Department of Energy
Ohio Field Office
Fernald Area Office
P. O. Box 538705
Cincinnati, Ohio 45253-8705
(513) 648-3155

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DEC 13 2000

Mr. James A. Saric, Remedial Project Manager
U.S. Environmental Protection Agency
Region V, SRF-5J
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

DOE-0205-01

Mr. Tom Schneider, Project Manager
Ohio Environmental Protection Agency
401 East 5th Street
Dayton, Ohio 45402-2911

Dear Mr. Saric and Mr. Schneider:

TIE-IN PLAN FOR ENHANCED PERMANENT LEACHATE TRANSMISSION SYSTEM PROJECT

Reference: Letter, T. Schneider to J. Reising, "Re: 90% EPLTS Design," dated May 12, 2000

As requested in the referenced letter, enclosed for your review is "Tie-In Plan, Valve Houses to On-Site Disposal Facility (OSDF) Cells (LDS, RLCS, LCS Piping)" for the Enhanced Permanent Leachate Transmission System (EPLTS) Project. This plan has been prepared by the construction contractor, with Fernald Environmental Management Project (FEMP) input and assistance.

As also requested in the May 12, 2000 letter, the EPLTS Systems Plan and Leachate Management Contingency Plan are in preparation. These documents will be transmitted in the near future for your review.

Sincerely,

Johnny W. Reising
Fernald Remedial Action
Project Manager

FEMP:R.J. Janke

cc w/enclosure:
J. Jalovec, OH/FEMP
R. J. Janke, OH/FEMP
D. Pfister, OH/FEMP
G. Jablonowski, USEPA-V, SRF-5J
T. Schneider, OEPA-Dayton (three copies of enclosure)
F. Bell, ATSDR
F. Hodge, Tetra Tech
M. Schupe, HSI GeoTrans
R. Vandegrift, ODH
AR Coordinator, Fluor Fernald, Inc./78

cc w/o enclosure:
N. Hallein, EM-31/CLOV
A. Tanner, OH/FEMP
D. Brettschneider, Fluor Fernald, Inc./52-2
D. Carr, Fluor Fernald, Inc./2
T. Hagen, Fluor Fernald, Inc./65-2
J. Harmon, Fluor Fernald, Inc./90
S. Hinnefeld, Fluor Fernald, Inc./31
M. Jewett, Fluor Fernald, Inc./52-2
T. Walsh, Fluor Fernald, Inc./65-2
ECDC, Fluor Fernald, Inc./52-7

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TIE-IN PLAN

VALVE HOUSES to OSDF CELLS (LDS, RLCS, LCS PIPING)

Enhanced Permanent Leachate Transmission System (EPLTS) Project

Per
Technical Specification 20111-TS-001, Section 02050

Revision 0

December 11, 2000

The Staver Group, Inc.
1271 East 2nd Street
Franklin, Ohio 45005
(513) 743-7995

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TIE-IN PLAN

VALVE HOUSES to OSDF CELLS (LDS, LCS, RLCS PIPING)

Enhanced Permanent Leachate Transmission System (EPLTS) Project

Table of Contents

TIE-IN PLAN

VALVE HOUSES to OSDF CELLS (LDS, LCS, RLCS PIPING)

Enhanced Permanent Leachate Transmission System (EPLTS) Project

Acronyms

CAT -	Construction Acceptance Testing
CVH -	Control Valve House
EPLTS -	Enhanced Permanent Leachate Transmission System
ILTS -	Interim Leachate Transmission System
LCS -	Leachate Collection System
LDS -	Leak Detection System
LTS -	Leachate Transmission System
MH -	Manhole
PLS -	Permanent Lift Station
RLCS -	Redundant Leachate Collection System
SOT -	System Operability Testing
SSR -	Standard Startup Review
VH -	Valve House

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1.0 INTRODUCTION

This plan describes the construction sequence for the tie-in of new leak detection system (LDS) piping, redundant leachate collection system (RLCS) piping, and leachate collection system (LCS) piping from the new valve houses to existing piping from OSDF Cells 1, 2, and 3. This plan is in accordance with Technical Specification 20111-TS-001, Section 02050 – "Demolition". This plan describes pre-work preparations and precautions, excavation, existing pipe plugging and testing, removal of existing manholes and piping, installation and testing of new piping, backfilling, and other considerations associated with the tie-in work.

Project safe work plans have been prepared for General Construction Work, Civil Work, Electrical Work, and Piping and Mechanical Work. These safe work plans include analysis of potential hazards associated with the project construction activities and identification of associated hazard mitigation measures to be implemented. These safe work plans will be implemented in conjunction with the particular considerations described in this plan.

