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NUCLEAR REGULATORY COMMISSION

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In the Matter of: :

IIT Interview of Faust Rosa :

(CLOSED) :

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Nuclear Regulatory Commission

Operations Center

7735 Old Georgetown Road

Bethesda, Maryland

Thursday, April 12, 1990

The above-entitled matter commenced at 4:07 o'clock p.m., when were present:

Alfred Chaffee, IIT Team Leader

Garmon West, NRC

Warren Lyon, NRC

Rick Kendall, NRC

PROCEEDINGS

4:07 P.M.

MR. CHAFFEE: This is the Vogtle IIT, April 12th. It's 4:00 o'clock in the afternoon and we are here to talk to Faust Rosa.

Would you please state your name and position title?

MR. ROSA: My name is Faust Rosa and I'm chief of the electrical systems branch in NRI.

MR. CHAFFEE: As you are probably aware, the Vogtle event resulted in a loss of onsite vital power and we have interest in understanding some of the ins and outs of the design of the onsite and offsite electrical distribution systems and as I understand it those aspects of that fall into the area of your branch.

I guess that's the first question we should ask. Would you just tell us briefly the kind of stuff that your branch gets involved in in terms of --

MR. ROSA: We have responsibility for reviewing both the offsite power system design and the onsite emergency power system design and its interconnections. That's about all of it, the entire picture of electric power.

MR. CHAFFEE: One of the things we've gotten into in talking to people -- we got it from the licensee and

we've talked to some people up here -- is this concept of having flexibility in terms of being able to cross-connect a lot of things, like between units and maybe between vital and nonvital and another aspect is the concept of being able to maintain separation.

I guess one thing we're interested in is what has the philosophy been in the agency in terms of that in the past and the present and what are the rationales?

MR. ROSA: Well, separation is important between redundant safety buses and we'll always recognize that the capability for interconnecting would be useful in some situations.

We never precluded circuits interconnecting safety buses as long as there was a class 1-E breaker at both ends of the interconnect and in fact Vogtle has that, I believe.

MR. CHAFFEE: Can you explain that to us?

MR. ROSA: Well, for instance, this is a circuit that was feeding power to this -- here's the breaker right here. You follow this over to here, here's a circuit that goes over here. There doesn't happen to be a breaker here because it's not in use.

MR. CHAFFEE: That's between two vital buses.

MR. ROSA: That's between two vital buses. As long as there is a breaker here and a breaker here, whether it's in there or not, and these are manually operated

breakers, preferably with interlocks to prevent both of them from being close at the same time, except you can defeat the interlock, of course.

MR. CHAFFEE: So they could have in fact had a breaker in here?

MR. ROSA: There's something that needs to be done before you can really do that here.

MR. WEST: Before you move on, the interlock, defeating that, do you do that manually as well?

MR. ROSA: Well, you don't have to have the interlock as long as there are procedures and preferably key lock switches that make it two separate actions to close this breaker and close that breaker.

Some plants have provided interlocks for things like that, which I presume would be --

MR. CHAFFEE: Like swing pumps where --

MR. KENDALL: He's talking two separate distinct operator actions so that you make the operator go through the process of having to think very carefully about what he's doing so you can't mistakenly --

MR. ROSA: Right. In this case here, in order to say make this power source available to both buses, there is probably plenty of capacity up here. There's no need to do anything else but move the breaker over here and you're connected.

MR. KENDALL: That's the situation they were in at the start of the event. They were coming from this one and they moved this breaker to here and they were providing both safety buses via the transformer.

During the event when they lost the transformer, the problem that they ran into was that they did not have any procedures for cross-connecting the safety bus to a nonsafety bus or to unit two and they had power to both unit two buses and at the nonsafety buses --

MR. ROSA: Let me tell you. They lost the operable transformer so that left them with only a diesel over here which didn't happen to start. Had it started, they really couldn't use this diesel except for this bus for this reason -- there is no disconnect switch at this point here and a diesel then would have to provide magnetizing current for this big transformer up here.

MR. CHAFFEE: Which was faulted.

MR. ROSA: Well, if it were operable and isolated here, even if it was not faulted it would take some magnetizing current.

Now the diesel may not be able to provide magnetizing currents for a big transformer as well as the load that it's expected to provide on the bus.

MR. CHAFFEE: Is this like a big reactive load? Is that the way you think about it?

MR. ROSA: Yeah, if you disconnect one side of it, that's what it is.

MR. CHAFFEE: So the alternating currents --

MR. ROSA: You've got to magnetize the core and keep it magnetized and that takes a certain amount of current.

MR. CHAFFEE: Hence having breakers here would have enhanced their --

MR. ROSA: You don't even have to have a breaker. The only thing you need is a disconnect, a motor operated disconnect here and here, and that would enable you to use these circuits here to interconnect the safety bus, this bus or --

In other words, if you had these disconnects, you could have gone down here to this bus here, gone over to here, gone up here and come all the way across down to here.

MR. CHAFFEE: I see. So all of this stuff could have interconnected these buses if they had had a way of -- Oh, I see.

MR. ROSA: Now if you were drawing power from here and going across like I described, it wouldn't make any difference whether you had a disconnect switch here or here because there's enough capacity here that you would need --

First of all, there should be no fault on a transformer and you could isolate this end of it. You would

have to isolate this end.

MR. WEST: Having a disconnect, is that typical or atypical?

MR. ROSA: It's very atypical in this situation.

MR. WEST: So normally they do put them in?

MR. ROSA: No, they don't.

MR. CHAFFEE: And as a result that causes them to lose some flexibility. Do some plants have the ability to go directly from bus to bus?

MR. ROSA: Oh, sure. In fact, there are some plants that have two safety buses side by side with a circuit connecting them with a breaker on each end.

MR. CHAFFEE: So they're designed to have that flexibility.

MR. ROSA: The only thing we have insisted on not having is that cross-connect circuit between redundant safety buses with only one breaker and early on some applicants for operating licenses did propose this.

MR. KENDALL: Is it fair to say we've never discouraged cross-connecting?

MR. ROSA: We've never discouraged cross-connecting between redundant buses or between nonsafety and safety buses as long as there was two breakers. In the event that both breakers were closed, you were feeding through the cross-feed then you would have two protective

devices here to isolate a fault on either bus.

MR. CHAFFEE: For some reason in Vogtle's case, some of the people down there had the impression that somehow our regulations or our opinions on this thing had somehow dissuaded them from having this ability to cross-connect. Can you --

MR. KENDALL: Let me ask a question. Do we even look at that type of thing in the review, the ability to cross-connect?

MR. ROSA: We always check the cross-checks. If they don't want to put them in there, we don't insist on it.

MR. KENDALL: We just do the review if they're there to make sure that they're adequate.

MR. ROSA: That's right. Separation is still the primary consideration.

Now about the Vogtle design here,the two reserve auxiliary transformers, normally one feeding one safety bus and the other feeding the other safety bus, that's the preferred design.

Here is your immediate access circuit. In fact, you've got two immediate access circuits. No fast transfer is required.

MR. CHAFFEE: I see. What you're looking for is the design that -- if you have a design where you're normally providing your emergency vital buses to the unit

transformers what you want is --

Someone told us the requirement is that upon a trip in the diesel you have to have at least one outside power that supplies it immediately and another one that provides --

MR. ROSA: No. The preferred power is always the power that's connected normally and the preferred power can be through the auxiliary transformers and that's preferred because it's independent of what happens to the plant itself.

You can also have the preferred power coming from your generator through the auxiliary transformer but in that case, though, you have to provide a fast transfer to the offsite power when the generator trips.

MR. CHAFFEE: And at that point your preferred power shifts?

MR. ROSA: Right.

MR. CHAFFEE: Oh, I see. The preferred power is power in the diesel.

MR. ROSA: That's right and there are problems with fast transfer. To have immediately offsite power without any need for fast transfers is much better than to rely on a fast transfer to giver you the preferred offsite power.

MR. CHAFFEE: Is this system they have here more

expensive than the one you would have where you would use unit transfers or fast transfer or do you have --

MR. ROSA: Well, there's economic considerations involved, not too many. When you take power for your plant directly from the switchyard, then you incur losses through the main transformer that you wouldn't incur if you took it from here through these transformers.

The losses through any one of these transformers is equivalent to the losses through here. If you through here, you have to go through the main transformer and there's more losses.

Therefore, early one most plants had the fast transfer. We tried to convince them that this was the preferred setup and eventually a lot of the more recent plants have this kind of situation.

MR. CHAFFEE: All the reactor cold pumps still come up with this, right?

MR. ROSA: Right, all the reactor cold pumps. All the require safety --

MR. CHAFFEE: I guess it turns out it does cost a little bit more but it's not that expensive.

MR. ROSA: Yeah, it would be very, very expensive to take these loads through here and they don't do that. They use these to normally fire these.

MR. CHAFFEE: I guess what happens is perhaps when

the licensee decided in this case to go with this preferred power which is good, it looks like they built into -- it's not easy to cross-connect these nonvital buses or safety buses for some reason.

MR. ROSA: I think probably they didn't want to go to the trouble or the expense of putting in additional circuitry.

Even with the situation they have here, without these switches as long as they could isolated a transformer up here and there is no fault in it they can use these supplies with appropriate procedures to close these breakers and get power to over here or over there.

MR. KENDALL: One of the problems was that they never really even considered that. They didn't have the procedures.

MR. ROSA: They wouldn't have to have procedures.

MR. CHAFFEE: How would they do that?

MR. ROSA: Look. You come down to here and you energize --

MR. KENDALL: You could feed a nonsafety bus, come back up and over and back up.

MR. ROSA: As long as there is no fault here and you've isolated up here, which you have breakers to do, then you've got this big source here.

MR. CHAFFEE: Oh, I see what you're saying. As

long as this is providing the power you can feed back into these things here.

MR. ROSA: With this isolated and then you can handle the magnetizing current, that's no problem for a big source like this.

MR. CHAFFEE: So in this event, since when they got the fault it actually separated this one and this one here they --

MR. ROSA: It was out of service.

MR. CHAFFEE: And this one here they already -- then they could have powered back down through all these cross-connects.

MR. ROSA: They could have come down through here, through this, up here and over.

The problem is that they had never considered that. They had two safety buses. They had two reserve auxiliary transformers. They had the flexibility to feed either bus from either reserve auxiliary transformer.

The problem was they never considered this path and there's interlocks between these two breakers to prevent them both from being closed at the same time which you would have to do in order to provide power to the safety bus from the unit auxiliary transformer.

What they had to do, they had no procedures, they had to go in and defeat these interlocks associated with

these breakers and they had to figure out what they had to do, what lead they had to lift, what jumper they had to install.

They had to develop a procedure so they could out in the plant to the switch gears to be able to perform that operation. This was just something they never had designed.

MR. CHAFFEE: So in the event they had power to this bus and probably they couldn't shut this breaker to get power over here.

MR. ROSA: Every time they try to close this breaker, this would pop open.

MR. CHAFFEE: They didn't try to do that.

MR. ROSA: No, but they knew that's what would happen.

MR. CHAFFEE: If they had been able -- it would have been simple in the interlock to shut this they would have got power to --

MR. ROSA: That's correct but simple is not the word to use because there was no procedure -- they would have had to digging up their drawings and trying to figure out what --

Unless you have it written down step by step, you're in a hell of a mess.

MR. CHAFFEE: I also heard that they would have had to check on some calculations to pick up --

MR. KENDALL: This was one thing they were planning on doing. The other thing they were doing, the lines I've got marked here, these go to buses in the service building that can also be fed from unit two.

Now if they were going to feed from the unit two bus through this common service building bus and then back to here, they didn't know whether the buses could carry all the load so they had to start doing voltage drop calculations, figuring out what loads on unit two they were going to drop, what loads over here they were going to drop so that when they cross-connected this thing back up they could provide power to the RHR pump which is what they really needed. They were doing voltage drop calculations for that.

MR. ROSA: Let me tell you about one design that's not as good as this but still has two auxiliary reserve transformers, one per unit, and each reserve transformer feeds a safety bus in one unit.

There you have this transformer associated with the second unit even though one winding feeds a safety bus here and one winding feeds a safety bus in the other unit.

Now there they get away with two reserve auxiliary transformers for two units. This one here has four transformers for two units, two for each unit, much better.

MR. CHAFFEE: Is there any -- Can you think of any

reason why they wouldn't have had in place some sort of --

MR. ROSA: Well, when you figure that the regulations require that you have two outside power sources feeding your safety buses and they could have anything else they wanted, there doesn't seem to be any reason.

MR. CHAFFEE: No need for it.

MR. ROSA: No need for it, right.

MR. KENDALL: I'd like to pursue the interlocks between breakers required between either redundant safety buses or nonsafety buses a little bit.

We require that there be at least two breakers. We won't allow one break and the reason for that is --

MR. ROSA: No, there may be a design out there but that's --

MR. KENDALL: If they were to provide one breaker -- if only one breaker was required do you think that more people would provided the added flexibility?

MR. ROSA: Oh, sure.

MR. KENDALL: Because it would be cheaper to do?

MR. ROSA: Yes.

MR. KENDALL: Do you know if there has ever been a study or anything done that looks at the benefits of having multiple sources of power to a bus, safety bus, versus the detriments or potential problems of having a fault affecting redundant buses for given breaker alignments?

MR. ROSA: As far as I know, there hasn't been a formal study. We've all thought about it and discussed it among ourselves but I don't think it's gone beyond that.

MR. KENDALL: I'm sure that some industry people would probably argue that that one breaker would be sufficient.

MR. ROSA: Oh, yeah, sure. They started out arguing that.

MR. KENDALL: The thing to look at is the fault I guess at the breaker affecting redundant --

MR. ROSA: Yeah. The thing is one breaker doesn't meet single failure contact. If you have a fault in the breaker and get both buses that's the thing.

MR. CHAFFEE: Well, obviously it costs more money. How much are we talking about?

MR. ROSA: A Class 1-E breaker of that size probably costs at least $50,000 to $80,000 and when you figure on putting it in and the engineering and all of that, it would double that figure.

MR. WEST: Are the disconnects in the same ballpark?

MR. ROSA: The disconnects -- it all depends on the size of the circuitry. They can't interrupt the cross current. Some of them are designed to open under full load and some of them are just designed to carry full load but

not tc open under full load.

I wouldn't -- If a disconnect switch were to be put in, I wouldn't consider a manually operated switch or disconnect.

There's one other thing when you're talking about cross-connect circuits. You can have two breakers that are electrically interlocked and have a circuitry for contingencies to defeat the interlock.

In other words, just a switch, a key lock switch that in one position the interlock is effective and in the other position the interlock is not effective. It's very rigidly controlled.

MR. KENDALL: You would still need to have two breakers.

MR. ROSA: You would still need to have the two breakers but then you wouldn't have to go through any procedure except the procedure that tells you when you want to do that you've got to get a key, you've got to change the position of this switch, and then you can go ahead and close both breakers.

MR. CHAFFEE: So in fact this plan would be more expensive.

MR. ROSA: It would be expensive. In fact, something like that I think should be seriously considered by the industry.

Something else, too. I understand they had trouble with the stabs when they switched breakers from one cubicle to the other.

MR. KENDALL: My understanding is that what they had trouble with was they had trouble with the mechanical link that prevents both the closed and trip coils on the disconnect from being energized at the same time. They had problem with that. I didn't hear about the breaker stabs.

MR. ROSA: I got this word a few days after it happened.

MR. KENDALL: I suspect what happened was that when they were trying to return this to service they needed to close -- I think they had that -- I guess I don't even know.

They were just trying to provide power over to this box so they may not even have had that in. They needed to remove the tag out on this and restore it in service and then they had to close the disconnect upstream of it but there's a mechanical lever between the close and trip coil that prevents that prevents them both from being energized at the same time.

MR. ROSA: Oh, up here.

MR. KENDALL: Yes, and that stuck and they had problems with there.

MR. CHAFFEE: What you heard was that there was

something about a breaker down further --

MR. ROSA: I heard that there was trouble when a replacement breaker -- getting the stabs in the back of the breaker to match the receptacles, the stabs that carry the control circuit, and that held up things a little bit.

MR. CHAFFEE: Then when they got this RAT back they could power this --

MR. KENDALL: There's no breaker there. The breaker is over here.

MR. CHAFFEE: And they had to move it over?

MR. KENDALL: I don't know what they did right here. I know that they came over and provided power over to this bus.

MR. ROSA: Maybe they didn't do anything here because that breaker was already energized.

MR. CHAFFEE: I thought what they did was they had the A RAT carrying the -- I'm trying to remember. What I'm saying is it seems like they had to move one of these breakers.

MR. ROSA: What I was about to tell you is if something like that did happen in moving breakers from one to another, maybe the best thing to do is to have breakers in both cubicles with these interlocks and the defeat feature.

MR. CHAFFEE: Then they could do that also?

MR. ROSA: Yeah, then you don't have to send someone down to switch gear and pull the breaker out of the cubicle and walk it over to the next one and shove it in there.

MR. CHAFFEE: What you're saying is it would be possible to improve the flexibility of this system quite dramatically with probably a minimal cost without a lot of engineering and that would all be acceptable to the NRC if you were to --

MR. ROSA: Yeah, I think so. I don't see any problem with doing it that way.

It's interesting. I think they're going coping which means they're doing an analysis that says given a station blackout on either unit we can maintain a unit safe condition for the four-hour duration that is specified and they can do that.

MR. KENDALL: Is that based on reliability of the unit?

MR. ROSA: No. In going coping, it's assumed that those people -- if they can establish that they can last the four hours the batteries will stabilize themselves usually and heat up the vital equipment.

What this says is your coping analysis has to demonstrate that you won't uncover the core for the four hours.

MR. KENDALL: It's not clear that any licensee can demonstrate that they can do that.

MR. ROSA: About half of them say they can. A station blackout assumes that operation of that power is binding or bounding as far as station blackout is concerned, and having been at full power for a hundred days prior to that.

Now if they don't want to do a coping analysis, what they can do is provide an alternate AC source. This setup here is perfect for an alternate AC source.

They could put a non Class 1-E diesel and connect it to either one of these cross-connect circuits here and the capacity of that diesel only needs to be sufficient to power the station blackout loads of the blackout unit.

The other unit is assumed not to have a blackout. It has to take a single failure which means one of its diesels has to go out but it's assumed that the other diesel is available.

They can do that but in order to make sure that they can accomplish what that's intended to do, they would have to have disconnect switches here because then that power source there may not be enough to provide magnetizing current for a transformer that's isolated up here and power the loads at the same time.

Now there's one other option and let me tell you

how that option came about. The rule literally says if you have enough diesels such that you exceed our minimum redundancy requirements for safe shutdown given a loss of offsite power, you can use the additional diesel as an alternate AC source.

Now what this means is for instance if this had three diesels and you only needed one to safely shut down, your second then would provide the minimum redundancy required and you still have a third. That could be used as an alternate AC source without adding anything.

Now the staff in our interfacing with NUMARC recognized that there were some plants out there that only met the minimum redundancy, that only had two diesels.

However, these two diesels were each big enough such that they could power a normal LOOP load on an non-blacked out unit and still have sufficient capacity to power the station blackout loads over here.

We interpreted the rule which is explicit about diesel generator redundancy to also include redundant capacity and interestingly enough Beaver Valley is a two-unit plant that has small diesels on unit one and much larger diesels on unit two.

They can use the unit two diesels as an alternate AC source when they have a blackout on unit one, but they can't do it the other way around.

Now if a licensee does provide a qualified alternate AC source which can be started within ten minutes, he doesn't have to do any coping analysis whatsoever.

However, the alternate AC source has to be able to be started and be operable in one hour, otherwise it can't be an AAC source, but for that first hour you have to provide a coping analysis to show that they can survive for an hour.

MR. CHAFFEE: So licensees are doing coping analysis to demonstrate that they can survive for some period of time.

MR. ROSA: About half of them.

MR. CHAFFEE: Do you know if their coping analysis include considerations of mid-loop?

MR. ROSA: I'm positive they don't.

MR. CHAFFEE: Let's just talk about that a little bit. You're already familiar with mid-loop?

MR. ROSA: I know what mid-loop is, yes.

MR. CHAFFEE: You can get to the point where you've uncovered the core in I think 17 minutes after you lose shutdown cooling for an event that occurs 48 hours after plant shutdown for certain types of conditions and you can actually get to core damage I think within two hours of the event?

MR. ROSA: If you've got the wrong configurations,

you can get into core damage in less than an hour. Hopefully people will stay away from those configurations.

MR. CHAFFEE: But basically the configuration that they can get -- I don't want to say it's unusual but it's one whereby you have a cold leg in the RCS open and -- I guess that's all you need.

As long as the rest of the RCS is buttoned up and it's open what happens is there's enough decay heat to cause boiling in mid-loop cause pressure increase that then basically pushes the water up the cold leg.

There are other scenarios that can get you there, not as fast but still within a matter --

MR. WARREN: Four hours is a pretty straight boildown. If you take into account that you're sloshing some of the water out at the same time then you're going to cut that back a little bit.

MR. ROSA: That's the time I've heard, too, from Bob Jones.

I'll tell you I think it's recognized mid-loop even with a receptacle like this is a concern but I don't know why we're even going beyond just recognizing that's a concern.

The standard tech specs, and I think all the tech specs prior to the standard tech specs, require during modes five and six that you have one offsite power available and

one diesel generator available, which was the case here and what happened is they lost the offsite power and the diesel generator failed to start.

We could change those tech specs very simply and require that in a situation like that that diesel be operable and supplying that bus.

MR. CHAFFEE: You mean have it be running?

MR. ROSA: Have it be running, that's right, and then you wouldn't be subject to uncertainty as to whether it's going to start or not because it's already there and doing its job and you wouldn't be too worried about someone knocking this out because you know you've got this other independent source.

That solves the availability of power problem insofar as providing safe shutdown.

MR. WARREN: I thought we had done something like that or a plant had some that had done something like that some time ago. I think it was Prairie Island.

MR. ROSA: I think you're right.

MR. WARREN: They had a winter storm and they were anticipating that they were going to lose outside power so they got their diesel started, they had the diesel loaded and then when the outside power was lost the diesel got overloaded and --

MR. ROSA: Wait, I'm not saying that. I'm saying

that you disconnect outside power. The diesel is the only source of power to that bus. You should never parallel your diesels with the grid except when you're doing your monthly testing. You have to do it then.

MR. WARREN: If I lose the diesel in this case, I just simply reconnect my outside power and I'm in back in business?

MR. ROSA: That's right, and if you lose outside power, you still have the diesel on one division.

MR. WARREN: Would you feel more comfortable when you've in a sensitive plant condition such as mid-loop if you had an additional source of power?

MR. ROSA: Sure.

MR. WARREN: Which would be prudent? Is it prudent to have this diesel sitting here running with this other source of power as backup, or is it prudent to have three sources of power?

MR. ROSA: If you did a cost benefit analysis, I don't think you could justify adding another source of power just for that situation.

MR. WARREN: You're probably right if I'm adding it. I'm thinking more along the line of trying to arrange my schedule so that if I'm going to be in a sensitive condition like mid-loop I try to make sure I've got myself covered.

MR. ROSA: I think what you're thinking of is this. Whenever you're in mid-loop operation, you should never take one of your redundant offsite sources and a redundant diesel out for maintenance simultaneously.

You could take one, leaving two available outside circuits, or you could take one of these but then you must have both diesels.

MR. WARREN: Do you think that's a reasonable way to work it?

MR. ROSA: That's a reasonable way to work, sure.

MR. WARREN: Is it going to impact the plant at all?

MR. ROSA: It may, depending on how much work they have to do during refueling, how much preventive maintenance work they have to do during refueling.

Just this past week -- well, two weeks ago, we got a request from Maine Yankee, it's a two-diesel plant, two offsite power circuits to the safety buses, but they have a hydro unit a half-mile away with the circuit that can feed both safety buses.

They're going into an outage in September, I believe, and they know or at least they want to do a complete overhaul of both diesels so they came in and requested that during power operations, right now, they be allowed to overhaul one diesel.

They said they have the hydro unit available and the only thing they have to do is turn a switch to close that breaker. The hydro unit operates continuously and it's only had three hours of unscheduled down time since 1967.

So as far as reliability is concerned you can't beat it.

MR. WARREN: That sounds good unless I ask what happens if I had a seismic event.

MR. ROSA: You don't expect much to happen. They asked for one week so the likelihood has got to be pretty small.

MR. CHAFFEE: It sounds simple when we talk about it. They have pretty good distribution system.

MR. ROSA: They have a better distribution system than most other plants. They could improve it like we discussed.

MR. WARREN: Could you kind of summarize for us what you think ought to be done with respect to sensitive areas of nonpower operations such as mid-loop, if anything?

MR. ROSA: Just what I said before. I would require that of the four sources of emergency power that's required for power operation, the two offsite circuits and the two diesels, during mid-loop operation I would require that no more than one of those be taken out of service at a time.

MR. WARREN: Okay. Now for the broad nonpower operation, you think taking two out would be okay?

MR. ROSA: Yeah, I would say so.

MR. WARREN: Now let me to go two kinds of mid-loop. I've got one mid-loop that occurs typically very soon after full power operation where if I lose my source of cooling I might heat up on the order of three to five degrees a minute.

Then I've got another mid-loop after refueling where I might heat up in the range of one to two degrees a minute.

Would you see a need for a difference there? Like in the first one should I keep all of my power or would it be sufficient to have three sources?

MR. ROSA: I probably think it would be sufficient to have three sources. Really I'm not an ex[illegible] in that area. It's my judgment that that's the case.

MR. CHAFFEE: Can you get at the di[illegible]enerator without doing it all?

MR. ROSA: Yeah, we're involved in that. In a station blackout when --

Licensees are required to look at their onsite power configuration and their offsite power configuration and arrive at this station blackout [illegible]uration for their site and diesel generator liability is one of the factors that go

into that.

In this case there they've got two diesels. Their required diesel generator reliability would be .95. If, for instance, there were two units and they only had three diesels, one of them being a swing, that's a minimum acceptable configuration. Their diesel generator reliability would have to be .975 and they are supposed to make a commitment to maintain reliability, diesel generator reliability of those figures for their particular configuration.

Now we're revising reg guide 1.93 right now to include a section on reliability maintenance for diesel generators. NUMARC in their NUMARC document 8700 have written an appendix D, I believe, which addresses a diesel generator reliability maintenance program.

I don't know how reg guide 1.93 is going to work out. We may simply endorse the NUMARC appendix D or we may go with the rules in the reg guide that address the reliability program.

Reg guide 1.155, which is the reg guide that supports the station blackout rule, does require a diesel generator reliability program and gives I think five general characteristics of the diesel generator reliability, regular maintenance, regular testing and so on. That's the station blackout rule regulatory guide.

MR. WEST: The .95 reliability I think you're referring to, how is that arrived at? What does that really mean?

MR. ROSA: There's a specific methodology for arriving at that. The methodology was originally published in a document called NUSAC 108. That's nuclear utility safety something, I don't know what the acronym stands for, and we adopted it essentially in total.

What it tells you to do is this. It tells you to count the number of start demands and the number of start failures and then get a point as to reliability for 20, 50 and 100 demands and then count the number of load demands and the number of failures to load and get a point and then you combine those two figures multiplying them together to get a point as to reliability for starting and loading.

The methodology defines what is a valid demand and what is a valid start and what is a valid load.

What doesn't count as a valid demand or test, for instance, one of the exclusions is if something fails, like the synchronizing circuitry when you're synchronizing the diesel to the bus to do your monthly test, that's not in effect when you get an emergency signal so that's not counted as a valid test or a valid failure.

There are a number of things like that. An operator error, for instance, in going through the procedure

of getting ready for the test and so forth, is not counted as a failure.

MR. KENDALL: Errors in paralleling?

MR. ROSA: Errors in paralleling and things like that.

MR. WARREN: Does it address things like differences in the mode of starting the diesel in the test as opposed to a real time start?

MR. ROSA: What we say is that station blackout is the primary concern, not design basis accident because of the more frequent station blackout, if you will.

We count as a success any diesel generator start that can be accomplished in five minutes.

MR. WARREN: I had a little bit different thought. One of the things the Vogtle people do in their routine testing is they air roll the diesel first. Is that preferable or not?

MR. ROSA: That's permitted and in fact it's encouraged. Every six months, however, everyone is required to fast-start the diesel. They can go ahead and roll it and prelubricate it and so forth but then they have to press the button to fast-start and measure the time it takes to come up to rate of voltage and speed.

MR. WARREN: Now one of the things that's been happening at Diablo -- not DIablo, I'm going back a few

years -- at Vogtle is during the routine tests apparently everything is fine but then during shutdown they've been having some difficulties.

I'm wondering if you're aware of any other plants that had a similar kind of experience.

MR. ROSA: They're supposed to keep testing whether they're at shutdown or not, and they're supposed to report test data then just as well as any other time.

MR. CHAFFEE: An interesting question. I wonder what the two failures to start during the event did to their test data.

MR. KENDALL: Their reliability numbers.

MR. ROSA: Now don't forget, right now the station blackout rule has not been implemented yet. We are still in the process of reviewing the initial submittals which came in last April 17th and the most recent submittals which came in by March 30th.

The reason we had to have a resubmittal is because we audited six plants after they had submitted their April 17th '89 submission to see if they had the supporting documentation supporting their analysis and all six plants had deficient documentation, some very gross deficiencies.

We called NUMARC back in and said, look, this is what we found. Obviously there is misinterpretation of the very guidance that was out there.

We and NUMARC developed supplemental guidance starting around the end of November last year through December. We reviewed and approved the final draft of supplemental guidance for implementing station blackouts.

We were going to send a generic letter to the industry which required them to re-review their previous submittal and state under oath and affirmation that they had done their analysis properly.

We were requested by NUMARC not to send the generic letter because they thought they could do it more quickly and just as effectively and we said, okay, we'll give you another chance to do it.

They did go to the industry on January 4th and issue this supplemental guidance and requested that a resubmission be made by March 2nd. We've gotten those in now and we are just looking at them

MR. WARREN: Do you think the original provided guidance that was sufficient?

MR. ROSA: Yes.

MR. WARREN: That's what I was afraid you were going to tell me.

MR. CHAFFEE: What was the problem with their responses originally? Was it they just weren't detailed enough?

MR. ROSA: Well, when we started interfacing with

NUMARC on station blackout, we realized that this could be a horrendous review task for the staff, and also a heck of a lot of work for the industry.

Our objective was let's see if we can develop joint guidance that we both agree to in detail and then send that out to the industry together with a generic response that the industry could use to respond to, to a station blackout.

The industry response in effect went something like this: We have evaluated our station blackout duration in accordance with the methodology provided in section so-and-so NUMARC document 87, which we had approved. They preferred to refer to their NUMARC document rather than our reg guide 1.155.

Our reg guide 1.155 has in it a table that compares section by section the reg guide in the NUMARC document, but in their generic response they referred to sections in the NUMARC document.

Then the generic response would go on and say we have assessed the heat-up, assuming they're going coping, the heat-up in their various critical equipment spaces, and have concluded that that's in accordance with the modality described in the NUMARC document, our top temperature at the end of the four-hour station blackout duration or whatever does not exceed the criteria that's in the guidance.

We have evaluated our condensate storage tank capacity and have concluded that there is more than sufficient capacity to take care of removing decay heat for the duration specified, and so on.

Now we were going to take that at face value except we told the industry right up front that we're going to make an audit of some plants, and we did. We audited six plants and found that there were a lot of deficiencies in what they had there so we went to this additional guidance thing.

MR. WEST: Once you go through the second round of looking at what's coming in now, will you then go back out and do another audit?

MR. ROSA: Yes, we will do that.

MR. WARREN: Now you said that your judgment was that they really didn't have to have this additional guidance. What went wrong, in your judgment, the first time around?

MR. ROSA: Well --

MR. WARREN: I'll tell you why I'm asking. I'm trying to get a similar perception for some of the generic work I've been associated with and see if my perceptions are the same.

MR. ROSA: We interfaced with NUMARC and I think they negotiated in good faith with us, keeping in mind that

one of their objectives was we'd like to see the guidance structured such that only the out buyers are caught, you know, that most of the plants would have the minimum of modifications to make.

We discussed these issues and in fact had differences of opinion over specific words. We were -- we had a schedule to meet in developing the reg guide and the NUMARC document, and the rule in fact, and where we couldn't agree on the specific language that the staff wanted and the alternative which NUMARC would present, we compromised in some instances on language that was subject to some interpretation.

I'll give you an example. In the case of an EDG that qualifies as an alternate AC source, we put into the reg guide the words that said if it has the capacity to provide for loss of outside power and safe shutdown and still has excess capacity to power the station blackout loads, which are much less than the loss of offsite power safe shutdown, then it would qualify as an alternate AC source.

We had responses coming back, for instance, like this: there's two diesels per unit and we claim one of those as an alternate AC source. However, in order to make capacity available for the blackout unit we have to not energize or consider the motor operated auxiliary feedwater

pump because we know we have a steam driven auxiliary feedwater pump.

Here's another one. A two-unit BWR site claimed the same thing. However, in order to make the capacity available for the blackout unit we'll have to alternate operating the RHR pump at each unit for keeping the pool cool.

In other words, for one hour operate they would operate a pump on unit one and for the next hour they would operate a pump on unit two and so forth.

Some proposed de-energizing the computer inverter and some of the redundant instrumentation channels and so forth.

We took the position you couldn't do this. You could not do this and claim EDG as an alternate AC source and we're still trying to resolve some of these things and I'm sure there are still some remaining in this latest submission.

One of the plants that we audited proposed going to their remote fire protection, remote shutdown station and disabling the control room because the batteries did not have sufficient capacity to power the instrumentation loads through the inverse. We've taken the position that you can't do that.

In fact, we have taken the position if you're

going to use an EDG as an alternate AC source, the only capacity you can consider for a station blackout unit is that capacity over and above that which is required to power the normal loss of offsite power save shutdown loads in the non-blacked out unit.

MR. CHAFFEE: Okay. As far as diesel generator reliability goes, do you know anything about problems with Calcone switches?

MR. ROSA: No, I'm not familiar with that.

MR. CHAFFEE: Are you aware of any problems with diesels from the standpoint of using pneumatics for their trip circuitry?

MR. ROSA: Nope. I'm aware that pneumatics have been used for a long time.

MR. CHAFFEE: Do they have the reputation of being reliable?

MR. ROSA: To my knowledge as long as the instrument air system that supplies this pneumatic instrumentation is thoroughly dried, there is usually no problem.

MR. CHAFFEE: Do you have any knowledge of the driers they use for this, using desiccants or refrigerant? Is one of them better than the other?

MR. ROSA: I don't know. That information should be available from the industry. I think the refrigerant

probably is more effective.

MR. CHAFFEE: Do you have any questions?

MR. WEST: Yeah, I have one additional one.

Do the station blackout requirements get to the level of any requirements to record data on the performance of diesels, for example, in the --

MR. ROSA: Oh, yeah. The guidance tells you you've got to keep track of your diesel generator reliability on a per unit basis. Keep that in mind.

MR. KENDALL: That's the starts and failures and starts.

MR. CHAFFEE: Do you do anything to capture near misses? For example, one of the things we're finding is turning out to be true is that the thing that tripped the diesel may have been a sensor that was called a high jacket water temperature sensor.

Apparently we were told that the NPRDS data system does not capture failures in the sensors when they don't cause trip and it may, and we don't now, it may be at Vogtle that they've had a number of failures in these sensors but they're not being captured.

The question that comes up is is there any kind of a need to capture near misses. Maybe you have lots and lots of near misses but they don't surface as a trip.

Does that somehow paint a different picture in

terms of diesel reliability or is that --

MR. ROSA: You're talking about near misses defined as --

MR. CHAFFEE: Diesels started and operated but a sensor can only --

MR. KENDALL: One could fail and not cause a trip and they have to be reported.

MR. ROSA: You know there is only so much that a regulatory agency can do or even NPRDS. Somewhere along the line you have to say I've got faith in the licensee doing what he's supposed to do.

I don't know whether it would be worthwhile to require the failure of every component -- You don't know where to stop.

MR. CHAFFEE: Okay.

MR. ROSA: Is that it?

MR. CHAFFEE: That's it. Thank you very much.

(Whereupon at 5:20 p.m. the matter concluded.)

REPORTER'S CERTIFICATE

This is to certify that the attached proceedings before the United States Nuclear Regulatory Commission

in the matter of:

NAME OF PROCEEDING: Interview

DOCKET NUMBER:

PLACE OF PROCEEDING: Bethesda, Maryland

were held as herein appears, and that this is the original transcript thereof for the file of the United States Nuclear Regulatory Commission taken by me and thereafter reduced to typewriting by me or under the direction of the court reporting company, and that the transcript is a true and accurate record of the foregoing proceedings.

Rossie Sutton

Rossie Sutton
Official Reporter
Ann Riley & Associates, Ltd.

Outage Scheduling Information

05-247-90

Questions from Mike Jones:

1. Start and stop days for ESF testing

ESFAS "B" Surveillance 54065	Began	2/24/90 23:00
	Completed	2/27/90 06:00
ESFAS "A" Surveillance 54055	Began	2/27/90 07:00
	Completed	3/01/90 04:00

2. Start and stop of D/G 1A and D/G 1B Overhaul (inspection)

D/G 1A inspection	Began	3/01/90
MWO's 19000092, 19000094	Completed	3/12/90
Clearance 19015033	Hung	3/01/90 20:24
	Removed	3/12/90 12:04
D/G 1B inspection	Began	3/14/90
MWO's 19000093, 19000095	Completed	3/20/90 (MWO 19000093 remained open until 3/23/90)
Clearance 19015034	Hung	3/14/90 03:30
	Removed	3/21/90 00:51

3. Start and stop of RAT 1B maintenance

MWO 18906364	Began	3/14/90
	Completed	3/19/90

RAT scheduling information

~~Harris Lyons~~ Piel?

05-248-90

1. What was the date and approximate time (morning, afternoon) when maintenance activities were completed on the "B" Reserve Auxiliary Transformer and it could have been placed back in service. (This date was several days before the event when it was actually placed back in service.) The substation electrician and Augusta Division representative released the clearance at 9:02 EST 3/19/90.

   The plant configuration at that time was D/G 1B in final stages of reassembly and RCS midloop operations were in progress. Plant technical specifications require both trains of RHR operable and one train in operation.

   Since the D/G 1B was not operable, it could not be used to supply power to the class 1-E bus and keep RHR B train operable.

   Placing RAT 1B back in service would have required de-energizing bus 1BA03 in order to physically return the cross tie breaker to its original position. De-energizing 1BA03 under current conditions would have been in violation of technical specification 3.9.8.2.

   Operations opted not to energize the RAT until they were ready to place it in service.

