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2869

MAR 8 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-0478-00

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

Dear Mr. Saric and Mr. Schneider:

RESPONSES TO COMMENTS ON 90% DESIGN PACKAGE ON-SITE DISPOSAL FACILITY ENHANCED PERMANENT LEACHATE TRANSMISSION SYSTEM

Enclosed are responses to the U.S. Environmental Protection Agency (U.S. EPA) and Ohio Environmental Protection Agency (OEPA) comments on the 90% Design Package - On-Site Disposal Facility (OSDF) Enhanced Permanent Leachate Transmission System.

Additionally, the Department of Energy, Fernald Environmental Management Project (DOE-FEMP) and Fluor Fernald have generated design review comments, which will be incorporated prior to certifying the package for construction.

If you have any questions, please contact Robert Janke at (513) 648-3124 or Jay Jalovec at (513) 648-3122.

Sincerely,

Johnny Reising

Johnny W. Reising
Fernald Remedial Action
Project Manager

FEMP:Jalovec

Enclosures

cc w/enclosures:
N. Hallein, EM-31/CLOV
R. J. Janke, OH/FEMP
G. Jablonowski, USEPA-V, SRF-5J
T. Schneider, OEPA-Dayton (three copies of enclosures)
F. Bell, ATSDR
M. Schupe, HSI GeoTrans
R. Vandegrift, ODH
F. Hodge, Tetra Tech
AR Coordinator, Fluor Fernald/78

cc w/o enclosures:
J. Reising, OH/FEMP
A. Tanner, OH/FEMP
D. Brettschneider, Fluor Fernald/52-5
D. Carr, Fluor Fernald/2
M. W. Griffin, Fluor Fernald/52-5
T. Hagen, Fluor Fernald/65-2
J. Harmon, Fluor Fernald/90
S. Hinnefeld, Fluor Fernald/31
J. Hughes, Fluor Fernald/52-5
J. Jenkins, Fluor Fernald/52-5
M. Jewett, Fluor Fernald/52-2
U. Kumthekar, Fluor Fernald/64
T. Walsh, Fluor Fernald/65-2
ECDC, Fluor Fernald/52-7

Response to Ohio Environmental Protection Agency Comments
90% Design Package – OSDF Enhanced Permanent Leachate Transmission System

1 - Commenting Organization: Ohio EPA Commentor: OFFO
Section #: General Pg #: Line #: Code: c

Comment:
The original design of the Leak Detection System manhole allowed liquids in the LDS to flow unimpeded into the primary containment vessel. The primary containment vessel was not directly connected to the LTS line. This functional requirement was listed in Appendix B Section 6.1.3 of the original Design Criteria package. Quoting from Section 6.1.3, "Each collector (pipe) will pass through the perimeter toe berm to a respective sump. The sumps will not be interconnected nor will the leak detection system be interconnected with the leachate collection system." The 90% EPLTS design does not allow unimpeded flow into a primary containment vessel. A knife valve is placed before the tank. The LDS lines are directly plumbed into the LTS.

Re-design the system to comply with the original functional requirements. The LDS lines should drain directly into the collection tank. The 3/4" transfer line should empty into a standpipe (or similar appurtance) connected to the LTS. This emptying should be accomplished with a small pump. Check valves to prevent back flow into the LDS lines should be added at the standpipe.

The "T" that can direct flow to either the tank or the LTS line and valving, flow meters, etc. should be omitted.

The tank and appurtances are satisfactory.

Response:
A primary intent of the enhanced design is to provide a system with improved operability and maintainability. In order to provide a means to safely block liquid flow upstream of the valve house equipment (i.e., for maintenance), a valve is required. By administrative controls (to be delineated in the Systems Plan for Leachate Management), the valve will normally be kept (locked) open, such that the flow from the LDS to the collection tank is truly unimpeded.