Project drawings that are particularly associated with the tie-in work:

90X-6000-G-00242, "Key Work Elements Schematic & Construction Sequence Logic"
90X-6000-G-00281, "LTS Pipe Plan & Profile Stations 0+00 To 5+00"
90X-6000-G-00282, "LTS Pipe Plan & Profile Stations 5+00 To 11+00"
90X-6000-G-00255, "Stage 2 Demolition Plan and Details I"
90X-6000-G-00256, "Stage 2 Demolition Plan and Details II"
90X-6000-G-00257, "Stage 3 Demolition and Details"
90X-6000-M-00264, "Valve House Mechanical Details I"
90X-6000-M-00265, "Valve House Mechanical Details II"
90X-6000-M-00266, "Valve House & Control Valve House Mechanical Details I"
90X-6000-M-00270, "Valve House & Control Valve House Mechanical Details II"
90X-6000-M-00268, "Pipe Tie-Ins Schematic & Construction Sequence Logic"

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2.0 GENERAL DESCRIPTION OF TIE-IN WORK

The piping tie-ins at Cells 1, 2, and 3 are the final significant construction activities of this project. Prior to these tie-ins, construction of all other components of the EPLTS (Valve Houses 1-6, Control Valve House, and LTS pipeline) shall be completed and turned over to Fluor Fernald. Furthermore, Fluor Fernald shall complete System Operability Testing and Standard Start-up Review prior to these tie-ins, such that the new EPLTS is functional and operable during the tie-in work. The new leachate transmission system (LTS) piping and the existing Interim LTS (ILTS) piping shall both be tied in (interconnected) at the Control Valve House, such that LCS and LDS flow streams can readily be transitioned from the ILTS to the new permanent LTS as the tie-ins progress.

The tie-ins shall begin at Cell 1, then proceed to Cell 2, and finally to Cell 3. At each cell, the tie-in shall begin with the LDS piping, followed by the RLCS piping, and finally the LCS piping.

In general, the tie-in work at each cell involves:

a. excavation between each cell tie-in point and the associated valve house,
b. cutting, plugging, and testing the existing piping from the cell,
c. removal of existing LDS and LCS manholes and associated piping,
d. installation and testing of new LDS, RLCS, and LCS piping, and
e. backfill.

After each existing pipe is cut and plugged, the new piping tie-in work will proceed essentially non-stop until the tie-in is completed and flow from the cell, via that pipe, is restored. Temporary lighting and weather protection (tent or other temporary structure) will be used, as necessary, to expedite and protect the tie-in work.

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3.0 DETAILED DESCRIPTION OF TIE-IN ACTIVITIES

3.1 LTS/ILTS Tie-in at Control Valve House

Refer to Drawings 90X-6000-M-00267 and 90X-6000-M-00268.

Upon completion of the EPLTS (Valve Houses 1-6, Control Valve House, and LTS pipeline), installation of new steel piping and associated valves and flow meter inside the Control Valve House (CVH) will be performed to tie-in (interconnect) the new LTS line with the existing ILTS line. This will allow transition of LDS, RLCS, and LCS flows from the ILTS to the LTS as the individual piping tie-ins progress.

The LTS/ILTS tie-in work will require a temporary shutdown of the LDS, RLCS, and LCS flows from Cells 1, 2, and 3. An energy isolation plan will be prepared and implemented for this shutdown. The LTS/ILTS tie-in work in the CVH will proceed essentially non-stop in order to minimize the duration of the shutdown.

Upon completion of the above, Fluor Fernald will perform System Operability Testing (SOT), conduct a Standard Startup Review (SSR), and establish operation of the Valve Houses, CVH, and LTS systems.

3.2 Stage 2 Demolition and Excavation

Refer to Drawings 90X-6000-G-00255 and 90X-6000-G-00256.

Note: Stage 1 demolition and excavation (per Drawing 90X-6000-G-00254) were required for construction of Valve Houses 1–6 and gravity inlet structures/piping) and have been previously completed.

Note: Stage 2 demolition and excavation can be performed concurrently with the LTS/ILTS Tie-in work in the CVH (Section 3.1).

Stage 2 demolition includes removal of the concrete cover slabs at Cells 1, 2, and 3 manholes and at the associated horizontal monitoring wells. Stage 2 excavation at Cells 1, 2, and 3 will be performed to the limits shown on the project drawings.

At locations greater than 5 feet away from existing piping and manholes, heavy equipment will be used for excavation work. Earthen berms and/or sandbags will be placed at excavation perimeter to divert water runon.

At locations within 5' of existing piping and manholes, light equipment and hand tools will be used to excavate to Stage 2 limits. Existing piping and horizontal monitoring wells will be supported and stabilized with adequate temporary shoring. Construction fencing will be used, as necessary, to identify and protect the facilities.

3.3 Stage 3 Excavation and Spill Controls

Refer to Drawing 90X-6000-G-00257.

Note: Stage 3 excavation must follow Stage 2 demolition and excavation (Section 3.2) and will not be started until Fluor Fernald receives authorization to operate the EPLTS (following Standard Startup Review. Stage 3 excavation will be performed first at Cell 1, followed by Cell 2, and finally at Cell 3.

Stage 3 excavation is the final excavation activity at Cells 1, 2, and 3 to fully expose the LDS, RLCS, and LCS piping tie-in points. This excavation activity will be performed to the limits shown on the project drawings in a similar manner as described above for Stage 2 excavation. The exact tie-in point will be verified to ensure removal of existing electrofusion couplings and SDR-26 piping.

Upon completion of excavation at each cell, spill controls (plastic sheet, adsorbent pads, pumping sump, etc.) shall be used to address any spills from the LDS, RLCS, and LCS piping as the tie-in work is performed. Any LDS/LCS liquids removed by pumping from the excavation will be collected and/or conveyed to an OSDF cell per the direction of the Fluor Fernald Construction Contract Manager.

