William J. Cahill, Jr.
Vice President

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April 2, 1973

Re Indian Point Unit No. 3
AEC Docket No. 50-286

Mr. R. C. DeYoung, Assistant Director
for Pressurized Water Reactors
Directorate of Licensing
U. S. Atomic Energy Commission
Washington, D. C. 20545

Regulatory File Cy.

Dear Mr. DeYoung

Your letter dated January 22, 1973 identified a number of areas in which the design of certain instrumentation, control and electrical systems related to safety did not appear to meet your requirements. In response to this letter, a meeting was held with your representatives on February 23, 1973 to discuss proposed modifications that would satisfy your requirements. These proposed modifications with one exception (Item 4) were favorably received. On March 2, 1973, the FSAR was amended by Supplement 13 to update, where necessary, information affected by these modifications.

The purpose of Attachment A is to summarize the modifications that are being incorporated into the electrical design in response to your letter including the proposed modification for Item 4. The FSAR will be amended to update, where necessary, information affected by the modification for Item 4.

Very truly yours

William J. Cahill, Jr.
Vice President

enc.
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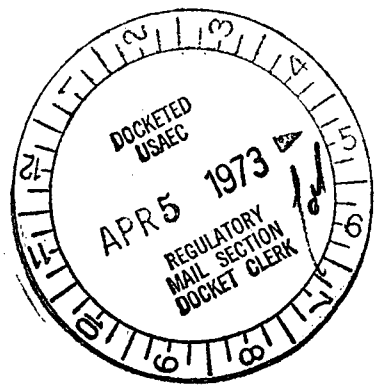

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ATTACHMENT A

Regulatory File Cy.

Received w/Ltr Dated 4-2-73

1. Automatic Transfer Circuits

Automatic transfer circuits will be eliminated by the installation of a third battery system. The battery and its associated equipment (battery charger, distribution panel and fusebox) will be located in the Diesel Generator Building in the compartment for Diesel 31. This battery will be sized to supply at the minimum room temperature D.C. power for Diesel 31, its associated 480-volt switchgear control and sequencing logic circuits and a new inverter which feeds Instrument Bus 33. Bus tie breakers 52/2AT5A and 52/2AT3A are on Bus 2A and are, therefore, supplied with D.C. control power from the third battery system. Bus tie breaker 52/3AT6A is on Bus 6A and is supplied D.C. control power from Battery 32 via 125 volt D.C. power panel 32, Ckt. 8. The battery charger will be fed from 480-volt Bus 2A or 3A via a M.C.C. position associated with Bus 2A or 3A.

There will be no manual tie between the third battery and the existing batteries. The environmental conditions (temperature, hydrogen generation) in the diesel generator compartment, have been considered; it is found that the operation of the battery or diesel will not be adversely affected at this location.

The existing D.C. transfer equipment for the three diesels and the switchgear buses will be disconnected.

2. Switching From Injection Phase to Recirculation Phase

Provide interlocks to bypass Recirculation Switch functions during SI as follows:

SWITCH 1 - no changes
SWITCH 2 - no changes
SWITCH 3 - Bypass "43 RS-3" trip to each RHR pump when S.I. occurs.

SWITCH 4 - no changes

SWITCH 5 - a) Bypass "43/RS-5" open signals to Valves 888A & B;

b) Bypass "43/RS-5" close signals to Valves 747 & 746;

c) Bypass "43/RS-5" close signals to Valves 899A & B.

SWITCH 6 - Bypass "43/RS-6" trip signals to each S.I. pump when S.I. occurs.

SWITCH 7 - no changes.

SWITCH 8 - no changes.

The basis for the above changes is to prevent the loss of redundant functions due to the malpositioning of any single recirculation switch while there is a safety injection signal present.

3. Safety Injection Bypass

A redundant Safety Injection Bypass switch (for existing switch "1/SIB", refer to Westinghouse Drawing 113E303, Sheet 4 of 8) will be provided on supervisory panel "SB2-F".

