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**TRANSMITTAL OF RESPONSES TO AGENCY COMMENTS ON THE SOUTH  
FIELD EXTRACTION SYSTEM DESIGN PACKAGE**

01/17/96

**DOE-0414-96  
DOE-FN        EPAS  
11  
RESPONSES**

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**Department of Energy**  
Fernald Environmental Management Project  
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JAN 17 1996

DOE-0414-96

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

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

Dear Mr. Saric and Mr. Schneider:

**TRANSMITTAL OF RESPONSES TO AGENCY COMMENTS ON THE SOUTHFIELD  
EXTRACTION SYSTEM DESIGN PACKAGE**

- References: 1) Letter, J.A. Saric to J.W. Reising, "Disapproval of the OU5 Southfield Extraction System Design Package," dated December 6, 1995.
- 2) Letter, T.A. Schneider to J.W. Reising, "Disapproval of the OU5 Southfield Extraction System Design Package," dated December 6, 1995.

This letter transmits the U.S. Department of Energy's (DOE) responses to the U.S. Environmental Protection Agency (U.S. EPA) and the Ohio Environmental Protection Agency (OEPA) comments on the subject document. Revisions to the design drawings and technical specifications are proceeding and will be forwarded after acceptance of these responses is received.

If you have any questions concerning this transmittal, please contact Robert Janke at (513) 648-3124, or John Kappa at (513) 648-3149.

Sincerely,



Johnny W. Reising  
Fernald Remedial Action  
Project Manager

FN:Kappa

Enclosure: As Stated

cc w/enc:

R. L. Nace, EM-423/GTN  
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**RESPONSES TO U.S. EPA AND OEPA COMMENTS ON THE SOUTH FIELD  
EXTRACTION OCTOBER 1995 DESIGN PACKAGE**

U.S. EPA COMMENTS

Commenting Organization: U.S. EPA  
Section#: NA Pg.#: NA Line#: NA Commentor : Saric  
Code:

Original General Comment# 1

Comment: The DOE General Conditions are not part of the design submittal. The General conditions are referred to several times in the technical specifications. References to the General Conditions in the technical specifications should be checked against the General Conditions to ensure that the two parts present consistent information.

Response: Noted

Action: When the Invitation to Bid is prepared, check the references to the General Conditions in the technical specifications against the General Conditions to ensure that the two parts present consistent information.

Commenting Organization: U.S. EPA  
Section#: NA Pg.#: NA Line#: NA Commentor : Saric  
Code:

Original General Comment#: 2

Comment: When the Invitation to Bid is prepared by DOE, to prevent confusion, the document must make it clear that the extraction wells are not a part of this project.

Response: Noted

Action: When the Invitation to Bid is prepared, note clearly that the drilling, installation, and development of the extraction wells are not part of the scope of work for the project.

Commenting Organization: U.S. EPA  
Section#: NA Pg.#: NA Line#: NA Commentor : Saric  
Code:

Original General Comment#: 3

Comment: The drawings submitted for review are half-size reductions. Because graphic scales are not included in the drawings, it is assumed that all drawing sets used for bidding and construction will be full-sized. If reduced-size drawings are to be used for bidding and construction, graphic scales should be added to the drawings.

Response: It is normal procedure to issue full-sized drawings for bidding and construction activities. Half-scale drawings were used during the review cycle for ease of handling and logistics.

Action: Issue full-size drawings for bidding and construction purposes.

Commenting Organization: U.S. EPA  
Section #: NA Page #: NA Line #: NA Commentor: Saric  
Code:

Original General Comment #: 4

Comment: There is nothing included on the plans to permit locating the north and east coordinates. If the Construction Manager does not establish the coordinate system, benchmarks and elevations should be added to the drawings.

Response: Coordinate system is NAD 83 as listed on the North Arrow. Monuments are available on site.

Action: No action required

Commenting Organization: U.S. EPA  
Section #: NA Page #: NA Line #: NA Commentor: Saric  
Code:

Original General Comment #: 5

Comment: The documents are unclear about how the pump discharge pressure will be used with the flow measurement to control the speed of the variable frequency drives on the pumps. DOE should consider adding a description of the flow control rationale in the instrumentation portion of the technical specifications to clarify this issue.

Response: Section 2.3.B.2 of Specification 13401 explains the control function of the Pressure-Indicating Transmitter (PIT) and Section 2.3.B.3 of Specification 13401 explains the control function of the flow meter, flow indicating transmitter, and flow controller in controlling the speed of the variable speed pump drive.