3.4 Assembly and Testing of New LDS, RLCS, and LCS Piping

Refer to Drawing 90X-6000-M-00268.

Note: This activity may be performed any time prior to cutting of the existing piping (Section 3.6).

Pre-fabricated, dual-contained HDPE piping sections (6" carrier pipe centralized with spacers inside 10" containment pipe) will be used for tie-in from the existing LDS, RLCS, and LCS cell piping to the new valve houses. Based on identification of the exact tie-in point, the new piping sections will be trimmed in the field to the required length, considering piping end facing prior to butt fusion welding (Section 3.8).

These new piping sections will be field tested (low-pressure pneumatic test, per specification section 02605) prior to installation.

3.5 Packer (Piping Plug) Setup

Note: This activity may be performed any time prior to cutting of the existing piping (Section 3.6).

The packer is a heavy-duty inflatable flex plug, manufactured by Stemar Equipment & Supply Company (see Appendix A data sheet). An inflation hose and retrieval cable will be attached to the packer. The inflation hose will include a quick-disconnect shutoff valve to hold packer inflation pressure when inflation pump is disconnected, as necessary, during the tie-in work. A pressure gauge on the inflation hose is provided to monitor the inflation pressure.

Before actual tie-in use, the packer will be tested, using an available piece of 6" HDPE pipe, to ensure adequate function of the plug, quick-disconnect shutoff valve, and gauge (i.e., to ensure adequate plugging seal, with 14' water head, and to determine how long shutoff valve holds packer inflation pressure).

3.6 Cutting, Plugging, and Testing Existing Piping

Refer to Drawing 90X-6000-M-00268.

Note: The activities described in Sections 3.1 through 3.5 must be completed prior to beginning this activity.

Note: The activity descriptions of Sections 3.6 through 3.11 are supplemented by illustrations in Appendix A.

Prior to cutting into each existing LDS, RLCS, or LCS pipe, appropriate precautions will be determined (including verification that liquid flow is below the springline of the pipe) and incorporated into the associated work permit. Isolation of other LDS, RLCS, and LCS flows may be required; an energy isolation plan will be prepared, as required.

Near (and downstream of) the tie-in point, an opening will be cut in the existing LDS, RLCS, or LCS containment and carrier pipe above the springline of the pipes.

The packer will be installed approximately 6 feet inside the carrier pipe and inflated. Verification of no leakage past the packer will be made. The inflation hose will be disconnected from the inflation pump. The hose and retrieval cable will then be coiled and placed into the carrier pipe upstream of the opening cutout.

Note: The necessary packer inflation pressure must be maintained until tie-in work is completed. Tie-in work shall proceed essentially non-stop until the work is completed and the packer is removed.

A section of the existing pipe (downstream of the tie-in point) will be cut out to facilitate testing of the existing piping (upstream of the tie-in point). The inflation pump will then be reconnected, as necessary, to maintain adequate packer inflation pressure while preparations are made to test the piping.

A link-seal, test port and valve, and pressure gauge will be installed on the existing 10" containment piping. A low-pressure pneumatic test (per specification section 02605) of the existing containment piping between the fixed end seal at the cell liner penetration box and the link-seal at the exposed tie-in point will be performed.

NOTE: If the test of the existing containment pipe fails and the problem cannot be readily identified, the Fluor Fernald Construction Manager will be notified. However, the new piping tie-in activity must continue non-stop in order to restore the LDS, RLCS, LCS flows from the cell. Fluor Fernald will be responsible for evaluating the results of the test (i.e., magnitude/significance of leak rate) and directing any additional activity under this construction contract.

After testing, the link-seal, test port and valve, and gauge will be removed. A final cut of the existing pipe will then be made at the tie-in point.

The packer inflation pressure will be monitored and maintained while removal of the existing manholes and piping (Section 3.7) is completed.

3.7 Stage 3 Demolition - Removal of Existing Manholes and Piping

Note: This activity may be initiated while the existing piping system is being tested (Section 3.6 above).

The existing manhole and piping will be removed, per Drawing 90X-6000-G-00257, for the piping system that is plugged.

Prior to the manhole and piping demolition, appropriate precautions will be identified and included in the associated work permit. Isolation of other LDS, RLCS, and LCS flows may be required; an energy isolation plan will be prepared, as required.

For LCS manholes, a flanged spool piece will be installed to replace the removed ILTS piping section. At LCS MH-1, the ILTS pipe vent will be replaced. (These replacements will be per Drawing 90X-6000-M-00266).

For LCS and LDS manholes, 4 weepholes will be drilled in the manhole, as per Drawing 90X-6000-M-00266, and the manhole will be backfilled with pipe embedment fill.

3.8 Installation of New LDS, RLCS, and LCS Piping

Refer to Drawing 90X-6000-M-00268.

Prior to installation of the new piping, excavation to subgrade will be completed. Pipe bedding material will be placed and compacted per specifications. When the bedding is complete, the new piping will be placed in the excavation and through the east opening of the valve house. The piping length will be adjusted (trimmed) to ensure that the new piping waterstop will be in the center of the valve house wall at completion of the tie-in; the final adjustment is performed in the pre-fusion facing procedure, described below. Simultaneous (both inner carrier and outer containment) pipe end facing, followed by simultaneous butt fusion welding, of the existing and new HDPE piping will be performed at the tie-in point. Prior to facing the pipe ends, the packer inflation hose will again be disconnected from the inflation pump. The packer inflation hose and retrieval cable (fastened together) will then be coiled and placed in the carrier pipe upstream of the existing pipe end. The facing procedure will be performed, using the fusion machine, and repeated as necessary to position the new piping waterstop in the center of the valve house wall opening.