Also, by administrative controls, when LDS liquids are not being pumped to the LTS line, the LDS tank pump discharge hose will be disconnected and the valve between the pump discharge and LTS line will be closed. For discharging the LDS liquid from the tank to the LTS line, the pump discharge hose will be connected and the discharge valve will be opened; the hose shall be connected and the valve opened ONLY when an operator is present in the Valve House. When the tank is empty, the valve will be closed and the hose again disconnected. The LDS and LCS systems include separate collection piping and tanks; with hose disconnection, the systems are not interconnected, such that compliance with the design criteria is met.

The bypass line, and associated "T", will be used during initial cell operations to remove the higher flow of water (associated with dissipation of water remaining from cell construction) directly to the LTS line (bypassing the collection tank). When this flow diminishes to a level suitable for collection/monitoring in the collection tank, the bypass line will be removed.

The flow meter is particularly useful during the initial cell operational period to monitor the dissipation of post-construction water flow from the LDS piping. During later, low-flow period, the flow meter will provide an additional means to check flow rates that will be calculated using tank level and frequency of tank pumping data.

ACTION (comment #1):
No design change is necessary.

The Systems Plan for Leachate Management will be revised to incorporate the administrative controls described above – valve positions and locking, LDS hose connection/disconnection, and removal of LDS collection tank bypass.

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2 - Commenting Organization: Ohio EPA Commentor: OFFO
Section #: General Pg #: Line #: Code: c

Comment:
This design shows the piping within the valve houses being 3 inch pipes as opposed to the 6 inch pipes used in the manholes in the original design. No explanation is given as to the reason for decreasing the pipe size. Please explain.

Response:
The 6-inch LCS/LDS/LTS piping size was selected to accommodate camera monitoring and cleanout equipment, as well as hydraulic capacity. With the enhanced design, the more readily maintained piping components inside the valve house (and downstream of the 6-inch cleanout fittings) may be reduced in size to allow a more economical piping and valve house installation. The 3-inch piping satisfies the hydraulic requirements for each cell (see response to comment #23).

ACTION:
No design change is necessary.

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3 - Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 2.1 (Calculation Pkg) Pg #: 1 of 4 Line #: Code: c

Comment:
Under the paragraph labeled background, a sentence reads "the LCS/LDS manholes will be demolished or abandoned". All manholes are to be removed. Please delete the reference to abandonment.

Response:
As shown on the design demolition drawings, a major portion of the existing LCS/LDS manholes (upper 6'-9") will be removed (demolished). The remaining bottom section and associated concrete antiflotation anchor will be left in place (abandoned).

ACTION:
Section 2.1 will be revised to better describe the "demolition and abandonment" of the respective portions of the existing manholes.

Response to Ohio Environmental Protection Agency Comments
90% Design Package – OSDF Enhanced Permanent Leachate Transmission System

4 - Commenting Organization: Ohio EPA Commentor: OFFO
Section #: General Pg #: Line #: Code: c

Comment:
The EPLTS double containment pipe is designed to be monitored for leakage by placing drip pans under the open ends of the containment pipe at the lower ends of the runs between the valve houses. The design does not include fixed end seals at either the upper or lower end. The original design used stopcocks at the lower ends and fixed end seals at both the upper and lower ends.

The design should be changed to re-incorporate the stopcocks and fixed end seals.

Response:
The fixed end seals were purposely omitted in the new enhanced LTS piping design in order to allow the carrier pipe segments between Valve Houses to be easily removed, if future repair is required. This is considered to be a major design change needed to address any future problems with either the carrier or the containment pipe. Removal of the carrier pipe would allow a new carrier pipe segment replacement or an in situ repair to the containment pipe segment. To be easily removable, the carrier pipe cannot be installed with centralizers and, preferably, without fixed end seals.

Removal of the fixed end seals has the added benefit of allowing any significant leakage from the LTS carrier pipe to still be conveyed, by the outer containment pipe, to the Permanent Lift Station by "cascading" from valve house to valve house until it reaches the lift station. This condition is considered to be preferable to the original design, in which holdup of leakage water in a particular valve house could potentially result in flooding and overflow outside of containment. A leak of this magnitude is very unlikely, however; the likely event is minor leakage that is observed by liquid accumulation in the drip pans.