Action: Write the description of the function of the PIT to clarify that the PIT stops flow by inputting zero speed into the Variable Speed Drive (VSD), but does not electrically disconnect the pump. The alarm function is a visual readout at the AWWT control room via the DCS. In order to prevent the pump from cycling on and off when pressure surges occur in the system, the VSD receives a signal to set the speed to zero. In effect, a no-flow condition occurs without electrically isolating the pump.

SPECIFIC COMMENTS

Technical Specifications

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 01011 Page #: 1 through 3 Line #: NA Code:
Original Specific Comment #: 1

Comment: The Schedule of Drawings included in the specifications does not agree with the drawing titles and order presented in Sheet X0002. To avoid confusion, either the Schedule of Drawings should be deleted from the specifications or else the list should be revised to be consistent with the information presented in Sheet X0002.

Response: The Schedule of Drawings lists the drawings in numerical order by drawing number. The drawing index lists the drawings in numerical order by sheet number.

Action: Revise the Schedule of Drawings to list drawings in the same order as the drawing index. Revise Schedule of Drawings titles as follows: Delete "Details" from DWG-00276; add "Road 15" to DWG-00262; spell out "Mechanical Process - Piping and Instrumentation Diagram" on DWGs 001-89-00191; and correct misspelling of "RTU" on DWGs 00271-00272.

Commenting Organization: U.S. EPA Commentor : Saric
Section#: 02110 3.2A Pg#: 3 Line#: Last sentence Code:
Original Specific Comment#: 2

Comment: The specifications state that the disposal of the collected runoff water will be determined by the Construction Manager. Because the disposal location is vague, it will be difficult for construction contractors to estimate the costs of disposal. Either a defined location for runoff water disposal should be proposed or else the specifications should be revised to state that it is the subcontractor's responsibility to dispose of the runoff water.

Response: Reference to runoff water disposal will be deleted from the Technical Specifications. Control of runoff water will be covered in Subpart 6 Statement of Work, of the Invitation to Bid.

Action: When the Invitation to Bid is prepared, check Subpart 6 to ensure that clear directions are given to the construction contractors on the handling and disposal of collected runoff water.

Commenting Organization: U.S. EPA Commentor : Saric  
 Section#: 02200, 3.2.1 Pg.#: 9 Line#: NA Code:  
 Original Specific Comment#: 3

Comment: The specifications should be revised to state that if dewatering is required during construction, the water will be collected, sampled, and disposed of appropriately.

Response: Disagree that the water pumped from the excavations needs to be sampled prior to disposition. Current plans are to dispose of this water in the nearest drainage ditch. The water that collects in the excavation will be similar to the current surface water runoff from the areas where the pipeline is to be installed or similar to perched water beneath the areas. Based on RI/FS data, contaminant concentrations in the perched water zones are well below surface water remediation limits in the areas where the pipeline is to be installed. Furthermore, the excavations for the pipelines are located outside areas of waste disposal; therefore, no waste that could generate high levels of contamination in water that may collect in the excavations is expected to be encountered in the pipeline excavations.

Action: No action required.

Commenting Organization: U.S. EPA Commentor : Saric  
 Section#: 09900, F2 Pg.#: 13 Line#: Last sentence Code:  
 Original Specific Comment#: 4

Comment: The Special Conditions of the Contract should be reviewed to ensure that the pipe color code information called for in this section are included in the Special conditions.

Response: Noted

Action: When the Invitation to Bid is prepared, review it to ensure that the Special Conditions include the pipe color code information called for in Section 09900, F2, Pg. 13.

Commenting Organization: U.S. EPA Commentor: Saric  
 Section #: 13402, B.2 Page #: 10 Line #: NA Code:  
 Original Specific Comment #: 5

Comment: The purpose of the PIT is unclear. The specifications should clarify if the transmitter is an alarm only or if it starts and stops the pump motors.

Response: Section 2.3.B.2 describes the function of the PIT.

Action: Write the description to clarify that the PIT stops flow by inputting zero speed into the variable frequency drive but does not electrically secure the pump. The alarm function is a visual readout at the AWWT control room via the DCS. In order to prevent the pump from cycling on and off when pressure surges occur in the system, the VSD receives a signal to set the speed to zero. In effect, a no-flow condition occurs without electrically isolating the pump.