After facing, the retrieval cable will be fed through a hole in the fusion machine heater plate and run through the new piping into the valve house. Following the butt fusion welding, the gate valve and steel piping will be connected to the 6" HDPE carrier pipe inside the valve house. Using the retrieval cable, the inflation hose will be pulled into the valve house (and through open gate valve, cleanout wye, and temporary riser pipe) and reconnected to the inflation pump to maintain packer inflation pressure.

3.9 Testing of New Piping

Refer to Drawing 90X-6000-M-00268.

A low-pressure pneumatic test (per specification section 02605) on the new and existing containment piping between the fixed end seal inside the valve house and the fixed end seal at the cell liner penetration box will be performed. The containment pipe monitoring port inside the valve house will be used as the test port. The containment pipe joint at the tie-in point will be soap bubble tested during the pneumatic test.

Assuming successful testing of the new piping assembly (Section 3.4) and successful testing of the existing piping (Section 3.6), a test failure would indicate a leak at the tie-in point. The soap bubble test on the containment pipe, at the tie-in point, will indicate whether a leak at the containment pipe joint or carrier pipe joint is present.

If the test of the existing piping (Section 3.6) was not successful, the containment pipe will be pressurized and soap bubble test at the tie-in point will be performed.

If the leak is determined to be at the tie-in point, the new piping assembly will be cut out and another new piping assembly installed.

3.10 Removal of Packer (Piping Plug)

Refer to Drawing 90X-6000-M-00268.

Prior to removal of the packer, the Fluor Fernald Construction Contract Manager will be notified so that Fluor Fernald operating personnel are prepared to operate the EPLTS, which will be receiving the (LDS, RLCS, or LCS) liquid flow via the new piping system.

Following testing of the new piping (Section 3.9), the ball valve downstream of the cleanout wye, inside the valve house, will be closed. Water will be added to the new piping via the temporary riser pipe attached to the cleanout wye. Water will be added to an elevation in the riser pipe of 14' above the valve house floor in order to equalize water head pressure on each side of the packer. The packer will then be deflated and pulled out of the piping system using the retrieval cable.

After removal of the packer, the downstream ball valves will be opened. The liquid from the cell will then be flowing through the new EPLTS. The temporary riser pipe will be removed and blank flange installed on the cleanout.

3.11 Backfill

Prior to completion of backfilling the excavation at each valve house, grout will be placed in the valve house wall openings and HDPE flatstock plates installed on the new piping and valve house walls per the contract drawings and specifications.

The excavated area at each valve house will be backfilled and compacted per contract drawings and specifications.

TIE-IN PLAN

VALVE HOUSES to OSDF CELLS (LDS, RLCS, LCS PIPING)

Enhanced Permanent Leachate Transmission System (EPLTS) Project

APPENDIX A
FIGURES and ILLUSTRATIONS

SPLIT HEATER

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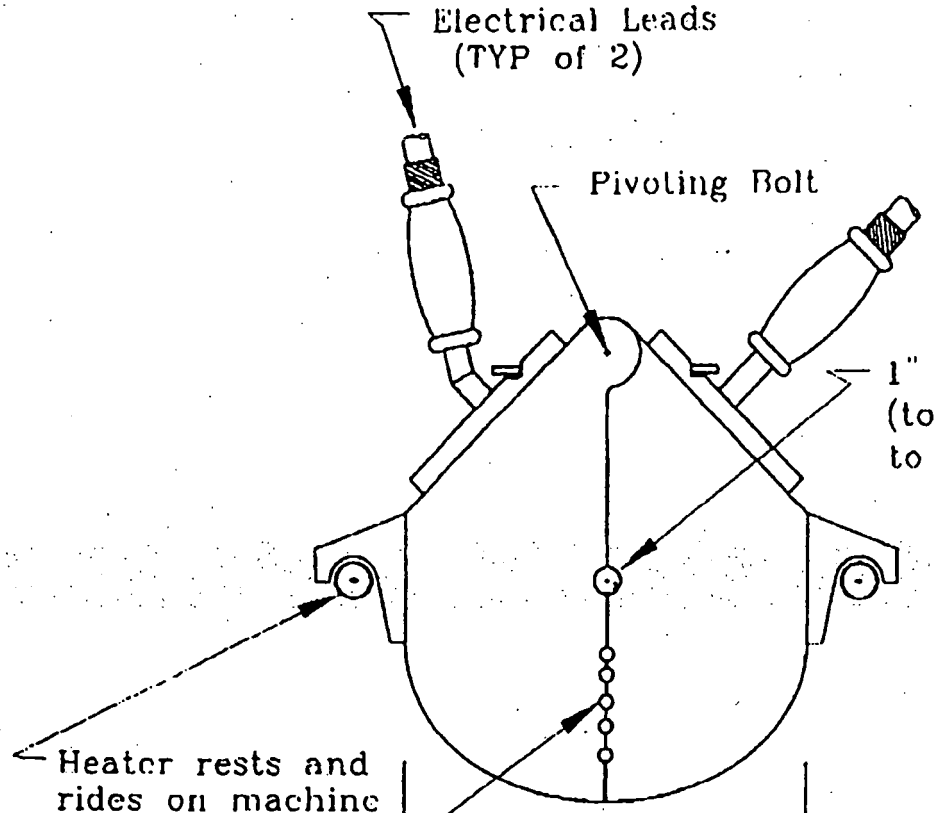