Misc PRT, RCS, RWST, SG, TS information

Tech Specs for Mid-loop

05-249-90

3.4.1.4.2
3.9.8.2
3.9.10.1
3.9.10.2

PRT

100# Rupture Disc - Disc intact
PRT level @ 3-20 was 62%

RCS water Level -

187-11"
~53,000 Gals (excluding RHR loops)
RHR = 12,000 Gals per Train

RWST

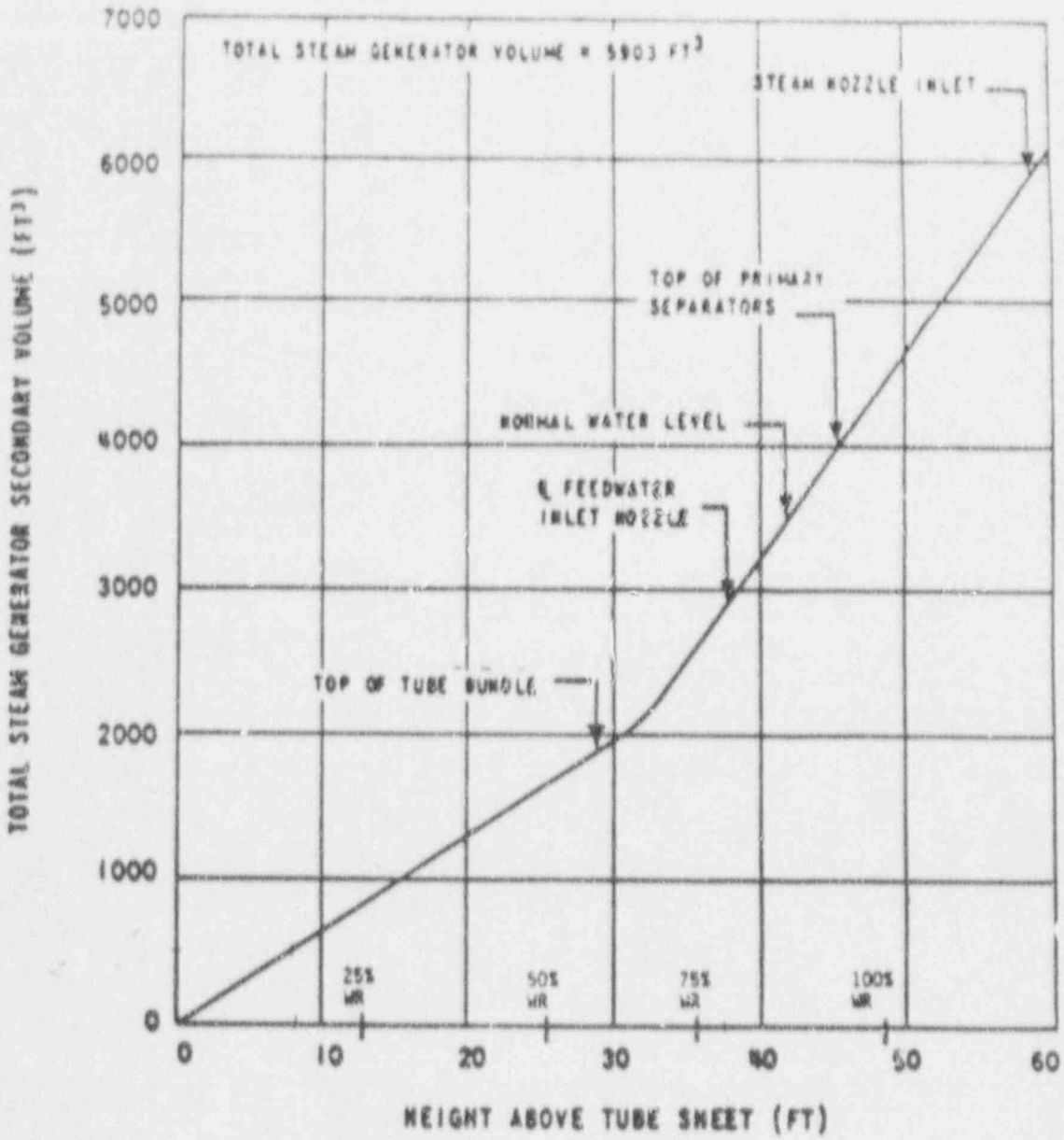
Level @ 79%
Bottom of Tank - 220'-0"
0% Level - 223'-0"
100% Level - 274'-0"

SG

98-99%
~4300 ft³ per S/G

Accumulators

All vented and drained



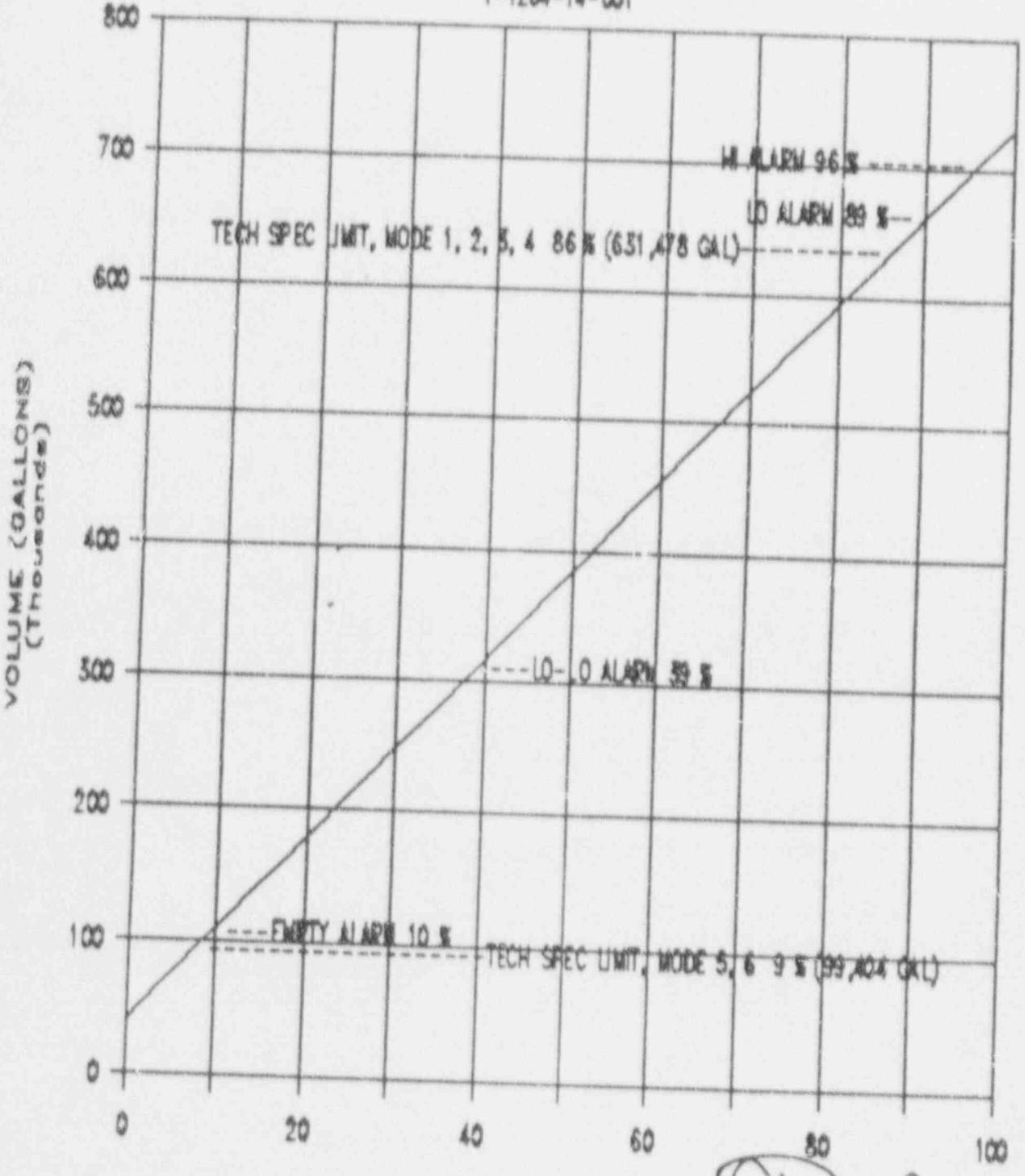
Secondary volume versus height above tube sheet (F series SG)

FIGURE 1

TAB 4.9
REFUELING WATER
STORAGE TANK
UNIT 1

REFUELING WATER STORAGE TANK

1-1204-T4-001



(X) L I-990, -991, -992, -993

28 Sep 87

Reviewed By Date

GP-14800

Westinghouse Electric Corporation Energy Systems

Box 355
Pittsburgh Pennsylvania 15230 0355

March 16, 1990

05-250-90

Mr. C. K. McCoy
Vice President, Nuclear Vogtle Project
Georgia Power Company
P. O. Box 1295
Birmingham, AL 35201

VOGTLE ELECTRIC GENERATING PLANT
UNITS 1 AND 2
Vogtle RHR Pump

Dear Mr. McCoy:

Letter GP-14797 approved interim operability of the Vogtle Unit 1 RHR pump B based on a maximum vibration limit of 7.5 mils. Subsequent to issuance of that letter, additional testing was performed on pump B. The placement of additional weight on top of the motor provided a reduction in both bearing housing and shaft vibration which indicates that the vibration is resonance related. Also, the motor upper bearing housing was disassembled and the shaft deflection and runout were determined to be acceptable.

It has been concluded by the Westinghouse and Ingersoll-Rand engineering representatives at the plant site that the pump/motor rebuild, inspections and vibration test results have demonstrated that the pump rotating assembly is in good operating conditions. The current vibration levels are due to the proximity of the running speed frequency and the pump assembly natural frequency. The long-term recommendation is to install rigid sway struts attached to the top of the motor frame to increase the natural frequency away from running speed frequency.

Prior to implementation of sway struts, the RHR pump B may be considered to be fully operational. Because of the current vibration level at running speed frequency resulting from resonance, additional vibration monitoring of this pump is necessary in order to detect potential long-term equipment degradation. Spectral vibration data should be taken at the top and bottom of

GP-14800

Mr. C. K. McCoy -2-

the motor after each 80 hours of accumulated run time. The pump will be considered operational if the vibration at the top of the motor remains below 0.8 inches per second at running speed frequency. Any increase in vibration at other multiples of running speed frequency should be evaluated in accordance with existing Georgia Power Company maintenance practices.

Sincerely,

WESTINGHOUSE ELECTRIC CORPORATION

E. Kurt Hacha

J. L. Tain, Manager
Southern Company Projects

cc: C. K. McCoy 1L
E. F. Cobb 1L
NORMS (Vogtle Site) 1L
S. L. Greenwood 1L
P. D. Rushton 1L
C. Bockhold, Jr. 1L
L. A. Ward 1L

0937C:mar/031690

ORIGINAL

Sequence 1

DESIGN CHANGE REQUEST

ENGINEERING SUPPORT

DCR NO. 90-VN0130 REV 0 UNIT Cmn DATE 3/9/90

SAFETY RELATED X YES ____ NO DRAWING CHANGE ONLY ____

EXEMPT ____ NON-EXEMPT X SITE ____

SYSTEM or COMPONENT (Designation/Plant No. & Description): RHR Loops A and B; 1-1205-P6-001,002

DESIGN OBJECTIVE: Resolve vibration of RHR Pump Motors

SUGGESTED CHANGE (attach sketches, marked-up dwgs, etc) - if known: Add, modify, or delete hangers as required to resolve vibration of RHR pump motors. Contact: Bob Jones X-7466, Phil Burrell, Bill Rich

REFERENCES: Westinghouse Technical Bulletin NTD-87-02

LICENSING DOCUMENT CHANGE REQUIRED: ____ YES X NO. IF YES, Describe:

ACCOUNT NO: ____ ESTIMATED COST: ____

Responsible Engineer /Date — Engineering Support Supt./ Date

DESIGN APPROVAL

DCR approved for Design Development (Exempt and Non-Exempt) X YES ____ NO

O&M IRZ

Plant Support Manager/Date

DESIGN CHANGE PACKAGE REVIEWED AND ACCEPTABLE

Responsible Engineer / Date — Eng. Support Supt. / Date

IMPLEMENTATION APPROVAL

DCP SAFETY RELATED:

PRB RECOMMENDS:

____ Proceed with implementation - Licensing document change approval required

____ Do not proceed until licensing document approval received

✓ Proceed - No licensing document changes necessary

____ DCP rejected. Reason ____

PRB Chairman /Date — PRB Mtg No. 90-41 Date 3/23/90

Implementation as Recommended Approved ✓ YES ____ NO

for GENERAL MANAGER — DATE 3/23/90

DCP Non Safety Related:

PLANT SUPPORT MGR — DATE

FIGURE 1

ATTACHMENT TO DCR 96-1120130

ORIGINAL

- JUSTIFICATION

[ ] REGULATORY REQUIREMENT/LICENSING COMMITMENT

[X] DEFICIENCY CORRECTION DC NO. n/a RER NO. n/a See below -

[ ] IMPROVE SYSTEM/OPERATION PERFORMANCE

DETAILED EXPLANATION: RHR pumps have demonstrated vibration. In some configurations, vibration has been excessive. Ref WTB 96-02, and Report generated by Dick Krause (Copy Attd)

- COST/BENEFIT ANALYSIS (NOTE: Required if change is requested to improve performance)

n/a

- INSTALLATION

[ ] NO SPECIAL OUTAGE OR PLANT CONDITIONS REQUIRED

(PROVIDE OUTAGE DETAILS FOR SYSTEMS, PLANT CONDITIONS, PRESSURE/TEMP, ETC. IF EITHER OF THE FOLLOWING BLOCKS IS CHECKED)

[X] PARTIAL MAY BE WORKED W/O OUTAGE

[ ] OUTAGE REQUIRED

FIGURE 1 (CONT'D.)

DCR No. 90-1120130

ORIGINAL

DESIGN CHANGE PACKAGE CLOSURE

	Yes	No	N/A
MWO's Completed and Closed?	___	___	___
ABNs Issued?	___	___	___
PCRs Approved and Attached?	___	___	___
Deficiencies Resolved.	___	___	___
Testing Complete & Results Acceptable?	___	___	___

MWO Nos: _____

ABN Nos: _____

PCR Nos: _____

DC Nos: _____

Systems/equipment may be returned to service based upon satisfactory completion of testing, availability of as-builts, and adequate training and to revised operating procedures.

_____
Operations Supervisor / Date

All Closeout Requirements Have Been Completed.

_____ _____
Responsible Engineer / Date Eng. Supv. / Date

FINAL PRB REQUIRED: Yes ___ No ___

FINAL REVIEW _____ Date _____
Engineering Support Supt.

DCP Closure Acceptable ____ YES ____ NO. If NO, explain: _____

_____ PRB Meeting No._____ Date_____
PRB Chairman / Date

FIGURE 1 (CONT'D.)

Reviewed & Accepted
[illegible] 9/22/90

DCP 90-V1N0130-0-1
Other N/A

SAFETY EVALUATION

a. Description of proposed change, test or experiment.

This change will add additional strut support members to RHR pump motor 1-1205-P6-002-M01 to help reduce the vibration levels presently existing in the pump. A band constructed of 2"X 2"X 1/4" tube steel will be installed around the top area of the motor at the elevation of the lifting lugs. The end of the tube steel will be cut at an angle to make the corners. A 1/2" steel plate will be welded to the ends of the tube steel. The band will be connected at each corner and to the lifting lugs with bolts. The struts will be Bergen-Paterson struts and will connect to the steel plates at the corners of the tube steel band. An end bracket will be welded to an embed on the wall to connect the other end of the strut to the wall. A total of 5 struts will be installed. The project class of the pump, motor, and strut is 212, 11E, and 01C respectively.

b. Reason for proposed change, test or experiment.

The pump presently has a high operating vibration level which is believed to be the result of resonant vibrations. The struts will aid in eliminating the resonant problem and reduce the vibration to within allowable operating levels.

c. Does the proposed change involve a change to Technical Specifications?

(Includes Environmental Tech. Spec.) Yes _____ No X

The pump assembly supports are not addressed in the Technical Specifications and no changes to the Technical Specifications are required. This includes a review of Sections 3/4.3.3, 3/4.4, 3/4.5, and 3/4.9 of the Technical Specifications.

d. Does the proposed change involve a change in the facility as described or implied in the FSAR?

Yes _____ No X

This change will add additional strut support members to RHR pump motor 1-1205-P6-002-M01 to help reduce the vibration levels presently existing in the pump. The change does not involve a change in the facility as described or implied in the FSAR. This includes a review of FSAR Sections 3.7.4, 3.9, 3.10, 5.4, 6.3 and 7.4.

ORIGINAL

SAFETY EVALUATION

e. Does the proposed change involve a change in procedures described or implied in the FSAR?

Yes _____ No X

This change does not involve a change in any procedure described or implied in the FSAR. This includes a review of FSAR Sections 3.7.4, 3.9, 3.10, 5.4, 6.3, 7.4, and 13.

f. Does the proposed change involve a test or experiment not described or implied in the FSAR?

Yes _____ No X

This change does not involve a test or experiment.

g. Does the proposed change, test or experiment increase the probability of occurrence or consequences of an accident described in the FSAR?

Yes _____ No X

This change will add additional strut support members to RHR pump motor 1-1205-P6-002-M01 to help reduce the vibration levels presently existing in the pump. The seismic qualification will be maintained with these additional supports per Westinghouse letter GP-14802 (attached). It will not impact the operation of the RHR system or any other safety-related system. Therefore, the change does not increase the probability of occurrence or consequences of an accident described in the FSAR. This includes a review of Sections 3.7.4, 3.9, 3.10, 5.4, 6.3, 7.4, and 15 of the FSAR.

h. Does the proposed change, test or experiment increase the probability of occurrence or consequences of the malfunction of any equipment or component assumed to function in accidents analyzed in the FSAR?

Yes _____ No X

This change will add additional strut support members to RHR pump motor 1-1205-P6-002-M01 to help reduce the vibration levels presently existing in the pump. This will not have any affect on any equipment or component assumed to function in any accident analyzed in the FSAR. This includes a review of Sections 3.7.4, 3.9, 3.10, 5.4, 6.3, 7.4, and 15 of the FSAR.

ORIGINAL

DCP 90-V1N0130-0-1
Other N/A

SAFETY EVALUATION

i. Does the proposed change, test or experiment create the possibility of an accident or equipment/component malfunction not described and analyzed in the FSAR?

Yes _____ No X

This change will add additional strut support members to RHR pump motor 1-1205-P6-002-M01 to help reduce the vibration levels presently existing in the pump. It will not impact the operation of the RHR system or any other safety-related system nor create the possibility of an accident or equipment/component malfunction in the RHR system or any other safety-related system. Therefore, this modification does not create the possibility of an accident or equipment/component malfunction not described and analyzed in the FSAR. This includes a review of FSAR Sections 3.7.4, 3.9, 3.10, 5.4, 6.3, 7.4, and 15.

j. Does the proposed change, test or experiment decrease the margin of safety defined by the bases of the Technical Specifications?

Yes _____ No X

This change will add additional strut support members to RHR pump motor 1-1205-P6-002-M01 to help reduce the vibration levels presently existing in the pump assembly. It is intended that the additional struts will reduce the vibration level in the pump motor which will increase the reliability of the pump. It will not impact the operation of the RHR system or any other safety-related system and does not decrease the margin of safety defined in the bases of the Technical Specifications. This includes a review of the bases to sections 3/4.3.3, 3/4.4, 3/4.5, and 3/4.9 of the Technical Specifications.

k. Does the proposed change, test or experiment involve an unreviewed safety question?

Yes _____ No X

Based on the response to items g through j above, this change does not involve an unreviewed safety question.

LDRE [signature] DATE 3/20/90

LDM [signature] DATE 3-21-90

NUCLEAR SAFETY [signature] DATE 3-21-90

PDM [signature] DATE 3-21-90

VP08-89 - 9

[signature] 3/23/90 (Sr. Mgr.)

[signature] 3/23/90 (Chairman)

ORIGINAL

SAFETY EVALUATION
DCP 90-VIN0130-0-1
PAGE 4 of 5

GP-1e802

Westinghouse Electric Corporation Energy Systems

Box 355
Pittsburgh Pennsylvania 15230-0355

March 21, 1990

ORIGINAL

Mr. C. K. McCoy
Vice President, Nuclear Vogtle Project
Georgia Power Company
P. O. Box 1235
Birmingham, AL 35201

VOGTLE ELECTRIC GENERATING PLANT
UNITS 1 AND 2
RHR Pump Qualification

Dear Mr. McCoy:

Westinghouse Equipment Qualification and Testing has reviewed existing qualification documents for the Vogtle RHR pump and motor to determine if the addition of sway struts near the top of the motor invalidates previously established seismic and operability qualification. Addition of the struts will increase the system (motor, pump and support structure) natural frequency as well as cause a redistribution of seismic loads throughout the pump/motor assembly.

The existing qualification documents indicate that enough margin exists to conclude that the increase or redistribution of seismic loads due to the sway struts will not consume the available margin. Operability and seismic qualification will be maintained. Seismic responses (i.e. stresses, deflections) will change and need to be evaluated and documented to support this conclusion.

Sincerely,

WESTINGHOUSE ELECTRIC CORPORATION

E. Kurt Hacker

J. L. Tain, Manager
Southern Company Projects

0940C:mr/032190

SAFETY EVALUATION
DCP 90-VINO130-0-1
PAGE 5 of 5

GP-14802

cc: C. K. McCoy 1L
E. F. Cobb 1L
NORMS (Vogtle Site) 1L
G. L. Greenwood 1L
P. D. Rushton 1L
G. Bockhold, Jr. 1L
L. A. Ward 1L
R. Bush 1L
P. Hsu 1L
W. C. Ramsey 1L

ORIGINAL

ENVIRONMENTAL EVALUATION DETERMINATION

Document ID: PCP 96-0001 ORIGINAL

Revision No.: 6

1. Could implementation of this document pose adverse environmental effects of any type either directly or indirectly? (Unit 1 and Unit 2 Operating License, Appendix B) Check a or b

[ ] a. Possibly. (Explain): _____

_____

_____

[X] b. No. The nature of this document is such that it will not result in a condition which significantly alters the impact of the station on the environment.

Evaluator [signature] Date 3/23/96

Supervisor [signature] Date 3/23/96

2. If an environmental question is posed (item 1a is checked) the document will not be approved until evaluated. Forward the package to the Health Physics/Chemistry Department for an environmental review.

3. Attach completed environmental review and return to the evaluator (item 1) for continued processing.

FIGURE 2

DCP 90-V1N0130-0-1
Other N/A

HAZARD EVALUATION

PART I (High Energy Line Analysis)

	YES	NO	
a.	( )	(X)	Does this design/design change add or modify routing, supports, or dimensions of high energy lines?
b.	(X)	( )	Does this design/design change add new safety-related components?

The RHR lines are classified as dual purpose moderate energy lines. The new support is safety-related and is located in auxiliary building room number R-D49. There are no high energy lines in this room.

	YES	NO	
c.	( )	(X)	Does this design/design change modify the routing or location of safety-related components, pipe, instruments, sensing line, conduit, tray, or duct by more than one foot?
d.	( )	(X)	Does this design change modify the vent openings in the pressure temperature transient analysis?

PART II (Missiles)

	YES	NO	
a.	( )	(X)	Does this design/design change create any new internally generated missile or is it impacted by any internally generated missile?

PART III (Seismic 2 over 1)

	YES	NO	
a.	( )	(X)	Does this design/design change add any new seismic category 2 components not installed to seismic 1 criteria?
b.	( )	(X)	Does this design/design change add any new seismic category 1 components that could be adversely affected by any seismic 2 installation?

ORIGINAL

HAZARD EVALUATION

PART IV (Flooding)

	YES	NO	
a.	( )	(X)	Does this design/design change modify any room flood characteristics (e.g. unsealed penetrations, door, grating, hatch changes)?
b.	( )	(X)	Does this design/design change modify piping or tank size so as to affect design basis flood source?
c.	( )	(X)	Does this design/design change alter site conditions or building boundaries that may affect the "Probable Maximum Precipitation" (PMP) flooding evaluation or be affected by existing PMP flooding conditions?
d.	( )	(X)	Does this design/design change add or modify any water sensitive Class 1E electrical equipment or safe shutdown equipment?
e.	( )	(X)	Does this design/design change add or modify any penetration seals?

PART V (Overhead Heavy Loads)

	YES	NO	
a.	( )	(X)	Does this design/design change add safety-related components in the projection of the load path below the OHLHS?
b.	( )	(X)	Does this design/design change add or modify OHLHS equipment?

ORIGINAL

DCP 90-V1N0130-0-1
Other N/A

HAZARD EVALUATION

PART VI (Containment Materials)

	YES	NO	
a.	( )	(X)	Does this design/design change add any hydrogen producing materials inside containment?

LDRE John A. Stanley DATE 3/20/90

LDM B E Parsons DATE 3/21/90

NUCLEAR SAFETY Phillip Simpson DATE 3-21-90

PDM C M Jr DATE 3-21-90

ORIGINAL

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W. C. Ramsey, Jr.
Project Engineering Manager - Vogtle

Southern Company Services

March 21, 1990

Vogtle Electric Generating Plant - Units 1 & 2
Response Package for Design Change Request
DCP 90-V1N0130-0-1
File: X7BD112 Log: SG-8953
Security Code: NC

Mr. C. C. Miller
Manager of Engineering
Vogtle Project - Nuclear Operations
Georgia Power Company
Post Office Box 1295
Birmingham, Alabama 35201

Dear Mr. Miller:

Attached is DCP 90-VIN0130-0-1 addressing the installation of structural support struts to RHR Pump Motor 1-1205-P6-002-MD1. The struts are to help in reducing the pump vibrations.

Modification documents listed on the enclosed DCP Checklist are provided to assist in incorporating the subject DCR. Additionally we are returning a copy of the subject DCR for your records.

This response package is sequence 1 of the DCP. Sequence 2 will be issued by March 26, 1990, for the design of flexible connections in the motor cooling water lines . The above DCR will not be closed in our file until the associated as-built information for both sequences is returned to us.

If you have any comments or questions, please call Dave Lisenby at extension 7031.

Very truly yours,

for W. C. Ramsey, Jr.

WCRJr/JDL/wg
Attachment

xc: G. Bockhold, Jr.
A. E. Cardona (w/att.)
P. D. Grissom
M. W. Horton (w/org. att.)
C. R. Myer
R. E. Patrick (w/att.)
S. Pietrzyk (w/att.)
P. D. Rushton
NORMS
Project File
Document File (w/att.)
P. Tehranchi

Sheet 1 of 1

ORIGINAL

DATA SHEET 1

DCP FINAL REVIEW CHECKLIST

DCP NO. 90-1[illegible]76 REV. C UNIT 1

		YES	NO
1.	All required reviews are complete and included: If NO, explain:	X	
2.	All FCR and DCR revisions are complete or in process and are identified. If NO, explain: None were required	X	
3.	The material and equipment necessary to implement the subject DCP is identified. If NO, explain: n/a	X	
4.	The post modification inspection and testing requirements have been identified and are described. If NO, explain:	X	
5.	The nature and scope of the changes to be made have been reviewed to determine if additional implementation instructions and test procedures are required; and, generation of such instructions/procedures has been initiated. If NO, explain: None were required	X	

6. Associated new procedures and/or instructions which require PRB review are as follows: (Enter NONE if appropriate)

None

Review of the subject DCP is complete. Special considerations have been identified on Data Sheets 2 through 17 (attached as applicable), and the DCP may continue the approval process in accordance with Procedure 00400-C, "Plant Design Control".

W. E. Chamberlain ME Chamberlain 3/23/90
Responsible Engineer / Date

J. Vice Jamilee 3/23/90
Engineering Supervisor / Date

J. Vice Jamilee 3/23/90
Eng Support Superintendent/Date
FOR MWH

Data Sheet 2
Continued 4 Accepts 3/22/90

DCP 90-V1N0130-0-1
Other N/A

NARRATIVE DESIGN SUMMARY

(1) Description of Physical Changes to Plant Equipment:

This change will add additional strut support members to RHR pump motor 1-1205-P6-002-M01 which will move the natural frequency of the pump/motor structure further from the operating speed of the pump/motor and therefore reduce the vibration caused by resonance. A band constructed of 2"X 2"X 1/4" tube steel will be installed around the top area of the motor at the elevation of the lifting lugs. The end of the tube steel will be cut at an angle to make the corners. A 1/2" steel plate will be welded to the ends of the tube steel. The band will be connected at each corner and to the lifting lugs with bolts. The struts will be Bergen-Paterson struts and will connect to the steel plates at the corners of the tube steel band. An end bracket will be welded to an embed on the wall to connect the other end of the strut to the wall. A total of 5 struts will be installed.

(2) Describe Changes to System Operation or Response:

This change is a structural modification to the RHR pump assembly to help ensure operating vibration levels remain within acceptable limits. This change will have no effect on the system operation or response.

(3) Remarks:

The vibration levels present in the Train B RHR pump motor upper bearing are above recommended limits. It is believed that the problem could be resonance vibrations which the strut supports could reduce. However, if after the installation of the struts the vibration level is not reduced to within recommended limits an imbalance problem in the pump motor rotor assembly could exist, and the rotor assembly ~~should~~ be rebalanced.

may need to be

3/23/90

LDRE — 3/20/90 DATE

LDM — 3/21/90 DATE

PDM — 3-21-90 DATE

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Sheet 1 of 1

DATA SHEET 3

REVIEW FOR CONSTRUCTIBILITY, MAINTAINABILITY, TESTABILITY, AND OPERABILITY

DCP NO. 90-1110 REV. C UNIT 1

[X] The subject DCP has been reviewed and field-verified, including dimensional accuracy and specifications, to determine that the changes can be installed, maintained, tested, and operated satisfactorily as provided.

[ ] The DCP can be installed with exceptions shown on FCRs as follows:

DCP Drawing No./Rev or Installation Info.	FCR No.

[X] The materials specified within the DCP have been reviewed against the Nuclear Plant Reliability Data System (NPRDS) for suitability of application.

Responsible Engineer / Date

C F Kelly 3-23-90
Reviewer, Maintenance / Date

A L Tha 3/23/90
Reviewer, OSG / Date

Gregory L. Lee 3/23/90
Reviewer, Operations / Date

Engineering Supv. / Date 3/23/90

ORIGINAL

DATA SHEET 4

DCP REVIEW EXTENT DETERMINATION

DCP NO. [illegible] REV. C UNIT 1

Fire Protection Engineer Completes Data Sheet 6, Fire Protection Review.

The proposed modification has the possibility of affecting/causing:

		YES	NO
1.	Additions, deletions, or alteration of Tech Spec Surveillance Test Requirements or scheduling. If YES, Data Sheet 5 must be completed.		X
2.	Any of the items on the ALARA Qualification Checklist, Data Sheet 7. If YES, HP Technical Support personnel will determine any additional review extent on Data Sheet 7.	X	
3.	Security detection or protection systems, equipment, or barriers. If YES, Data Sheet 8 must be completed.		X
4.	Environmental impact. If YES, Data Sheet 9 must be completed by Chemistry Department personnel.		X
5.	Operator/Maintenance personnel training. If YES, Data Sheet 10 must be completed.		X
6.	ISI Program/Plan Requirements. If YES, Data Sheet 11 must be completed.	X	
7.	Alterations of, or Additional Electrical, Hydrostatic, or Functional Testing or Inspections Not Related to ISI Program/Plan requirements. If YES, Data Sheet 12 must be completed.	X	

NOTE

Particular attention to Regulatory Guide 1.68 testing requirements after major modifications to the instrument and control air system, and to Regulatory Guides 1.6 and 1.32 after major modifications to onsite electrical power systems.

DATA SHEET 4 (CONT'D)

DCP REVIEW EXTENT DETERMINATION

		YES	NO
8.	Material or equipment in harsh environments. If YES, Data Sheet 13 must be completed.	X	

NOTE

Materials, parts, and equipment which are standard commercial (off-the-shelf) or which have been previously approved for a different application should be evaluated prior to selection.

9.	Existing vendor-supplied information. If YES, Data Sheet 14 must be completed.		X
10.	Human Factors. If yes, Data Sheet 15 must be completed.	X	
11.	Alteration of the probability of occurrence of consequences of an accident described in the FSAR. IF YES, Data Sheet 16 must be completed.		X
12.	Create the possibility of an accident or equipment/component malfunction not described in the FSAR. IF YES, Data Sheet 16 must be completed.		X
13.	Contact, or relocate fuel or core components. If YES, Data Sheet 17 must be completed.		X

RESP. ENGR: W. Glenn McElhaney DATE 3/23/90

ENG. SUPV: J. Kevin Pamplin DATE: 3/23/90

ESS J. Kevin Pamplin DATE 3/23/90

FOR ATWT

Sheet 1 of 2

DATA SHEET 6

FIRE PROTECTION REVIEW

DCP NO. 96V1613 REV. 6 UNIT 1

NOTE

Use additional 8½ in. x 11 in. lined sheets as necessary to provide explanations and/or required actions as appropriate.

This review is to identify potential Fire Protection concerns as they relate to operational fire protection program commitments, and to resolve those concerns prior to implementation of the Design Change Package.

1. Does the engineering evaluation of the Design Change Package adequately address fire protection concerns?

   Yes X No __

   If No explain: _____

   Required Action: _____

2. Will the Design Change affect the required dress-out space or access or egress to the fire brigade equipment lockers?

   Yes __ No X

   If yes, explain: _____

   Required Action: _____

3. Will the Design Change require revision of any of the following fire protection documentation?

   (A) Surveillance Procedures Yes __ No X

   Explanation/Required Action: _____

   (B) Fire fighting Preplans Yes __ No X

   Explanation/Required Action: _____

   (C) Fire Protection Administrative Control Procedures

   Yes __ No X

   Explanation/Required Action: _____

ORIGINAL

DATA SHEET 6

(D) Fire Protection Annunciator Response Procedure Yes__ No X
Explanation/Required Action: _____

(E) Fire Protection Training Procedures Yes__ No X
Explanation/Required Action: _____

Ray Bryant 3 22 90
Fire Protection Engineer / Date

Data Sheet 6, Att 1

DCP 90-V1N0130-0-1
Other N/A

Fire Area 1-AB-LD-A
Fire Zone 9

FIRE PROTECTION/SAFE SHUTDOWN REVIEW

PART I (Fire Protection)

Does the design/design change involve the modification, addition, removal or relocation of the following:

	YES	NO	
a.	( )	(X)	Permanent combustibles (oil, hydraulic fluid, grease, wood-base materials, cloth, charcoal, plastics, carpet, coatings, cable insulation, etc.) This excludes aluminum sheathed (ALS) type cable and conduit enclosed cable).
b.	( )	(X)	Long-term or recurring transient combustibles.
c.	( )	(X)	Equipment, components, or cables that could affect the area environment such that the response of detection or suppression systems is altered. (e.g. - steam near detectors, space heaters near fusible link heads/nozzles, etc.)
d.	( )	(X)	Equipment, components, or cables that could obstruct or physically interfere with the operation of existing active fire protection features (e.g. - obstructing sprinkler heads, nozzles, detectors, hose stations, extinguishers, pull boxes, etc.)
e.	( )	(X)	Active fire protection features (sprinklers, nozzles, detectors, hose stations, extinguishers, halon systems, fire pumps, supply/sprinkler piping, isolation/pre-action valves, hydrants, hydrant houses, seismic standpipe, pull boxes, etc.)

ORIGINAL

Diesel Start Air

DCP 90-V1N0130-0-1
Other N/A

FIRE PROTECTION/SAFE SHUTDOWN REVIEW

PART I (continued)

	YES	NO	
f.	( )	(X)	Passive fire protection features (penetration seals, conduit seals, fire doors, fire dampers, fire rated walls/floors/ceiling/curbs/structural steel fireproofing, cable tray covers/bottoms, cable tray/conduit wrapping, radiant energy shields, oil collection systems, etc.)
g.	( )	(X)	Equipment, components, or cables that could impede access/egress for fire fighting, life safety, and safe shutdown operator actions (e.g. - obstructing a door, room entrance, passage, etc.)
h.	( )	(X)	Any fire protection features which have previously been taken credit for to justify a deviation from USNRC CMEB 9.5-1. (FSAR Appendix 9A and 9B)

ORIGINAL

PART II (Safe Shutdown)

Does the design/design change involve the following:

	YES	NO	
a.	( )	(X)	Alteration of the design of a system (add, delete, modify or change size/power supply) such that the ability to accomplish a safe shutdown function (FSAR Table 9.5.1-3) is impacted? Safe shutdown functions include:

- o RCS pressure control
- o RCS heat removal (including secondary side)
- o Reactivity control (ability to trip reactor and ensure RCS boration)
- o Process monitoring (including tank level indication)
- o Support system operation (diesel generator, electrical distribution,, and HVAC)

Data Sheet 6, Att 1

DCP 90-V1N0130-0-1
Other N/A

FIRE PROTECTION/SAFE SHUTDOWN REVIEW

	YES	NO	
b.	( )	(X)	Relocation of a safe shutdown component (FSAR Table 9.5.1-1) or the relocation/redesign of a safe shutdown circuit such that the existing separation analysis (FSAR Section 9.5.1 and Table 9.5.1-4) is changed? (This includes operational/design considerations and the spurious actuation concerns listed in FSAR Appendix 9A)

	YES	NO	
c.	( )	(X)	Design of an electrical circuit fault interrupting device (breaker/fuse/relay) for a component which is associated with safe shutdown by virture of sharing a common power supply or common enclosure with a safe shutdown component/circuit?

PART III

a. Does the design/design change require a change to any of the following:

YES	NO	
( )	(X)	Fire Protection Program (FSAR Section 9.5.1)
( )	(X)	Fire Hazards Analysis (FSAR Appendix 9A)
( )	(X)	Fire Protection Bases (FSAR Appendix 9B)

	YES	NO	
b.	(X)	( )	Are adequate fire protection/safe shutdown features included in this design/design change, or are existing features adequate such that this is an acceptable design package?

ORIGINAL

LDRE/FPE John A. Paul Bailey / T W Hayes DATE 3/20/90 3-21-90

LDM R E Patrick DATE 3/21/90

MECHANICAL DM R E Patrick DATE 3/21/90

PDM C R Myer DATE 3-21-90

Sheet 1 of 1

DATA SHEET 7
ALARA QUALIFICATION CHECKLIST
(AQC)

DCP NO. 96-V1513C REV. C UNIT 1

Does the design change involve: (*)

		YES	NO
1.	An activity which must be performed in, or require entry to, a radiologically controlled area?	X	
2.	receiving, shipping, releasing, discharging, processing, conveying, or sampling of radioactive material?		X
3.	Shielding or ventilation changes?		X
4.	Radiography?		X
5.	Calibration using or involving radioactive sources?		X
6.	Any radiation process monitoring system, area monitoring system or airborne radiation monitoring system?		X
7.	Any system that does or could contain, convey, or use radioactive materials?	X	
8.	Breaching any system that could or does contain, convey, or use radioactive materials?		X
9.	Possible post accident conditions that hamper recovery operations?		X
10.	Materials that contribute to crud or resin collection?		X

Responsible Engr: [signature] Date: 3/21/96

Route to Health Physics Technical Support for review/concurrence.

(*)-NOTE-Any "Yes" answer will require HP Technical Support to determine the extent of HP review that is necessary.

[ ] Perform DCP under a General RWP. No addition review necessary.
[X] Specific RWP(s) will be generated from MWO(s) used to implement this DCP. HP/ALARA review of ~~RWP(s)~~ RWP will be adequate.
[ ] Complete Initial ALARA Evaluation Checklist, DATA SHEET 7A.
[ ] Complete Advanced ALARA Evaluation Checklist, DATA SHEET 7B.

HP Tech. Support Reviewer: [signature] Date: 3-22-96

HP Tech. Support Supervisor: [signature] Date: [illegible]

703445

Data Sheet 7, Att 1

DCP 90-V1N0130-0-1
Other N/A

ALARA QUALIFICATION CHECKLIST (AQC)

Does the design change involve: (*)

		YES	NO
1.	An activity which must be performed in, or require entry to, a radiologically controlled area?	X	
2.	Receiving, shipping, releasing, discharging, processing, conveying, or sampling of radioactive material?		X
3.	Shielding or ventilation changes?		X
4.	Radiography?		X
5.	Calibration using or involving radioactive sources?		X
6.	Any radiation process monitoring system, area monitoring system or airborne radiation monitoring system?		X
7.	Any system that does or could contain, convey, or use radioactive materials?	X	
8.	Breaching any system that could or does contain, convey, or use radioactive materials?		X
9.	Possible post accident conditions that hamper recovery operations?		X
10.	Materials that contribute to crud or resin collection?		X

(*) NOTE: ANY "YES" ANSWER REQUIRES FURTHER ALARA EVALUATION BY HEALTH PHYSICS

LDRE John Dave Kearney DATE 3/20/90

LDM R E Patrick DATE 3-21-90

NUCLEAR SAFETY Phillip Simon DATE 3-21-90

PDM C R Myers DATE 3-21-90

ORIGINAL

Data Sht 8

DCP 90-V1N0130-0-1
Other N/A

SECURITY SYSTEMS REVIEW

This review is to identify specific/potential security concerns that are to be resolved prior to implementation of the subject Design Change Package.

1. Will implementation result in temporary or permanent degradation from original design criteria of Intruder Detection Systems?

   YES _____ NO X

2. Will implementation result in temporary or permanent degradation from original design criteria of Protected, Vital, or Material Access Areas access control?

   YES _____ NO X

3. Will implementation of the subject DCP result in the need for special assignment security guards?

   YES _____ NO X

4. Will functional tests be required to ensure modified/ restored system operability?

   YES _____ NO X

5. Will additional special instructions be required for implementation?

   YES _____ NO X

6. Will changes to the Security Plan be necessary prior to or after implementation of the subject DCP?

   YES _____ NO X

ORIGINAL

Data Sheet 8

DCP 90-V1N0116-0-1
Other N/A

SECURITY SYSTEMS REVIEW

7. Will implementation result in temporary or permanent alterations of the Isolation Zone or security lighting?

YES _____ NO X

8. a. Will implementation result in temporary or permanent alterations of Security physical barriers?

YES _____ NO X

b. If new barriers are being installed, are there any gaps greater than 5 inches (measurements taken from bar to bar, bar to wall, bar to penetrating item, etc.)?

YES _____ NO X

9. Will implementation require special additional measures to control Safeguards Information?

YES _____ NO X

10. Will implementation result in temporary or permanent degradation of Security-Offsite response organizations communication systems?