4. Lack of Independence Between Redundant Safety Injection Pumps

Valves 851A & B will be left open by locking the power off these valves. An orifice plate will be placed in the header from Pump 31 to ensure that sufficient flow from Pump 32 goes to header from Pump 33 (header with Boron Injection Tank, BIT). The flow requirements for this system as dictated by the Emergency Core Cooling analysis are as follows:

a. At least 600 gpm down header with boron injection tank.

b. At least 1200 gpm total down both headers.

c. Pump runout flow equal to or less than approximately 670 gpm/pump (i.e., injection flow plus miniflow $\leq$670 gpm/pump).

Two arrangements were considered:

(a) Pump 31/32 combination
(b) Pump 32/33 combination

For each arrangment, two analyses were done (see Figures 1 & 2):

(1) Using lowest of the three certified pump curves further reduced by 5% of design head.

(2) Using highest of the three pump curves.

Analysis 1 was used to satisfy Requirements a and b.
Analysis 2 was used to satisfy Requirement c.

Existing orifices will be modified to reduce resistance. The "new" orifice will be sized during pre-operational tests to restrict Pump 31 header flow sufficiently to ensure ≥600 gpm to Pump 33 header (through BIT). Orifices sizes have not been determined yet, but will be sized conservatively with CD = 1 (i.e, hole will be too small) and true required hole size will be done in field using test data.

5. Bypass of Redundant Engineered Safety Feature Systems

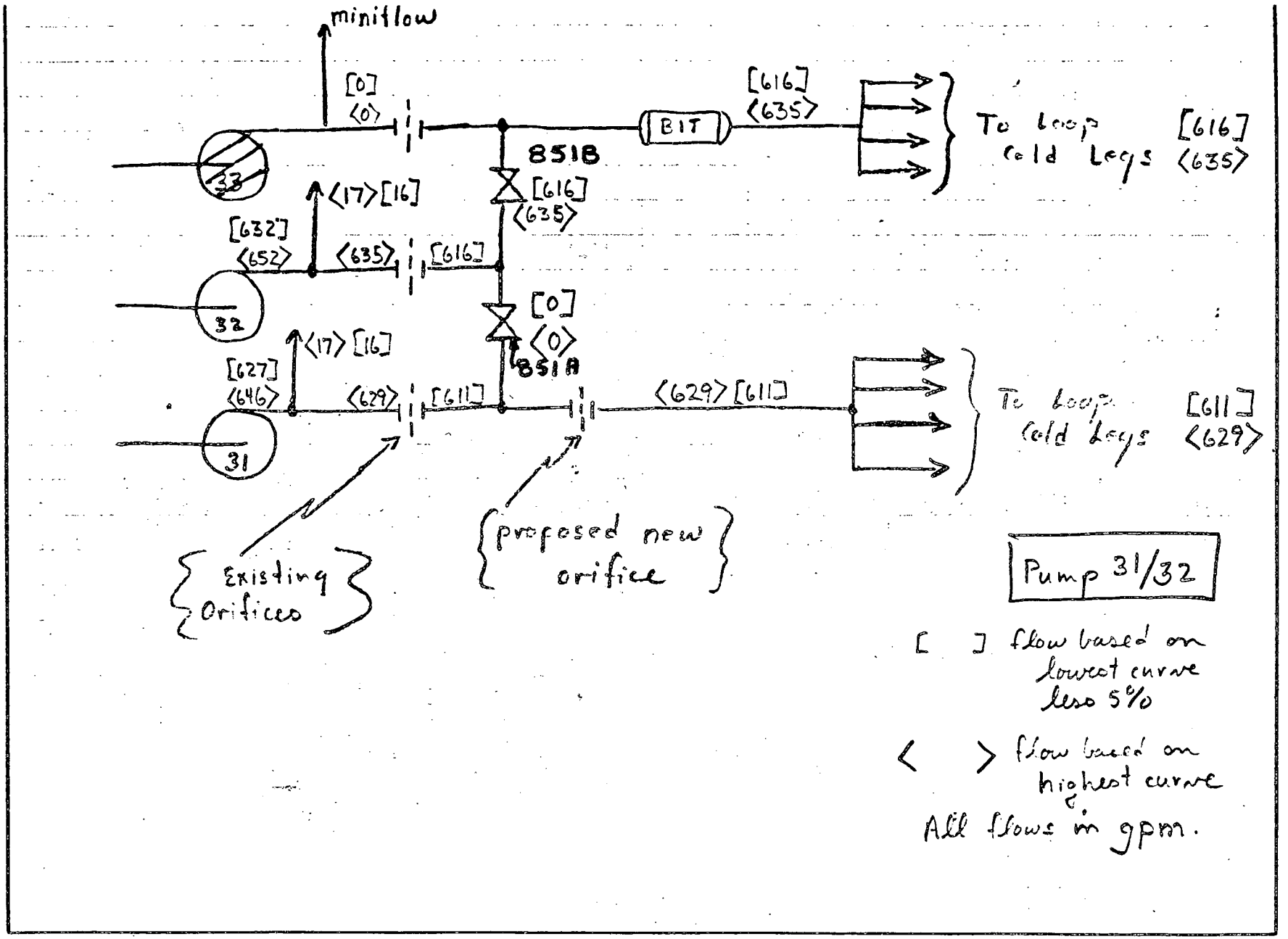
A second "safeguards in test" annunciator drop will be provided. One of the two sets of contacts from the 3 "TR" relays (either from Train 1 or Train 2) will be disconnected from the existing annunciator drop and be wired directly to the new drop at a spare annunciator point. The two annunciator windows will provide unique identification of the logic train being tested.