Note: Heater Set up to use in McElroy #412 Machine

Approved By:	Drawing Name: Split Heater	CUSTOMER: Fluor Fernald Incorporated	ORDER / QUOTE #: N/A
SUBMITTAL		LOCATION: Hamilton, OH	ISCO INDUSTRIES
		DRAWN BY: M D S	DATE: 10-27-00
		CHECKED BY:	DATE:

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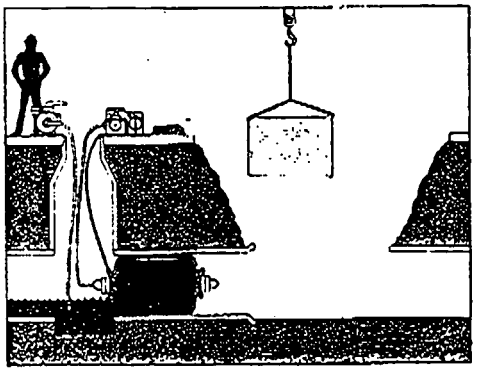
Pipeline Plugs For All Pipe Sizes

MEDIUM DUTY & HEAVY DUTY FLEX-PLUG

Compact Diameter Inflates Up to 8 Times For Convenient Plugging of Pipes With Limited Access

Most sizes afford easy placement by one man. Flexibility and design enable unit to navigate through small hot tap or branch pipe into large pipeline; then inflate with air or water to temporarily stopper pipeline for maintenance.



Plugging Sewer Pipe for Repairs or Cleaning Up Hazardous Waste Spills

1. Insert Plug in downstream sewer outlet of manhole above repair area.
2. Inflate Plug with just enough pressure to stop flow. Temperature, atmospheric pressure and fabric stretching can change plug pressure. Use a regulated pressure source to compensate for these factors.
3. Pump effluents from plugged manhole into sewer downstream from repair area or to hazardous waste receptacle.

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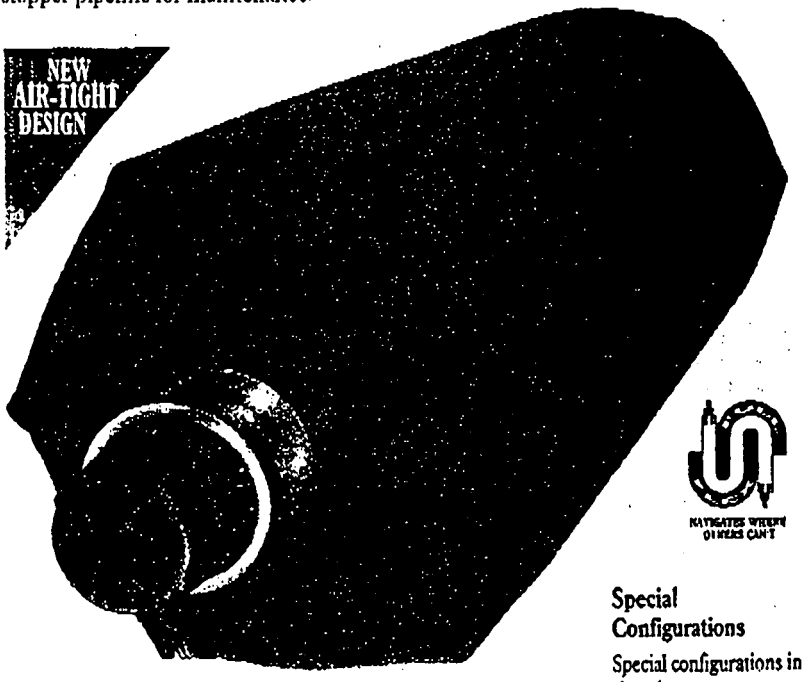
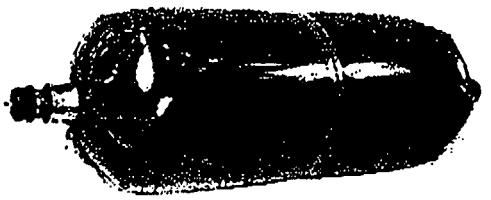
NEW AIR-TIGHT DESIGN





Vapor Seal

Vapor Seal cover helps prevent seepage through or around Plug. Available for all Flexible Plug sizes.

NAVIGATES WHERE OTHERS CAN'T

Light Weight Allows one man application for most sizes.

