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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

Docket No. 50-201

JAN 31 1979

MEMORANDUM FOR: Leland C. Rouse, Acting Chief
Fuel Reprocessing and Recycle Branch
Division of Fuel Cycle and Material Safety

FROM: Charles J. [illegible]ghney
Fuel Reproc[illegible]ng and Recycle Branch
Division of [illegible] Cycle and Material Safety

LICENSEE: Nuclear Fuel Services, Inc. (NFS)

FACILITY: Western New York Nuclear Service Center
West Valley, New York

SUBJECT: MEETING SUMMARY

Purpose:

To discuss the progress of NF[illegible] efforts to process technical data useful for future decontamination and decommissioning of the West Valley facility and to discuss the present status of NFS efforts to investigate the 8-D2 pan defect.

Place and Date:

Nuclear Regulatory Commission (NRC), Office of Nuclear Material Safety and Safeguards, Silver Spring, MD; January 9, 1979

Participants: Please see attached list.

Reference Index of NFS Facility Design Data:

An index for plant area 8, Liquid Waste Storage, had previously been provided at our meeting on July 21, 1978. I had noticed that some of the drawings that were being used to investigate the 8-D2 pan defect had not been listed on that index. During this meeting, I provided a list of those drawings to NFS; a copy of this list is attached. Since Mr. C. Seitter, the NFS Quality Assurance Supervisor who has been developing the plant area indices, was unable to attend this meeting, the explanation for the absence of these drawings from the area 8 index was not available. Subsequently, Mr. W. Oldham, the NFS plant manager, telephoned me to explain that the structural, electrical, piping layout and instrumentation drawings were intended to be indexed later under portions of plant area 15, common areas. In addition,

after completion of all indices, consideration will be given to listing particular drawings in more than one plant area index.

Report of Decontamination History:

Sections of the draft decontamination history report for the Vessel Off-Gas and Dissolver Off-Gas systems have been developed. The uranium and plutonium product purification systems are the only remaining sections of the draft report describing vessel and system decontamination. Subsequent efforts will be expended to develop the history of decontaminating plant cell surfaces.

Discussion of 8D-2 Pan Defect:

The remaining portion of the meeting was spent in discussing the present status of the investigation of the defect in the 8D-2 pan. The following information concerning the defect was discussed during the meeting:

1. Investigation of the specification for the sieve size for the pea gravel indicates the size should range from approximately 0.1 inches to 0.2 inches.

2. The temperature of the water that was added to the pan to conduct the test was between 45° and 50° F. This water was added at the approximate rate of 20 gallons per minute through a Badger water meter.

3. Review of documentation concerning post-construction and pre-acceptance testing is still in progress, but at this time there is no documented evidence to indicate that a standing water operational test had been conducted on the pan in a manner that would test the integrity of the pan. There is some indication that the pan pump was operationally tested in April 1966. However, there is no indication as to how much water was added to the pan during this test; nor is there any documentation of the water level reading in the vault or the pan at the time of this test. The search of the documentation that pertains to testing of the waste storage system is still in progress.

4. I provided two inspection reports dated May 1, 1964 and April 20, 1964. These reports were from the construction phase of the project and discussed the radiography of field fabricated welds for the waste tank pans. Copies of these reports are attached.

5. During the meeting, we discussed the floating incident and its possible contribution to stress in the pan. At this time, there is no evidence to indicate whether or not the floating incident could have either caused or contributed to the pan defect.

6. The possiblity that accelerated local corrosion could have caused the pan defect was also discussed. There is no evidence, at this time, to indicate that conditions for this accelerated local corrosion have been present in 8D-2. Nonetheless, that phenomena remains a possible cause of the defect. NFS stated that they lack the expertise to determine whether or not accelerated local corrosion could have caused this defect.

7. In response to a question about the stability of the pan and vault water levels over the past few weeks, NFS stated that the pan and vault water levels had been decreasing due to evaporation. Both pan and vault levels have dropped about 3-1/2 inches over the past month. In addition, the water levels have now dropped to the point where a sample of the pan vault water can no longer be obtained. However, the last sample that was obtained indicated background amounts of radioactivity.