6. Disconnection of Fuel Oil Transfer Pumps

The power feed for two of the fuel oil transfer pumps (2 hp/each) will be rerouted to safeguard Motor Control Centers 36A & 36B, respectively. The third fuel oil transfer pump will continue to be powered from Motor Control Center 34. All equipment necessary for the operation of the diesel generators is supplied from Class IE buses related to the load groups served by the diesel generators.

7. Fuel Oil Transfer System Control Circuits

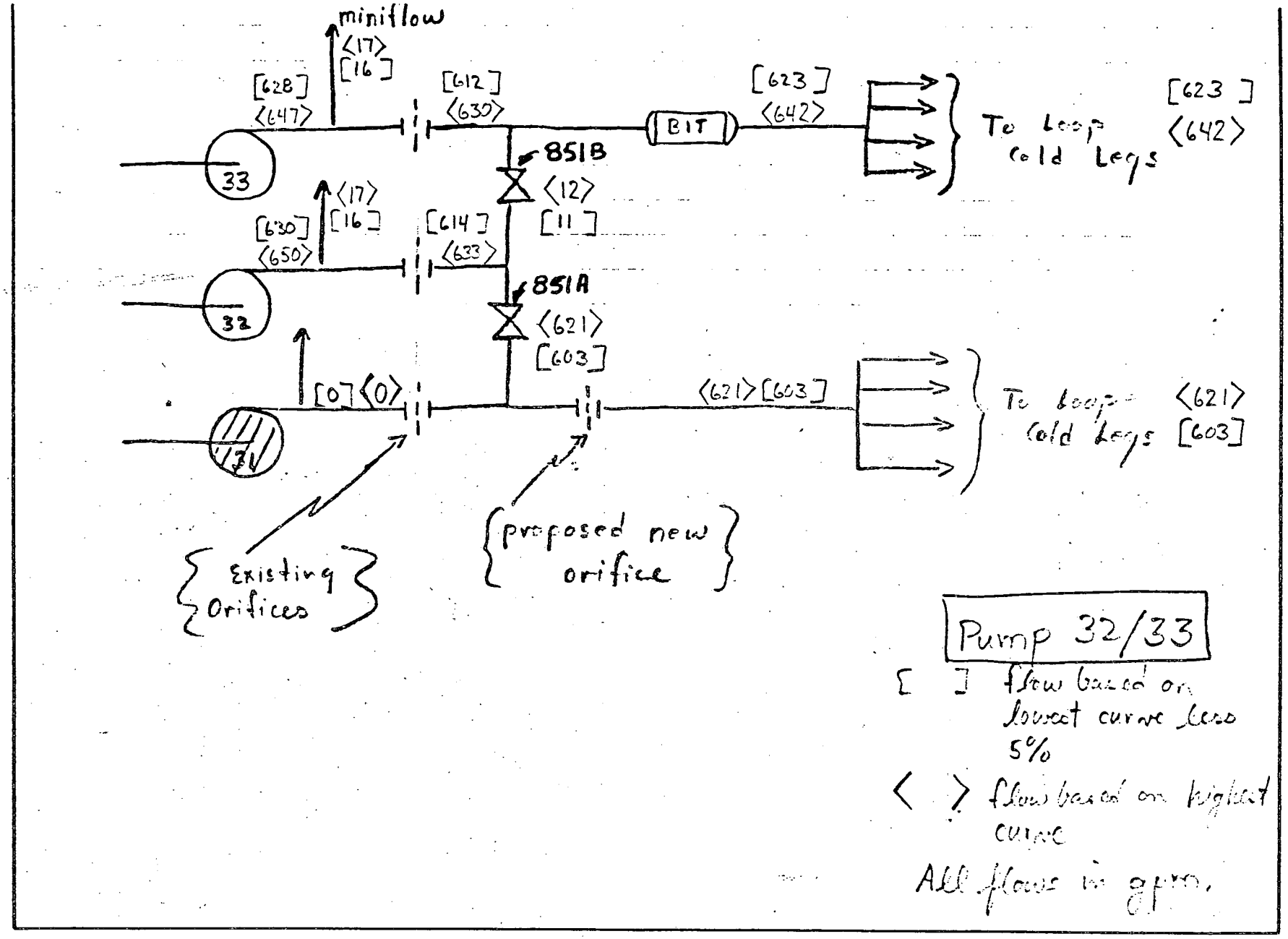
The pump sequencing switch will be removed and the fuel oil transfer system control circuits will be modified to provide functional control on a 1-pump to 1 day-tank basis (see Figure 3). There will be no change in the piping arrangement.



WESTINGHOUSE ELECTRIC CORPORATION

SKETCH SHEET
FORM 28577

FIG. 1


WESTINGHOUSE ELECTRIC CORPORATION
SKETCH SHEET
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miniflow
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BIT
To Loop Cold Legs
[623]
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851B
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[11]
33
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⟨650⟩
⟨17⟩
[16]
[614]
⟨633⟩
851A
⟨621⟩
[603]
32
[0] ⟨0⟩
⟨621⟩ [603]
To Loop Cold Legs
⟨621⟩
[603]
31
{Existing Orifices}
{proposed new orifice}
Pump 32/33
[ ] flow based on lowest curve less 5%
⟨ ⟩ flow based on highest curve
All flows in gpm.