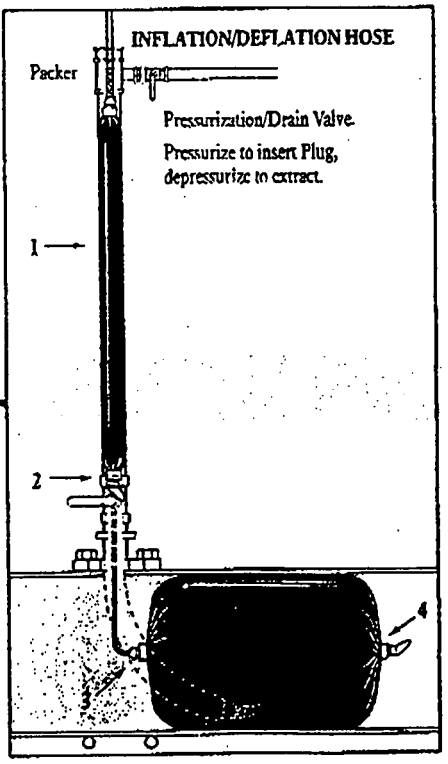
Sizes to Fit Your Needs Standard sizes from 4" to 66" inflated diameters.

Industrial Fabric Aids traction, grips pipe.

Heavy Duty Bag Specially treated, reinforced industrial fabric for maximum strength.

Special Configurations

Special configurations in size, shape, temperature and pressure requirements are available on special order.



Inserting Inflatable Plug Through Hot Tap

The small deflated diameter and "snake-like" full flexibility of all the Flexible Inflatable Pipeline Plugs makes them ideal for use with a hot tap.

1. Install Plug with pressurization/drain valve, inflation hose, and packer in extension pipe. Inflation hose must be long enough to reach half way into trunk line, and strong enough to support plug.
2. Attach extension pipe to Hot Tap valve.
3. Open trunk line tap valve and pressurize pressurization/drain valve to insert Plug into trunk line.
4. Through inflation hose, pressurize Inflatable Plug.
5. Special attachments are available to help bend plug around corners.

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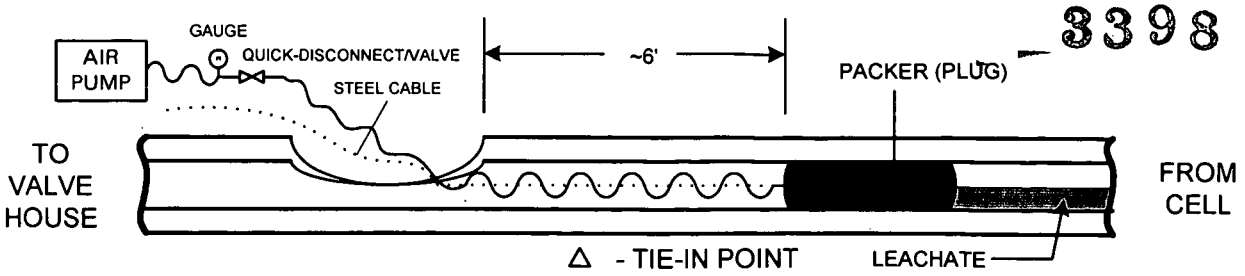
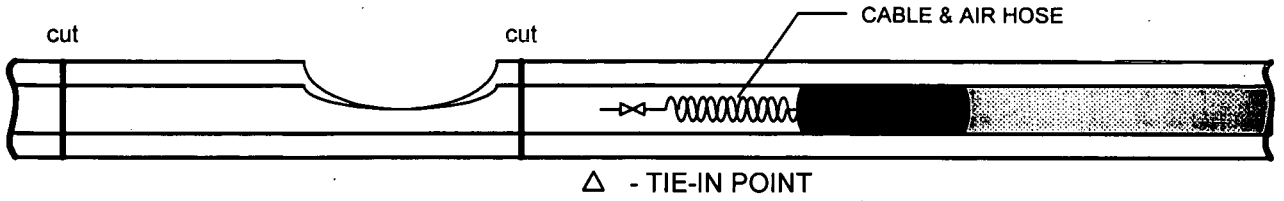
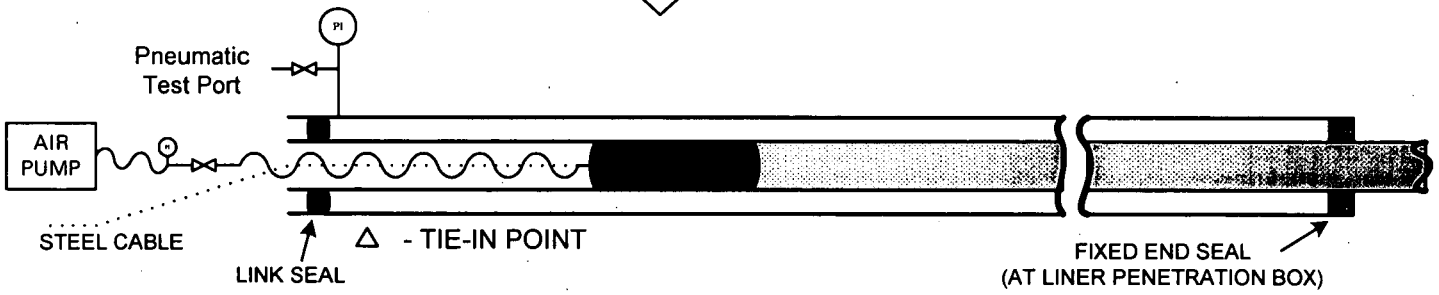


