Department of Energy

ROCKY FLATS OFFICE
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JAN 26 1993

92-DOE-00855

Mr. Martin Hestmark
U.S. Environmental Protection Agency, Region VIII
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Mr. Gary Baughman
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Colorado Department of Health
4210 East 11th Avenue
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Gentlemen:

Enclosed please find the recently developed Standard Operating Procedure for Video Inspection of Pipelines for the Rocky Flats Plant for your review. This procedure is scheduled for implementation in Operable Unit 5 pending your approval.

If you have any questions or comments, please contact Jen Pepe of my staff at 966-2184.

Sincerely,

James K. Hartman
Assistant Manager
for Environmental Management

Enclosure

cc w/o Enclosure:
A. Rampertaap, EM-453

cc w/Enclosure:
J. Ciocco, EM-453
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J. Shieffelin, CDH

JAN 28 1993

A-OU05-000320

ENVIRONMENTAL RESTORATION MANAGEMENT INSTRUCTION MANUAL

NOT RELATED TO PLANT SAFETY

Approved By:

EFFECTIVE: _____

_____ __/__/__
Director, Remediation Project, Management — Date

1. PURPOSE/SCOPE

This operating procedure describes the equipment, procedures, and decontamination that will be used for visually inspecting the interior of pipelines by means of a remote camera and closed-circuit television.

2. DEFINITIONS/ACRONYMS

2.1 **LEL** - Lower Explosive Limit
2.2 **QA** - Quality Assurance

3. PROCEDURE

3.1 General Project Requirements

RESPONSIBILITY		ACTION
3.1.1	Project Manager	Ensure personnel complete this task in accordance with the applicable health and safety plan.
3.1.2	Supervisor	Ensure personnel receive training in the applicable health and safety plan.
3.1.3	Supervisor	Ensure personnel, including subcontractor personnel, involved in video inspection of pipelines as field technicians have adequate on-the-job training as determined by the EG&G Project Manager.

RESPONSIBILITY	ACTION

3.2 Materials and Equipment

3.2.1 Technician — Obtain the following equipment and materials that may be needed to televise the interior of the pipeline system, as needed:

Remote video camera equipment specifically designed and constructed for use in pipelines - a variety of sizes may be required;

Equipment truck with closed-circuit television monitor, and distance measurement device;

Two directional, manually operated winch system, with reel and cable;

Jet truck with adequate water supply;

Leather gloves;

Float ball with string;

Two-way radios;

18-inch orange traffic cones;

Organic vapor meter;

LEL/O_2 meter;

Air Mover;

Sit harness;

Safety tripod/winch/cable/full body harness; and

Personal health and safety equipment, as described in the site specific health and safety plan.

	RESPONSIBILITY	ACTION
3.2.2	Supervisor	Ensure that prior to commencing work, traffic (when applicable) must be controlled through the use of traffic cones, barricades, and/or vehicle(s).
3.2.3	Supervisor	Ensure that all activities will be conducted in accordance with the RFP Health and Safety Practices addressing entry in confined spaces (1-15310-HSP-6.04).
3.2.4	Technician	Open the manhole lids at each end of the segment of pipe to be inspected. Remove manhole lids using one of the following methods: (1) Two crow bars - one to lift edge of manhole and one to hold edge of lid. (2) Pick - slides the lid off sideways. (3) J-shaped manhole tool - lifts straight up and slides the cover off sideways.
3.2.5	Technician	Free stuck manhole lids by striking the edge of the lid with a sledge hammer.
3.2.6	Supervisor	Ensure that the atmosphere has been tested and complies with concentration requirements for: • Oxygen (O_2 concentration is between 19.5% and 22% using an O_2 meter), • Explosive Atmospheres (normally less than 10 percent of the LEL), and • Toxic gases (Test for hydrogen sulfide, methane, and CO).

3.3 Video Inspection of Pipelines

WARNING

The volume beneath a manhole is a confined space. Entry in manhole area shall be made in accordance with Health and Safety Practice (1-15310-HSP-6.04). These can be extremely hazardous. It is essential to comply with all requirements in the confined space entry Health and Safety Practice (1-15310-HSP-6.04) for your own safety.

NOTE

Inspection is to be performed on clean lines with low flow. The camera inspection can be performed in the upstream or downstream direction, depending on the needs of the project. It is customary to run the remote camera in the downstream direction, unless specified otherwise. If an upstream direction is required, the following setup procedures should be reversed.

NOTE

The steps in this Section and Sections 3.2 and 3.4, with the exception of Steps 3.3.6, 3.3.9, 3.3.10, 3.3.16, 3.3.18, and 3.3.19 can be altered as needed in the field since they do not affect the data quality. The requirements of Section 3.1 must always be meet.