We agree that drip pans should be replaced with a more "robust" arrangement for leak monitoring. Therefore, the design will be modified as described below.

ACTION:
The design of the upstream LTS containment pipe opening in each valve house will be modified to add a fixed end seal and monitoring/sampling valve. In order to retain the capability of conveying significant leakage from valve house to valve house (and to PLS), an opening in the top of the containment pipe inside the valve house will be included. No centralizers will be used in the LTS piping between the valve houses. This design will still allow carrier pipe replacement, but requires removal and subsequent replacement of the fixed end seal.

5 - Commenting Organization: Ohio EPA Commentor: OFFO
Section #: General Pg #: Line #: Code: c

Comment:
The original design included provisions to remove the spool from the LCS line to the LTS line prior to final closure of the OSDF so that in the long term there are no obstructions to leachate flow. New spools should be fabricated and available so that long-term leachate flows are not impeded. These spools should be made from SDR 11 HDPE and designed so that both ends can be butt-fused to the existing HDPE lines.

Response:
Prior to final closure of the OSDF, the collection tank and associated valves and piping can be replaced with a line spool for absolutely unimpeded flow into the LTS line.

ACTION:
No design change is necessary for this project. Future piping replacement will be described in the Systems Plan and implemented in a future project design.

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6 - Commenting Organization: Ohio EPA Commentor: OFFO
Section #: General Pg #: Line #: Code: c

Comment:
A Systems Plan should be developed that details how the EPLTS should be operated in routine and non-routine conditions.

Response:
Agree.

ACTION:
A Systems Plan for Leachate Management will be developed that details how the EPLTS shall be operated in routine and non-routine conditions.

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7 - Commenting Organization: Ohio EPA Commentor: OFFO
Section #: Pg #: Line #: Code: c

Comment:
A Leachate Management Contingency Plan should be developed that outlines actions to be taken if the EPLTS becomes non-operational.

Response:
Agree.

ACTION:
A Leachate Management Contingency Plan will be developed that outlines actions to be taken if the EPLTS becomes non-operational.

8 - Commenting Organization: Ohio EPA Commentor: OFFO
Section #: General Pg #: Line #: Code: c

Comment:
We have previously commented that changes should be made in the LDS system to remove the direct connection between the LDS and the LTS. This comment addresses the two methods of measuring flow in the LCS system: the flow meter and the tank.

It is not clear why the flow meter is in the system considering the problems associated with reliability under low-flow conditions. The tank serves as a means of measuring flow at a wide range of flow rates and we would expect it to be robust under high or variable silt loadings. We realize that by making this change, flows can only be measured batch-wise, not continuously.

Response:
The flow meter specified is designed for adequate accuracy at low flow rates (~ 1/2 gpm). For extremely low flow rates, the flow will be collected in the LDS or LCS collection tank and pumped from the tank at a flow rate that is within the meter's range for accurate flow measurement.

Per the manufacturer's literature, the flow meter specified is designed to function adequately with some silt loading. Also, a sediment trap and drain will be added to the design, installed upstream of the meter. In addition, the meter can be easily removed and cleaned periodically.

ACTION:
Incorporate, into the piping design, a sediment trap and drain upstream of the flow meter. Incorporate a periodic flow meter check and cleaning as a preventative maintenance item in the Systems Plan for Leachate Management.

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9 - Commenting Organization: Ohio EPA Commentor: OFFO
Section #: General Pg #: Line #: Code:

Comment:
The Package provides very few details on the concrete protective liner. Provide information on such details as how joints are sealed, how seams are welded, how anchors and penetrations are sealed, how repairs are accomplished, how components are tested for leaks, etc. Manufacturers fact sheets or web sites would be satisfactory.

Response:
Details are provided on drawings and in Technical Specification Section 03110. The liner will be installed in accordance with manufacturer's instructions, which are subject to Fluor and GeoSyntec approval. Additional information in the technical specification should be provided.

ACTION:
Technical Specification Section 03110 will be revised to include the identification of one or more acceptable liner systems that have been investigated by Fluor and GeoSyntec.