YES _____ NO X

ORIGINAL

LDRE [signature] DATE 3/20/90

LDM [signature] DATE 3/21/90

CIVIL DM [signature] DATE 3/21/90

PDM [signature] DATE 3-21-90

Data Sheet 9

DCP 90-V1N0130-0-1
Other N/A

ENVIRONMENTAL EVALUATION CHECKLIST

(1) ENVIRONMENTAL PROGRAM APPLICABILITY

The procedure or design change to which the evaluation is applicable represents?

a. YES ____ NO X A change to the plant design and operation which affects the environment?

b. YES ____ NO X A change to the Environment Report?

c. YES ____ NO X A test or experiment not described in the Environment Report?

d. YES ____ NO X A change to the Environment Technical Specifications (ETS)?

If the answer to any question in Section (1) is YES, complete Section (2).
If the answer to all questions in Section (1) is NO, do not complete Section (2).

(2) UNREVIEWED ENVIRONMENTAL QUESTION APPLICABILITY

a. YES ____ NO ____ Will the change result in a significant increase in any adverse environmental impact previously evaluated in the Final Environmental Statement, as modified by staff's testimony at the hearing, supplements thereto, environmental impact appraisals, or in initial or final adjudicatory decisions?

b. YES ____ NO ____ Will the change result in a significant change in effluents?

c. YES ____ NO ____ Will the change result in a significant change in power level?

ORIGINAL

Data Sheet 9

DCP 90-V1N0130-0-1
Other N/A

ENVIRONMENTAL EVALUATION CHECKLIST

d. YES ___ NO ___ Will the change involve a matter not previously reviewed and evaluated in the documents specified in (2.a)?

If the answer to any of the questions in Section (1) and (2) is YES, an unreviewed environmental question may be involved. A written Environmental Evaluation must be prepared.

John Waite Hornsby — LDRE — 3/20/90 DATE

[signature] — LDM — 3/21/90 DATE

[signature] — NUCLEAR SAFETY — 3-21-90 DATE

[signature] — PDM — 3-21-90 DATE

[signature] 3/23/90

ORIGINAL

DATA SHEET 11

INSERVICE INSPECTION/INSERVICE TESTING CHECKLIST

DCP NO. 96-0126CN REV. 1 UNIT 1

1. BASELINE EXAMINATIONS

Are baseline examination(s) of pressure retaining components required such as pipe joint(s), bolting material(s), vessel(s), etc.?

YES _____ NO Y

If yes, state type of examination (visual, volumetric, surface, etc.), reference drawing no. and drawing location, weld no., etc.: _____

2. PUMP AND VALVE TESTING

Are pump and valve data required (IST Plan)? YES Y NO _____

If yes, specify test: Perform IST of vibration amplitude and pump ΔP.

3. HANGERS, RESTRAINTS AND SNUBBERS

Are hanger or restraint examinations required? YES _____ NO X

Are snubber examinations required? YES _____ NO X

If yes, state type test, numbers required, reference drawing no., drawing location, etc.: N/A

4. SYSTEM PRESSURE TEST

Is system pressure test required? YES _____ NO Y

If pressure test is required, list design pressure, type test (hydraulic, pneumatic, etc.) test pressure and code references

Pipe Class _____; Design Pressure _____

Test Pressure _____; Type Test _____

Code references: N/A

DATA SHEET 11

5. EQUIPMENT LOCATION

Has equipment been laid out with consideration given to facilitating inspections required by Section XI of the ASME Code and other requirements of the ISI Program?

YES X NO ____

If "No", what special actions are required to facilitate inspections: N/A

6. DOCUMENT CHANGE APPLICABILITY

Is a change to the Inservice Inspection program necessary?

YES ____ NO X

Is a change to the Inservice Test Plan necessary?

YES ____ NO X

Is a change to the Inservice Test Program necessary?

YES ____ NO X

If yes to any of the above, prepare Preservice/Inservice Document Change Request in accordance with Procedure 00411-C, "Preservice And inservice Inspection Program", or Procedure 00412-C, "Preservice And Inservice Testing Program".

Responsible Engr: [signature] Date: 3/22/95

Reviewed By: [signature] Date: 3/22/95
ISI Engineer

[signature] Date: 3/23/95
Engineering Supervisor

Enter Sheet 11, Att 1

DCP 90-V1N0130-0-1
Other N/A

VOGTLE NUCLEAR PLANT
INSERVICE INSPECTION/INSERVICE TESTING
PROGRAM IMPACT CHECKLIST

1. System 1205 Unit 1

2. Location: Area/Elev 13ED 119'-3" Room(s) R-D49

3. Identity of Equipment Added/Modified?
Support struts added to RHR Train B Pump Motor

4.

System Component Classification	ASME Section III Class 1	Class 2	Class 3	ANSI B31.1	Other
21? (Pump)		X			
11E (Motor)					X
01C (Struts)					X

5. Is this a change to a component that requires ISI/IST?

YES	NO
X	

6. Does this change affect performance of ISI/IST that is required for any other component?

YES	NO
	X

7. Is YES to 5 and/or 6, provide evaluation including checklists and/or data sheets.
ISI/IST Evaluation Form is included in this checklist as pages 3 and 4 of 4.

8. Does Article IWA-7000 (Replacements) apply to any item being added or modified?

YES	NO
X	

9. Is an Evaluation Report per IWA-7220 required? When a report is required, it shall be attached to the ISI/IST Checklist. See page 2 of 4 of this checklist for IWA-7220 Evaluation Report.

YES	NO
X	

[signature] / R Pakard — LDRE/LDM — 3/20/90 3/21/90 DATE

Stephen D. Fuller — ISI Engineer/Mech. DM — 3-21-90 3/21/90 DATE

[signature] — PDM — 3-21-90 DATE

VP08-89 - 24

ORIGINAL

Data Sheet 11, Att 1

DCP 90-V1N0130-0-1
Other N/A

IWA-7220 EVALUATION REPORT
FOR
DCP 90-V1N0130-0-1

REFERENCES:

1.) Westinghouse letter log number GP-14802

DESCRIPTION OF CHANGE:

Vibration restraints are being added to RHR Train B Pump Motor 1-1209-P6-002-M01. The restraint assembly will secure the upper portion of the pump motor to the building structure. The strut restraint members will be bolted to welded attachments in the imbeds in the structural walls and bolted to the tube steel band around the pump motor at the lifting lug elevation.

SUITABILITY OF REPLACEMENT OR ALTERATION:

Addition of the restraint assembly will reduce vibration without affecting operation of the pumps. The lateral restraints will limit vibratory deflection of the pump/motor assembly by providing a structural connection between the pump and the building. Attachment of the vibration restraints to the pump motor will not affect the operational characteristics of the pump. The pump supplier (Westinghouse) has approved this modification and design calculations have been generated to substantiate the structural adequacy of the vibration restraints.

CAUSE OF PART OR COMPONENT FAILURE:

This change is the result of a pipe failure in the Train B RHR pump motor cooler caused by the high vibrations. The struts should help reduce the vibration levels to within vendor allowables for long term operation.

R E Patrick — 3/20/90 — 3/21/90
LDRE/LDM — DATE

S.D. Fields by REP / R E Patrick — 3-21-90
ISI ENGINEER/MECH DM — DATE

PDM — 3-21-90
DATE

VP08-89- 25

Data Sheet 11, Att 1

DCP 90-V1N0130-0-1
Other N/A

INSERVICE INSPECTION/INSERVICE TESTING EVALUATION FORM

1. BASELINE EXAMINATIONS

Baseline examination(s) of pressure retaining components is required for items such as pipe joint(s) bolting material(s), vessel(s), etc. YES ____ NO X

2. PUMP AND VALVE TESTING

Pump and valve data required (IST Plan): YES X NO ____
If yes, specify test: Perform IST of vibration amplitude.

3. Hanger or restraint examinations required: YES ____ NO X

Snubber examination required: YES ____ NO X

4. SYSTEM PRESSURE TEST

System pressure test required: YES ____ NO X

5. EQUIPMENT LOCATION

Has equipment been laid out with consideration given to facilitating inspections required by Section XI of the ASME code and other requirements of the ISI Program:

YES X NO ____

ORIGINAL

Data Sheet 11, Att 1

DCP 90-V1N0130-0-1
Other N/A

INSERVICE INSPECTION/INSERVICE TESTING EVALUATION FORM

6. DOCUMENT CHANGE APPLICABILITY

Is a change to the Inservice Inspection Program necessary?

YES ____ NO X

Is a change to the Inservice Inspection Plan necessary?

YES ____ NO X

Is a change to the Inservice Test Program necessary?

YES ____ NO X

If yes to any of the above, initiate and attach any ISI/IST Document Change Request forms in accordance with the applicable Nuclear Operation procedure.

Stephen D. Fields
ISI Engineer

3-21-90
Date

R E Patrick
Mechanical Discipline Manager

3-21-90
Date

ORIGINAL

DATA SHEET 12

NON IAI RELATED
INSPECTION AND TESTING REQUIREMENTS

DCF NO. 91-11[illegible] REV. [illegible] UNIT 1

NOTE

Items not applicable should be marked N/A.

1. Electrical Testing

High Potential Testing is required for the following cables and equipment: N/A

Megger Testing is required for the following cables and equipment: N/A

The following equipment and cables require special sealing for 10CFR50.49 (Environmental Qualification): N/A

Specify testing and inspection required for the following equipment (i.e. coupling, alignment, vibration, run-in, etc.):

Equipment PTN/MPL	Required Tests/Inspection
1-1205-P6-002	Meggar, Vibration per IST Prog.

NOTE: If motors, loads, or breaker sizes are changed the Electrical Engineering Supervisor must be notified so that additional appropriate test data sheet may be utilized.

If 7300 System setpoints are revised, the Electrical Engineering Supervisor must be notified to initiate the appropriate Scaling Data Sheet change.

Sheet 2 of 4

DATA SHEET 12

2. SPECIAL TESTS AND INSPECTIONS

Specify any special tests and inspections required to satisfactorily demonstrate installation of systems, equipment and components:

N/A

3. PIPING AND VALVES

Hydrostatic Test required ___YES _X_NO

If yes, list Line No. and boundary, pipe design pressure, test pressure and code references:

Line No. & Boundary	Pipe Class	Design Pressure	Test Pressure	Code
N/A				

If a hydrostatic test is not possible or practical to perform, specify an alternate means of testing piping integrity:

N/A

Piping Flush required ___YES _X_NO

If yes, list Line Nos. and boundary:

N/A

DATA SHEET 12

4. INSTRUMENTATION

Hydrostatic Test required ___YES _Y_NO

If yes, list instrument no., design pressure, test and code reference:

Instrument No.	Design Pressure	Test Pressure	Code
N/A			

If a hydrostatic test is not possible or practical to perform, specify an alternate means of testing tubing integrity: N/A

Instrument Tubing Flush required ___YES _Y_NO

Instrument Calibration required ___YES _Y_NO

If yes, specify the instrument Tag No., manufacturer & model numbers, setpoint, if applicable, and accuracy:

PTN/MPL	Manuracturer/Model No.	Setpoint	Code
N/A			

5. Non-Destructive Testing (NDT)

Specify NDT requirements (Radiographic, Magnetic Particle, Liquid Penetrant, Visual or Ultrasonic):

Visual Examination of all welds.

Sheet 4 of 4

DATA SHEET 12

6. FUNCTIONAL TESTING REQUIREMENTS

NOTE

Use additional 8½ in. x 11 in. sheets as necessary.

Functional requirement of design change: Reduce vibration of RHR Pump #2 by shifting natural frequency upward

Method of testing to verify functional requirements: Monitor pump vibration after DC is implemented. Ensure vibration has been lowered by installation of struts. Ref. MWO 19600[illegible]

Conditions needed to perform testing: RHR Pump Operating

Minimum acceptance criteria: Vibration levels are below (the) required limit of 3 mils at top of pump

Responsible Engr: [illegible] McChance Date: 3/22/96

Engineering Supervisor: [illegible] Date: 3/23/96

Data Sheet 12, Att 1

DCP 90-V1N0130-0-1
Other N/A

INSPECTION AND TESTING REQUIREMENTS

1. ELECTRICAL TESTING

N/A

Specify testing and inspections required for the following equipment (i.e., coupling alignment, vibration, run-in, etc.):

2. SPECIAL TESTS AND INSPECTION N/A

3. PIPING AND VALVES

a. Hydrostatic Test Required Yes X No

b. If a hydrostatic test is not possible or practical to perform, specify an alternate means of testing pressure integrity:

N/A

c. Piping Flush required ____ Yes X No

d. Baseline examination of piping/joints required for Inservice Inspection (ISI) Program ____ Yes X No

4. INSTRUMENTATION N/A

5. NONDESTRUCTIVE EXAMINATION (NDE)

Specify NDE requirements (Radiographic, Magnetic Particle; Liquid Penetrant, Visual or Ultrasonic):

Visual examination of all welds.

ORIGINAL

LDRE [signature] DATE 3/20/90

LDM [signature] DATE 3-21-90

PDM [signature] DATE 3-21-90

Sheet 1 of 2

DATA SHEET 13

EQUIPMENT QUALIFICATION

DCP NO. [illegible] REV 6 UNIT 1

NOTE

Additional 8½ x 11 in lined sheets may be used and attached as necessary.

1. Does the DCP include a list of materials and equipment and specifications? If NO, request additional information.

   YES X NO ____

2. Is the equipment safety-related or used for Post Accident Monitoring?

   YES Y NO ____

3. A. Equipment Specifics

   1. Description Addition to RHR Pump 1-B room cooler [illegible]

   2. Tag No. 1-1215-EB-EC2 3. Project Class 1E (Mech) EQ CC [illegible]

   4. Specification (EQDP) No. XEA415

   B. Installation - Seismic Qualification Impact

   (EQ Review required if any of the following is checked Yes)

	Yes	No
1. Is equipment relocated?	[ ]	[X]
2. Is line mounted equipment reoriented?	[ ]	[X]
3. Are supports, anchors, or foundations modified?	[X]	[ ]
4. Are minimum clearances violated?	[ ]	[X]
5. Are interface connections relocated/ modified?	[ ]	[X]
6. Is component added/modified?	[X]	[ ]

4. Provide the room number where modification will occur and determine if harsh or mild environment by referring to FSAR Table 3.11.B.1-1.

   Room No. VIII-R-D49H Harsh [X]
   Mild [ ]

Sheet 2 of 2

DATA SHEET 13

EQUIPMENT QUALIFICATION

5. Provide existing equipment information:

Manufacturer Everett Smith

Model Number 2132 WF

Specification X/A502

6. Provide new equipment information:

Manufacturer n/a

Model Number n/a

Specification n/a

7. Specifications for identified material/ equipment meet original design requirements and/or 10 CFR 50.49 as applicable? YES X NO ____
If NO, identify discrepancies and resolve.

Discrepancies: n/a

8. Are Standard commercial (off-the-shelf) items or items previously approved for different application listed? YES ____ NO X
If YES, attach evaluation for identified application.

Responsible Engr [signature] Date 3/22/90

Engr. Supv. [signature] Date 3/23/90

DS 13, Att

DCP 90-V1N0130-0-1
Other N/A

EQUIPMENT QUALIFICATION CHECKLIST

Brief Description of the Design Change:

This change will add additional strut support members to RHR pump motor 1-1205-P6-002-M01 to help reduce the vibration levels presently existing in the pump. A band constructed of 2"X 2"X 1/4" tube steel will be installed around the top area of the motor at the elevation of the lifting lugs. The end of the tube steel will be cut at an angle to make the corners. A 1/2" steel plate will be welded to the ends of the tube steel. The band will be connected at each corner and to the lifting lugs with bolts. The struts will be Bergen-Paterson struts and will connect to the steel plates at the corners of the tube steel band. An end bracket will be welded to an embed on the wall to connect the other end of the strut to the wall. A total of 5 struts will be installed.

1. A. Does the design change affect safety-related system? [X] Yes [ ] No
Identify the system name Residual Heat Removal (RHR)

B. Does the design change affect safety-related electrical, control or mechanical equipment?
[X] Yes [ ] No

If yes, identify the equipment: RHR Train B Pump
Name

1-1205-P6-002	VIII-R-D49H
Equipment Plant ID No.	Equipment Environmental Designator, (DC-1007)
X6AA15	212
Equipment Spec (EQDP) No.	Equipment Project Classification

Does the design change affect post accident monitoring system (PAMS) equipment, or process and effluent radiation monitor system (PERMS) equipment which is important to safety? [ ] Yes [X] No

If yes, identify the equipment: N/A
Name

N/A	N/A
Equipment Plant ID No.	Equipment Environmental Designator, (DC-1007)

N/A
Equipment Specification (EQDP) No.

ORIGINAL

Data Sheet 13, Att 1

DCP 90-V1N0130-0-1
Other N/A

EQUIPMENT QUALIFICATION CHECKLIST

C. Does the design change affect safety-related
BOP equipment? [ ] Yes [X] No
Westinghouse NSSS equipment? [X] Yes [ ] No
(x 6 specification)

D. Does the design change affect EQ Master List?
[ ] Yes [X] No

Note: If answers to 1A, 1B, 1C and 1D are No, then skip sections 2 through 10 and sign-off section 11 (LD) and 16 (EQ). If the design change is safety-related, complete the remaining sections 2 through 16.

2. The design change consists of the following (check boxes as appropriate).

[ ] Identical replacement of existing safety-related
[ ] Electrical/Control
[ ] BOP [ ] NSSS [ ] Equipment
[ ] PAMS [ ] PERMS [ ] Component

[X] Addition of new safety-related
[X] Mechanical
[ ] BOP [X] NSSS [X] Equipment
[ ] Active
[ ] Non-Active [ ] Component

[ ] Commercial grade replacement of existing safety-related

[ ] Deletion of existing safety-related

[ ] Relocation of existing safety-related

[ ] Reorientation of existing line mounted

[X] Modification of supports, anchors, or foundations of existing safety-related

[ ] Change in minimum clearance requirements for existing safety-related

ORIGINAL

Data Sheet 13.4.1

DCP 90-VJN0130-0-1
Other N/A

EQUIPMENT QUALIFICATION CHECKLIST

3. Provide the room number where modification will occur and determine if harsh or mild environment by referring to DC-1007 (latest revision)

Room No. VIII-R-D22 Harsh [X]
Mild [ ]

N/A

4. Provide existing equipment/component information:
Manufacturer Ingersoll-Rand
Model Number 8X20 WDF
Supplier Westinghouse
Specification & Rev. No. X6AF02
P. O. No. PAV-0002

5. Provide new equipment/component information:
Manufacturer N/A
Model Number N/A
Supplier N/A
Specification & Rev. No. N/A
P. O. No. N/A

ORIGINAL

Data Sheet 13441

DCP 90-V1N0130-0-1
Other N/A

EQUIPMENT QUALIFICATION CHECKLIST

6. [X] List the references (mo. dwg. no, log no., etc.) for original and proposed equipment/component which provides dimensional, weight, mounting, and material details.

NOTE

The LDRE is to provide those documents which are not contained in the DCP to the EQ group.

X6AF02-19-3

7. [ ] If component replacement, it will be mounted [ ] in N/A [ ] on the

N/A having N/A
Equipment Name Plant ID. No.

8. [X] Modified/relocated interface connections [ ] Yes [X] No
If yes, briefly describe here its impact on equipment/component qualifications.

Existing qualification documents indicate that enough margin exists to conclude that seismic loads due to struts will not consume available margin.

9. [ ] Modifies equipment safety-related function described below:

N/A

10. [X] Reference drawings for the equipment/component details and location are:
X6AF02-026-0, 1X4DE325 Rev. 17
VEGP Log No. and Rev. No.

11. [X] Reviewed: [signature] 3/20/90
Lead Discipline Responsible Engineer (LDRE) Date

[signature] 3/21/90
Lead Discipline Manager (LDM) Date

ORIGINAL

Data Sheet 13, Att. 1

DCP 90-V1N0130-0-1
Other N/A

EQUIPMENT QUALIFICATION CHECKLIST

12. [X] Specifications for identified material/equipment meet original design requirements and/or 10 CFR 50.49 as applicable?
[X] Yes [ ] No

If No, identify discrepancies and resolve.

Discrepancies: _____

Resolution: _____

13. [X] All the required qualification documentation was received, logged in the document control center, approved prior to its used in safety-related systems. Qualification of the aforementioned equipment/component is covered by the following EQ vendor reports.

Vendor letter approves modification (REF GP-14802)
VEGP Log Nos.

14. [ ] The aforementioned equipment modification has been marked on a copy of the existing X6AA15, EQDP No.

F.H.I (JMW-957)
Sections

15. [N/A] For the aforementioned new equipment for which an EQDP does not exist, new _____ was prepared.
EQDP No.

N/A

16. [X] Reviewed:

Billy R Gofforth Jr. — Equipment Qualification Seismic Engineer — Date 3/21/90

John Whelan — Equipment Qualification Environ. Engineer — Date 3/21/90

Dan Belanski — Civil Discipline Manager — Date 3/21/90

ORIGINAL

Data Sheet 15
Reviewed and Accepted [illegible]

DCP 90-V1N0130-0-1
Other N/A

HUMAN FACTORS CHECKLIST

PART 1 (APPLICABILITY)

	YES	NO
Is any instrumentation or controls equipment requiring operator observation or action affected by or added by this change?	[ ]	[X]

Note: Operator includes interfaces with equipment for operation and calibration.

If "yes", complete Part 2, if "no", sign and date below

PART 2 (HUMAN FACTORS ANALYSIS)

	YES	NO	NOT COVERED
1. Does this design change conform to NUREG-0700?	[ ]	[ ]	[ ]

If Yes, list applicable sections: _____

If No, provide justification: _____

	YES	NO	NOT COVERED
2. Does this design change conform to the FSAR Section 18.2?	[ ]	[ ]	[ ]

If No, provide justification: _____

ORIGINAL

DCP 90-V1N0130-0-1
Other N/A

HUMAN FACTORS CHECKLIST

3. If the design change is not covered by either NUREG-0700 or FSAR Section 18.2, list the applicable reference and section from:

   [ ] EPRI NP-4350 Human Engineering Design guidelines for maintainability, section: _____

   [ ] EPRI NP-1118 Human Factors method for Nuclear Control Room design: Section: _____

   [ ] Other (Give title) _____

4. What is the affect of Calibration Activities on system operation? _____

5. What is the affect of instrument failure on the operator? _____

6. Does the instrument require special installation considerations? Explain _____

7. Comments: _____

ORIGINAL

LDRE John Dave Swanby DATE 3/20/90

LDM R C Patrick DATE 3-21-90

ELECTRICAL/I&C DM Frank Bayram / W R Nicholson DATE 3/21/90 | 3/21/90

PDM [signature] DATE 3-21-90

[signature]
3/21/90

DCP 90-V1N0130-0-1
Other N/A

LIST OF MATERIALS

RESPONSIBLE DISCIPLINE(s) MECH/CIVIL

A. DESCRIPTION	B. QTY	C. PROJECT CLASS	D. SOURCE
Size-4 Field Welded Adjustable Rigid Strut Assembly (Bergen-Paterson Part No. 2252)	5 ea	01C	Field
Structural Attachment for Size-4 Strut (Bergen- Paterson Part No. 1000)	10 ea	01C	Field
1/2" Clevis Pin or Tapered Load Pin	10 ea	01C	Field
1/2"X 12"X 1'-0" Long Steel Plate (Cut To Suit) A-36 Material	16 ea	01C	Field
2"X 2"X 1/4"X 36" Long Tube Steel (Cut To Suit) A-500 Gr. B	4 ea	01C	Field
1/2"ϕ X 3" Long ASTM A193 GR B7 Threaded Bolt and Nut	8 ea	01C	Field
Hardened Washers for 1/2" Bolts	8 ea	01C	Field

ORIGINAL

DCP 90-V1N0130-0-1
Other N/A

LIST OF DRAWINGS

RESPONSIBLE DISCIPLINE(s) MECH//CIVIL

MODIFICATION DWG. NO.	NO. OF SHEETS	REV.	FINAL-AS-BUILT DWG. NO.	NO. OF SHEETS
S1-C-90-V1N0130-100	14	A	AX2D08G040	1

ORIGINAL

ORIGINAL

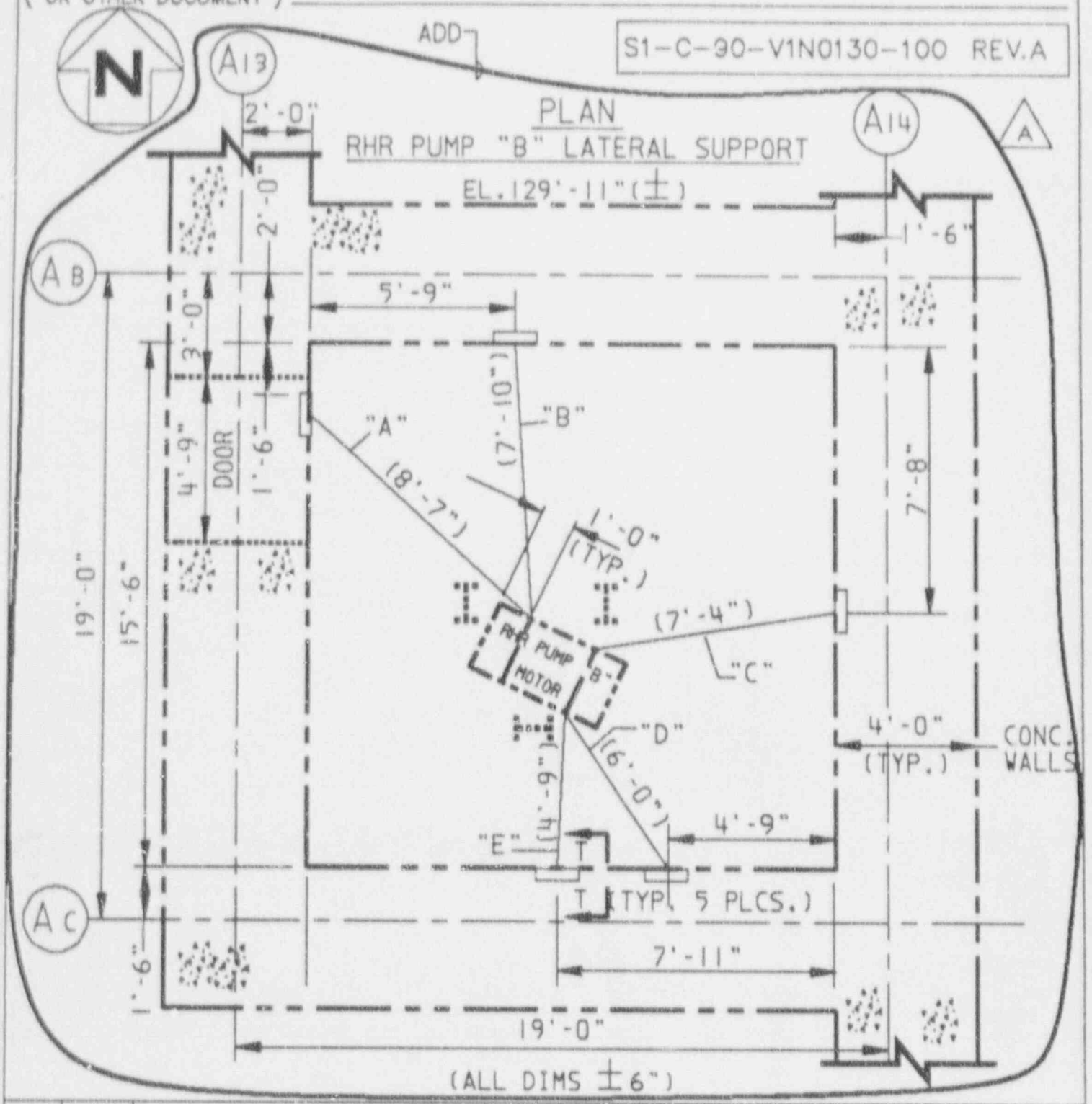
UNIT NO. 1 SHEET 1 OF 14 SHEETS

DCR NO. 90-V1N0130 REV. 0 APPLIES TO DRAWING NO. AX2D08G040 REV. 7

TITLE OF DRAWING AUXILIARY BLDG.-MISC STEEL SUPPORT-SHEET 1

(OR OTHER DOCUMENT)

S1-C-90-V1N0130-100 REV.A



REV	DATE	DESCRIPTION	DR	ORIG	CKR	DM	PDM
A	3-21-90	ISSUED PER DCP 90-V1N0130-0-1	HSK	PH	PT	PT	

ORIGINAL

UNIT NO. 1 SHEET 2 OF 14 SHEETS

DCR NO. 90-V1N0130 REV. 0 APPLIES TO DRAWING NO. AX2D08G040 REV. 7

TITLE OF DRAWING AUXILIARY BLDG.-MISC STEEL SUPPORT-SHEET 1

(OR OTHER DOCUMENT) _____

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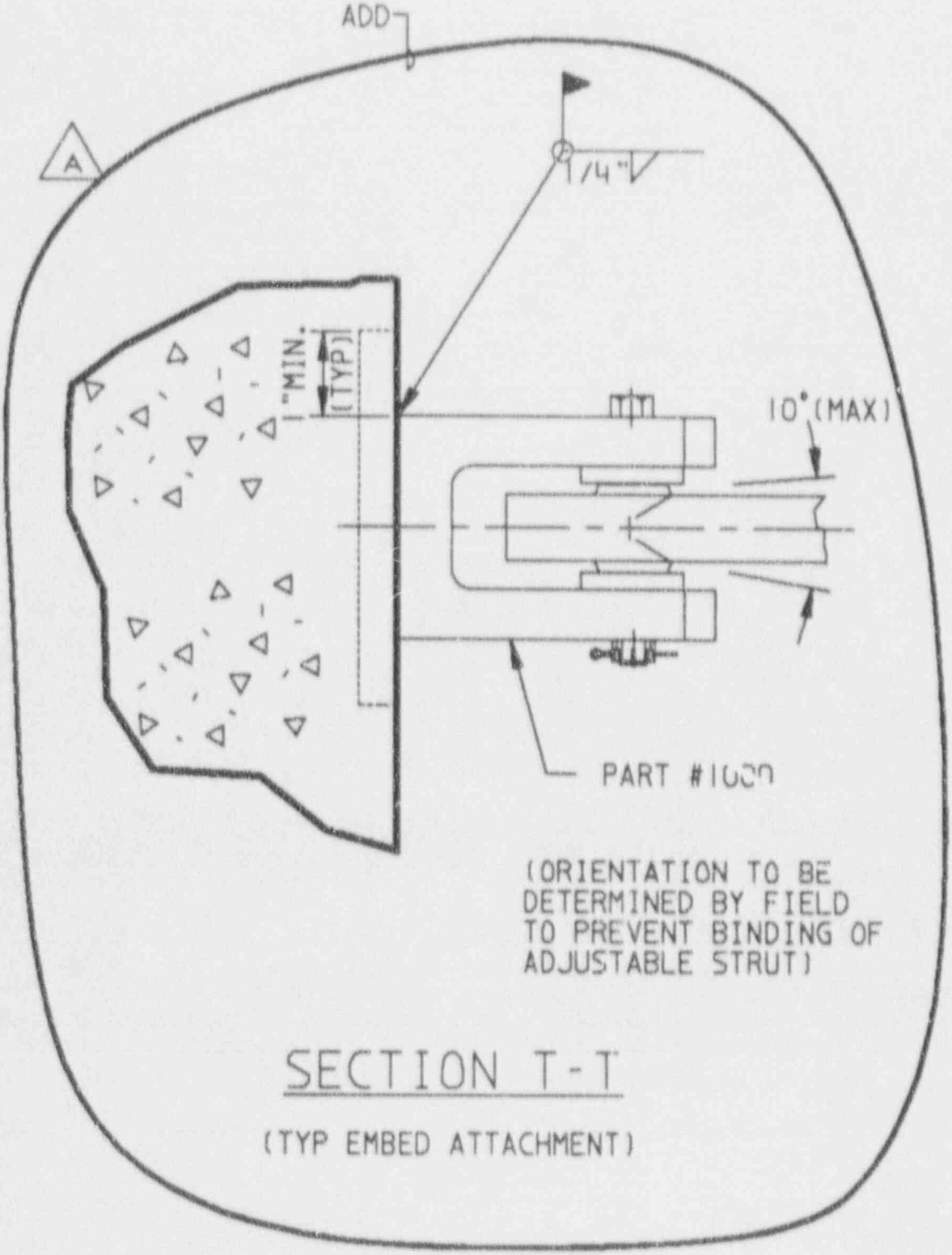

SECTION T-T

(TYP EMBED ATTACHMENT)

ORIGINAL

UNIT NO. 1 SHEET 3 OF 14 SHEETS

DCR NO. 90-V1N0130 REV. 0 APPLIES TO DRAWING NO. AX2D08G040 REV. 7

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(OR OTHER DOCUMENT)

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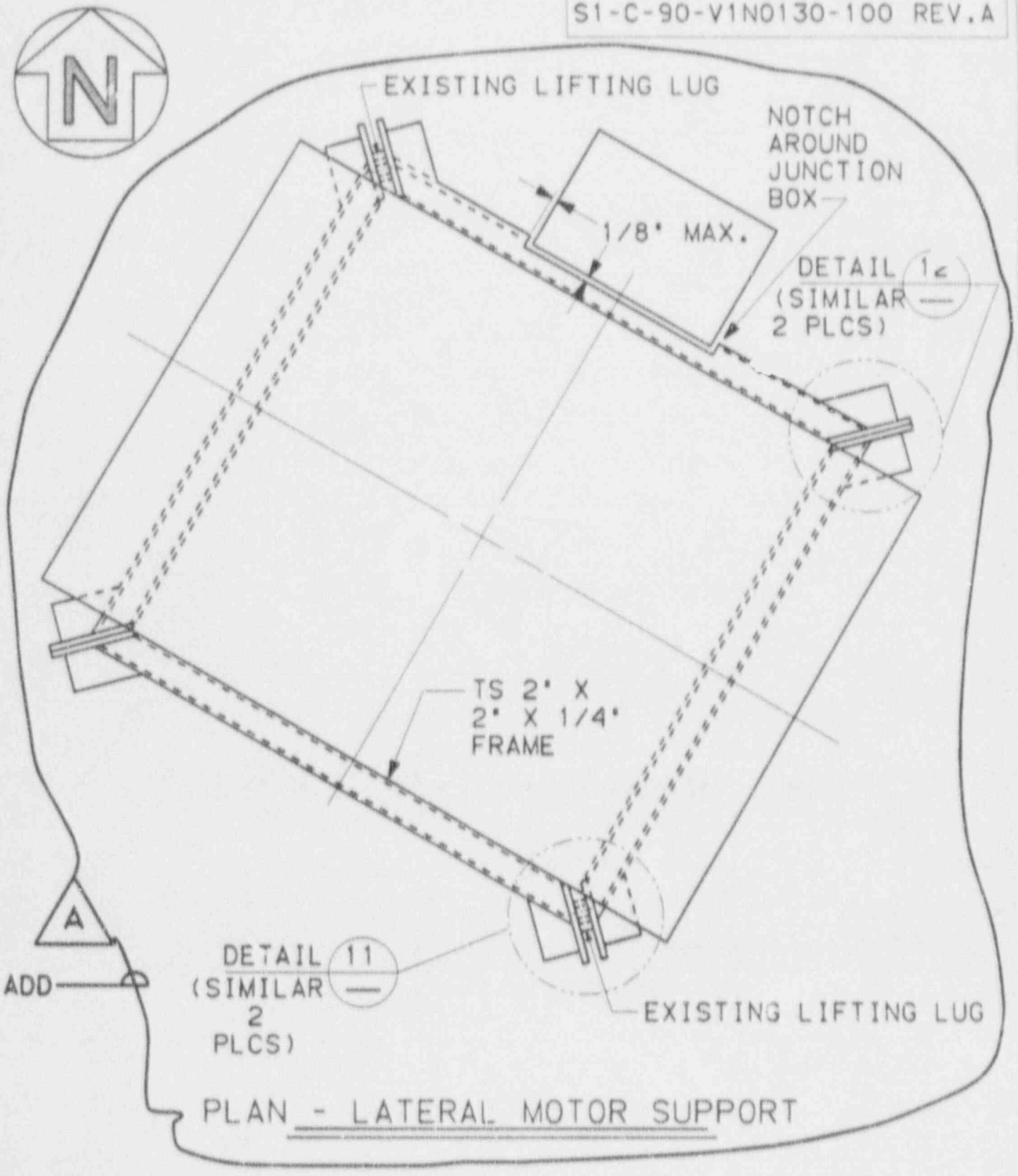


PLAN - LATERAL MOTOR SUPPORT

ORIGINAL

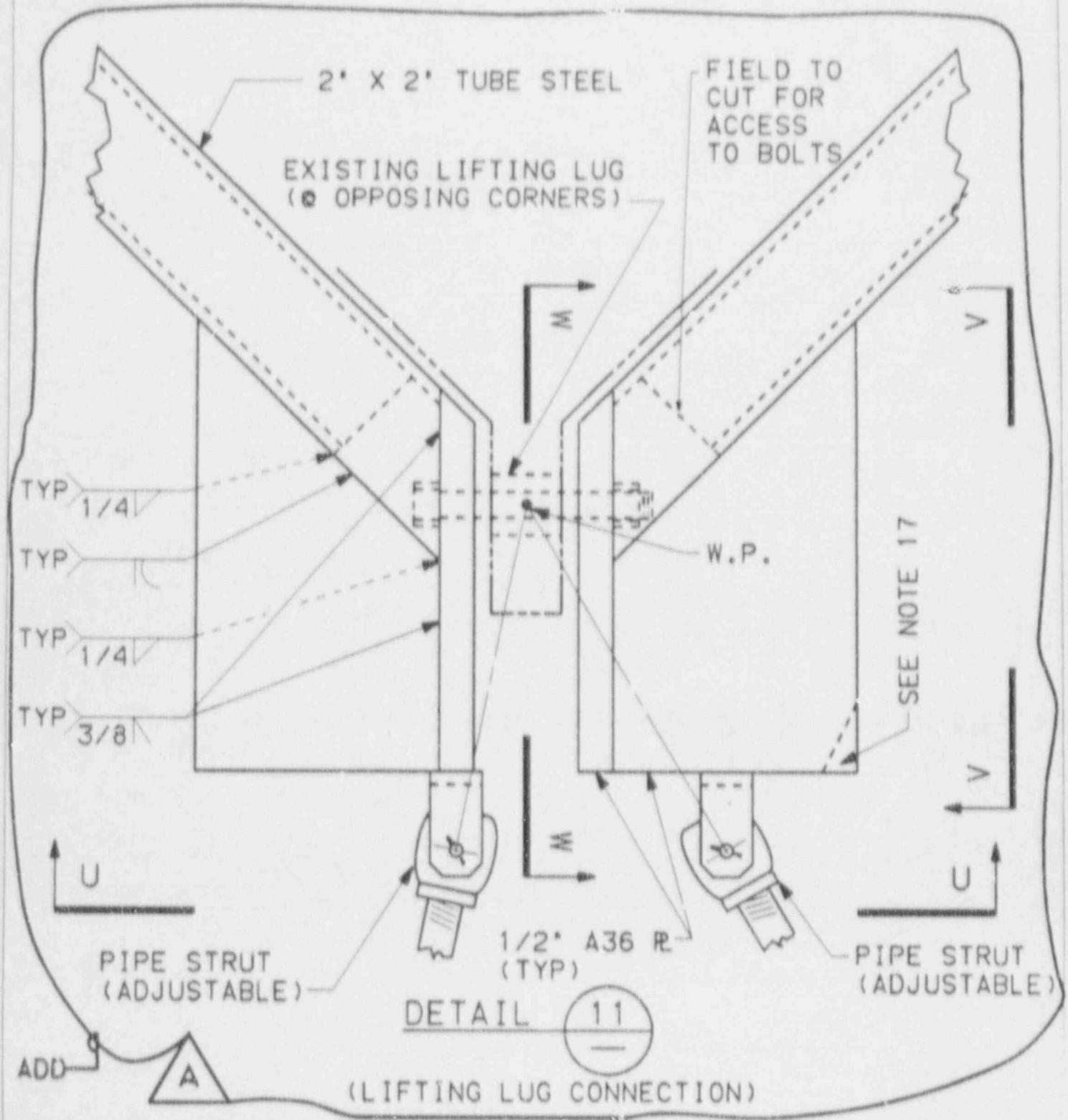
UNIT NO. 1 SHEET 4 OF 14 SHEETS

DCR NO. 90-V1N0130 REV. 0 APPLIES TO DRAWING NO. AX2D08G040 REV. 7

TITLE OF DRAWING AUXILIARY BLDG MISC STEEL SUPPORT SHEET 1

(OR OTHER DOCUMENT)