FIG. 2

GENERAL COMPUTATION SHEET

united engineers & constructors

J. O. NO. 22105

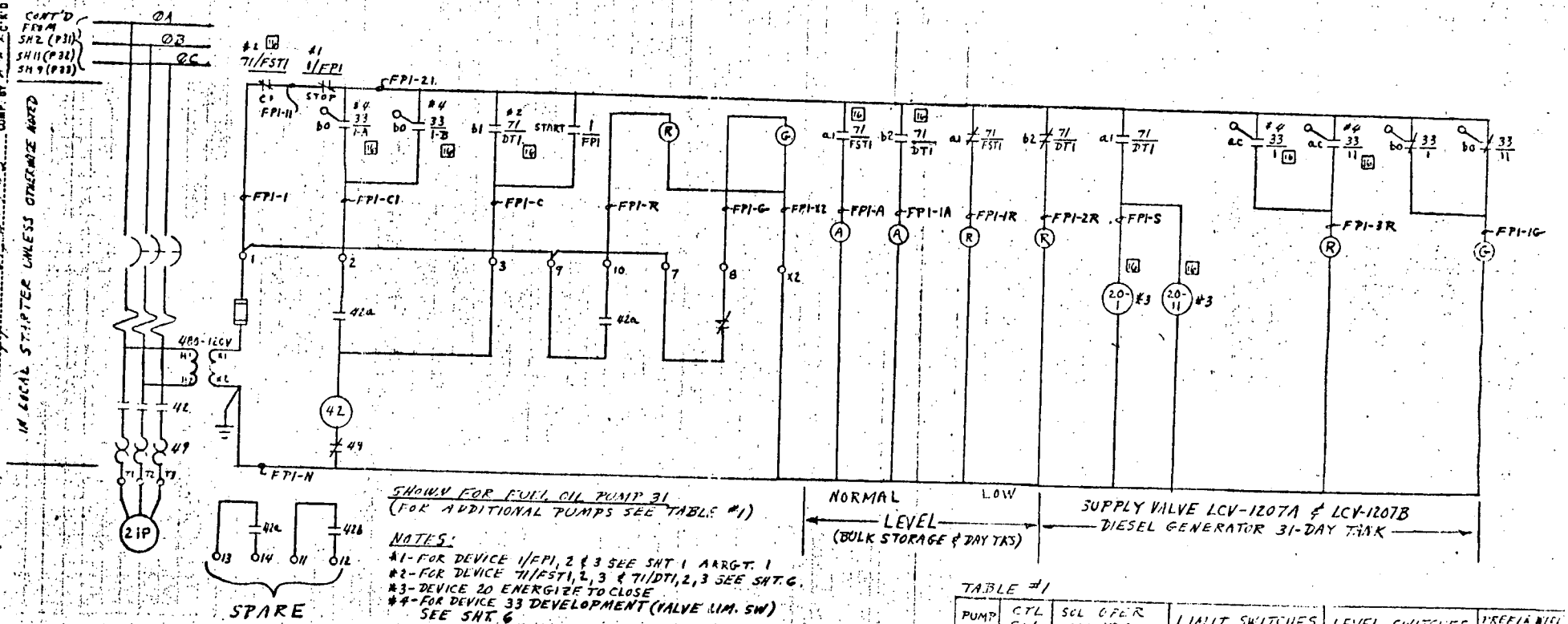
SHEET NO. ____ OF ____

DATE ____ COMP. BY M.K. CK'D BY ____

NAME OF COMPANY ____

SUBJECT ____

FORM 8018



SHOWN FOR FUEL OIL PUMP 31
(FOR ADDITIONAL PUMPS SEE TABLE #1)

NOTES:

#1- FOR DEVICE 1/FPI, 2 & 3 SEE SHT 1 ARRGT. 1
#2- FOR DEVICE 71/FST1, 2, 3 & 71/DT1, 2, 3 SEE SHT. 6.
#3- DEVICE 20 ENERGIZE TO CLOSE
#4- FOR DEVICE 33 DEVELOPMENT (VALVE LIM. SW) SEE SHT 6

TABLE #1

PUMP	CTL SW	SOL OPER VALVES	LIMIT SWITCHES	LEVEL SWITCHES	PREFIX WIRE NO. WITH
31	1/FP1	20-1 & 20-11	33/1, 33/11, 33/1-A 33/1-B	71/DT1 & 71/FST1	FP1-
32	1/FP2	20-2 & 20-12	33/2, 33/12, 33/2-A, 33/2-B	71/DT2 & 71/FST2	FP2-
33	1/FP3	20-3 & 20-13	33/3, 33/13 33/3-A 33/3-B	71/DT3 & 71/FST3	FP3-

LL-31333 sht. 15

Figure 3