Response to Ohio Environmental Protection Agency Comments
90% Design Package – OSDF Enhanced Permanent Leachate Transmission System

10 - Commenting Organization: Ohio EPA Commentor: HSI GeoTrans
Drawing #: G-1 Section #: Notes Code: E

Comment:
Last line of Note 2 is repeated above it. Note 8 is incomplete.

Response:
Agree.

ACTION:
Drawings will be revised to correct the notation errors.

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11 - Commenting Organization: Ohio EPA Commentor: HSI GeoTrans
Drawing #: G-3, G-4 and G-5 Section #: Scales Code: E

Comment:
Scales should be identified as horizontal and vertical.

Response:
Agree.

ACTION:
Incorporate appropriate notation to scales in Title Block.

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12 - Commenting Organization: Ohio EPA Commentor: HSI GeoTrans
Drawing #: G-6 Section #: Detail 11 Code: c

Comment:
Detail 11 shows a minimum of 3 feet of cover over the invert of the pipe, but it refers to Note 3 which requires a minimum of 4.75 feet of cover over the invert of the pipe.

Response:
Agree.

ACTION:
Drawing will be revised to show minimum cover at the respective stations, which are consistent with calculations prepared during the "legacy" design package.

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13 - Commenting Organization: Ohio EPA Commentor: OFFO
Drawing #: G-6 Section #: Code: C

Comment:
Numerous station numbers are missing from this drawing. Please correct.

Response:
Agree.

ACTION:
Drawing will be corrected to reference the station numbers to the appropriate details.

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14 - Commenting Organization: Ohio EPA Commentor:
Drawing #: G-10 Detail: B Code: C

Comment:
Note 4 is referenced in detail B (LTS Pipe Crossing at OSDF Sediment Basin 1 Principal Spillway Pipes) when it appears that the appropriate reference would be 7. Please correct.

Response:
Agree.

ACTION:
Drawing shall be revised to reference the correct note and to add an additional cross section detail.

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15 - Commenting Organization: Ohio EPA Commentor: OFFO
Drawing #: G-17 Section #: Code: C

Comment:
Note 2 references replacing pipes with SDR-26 pipes. Please correct.

Response:
Agree.

ACTION:
Note will be revised to SDR-11.

Response to Ohio Environmental Protection Agency Comments
90% Design Package – OSDF Enhanced Permanent Leachate Transmission System

16 - Commenting Organization: Ohio EPA Commentor: OFFO
Drawing #: M-1 Section #: Code:

Comment:
Detail VH-1 shows valve 115 is normally closed and valve 114 is open. This arrangement allows leachate in the LDS system to drain directly into the LTS. The valves should be adjusted so that standard LDS flows are into the tank. We have already commented that much of the plumbing in the LDS line should be re-designed. It is acceptable to allow the LCS to flow directly into the LTS as shown in the schematic.

Response:
Agree that drawing detail does not show the normal low-flow valving arrangement. The valving arrangement for the various operational modes will be described in the Systems Plan for Leachate Management. See response to comment #1 concerning LDS plumbing design.

ACTION:
Drawing will be changed to show a normal low-flow valving arrangement. Operational valving arrangements will be described in the Systems Plan for Leachate Management.

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17 - Commenting Organization: Ohio EPA Commentor: OFFO
Drawing #: M-2 Section: B Code: c

Comment:
Has an evaluation been made to include a sediment trap right after the LCS line enters the valve house and before the knife valve? Considerations would include how robust the flow meters and check valves are to sediment loading and experience gained with the Cells 1 and 2.

Response:
Sediment trap to be installed just upstream of flow meter.

ACTION:
Design will be revised to incorporate a sediment trap and drain just upstream of the flow meter.

Response to Ohio Environmental Protection Agency Comments
90% Design Package – OSDF Enhanced Permanent Leachate Transmission System

18 - Commenting Organization: Ohio EPA Commentor: OFFO
Drawing #: M-3 Detail: 68 Code: c

Comment:
What is the purpose of the 3" auxiliary quick disconnect located just prior to the LTS line exiting the valve house?