S1-C-90-V1N0130-100 REV.A



ORIGINAL

UNIT NO. 1 SHEET 5 OF 14 SHEETS

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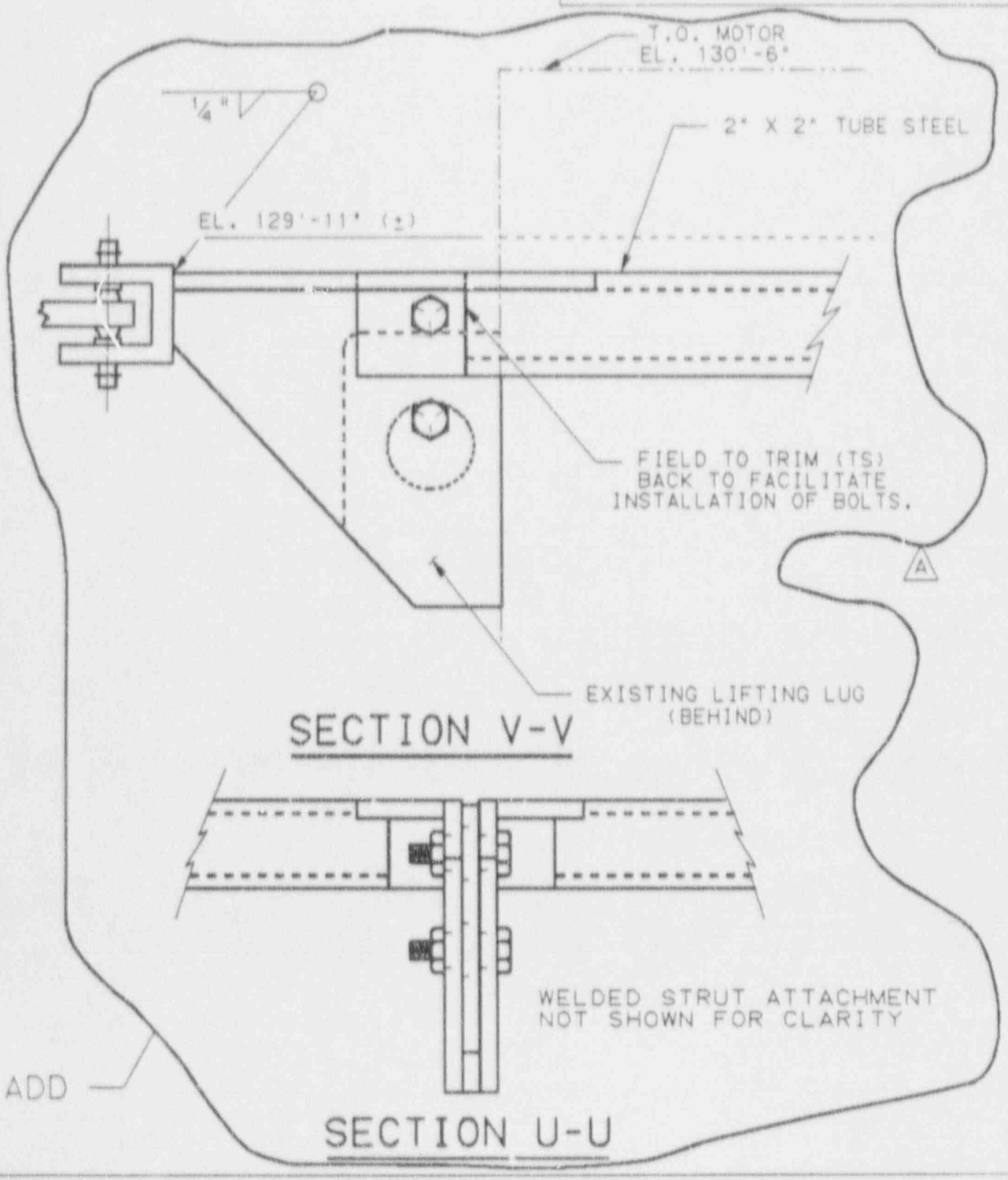
TITLE OF DRAWING AUXILIARY BLDG. MISC. STEEL SUPPORT SHT. 1

(OR OTHER DOCUMENT)

S1-C-90-V1N0130-100 REV.A



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UNIT NO. 1 SHEET 5 OF 14 SHEETS

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TITLE OF DRAWING AUXILIARY BLDG. MISC. STEEL SUPPORT SHT. 1

(OR OTHER DOCUMENT)

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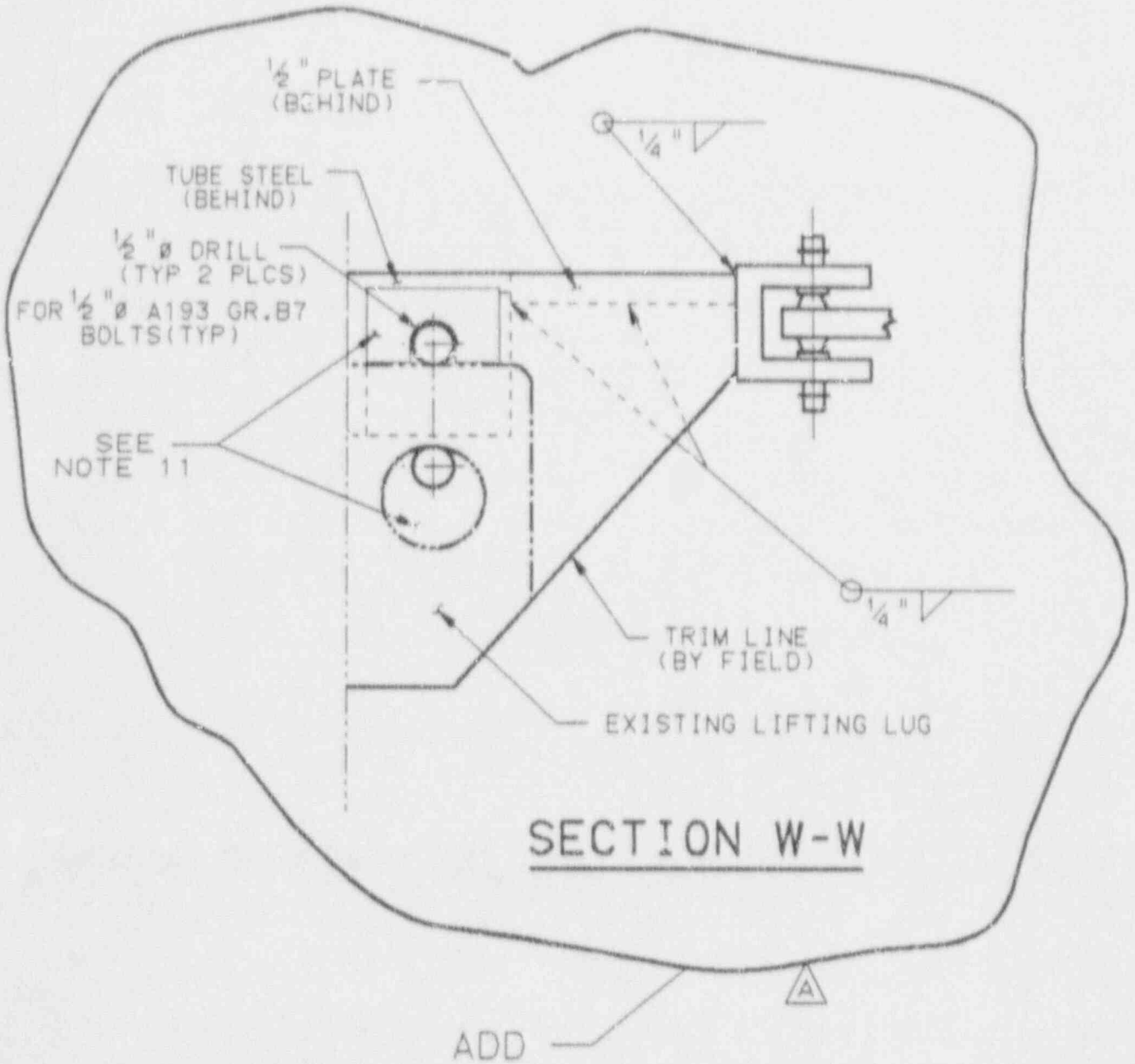

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ORIGINAL

UNIT NO. 1 SHEET 7 OF 14 SHEETS

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TITLE OF DRAWING AUXILIARY BLDG MISC STEEL SUPPORT SHEET 1

(OR OTHER DOCUMENT)

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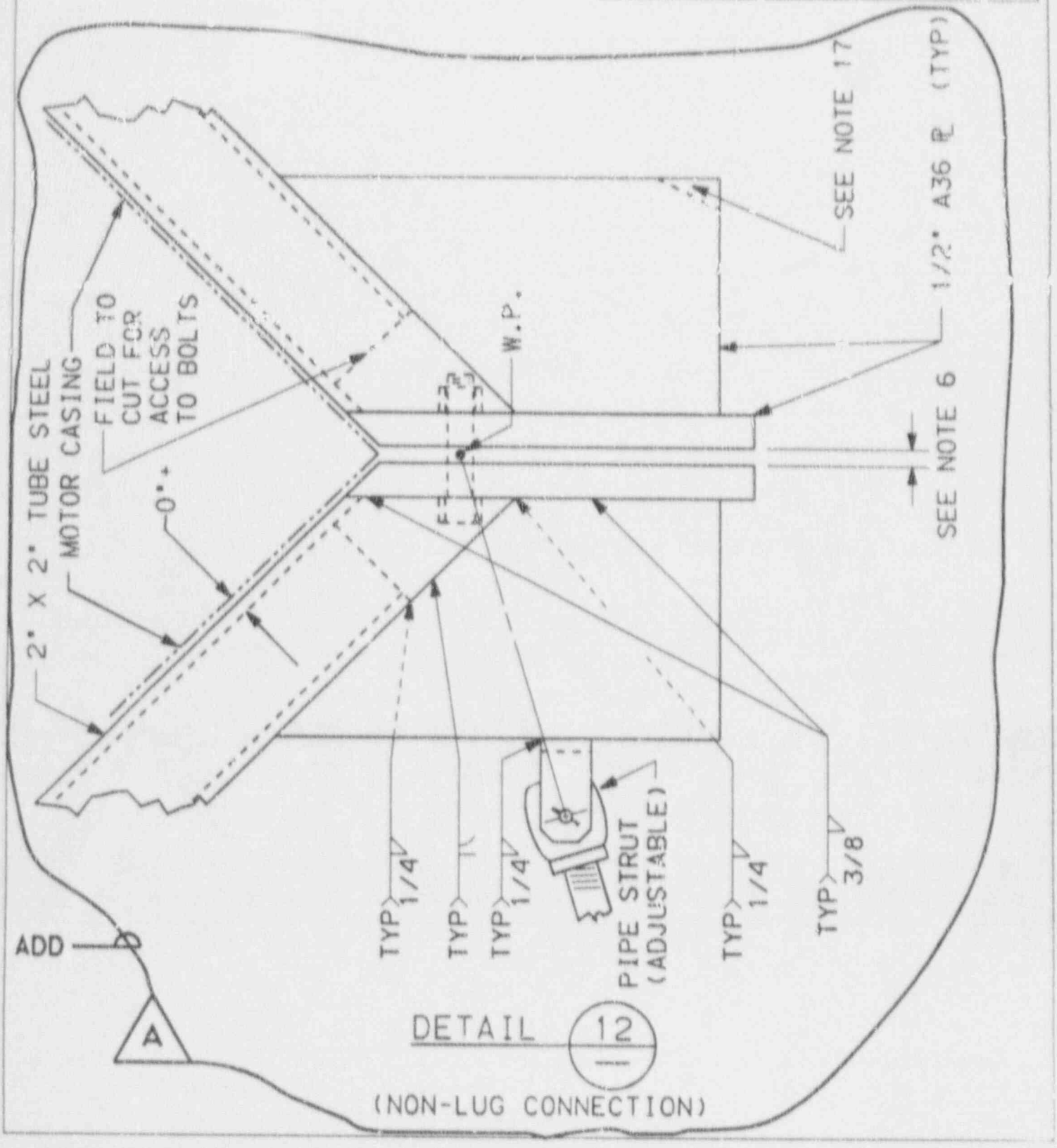

DETAIL 12/1

(NON-LUG CONNECTION)

ORIGINAL

UNIT NO. 1 SHEET 8 OF 14 SHEETS

DCR NO. 90-V1N0130 REV. 0 APPLIES TO DRAWING NO. A-X2D080040 REV. 7

TITLE OF DRAWING AUXILIARY BLDG. MISC STEEL SUPPORT SHEET

(OR OTHER DOCUMENT)

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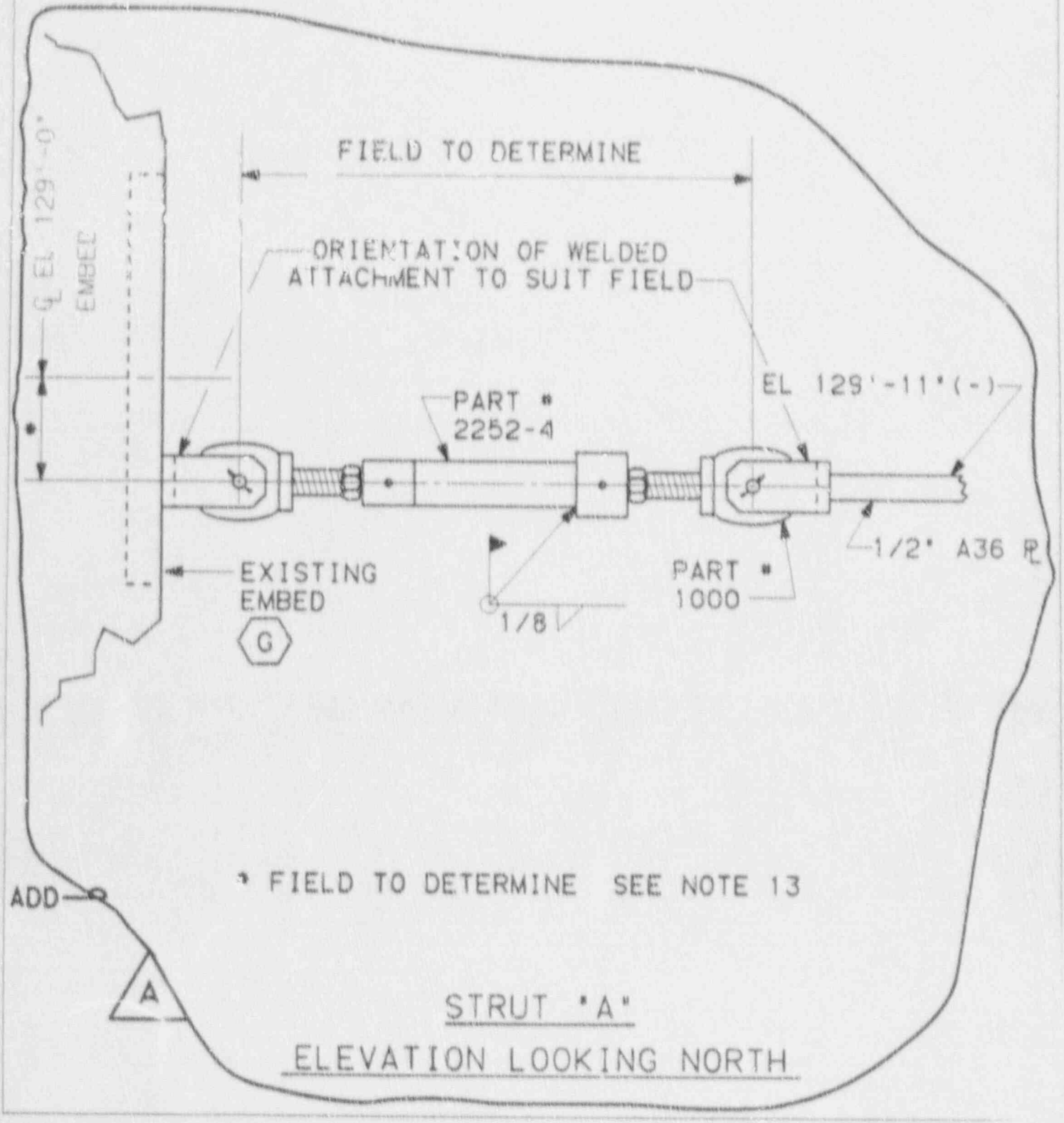

ORIGINAL

UNIT NO. 1 SHEET 9 OF 14 SHEETS

DCR NO. 90-V1N0130 REV. 0 APPLIES TO DRAWING NO. AX2D08G040 REV. 7

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(OR OTHER DOCUMENT)

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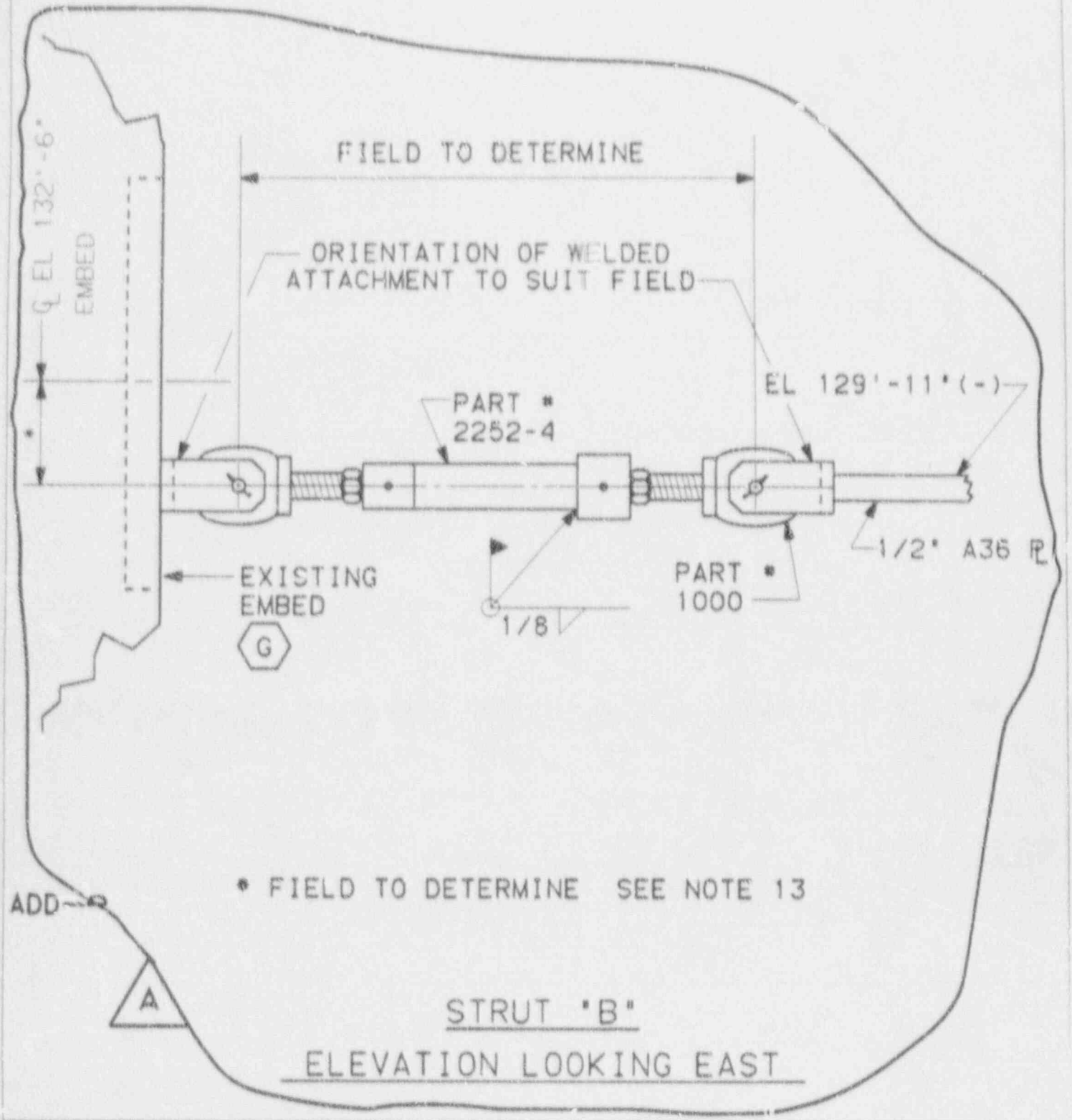


ORIGINAL

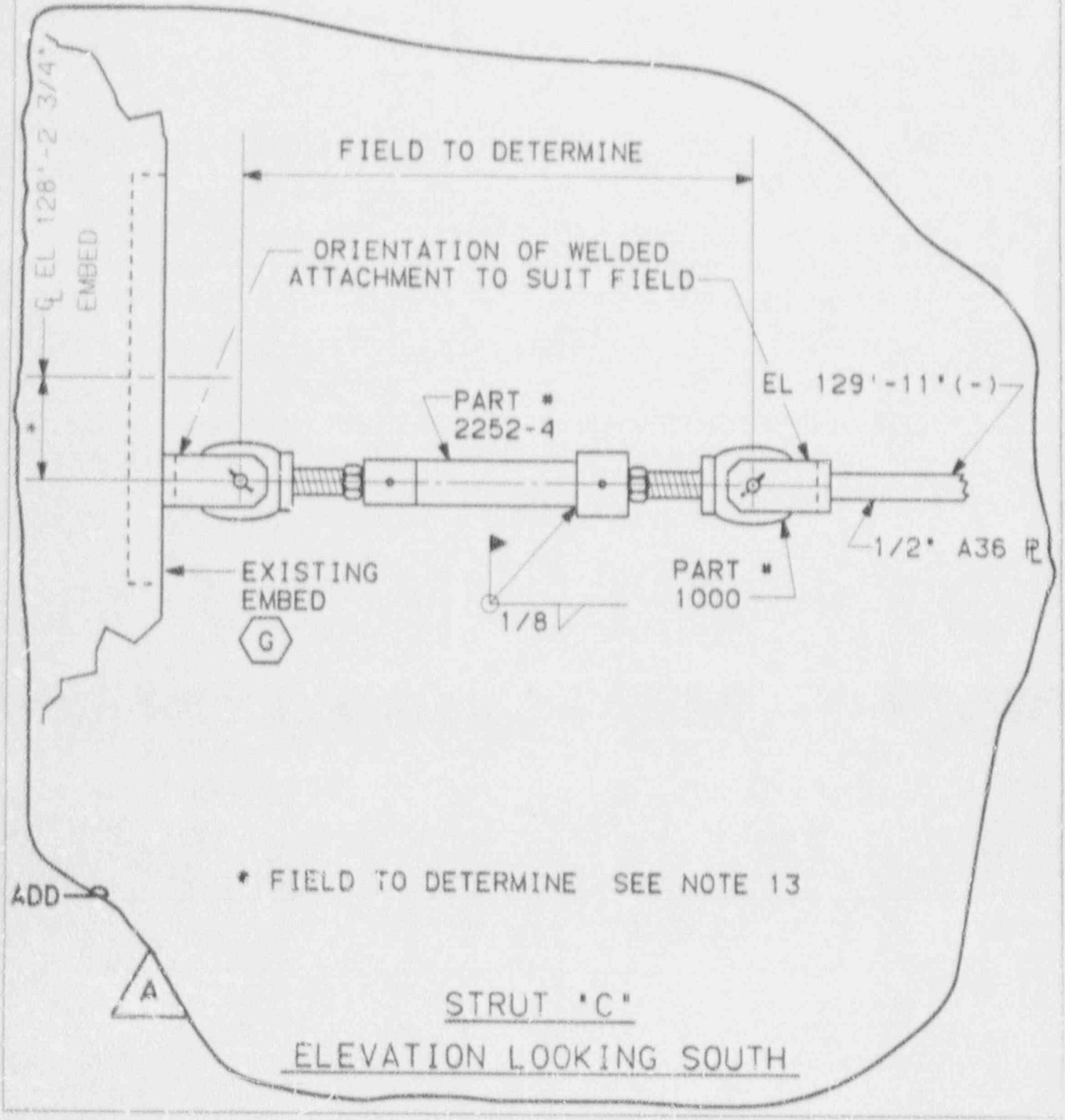
UNIT NO. 1 SHEET 10 OF 14 SHEETS

DCR NO. 90-V1N0130 REV. 0 APPLIES TO DRAWING NO. AX2D08G040 REV. 7

TITLE OF DRAWING AUXILIARY BLDG. MISC STEEL SUPPORT SHEET 1

(OR OTHER DOCUMENT)

S1-C-90-V1N0130-100 REV.A



ORIGINAL

UNIT NO. 1 SHEET 11 OF 14 SHEETS

DCR NO. 90-V1N0130 REV. 0 APPLIES TO DRAWING NO. AX2D08GG40 REV. 7

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(OR OTHER DOCUMENT)

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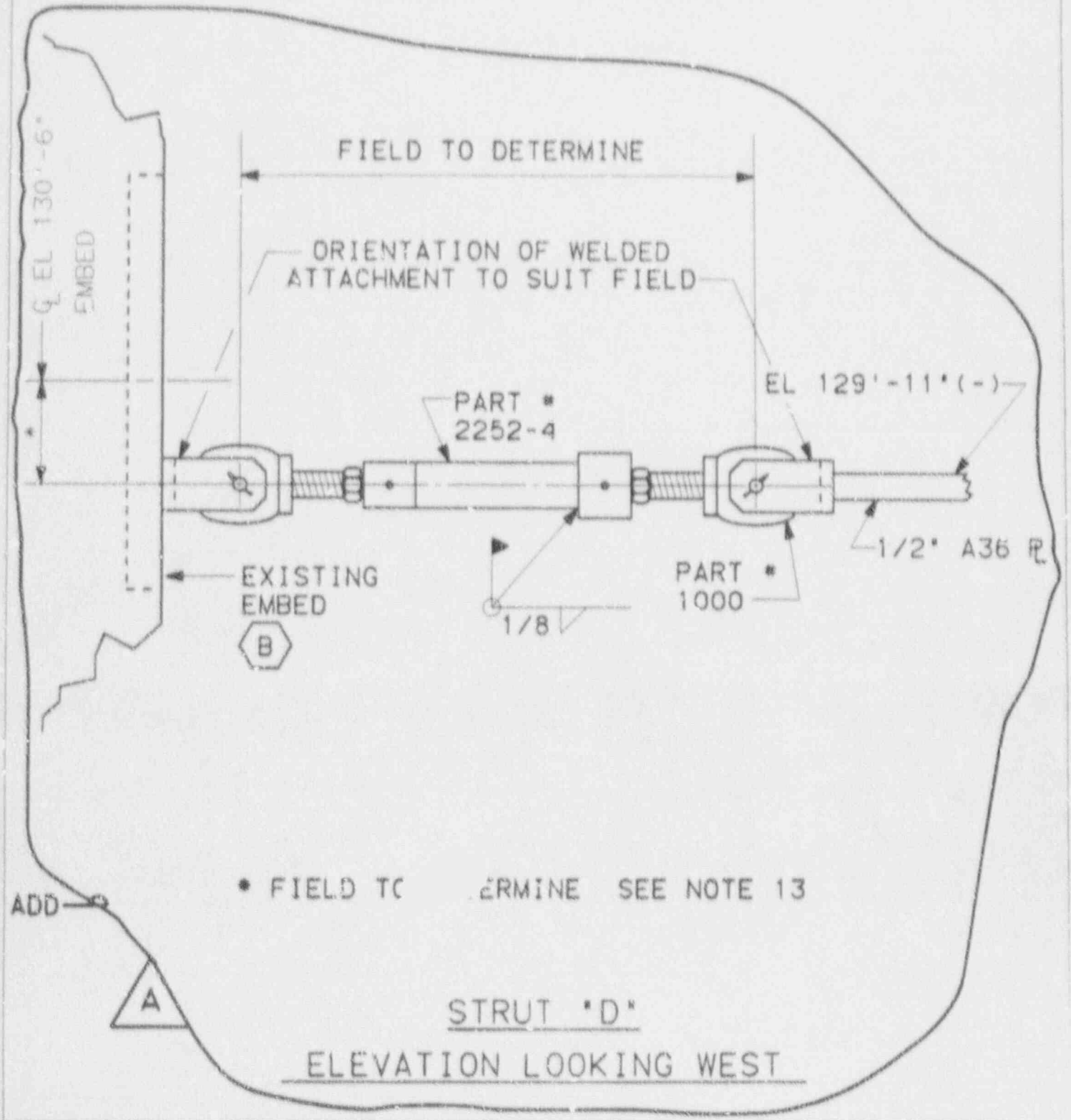


STRUT "D"

ELEVATION LOOKING WEST

ORIGINAL

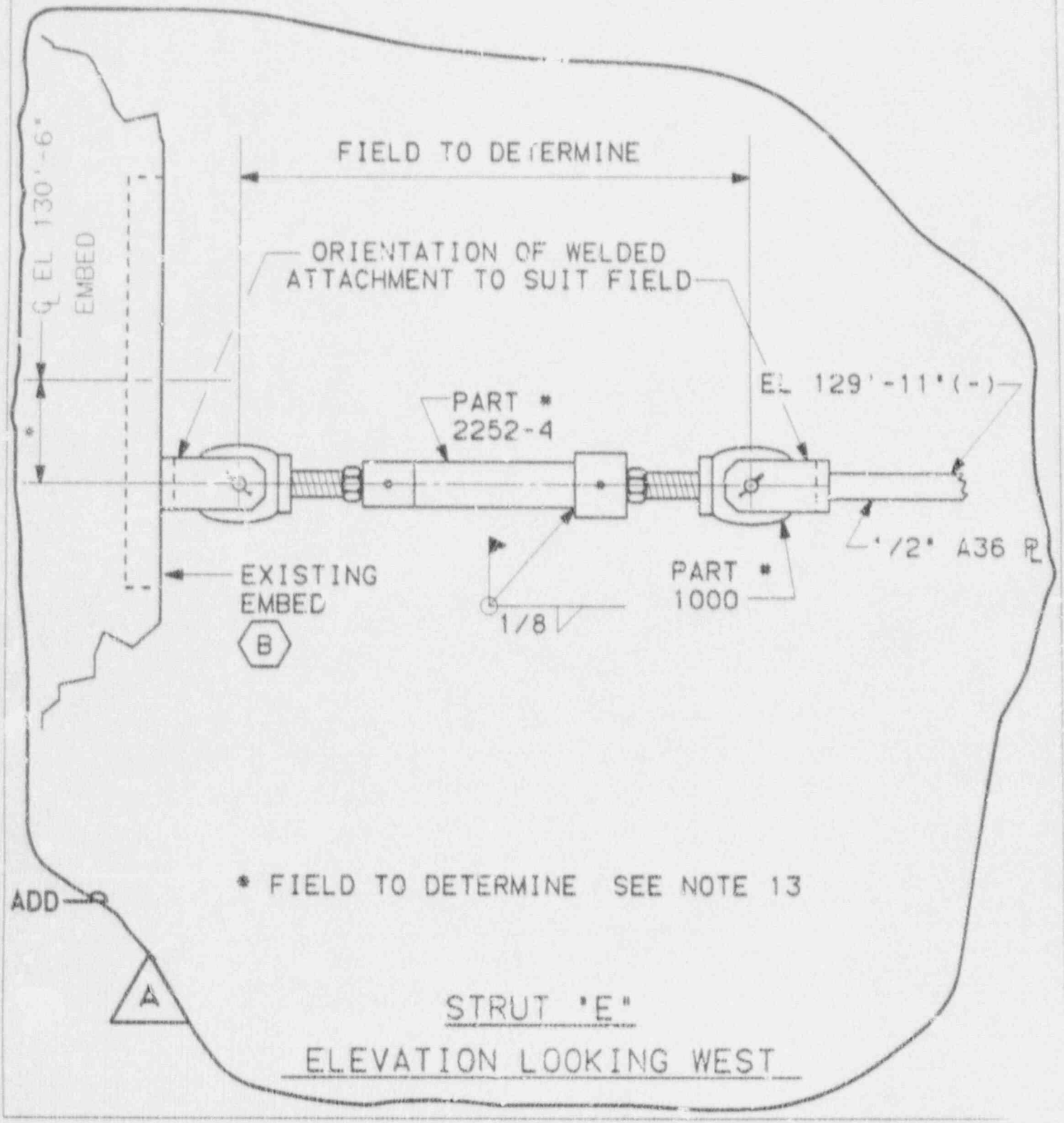
UNIT NO. 1 SHEET 12 OF 14 SHEETS

DCR NO. 90-V1N0130 REV. 0 APPLIES TO DRAWING NO. AX2D08G040 REV. 7

TITLE OF DRAWING AUXILIARY BLDG. MISC STEEL SUPPORT SHEET 1

(OR OTHER DOCUMENT)

S1-C-90-V1N0130-100 REV.A



ORIGINAL

UNIT NO. 1 SHEET 13 OF 14 SHEETS

DCR NO. 90-V1N0130 REV. 0 APPLIES TO DRAWING NO. AX2D08G040 REV. 7

TITLE OF DRAWING AUXILIARY BLDG.-MISC STEEL SUPPORT-SHEET 1

(OR OTHER DOCUMENT) _____

ADD A

S1-C-90-V1N0130-100 REV.A

(NOTES 6 THRU 19 APPLY TO RHR PUMP B LATERAL SUPPORT)

NOTES:

6. FOR CONNECTION AT NON-LUG CORNER OF MOTOR, FIT-UP TO REQUIRE 3/16"GAP PRIOR TO TORQUING OF 1/2 Ø BOLTS.

7. NON-LUG CONNECTIONS TO BE LAST DETAIL TO FIT-UP.

8. FIELD TO TORQUE 1/2" Ø A193 GR.B7 BOLTED CONNECTION TO APPLICABLE PLANT PROCEDURE. X4AZ01 (TORQUE 86 FT.-LBS.).

9. FIELD DRILL 1/2" Ø HOLES IN FLANGE PLATES. TO INSURE TIGHT FIT FOR 1/2"Ø BOLTS.

10. FIELD TO REMOVE PAINT ON LUGS FOR PREPARATION OF HIGH STRENGTH BOLTING.

11. FIELD TO ADD 3/8" FILLER PLATE WITH 1/2" Ø DRILL. FIELD TO MAINTAIN CLEARANCE TO PREVENT BINDING OF FILLER PLATE DURING TORQUING SEQUENCE. AFTER PROPER TORQUING THE FILLER P MUST BE TACK WELDED TO THE VERTICAL 1/2" PLATE (SEE SECTION U-U).

12. FIELD TO TRIM 2"X 2"TUBE STEEL AS REQUIRED TO CLEAR INTERFERENCES. NOT TO EXCEED 1/4" CLEARANCE.

13. FIELD TO LOCATE WELDED ATTACHMENT TO FACILITATE LEVEL INSTALLATION OF STRUT (±6").

ORIGINAL

UNIT NO. 1 SHEET 14 OF 14 SHEET

DCR NO. 90-V1N0130 REV. 0 APPLIES TO DRAWING NO. AX2D08G040 REV. 7

TITLE OF DRAWING AUXILIARY BLDG.-MISC STEEL SUPPORT-SHEET 1

(OR OTHER DOCUMENT)

ADD-A

S1-C-90-V1N0130-100 REV.A

14. FIELD TO ESTABLISH THE ORIENTATION AND ALIGNMENT OF MOTOR HOUSING USING FOUR (4) DIAL INDICATORS LOCATED IN BOTH X AND Y PLANES AT EACH QUADRANT AT THE TOP OF PUMP MOTOR. BEFORE PRETENSIONING OF ANY STRUTS:

A- INSTALL AND ALIGN ALL STRUTS LOOSELY.

B- START HAND TIGHTENING EACH STRUT, AND AT ALL TIMES OBSERVE THE LOCATION AND ALIGNMENT OF PUMP MOTOR AS ESTABLISHED ABOVE BY DIAL INDICATORS (ZERO TOLERANCE).

C- IF THE ALIGNMENT IS DEVIATING FROM ITS ORIGINAL LOCATION; STOP TIGHTENING THAT PARTICULAR STRUT, AND LOOSEN UNTIL THE PUMP GOES BACK TO ITS ORIGINAL LOCATION.

D- REPEAT STEPS B AND C ABOVE UNTIL ALL STRUTS ARE PRETENSIONED SO THAT THERE IS NO PLAY IN "PART 1000" PIN. ALL STRUTS TO BE TORQUED TO A VALUE OF 5-25 FT.-LBS.

15. JAM NUTS SHOULD BE TORQUED TO 80 FT.-LBS. AFTER PRETENSION SEQUENCE.

16. PART #1000 ON DETAILS 11 AND 12 SHOULD BE MOVED ALONG PLATE TO MAINTAIN LINE OF FORCE OF PIPE STRUT.

17. FIELD TO TRIM CORNERS AS REQUIRED TO CLEAR INTERFERENCES.

18. INSTALLATION TO BE COATED PER SPEC. X1AJ14.

19. CAUTION: IT MUST BE NOTED THAT ONE END OF EACH MEMBER (2X2 TS) GOING THROUGH THE OPENINGS NEXT TO COOLERS MUST BE FABRICATED IN PLACE AFTER THE MEMBER HAS BEEN INSERTED INTO THE OPENING (TOTAL OF 2 MEMBERS).

DCP 90-V1N0130-0-1
Other N/A

DCP CHECKLIST

DCR 90-V1N0130 Rev. 0

Lead Discipline Mechanical

DCP -
Support Discipline(s) Civil

	Included Yes/No	Submitted by Letter(s) No.
o Narrative Design Summary	Yes	SG-8953
o Hazards Evaluation	Yes	SG-8953
o Safety Evaluation	Yes	SG-8953
o Environmental Checklist/Evaluation	Yes	SG-8953
o Fire Protection/Safe Shutdown Review	Yes	SG-8953
o Security System Review	Yes	SG-8953
o ALARA Checklist	Yes	SG-8953
o Inspection & Testing Requirements	Yes	SG-8953
o Equipment Qualification Checklist	Yes	SG-8953
o In-Service Inspection Checklist	Yes	SG-8953
o In-Service Inspection/Testing Evaluation	Yes	SG-8953
o Human Factors Checklist	Yes	SG-8953
o List of Materials	Yes	SG-8953
o List of Drawings	Yes	SG-8953

ORIGINAL

DCP ATTACHMENTS: Support Documents

DCP INTERDISCIPLINE REVIEWS

LDRE [signature] Date 3/20/90 SDRE(s) [signature] Date 3/21/90

Mechanical [signature] Date 3/21/90 Nuclear Safety [signature] Date 3-21-90

Electrical/I&C [signature] Date 3/21/90 Civil [signature] Date 3/21/90

DCP CHECKLIST

Information Only:

1.	Affects Simulator	(Yes/No)	No
2.	Software changes for the Proteus Computer (System 1618), Emergency Response Facilities Computer (System 2701) or the Plant Safety Monitoring System Computer (System 1623)?	(Yes/No)	No
3.	Affects Derated Embeds?	(Yes/No)	No
4.	Is W Concurrence Required?	(Yes/No)	Yes
	Letter Number GP-14802		
5.	FSAR Change Required:	(Yes/No)	No
6.	Security Plan Change Required:	(Yes/No)	No
7.	Technical Specification Change Required:	(Yes/No)	No
8.	Further ALARA Evaluation Required by Health Physics	(Yes/No)	Yes
9.	Affects Protective Relays:	(Yes/No)	No
10.	Affects Project Q-List	(Yes/No)	No
11.	Affects Safety-Related or PAMS or PERMS equipment. (Equipment qualification data package change may be required)	(Yes/No)	Yes
12.	Fuse list change/addition required?	(Yes/No)	No
13.	EE580 Design Change Required	(Yes/No)	No
14.	Change initiated and/or implemented on alternate unit.	(Yes/No)	No
15.	Reference: List related REAs and DCRs		

N/A

ORIGINAL

DCP SUPPORT DOCUMENT LIST

DESIGN CHANGE REQUEST

LEAD DISCIPLINE Mechanical
Rev. 0
Page 1 of 1

DCR NO. 90-V1N0130
DCP 90-V1N0130-0-1
Other N/A

This package shall be filed in the subject DCR file.

The following identified support documents shall be completed for each submittal of the subject DCP as required:

	Document Description	Included Yes/No	Submitted by Letter(s) No.
1.	DCP Calculation Record	Yes	SG-8953
2.	Design Input Record	Yes	SG-8953
3.	Design Verification Record	Yes	SG-8953
4.	Lead/Support Discipline DCP Review Sheet	Yes	SG-8953

Previous Related DCP-Letters

The following documents are also included in the support package:

	Document Description	Pertains to Letter(s) No.
1.	Westinghouse Ltr. GP-14802	SG-8953
2.		
3.		
4.		