	RESPONSIBILITY	ACTION
3.3.1	Technician	Initially, attach a light line to a float and then insert it in the upstream manhole. This float is then carried by the flow through the pipeline from the upstream manhole to the downstream manhole.
3.3.2		The flow is either the natural flow occurring in the pipe or the flow created using the water from the jet truck.
3.3.3	Supervisor	Adjust flow as field conditions to allow float to reach downstream manhole.
3.3.4		Retrieve this float and line from the downstream manhole.
3.3.5		Attach a cable to the line, and pull the cable back through the pipeline to the upstream manhole where the camera can be attached.

RESPONSIBILITY		ACTION
3.3.6	Technician	Prior to this point, label the video tape with the following information: Date; Project Name and Number; Line designation, including the manholes and the planned direction of travel; Name of technician; and Name of responsible supervisor.
3.3.7		Attach the camera.
3.3.8		Insert the camera into the pipeline.

NOTE

Manhole entry may be necessary, as determined by the job supervisor, to insert the camera into the pipeline. Entry into manhole ares shall be made in accordance with Health and Safety Practice (1-15310-HSP-6.04). The video tape will show, on-screen, the initial conditions, which include manhole number, starting station, actual time, and date.

3.3.9		Record the output of the camera on the labeled video tape.
3.3.10		As the camera moves through the line, ensure that the minimum information (the footage and the date) is recorded on the video tape. Due to the limitations of the small camera, ≤4 inches, the on-screen information may be substituted with hand-held placards showing the required initial and in-line information prior to each new manhole section.
3.3.11		Pull the camera through the line by means of a manual winch located at the downstream manhole. Under no circumstances should the camera be pulled at a speed greater than 30 feet per minute.

RESPONSIBILITY		ACTION
3.3.12	Technician	If, during the inspection operation, the remote camera will not pass through the entire pipeline segment, set the equipment up so that the inspection can be performed from the opposite manhole up to the blocked area, contact your supervisor for direction.
3.3.13	Supervisor	Determines if camera should be inserted from other end, if so direct technician to continue to next step; otherwise provide specific alternative direction. If the blocked area is large enough to adversely affect the results of the inspection, as determined by the project manager and/or the job supervisor, the pipeline should be cleaned using the procedures described in Sections 3.4 or 3.5, of this instruction.
3.3.14	Technicians	Maintain communication using a set of two-way radios.
3.3.15	Technicians	Go to designated station. Technician One is stationed in the video equipment control truck and monitors the condition of the pipeline interior while Technician Two operates the manual winch.
3.3.16	Technicians	Back camera across observed faults at least twice and leave camera adjacent to observed fault (fault is in field of view) for at least one minute. Footage and operator interpretation of fault are noted.
3.3.17		Continue inspection until desired length or section is completed.
3.3.18	Technician One	Complete labeling of the video tape with the following information: Clarification of the actual line and approximate distances of travel including the manholes and the planned direction of travel;

RESPONSIBILITY		ACTION
		Uncertainty in distance and any applicable comments, such as observed defects and any obstacles encountered; and
3.3.19	Supervisor	Signs the video tape label.
3.3.20	Technician	Decontaminate all equipment each day at the conclusion of the operation.
3.3.21		Inspect and monitor all equipment to ensure that no hydraulic and/or fuel leaks add contaminants to the site. Specific decontamination procedures are described in 5-21000-OPS-FO.03, General Equipment Decontamination and 5-21000-OPS-FO.4, Heavy Equipment Decontamination.
3.3.22	Supervisor	Submits tape to Project Manager, consistent with 5-21000-OPS-FO.02, Transmittal of Field QA Records.
3.3.23	Project Manager	Upon receipt of the video tape the reviews the potential use of the tape consistent with the applicable QA plan and if it is a QA record submits a copy to the EM records center per 3-21000-ADM-17.01, Quality Records Management. The Project Manager may consult with the EM Quality Support Manager to determine if this record is a QA record.

3.4 Pipeline Cleaning For Small or Relatively Clean Lines

WARNING

The volume beneath a manhole is a confined space. Entry in manhole area shall be made in accordance with Health and Safety Practice (1-15310-HSP-6.04). These can be extremely hazardous. It is essential to comply with all requirements in the confined space entry Health and Safety Practice (1-15310-HSP-6.04) for your own safety.

