac{(\text{Change in Tank Level, ft.})\ (60\ \text{min/hr})\ (8{,}800\ \text{bbl/ft of tank level})}{3\ \text{min}}$$

$$\text{Flow Rate \#1} = \frac{(\_\_\_\_\_\ \text{ft.})\ (60\ \text{min/hr})\ (8{,}800\ \text{bbl/ft of tank level})}{3\ \text{min}}$$

Flow Rate #1 = _____ bbl/hr

___ 4.Select two different levels that occurred at 3-minute intervals.

Lower Level: _____ ft. at Time: _____:_____

Upper Level: _____ ft. at Time + 3 minutes: _____:_____

___ 5.Calculate the Change in Tank Level.

Change in Tank Level = Upper Level – Lower Level

Change in Tank Level = _____ ft. - _____ ft. = _____ ft.

___ 6.Calculate Flow Rate #2 during this 3-minute period:

$$\text{Flow Rate \#2} = \frac{(\text{Change in Tank Level, ft.})\ (60\ \text{min/hr})\ (8{,}800\ \text{bbl/ft of tank level})}{3\ \text{min}}$$

$$\text{Flow Rate \#2} = \frac{(\_\_\_\_\_\ \text{ft.})\ (60\ \text{min/hr})\ (8{,}800\ \text{bbl/ft of tank level})}{3\ \text{min}}$$

Flow Rate #2 = _____ bbl/hr

___ 7.Compare Flow Rate #1 and #2 with those calculated from previous years', considering any effects from oil temperature changes.

___ 8.Responsible Engineer's conclusions and recommendations: _____

_____

_____

_____

_____

Y1,O,TANK SPIDER FLUSH PM

Table A

"Target" and "Source" Tanks

"Target" Tank	"Source" Tank
1	2
2	4
3	4
4	2
5	6
6	5
7	8
8	7
9	10
10	9
11	12
12	11
13	11
14	11
15	16
16	15
17	18
18	17

Table B

Valve Configuration

On this form, identify the position of all headers and tank valves during this procedure. This record will support future reference and evaluations.

Tank #	Crude Oil Header "A" Valve Tag #	**Valve Position**	Crude Oil Header "B" Valve Tag #	**Valve Position**	36" Crude Oil Tank Inlet Valve Tag #	**Valve Position**	12" Jump Over line valve	**Valve Position**
TK-1	54-MOV-011		54-MOV-012		54-MOV-010		54-V147	
TK-2	54-MOV-021		54-MOV-022		54-MOV-020		54-V146	
TK-3	54-MOV-031		54-MOV-032		54-MOV-030		54-V155	
TK-4	54-MOV-041		54-MOV-042		54-MOV-040		54-V154	
TK-5	54-MOV-051		54-MOV-052		54-MOV-050		54-V138	
TK-6	54-MOV-061		54-MOV-062		54-MOV-060		54-V158	
TK-7	54-MOV-071		54-MOV-072		54-MOV-070		54-V164	
TK-8	54-MOV-081		54-MOV-082		54-MOV-080		54-V163	
TK-9	54-MOV-091		54-MOV-092		54-MOV-090		54-V167	
TK-10	54-MOV-101		54-MOV-102		54-MOV-100		54-V139	
TK-11	54-MOV-111		54-MOV-112		54-MOV-110		54-V168	
TK-12	54-MOV-121		54-MOV-122		54-MOV-120		54-V140	
TK-13	54-MOV-131		54-MOV-132		54-MOV-130		54-V175	
TK-14	54-MOV-141		54-MOV-142		54-MOV-140		54-V174	
TK-15	55-MOV-151		55-MOV-152		55-MOV-150		55-V118	
TK-16	55-MOV-161		55-MOV-162		55-MOV-160		55-V115	
TK-17	55-MOV-171		55-MOV-172		55-MOV-170		55-V123	
TK-18	55-MOV-181		55-MOV-182		55-MOV-180		55-V122	
Header	54-MOV-746		54-MOV-747		------		------	

35004194-01	Y1,O,54-TK-8 SPIDER FLUSH	03	9.00	3.25 PM	OMS	5/4/2005
35004195-01	Y1,O,54-TK-7 SPIDER FLUSH	03	9.00	2.50 PM	OMS	5/5/2005
35004196-01	Y1,O,54-TK-6 SPIDER FLUSH	03	9.00	3.00 PM	OMS	5/4/2005
35004197-01	Y1,O,54-TK-5 SPIDER FLUSH	03	9.00	1.50 PM	OMS	5/4/2005
35004198-01	Y1,O,54-TK-4 SPIDER FLUSH	03	9.00	PM	OMS	4/20/2005
35004199-01	Y1,O,54-TK-3 SPIDER FLUSH	03	9.00	2.25 PM	OMS	5/5/2005
35004200-01	Y1,O,54-TK-2 SPIDER FLUSH	03	9.00	PM	OMS	4/20/2005
35004201-01	Y1,O,54-TK-1 SPIDER FLUSH	03	9.00	2.25 PM	OMS	5/4/2005
35007006-12	X005,OPSS,OMS,M,SUPPORT FOR TANK 7 SPIDER FLUSH	03	12.00	PR	OPSS	2/23/2006
36003940-01	Y1,O,55-TK-18 SPIDER FLUSH	03	9.00	PM	OMS	4/27/2006
36003941-01	Y1,O,55-TK-17 SPIDER FLUSH	03	9.00	PM	OMS	4/27/2006
36003942-01	Y1,O,55-TK-16 SPIDER FLUSH	03	9.00	2.00 PM	OMS	4/12/2006
36003943-01	Y1,O,55-TK-15 SPIDER FLUSH	03	9.00	PM	OMS	4/27/2006
36003944-01	Y1,O,54-TK-14 SPIDER FLUSH	03	9.00	1.00 PM	OMS	4/27/2006
36003945-01	Y1,O,54-TK-13 SPIDER FLUSH	03	9.00	1.00 PM	OMS	4/27/2006
36003946-01	Y1,O,54-TK-12 SPIDER FLUSH	03	9.00	1.00 PM	OMS	4/27/2006
36003947-01	Y1,O,54-TK-11 SPIDER FLUSH	03	9.00	1.00 PM	OMS	4/27/2006
36003948-01	Y1,O,54-TK-10 SPIDER FLUSH	03	9.00	1.00 PM	OMS	4/27/2006
36003949-01	Y1,O,54-TK-9 SPIDER FLUSH	03	9.00	1.00 PM	OMS	4/27/2006
36003950-01	Y1,O,54-TK-8 SPIDER FLUSH	03	9.00	1.00 PM	OMS	4/27/2006
36003951-01	Y1,O,54-TK-7 SPIDER FLUSH	03	9.00	1.00 PM	OMS	4/27/2006
36003952-01	Y1,O,54-TK-6 SPIDER FLUSH	03	9.00	1.00 PM	OMS	4/27/2006
36003953-01	Y1,O,54-TK-5 SPIDER FLUSH	03	9.00	PM	OMS	4/27/2006
36003954-01	Y1,O,54-TK-4 SPIDER FLUSH	03	9.00	1.00 PM	OMS	4/27/2006
36003955-01	Y1,O,54-TK-3 SPIDER FLUSH	03	9.00	1.00 PM	OMS	4/27/2006
36003956-01	Y1,O,54-TK-2 SPIDER FLUSH	03	9.00	PM	OMS	4/27/2006
36003957-01	Y1,O,54-TK-1 SPIDER FLUSH	03	9.00	1.00 PM	OMS	4/27/2006