NOTES:

ORIGINAL

DCP CALCULATION RECORD

Lead Discipline Mechanical Support Discipline(s) C.
Page 1 of 1 DCR. No. 90-V1N0130 Rev. 0
Other N/A DCP 90-V1N0130-0-1

Calculations have been prepared by the following disciplines:

	M	E/I&C	C
Yes			X
No	X	X	

The following existing calculations support this DCR without revision: N/A

Disc.	Calc. No.	Rev.	Title

The following modification calculations were developed and approved to support this DCR:

Disc.	Calc. No.	Rev.	Title
C	M-X2CK4.0.2	A1	RHR Pump Support

E/I&C NA Date _____ M N/A Date _____

C P Hsu Date 3/21/90 N N/A Date _____

LDRE John Steve Hayley DATE 3/20/90

LDM R E Patrick DATE 3-21-90

ORIGINAL

DCP 90-V1N0130-0-1
Other N/A

DESIGN INPUT RECORD

LEAD DISCIPLINE Mechanical SUPPORT DISCIPLINES Civil
Summary of the scope of this Design Change Package (Add additional sheets or sketches as required):

This change will add additional strut support members to RHR pump motor 1-1205-P6-002-M01 which will move the natural frequency of the pump/motor structure further from the operating speed of the pump/motor and therefore reduce the vibration caused by resonance. A band constructed of 2"X 2"X 1/4" tube steel will be installed a ound the top area of the motor at the elevation of the lifting lugs. The end of the tube steel will be cut at an angle to make the corners. A 1/2" steel plate will be welded to the ends of the tube steel. The band will be connected at each corner and to the lifting lugs with bolts. The struts will be Bergen-Paterson struts and will connect to the steel plates at the corners of the tube steel band. An end bracket will be welded to an embed on the wall to connect the other end of the strut to the wall. A total of 5 struts will be installed.

ORIGINAL

Applicable Design Bases: _____

Design Criteria, Sections: DC-1205, DC-1000C, DC-1005
DC-1000M, DC-1011

Codes and Standards not included in Design criteria:
(include effective dates) N/A
Applicable FSAR Sections: 3.2, 3.7, 3.9, 3.10, 5.4, 7.4
Applicable Technical Specifications: 3/4.3.3, 3/4.4, 3/4.5, 3/4.9

Is design criteria manual change required?
[ ] YES [X] NO

Is FSAR change required?
[ ] YES [X] NO

Is technical specifications change required?
[ ] YES [X] NO

DCP 90-V1N0130-0-1
Other N/A

DESIGN INPUT RECORD

DESIGN REQUIREMENTS
This change involves the following special requirements (check all Applicable)

___Class 1E cables

___Fire Protection Safe Shutdown cables

___Safety-Related piping or tubing

_X_Safety-Related Components

Additional Design Requirements as Applicable in accordance with paragraph E of PVOSPPM Procedure 10604.4-1.

Design Input is Complete/Adequate:

LEAD DISCIPLINE:

LDRE [signature] DATE 3/20/90 LDM [signature] DATE 3/21/90

SUPPORT DISCIPLINES:

	RE	DATE	DM	DATE
Mechanical	N/A		N/A	
Electrical/I&C	N/A		N/A	
Civil	HBP	3/21/90	PT	3/21/90
Other				
Nuclear Safety	[illegible]	3-21-90		

ORIGINAL

DCP 90-V1N0130-0-1
Other N/A

DESIGN VERIFICATION RECORD

LEAD DISCIPLINE Mechanical SUPPORT DISCIPLINES Civil

The extent of the design verification required is a function of the importance to safety of the item under consideration, the complexity of design, the degree of standardization, the state of the art, and the similarity with previously proven designs.

DESIGN VERIFICATION METHOD: (Check appropriate boxes)

[X]	Design Review	[ ]	Alternate Calculation
[X]	First Level	[ ]	Qualification Test
[ ]	Second Level	[ ]	Other (Specify)

Were any undocumented assumptions necessary to complete this design?
Yes _____ No X If yes, list assumptions and provide justification (use additional sheets as required)

Summary of Verification in accordance with paragraph J of PVOSPPM procedure 010604.4-9.

The additional strut installation was designed in accordance with the appropriate design inputs which were correctly identified in the design input record. The struts will move the natural frequency of the Pump/Motor structure further from the operating speed of the Pump/Motor and therefore reduce vibration caused by resonance. Based on Westinghouse letter GP-14802, the struts will not adversely impact the seismic qualification of the Pump/Motor.

Evaluation of effects of this design on the overall original structural system/component/plant design:

This design change will have no effect on the overall original structural system, component, or plant design.

ORIGINAL

DESIGN VERIFICATION RECORD

VERIFICATIONS

This change has been critically reviewed and evaluated in accordance with the verification method identified. All requirements of the affected system/structure have been judged to satisfactorily conform to the appropriate design criteria, and adequate assurance is given that the system/structure will perform its intended function.

DISCIPLINE	(RE) VERIFIER	DATE	(DM) APPROVAL	DATE
Mechanical	[signature]	3-21-90	[signature]	3/4/90
Electrical/I&C	N/A		N/A	
Civil	[signature]	3/21/90	[signature]	3/21/90
Other (specify)				
Nuclear Safety	[signature]	3-21-90		

ORIGINAL

DCP 90-VIN0130-0-1
PAGE 1 of 2

GP-14802

Westinghouse Electric Corporation Energy Systems

Box 355
Pittsburgh Pennsylvania 15230-0355

March 21, 1990

Mr. C. K. McCoy
Vice President, Nuclear Vogtle Project
Georgia Power Company
P. O. Box 1295
Birmingham, AL 352C1

VOGTLE ELECTRIC GENERATING PLANT
UNITS 1 AND 2
RHR Pump Qualification

Dear Mr. McCoy:

Westinghouse Equipment Qualification and Testing has reviewed existing qualification documents for the Vogtle RHR pump and motor to determine if the addition of sway struts near the top of the motor invalidates previously established seismic and operability qualification. Addition of the struts will increase the system (motor, pump and support structure) natural frequency as well as cause a redistribution of seismic loads throughout the pump/motor assembly.

The existing qualification documents indicate that enough margin exists to conclude that the increase or redistribution of seismic loads due to the sway struts will not consume the available margin. Operability and seismic qualification will be maintained. Seismic responses (i.e. stresses, deflections) will change and need to be evaluated and documented to support this conclusion.

ORIGINAL

Sincerely,

WESTINGHOUSE ELECTRIC CORPORATION

E. Kurt Hacker

J. L. Tain, Manager
Southern Company Projects

0940C:jmr/032190

DCP 90-VIN0130-0-1
PAGE 2 of 2

GP-14802

cc: C. K. McCoy 1L
E. F. Cobb 1L
NORMS (Vogtle Site) 1L
G. L. Greenwood 1L
P. D. Rushton 1L
G. Bockhold, Jr. 1L
L. A. Ward 1L
R. Bush 1L
P. Hsu 1L
W. C. Ramsey 1L

ORIGINAL

0940C:mmr/032190

DCR No. 90-V1N0130 Rev. 0 Unit No. 2
Other N/A DCP 90-V1N0130-0-1

LEAD/SUPPORT DISCIPLINE DCP REVIEW SHEET

		(Yes or N/A)
A.	**Administrative Matters**	
	1. Transmittal letter w/current distribution	Yes
	2. All required exhibits filled out and signed	Yes
B.	**DCP Checklist**	
	1. Heading information completed	Yes
	2. All blanks filled out	Yes
	3. Information only section of checklist complete	Yes
	4. Exhibits arranged in order reflected on DCP checklist	Yes
C.	**Mandatory Exhibits**	
	**1. DCP Checklist	Yes
	*2. Narrative Design Summary	Yes
	**3. Safety Evaluation	Yes
	*4. Hazards Evaluation	Yes
	*5. Environmental Evaluation Checklist	Yes
	*6. Fire Protection/Safe Shutdown Review	Yes
	**7. Security Systems Review	Yes
	**8. ALARA Checklist	Yes
	*9. Inspection and Testing Requirements	Yes
	*10. Equipment Qualification Checklist	Yes
	*11. ISI Requirements	Yes
	*12. Human Factors Checklist	Yes
	*13. List of Materials	Yes
	*14. List of Drawings	Yes
	* For first submittal of DCP	
	** Mandatory for all DCPs	
D.	**Other Checklist/Evaluations as Required:**	
	1. Environmental Evaluation	N/A
	2. Inservice Inspection/Inservice Testing Impact Checklist	Yes
	3.	
	4.	
E.	**Support Documents**	
	1. SDRE input included	Yes
	2. DCP Support Document w/listed documents	Yes
F.	**Engineering Oversight Review of Design Documents, as Appropriate**	

Notes:

[signature] / PHB4
LDRE/SDRE

3/21/90
DATE

ORIGINAL

[ ] MDD

ORIGINAL

FIELD CHANGE REQUEST SHEET 1 OF 21

FCR NO. 90-V1N0130-F001 (DCP) SDCP or MDD NO. 90 V1N0130

SAFETY RELATED? YES ✓ NO ___ : EXTENSIVE? YES ___ NO ✓

APPLICABLE PAGE/SKETCH/DRAWING NO. (CIRCLE ONE) 51-C-90V1N0130 ~~F01~~ 00 REV. A
SHEET 4,6,7,13,14

REASON FOR CHANGE: Change Weld size to match thickness of member, identify Part Number Correctly, Change installation notes

DESCRIPTION OF CHANGE: See Sheets 3,5,7,9,11,13,15,17, 19 & 21 for Changes

FCR ORIGINATOR: Aziz Tha DATE 3/24/90

APPROVED: Bruce Kaplan RESPONSIBLE ENGINEER/ENGINEERING SUPERVISOR DATE 3/24/90

VERBAL APPROVAL GRANTED (SAFETY RELATED) - N/A for FCRs on MDD

COGNIZANT DESIGN ORGANIZATION John Pasnecker(QS) ENTER NAME OF GRANTOR DATE 3/24/90

RECORDED BY: Aziz Tha DATE 3/24/90

RELEASED FOR WORK B Kaplan on letter for ESS/GENERAL MANAGER R Mc Spicia DATE 3/24/90

PRB CHAIRMAN [redacted] DATE ___ MEETING NO: ___

FINAL APPROVAL
COGNIZANT DESIGN ORGANIZATION [redacted] DATE ___

FIGURE 1

1449

[ ] MDD

FIELD CHANGE REQUEST SUPPLEMENT SHEET 2 OF 21

APPLIES TO FCR NO. 90-VINO130-F001

ORIGINAL

APPLICABLE PAGE/SKETCH (CIRCLE ONE) DRAWING NO. S1-C-VINO130-100 REV. A
Sheet 9

WAS

UNIT NO. 1 SHEET 3 OF 4 SHEETS
DCR NO. 90-VINO130 REV. 0 APPLIES TO DRAWING NO. AX2D080040 REV.
TITLE OF DRAWING AUXILIARY BLDG. MISC STEEL SUPPORT SHEET
OR OTHER DOCUMENT

S1-C-90-VINO130-100 REV.A

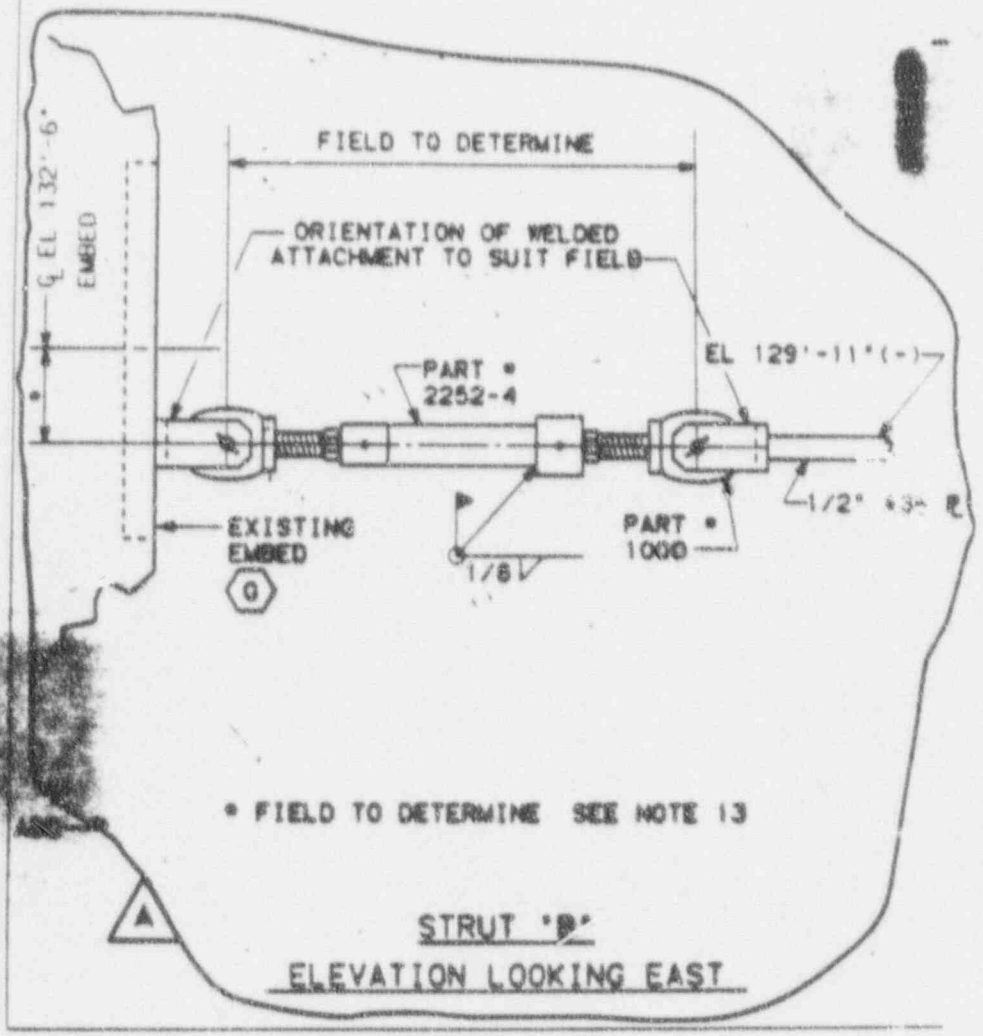


FIGURE 1 (CONT'D.)

Prepared By - AZ Jha 3/24/90.

[ ] MDD

FIELD CHANGE REQUEST SUPPLEMENT SHEET 3 OF 21

APPLIES TO ECR NO. 90-VINO130-F001

ORIGINAL

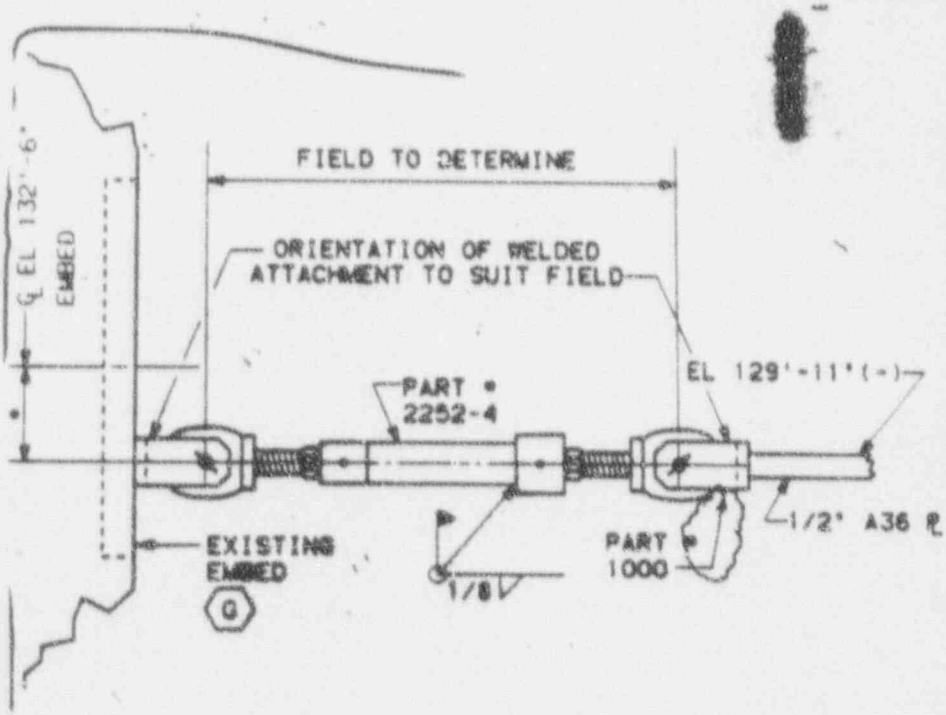
APPLICABLE PAGE/SKETCH (CIRCLE ONE) DRAWING NO. S1-C-VINO130-100 REV. A
Sheet 9

IS

ORIGINAL

UNIT NO. 1 SHEET 3 OF 3 SHEETS
DCR NO. 90-VINO130 REV. 0 APPLIES TO DRAWING NO. AX2D080040 REV.
TITLE OF DRAWING AUXILIARY BLDG. MISC STEEL SUPPORT SHEET
(OR OTHER DOCUMENT)

S1-C-90-VINO130-100 REV.A



* FIELD TO DETERMINE SEE NOTE 13

STRUT 'B'
ELEVATION LOOKING EAST

FIGURE 1 (CONT'D.)

Prepared By - AZ / Tha 3/24/90

[ ] MDD

FIELD CHANGE REQUEST SUPPLEMENT SHEET 4 OF 21

APPLIES TO FCR NO. 90-VINO130-F001

ORIGINAL

APPLICABLE PAGE/SKETCH (CIRCLE ONE) DRAWING NO. S1-C-VINO130-100 Sheet 8 REV. A

WAS

UNIT NO. 1 SHEET 8 OF 14 SHEETS
DCR NO. 90-VINO130 REV. 0 APPLIES TO DRAWING NO. AX2D080040 REV.
TITLE OF DRAWING AUXILIARY BLDG. MISC STEEL SUPPORT SHEET 1
OR OTHER DOCUMENT

S1-C-90-V1NO130-100 REV.A

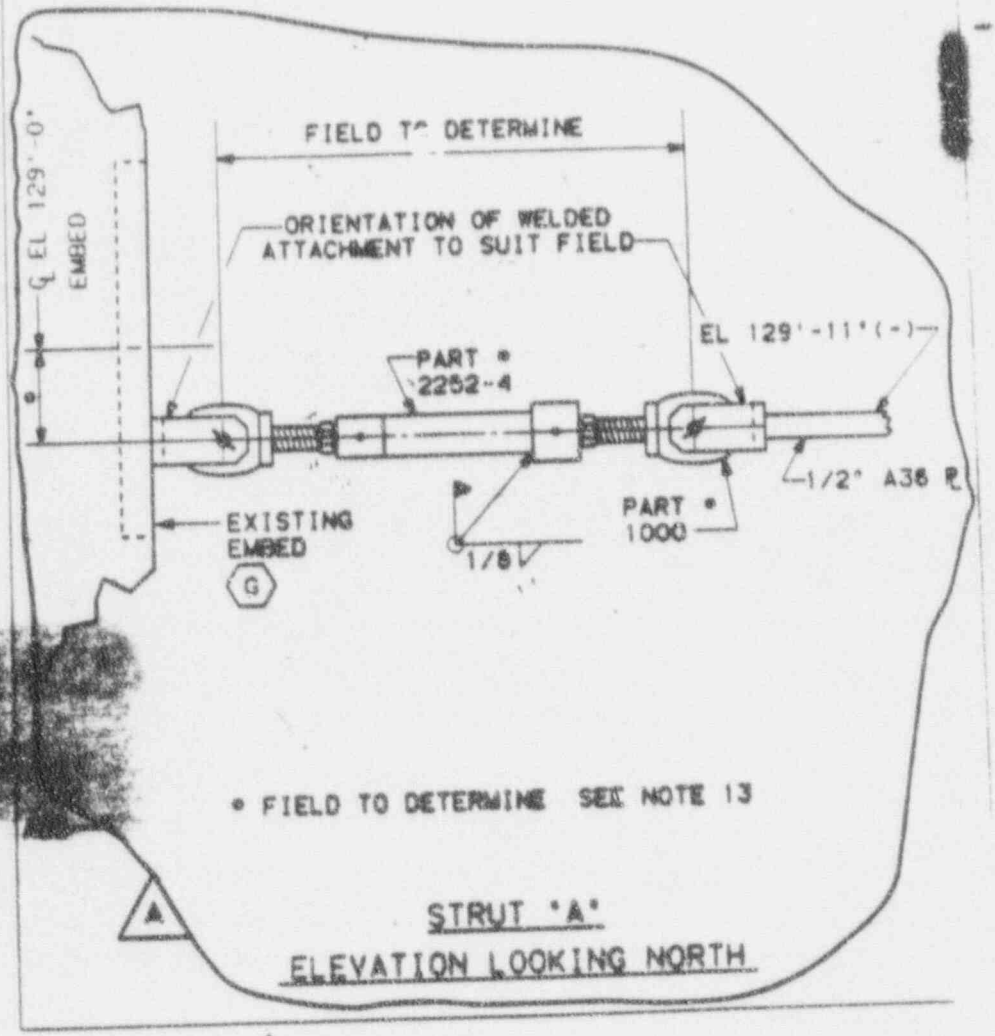


FIGURE 1 (CONT'D.)

Prepared By – AL / JRa 3/24/90

[ ] MDD

FIELD CHANGE REQUEST SUPPLEMENT SHEET 5 OF 21

APPLIES TO FCR NO. 90-V1N0130-E001

ORIGINAL

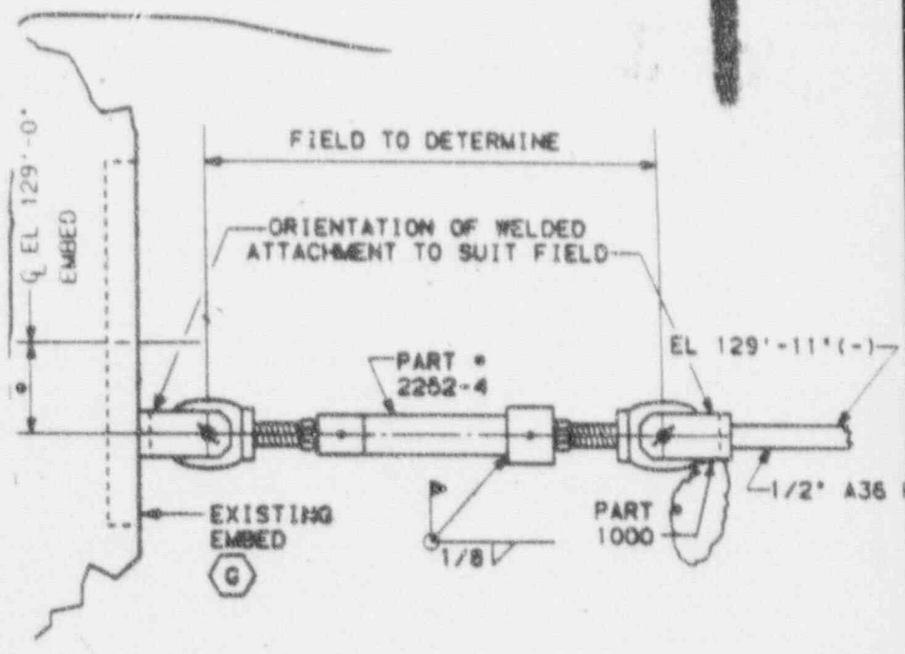
APPLICABLE PAGE/SKETCH/DRAWING NO. (CIRCLE ONE) S1-C-90V1N0130700 REV. A
Sheet 8

IS

ORIGINAL

UNIT NO. 1 SHEET 8 OF 13 SHEETS
DCR NO. 90-V1N0130 REV. 0 APPLIES TO DRAWING NO. AX2D080040 REV.
TITLE OF DRAWING AUXILIARY BLDG. MISC STEEL SUPPORT SHEET 1
OR OTHER DOCUMENT

S1-C-90-V1N0130-100 REV. A



• FIELD TO DETERMINE SEE NOTE 13

STRUT "A"
ELEVATION LOOKING NORTH

FIGURE 1 (CONT'D.)

Prepared BY- Azi Ka 3/24/90

[ ] MDD

FIELD CHANGE REQUEST SUPPLEMENT SHEET 6 OF 21

APPLIES TO FCR NO. 90-VIN0130-F001 **ORIGINAL**

APPLICABLE PAGE/SKETCH/(DRAWING NO.) S1-C-90VIN0130-100 REV. A
(CIRCLE ONE) SHEET-7

WAS

UNIT NO. 1 SHEET 7 OF 14 SHEETS

DCR NO. 90-VIN0130 REV. 0 APPLIES TO DRAWING NO. AX2D08G040 REV. 7

TITLE OF DRAWING AUXILIARY BLDG MISC STEEL SUPPORT SHEET 1

(OR OTHER DOCUMENT)

S1-C-90-VIN0130-100 REV.A

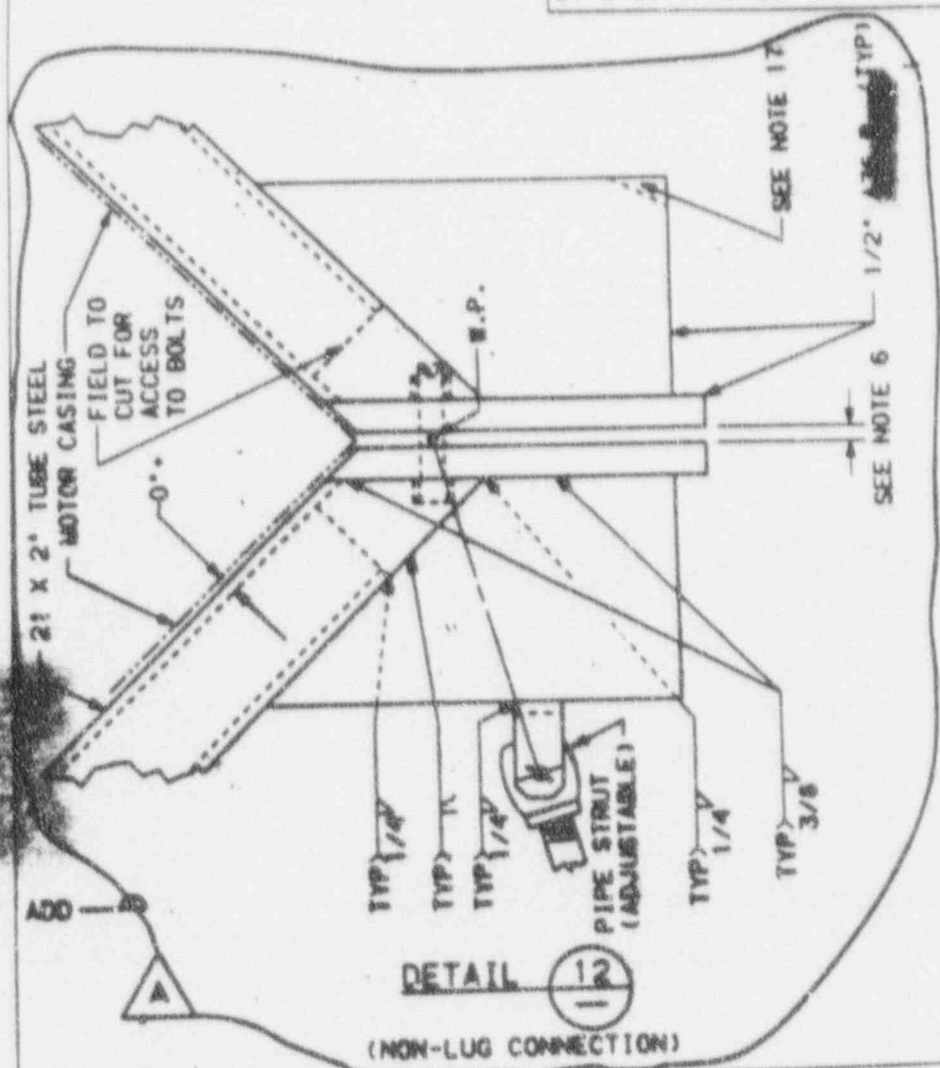


FIGURE 1 (CONT'D.)

Prepared BY - Anil Jha 3/24/90

[ ] MDD

FIELD CHANGE REQUEST SUPPLEMENT SHEET 7 OF 21

APPLIES TO DCR NO. 90VINO130-F001

ORIGINAL

APPLICABLE PAGE/SKETCH/DRAWING NO. (CIRCLE ONE) S1-C-90VINO130-100 REV. A
Sheet 7

IS

DCR NO. 90-VINO130 REV. 0 APPLIES TO DRAWING NO. AX2008G040 REV. 7
UNIT NO. 1 SHEET 7 OF 14 SHEETS
TITLE OF DRAWING AUXILIARY BLDG MISC STEEL SUPPORT SHEET 1
(OR OTHER DOCUMENT)

S1-C-90-VINO130-100 REV.A

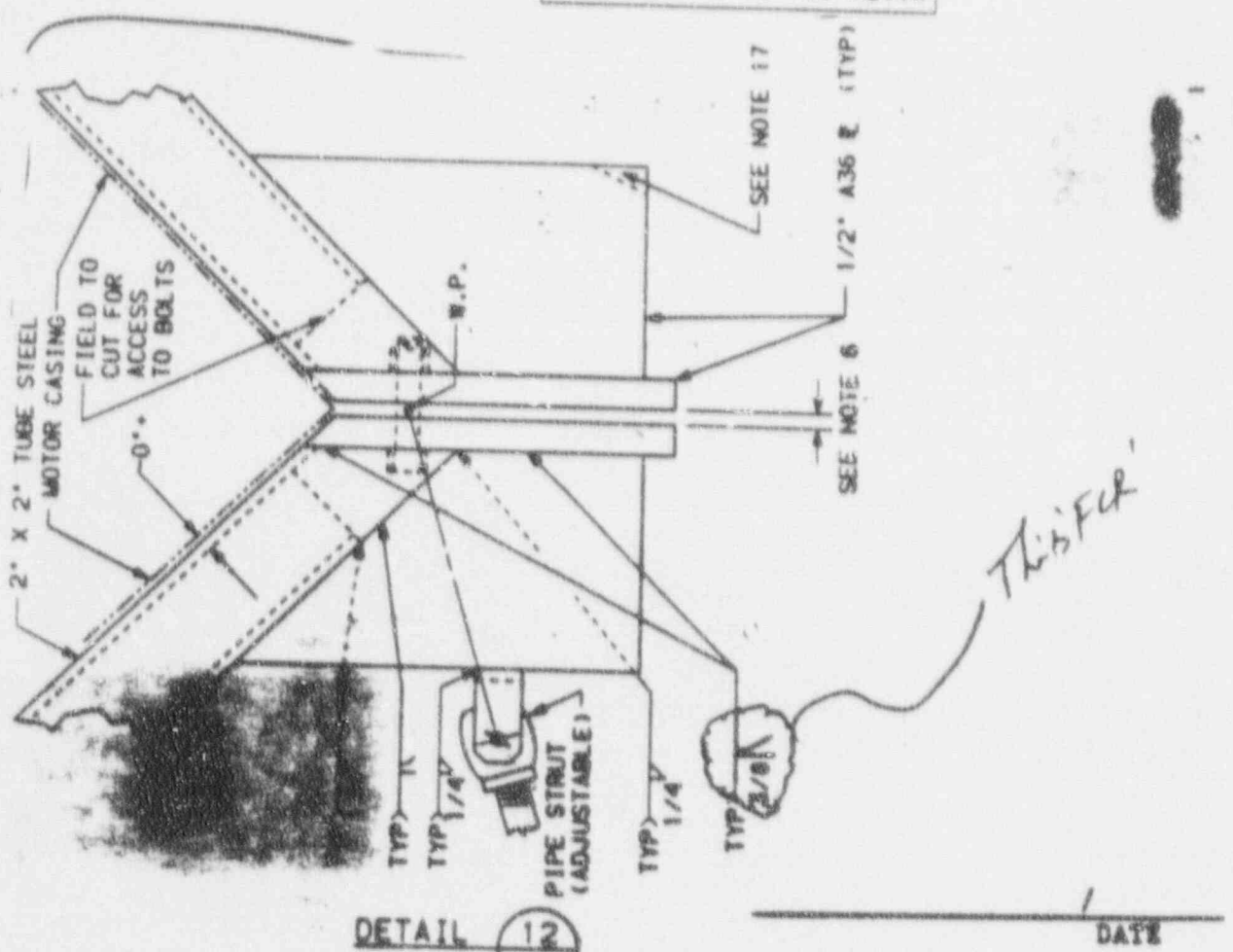


FIGURE 1 (CONT'D.)

Prepared BY - AZ/JL 3/24/90

[ ] MDD

FIELD CHANGE REQUEST SUPPLEMENT SHEET 8 OF 21

APPLIES TO DCR NO. 90-VINO132-F001 ORIGINAL

APPLICABLE PAGE/SKETCH (CIRCLE ONE) DRAWING NO. 51-C-90VINO130-100 REV. A
SHEET-6

WAS

UNIT NO. 1 SHEET 6 OF 14 SHEETS
DCR NO. 90-VINO130 REV. 0 APPLIES TO DRAWING NO. AX2D080040 REV. 7
TITLE OF DRAWING AUXILIARY BLDG. MISC. STEEL SUPPORT SHT. 1
(OR OTHER DOCUMENT)

51-C-90-VINO130-100 REV.A

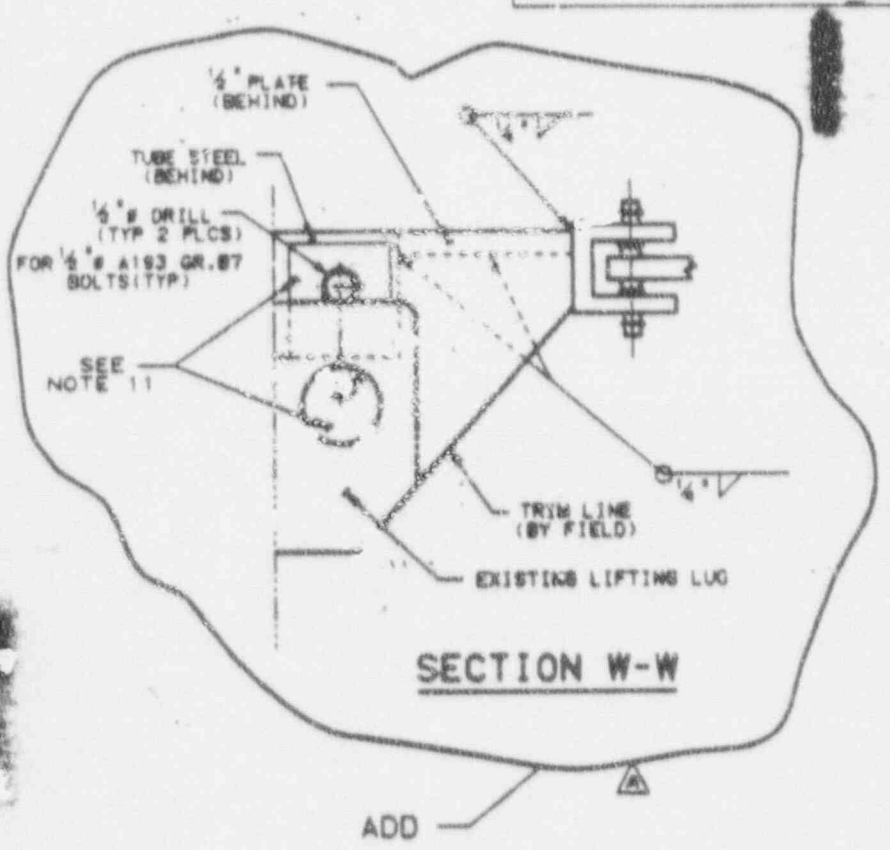


FIGURE 1 (CONT'D.)

Prepared by - AZ | JTL 3/24/90

C3445

[ ] MDD

FIELD CHANGE REQUEST SUPPLEMENT SHEET 9 OF 21

APPLIES TO DCR NO. 90-V1N0130-E001

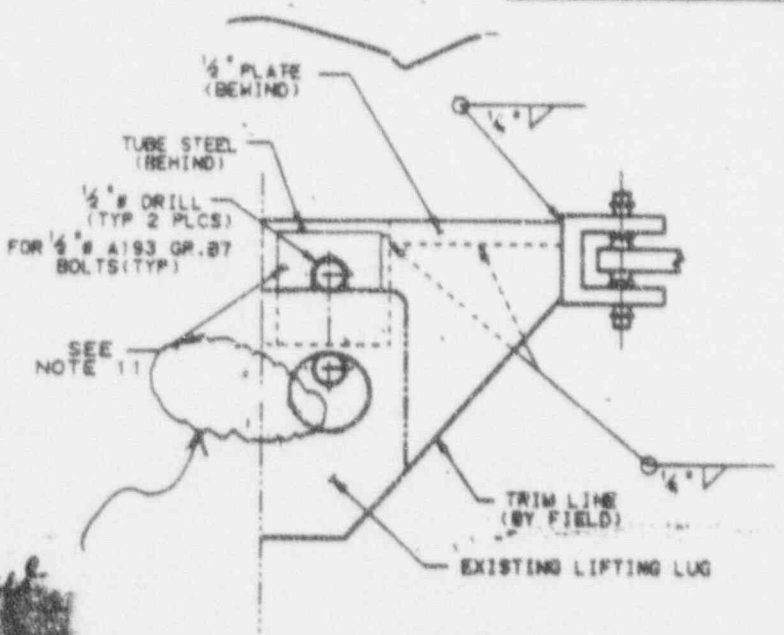
ORIGINAL

APPLICABLE PAGE/SKETCH/DRAWING NO. S1-C-V1N0130-100 REV. A
(CIRCLE ONE) Sheet 6

IS

UNIT NO. 1 SHEET 6 OF 14 SHEETS
DCR NO. 90-V1N0130 REV. 0 APPLIES TO DRAWING NO. AX2D08G040 REV. 7
TITLE OF DRAWING AUXILIARY BLDG. MISC. STEEL SUPPORT SHT. 1
(OR OTHER DOCUMENT)

S1-C-90-V1N0130-100 REV.A



SECTION W-W

PREPARED BY _____ / DATE

FIGURE 1 (CONT'D.)

Prepared By - AZ JKa 3/24/90

[ ] MDD

FIELD CHANGE REQUEST SUPPLEMENT SHEET 10 OF 21

APPLIES TO FCR NO. 90-VINO130-F001

ORIGINAL

APPLICABLE PAGE/SKETCH (CIRCLE ONE) DRAWING NO. S1-C-90VINO130-100 REV. A

SHEET-4

WAS

UNIT NO. 1 SHEET A OF A SHEETS

DCR NO. 90-VINO130 REV. 0 APPLIES TO DRAWING NO. AX20080040 REV.

TITLE OF DRAWING AUXILIARY BLDG MISC STEEL SUPPORT SHEET

OR OTHER DOCUMENT

S1-C-90-VINO130-100 REV.A

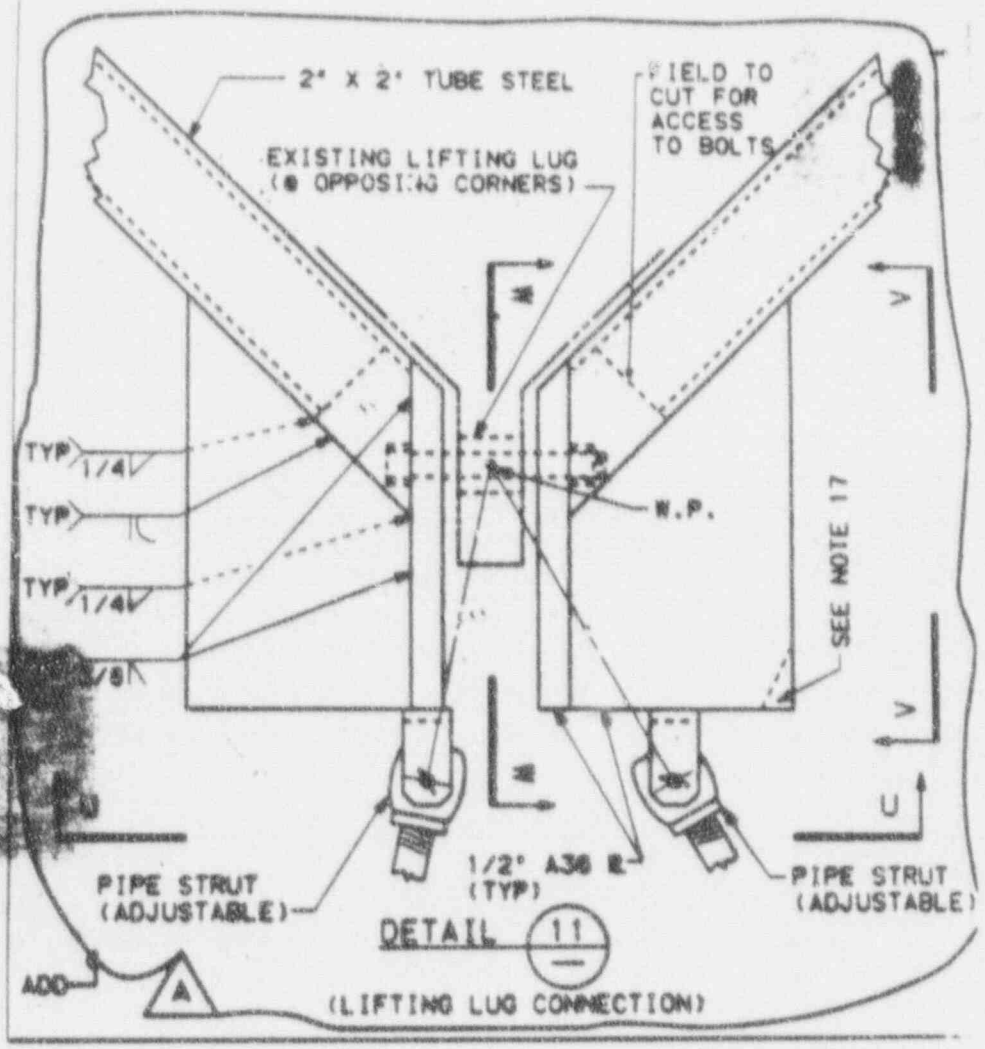


FIGURE 1 (CONT'D.)