8. The NFS plans and preparations to enter the 8D-1 annular space are in progress; and, weather permitting, the entry could possible take place next week. Mock-ups have been created in order to rehearse inspection techniques to be used in the narrow space at the bottom of the pan between the pan and the pearlite annular skirt. During the entry, attempts will be made to inspect the exterior surface of the tank and pan and the interior surface of the vault. Also, particular effort will be made to detemine the method of fabricating the semi-circular holes in the bottom of the pearlite annular skirt. At the time of this meeting, since the entry into the 8D-1 annulus has not yet been made, the likelihood of success in accomplishing any of these items is unknown.

9. The investigation of the availability of remote inspection equipment that could be used in the 8D-2 annular space is still in progress. At this time, one vendor of fiber optics and boroscopic equipment has been contacted. This particular vendor does not have equipment of sufficient length to conduct a meaningful inspection of the 8D-2 annulus. Longer equipment is anticipated to be available from this firm in March. However, even this longer fiber optics equipment would be able to inspect only a small portion of the circumference of the 8D-2 annulus.

10. Upgraded instrumentation has been installed in 8D-2 pan and vault. The level instrument for 8D-2 pan (8LR-5) consists of the stainless probe (adjacent to the pan pump) which is connected to a Taylor transmitter and level recorder. The level instrument probe for 8D-2 vault (8LR-15) is a copper tube extended to the bottom of the vault (inside old 8LI-15 tube) and is connected to a Taylor transmitter and level recorder. Both of these new instruments are wired to the alarm annunciating panel board in the Waste Tank Farm shelter.

11. Preparations to conduct an operational test of the 8G-2 waste transfer pump have been proceeding. The recirculation piping to 8D-1 has been installed. The 8G-2 pump is installed to 8D-1. An enclosure to protect the 8G-2 motor from the weather has been fabricated and will next be installed over the pump and motor. Final electrical and mechanical hookups have yet to be made. It is anticipated that this test should be completed by the end of January.

12. NFS will provide their report of the status of the testing and investigation of the 8D-2 pan defect in their quarterly operating report, which is due to be submitted by January 30, 1979.

Next Meeting:

The next meeting is tentatively scheduled for 1:30 p.m., Thursday, February 15, 1979 at the NRC offices in Silver Spring, Maryland.

Charles J. Haughney

Charles J. Haughney
Fuel Reprocessing and Recycle Branch
Division of Fuel Cycle and
Material Safety

Enclosures:
1. Attendee list
2. Inspection Reports dtd
May 1, 1964 and April 20, 1964

NRC/NFS/NYSERDA MEETING
January 9, 1979

Participants:

Name	Organization
C. J. Haughney	NRC-FCRR
L. C. Rouse	NRC-FCRR
T. K. DeBoer	NYSERDA
A. T. Clark	NRC-FCRR
James R. Clark	NFS
W. A. Oldham	NFS
Neil J. Newman	NFS
A. Abriss	NRC-WM
S. A. Treby	NRC-OELD

Observers:

Madonna E. Krug	NRC-WMGT
K. Crofford	EPA

DRAWINGS NOT ON THE AREA 8 INDEX

Drawing No.	
8A M 1	WTF Shelter, Concrete Blk. Plan & Elev.
8A Q 7	WTF Shelter, Foundation Plan
8A L 1	8D 1 & 2 Piping Arrangement Plans
8A L 2	8D 1 & 2 Piping Arrangement Plans
8A L 3	8D 1 & 2 Vault Roof Penetrations
8A L 5	WTF Piping Arrangement Details
8A L 7	Waste Tank Piping Arrangement Details
8A L 9	WTF Condenser Piping Arrangements
8A L 16	8D 1 & 2 Vault Penetration Pipe Sleeves
8B L 4	Water Injection System Details
8B L 6	8D 1 & 2 Vault Penetrations
8B L 14	Aux. Piping for 8 G-1 Pump
15 RJ 23	WTF Instrument Panel Arrangement
30A P 32	Electrical Prints
30A P 13	Electrical Prints
8A J 2	WTF Instrument Location Plan
8A J 3	WTF control Panel Addition
8B Q 6	8E-1 & 1A Foundation Plan
8A M 2	8D 3 & 4 Vault, Plan & Details for Metal Liner Inserts
8A M 3	WTF Shelter, Sections & Details
8A Q 9	8D 3 & 4 Vault; Plan, Sections and Details

U. S. Atomic Energy Commission
Region I
Division of Compliance

TITLE: Nuclear Fuel Services, Incorporated
Construction Permit CPCSF-2
Docket No. 50-201
Date of Visit: April 23, 1964

DATE: May 1, 1964

BY: Willis G. Browne, Inspection Specialist (Criticality)

SUMMARY

H. V. Crocker of Compliance Headquarters and W. G. Browne of Region I, Division of Compliance, inspected the NFS construction site at the Western New York Nuclear Center near Springville, New York, on April 23, 1964. Purpose of the visit was to observe construction progress and acquaint Mr. Crocker with the NFS facilities.