Response:
The purpose is for implementation of the Contingency Plan (failure of a piping component in the LTS). Temporary hose can be connected if downstream LTS line is unavailable due to maintenance or other reason.

ACTION:
No design change is necessary. Contingency Plan will outline the related details on use of this connection.

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19 - Commenting Organization: Ohio EPA Commentor: OFFO
Drawing #: M-3 Section #: H Code: c

Comment:
The weld-o-let fitting in this detail looks like it is mounted on the ball valve flange.

Response:
Agree.

ACTION:
Drawing shall be revised to correct the drafting error.

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20 - Commenting Organization: Ohio EPA Commentor: OFFO
Drawing #: M-4 Detail: 76 Code: c

Comment:
To facilitate finding leaks in the tank, it should be mounted on legs so that it is elevated an inch or two above the floor.

Response:
Agree.

ACTION:
Design will be revised to support the tanks above the floor.

Response to Ohio Environmental Protection Agency Comments
90% Design Package – OSDF Enhanced Permanent Leachate Transmission System

21- Commenting Organization: Ohio EPA Commentor: HSI GeoTrans
Drawing #: M-5 Section #: Detail 79 Code: c

Comment:
The Control Valve House will be constructed around the existing ILTS while it is in use. What provisions will be made to protect the piping during excavation and support it during construction of the Control Valve House?

Response:
See Note 5 on drawing sheet #G-12. The provisions are to be made by the Construction Contractor.

ACTION:
No design change is necessary.

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22 - Commenting Organization: OhioEPA Commentor: HSI GeoTrans
Section #: 15080 Page #: 4 Line: 3 (Item E) Code: c

Comment:
An APCO Series 9000 double door check valve has been specified. However, the APCO catalog indicates that double door check valves are recommended for clean water, and not for wastewater. Because the leachate would not be considered clean water, some other style of check valve (such as a rubber flapper swing check valve or a slanting disc check valve) may be more appropriate for this application.

Response:
This check valve was selected based on its low cracking pressure. A sediment trap will be installed upstream of the check valve to reduce the potential for sediment to interfere with the closing of the check valve. Also, the check valve will be installed in a vertical pipe section, such that gravity will assist the closure of the valve upon reverse flow.

ACTION:
No design change is necessary.

Response to Ohio Environmental Protection Agency Comments
90% Design Package – OSDF Enhanced Permanent Leachate Transmission System

23 - Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 2.1 (Calculations Pkg) Pg #: Ex. Summary Line #: Code:

Comment:
The pipe flow capacity for the LCS line is calculated to be 86.87 gpm. The pumping capacity for the PLS is 200 gpm. At the present configuration with one cell nearly completed, one cell partially filled, and one cell barely started we are very close to a situation where the limiting factor in removing leachate head during storm flow conditions is not the capacity of the PLS to pump but rather the flow of the LCS lines. To amplify, under storm flow we expect that the LCS lines from Cells 2 and 3 will flow at full capacity (2X 86.87 gpm = 174 gpm). We know that flow from Cell 1 will be somewhat less than that because it is closer to being filled and the catchment area is closed. If the flow from Cell 1 is less than 200-174 = 26 gpm, the flow from Cells 2 and 3 is limited by the new 3" lines in the valve houses.

Response:
The general concern expressed in this comment is that the flow limiting component in removing leachate head during storm flow conditions is the LCS line, as opposed to the PLS. In reality, the limiting factor in removing head from the cell, during storm flow conditions, is the rate of flow of accumulated stormwater/leachate through the gravel and perforated LCS piping. The proposed 3" piping in the Valve Houses has sufficient hydraulic capacity for the flow rate through the gravel and perforated piping.

ACTION:
No design change is required.