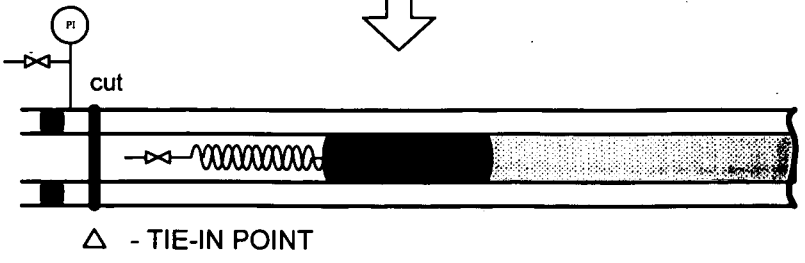
1 - Cut opening in existing containment and carrier pipe, above springline of pipes.
2 - Insert packer (with retrievel cable and air hose) inside carrier pipe and inflate packer.
3 - Verify no leakage past packer



4 - Disconnect air hose from air pump.
5 - Place air hose and cable inside carrier pipe.
6 - Cut out section of existing carrier and containment pipe.
7 - Proceed (concurrently with the following steps) with demolition of existing manholes, followed by preparation of bedding for new piping.



8 - Re-connect air hose to air pump.
9 - Install link seal, test port, and gauge on existing containment piping.
10 - Perform low-pressure pneumatic test on existing containment piping.



11 - Remove link seal, test port, and gauge.
12 - Disconnect air hose from air pump.
13 - Place air hose and cable inside carrier pipe.
14 - Cut off piping section at tie-in point.
15 - Re-connect air hose to air pump (during manhole demolition and piping bed preparation).

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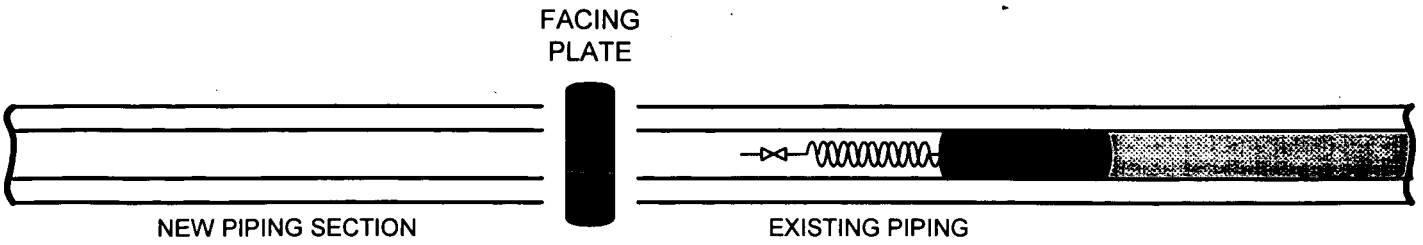
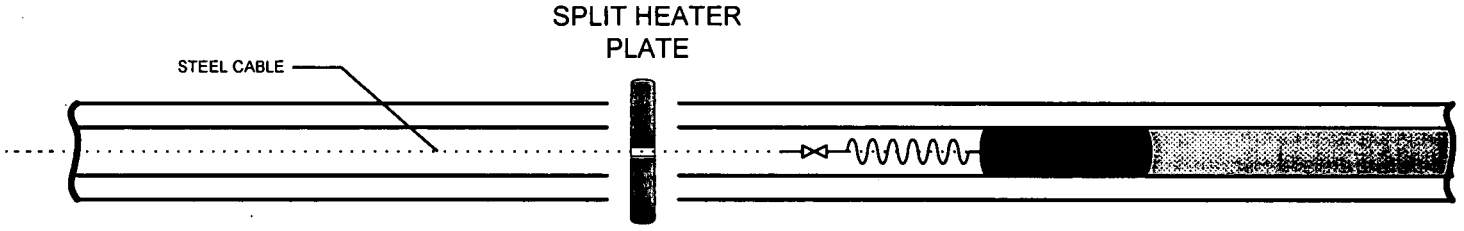
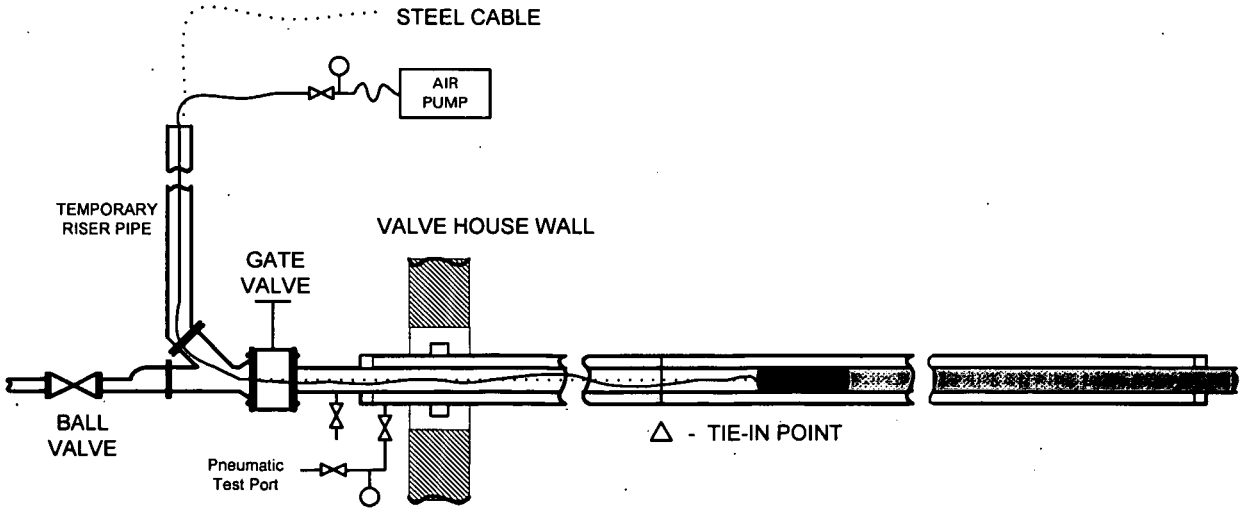