	RESPONSIBILITY	ACTION
3.4.1	Supervisor	Select appropriate mechanism for cleaning pipeline. If the pipe is larger than 24 inches, the Project Manager or supervisor may elect to clean the pipe as described in Section 3.5.
3.4.2	Technician	After proper manhole entry in accordance with HSP 6.04, insert a vertical, 90 degree elbow in the outflow pipe of the downstream manhole. This is intended to plug the outflow pipe at the base of the manhole, while allowing the high-stage water to overflow into the elbow and discharge through the downstream pipe. Heavy debris and sediment will settle to the base of the manhole.
3.4.3		Insert the high-velocity jet hose into the upstream pipe of the downstream manhole.
3.4.4		Exit the manhole.
3.4.5		Activate the high-velocity hose to hydraulically propel the hose through the pipe in an upstream direction, washing the sediment downstream where it is captured in the base of the plugged manhole.
3.4.6		Monitor the depth of the accumulating sediment from the surface.
3.4.7		When the level of the sediment is 1-foot below the open top of the elbow, halt the hydraulic jet-cleaning.
3.4.8		Remove the accumulated sediment manually from the manhole using a shovel and bucket.
3.4.9		Repeat this process (Step 3.4.4 to 3.4.8) as necessary until the entire pipe segment has been cleaned.

RESPONSIBILITY		ACTION
3.4.10		The line shall be cleaned again, using the same procedure, if the job supervisor and/or televising determines that the line has not been cleaned sufficiently to allow passage of the remote video camera.
3.4.11	Technician	Place the sediments collected from the pipeline into containers, ranging from 5-gallon pails to 55-gallon drums, on the line cleaning truck.
3.4.12		Transfer these barrels to the Decontamination Pad at the end of each day. These materials are considered environmental material (see 3-21000-ADM-21.03, Control and Handling of Environmental Materials).
3.4.13		Decontaminate all equipment each day at the conclusion of the operation.
3.4.14		Inspect and monitor all equipment to ensure that no hydraulic and/or fuel leaks add contaminants to the site. Specific decontamination procedures are described in 5-21000-OPS-FO.03, General Equipment Decontamination and 5-21000-OPS-FO.4, Heavy Equipment Decontamination.

3.5 Clean-Out of 24-Inch Pipe With Large Sediment Accumulations

RESPONSIBILITY		ACTION
3.5.1	Supervisor	Selects appropriate cleaning method. When a 24-inch, or larger, pipeline is deemed by the operator to be sufficiently dirty, a bucket machine may be used to remove the sediment.
3.5.2	Technician	First, attach a light line to a float.
3.5.3		Insert float into the pipe so it can be carried by the flow through the pipe from the upstream manhole to the downstream manhole.

	RESPONSIBILITY	ACTION
3.5.4	Technician	Allow the float to the flow using natural flow occurring in the pipe, or the flow created using the water from the jet truck. Contact your supervisor for instructions as necessary.
3.5.5		Retrieve the float and line from the downstream manhole.
3.5.6		Attach a cable to the line, and pull the cable back through the pipeline to the upstream manhole.
3.5.7		Attach two buckets to the cable.
3.5.8		Pull the buckets slowly with a winch located at the downstream manhole. Under no circumstances should the buckets be pulled at a speed greater than 30 feet per minute.
3.5.9		Remove the sediment manually from the downstream manhole, as necessary.
3.5.10		Place the sediments collected from the pipeline into containers, ranging from 5-gallon pails to 55-gallon drums, on the line cleaning truck.
3.5.11		The disposition of these containers will be determined on a case by case basis.
3.5.12		Decontaminate all equipment each day at the conclusion of the operation.
3.5.13	Technician	Inspect and monitor all equipment to ensure that no hydraulic and/or fuel leaks add contaminants to the site. Specific decontamination procedures are described in 5-21000-OPS-FO.03, General Equipment Decontamination and 5-21000-OPS-FO.4, Heavy Equipment Decontamination.

4. REFERENCES

4.1 RFP Health and Safety Practices, 1-15310-HSP-6.04, Confined Space Entry Program.

4.2 EM Operating Procedure 5-21000-OPS-FO.02, Transmittal of Field QA Records.

4.3 EM Operating Procedure 5-21000-OPS-FO.3, General Equipment Decontamination.

4.4 EM Operating Procedure 5-21000-OPS-FO.4, Heavy Equipment Decontamination.

4.5 EM Department Administrative Procedures Manual, 3-21000-ADM-17.01, Records Management.

4.6 EG&G Rocky Flats Plant, Health and Safety Practices.

4.7 The National Association of Sewer Service Companies (NASSCo), "Specification Guidelines for Sewer Collection System Maintenance and Rehabilitation", Seventh Edition, July 1992.

5.0 ATTACHMENTS

None