Commenting Organization: U.S. EPA Commentor: Saric  
 Section #: 15060 Page #: 12 Line #: Paragraph 11 Code:  
 Original Specific Comment #: 6

Comment: This paragraph should be revised to state that all of the equipment in a piping system should be tested at the design working pressure to verify that there are no leaks in the system.

Response: Sensitive inline equipment must be isolated before pressure testing. This specification is written to cover the pipeline testing. Component testing is addressed under the component's specification.

Action: No action required

Commenting Organization: U.S. EPA Commentor: Saric

Section #: 15160 Page #: 1 and 3 Line #: 1.4.B and 2.5.A Code:  
Original Specific Comment #: 7

Comment: These paragraphs should be revised to clearly state that the pump submittal includes a typical pump curve for the model supplied (1.4.B) and a certified pump test curve for all nine pumps (2.5.A). The certified pump test should conform with the Hydraulic Institute Standards format.

Response: Agree

Action: Revise Paragraph 1.4.B to include submittal of both a typical pump curve and certified pump curves for each pump in accordance with Hydraulic Institute Standards format.

Commenting Organization: U.S. EPA Commentor: Saric  
Section #: 15170 and 15171 Page #: NA Line #: NA Code:  
Original Specific Comment #: 8

Comment: Section 15171 (Motors) appears to present all of the same information included in Section 15170 (Motors). Section 15170 refers to Section 16483 (Variable Frequency Drives), but Section 16483 does not refer to Section 15170. This inconsistency should be resolved. Either the title of one of the sections should be changed or else one of the sections should be deleted.

Response: Section 15171 covers the motors for the extraction well pumps. Section 15170 covers all other motors. Section 15170 should not reference Section 16483.

Action: Delete reference to Section 16483 from Section 15170. Rename Section 15171 "Motors Driven by Variable Frequency Drives."

**Drawings**

Commenting Organization: U.S. EPA Commentor: Saric  
Sheet #: X0003 Page #: NA Line #: NA Code:  
Original Specific Comment #: 9

Comment: The symbol legends on the drawing should be revised for clarification. For example, the symbols for existing and proposed fences are hard to differentiate, and the symbols for existing and proposed railroad tracks are the same.

Response: Railroad symbols are not used. The fences symbols are different in both symbol and line weight. These are much easier to differentiate on the full-size drawings that will be used for construction.

Action: Delete railroad symbols from sheet.

Commenting Organization: U.S. EPA Commentor: Saric  
Sheet #: G0002 Page #: NA Line #: NA Code:  
Original Specific Comment #: 10

Comment: The work to be performed, if any, at the existing outfall in area A5 needs to be clarified.

Response: Outfall is only identified and no work is to be performed there.

Action: No action required.

Commenting Organization: U.S. EPA Commentor: Saric  
Sheet #: G0002 Page #: NA Line #: NA Code:  
Original Specific Comment #: 11

Comment: The note in area F5 should be revised to state that the crushed aggregate paving detail is shown on Sheet G00220. This should also be corrected on other sheets throughout the set of drawings as appropriate.

Response: Agree

Action: Modify drawings to correctly reference DWG-00220 instead of DWG-00219.

Commenting Organization: U.S. EPA  
 Sheet #: G0003 Page #: NA Line #: NA Commentor: Saric Code:  
 Original Specific Comment #: 12  
 Comment: The concrete encasement near EW-21 should be revised to be about 48 feet long as shown on the profile presented on Sheet P-00255.  
 Response: Agree  
 Action: Change graphic to reflect 48 feet.

Commenting Organization: U.S. EPA  
 Sheet #: G0004 Page #: NA Line #: NA Commentor: Saric Code:  
 Original Specific Comment #: 13  
 Comment: Either the note in area B4 about seeing note 11 should be deleted or else a note 11 should be added. Also, the note in area E3 about a common trench for the 20-inch and 10-inch lines should be revised because the 10-inch line is actually a 12-inch line.  
 Response: Agree  
 Action: Delete the reference to Note 11. Revise Area E3 note to reflect the 12-inch line.

Commenting Organization: U.S. EPA  
 Sheet #: G0007 Page #: NA Line #: NA Commentor: Saric Code:  
 Original Specific Comment #: 14  
 Comment: The two notes in area 2F and area 3F appear to refer to the same tie-in and should be corrected.  
 Response: Agree  
 Action: Delete one of the notes.