Prepared BY - AZ | JLa 3/24/90

[ ] MDD

FIELD CHANGE REQUEST SUPPLEMENT SHEET 11 OF 21

APPLIES TO FCR NO. 90-V1N0130-F001

ORIGINAL

APPLICABLE PAGE/SKETCH/DRAWING NO. S1-C-90V1N0130-100 REV. A
(CIRCLE ONE) Sheet 4

IS

ORIGINAL

UNIT NO. 1 SHEET 4 OF 4 SHEETS
DCR NO. 90-V1N0130 REV. 0 APPLIES TO DRAWING NO. AX2D0BG040 REV.
TITLE OF DRAWING AUXILIARY BLDG MISC STEEL SUPPORT SHEET
OR OTHER DOCUMENT

S1-C-90-V1N0130-100 REV.A

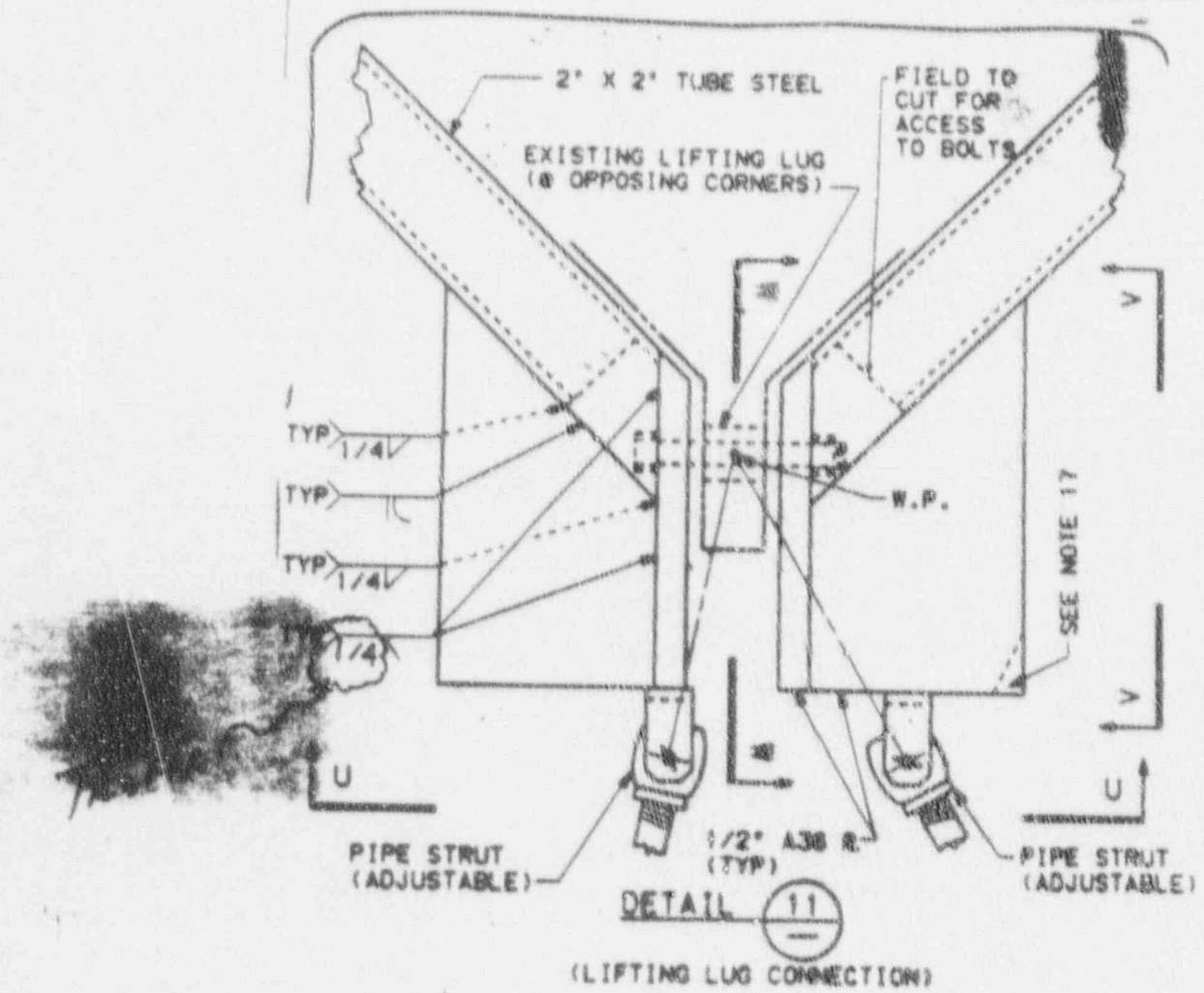


FIGURE 1 (CONT'D.)

Prepared BY- AL, Jha 3/24/90.

[ ] MDD

FIELD CHANGE REQUEST SUPPLEMENT SHEET 12 OF 21

APPLIES TO FCR NO. 90-V1N0130-E001

ORIGINAL

APPLICABLE PAGE/SKETCH (CIRCLE ONE) DRAWING NO. S1-C-90V1N0130-100 REV. A
Sheet 10

WAS

UNIT NO. 1 SHEET 10 OF 14 SHEETS
DCR NO. 90-V1N0130 REV. 0 APPLIES TO DRAWING NO. AX2D080040 REV.
TITLE OF DRAWING AUXILIARY BLDG. MISC STEEL SUPPORT SHEET
OR OTHER DOCUMENT

S1-C-90-V1N0130-100 REV. A

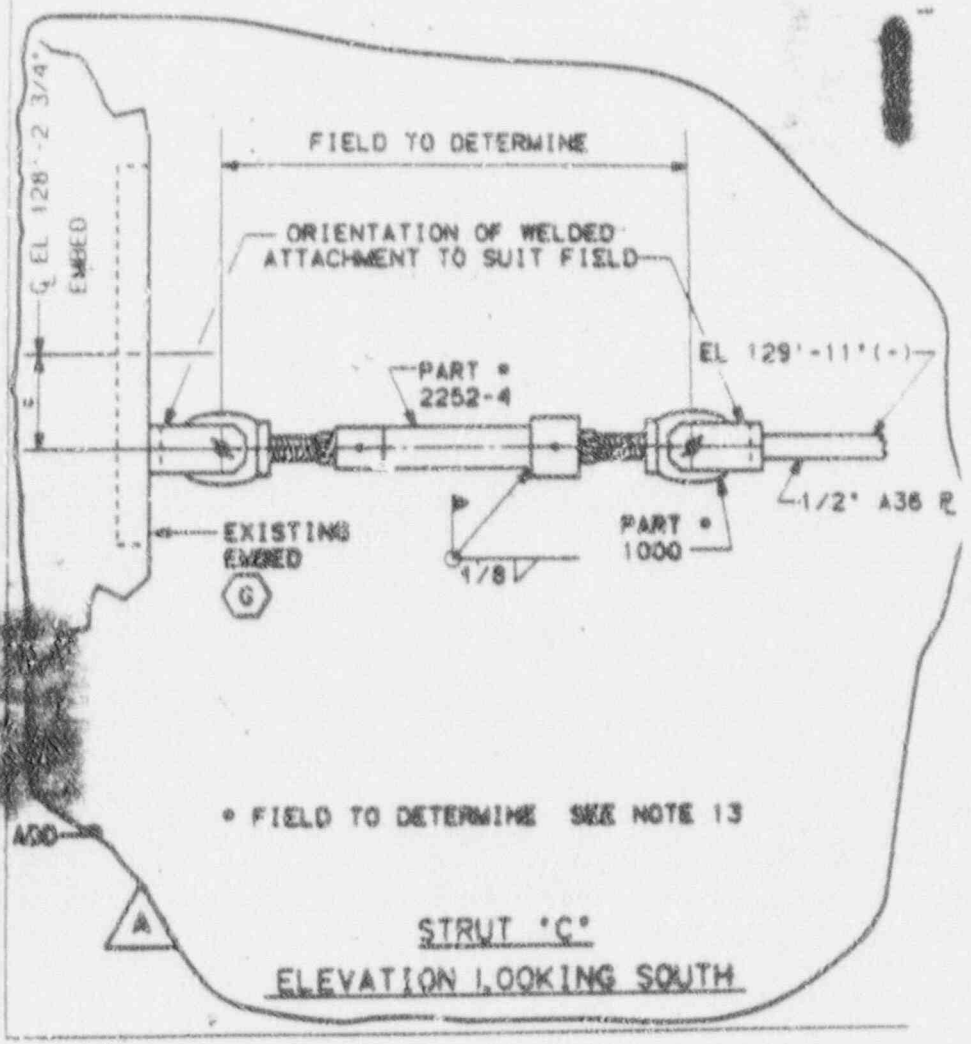


FIGURE 1 (CONT'D.)

Prepared BY — AK JTa 3/24/90

C3445

[ ] MDD

FIELD CHANGE REQUEST SUPPLEMENT SHEET 12 OF 21

APPLIES TO PCR NO. 90-VIN0130-F001

APPLICABLE PAGE/SKETCH/DRAWING NO. S1-C-90VIN0130-100 REV. A
(CIRCLE ONE) Sheet 10

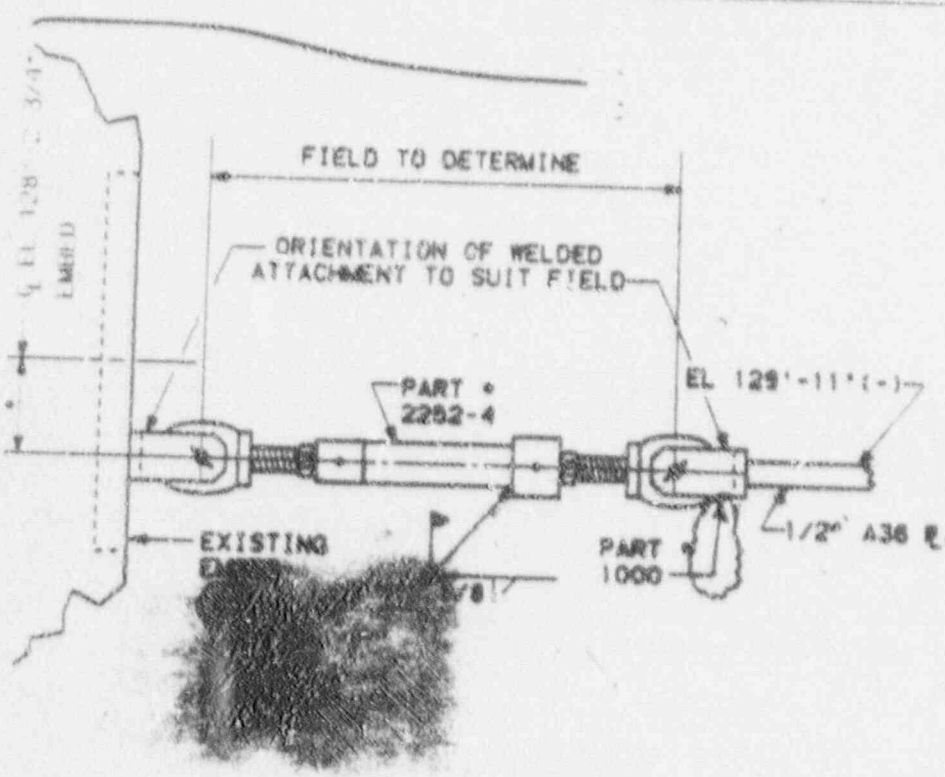
IS

ORIGINAL

ORIGINAL

UNIT NO. 1 SHEET 10 OF 14 SHEETS
DCR NO. 90-VIN0130 REV. 0 APPLIES TO DRAWING NO. AX2D080040 REV. 7
TITLE OF DRAWING AUXILIARY BLDG. MISC STEEL SUPPORT SHEET
OR OTHER DOCUMENT

S1-C-90-VIN0130-100 REV. A



* FIELD TO DETERMINE SEE NOTE 13

1 DATE

STRUT 'C'
ELEVATION LOOKING SOUTH

FIGURE 1 (CONT'D.)

Prepared BY – AZ JTa 3/20/90

[ ] NDD

FIELD CHANGE REQUEST SUPPLEMENT SHEET 14 OF 21

APPLIES TO DCR NO. 90-V1N0130-F001

APPLICABLE PAGE/SKETCH (CIRCLE ONE) (DRAWING NO.) S1-C-V1N0130-100 Sheet-11

ORIGINAL

WAS

UNIT NO. 1 SHEET 11 OF 14 SHEETS

DCR NO. 90-V1N0130 REV. 0 APPLIES TO DRAWING NO. AX2D080040 REV.

TITLE OF DRAWING AUXILIARY BLDG. MISC STEEL SUPPORT SHEET

OR OTHER DOCUMENT

S1-C-90-V1N0130-100 REV.A

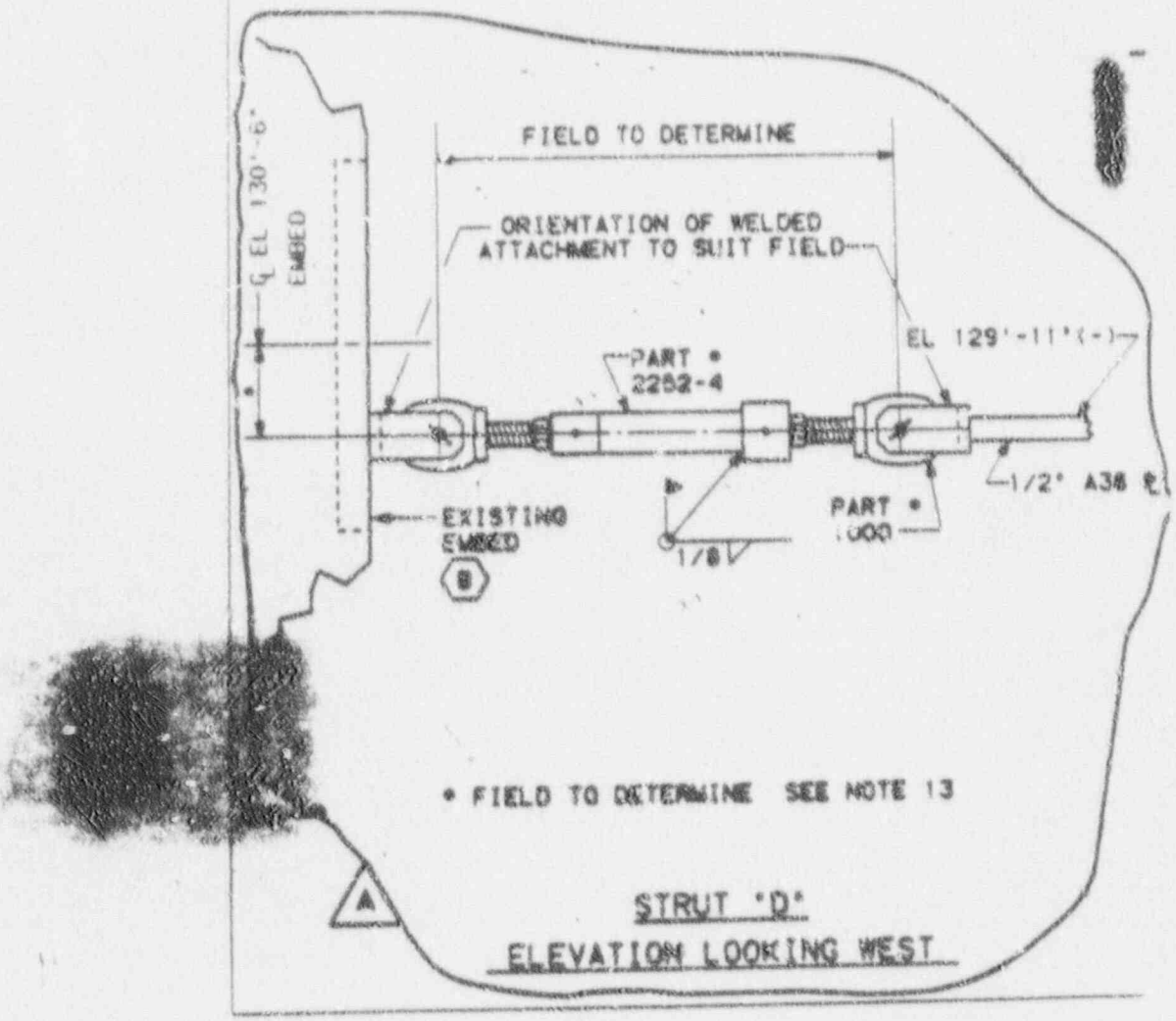


FIGURE 1 (CONT'D.)

Prepared By - Azi Jha 3/24/90

( ) MDD

FIELD CHANGE REQUEST SUPPLEMENT

SHEET 15 OF 21

ORIGINAL

APPLIES TO PCR NO. 90-V1N-130-E001

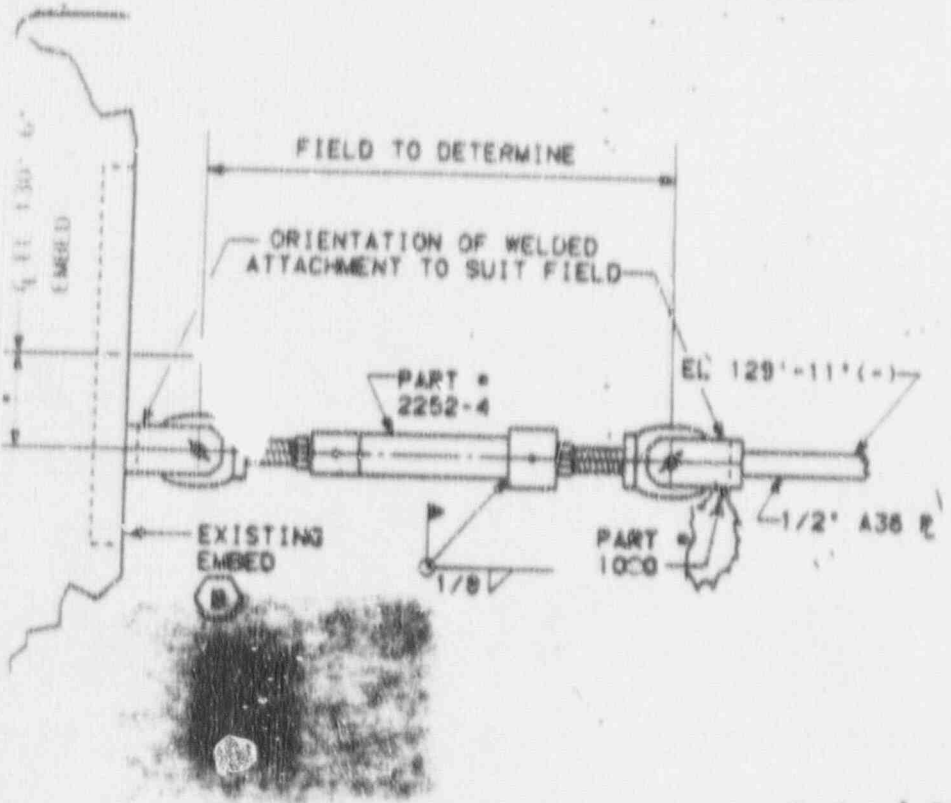
APPLICABLE PAGE/SKETCH (CIRCLE ONE) DRAWING NO. S1-C-V1N0130-100 REV. A
Sheet -11

15

ORIGINAL

UNIT NO. 1 SHEET 1 OF 4 SHEETS
PCR NO. 90-V1N0130 REV. 0 APPLIES TO DRAWING NO. AX2D0800-40 REV.
TITLE OF DRAWING AUXILIARY BLDG. MISC STEEL SUPPORT SHEET 1
OR OTHER DOCUMENT

S1-C-90-V1N0130-100 REV. A



* FIELD TO DETERMINE SEE NOTE 13

Prepared BY [illegible] 3/24/90
DATE

STRUT 'D'
ELEVATION LOOKING WEST

FIGURE 1 (CONT'D.)

[ ] MDD

FIELD CHANGE REQUEST SUPPLEMENT SHEET 16 OF 21

APPLIES TO FCR NO. 90-VIN0130-F001

ORIGINAL

APPLICABLE PAGE/SKETCH (CIRCLE ONE) DRAWING NO. S1-C-90VIN0130-100 Sheet-12 REV. A

WAS

DCR NO. 90-VIN0130 REV. 0 APPLIES TO DRAWING NO. AX20080040 REV. -

TITLE OF DRAWING AUXILIARY BLDG. MISC STEEL SUPPORT SHEET

OR OTHER DOCUMENT

S1-C-90-VIN0130-100 REV.A

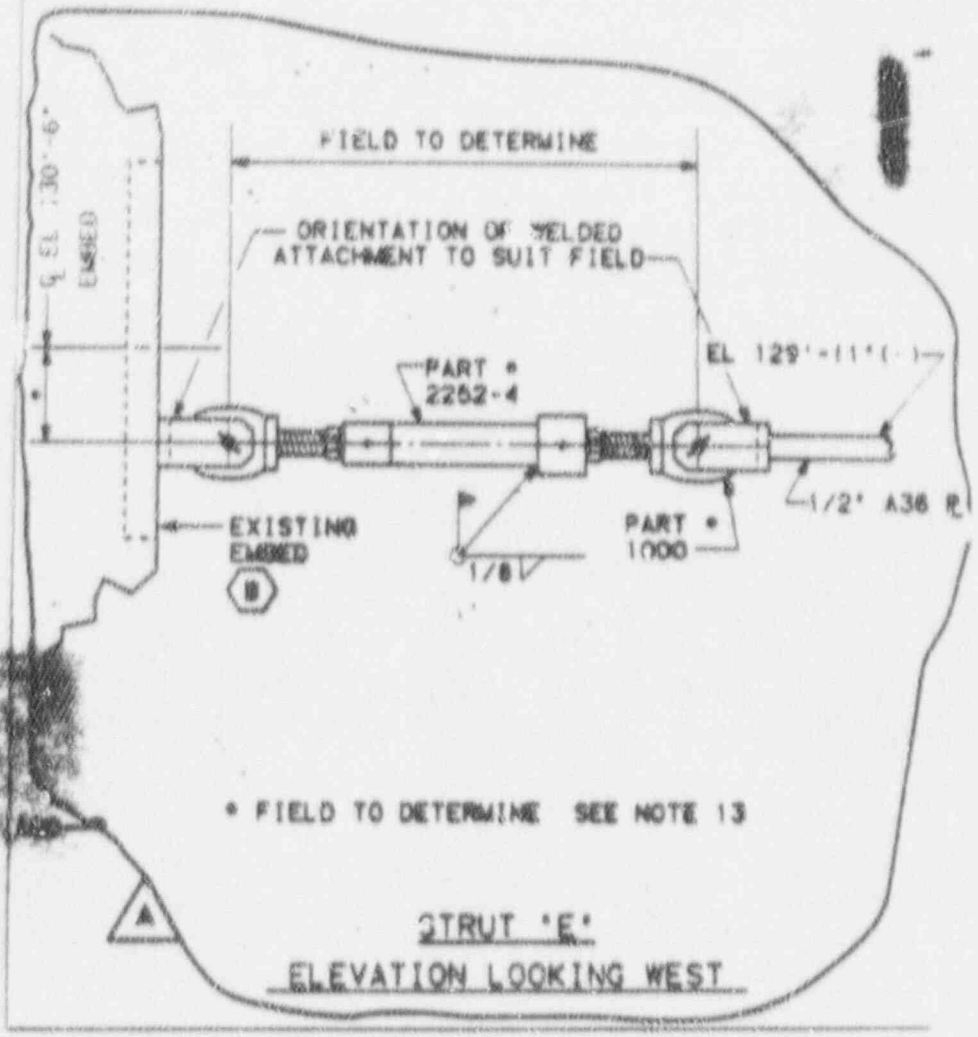


FIGURE 1 (CONT'D.)

Prepared BY – AK/JKa 3/24/90

[ ] MDD

FIELD CHANGE REQUEST SUPPLEMENT SHEET 12 OF 21

APPLIES TO FCR NO. 90-V1NO130-F001

ORIGINAL

APPLICABLE PAGE/SKETCH (CIRCLE ONE) DRAWING NO. S1-C-90V1NO130-100 REV. A Sheet 12

IS

ORIGINAL

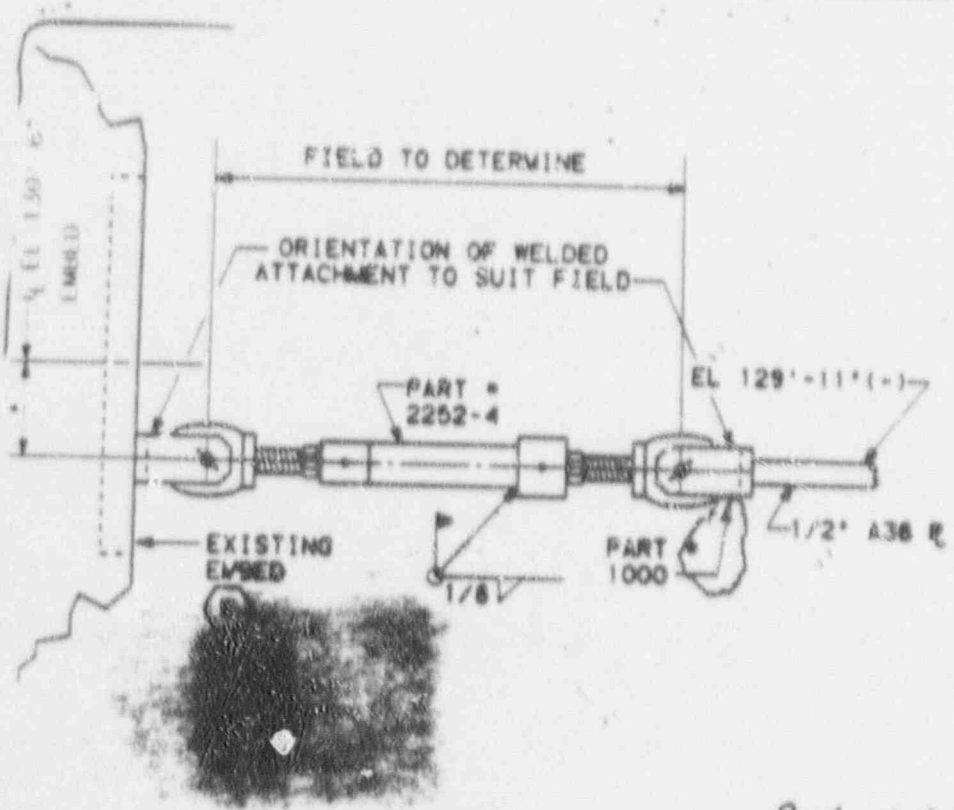
NII NO. 1 SHEET 12 OF 14 SHEETS

DCP NO. 90-V1NO130 REV. 0 APPLIES TO DRAWING NO. AXP 08004Q REV. 7

TITLE OF DRAWING AUXILIARY BLDG. MISC STEEL SUPPORT SHEET 1

OR OTHER DOCUMENT

S1-C-90-V1NO130-100 REV.A



* FIELD TO DETERMINE SEE NOTE 13

Prepared by - A.E. LTH 3/24/90
DATE

STRUT 'E'
ELEVATION LOOKING WEST

FIGURE 1 (CONT'D.)

[ ] MOD

FIELD CHANGE REQUEST SUPPLEMENT SHEET 18 OF 21

APPLIES TO DCR NO. 90-V1N0130-F001

ORIGINAL

APPLICABLE PAGE/SKETCH (CIRCLE ONE) DRAWING NO. S1-C-90-V1N0130-100 REV. A
Sheet -13

WAS

UNIT NO. 1 SHEET 13 OF 14 SHEETS
DCR NO. 90-V1N0130 REV. 0 APPLIES TO DRAWING NO. AX2D0BG040 REV. 7
TITLE OF DRAWING AUXILIARY BLDG.-MISC STEEL SUPPORT-SHEET 1
(OR OTHER DOCUMENT)

ADD A S1-C-90-V1N0130-100 REV.A

(NOTES 6 THRU 19 APPLY TO RHR PUMP B LATERAL SUPPORT)

NOTES:

6. FOR CONNECTION AT NON-LUG CORNER OF MOTOR, FIT-UP TO REQUIRE 9/16" GAP PRIOR TO TORQUING OF 1/2 Ø BOLTS.
7. NON-LUG CONNECTIONS TO BE LAST DETAIL TO FIT-UP.
8. FIELD TO TORQUE 1/2" Ø A199 GR.B7 BOLTED CONNECTION TO APPLICABLE PLANT PROCEDURE, X4AZ01 (TORQUE 86 FT.-LBS.).
9. FIELD DRILL 1/2" Ø HOLES IN FLANGE PLATES. TO INSURE TIGHT FIT FOR 1/2"Ø BOLTS.
10. FIELD TO REMOVE PAINT ON LUGS FOR PREPARATION OF HIGH STRENGTH BOLTING.
11. FIELD TO ADD 9/8" FILLER PLATE WITH 1/2" Ø DRILL. FIELD TO MAINTAIN CLEARANCE TO PREVENT BINDING OF FILLER PLATE DURING TORQUING SEQUENCE. AFTER PROPER TORQUING THE FILLER P MUST BE TACK WELDED TO THE VERTICAL 1/2" PLATE (SEE SECTION U-U).
12. FIELD TO TRIM 2"X 2" TUBE STEEL AS REQUIRED TO CLEAR INTERFERENCES. NOT TO EXCEED 1/4" CLEARANCE.
19. FIELD TO LOCATE WELDED ATTACHMENT TO FACILITATE LEVEL INSTALLATION OF STRUT (±6").

FIGURE 1 (CONT'D.)

Prepared BY- AZ | JLa 3/24/90

[ ] MDD

FIELD CHANGE REQUEST SUPPLEMENT SHEET 19 OF 21

APPLIES TO FCR NO. 90-V1N0130-F001

ORIGINAL

APPLICABLE PAGE/SKETCH (CIRCLE ONE) DRAWING NO. S1-C-90V1N0130-100 REV. A
Sheet 13

I.S

ORIGINAL

UNIT NO. 1 SHEET 13 OF 14 SHEETS

DCR NO. 90-V1N0130 REV. 0 APPLIES TO DRAWING NO. AX2D08G040 REV. 7

TITLE OF DRAWING AUXILIARY BLDG.-MISC STEEL SUPPORT-SHEET 1

(OR OTHER DOCUMENT)

ADD A

S1-C-90-V1N0130-100 REV.A

(NOTES 6 THRU 19 APPLY TO RHR PUMP B LATERAL SUPPORT)

NOTES:

6. FOR CONNECTION AT NON-LUG CORNER OF MOTOR, FIT-UP TO REQUIRE 3/16" GAP PRIOR TO TORQUING OF 1/2 Ø BOLTS.
7. NON-LUG CONNECTIONS TO BE LAST DETAIL TO FIT-UP.
8. FIELD TO TORQUE 1/2" Ø. A199 GR.B7 BOLTED CONNECTION TO APPLICABLE PLANT PROCEDURE. X4AZ01 (TORQUE 86 FT.-LBS.).
9. FIELD DRILL 1/2" Ø HOLES IN FLANGE PLATES. TO INSURE TIGHT FIT FOR 1/2"Ø BOLTS.
10. FIELD TO REMOVE PAINT ON LUGS FOR PREPARATION OF HIGH STRENGTH BOLTING.
11. FIELD TO ADD 3/8" FILLER PLATE WITH 1/2" Ø DRILL. FIELD TO MAINTAIN CLEARANCE TO PREVENT BINDING OF FILLER PLATE DURING TORQUING SEQUENCE. AFTER PROPER TORQUING THE FILLER P MUST BE FACE WELDED TO THE VERTICAL 1/2" PLATE (SEE SECTION W-W)
12. FIELD TO TRIM 2"X 2" TUBE STEEL AS REQUIRED TO CLEAR INTERFERENCES. NOT TO EXCEED 1/4" CLEARANCE.
13. FIELD TO LOCATE WELDED ATTACHMENT TO FACILITATE LEVEL INSTALLATION OF STRUT (±6").

Thrust

FIGURE 1 (CONT'D.)

Prepared BY- AK/JKa 3/24/90

[ ] MDD

FIELD CHANGE REQUEST SUPPLEMENT SHEET 20 OF 21

APPLIES TO FCR NO. 90-V1N0130-F001

APPLICABLE PAGE/SKETCH (CIRCLE ONE) DRAWING NO. 90-V1N0130-100 REV. A
Sheet-14

WAS

ORIGINAL

UNIT NO. 1 SHEET 14 OF 14 SHEETS
DCR NO. 90-V1N0130 REV. 0 APPLIES TO DRAWING NO. AX2D080040 REV. 7
TITLE OF DRAWING AUXILIARY BLDG.-MISC STEEL SUPPORT-SHEET 1
(OR OTHER DOCUMENT)
ADD A
S1-C-90-V1N0130-100 REV.A

14. FIELD TO ESTABLISH THE ORIENTATION AND ALIGNMENT OF MOTOR HOUSING USING FOUR (4) DIAL INDICATORS LOCATED IN BOTH X AND Y PLANES AT EACH QUADRANT AT THE TOP OF PUMP MOTOR. BEFORE PRETENSIONING OF ANY STRUTS:

A-INSTALL AND ALIGN ALL STRUTS LOOSELY.

B-START HAND TIGHTENING EACH STRUT. AND AT ALL TIMES OBSERVE THE LOCATION AND ALIGNMENT OF PUMP MOTOR AS ESTABLISHED ABOVE BY DIAL INDICATORS (ZERO TOLERANCE).

C-IF THE ALIGNMENT IS DEVIATING FROM ITS ORIGINAL LOCATION; STOP TIGHTENING THAT PARTICULAR STRUT. AND LOOSEN UNTIL THE PUMP GOES BACK TO ITS ORIGINAL LOCATION.

D-REPEAT STEPS B AND C ABOVE UNTIL ALL STRUTS ARE PRETENSIONED SO THAT THERE IS NO PLAY IN "PART 1000" PIN. ALL STRUTS TO BE TORQUED TO A VALUE OF 5-25 FT.-LBS.

15. JAM NUTS SHOULD BE TORQUED TO 80 FT.-LBS. AFTER PRETENSION SEQUENCE.

16. PART #1000 ON DETAILS 11 AND 12 SHOULD BE MOVED ALONG PLATE TO MAINTAIN LINE OF FORCE OF PIPE STRUT.

17. FIELD TO TRIM CORNERS AS REQUIRED TO CLEAR INTERFERENCES.

18. INSTALLATION TO BE COATED PER SPEC. X1AJ14.

19. CAUTION: IT MUST BE NOTED THAT ONE END OF EACH MEMBER (2X2 TS) GOING THROUGH THE OPENINGS NEXT TO COOLERS MUST BE FABRICATED IN PLACE AFTER THE MEMBER HAS BEEN INSERTED INTO THE OPENING (TOTAL OF 2 MEMBERS).

FIGURE 1 (CONT'D.)

Prepared BY - [illegible] 3/24/90

[ ] MDD

FIELD CHANGE REQUEST SUPPLEMENT SHEET 21 OF 21

ORIGINAL

APPLIES TO FCR NO. 90-V1N0130-F001

APPLICABLE PAGE/SKETCH (CIRCLE ONE) DRAWING NO. S1-C-V1N0130-100 Sheet 14 REV. A

IS

UNIT NO. 1 SHEET 14 OF 14 SHEETS

DCR NO. 90-V1N0130 REV. 0 APPLIES TO DRAWING NO. AX2D08G040 REV. 7

TITLE OF DRAWING AUXILIARY BLDG.-MISC STEEL SUPPORT-SHEET 1

(OR OTHER DOCUMENT)

ADD A

S1-C-90-V1N0130-100 REV.A

14. FIELD TO ESTABLISH THE ORIENTATION AND ALIGNMENT OF MOTOR HOUSING USING FOUR (4) DIAL INDICATORS LOCATED IN BOTH X AND Y PLANES AT EACH QUADRANT AT THE TOP OF PUMP MOTOR. BEFORE PRETENSIONING OF ANY STRUTS:

A - INSTALL AND ALIGN ALL STRUTS LOOSELY.

B - START HAND TIGHTENING EACH STRUT, AND AT ALL TIMES OBSERVE THE LOCATION AND ALIGNMENT OF PUMP MOTOR AS ESTABLISHED ABOVE BY DIAL INDICATORS (ZERO TOLERANCE).

C - IF THE ALIGNMENT IS DEVIATING FROM ITS ORIGINAL LOCATION; STOP TIGHTENING THAT PARTICULAR STRUT, AND LOOSEN UNTIL THE PUMP GOES BACK TO ITS ORIGINAL LOCATION.

D - REPEAT STEPS B AND C ABOVE UNTIL ALL STRUTS ARE PRETENSIONED SO THAT THERE IS NO PLAY IN "PART 1000" PIN. ALL STRUTS TO BE TORQUED TO A VALUE OF 5-25 FT.-LBS.

15. JAM NUTS SHOULD BE TORQUED TO 80 FT.-LBS. AFTER PRETENSION SEQUENCE.

16. PART #1000 ON DETAILS 11 AND 12 SHOULD BE MOVED ALONG PLATE TO MAINTAIN LINE OF FORCE OF PIPE STRUT.

17. FIELD TO TRIM CORNERS AS REQUIRED TO CLEAR INTERFERENCES.

18. INSTALLATION TO BE COATED PER SPEC. XIAJ07 This FCR

19. CAUTION: IT MUST BE NOTED THAT ONE END OF EACH MEMBER (2X2 TS) GOING THROUGH THE OPENINGS NEXT TO COOLERS MUST BE FABRICATED IN PLACE AFTER THE MEMBER HAS BEEN INSERTED INTO THE OPENING (TOTAL OF 2 MEMBERS).

FIGURE 1 (CONT'D.)

Prepared BY - AKJ 3/24/90

PROCEDURE NO	REVISION	PAGE NO
VEGP 50010-C	3	8 of 10

[ ] MDD

ORIGINAL

FIELD CHANGE REQUEST SHEET 1 OF 3

FCR NO. 90-VIN0130-F003 (DCP) SDCP or MDD NO. 90-VINC130-C-1

SAFETY RELATED? YES X NO ___ ; EXTENSIVE? YES ___ NO X

APPLICABLE PAGE/SKETCH (CIRCLE ONE) (DRAWING NO.) SI-C-90-VIN0130-100 REV. A
SHT 5 & 7 OF 9 (REF FCR-F00 2)

REASON FOR CHANGE: CONFLICTING WELD SIZE SHOWN ON SHEET 5 AND WELD FOR STRUT NOT SHOWN ON SHEET 7.

DESCRIPTION OF CHANGE: WELD SIZE SHOWN CORRECTLY FOR SHEET 5 AND STRUT WELD SHOWN FOR SHEET 7. SEE ATTACHED SHT. 2 AND 3 OF 3 FOR CHANGES.

