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Department of Energy

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SEP 25 1998

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DOE-1229-98

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

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

Dear Mr. Saric and Mr. Schneider:

CLARIFICATION OF COMPLIANCE WITH PERMIT RELATED SUBSTANTIVE REGULATORY REQUIREMENTS - SLUDGE REMOVAL SYSTEMS PROJECT

Reference: Letter from J. W. Reising to J. A. Saric and T. Schneider, "Compliance with Permit Related Substantive Regulatory Requirements," dated July 28, 1998.

Enclosed is information clarifying the substantive permitting crosswalk which was prepared for the Fernald Environmental Management Project Sludge Removal Systems Project. The crosswalk was previously submitted to the U.S. Environmental Protection Agency (U.S. EPA) and the Ohio Environmental Protection Agency (OEPA) in July 1998. The description provided herein addresses questions that were posed by Mr. Joe Bartoszek of OEPA via teleconference between Mr. Dave Brettschneider of Fluor Daniel Fernald, Inc., and Mr. John Kappa of DOE-FEMP on September 14, 1998.

If you have any questions concerning the enclosed description, please contact Mr. John Kappa at (513) 648-3149.

Sincerely,

Johnny Reising

Johnny W. Reising
Fernald Remedial Action
Project Manager

FEMP:Kappa

Enclosure

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cc w/enclosure:
E. P. Skintik, OH/FEMP
G. Jablonowski, USEPA-V, SRF-5J
R. Beaumier, TPSS/DERR, OEPA-Columbus
T. Schneider, OEPA-Dayton (total of 3 copies of enc.)
F. Bell, ATSDR
M. Schupe, HSI GeoTrans
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R. J. Janke, OH/FEMP

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SLUDGE REMOVAL SYSTEM INSTALLATION

The Stormwater Retention Basin (SWRB) and Biodenitrification Surge Lagoon (BSL) are located at the south and northwest portions of the FEMP, respectively. The SWRB serves as a collection/retention reservoir for stormwater runoff from the former process area. The SWRB is comprised of an East and West chamber. The BSL also serves as a collection/retention reservoir for the stormwater runoff from the Waste Pits, K-65, and Onsite Disposal Facility (OSDF) areas as well as a headwords for remediation wastewaters.

Per the terms of the Permit-to-Install for the SWRB and BSL, the quantity of sludge allowed to be accumulated in these facilities is limited. These PTIs were part of the Consent Decree with the State of Ohio. In the past, cleanout of these basins to comply with this agreement was performed by manual labor which presented safety and operations concerns. Of major importance, in cleaning out the BSL the use of very large supplemental temporary tanks to maintain operations was required. These tanks have been removed, making a future manual cleanout non-feasible.

This project will install three (3) remotely operated solids removal systems (dredges) for the future removal of the sludge. One will be installed at the BSL. Two will be installed at the SWRB, one in the East Chamber and one in the West Chamber.

The three dredges are PIT HOG series PH7MAU horizontal dredges manufactured by Liquid Waste Technology (LWT) Inc. The LWT PIT HOG dredge is considered to be the most technologically advanced dredge in the industry today. The dredges have a transmission that converts power to hydraulic flow for use by the hydraulic motor on the slurry pump and for the auxiliary systems. The power transmission is sophisticated, powerful and designed to maximum efficiency and performance. To assure continuous dependable performance, LWT incorporates a direct drive, dual pump circuit hydraulic system with one pump serving the slurry pump, and another serving the auger and the auxiliary functions (i.e., pump elevation, auger, and travel). The engine also direct drives a pressure compensated hydraulic piston pump which is continually matching the power available to the functions requiring it. The valving system allows the speeds of the auger, slurry pump and traverse system to be independently controlled with the speed pots mounted in the control panel so that operating one function will not have an adverse effect on another and require continuous resetting and adjusting of the controls.

The PIT HOG hydraulic auxiliary functions are controlled utilizing an electronic proportional valve bank. The pump speed is throttle controlled, while the auger and travel speeds are controlled with speed potentiometer type dial throttles which are easily reset to previous operational values.

The working heart of any dredge is the power transmission and the slurry pump. The recessed impeller in the cast iron pump has a minimum 6" solids handling capacity. A flex coupler is provided between the pump and hydraulic drive motor to assure that shocks on the drive system are minimized. Placing the pump immediately behind the variable speed

auger head enables the PIT HOG to remove maximum solids concentrations with a minimum of dilution. In operation, the removable cutter teeth loosens the material and the auger flighting coveys it directly to the pump suction. The auger shroud totally surrounds the auger and may be tilted to meet the sludge bank. The pump speed is controlled with a marine type throttle.

The auger boom linkage is cylinder controlled with linkage and boom arms independent of the discharge line. Standard operating depths are 10 to 15 feet. The auger has electronic variable speed control. Roller gauge wheels are provided on the auger to provide protection of the existing membrane liners.

A pontoon system supports the entire functional system. These are all steel welded 10 gauge pontoons with integral baffles, which are foam filled with two pound density urethane foam. The pontoons and the remainder of the welded structural steel frame, non skid deck plate and railing frame are prepared, sandblaster, and coated with 15 mils of coal tar epoxy paint.

The travel system features a triple sheave traverse winch system. Each of the sheaves are equipped with roller bearings. The incoming cable is guided onto the triple sheave winch and then passed along the entire length of the dredge in an enclosed inspection shroud. The dredges are controlled laterally by either a rail system (BSL and East Basin SWRB) or 4 post lateral move system (West Basin SWRB). Under the planned configuration, each dredge is started and goes forward, comes to the far end of its run, reverses and moves back to its starting point (rear stop). The operator would then use the radio control to laterally move the dredge to its next location.

The pumped flow from the dredges discharges into decanting systems (clarifiers) to allow the sludge and transport water to be separated. One clarifier will be installed at the northwest corner of the BSL and a second clarifier will be installed between the two chambers of the SWRB. The dredging operations will continue until the decant system is full. After a minimum of 24 hour (may vary based on actual operational experience) the separated sludge will be scraped into an adjacent hold tank and separated water will be returned to the basin. After the sludge hold tank reaches a volume of approximately 3000 gallons (the capacity of the on-site supersucker trucks), the accumulated material will be transferred to the Sludge Dewatering Facility (SDF) for processing.

As the intent of this operation is to maintain the accumulation of sludge below that mandated by the respective PTIs, this operation will only be performed during warmer weather and on an as needed basis which interfaces with other ARWWP operations.