Commenting Organization: U.S. EPA  
 Sheet #: G0008 Page #: NA Line #: NA Commentor: Saric Code:  
 Original Specific Comment #: 15  
 Comment: Air release valves are needed at all high points in the line. Additional valves may be needed near Stations 2 + 40 and 13 + 20. The drawing should be revised to include these additional valves, if necessary.  
 Response: These locations are minor topographical changes and, in our engineering judgment, nearby general area air releases are sufficient to provide air release for these localities.  
 Action: No action required.

Commenting Organization: U.S. EPA  
 Sheet #: G0009 Page #: NA Line #: NA Commentor: Saric Code:  
 Original Specific Comment #: 16  
 Comment: The title of the profile in area F4 should be revised to be the same as the profile title on Sheet G0008 because they refer to the same profile.  
 Response: Agree  
 Action: Change the profile title in area F4 to coincide with the profile title on sheet G0008.

Commenting Organization: U.S. EPA  
 Sheet #: G0009 Page #: NA Line #: NA Commentor: Saric Code:  
 Original Specific Comment #: 17  
 Comment: Air release valves are needed at all high points in the line. An air release valve should be considered at the high point between Stations 27 + 30 and 30 + 20 and the drawing should be revised if necessary.  
 Response: These locations are minor topographical changes and, in our engineering judgment, nearby general area air releases are sufficient to provide air release for these localities.  
 Action: No action required.

Commenting Organization: U.S. EPA  
 Sheet #: G0010 Page #: NA Line #: NA Commentor: Saric  
 Code:  
 Original Specific Comment #: 18  
 Comment: EW20 shown in area 1A is actually EW21. The drawing should be revised accordingly.  
 Response: Agree  
 Action: Revise drawing to label the well EW21.

Commenting Organization: U.S. EPA  
 Sheet #: G0011 Page #: NA Line #: NA Commentor: Saric  
 Code:  
 Original Specific Comment #: 19  
 Comment: In Profile EW-17, an air release valve should be considered for inclusion at the high point near Station 3 + 60. Also, near area C-4, the 10-inch line (GW-10-2911) should actually be a 6-inch line (GW-6-2913) and should be changed.  
 Response: This location is a minor topographical change and, in our engineering judgment, nearby general area air releases are sufficient to provide air release for this locality. Agree that the 6-inch line is incorrectly labeled.  
 Action: Label the line GW-6-B4-2913.

Commenting Organization: U.S. EPA  
 Sheet #: G0011 Page #: NA Line #: NA Commentor: Saric  
 Code:  
 Original Specific Comment #: 20  
 Comment: In Profile EW-13 near area D-6, the tie-in is indicated incorrectly and should be changed to the South Field Valve House. Also, the need for an air release valve at the high point near Station 1 + 40 should be considered and the drawing revised if necessary.  
 Response: Agree that the tie-in is indicated incorrectly. This location is a minor topographical change and, in our engineering judgment, nearby general area air releases are sufficient to provide air release for this locality.  
 Action: Change the tie-in to the South Field Valve House.

Commenting Organization: U.S. EPA  
 Sheet #: A0007 Page #: NA Line #: NA Commentor: Saric  
 Code:  
 Original Specific Comment #: 21  
 Comment: Pipeline GW-20-A-2924, which enters the building, would be seen in elevation E2. The drawing should be revised to show Pipeline GW-20-A-2024.  
 Response: Agree  
 Action: Revise drawing to depict Pipeline GW-20-A-2024.

Commenting Organization: U.S. EPA  
 Sheet #: P0001 Page #: NA Line #: NA Commentor: Saric  
 Code:  
 Original Specific Comment #: 22  
 Comment: The specifications state that all pumps will have a maximum flow rate of 400 Gallons Per Minute (gpm) and a 6-inch discharge. Table A indicates that some pumps will discharge to a 6-inch line and some then increased to an 8-inch line. This should be reviewed to ensure that they are correct. A 400-gpm flow through an 8-inch meter has a velocity of under 2.5 feet per second, resulting in inaccurate flow measurements. The drawing should be revised as necessary if resulting inaccuracies in the flow measurement are unacceptable.  
 Response: The 8-inch lines are sized for future anticipated flows. It is anticipated that in year 16

of extraction, Wells 13, 14, 15, 16, and 18 will have their pumps replaced and will return to service with an 800-gpm flow rate. The transit time flow meters specified have a velocity range of -40 to +40 fps, thus allowing flow measurements at low velocities.