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24 - Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 4.1.1 (Calcs Pkg) Pg #: 1 of 5 (Data verification) Line #: Code:

Comment:
The baseline design flow rate during active operations cited here from the original design package assumes that two cells are open. It would be more realistic to assume that three or four cells are open but the factor of safety for flow (EPLTS flow capacity divided by baseline flow during active operations) does not change drastically. We calculate an FOS of 3.9 assuming four cells are open. This is greater than the desired FOS of 3.0.

Response:
Comment acknowledged (no response required).

ACTION:
No design change is required.

Response to United States Environmental Protection Agency Comments
90% Design Package – OSDF Enhanced Permanent Leachate Transmission System

1 - Commenting Organization: USEPA Commentor: Saric
Drawing Sheet #: M-1 Section #: NA Detail #: NA

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Comment:
This drawing presents piping schematics for the six valve houses. Specific comments on this drawing are as follows:

a. The discharge lines from pumps PMP101 through PMP601 and PMP102 through PMP602 are shown to be 2-inch flexible metal hose assemblies; however the subsequent drawings (Sheets M-2 and M-3) show the pump discharge lines to be 3/4 inch in diameter for all pumps. According to the specifications, the pumps are rated at 17 gallons per minute (gpm), which makes the 3/4-inch diameter discharge lines too small. This discrepancy should be resolved.

b. The drawing indicates that each valve house is equipped with collection tanks and transfer pumps having liquid-level transmitters, level indicators, and recorders. It is not clear how this system will work. The valves on the tank fill lines (V115 through V615 and V135 through V635) are to be closed, and the valves on the transfer pump discharge lines (V116 through V616 and V136 through V636) are to be closed also; however, the valves on the cross-connection pipes (V114 through V614 and V134 through V634) are open. If flow can be accomplished by gravity as indicated, the tanks and transfer pumps are not needed. The drawing should be revised to clarify how the tanks will be used in each valve house.

c. It appears that the transfer pumps are to be started manually. There are no high-level alarms on the collection tanks. If the collection tanks and transfer pumps are to be used, it would be possible to overfill the tanks and spill leachate into the valve house through the tank vents. The system should be redesigned to start the transfer pump automatically when a predetermined liquid level is reached in a collection tank; the pump should also stop when a low liquid level is reached. In addition, a high-level alarm should be added to each tank. Moreover, the collection tank fill line valves (V115 through V615 and V135 through V635) should be motorized and should close automatically if a high liquid level occurs in a collection tank and the transfer pump fails to start. These features will prevent the valve house from being flooded through the tank vents.

d. The function of the knife gate valves (V113 through V613 and V133 through V633) is not clear. Knife gate valves tend to leak and should not be used. The drawing should be revised to include port ball valves or plug valves instead of knife gate valves.

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Response (comment #1):

a. Drawing Sheet M-1: 2-inch hose size is erroneous. ¾ - inch hose matches the specified pump outlet fitting sized. Also, ¾-inch size is acceptable for the short length of hose and is consistent with that typically provided with the specified pump.

b. When liquid flow rates from a cell are high (e.g., > ~750 gallons/day), valves will be positioned for flow to bypass the collection tanks and "drain" directly to the LTS line; flow will be measured and totalized using in-line flow meter and associated totalizer. When liquid flow rates are low, valves will be positioned for flow to be routed to the collection tank and liquid will be subsequently pumped from the tank to the LTS line; flow will be measured indirectly, using tank level and frequency of pumping (as recorded by operators) data, and directly, using the in-line flow meter and totalizer. This redundancy of instrumentation will enhance evaluation of system performance and future troubleshooting. Drawing will be revised to show normal low-flow valve positions. Operational valving arrangements will be described in the Systems Plan for Leachate Management.

c. Automatic operation of the system is not considered necessary because monitoring, by operators, will be performed three times daily (once on each 8-hour operating shift). The collection tanks will be used when liquid flow rates, per shift, are consistently lower than the tank capacity. Overflow of a collection tank will cause liquid accumulation in the valve house sump, which is equipped with a level switch and panel indicator light. With the enhanced LTS line design, flooding of a valve house (to the extent of overflowing containment) is very unlikely. See response to OEPA comment # 4.

d. The purposes of the knife gate valves are to provide block isolation for maintenance of downstream equipment and to provide for flow control (throttling) as may be required for proper system operation. With adequate specification (as rendered), a knife gate valve should **not** tend to leak.