Construction progress since the last visit has been delayed by rainy weather and major progress had only been made in the pouring of concrete and in fabrication of the waste tanks.

It was observed that concrete work had progressed noticeably since the last inspection. Forms have been erected for first floor walls of the chemical process cell. Underground piping and conduit for the utility building has been installed and floor level concrete pours are about ready to start. The structural steel for the fuel receiving and storage has not changed appreciably, since the 100-ton crane must be installed before the end steel can be placed.

Fabrication of the pans that will be placed between the concrete vault floor and the tank, is essentially complete and steel plate for the tanks is being received on site. Tank fabrication is expected to start about the first of May.

DETAILS

Persons Contacted

Dr. Walton A. Rodger, Plant Manager
Bill Oldham, Production Superintendent
George Dymmel, Interim Field Engineer
Bob Pratt, Supervisor of Fabrication and Assembly
Joe Markley, New York Atomic Research and Development Authority

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Bill Retzlaff, Chicago Bridge and Iron Works, Welding and Fabrication Foreman
Harrison Harper, Welding Supervisor for Chicago Bridge and Iron Works, who inspects the radiography film.

Organization

Since the inspectors' last visit, the following organizational changes in NFS organization have been made: Dr. Walton A. Bodger has replaced Les Landrum as Manager of the NFS Spent Fuel Processing Plant; Mr. William Oldham is Production Superintendent and reports to Dr. Bodger.

Categories Observed

Waste (VII.a.)

The welding techniques used in fabrication of the pans that go under the waste tanks were observed. The formed sheet-sections of iron plate that are shipped to the site are welded together in three steps. After two plates have been butted together, they are tack-welded to hold them in place. When all of the sheets have been assembled in the desired pattern, the crack between plates is bead-welded to a depth about 2/3 of the plate thickness. For horizontal welds, an automatic welder is then used to make a weld approximately 1-inch wide, under a deposit of #50 Linde "sand." The "sand" is actually a granulated carbide which excludes oxygen from the hot weld and leaves a smooth, scar-free welded surface. The automatic welder "cuts out" the original bead-weld and tack-weld material as it lays down the new bead. After the automatic weld has been made on one side, the welded sections are turned over and an automatic weld-bead is laid from the opposite side. The second automatic weld cuts into the first weld made on the other side, to give complete bonding of the two welds.

The welding rod which is being used is called Jet-weld LH-70 (Lincoln). Because moisture can cause porosity and voids in a weld, every precaution is used for keeping the welding rod dry. The Jet-weld rods are received in approximately one-gallon sealed containers, and whenever a container is opened, the rod that is not used immediately, is placed in a drying oven to keep it dry until the rod can be used by the welders.

All tank welds are to be given 100% X-ray inspection. Any doubt about the quality of a weld requires that the material be "cut out" and replaced with a satisfactory weld. Between 4000 and 4500 radiographs will be taken of welds in the two waste tanks 8-D-1 and 8-D-2.

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North American Services (AEC License No. 29-8122-1 and New York License No. 27-272-1010) is doing the radiography. At the time of the inspection, they were radiographing the knuckle weld of the 8-D-2 pan. Each tank pan is divided into six sections, so that each section is light enough to remain rigid while it is lowered into the tank vault by a mobile crane.

All fabrication welds made on a section are radiographed before the section is lowered into the vault. Welds for joining the sections together are made in the vault and cannot easily be checked by radiography, so only welds between sections are radiographed after the sections are in the vault.

The pan for waste tank 8-D-1 has been placed in the concrete tank vault and is supported about three feet above the vault floor by shoring. All but two of the section welds have been completed. All welds on the pan for 8-D-1 were checked visually and appeared to be good continuous welds with no obvious surface imperfections. The 8-D-2 pan (in six sections) was lying on the ground near the 8-D-2 vault. All welds that had been made were visually inspected, and it appeared that the welds were all sound continuous welds.

It was noted that the horizontal pan welds had been made by the automatic welding machine, but that vertical welds had been made manually. The vertical welds appeared to have three welding beads for each joint. The "knuckle welds" were also done manually.