Action: No action required

Commenting Organization: U.S. EPA Commentor: Saric  
Sheet #: P0003 Page #: NA Line #: NA Code:  
Original Specific Comment #: 23

Comment: Because air may become trapped in the piping in the treatment and discharge lines within the building, air release valves may be needed to easily release air. The drawings should be revised if necessary.

Response: Agree

Action: Add air release valves to the South Field Valve House design at three points to ensure that air entrapment does not become a problem.

Commenting Organization: U.S. EPA Commentor: Saric  
Sheet #: P0004 Page #: NA Line #: NA Code:  
Original Specific Comment #: 24

Comment: Pipeline GW-12A-2910 would be seen in Section A and should be shown in this drawing. Also, the flow direction of Line GW-20A-2906 is incorrectly shown as being into the building. The flow direction is actually out of the building. The drawing should be corrected accordingly.

Response: Pipeline GW-12A-2910 was left out of Section A for the sake of clarity. The sections are produced to aid in construction and all information necessary for construction is present. Line GW-20A-2906 on P004 shows flow going out of the building but flow should be into the building.

Action: Change Line GW-20A-2906 flow arrow to show flow entering the building.

Commenting Organization: U.S. EPA Commentor: Saric  
Sheet #: N0002/N0003 Page #: NA Line #: NA Code:  
Original Specific Comment #: 25

Comment: The pressure transmitters on each pump are located after the check valves. The transmitters control the pumps in some manner based on high and low pressure. However, because the transmitters are located after the check valve, the transmitters would sense line pressure when the pump is off. The transmitters should possibly be located between the pump and the check valve. The drawing should be revised if necessary to relocate the pressure transmitters.

Response: The PITs control the pumps only by inputting a zero speed signal into the pump's variable speed controller when either a high or low pressure signal is attained. Having the PIT sense line pressure when the pump is secured does not affect the control of the pump because this line pressure will be less than the high pressure signal. Moving the PIT is not necessary for the control of this system.

Action: No action required



Comment: DWG G-00220 (Sheet No. G0016) and DWG G-00221 (Sheet No. G0019), it is recommended that the sediment and erosion control details from each of these sheets be put on the same sheet.

Response: Due to drawing space constraints this consolidation of sediment and erosion controls is not feasible.

Action: No action required

Commenting Organization: OEPA

Commentor: GeoTrans, Inc.

Section #: 95X-5900-X-00202 Pg. #:

Line #: Code G

Original Comment #7

Comment: DWG G-00220 (Sheet No. G0016), specifications for guard post detail not found in written technical specifications. Recommend placing specs in Division 2 of Section 02831.

Response: Agree

Action: Include specification for guard posts in Specification 02667.

Commenting Organization: OEPA

Commentor: GeoTrans, Inc.

Section #: 95X-5900-X-00202 Pg. #:

Line #: Code: G

Original Comment #8

Comment: DWG A-00224 (Sheet No. A0001), air flow within the pump house seems excessive in comparison to the valve house. The technical specs Section 15500 (Pg. 6 of 8), lists air flow as 400 CFM, but DWG A-00224 calls for an exhaust fan with 14800 CFM (B3).

Response: Air flow within the pump house is higher to allow dissipation of the heat load placed on the pump houses by the extraction pump motors. The valve house does not have this extra heat load; therefore it can have a lower air flow rate. The 400 CFM listed in Specification 15500 is in reference to the unit heater and not the exhaust fan for the pump house. DWG A-00224 is correct in specifying 14,800 CFM.

Action: No action required.

Commenting Organization: OEPA

Commentor: GeoTrans, Inc.

Section #: 95X-5900-X-00202 Pg. #:

Line #: Code G

Original Comment #9

Comment: DWG P-00233 (Sheet No. P0004), Section "A" of Pipe 2906-IC's direction arrow (downward) does not match the corresponding arrow (left, then upwards) of the same pipe in the "Valve House Plan" on DWG-P00223 (Sheet No. P0003).

Response: Section A of pipe 2906 should show flow upwards.

Action: Modify DWG P-00233 to have Section A show flow for Pipe GW-20-A-2906 going upwards into the building.

Commenting Organization: OEPA

Commentor: GeoTrans, Inc.

Section #: 95X-5900-X-00202 Pg. #

Line #: Code: G

Original Comment #10

Comment: DWG-N-00189 (Sheet No. N0001), ultrasonic flow meter (Grid F-2) is misspelled.

Response: Agree

Action: Correct the misspelling.