FCR ORIGINATOR: Alan King 1 3-28-90
DATE

APPROVED: [signature] 12/28/90
RESPONSIBLE ENGINEER/ENGINEERING SUPERVISOR DATE

VERBAL APPROVAL GRANTED (SAFETY RELATED) - N/A for FCRs on MDD

COGNIZANT DESIGN ORGANIZATION LARRY POSEY / 3/28/90
ENTER NAME OF GRANTER DATE

RECORDED BY: Alan King 1 3-28-90
DATE

RELEASED FOR WORK P H Burnsed 1 3-28-90
for ESS/GENERAL MANAGER DATE

PRB CHAIRMAN N/A / MEETING NO: ___
DATE

FINAL APPROVAL
COGNIZANT DESIGN ORGANIZATION ___ /
DATE

FIGURE 1

1489

[ ] MDD

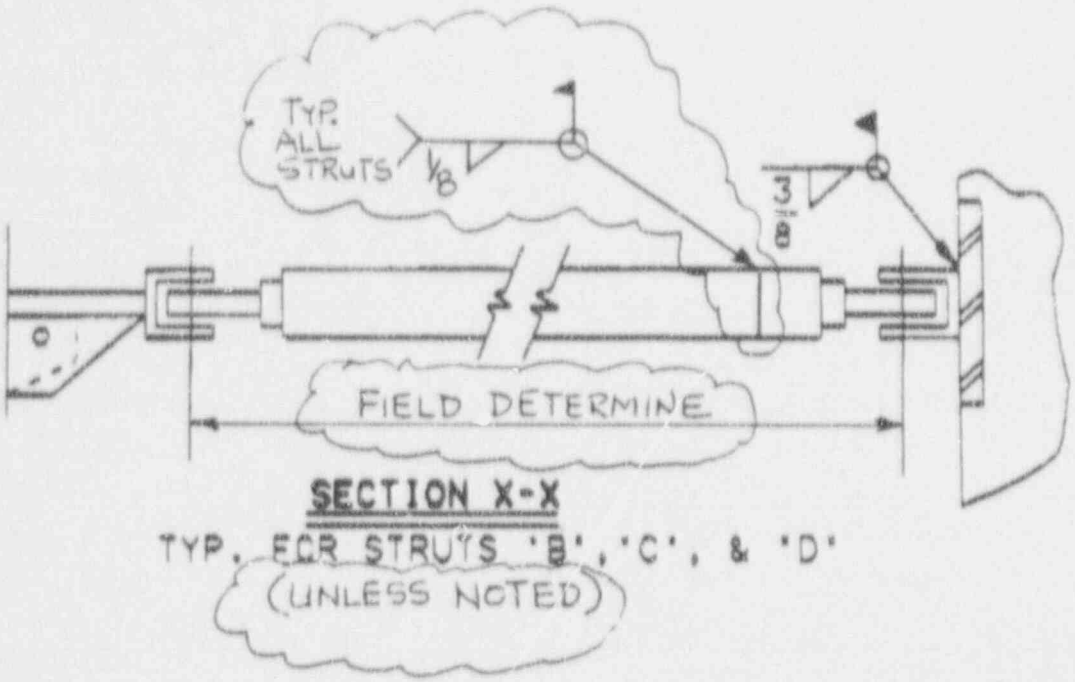
FIELD CHANGE REQUEST SUPPLEMENT SHEET 2 OF 3

APPLIES TO FCR NO. 90-VINC130-FC03

APPLICABLE PAGE/SKETCH/DRAWING NO. SI-C-90-VIN0130-100 REV. A
(CIRCLE ONE) SHT. 3 OF 9

GDP 3/28/90

ORIGINAL



SECTION X-X

TYP. FCR STRUTS 'B', 'C', & 'D'
(UNLESS NOTED)

PREPARED BY _____ 1/25/90
DATE

FIGURE 1 (CONT'D.)

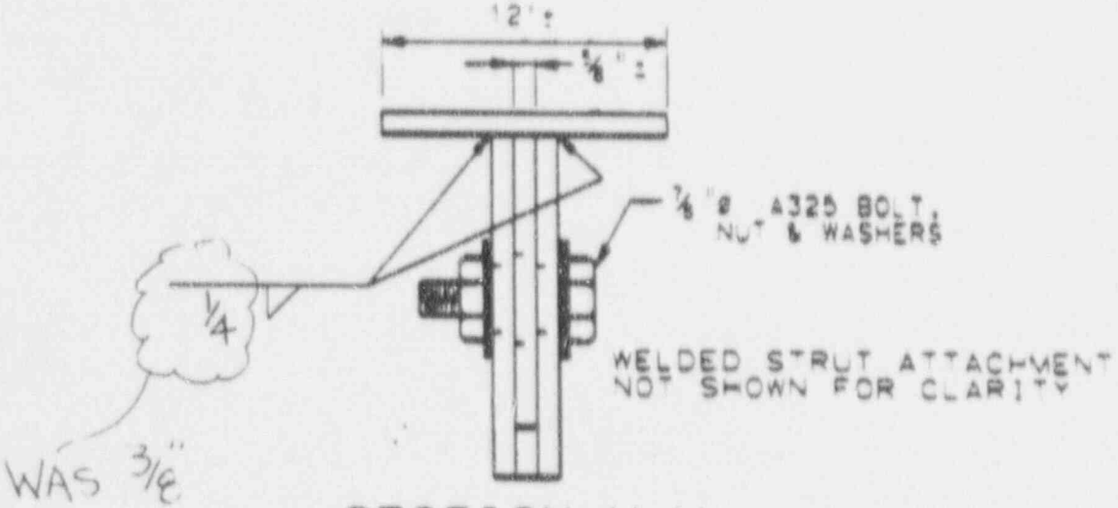
[ ] MDD

FIELD CHANGE REQUEST SUPPLEMENT SHEET 3 OF 3

APPLIES TO FCR NO. 90-VINC130-FCC3

APPLICABLE PAGE/SKETCH/(DRAWING NO.) (CIRCLE ONE) SI-C-9C-VINC130-100 SHT. 5 OF 9 REV. A

ORIGINAL



SECTION U-U

PREPARED BY _____ DATE 1/20/82

FIGURE 1 (CONT'D.)

[ ] MDD

ORIGINAL

FIELD CHANGE REQUEST

SHEET 1 OF 5

FCR NO. 90VIN0130-F009 (DCP), SDCP or MDD NO. 90VIN0130

SAFETY RELATED? YES ✓ NO ___ : EXTENSIVE? YES ___ NO ✓

APPLICABLE PAGE/SKETCH/(DRAWING NO.) 51-C-90VIN0130-100 Sheet 8 of 9 REV. A
(CIRCLE ONE)

REASON FOR CHANGE: To Clear Field interference.

DESCRIPTION OF CHANGE: Allow field to use 3/4"Φ Bolts or Turndown Bolt head on 7/8"Φ bolt as required to Clear interference. Also field needs to use 1 1/4" thick Vertical plate (in lieu of 1/2") on South end of motor
See sheet 3-5 for Change

FCR ORIGINATOR: Anil Jha / 3/29/90

APPROVED: R. Kaplan / 3/29/90
RESPONSIBLE ENGINEER/ENGINEERING SUPERVISOR — DATE

VERBAL APPROVAL GRANTED (SAFETY RELATED) - N/A for FCRs on MDD

COGNIZANT DESIGN ORGANIZATION P. Tehranchi / 3/29/90
ENTER NAME OF GRANTER — DATE
Via Vince Stewart

RECORDED BY: R. Kaplan / 3/29/90
DATE

RELEASED FOR WORK B. Haddock for P. Burwinkle / 3/29/90
NSS/GENERAL MANAGER Telecon — DATE

PRB CHAIRMAN ____________ / ____ DATE — MEETING NO: ______

FINAL APPROVAL
COGNIZANT DESIGN ORGANIZATION ____________ / ____ DATE

FIGURE 1

[ ] MDD

FIELD CHANGE REQUEST SUPPLEMENT SHEET 2 OF 5

APPLIES TO FCR NO. 90-VINO130-F004

APPLICABLE PAGE/SKETCH/DRAWING NO. (CIRCLE ONE) 51-C-90-VINO130-100 REV. A
Sheet 8 of 9

ORIGINAL

WAS

PROCEDURE NO. VEGP 50010-C | REVISION 3 | PAGE NO. 8 OF 10

[ ] MDD

FIELD CHANGE REQUEST SUPPLEMENT SHEET 2 OF 5

APPLIES TO FCR NO. 90-VINO130-F002

APPLICABLE PAGE/SKETCH/DRAWING NO. (CIRCLE ONE) 51-C-90-VINO130-100 REV. A
SHT 8 OF 9

(NOTES 6 THRU 12 APPLY TO RHR PUMP B LATERAL SUPPORT)

NOTES :

6. FIELD DRILL 1" Ø HOLES IN 1/2" PLATES FOR 7/8" Ø BOLTS.

7. FIELD TO LOCATE WELDED ATTACHMENT TO THE EMBEDS IN ORDER TO FACILITATE LEVEL INSTALLATION OF STRUTS (±6").

8. FIELD TO ESTABLISH THE ORIENTATION AND ALIGNMENT OF MOTOR HOUSING USING FOUR (4) DIAL INDICATORS LOCATED IN BOTH X AND Y PLANES AT EACH QUADRANT AT THE TOP OF PUMP MOTOR, BEFORE PRE-LOADING OF ANY STRUTS:
   A - INSTALL AND ALIGN ALL STRUTS LOOSELY.
   B - PERFORM STRUCTURAL DYNAMIC TEST (BY SCS).
   C - START HAND TIGHTENING EACH STRUT (COMPRESSION - CAD) AND AT ALL TIMES OBSERVE THE LOCATION AND ALIGNMENT OF PUMP MOTOR AS ESTABLISHED ABOVE BY DIAL INDICATOR (ZERO TOLERANCE).
   D - IF THE ALIGNMENT IS DEVIATING FROM ITS ORIGINAL LOCATION ; STOP TIGHTENING THAT PARTICULAR STRUT, & LOOSEN UNTIL THE PUMP GOES BACK TO ITS ORIGINAL LOCATION.
   E - REPEAT STEPS C AND D ABOVE UNTIL ALL STRUTS ARE PRE-LOADED SO THAT THERE IS NO PLAY IN [illegible] AT 1000' #INS, ALL STRUTS TO BE TORQUED TO A [illegible] VALUE OF 5 - 25 FT.-LBS.

PREPARED BY J R Lowry, 3/27/90 DATE

FIGURE 1 (CONT'D.)

Prepared BY — AZ/JRa 3/29/90

13445

[ ] MDD

FIELD CHANGE REQUEST SUPPLEMENT SHEET 3 OF 5

APPLIES TO FCR NO. 90VINO130-F004

ORIGINAL

APPLICABLE PAGE/SKETCH (CIRCLE ONE) DRAWING NO. 51-C-90VINO130-100 REV. 3

Sht 1 of 3

IS

PROJECT NO. VEGP ORIGINAL REVISION 3 PAGE NO. 9 OF 10

[ ] MDD

FIELD CHANGE REQUEST SUPPLEMENT SHEET 3 OF 5

APPLIES TO FCR NO. 90-VINO130-F002

APPLICABLE PAGE/SKETCH/DRAWING NO. 51-C-90-VINO130-100 REV. A
(CIRCLE ONE) Sht 1 of 3

(NOTES 6 THRU 13 APPLY TO RHR PUMP B LATERAL SUPPORT)

NOTES :

6. FIELD DRILL 1" Ø HOLES IN VERTICAL PLATES FOR 7/8" BOLTS OR 7/8" HOLES FOR 3/4" BOLTS

7. FIELD TO LOCATE WELDED ATTACHMENT TO THE EMBEDS IN ORDER TO FACILITATE LEVEL INSTALLATION OF STRUTS (±6').

8. FIELD TO ESTABLISH THE ORIENTATION AND ALIGNMENT OF MOTOR HOUSING USING FOUR (4) DIAL INDICATORS LOCATED IN BOTH X AND Y PLANES AT EACH QUADRANT AT THE TOP OF PUMP MOTOR, BEFORE PRE-LOADING OF ANY STRUTS:

   A - INSTALL AND ALIGN ALL STRUTS LOOSELY.

   B - PERFORM STRUCTURAL DYNAMIC TEST (BY SCS).

   C - START HAND TIGHTENING EACH STRUT (COMPRESSION CAD) AND AT ALL TIMES OBSERVE THE LOCATION AND ALIGNMENT OF PUMP MOTOR AS ESTABLISHED ABOVE BY DIAL INDICATOR (ZERO TOLERANCE).

   D - IF THE ALIGNMENT IS DEVIATING FROM ITS ORIGINAL LOCATION ; STOP TIGHTENING THAT PARTICULAR STRUT, AND LOOSEN UNTIL THE PUMP GOES BACK TO ITS ORIGINAL LOCATION.

   E - REPEAT STEPS C AND D ABOVE UNTIL ALL STRUTS ARE PRELOADED SO THAT THERE IS NO PLAY IN 'PART 1000' PINS, ALL STRUTS TO BE TORQUED TO A VALUE OF 5 - 25 FT.-LBS.

PREPARED BY J. D. WEBB, 3/27/90 DATE

ORIGINAL

FIGURE 1 (CONT'D.)

FIGURE 1 (CONT'D.)

Prepared By— AKIJZ 3/29/90

[ ] MDD

FIELD CHANGE REQUEST SUPPLEMENT SHEET 4 OF 5

APPLIES TO FCR NO. 90-V1N0130-F004

ORIGINAL

APPLICABLE PAGE/SKETCH/(DRAWING NO.) 51-C-90V1N0130-F004 REV. A
(CIRCLE ONE) Sheet 8 of 9

WPS

PROCEDURE NO. VEGP ORIGINAL REVISION 3 | PAGE NO. 9 OF 10

[ ] MOD

FIELD CHANGE REQUEST SUPPLEMENT SHEET 10 OF 10

APPLIES TO FCR NO. 90-V1N0130-F002

APPLICABLE PAGE/SKETCH/DRAWING NO. 51-C-90-V1N0130-100 REV. A
(CIRCLE ONE) SHT 9 OF 9

NOTES CONTINUED :

9. JAM NUTS SHOULD BE TORQUED TO 80 FT. - LBS. AFTER PRELOADING SEQUENCE.

10. PART # 1000 ON DETAIL 11 SHOULD BE MOVED ALONG TRIMMED PORTION OF PLATE TO MAINTAIN LINE OF FORCE WITH THE WORKING POINTS ON THE LIFTING LUGS (W.P.).

11. FIELD TO TRIM CORNERS AS REQUIRED TO CLEAR INTERFERENCES.

12. INSTALLATION TO BE COATED PER SPEC. X1AJ07.

PREPARED BY J D Lisby 3/07/90
DATE

FIGURE . (CONT'D.)

Prepared By - AKJ Jr 3/29/90

[ ] MOD

FIELD CHANGE REQUEST SUPPLEMENT SHEET 5 OF 5

ORIGINAL

APPLIES TO FCR NO. 90VINO130F004

APPLICABLE PAGE/SKETCH (CIRCLE ONE) DRAWING NO. 51-C-90VINO130-100 REV. 5

Sheet 8 of 9

IS

PROCEDURE NO. VEGP ORIGINAL REVISION 3 PAGE NO. 9 OF 10

[ ] MOD

FIELD CHANGE REQUEST SUPPLEMENT SHEET 10 OF 10

APPLIES TO FCR NO. 90-VINO130-F002

APPLICABLE PAGE/SKETCH/DRAWING NO. 51-C-90-VINO130-100 REV. A
(CIRCLE ONE) SHT 9 of 9

NOTES CONTINUED :

9. JAM NUTS SHOULD BE TORQUED TO 80 FT. - LBS. AFTER PRELOADING SEQUENCE.

10. PART # 1000 ON DETAIL 11 SHOULD BE MOVED ALONG TRIMMED PORTION OF PLATE TO MAINTAIN LINE OF FORCE WITH THE WORKING POINTS ON THE LIFTING LUGS (W.P.).

11. FIELD TO TRIM CORNERS AS REQUIRED TO CLEAR INTERFERENCES.

12. INSTALLATION TO BE COATED PER SPEC. X1AJ07.

13. FIELD MAY USE 1, 1/4" thick A-36 plate 12"X12", as a vertical plate on South side of Motor assembly to clear interferences.

PREPARED BY J. D. Lisby 3/27/90
DATE

FIGURE 1 (CONT'D.)

Prepared By - A. J. Th. 3/29/90

[ ] MDD

ORIGINAL

FIELD CHANGE REQUEST

SHEET 1 OF 5

FCR NO. 90-VIN0130-F005 (DCP) SDCP or MDD NO. 90-VIN0130-0-1

SAFETY RELATED? YES ✓ NO ___ ; EXTENSIVE? YES ___ NO ✓

APPLICABLE PAGE/SKETCH/(DRAWING NO.) (CIRCLE ONE) S1-C-90-VIN0130-100 (SHTS 1,5,6,7 OF 9) REV. A

REASON FOR CHANGE: TO ALLOW CLEARANCE FOR FIELD INTERFERENCES AND MINOR DWG. CORRECTIONS.

DESCRIPTION OF CHANGE: ALLOW 'D' STRUT TO SLOPE DOWN TO EMBED, TRIM 1/2" PLATES, CORRECT 1" DIMENSION ON SHT. 6 AND ADD 1/2" STIFFNER PL FOR STRUT 'B'. SEE ATTACHED SHTS 2-5 FOR CHANGES.

FCR ORIGINATOR: _____ 13/30/90 DATE

APPROVED: _____ RESPONSIBLE ENGINEER/ENGINEERING SUPERVISOR 13/30/90 DATE

VERBAL APPROVAL GRANTED (SAFETY RELATED) - N/A for FCRs on MDD

COGNIZANT DESIGN ORGANIZATION Larry Posey ENTER NAME OF GRANTER 1 3/30/90 DATE

RECORDED BY: _____ 13/30/90 DATE

RELEASED FOR WORK Mike Alexander ESS/GENERAL MANAGER 1 3-30-90 DATE

PRB CHAIRMAN _____ / DATE MEETING NO: _____

FINAL APPROVAL
COGNIZANT DESIGN ORGANIZATION _____ / DATE

FIGURE 1

1449

PROCEDURE NO	REVISION	PAGE NO
VEGP 50010-C	3	9 of 10

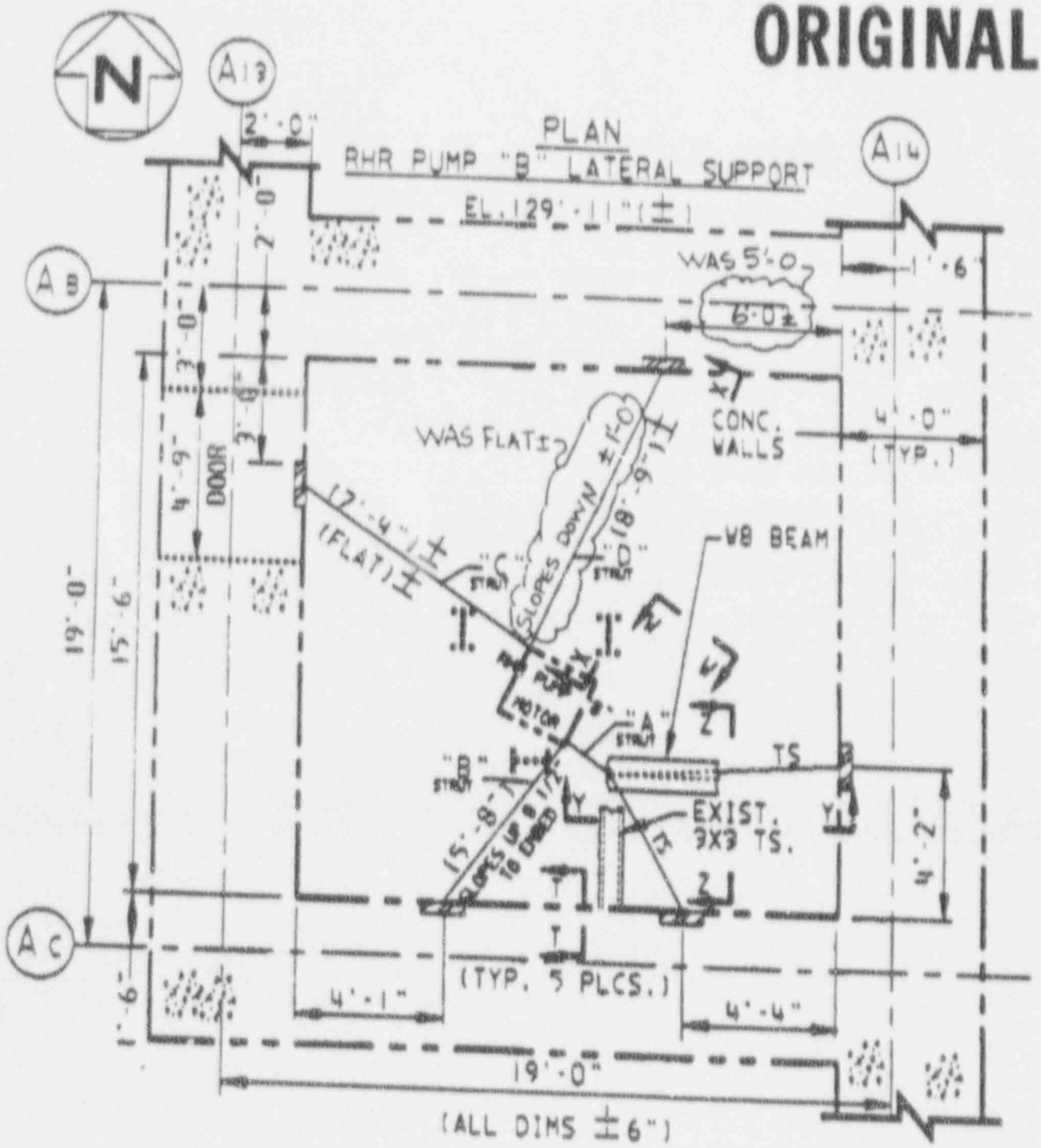
[ ] MDD

FIELD CHANGE REQUEST SUPPLEMENT SHEET 2 OF 5

APPLIES TO FCR NO. 90-VINO130-F005

APPLICABLE PAGE/SKETCH (CIRCLE ONE) DRAWING NO SI-C-90-VINO130-100 SHT. 1 OF 9 REV. A

ORIGINAL



PREPARED BY _____ 13/30/86 DATE

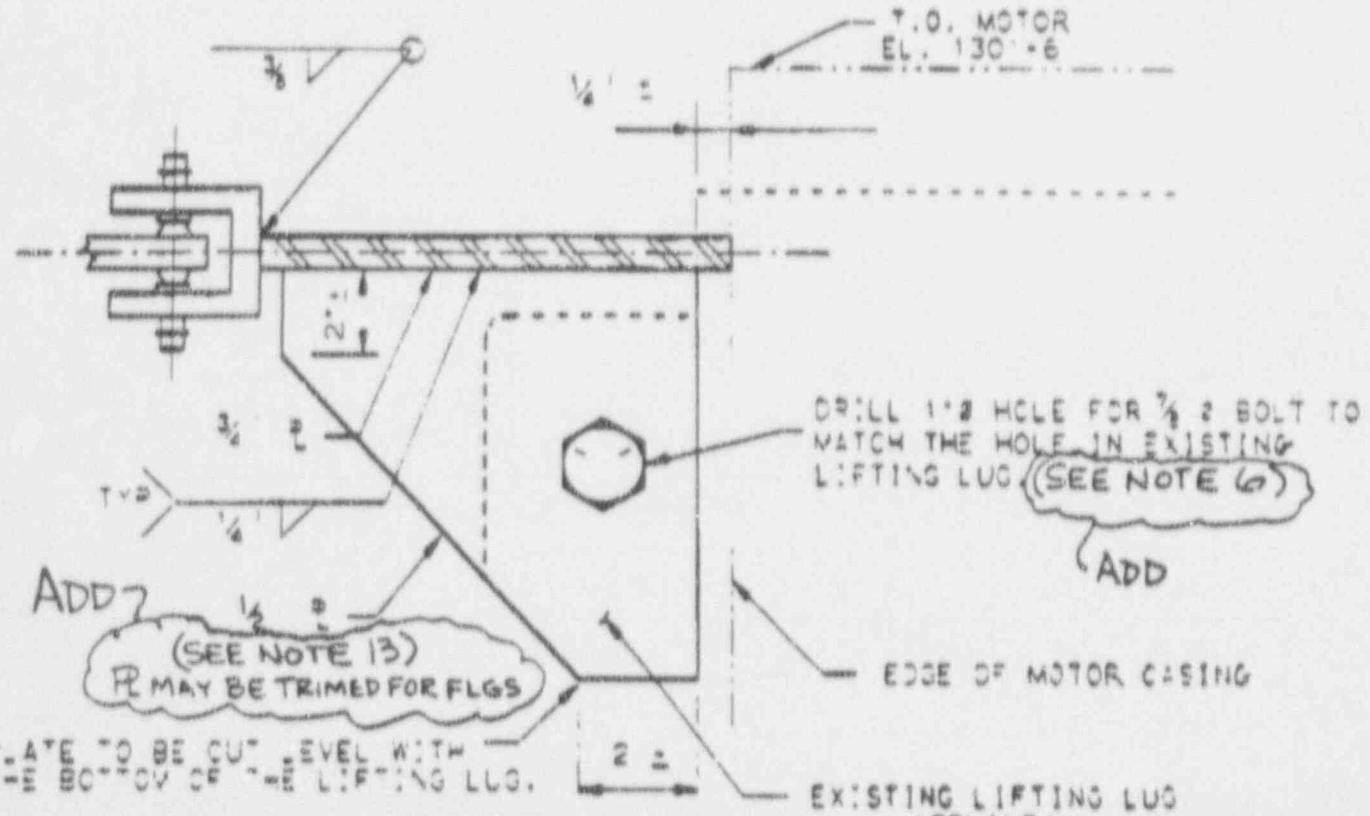
[ ] MDD

FIELD CHANGE REQUEST SUPPLEMENT SHEET 3 OF 5

APPLIES TO FCR NO. 90-VIN0130-F005

APPLICABLE PAGE/SKETCH/(DRAWING NO.) SI-C-90-VIN0130-100 (SHT. 5 OF 9) REV. A
(CIRCLE ONE)

ORIGINAL



SECTION V-V

PREPARED BY _____ 1/30/90
DATE

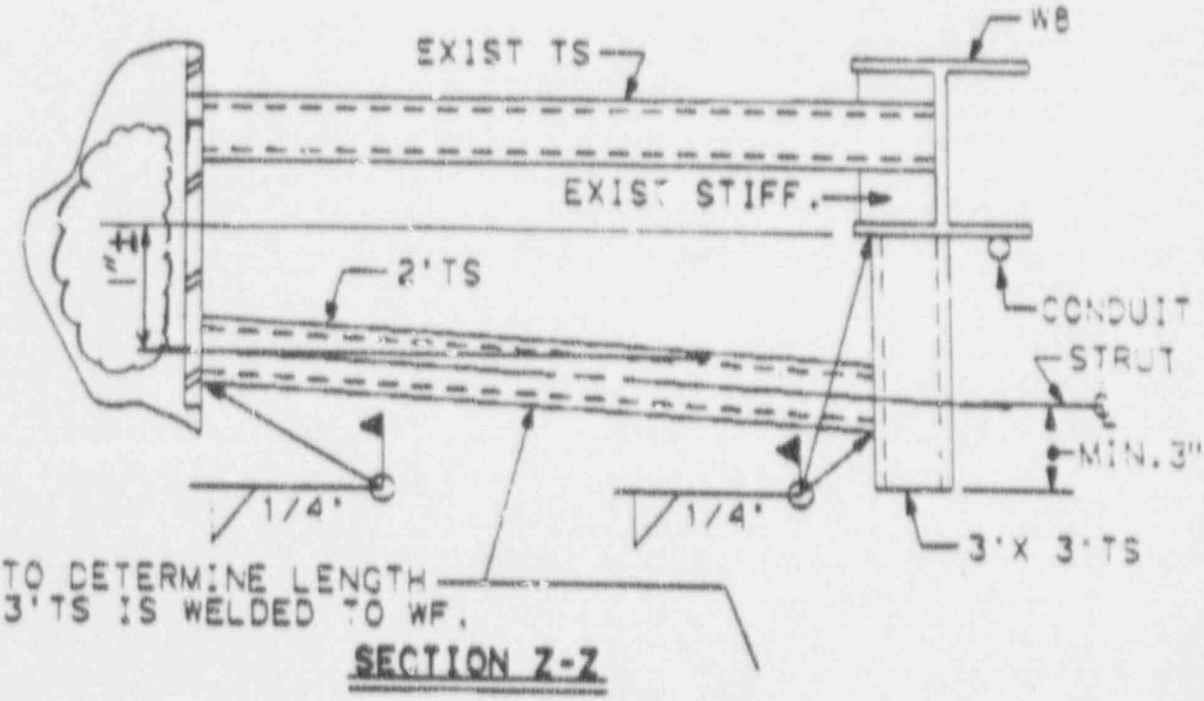
[ ] MDD

FIELD CHANGE REQUEST SUPPLEMENT SHEET 4 OF 5

APPLIES TO FCR NO. 90-VINO130-F005

APPLICABLE PAGE/SKETCH (CIRCLE ONE) DRAWING NO SI-C-90-VINO130-100 (SHT. 6 OF 9) REV. A

ORIGINAL



SECTION Z-Z

PREPARED BY _____ 1/30/90 DATE

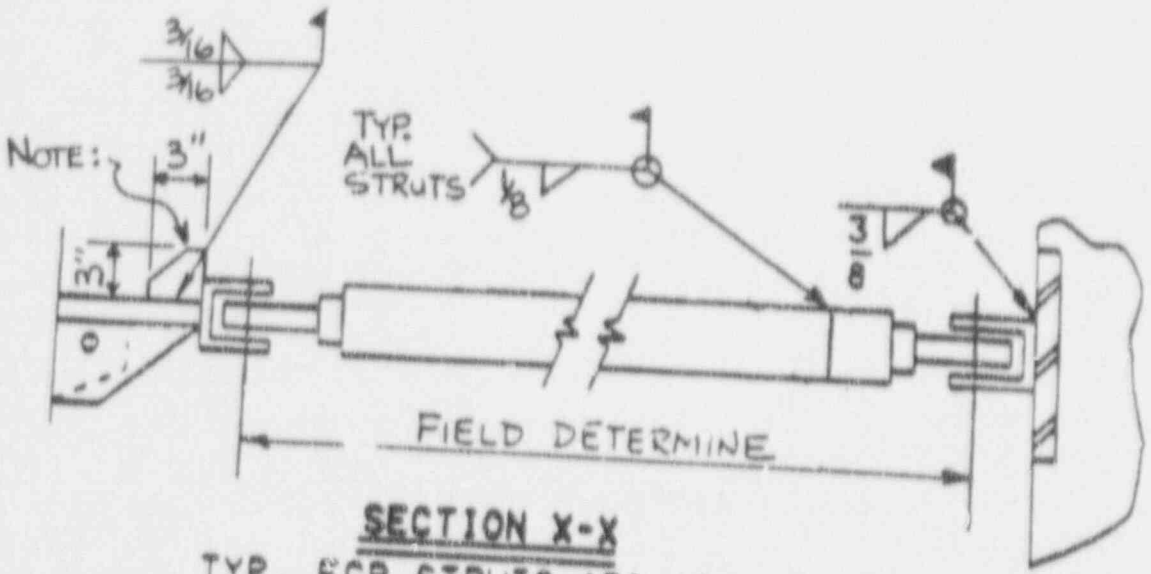
[ ] MDD

FIELD CHANGE REQUEST SUPPLEMENT SHEET 5 OF 5

APPLIES TO FCR NO. 90-VINO130-F005

APPLICABLE PAGE/SKETCH/DRAWING NO. (CIRCLE ONE) 51-C-90 VINO130-100 (SHT. 7 OF 95) REV. A

ORIGINAL



SECTION X-X

TYP. FCR STRUTS 'B', 'C', & 'D' (UNLESS NOTED)

NOTE: ½" R MAY BE ADDED AS SHOWN FOR STRUT 'B' END ATTACHMENT TO MOVE UP TO CLEAR INTERFERENCE.

PREPARED BY _____ 1/30/90 DATE

FIGURE 1 (CONT'D.)

( ) MDD

FIELD CHANGE REQUEST SHEET 1 OF 5

FCR NO. 90-VINO130-F006 DCP, SDCP or MDD NO. 90-VINO130-0-1

SAFETY RELATED? YES ✓ NO ___ ; EXTENSIVE? YES ___ NO ✓

APPLICABLE PAGE/SKETCH/DRAWING NO. (CIRCLE ONE) SI-C-90-VINO130-100 SHT. 9 & 10 OF 10 REV. A

REASON FOR CHANGE: TO PREVENT MACHINE ALIGNMENT FROM DEVIATING FROM ORIGINAL LOCATION.

DESCRIPTION OF CHANGE: STRUTS & JAM NUTS ARE TO BE TIGHTENED SUCH THAT THE FIT IS SNUG TIGHT TO PREVENT MOVEMENT IN 'PART 1000' PINS AND MACHINE ALIGNMENT FROM DEVIATING FROM ORIGINAL LOCATION.

FCR ORIGINATOR: J. Vincent Stewart / 4/1/90 DATE

APPROVED: Mike Norton / 4-1-90
RESPONSIBLE ENGINEER/ENGINEERING SUPERVISOR DATE

VERBAL APPROVAL GRANTED (SAFETY RELATED) - N/A for FCRs on MDD

COGNIZANT DESIGN ORGANIZATION Larry Posey / 4/1/90
ENTER NAME OF GRANTER DATE

RECORDED BY: J. Vincent Stewart / 4/1/90 DATE

RELEASED FOR WORK Mike Norton / 4-1-90
ESS/GENERAL MANAGER DATE

PRB CHAIRMAN ___ / ___ DATE MEETING NO: ___

FINAL APPROVAL
COGNIZANT DESIGN ORGANIZATION ___ / ___ DATE

ORIGINAL

FIGURE 1

[ ] MDD

FIELD CHANGE REQUEST SUPPLEMENT SHEET 2 OF 5

APPLIES TO FCR NO. 90-VINO130-E006

APPLICABLE PAGE/SKETCH/DRAWING NO. SI-C-VINO130-100 REV. A
(CIRCLE ONE) SHT. 9 OF 10

WAS

ORIGINAL

( ) MDD

FIELD CHANGE REQUEST SUPPLEMENT SHEET 2 OF 5

APPLIES TO FCR NO. 90-VINO130-E002

APPLICABLE PAGE/SKETCH/DRAWING NO. SI-C-90-VINO130-100 REV. A
(CIRCLE ONE) SHT 9 OF 9

B. FIELD TO ESTABLISH THE ORIENTATION AND ALIGNMENT OF MOTOR HOUSING USING FOUR (4) DIAL INDICATORS LOCATED IN BOTH X AND Y PLANES AT EACH QUADRANT AT THE TOP OF PUMP MOTOR, BEFORE PRE-LOADING OF ANY STRUTS:

A - INSTALL AND ALIGN ALL STRUTS LOOSELY.

B - PERFORM STRUCTURAL DYNAMIC TEST (BY BCS).

C - START HAND TIGHTENING EACH STRUT (COMPRESSION & CAD), AND AT ALL TIMES OBSERVE THE LOCATION AND ALIGNMENT OF PUMP MOTOR AS ESTABLISHED ABOVE BY DIAL INDICATORS (ZERO TOLERANCE).

D - IF THE ALIGNMENT IS DEVIATING FROM ITS ORIGINAL LOCATION, STOP TIGHTENING THAT PARTICULAR STRUT, AND LOOSEN UNTIL THE PUMP GOES BACK TO ITS ORIGINAL LOCATION.

E - REPEAT STEPS C AND D ABOVE UNTIL ALL STRUTS ARE PRELOADED SO THAT THERE IS NO PLAY IN PUMP MOTOR. TORQUE ALL STRUTS TO BE TORQUED TO A VALUE OF 5 - 20 FT.-LBS.

PREPARED BY T B Lowrey, 3/23/90
DATE

ORIGINAL

FIGURE 1 (CONT'D.)

PREPARED BY E. Vincent Stewart / 4/1/90
DATE

ORIGINAL

FIGURE 1 (CONT'D.)

[ ] MDD

FIELD CHANGE REQUEST SUPPLEMENT SHEET 3 OF 5

APPLIES TO FCR NO. 90-VIN0130-F006

APPLICABLE PAGE/SKETCH/DRAWING NO. S1-C-VIN0130-100 REV. A
(CIRCLE ONE)

IS

ORIGINAL

[ ] MDD

FIELD CHANGE REQUEST SUPPLEMENT SHEET 3 OF 5

APPLIES TO FCR NO. 90-VIN0130-F002

APPLICABLE PAGE/SKETCH/DRAWING NO. S1-C-90-VIN0130-100 REV. A
(CIRCLE ONE)

8. FIELD TO ESTABLISH THE ORIENTATION AND ALIGNMENT OF MO-OR HOUSING USING FOUR (4) DIAL INDICATORS LOCATED IN BOTH X AND Y PLANES AT EACH QUADRANT AT THE TOP OF PUMP MO-OR, BEFORE PRE-LOADING OF ANY STRUTS:
   A - INSTALL AND ALIGN ALL STRUTS LOOSELY.
   B - PERFORM STRUCTURAL DYNAMIC TEST (BY BCBI.
   C - START HAND TIGHTENING EACH STRUT (COMPRESSION & TAD), AND AT ALL TIMES OBSERVE THE LOCATION AND ALIGNMENT OF PUMP MOTOR AS ESTABLISHED ABOVE BY DIAL INDICATORS (ZERO TOLERANCE).
   D - IF THE ALIGNMENT IS DEVIATING FROM ITS ORIGINAL LOCATION | STOP TIGHTENING THAT PARTICULAR STRUT, AND LOOSEN UNTIL THE PUMP GOES BACK TO ITS ORIGINAL LOCATION.
   E - REPEAT STEPS C AND D ABOVE UNTIL ALL STRUTS ARE PRELOADED SO THAT THERE IS NO PLAY IN 'PART 1000' PINS. ALL STRUTS TO BE SNUGGED TIGHT.

PREPARED BY J. D. Lowry, 3/27/90
DATE

ORIGINAL

FIGURE 1 (CONT'D.)

PREPARED BY J. Vincent Stewart / 4/1/90
DATE

ORIGINAL

FIGURE 1 (CONT'D.)

[ ] MDD

FIELD CHANGE REQUEST SUPPLEMENT SHEET 4 OF 5

APPLIES TO FCR NO. 90-VIN0130-F006

APPLICABLE PAGE/SKETCH/DRAWING NO. SI-C-VIN0130-100 REV. A
(CIRCLE ONE) SHT 10 OF 10

WAS

ORIGINAL

NOTES CONTINUED :

9. JAM NUTS SHOULD BE TORQUED TO 80 FT. - LBS. AFTER PRELOADING SEQUENCE.

10. PART # 1000 ON DETAIL 11 SHOULD BE MOVED ALONG BEVELED PORTION OF PLATE TO MAINTAIN LINE OF FORCE WITH THE WORKING POINTS ON THE LIFTING LUGS (W.P.).

11. FIELD TO TRIM CORNERS AS REQUIRED TO CLEAR INTERFERENCES.

12. INSTALLATION TO BE COATED PER SPEC. A1A07.

PREPARED BY J. b Lisenby / 3/27/90
DATE

ORIGINAL

FIGURE 1 (CONT'D.)

PREPARED BY J. Vincent Stewart / 4/1/90
DATE

ORIGINAL

FIGURE 1 (CONT'D.)

[ ] MDD

FIELD CHANGE REQUEST SUPPLEMENT SHEET 5 OF 5

APPLIES TO FCR NO. 90-VINO130-F006

APPLICABLE PAGE/SKETCH/DRAWING NO. S1-C-VINO130-100 REV. A
(CIRCLE ONE)

15

ORIGINAL

[ ] MDD

FIELD CHANGE REQUEST SUPPLEMENT SHEET 10 OF 10

APPLIES TO FCR NO. 90-VINO130-F002

APPLICABLE PAGE/SKETCH/DRAWING NO. S1-C-90-VING130-100 REV. A
(CIRCLE ONE) ART 9 OF 9

NOTES CONTINUED :

9. JAM NUTS SHOULD BE SNUGGED TIGHT AFTER PRELOADING SEQUENCE.
10. PART # 1000 ON DETAIL 11 SHOULD BE MOVED ALONG TRIMMED PORTION OF PLATE TO MAINTAIN LINE OF FORCE WITH THE WORKING POINTS ON THE LIFTING LUGS (U.P.).
11. FIELD TO TRIM CORNERS AS REQUIRED TO CLEAR INTERFERENCES.
12. INSTALLATION TO BE COATED PER SPEC. X1AJ07.