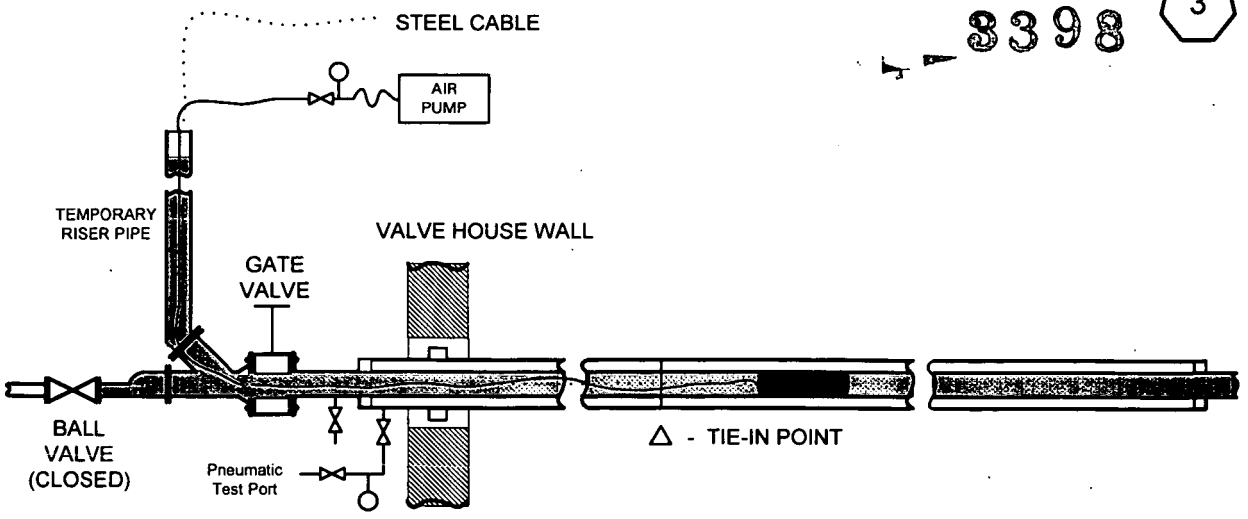
16 - Position new dual-containment piping section.
17 - Disconnect packer inflation air hose from air pump.
18 - Place air hose and cable inside existing carrier pipe.
19 - Perform facing of piping end surfaces using butt fusion machine.



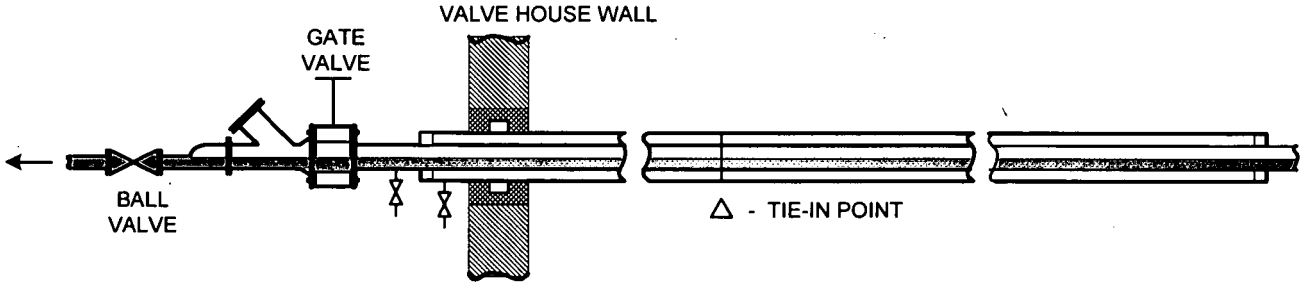
20 - Route retrieval cable through hole in heater plate and through new piping section (air hose, fastened to retrieval cable, remains inside existing piping).
21 - Perform simultaneous butt fusion joining of new piping to existing piping.
22 - Pull air hose (fastened to cable) through new piping section.



23 - Route cable and air hose through gate valve, cleanout wye, and temporary riser pipe.
24 - Connect air hose to air pump.
25 - Complete installation of gate valve and steel piping inside valve house.
26 - Perform low-pressure pneumatic test of new and existing piping.



27 - Fill new piping section with water.
28 - Deflate packer.
29 - Pull packer, using retrieval cable, out of piping system.



30 - Open ball valve (liquid from cell now flowing through new EPLTS).
31 - When piping is sufficiently drained, close gate valve.
32 - Remove temporary riser pipe and install blank flange on cleanout.
33 - Re-open gate valve.
34 - Complete Valve House wall penetration work and backfilling of excavation.