Harrison Harper is a Welding Supervisor who does radiographic film inspection for the Chicago Bridge and Iron Works. Each film strip that is delivered to him is checked for proper overlap, film picture density, and voids or other imperfections in the welds.

His analysis of each film strip is entered in a log book which was examined by W. C. Browne. The log book showed his analysis of all welds in the pan for the 8-D-1 waste tank and for some of the welds on the 8-D-2 pan. His code for the analysis of film from the radiographs was as follows:

(1) o.k. means that the weld is satisfactory and does not contain any imperfection greater than 1/4-inch in length.

(2) Res means that the radiograph must be retaken.

(3) Rep means that the weld was unsatisfactory and needs repair.

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(4) Rep followed by o.k. means that the repair has been completed and the weld is now satisfactory.

An additional record of radiographs is kept on a drawing of the pan which is called the "as-built" record. The "as-built" drawing of the pan contains dots which indicate the location of weld defects. A dot with an X on either side of it (X . X) means that the defect has been repaired.

From the log book and the "as-built" record, a weekly report is prepared in quadruplicate, one copy of which goes to the Headquarters Radiography Inspector of the Chicago Bridge and Iron Works, along with the film strips. If the Headquarters Inspector's analysis of the film strips coincides with that of the field inspector, a copy of the weekly report is signed by the Headquarters Inspector and is returned to the field inspector. Differences in interpretations are discussed and resolved before the reports can be approved.

The film strips from the radiography of seam "B" of the P-2-skirt and two films from seam "C" of the P-2-skirt were examined. A film density guide was used for determining whether the film density lay between 1.3 and 1.75. In the case of a picture for seam "C" (3-4), the film density was approximately 2.16 so it was necessary to have the picture retaken. The pictures on seam "B" all showed satisfactory film density and weld quality.

The tank bottom construction shown on drawing 4413-81D-3, rev. 4, shows that there are three inches of pea gravel on the floor of the vault. The pan or saucer will rest on the pea gravel and then an additional three inches of pea gravel are spread over the bottom of the pan. Perlite blocks of concrete (15½" x 7½" x 5") are laid on top of the pea gravel in the pan. The two layers of perlite block, plus loose perlite concrete gravel laid in the rounded portion of the pan, will be used as heat insulation during the stress-relief heating of the complete tank.

Organization and Personnel (I,a.)

George Dymmel is the Interim Field Engineer, reporting to Dr. Walton A. Rodger and has responsibility for all NFS field activities. His responsibilities are divided into three main categories:

(a) The mechanical functions which include the receipt of equipment and materials, the compliance with specifications, instrumentation, and check-out. (This does not include any field functions.)

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(b) The normal civil engineering functions.

(c) The fabrication and assembly of field fabricated components.

Bob Pratt who has been with NFS since the first of the year will be following the field fabrication responsibilities of item c. above.

Monitoring Programs

At the present time, water, air, soil, milk and small game are being sampled to provide the background data for radiation levels prior to plant startup. Water samples being taken include precipitation, surface drainage and water from the plant well.

General Information

The process mechanical cell is being equipped by AMF, on contract to Bechtel. It has been decided by AMF that they will build a model of the process mechanical cell similar to the model work done by Bechtel for the plant facility.

Remotely operated manipulators will be provided by PAR (Progress and Research, Inc.) who is doing most of the nuclear business that General Mills used to do.

Wyatt Industries has the contract for the pulse column fabrication and will also fabricate the continuous dissolvers.

Rainy weather has delayed construction work at the NFS plant site but present plans are for increasing the work force to about 600 in May.

U. S. Atomic Energy Commission
Region I
Division of Compliance

TITLE: Nuclear Fuel Services, Incorporated
Construction Permit CPCSF-2
Docket No. 50-201

Date: May 20, 1964

Date of Visit: May 13 and 14, 1964

BY: Willis G. Browne, Inspection Specialist (Criticality)

SUMMARY

1. W. G. Browne of Region I, Division of Compliance, inspected the Nuclear Fuel Services (NFS) construction site at the Western New York Nuclear Center near Springville, New York, on May 13 and 14, 1964. Purpose of the visit was to make a more detailed inspection of the site, observe construction progress, and investigate the sampling program that NFS is using to obtain background radioactivity data for the environment.

2. Rainy weather has not made it practical to bring construction forces up to full strength and approximately 300 are now employed at the site. Most of the effort is being applied to the pouring of concrete for the processing buildings. Concrete pours have been made on some of the first floor walls, and forms have been constructed for second floor walls.