ACTION (comment #1):

a. Drawing Sheet M-1 will be revised to indicate ¾-inch hose.

b. Drawing will be revised to show normal low-flow valve positions. Operational valving arrangements will be described in the Systems Plan for Leachate Management.

c. No design change, regarding automatic controls, is required.

d. No design change is necessary.

Response to United States Environmental Protection Agency Comments
90% Design Package – OSDF Enhanced Permanent Leachate Transmission System

2 - Commenting Organization: U.S. EPA Commentor: Saric – 2869
Drawing Sheet #: M-2 Section #: NA Detail #: NA

Comment:
Specific comments on this drawing are as follows:

a. The drawing indicates that the flow meters are 3 inches in diameter. If the transfer pumps are rated at 17 gpm, 3-inch-diameter flow meters appear to be too large to obtain accurate flow measurements. The flow rate through a 3-inch-diameter flow meter would be less than 1 foot per second. The flow meter size should be changed so that accurate flow measurements can be obtained.

b. It is good practice to install all equipment on 4-inch high, concrete housekeeping pads. In addition, each collection tank should be equipped with legs to allow installation of a drain with valves for removal of sediment. The drawing should be revised to include housekeeping pads for all equipment and legs on the collection tanks.

c. The drawing indicates that check valves are to be installed in a vertical position. Vertical installation of check valves is not recommended when the liquid to be pumped contains solids such as silt and sediment. The drawing should be revised to indicate horizontal installation of check valves.

Response:

a. The flow meter specified is designed for adequate accuracy at low flow rates (~1/2 gpm). For lower flow rates, the flow will be collected in the LDS or LCS collection tank and pumped from the tank at a flow rate that is within the meter's range for accurate flow measurement.

b. Agree that tanks should be elevated; but not necessarily by a concrete pad.

c. The type of check valve specified is suitable for installation in a vertical position, even with some silt and sediment. A sediment trap will be installed upstream of the check valve to reduce the potential for sediment to interfere with the closing of the check valve. Also, the check valve will be installed in a vertical pipe section, such that gravity will assist the closure of the valve upon reverse flow.

ACTION:

a. No change of flow meter size is required.

b. Design will be revised to include an HDPE pad underneath the collection tanks.

c. No design change is necessary.

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3 - Commenting Organization: U.S. EPA Commentor: Saric
Drawing Sheet #: M-3 Sections #: F/M-2 and H/M-2 Detail #: NA

Comment:
These sections should include sediment traps to ensure proper operation of the flow meters and valves. The sections should be revised accordingly.

Response:
Agree

ACTION:
The sections will be revised to include a sediment trap and drain upstream of the flow meter.

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4 - Commenting Organization: U.S. EPA Commentor: Saric
Drawing Sheet #: M-4 Section #: NA Detail #: NA

Comment:
Specific comments on this drawing are as follows:

a. Detail 70/M-2. The containment pipe should be equipped with a vent to prevent pressure buildup caused by temperature differentials.

b. Detail 74/G11. This detail shows an exhaust fan with an air intake located approximately 16.5 feet above the valve house floor. As shown, the exhaust fan will short-circuit. The exhaust fan should be equipped with a duct extending downward to approximately 1.5 feet above the valve house floor in order to allow proper ventilation.

c. Section 72/G-16. This section shows a 4-inch-diameter leachate transmission system pipe vent made of high-density polyethylene (HDPE) extending 7 feet above the finished grade. The 4-inch-diameter HDPE pipe vent will not be rigid enough to stand without support. The vent should be made of cast iron or steel, or a cast-iron sleeve should be installed around the pipe vent.

d. Detail 76/M-2. The detail indicates that the fill line for the collection tank is located 2 feet, 9 inches above the tank bottom, If the ultrasonic level probe is used, the useful volume of this tank will be only about 50 percent of its capacity. The detail should be revised to employ a capacitance level probe in order to maximize the tank's storage volume. Additionally, the level recorder should be connected to the level transmitter.