3. Welding of the tank pans is essentially complete. After the welds on pan D-1 were all approved, the pan was lowered from its cribbing to the pea gravel base by replacing the cribs with blocks of ice. As the ice melted, it slowly lowered the pan to the ground. The same operation will be performed on pan D-2 sometime next week.

4. The 100-ton crane has been installed in the shipping and receiving building and end steel has been put in place.

5. Approximately 270 samples have been taken in the environmental sampling program to provide background radioactivity data for the NFS site. Radioactive analysis has been done by the Western New York Nuclear Research Center at the University of Buffalo. Samples include surface water, mud and silt, well water, vegetation, soil, air, milk, and small game.

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DETAILS

Persons Contacted

6. Dr. Walton A. Rodger, Plant Manager
Bill Oldham, Production Superintendent
George Dymmel, Interim Field Engineer
Bob Pratt, Supervisor of Fabrication and Assembly
Joe Merkley, New York Atomic Research and Development Authority
Bob McKibbin, Bechtel Field Engineer, Quality Control
Gene C. Loud, Health Physicist

Categories Observed

Waste (VII.a.)

7. Welds on the pan or saucer for waste tank D-1 had been completed by 5/13/64, and final radiographs were being taken on the seams. Because pearlite is to be placed in the pan for insulation during the heat treating operation, it was necessary to tack-weld a retainer-ring, 18" high, around the outer edge of the pan.

8. A visual inspection by W. G. Browne, showed that all welds of the D-1 pan were apparently sound. All radiographs of the D-1 pan welds were okayed by Bechtel on 5/13/64 so the wooden cribbing was replaced with blocks of ice. As the ice melted under the weight of the pan, the pan was slowly lowered to the pea gravel base. The entire operation of placing the ice and lowering the pan took about 24 hours.

9. A visual inspection of the pan for waste tank D-2 showed several flaws in the welds which had been marked and scheduled for repairs prior to radiographing. The center section welds were all sound, but both the north third and the south third of the welds each contained nine or ten flaws that were to be repaired. After weld repairs are made, the same melting ice technique will be used to lower the D-2 pan to the pea gravel base. This operation should be completed during the next week.

10. Fabrication of waste tanks D-1 and D-2 has been started with the initial welding of tank bottom sections at ground level. The tank bottom plates will be welded together in eight sections because the metal plate is 5/8" thick compared to the 1/2" thick

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plate used for the pans. Each of the tank bottom sections will weigh approximately the same as one of the six sections in the pans. About 850 tons of steel plate are needed for the two tanks and over half of it is now on site.

11. Bob McKibbin, Bechtel Senior Field Engineer for Quality Control, has complete responsibility for the acceptance of welds, based on radiographs. He has particular interest in, and inspects, all of the heliarc welds for the stainless steel pipe used in the concrete building penetrations. After the radiographers have examined the weld-films and recommend acceptance of the weld, Bob McKibbin evaluates the film himself and decides which welds are acceptable. The standard for acceptance is a single imperfection no larger than 1/3 of the plate or pipe wall thickness, which for most welds is less than 1/8". No series of small imperfections greater than 1/4" in length can be approved. In actual practice, imperfections do not exceed 1/16" without being repaired; but, frequently, imperfections as small as 1/32" are marked for repair. Bob McKibbin believes it is important to start with tight standards now, so that the welders automatically will work toward high quality welds. This will save him inspection time and repairs as tempo of the work increases, since he believes it is natural and easier to back off from high standards than it is to try and reverse the process.

12. Because the radiography needs have been sporadic, the pipe-weld work has been performed under short-term contracts using two radiographers. They are the Pittsburgh Test Company and Buffalo X-Ray. When the quantity of radiographic work justifies it, one company will be chosen for doing all of the work and will have their facilities for developing film right at the site. At present, all film is developed in Buffalo.

Plant Site (IV.d.)

13. NFS has established a water reservoir in the southeast section of the reservation, by constructing an earth filled dam. A concrete pipe conducts water from the reservoir to a pump well and the pump transfers the water, through pipelines, to the NFS site. During the recent rainy season, earth fill around the pump well was softened by the spring rains and slid away from the pump well into a ravine. This caused the concrete pipe to break and water washed away part of the pump well foundation. The pump well is now tilted about 5° from the vertical and repairs and back-filling will be necessary before the reservoir can be used in the manner for which it was designed.

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