Response (comment #4): ~ 2869

a. Based on experience with the existing system, the temperature differential within the buried pipe will not be sufficient to promote a significant pressure buildup. Also, venting by periodic opening of monitoring/sample valves (3 times per day) will be performed.

b. A ceiling fan is included in the design to circulate air in the valve house (i.e., to prevent short-circuiting of incoming fresh air to the exhaust).

c. The vent pipe extension above grade will be reduced to about 4 feet, which eliminates the need for additional pipe support.

d. Agree that level transmitter should be specified and located to allow full use of tank capacity. Level recorder (data logger) includes its own pressure sensor for tank level measurement. The level transmitter provides output signal to panel readout (near valve house door).

ACTION (comment #4):

a. No vent on the containment pipe is necessary.

b. No change in exhaust fan intake is necessary.

c. Design will be revised - about 4-foot extension of vent pipe above grade.

e. Level transmitter specification will be revised to capacitance type.

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5 - Commenting Organization: U.S. EPA Commentor: Saric
Section #: 02605 Page #: 4 Parts #: 2.03 and 2.04

Comment:
Part 2.03 of this section requires the contractor to furnish HDPE pipes in standard laying lengths not exceeding 100 feet; however, Part 2.04 requires the contractor to furnish HDPE pipes in nominal lengths of 20 to 50 feet. This discrepancy should be resolved.

Response:
Agree

ACTION:
Specification section will be revised to specify manufacturer's standard nominal lengths.

6 - Commenting Organization: U.S. EPA Commentor: Saric
Section #: 02605 Page #: 9 Part #: 3.05 2869

Comment:
Part 3.05, Item B.2.c requires each carrier pipe to be tested at 60-pounds per square inch (psi) internal pressure; however, the pressure in the containment pipe when the carrier pipe is pressurized is not mentioned. Also, Item B.2.d requires each containment pipe to be tested at 5-psi internal pressure; however, the pressure in the carrier pipe is not mentioned. Both of these test procedures should be clarified by specifying all pipe test pressures.

Response:
Agree

ACTION:
Specification section will be revised to specify the carrier and containment pipe pressures when the other is being tested.

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7 - Commenting Organization: U.S. EPA Commentor: Saric
Section #: 02605 Page #: 9 Part #: 3.05

Comment:
Part 3.05, Item C requires low air pressure testing at less than 5 psi for carrier pipes running from cells 1, 2, and 3 to valve houses 1, 2, and 3. Because all other carrier pipes are to be tested at 60-psi internal pressure, it is not clear why the carrier pipes for cells 1, 2, and 3 are to be tested at such low pressure. The rationale for low air pressure testing of these carrier pipes should be clarified.

Response:
Although hydrostatic pressure testing is preferred, it is not viable for the existing piping at cells 1, 2, and 3 due to inability to vent trapped air from the high point of the pipe during the test. Low air pressure testing is acceptable for LCS, RLCS, and LDS piping; low pressure (<15 psig) is safer for pneumatic testing. Considering the potential liquid head on the system, a slightly higher test pressure (8-10 psig) should be specified. For hydrostatic testing, testing at 60 psig is more easily and safely performed; 60 psig is a reasonable test pressure for piping that is rated for an even greater pressure. 60 psig is the appropriate test pressure for the lower elevation (higher pressure) sections of the LTS piping.

ACTION:
Specification section will be revised to specify a low pressure air test of 8 – 10 psig for existing LCS, RLSC, LDS piping that cannot be tested hydrostatically.

2869

8 - Commenting Organization: U.S. EPA Commentor: Saric
Section #: 15080 Page #: 3 Part #: 2.02

Comment:
Part 2.02 should be labeled "Leachate Collection and Leak Detection Valve House Valves" instead of "Leachate Detection and Leak Detection Valve House Valves."

Response:
Agree

ACTION:
Specification section to be revised accordingly.