PREPARED BY J.H. LIBBEY, 3/07/90
DATE

ORIGINAL

FIGURE 1 (CONT'D.)

PREPARED BY J. Vincent Stewart, 4/1/90
DATE

ORIGINAL

FIGURE 1 (CONT'D.)

05-251-90

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EAR PLANT MAINTENANCE WORK ORDER (1 OF 1)

CONTROL NO. 19001432 00 2.DATE 03/20/90 3.UNIT 1 4.SYSTEM 2403
MPL/TAG NO. ~~12403P5DG4~~ DIST D/G 1B ENG CNTRL PNL F-A 5A.REPAIR TAG 04420
MPL/TAG(S) ASSOCIATED WITH SPECIAL INDICATORS
6.PROB/ ALL LOGIC AND INPUTS NEED TO BE CHECKED GOING TO ANN. C06 "LO PRESS
WORK JACKET WTR" AND C07 "TRIP LO PRESS JACKET WTR".
REQ. LOCATION: DIESEL GEN 1B

VOID 3/29/90 ORIGINAL

CONT.
N WRT 4420

7.INITIATOR AV FOWLER 8.SUPRV B SNIDER LOC 1DB1
9.MWO CLASS S EQP CLASS 11J 10.UNIT STAT 11.FIRE PROTECT NO
12.DCR N 13.NCR/DR N 14.TYPE MAINT P 15.DURATION 6

16.CRAFT	MECH(EST/ACT)	ELEC(EST/ACT)	I&C(EST/ACT)	CONT(EST/ACT)	HP/OT(EST/ACT)
CREW	0	0	2 0 MHG 3/20/90	0	0
HRS.			12.0		
EXP.	0	0	0	0	0
SCHED BEG	__/__/__	__/__/__	__/__/__	__/__/__	__/__/__
SCHED END	__/__/__	__/__/__	__/__/__	__/__/__	__/__/__
RESP FOREMAN					

17.CLR X FTD SEW 3/20 18.WELD PERM N RWP PERM N
19.QC HOLD POINTS ATTACHED QC
QC REVIEWED BY [illegible] 3/20/90 21.PRI 14 22.LCO
23.WORK VERIFY CALIBRATION OF PRESSURE SWITCHES ASSOCIATED TO ANN. C06 & C07
INST. ALARM & TRIP FUNCTIONS. REPLACE ANY DEFECTIVE PRESSURE SWITCHES FOUND. MHG 3/20/90
IN ADDITION, CHECK ALL LOGIC INPUTS GOING TO ALARMS AND CORRECT AS
REQUIRED. MHG 3/20/90

CONT.
N See attached Caution Statement [signature] 3/20/90

24.INITIATE REVIEW 25.SPEC REV REQ N [signature] 3/23/90
OPS [signature] DATE 3/20/90 MNT MHG DATE 3/20/90 26.MWO RELEASE FOR WORK
HP [signature] DATE 3/20/90 ENG RH DATE 3/20/90 SIG. DATE __/__/__
27.ACT WORK PERFRMED VOID | WORK COMPLETED BY MWO's 19001511 & 19001542
[signature] 3.28.90

CONT.
N
HIST SUM

FOR INFORMATION ONLY

28.MTRL REQD
29.PERSON PERFORMING WORK(NAME) DATE 30.MAINTENANCE FOREMAN DATE
__/__/__ __/__/__
31.INSPECTION PERFORMED BY DATE __/__/__
32.METHOD OF F.T.
33.PROCEDURE # 34.PERFORMED BY 35.DATE __/__/__
36.PROVES OPERABILITY 37.METHOD USED TO PROVE OPERABILITY
38.SATISFY./UNSATISFY 39.IF UNSAT .CORR. ACTION
40.UNIT STATUS AT TIME OF FAILURE 41.TYPE FAIL 42.MODE OF FAIL
43.CAUSE OF FAILURE 44.DETECT BY 45.EFFECT ON SYS
46.EFF ON PLANT 47.MWO STAT 6D 48.CAUSE 49.CORR ACT.
NEW MWO 51.OPER. ACCEPT BY DATE __/__/__
52.OSOS APPROVAL DATE __/__/__
53.SPEC REV COMP DATE __/__/__ 54.MEET.# DATE __/__/__
55.CLOSE OUT APPROVAL BY QC [signature] 3/29/90

NUCLEAR PLANT MAINTENANCE WORK ORDER (CONTINUED) (2 OF 2)

CONTROL NO. 19001438 00

MPL/TAG NO.	SYSTEM	EQP CLS	DESCRIPTION	LOCATION
12403P5DG24	2403	11J	DG 1A ENGINE CNTRL PNL	1DGB1
1PS19173	2403	61J	JACKET WTR PRESS TRN B	X5DSP071
1PSL4895	2403	61J	TRN B TRIP LOW PRES JACK	1DB1
1PSL19121	2403	61J	DSL GEN2 JACK WTR MAIN HD	1DB1

05-252-90

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NUCLEAR PLANT MAINTENANCE WORK ORDER (1 OF 1)

1. CONTROL NO. 19001433 00 2. DATE 03/20/90 3. UNIT 1 4. SYSTEM 2403
MPL/TAG NO. ~~12403PC032~~ DG 1A ENGINE CNTRL PNL 5A. REPAIR TAG 04419
MPL/TAG(S) ASSOCIATED WITH SPECIAL INDICATORS
6. PROB/ WORK REQ. ALL LOGIC AND INPUTS NEED TO BE CHECKED GOING TO ANN. C06 "LO PRESS JACKET WTR" AND C07 "TRIP LO PRESS JACKET WTR".
LOCATION: DIESEL GEN 1A

ORIGINAL

FOR INFORMATION ONLY

CONT. N WRT 4419

7. INITIATOR AV FOWLER 8. SUPPV B SNIDER LOC 1DGB1
9. MWO CLASS S EQP CLASS 11J 10. UNIT STAT 11. FIRE PROTECT NO
12. DCR N 13. NCR/DR N 14. TYPE MAINT P 15. DURATION

16. CRAFT	MECH (EST/ACT)	ELEC (EST/ACT)	I&C (EST/ACT)	CONT (EST/ACT)	HP/OT (EST/ACT)
CREW	0 /	0 /	2 0 / 2 3	0 /	0 /
HRS.	/ N/A	/ N/A	~~12.00~~ / 16 0	/ N/A	/ N/A
EXP.	0 /	0 /	/	0 /	0 /
SCHED BEG	/ /	/ /	/ /	/ /	/ /
SCHED END	/ /	/ /	/ /	/ /	/ /
RESP FOREMAN					

17. CLR ~~Y~~ HOLD POINT ATTACHED 18. WELD PERM N RWP PERM N
19. QC HOLD PTS Y 20. PROC 22721-C 20429-C
QC REVIEWED BY [illegible] 3/20/90 21. PRI 14 22. LCO N/A
23. WORK INST. INVESTIGATE / VERIFY CALIBRATION OF PRESSURE SWITCHES ASSOCIATED TO ANN. C06 AND C07 - ALARM & TRIP FUNCTIONS. REPLACE ANY DEFECTIVE PRESSURE SWITCHES FOUND. ~~PERFORM~~ IN ADDITION CHECK ALL LOGIC INPUTS ~~GOING TO ALARMS~~ CORRECT AS REQUIRED. VERIFY CALIBRATION OF LUBE OIL TRIP PRESSURE SWITCHES AND JACKET WATER PRESSURE SWITCH. DO NOT DRAIN J.W. SYSTEM PC 3/21/90

CONT. N

24. INITIATE REVIEW 25. SPEC REV REQ N

OPS ~~SCA~~ DATE 3/20/90 MNT ~~QCR~~ DATE 3/20/90 26. MWO RELEASE FOR WORK ~~EES~~ 3/20/90
HP ~~N/A~~ DATE 3/21/90 ENC ~~N/A~~ DATE 3/20/90 SIG. DATE 3/22/90

27. ACT WORK PERFRMED Called need permission from unit ops. SS to begin work. Checked IPS-4749A for calibration, IPS-4749A would not reset, as found data could not be taken. IPS-4749B and IPS-4749C were checked for calibration and were found in tolerances. IPS-4749A, B & C were replaced with new units from NUS Corp warehouse, MEF # 5480. Pressure Switches were calibrated per 22721-C. Setpoint per IX4AK01-443 and Tolerance per RER 88-0202. MTE used, VP-2449 calibr. 4-30-90 and VP-2443 calibr. 5-24-90. IPS-19172 was checked for calibration and found within tolerance. IPS-19172 was checked per procedure 22721-C. MTE used VP-2549, calibr. 5-16-90 and VP-2443 calibr. 5-24-90. Setpoint per IX4AK01-52. Tolerance per RER 88-0707.

CONT. Yes
HIST SUM
28. MTRL REQD MER # 5480
29. PERSON PERFORMING WORK (NAME) DATE 30. MAINTENANCE FOREMAN DATE
[signature] 3/30/90 Phillip Lovelace 3/30/90
31. INSPECTION PERFORMED BY N/A DATE N/A
32. METHOD OF F.T. VERIFY PROPER DIESEL GEN. OPS PER SURV REC 14950-1 JCP 3/30/90
33. PROCEDURE # 14950-1 34. PERFORMED BY N/A 35. DATE 4/1/90
36. PROVES OPERABILITY N/A 37. METHOD USED TO PROVE OPERABILITY N/A
38. SATISFY./UNSATISFY 39. IF UNSAT. CORR. ACTION N/A
40. UNIT STATUS AT TIME OF FAILURE N 41. TYPE FAIL N 42. MODE OF FAIL N
43. CAUSE OF FAILURE N 44. DETECT BY N 45. EFFECT ON SYS N
46. EFF ON PLANT N 47. MWO STAT 6D 48. CAUSE N 49. CORR ACT. N
50. NEW MWO N/A 51. OPER. ACCEPT BY [signature] DATE 4/1/90
52. OSOS APPROVAL N/A DATE N/A
53. SPEC REV COMP N/A DATE N/A 54. MEET. # MA DATE N/A
55. CLOSE OUT APPROVAL BY QC [signature] 4/2/90

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NUCLEAR PLANT MAINTENANCE WORK ORDER (CONTINUED) (2 OF 2)

CONTROL NO. ~~19001432~~ 19001433 00

EQPL/TAG NO.	SYSTEM	EQP CLS	DESCRIPTION	LOCATION
12403PSDG#2	2403	11J	D/G 1B ENG CNTRL PNL F-A	1DB1
1PS19172 2IN	2403	61J	JACKET WTR PRESS TRN A	X5DSP218
1PSL4886 2IN 3/29/90	2403	61J	TRN A TRIP LOW PRES JACK	1DB1
1PSL19114 IMM	2403	61J	DSL GEN1 JACK WTR MAIN HD	1DB1
1PS4749A		61J	TRN A LO PRESS	
" B		61J	" "	
" C		61J	" "	

12403G4001

Nuclear Plant Maintenance Work Order Continuation Sheet

MPL No. See list MWO No. 19001433

Work Description

B&K 27) Checked calibration on 1PS4-1904 and found it within tolerance. Procedure 22721-C was used to check calibration. Setpoint was per 1X4AK01-52. Tolerance per 1X4AK01-1000l. M&TE used VP-2325 cal. due 4-16-90. All fittings were leak checked while area was roped off. Maintained Zone IV Housekeeping D/L 3-23-90

B&K 27) Per Eng. 1PS4886 ~~will~~ will not be calibrated at this time. D/L 3-30-90

Please write more for the 3 items

TROUBLESHOOTING RECOMMENDATIONS FOR
1A DIESEL GENERATOR

CALIBRATE THE ENGINE MOUNTED JACKET WATER PRESSURE SWITCH. 19114

CALIBRATE THE ENGINE/SKID MOUNTED LUBE OIL PRESSURE SWITCHES (3) PIN. EIA/S

IF THE TREND INDICATES CALIBRATION PROBLEMS, CALIBRATE ALL ENGINE/SKID MOUNTED PRESSURE AND TEMPERATURE SWITCHES.

CHECK THE TUBING CONNECTIONS TO VIBRATION SWITCHES ON BOTH BANKS OF TURBO CHARGERS.

START THE ENGINE USING NORMAL START SWITCH AT CONTROL ROOM. VERIFY ALL ENGINE PARAMETERS ARE IN PROPER RANGE. SNOOP TEST ALL PNEUMATIC LINES WHILE THE ENGINE IS RUNNING AND TI[illegible] LINE THAT IS LEAKING. RECORD THE IDENTIFICATION OF [illegible]G LINE. → this could be done on the morning

"RFOP" [illegible]. GENERATOR TEST BY SIMULATING A LOSS OF OFF [illegible]SNAL AND VERIFY THE OPERATION OF THE SEQUENCER
[illegible]. GENERATOR - when on the end of mid Sept.

A[illegible] [illegible]ENDED ITEMS ARE COMPLETED SATISFACTORILY DIESEL GEN[illegible] WOULD BE READY TO DECLARE OPERABLE.

This is to verify Vending port and Starboard are not reversed during tear down and reinstallation after that. Make sure TDI Personnel present while doing this work

During emergency start operations observed that one of the pressure Comparator malfunction alarm for a period of 5 - 6 seconds.

To remove the Switch do not drain jacket water. Minimize the water loss by immediately installing a pipe cap / plug as needed. Change this instruction to in more. Let procedure may require to drain jacket water.

IMPORTANT

EXTREME CAUTION MUST BE TAKEN TO ENSURE THAT THE WORK PERFORMED BY THIS MWO DOES NOT IN ANY WAY CAUSE A LOSS OF INFORMATION CONCERNING THE CAUSE OR CAUSES THAT LED TO THE TRIPS OF EDG 1A ON MARCH 20, 1990 OR THE LOW JACKET WATER PRESSURE AND LOW TURBO OIL PRESSURE ALARMS FOR EDG 1B ON MARCH 23, 1990.

CARE SHOULD BE TAKEN TO PRESERVE THE AS FOUND CONDITION OF REPLACED COMPONENTS (E.G., PREVENTION OF DAMAGE DUE TO JARRING OR DROPPING), AND TO CAREFULLY DOCUMENT ANY ABNORMAL OR UNUSUAL CONDITIONS THAT COULD POTENTIALLY AFFECT COMPONENT OPERATION. ALL TESTING OR CALIBRATION ACTIVITIES SHOULD BE CAREFULLY OBSERVED AND ANY ABNORMAL OPERATION OR MALFUNFTION OF EDG PARTS SHOULD BE CAREFULLY AND THOROUGHLY DOCUMENTED.

FOR USE WITH CONTROL NO. 19001433

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DATA SHEET

SHEET 1 OF 1

Inst. No. IPSL19114 (N21) Location 1DB1 Serial No. N/A

Description Pressure Switch Manufacturer BARKS DALE Model No. E1S-H90

NOTES: N/A

ACTION	UNITS	EXPECTED	LO LIMIT	HI LIMIT	AS FOUND	AS LEFT
Trip	PSI	45 ↓	45.9	44.1	45.2	45.2
Reset	PSI	53 ↑	N/A	53.9	48.1	48.1
ACTION	UNITS	EXPECTED	LO LIMIT	HI LIMIT	AS FOUND	AS LEFT
Trip			N/A			
Reset						

COMMENTS: RESET by 8PSI FROM S.P.
Setpoint per 1X4AK01-82
Tolerance per 1X4AK01-10001

TEST EQUIPMENT

I.D. NO.	MODEL NO.	CALIBRATION DUE DATE
VP-2325	Helse	4-16-90
		N/A

PERFORMED BY: Hunter Hanna DATE 3-22-90

REVIEWED BY: P. Lindsay DATE 3-24-90

APPROVED BY: F Bee DATE 3.29.90

CHECKLIST - SHEET 1 OF 1

3.1 Shift Supervisor Authorization

[signature] 3-22-90
Signature Date

3.2. Reactor Operator (RO) Notified

[signature] 3-22-90
Signature Date

Step Verification

Step/Substep		Initial	Step/Substep		Initial
3.4	Prerequisites are met	HRG	4.4.3	Isolation valves open	N/A
4.2.1	Lead wires disconnected	N/A	4.4.4	Lead wires reconnected	N/A
4.2.1	Independent Verification	N/A	4.4.5	Leak inspection	HRG
4.3.8	QC Notified	N/A	4.4.6	Current conditions reflected	HRG
4.4.1	QC Notified	N/A			
4.4.2	Test equipment removed	HRG			

RESTORATION VERIFICATION

		Initial
1.	Isolation valves open	N/A
2.	Lead wires reconnected	N/A

Performed by: [signature] Date: 3-22-90

Reviewed by: P. Lineberger Date: 3-24-90

COMPLETION SHEET

PROCEDURE TITLE PRESSURE SWITCH CALIBRATION

TIME TEST STARTED 2230 BY BRG DATE 3-22-90

DEFICIENCIES OCCURRED AND ACTIONS TAKEN

NONE

TEST RESULTS: ACCEPTABLE [X] UNACCEPTABLE [ ]

PRESSURE SWITCH RESTORED TO SERVICE [X]

PRESSURE SWITCH COMMITTED TO REPAIR [ ]

TEST COMPLETED BY K Jones TIME 2300 DATE 3-22-90

SHIFT SUPERVISOR NOTIFIED [illegible] 1937 3-23-90
Signature Time Date

REVIEWED BY: P Lindsey DATE 3-24-90

APPROVED BY: R Bell DATE 3-29-90

FOR USE WITH CONTROL NO. 19001433

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DATA SHEET SHEET 1 OF 1

Inst. No. IPS-4749A Location 1DB1 Serial No. N/A

Description Pressure Switch Manufacturer CALCON Model No. * F-573-156

NOTES: N/A

ACTION	UNITS	EXPECTED	LO LIMIT	HI LIMIT	AS FOUND	AS LEFT
Trip	PSIG	30↓	28	32	*	30.2
Reset	PSIG	38↑	N/A	40	*	34.8
ACTION	UNITS	EXPECTED	LO LIMIT	HI LIMIT	AS FOUND	AS LEFT
Trip						
Reset						

COMMENTS:
Setpoint 1X4AKD1-443-4 * NEW switch
Tolerance RER 88-0707

TEST EQUIPMENT		
I.D. NO.	MODEL NO.	CALIBRATION DUE DATE
VP-2448	ASHCROFT	4-30-90
VP-2443	ASHCROFT	5-24-90
	N	
	A	

PERFORMED BY: [signature] DATE 3-23-90
REVIEWED BY: [signature] DATE 3-24-90
APPROVED BY: [signature] DATE 3-29-90

CHECKLIST - SHEET 1 OF 1

3.1 Shift Supervisor Authorization

Signature _____ Date 3-22-90

3.2. Reactor Operator (RO) Notified

Signature _____ Date 3-22-90

Step Verification

Step/Substep		Initial	Step/Substep		Initial
3.4	Prerequisites are met	N/A	4.4.3	Isolation valves open	N/A
4.2.1	Lead wires disconnected	N/A	4.4.4	Lead wires reconnected	N/A
4.2.1	Independent Verification	N/A	4.4.5	Leak inspection	N/A
4.3.8	QC Notified	N/A	4.4.6	Current conditions reflected	N/A
4.4.1	QC Notified	N/A			
4.4.2	Test equipment removed	N/A			

RESTORATION VERIFICATION

		Initial
1.	Isolation valves open	N/A
2.	Lead wires reconnected	N/A

Performed by: Dave Johnson Date: 3-23-90

Reviewed by: P. Burleson Date: 3-24-90

COMPLETION SHEET

PROCEDURE TITLE PRESSURE SWITCH CALIBRATION

TIME TEST STARTED 0230 BY [illegible] DATE 3-23-90

DEFICIENCIES OCCURRED AND ACTIONS TAKEN

Did not use page 8 of data sheet

TEST RESULTS: ACCEPTABLE [✓] UNACCEPTABLE [ ]

PRESSURE SWITCH RESTORED TO SERVICE [✓]

PRESSURE SWITCH COMMITTED TO REPAIR [ ]

TEST COMPLETED BY [signature] TIME 0045 DATE 3-23-90

SHIFT SUPERVISOR NOTIFIED [signature] (Signature) 1977 (Time) 3 2[illegible] (Date)

REVIEWED BY: P. Kneberger DATE 3-27-90

APPROVED BY: P Bell DATE 3-29-90

JR USE WITH CONTROL NO. 1400233

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DATA SHEET

SHEET 1 OF 1

Inst. No. IPS-4749B Location 10B1 Serial No. N/A

Description Pressure Switch Manufacturer CALCON Model No. F-573-156

NOTES: N/A

ACTION	UNITS	EXPECTED	LO LIMIT	HI LIMIT	AS FOUND	AS LEFT
Trip	PSIG	30 ↓	28	32	*	30
Reset	PSIG	36 ↑	N/A	40	*	36.0
ACTION	UNITS	EXPECTED	LO LIMIT	HI LIMIT	AS FOUND	AS LEFT
Trip			N/A			
Reset						

COMMENTS: Setpoint N4AK01-443 Tolerance RER 88-0707 * NEW Switch

TEST EQUIPMENT

I.D. NO.	MODEL NO.	CALIBRATION DUE DATE
VP-2449	ASHCROFT	4-30-90
VP-2443	ASHCROFT	5-24-90
	N/A	
	N/A	

PERFORMED BY: John Tobin DATE 3-23-90

REVIEWED BY: P. Linebarger DATE 3-24-90

APPROVED BY: F Bell DATE 3-24-90

704810

CHECKLIST - SHEET 1 OF 1

3.1 Shift Supervisor Authorization

Signature _____ Date 3-23-90

3.2. Reactor Operator (RO) Notified

Signature _____ Date 3 23 90

Step Verification

Step/Substep		Initial	Step/Substep		Initial
3.4	Prerequisites are met	N/A	4.4.3	Isolation valves open	N/A
4.2.1	Lead wires disconnected	N/A	4.4.4	Lead wires reconnected	N/A
4.2.1	Independent Verification	N/A	4.4.5	Leak inspection	N/A
4.3.8	QC Notified	N/A	4.4.6	Current conditions reflected	N/A
4.4.1	QC Notified	N/A			
4.4.2	Test equipment removed	N/A			

RESTORATION VERIFICATION

		Initial
1.	Isolation valves open	N/A
2.	Lead wires reconnected	N/A

Performed by: [signature] Date: 3-23-90

Reviewed by: [signature] Date: 3-24-90

COMPLETION SHEET

PROCEDURE TITLE PRESSURE SWITCH CALIBRATION

TIME TEST STARTED 2035 BY [illegible] DATE 3-23-90

DEFICIENCIES OCCURRED AND ACTIONS TAKEN

Did not use page 8 of data sheet

TEST RESULTS: ACCEPTABLE [✓] UNACCEPTABLE [ ]

PRESSURE SWITCH RESTORED TO SERVICE [✓]

PRESSURE SWITCH COMMITTED TO REPAIR [ ]

TEST COMPLETED BY [signature] TIME 0050 DATE 3-23-90

SHIFT SUPERVISOR NOTIFIED [signature] (Signature) 1937 (Time) 3-23-90 (Date)

REVIEWED BY: P Lineberger DATE 3-24-90

APPROVED BY: R Bell DATE 3-29-90

FOR USE WITH CONTROL NO. 19051433

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DATA SHEET

SHEET 1 OF 1

Inst. No. IPS-474C Location 1DB1 Serial No. N/A

Description Pressure Switch Manufacturer Celcon Model No. F-573-156

NOTES: N/A

ACTION	UNITS	EXPECTED	LO LIMIT	HI LIMIT	AS FOUND	AS LEFT
Trip	PSIG	30↓	28	32	*	30.2
Reset	PSIG	38↑	N/A	40	*	35.4
ACTION	UNITS	EXPECTED	LO LIMIT	HI LIMIT	AS FOUND	AS LEFT
Trip				N/A		
Reset						

COMMENTS: setpoint HYAK01-443

Tolerance ESR 88-0707

* New switch

TEST EQUIPMENT

I.D. NO.	MODEL NO.	CALIBRATION DUE DATE
VP-2449	ASHCROFT	4-30-90
VP-2443	ASHCROFT	5-24-90
	N/A	

PERFORMED BY: [signature] DATE 3-23-90

REVIEWED BY: P. Kenelty DATE 3-24-90

APPROVED BY: [signature] DATE 3-24-90

CHECKLIST -- SHEET 1 OF 1

3.1 Shift Supervisor Authorization

Signature _____ Date 3-23-90

3.2. Reactor Operator (RO) Notified

Signature _____ Date 3-23-90

Step Verification

Step/Substep		Initial	Step/Substep		Initial
3.4	Prerequisites are met	N/A	4.4.3	Isolation valves open	N/A
4.2.1	Lead wires disconnected	N/A	4.4.4	Lead wires reconnected	N/A
4.2.1	Independent Verification	N/A	4.4.5	Leak inspection	N/A
4.3.8	QC Notified	N/A	4.4.6	Current conditions reflected	N/A
4.4.1	QC Notified	N/A			
4.4.2	Test equipment removed	N/A			

RESTORATION VERIFICATION

	Initial
1. Isolation valves open	N/A
2. Lead wires reconnected	N/A

Performed by: Wm Tolbert Date: 3-23-90

Reviewed by: P. Lineberry Date: 3-24-90

COMPLETION SHEET

PROCEDURE TITLE PRESSURE SWITCH CALIBRATION

TIME TEST STARTED 0050 BY AJL DATE 3-23-90

DEFICIENCIES OCCURRED AND ACTIONS TAKEN

Did not use page 8 of data sheet

TEST RESULTS: ACCEPTABLE [✓] UNACCEPTABLE [ ]

PRESSURE SWITCH RESTORED TO SERVICE [✓]

PRESSURE SWITCH COMMITTED TO REPAIR [ ]

TEST COMPLETED BY A Lytle TIME 0055 DATE 3-23-90

SHIFT SUPERVISOR NOTIFIED [signature] 1537 3-23-90
Signature Time Date

REVIEWED BY: P. Lovelace DATE 3-24-90

APPROVED BY: T Bell DATE 3-29-90

FOR USE WITH CONTROL NO. 19001433

Procedure No.	Revision	Page No.
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DATA SHEET SHEET 1 OF 1

Inst. No. IPS19172 (N22) Location 1DB1 Serial No. N/A

Description Pressure Switch Manufacturer Calcon Model No. F-573-156

NOTES: N/A

ACTION	UNITS	EXPECTED	LO LIMIT	HI LIMIT	AS FOUND	AS LEFT
Trip	PSI	8 ↓	6	10	7.05	7.05
Reset	PSI	16 ↑	N/A	18	11.34	11.34
ACTION	UNITS	EXPECTED	LO LIMIT	HI LIMIT	AS FOUND	AS LEFT
Trip						
Reset						

COMMENTS: Setpoint per 1X4AK01-52
Tolerance per RER 88-0707

TEST EQUIPMENT		
I.D. NO.	MODEL NO.	CALIBRATION DUE DATE
VP-2549	Heise	5-16-90
VP-2443	ASHCROFT	5-24-90

PERFORMED BY: [signature] DATE 3-23-90

REVIEWED BY: [signature] DATE 3-24-90

APPROVED BY: [signature] DATE 3-29-90

CHECKLIST - SHEET 1 OF 1

3.1 Shift Supervisor Authorization

[signature] 3-22-90
Signature Date

3.2. Reactor Operator (RO) Notified

[signature] 3-22-90
Signature Date

Step Verification

Step/Substep		Initial	Step/Substep		Initial
3.4	Prerequisites are met	N/A	4.4.3	Isolation valves open	N/A
4.2.1	Lead wires disconnected	N/A	4.4.4	Lead wires reconnected	N/A
4.2.1	Independent Verification	N/A	4.4.5	Leak inspection	HRG
4.3.8	QC Notified	N/A	4.4.6	Current conditions reflected	N/A
4.4.1	QC Notified	N/A			
4.4.2	Test equipment removed	N/A			

RESTORATION VERIFICATION

		Initial
1.	Isolation valves open	N/A
2.	Lead wires reconnected	N/A

Performed by: [signature] Date: 3-23-90

Reviewed by: [signature] Date: 3-24-90

COMPLETION SHEET

PROCEDURE TITLE PRESSURE SWITCH CALIBRATION

TIME TEST STARTED 0025 BY [illegible] DATE 3-23-90

DEFICIENCIES OCCURRED AND ACTIONS TAKEN

Did not use page 8 of Data sheet

TEST RESULTS: ACCEPTABLE [✓] UNACCEPTABLE [ ]

PRESSURE SWITCH RESTORED TO SERVICE [✓]

PRESSURE SWITCH COMMITTED TO REPAIR [ ]

TEST COMPLETED BY [signature] TIME 0100 DATE 3-23-90

SHIFT SUPERVISOR NOTIFIED [signature] 1937 3-23-90
Signature Time Date

REVIEWED BY: P. Snelgrove DATE 3-24-90

APPROVED BY: F Bell DATE 3-24-90

Procedure No.	Revision	Page No.
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DATA SHEET

SHEET 1 OF 1

Inst. No. 1PI4749B Location 1DB1 Serial No. N/A

Description Pressure Switch Manufacturer CALCON Model No. F-573-156

NOTES: N/A

ACTION	UNITS	EXPECTED	LO LIMIT	HI LIMIT	AS FOUND	AS LEFT
Trip	PSIG	30 ↓	28	32	30.1	30.1
Reset	PSIG	38 ↑	N/A	40	~~39.8~~ 38.2	38.2
ACTION	UNITS	EXPECTED	LO LIMIT	HI LIMIT	AS FOUND	AS LEFT
Trip			N/A			
Reset			N/A			

COMMENTS:

Setpoint 1X4AK01-443-4
Tolerance RER 88-0707

TEST EQUIPMENT		
I.D. NO.	MODEL NO.	CALIBRATION DUE DATE
VP-2449	ASHCROFT	4-30-90
VP-2443	ASHCROFT	5-24-90
	N/A	
	N/A	

PERFORMED BY: Adam Fikrus DATE 3-23-90

REVIEWED BY: P. Lindsey DATE 3-24-90

APPROVED BY: K Bell DATE 3-24-90

CHECKLIST - SHEET 1 OF 1

3.1 Shift Supervisor Authorization

[signature] Signature — 3-22-90 Date

3.2. Reactor Operator (RO) Notified

[signature] Signature — 3-22-90 Date

Step Verification

Step/Substep		Initial	Step/Substep		Initial
3.4	Prerequisites are met	N/A	4.4.3	Isolation valves open	N/A
4.2.1	Lead wires disconnected	N/A	4.4.4	Lead wires reconnected	N/A
4.2.1	Independent Verification	N/A	4.4.5	Leak inspection	*
4.3.8	QC Notified	N/A	4.4.6	Current conditions reflected	*
4.4.1	QC Notified	N/A			
4.4.2	Test equipment removed	N/A			

RESTORATION VERIFICATION

		Initial
1.	Isolation valves open	N/A
2.	Lead wires reconnected	N/A

Performed by: [signature] Date: 3-23-90

Reviewed by: [signature] Date: 3-24-90

* Switch was replaced with new one.

Sheet 1 of 1

COMPLETION SHEET

PROCEDURE TITLE PRESSURE SWITCH CALIBRATION

TIME TEST STARTED 0110 BY [illegible] DATE 3-23-90

DEFICIENCIES OCCURRED AND ACTIONS TAKEN

Did not use page 8 of data sheet

* This switch was replaced with a new one, MER# 5480

TEST RESULTS: ACCEPTABLE [✓] UNACCEPTABLE [ ]

PRESSURE SWITCH RESTORED TO SERVICE [✓]*

PRESSURE SWITCH COMMITTED TO REPAIR [ ]

TEST COMPLETED BY [signature] TIME 0115 DATE 3-23-90

SHIFT SUPERVISOR NOTIFIED [signature] 0123 3-23-90
Signature Time Date

REVIEWED BY: [signature] DATE 3-24-90

APPROVED BY: R Bell DATE 3 29 90

703449

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DJL 3-23-90

DATA SHEET SHEET 1 OF 1

Inst. No. ~~IPS44~~ IPS4749C Location 1DB1 Serial No. N/A

Description Pressure Switch Manufacturer CALCON Model No. F-573-156

NOTES: N/A

ACTION	UNITS	EXPECTED	LO LIMIT	HI LIMIT	AS FOUND	AS LEFT
Trip	PSIG	30↓	28	32	30.2	30.2
Reset	PSIG	38↑	N/A	40	35.4 ~~35.8~~ 35.4	35.8
ACTION	UNITS	EXPECTED	LO LIMIT	HI LIMIT	AS FOUND	AS LEFT
Trip			N/A			
Reset			N/A			

COMMENTS:

Setpoint 1XHAKD1-443-4

Tolerance RER 88-0707

TEST EQUIPMENT

I.D. NO.	MODEL NO.	CALIBRATION DUE DATE
VP-2448	ASHCROFT	4-30-90
VP-2443	ASHCROFT	5-24-90
	N/A	
	N/A	

PERFORMED BY: [signature] DATE 3-23-90

REVIEWED BY: [signature] DATE 3-24-90

APPROVED BY: [signature] DATE 3-24-90

7046H

CHECKLIST - SHEET 1 OF 1

3.1 Shift Supervisor Authorization

[signature] Signature — 3-22-90 Date

3.2. Reactor Operator (RO) Notified

[signature] Signature — 3-22-90 Date

Step Verification

Step/Substep		Initial	Step/Substep		Initial
3.4	Prerequisites are met	N/A	4.4.3	Isolation valves open	N/A
4.2.1	Lead wires disconnected	N/A	4.4.4	Lead wires reconnected	N/A
4.2.1	Independent Verification	N/A	4.4.5	Leak inspection	*
4.3.8	QC Notified	N/A	4.4.6	Current conditions reflected	*
4.4.1	QC Notified	N/A			
4.4.2	Test equipment removed	N/A			

RESTORATION VERIFICATION

		Initial
1.	Isolation valves open	N/A
2.	Lead wires reconnected	N/A

Performed by: [signature] Date: 3-23-90

Reviewed by: P. Lindsay Date: 3-24-90

* Switch was replaced with new one.

Sheet 1 of 1

COMPLETION SHEET

PROCEDURE TITLE PRESSURE SWITCH CALIBRATION

TIME TEST STARTED 0120 BY [signature] DATE 3-23-90

DEFICIENCIES OCCURRED AND ACTIONS TAKEN

Did not use page 8 of data sheet.

* This switch was replaced with a new one, MER# 5480

TEST RESULTS: ACCEPTABLE [✓] UNACCEPTABLE [ ]

PRESSURE SWITCH RESTORED TO SERVICE [✓] *

PRESSURE SWITCH COMMITTED TO REPAIR [ ]

TEST COMPLETED BY [signature] TIME 01:05 DATE 3-23-90

SHIFT SUPERVISOR NOTIFIED [signature] 0127 3-23-90
Signature Time Date

REVIEWED BY: P. Lineberger DATE 3-24-90

APPROVED BY: [signature] DATE 3-29-90

GEORGIA POWER COMPANY
VEGP QUALITY CONTROL

QC HOLD / WITNESS POINTS

85010-C FIG. 1
PAGE 1 OF 1

MWO NO: 19001433

PROCEDURE & REV NO: 30429-C Revision 5

NOTIFY QUALITY CONTROL PRIOR TO PERFORMING THE WORK ACTIVITY OR STEP ASSOCIATED WITH THE HOLD (H) OR WITNESS (W) POINT

DO NOT BYPASS QC HOLD OR WITNESS POINTS

STEP NO.	H / W	HOLD POINT / WITNESS POINT DESCRIPTION	ASSIGNED BY INIT	ASSIGNED BY DATE	NOTIFIED INIT	NOTIFIED DATE	QC ACTION INIT	QC ACTION I-W-N/A
1.	H	Contact QC prior to relanding safety related conductors	[illegible]	7/29/09	[illegible]	3-20-10	[illegible]	N/A
2	H	Notify QC per the hold point in 22721-C	[illegible]	3/20/10	[illegible]	3-20-10	[illegible]	N/A
3	H	Notify QC prior to replacing any R-pin to	[illegible]	3/20/10	[illegible]	3-20-10	[illegible]	N/A

COMMENTS & IR NUMBERS: (Initial and date entries)

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EQ EVALUATION CHECKLIST

FOR USE ON PROJECT CLASSES Q111, Q212, Q313, Q013, Q015, Q11E, Q11J, Q12E, 61J

MWO NO. 19001433

SECTION I

PART A ORIGINAL PART	PART B REPLACEMENT PART
1. DESCRIPTION DG CONTROL PANEL	1. DESCRIPTION LOW PRESS SENSOR
2. TAG NO. 12403 P5 DG2	2. MER NO. 5480
3. PROJECT CLASS 11J	3. STOCK NO. 29200-26235
4. SPECIFICATION (EQDP) NO. X4AK01	4. SPECIFICATION (EQDP) NO. X4AK01
5. MANUFACTURER DELAVAL	5. MANUFACTURER DELAVAL
6. MODEL NO. NA	6. MODEL NO. NA
7. PART NO. E573156	7. PART NO. E573156
	8. PO NO. G 55004

COMMENTS

SECTION II WORK PLANNING

1. ARE PROCEDURES, VENDOR MANUALS, DRAWINGS OR INSTRUCTIONS AVAILABLE TO DISASSEMBLE/REWORK COMPONENT? ✓ YES ___ NO
   ASH / 3-20-90 (Init. Date)

2. ARE SPECIFICATION NUMBERS FOR ORIGINAL AND REPLACEMENT ITEMS THE SAME? ✓ YES ___ NO

3. ARE MANUFACTURER MODEL/PART NUMBERS OF THE ORIGINAL AND REPLACEMENT PARTS THE SAME? ✓ YES ___ NO

4. IS BULK MATERIAL LISTED ON ATTACHMENT ACCEPTABLE? LIST ITEM NO. FROM ATTACHMENT IF "NO" IS CHECKED. NA YES ___ NO
   NA (Item No.) / (Init. Date)

NOTE

If items 2, 3, or 4 are checked No, the Checklist must be reviewed by the EQ Group.

[✓] PART(S) ARE ACCEPTABLE FOR USE
[ ] SEND TO EQ GROUP

KCHeaton WPG 13-30-90 DATE

SECTION III EQ GROUP EVALUATION

[ ] PART IS ACCEPTABLE FOR USE [ ] PART IS UNACCEPTABLE FOR USE

JUSTIFICATION FOR ACCEPTANCE: N/A

EQ ENGINEER / DATE

Material/Equipment Request—NUCLEAR OPERATIONS
VOGTLE ELECTRIC GENERATING PLANT

Q" R.L 3-23-90

COPY 2

Department/Contractor	Design Change No.	Date	[illegible]
I&C		3-23-90	

Description/Tag	Stock Number	Location	Quantity Ord.	Quantity Filled	Quantity U/M	P.O. No.	MIR No.	Maint. Work Order	Unit	Account Number	Resp. Center	Actv. Code
63000 Pressure Switch	[illegible]	B-65-D-9	3	3	EA	G-5500 It 2	88 2431	1900 1433	1	8251-531-003	[illegible]	[illegible]

Ordered By	Approved By	Filled By	Received By	Date
DAVE LOHRMAN	Phillip Loveless	Sarah Harned	Dave Lohrman	3-23-90

70469B MCS122

VEGP FIRE PROTECTION CHECKLIST

1. MWO NO. 19001433 2. MPL/TAG NO. 12403 PSD62
3. LOCATION D. Green 2

4. WILL THE WORK INSTALL, IMPAIR, MODIFY, ISOLATE, DEFEAT, OR REMOVE ANY OF THE FOLLOWING? IF THE ANSWER IS "YES" CHECK THE BOX, AND INDICATE APPROPRIATE DETAILS.

( ) SPRINKLER SYSTEM _____
( ) INTERIOR HOSE STATION _____
( ) HALON SYSTEM _____
( ) DETECTION SYSTEM _____
( ) EMERGENCY LIGHTING SYSTEM _____
( ) PERMANENT COMBUSTIBLES (CABLE, WOOD, PLASTIC, ETC.) _____
( ) STRUCTURAL STEEL, OR RACEWAY FIREPROOFING _____
( ) FIRE SUPPRESSION SUPPLY SYSTEM (PUMPS, TANKS, ETC.) _____
( ) CONDUIT SEALS OR EQUIPMENT ENCLOSURE (CABINET HOUSING) _____
( ) FIRE EXTINGUISHER _____
( ) COMMUNICATIONS SYSTEM _____
( ) RCP OIL COLLECTION SYSTEM _____
( ) SEISMIC STANDPIPE SYSTEM _____

5. WILL THE WORK DEFEAT, MODIFY OR IMPAIR ANY OF THE FOLLOWING FIRE SEPARATION FEATURES? IF THE ANSWER IS "YES" CHECK THE BOX, AND INDICATE APPROPRIATE DETAILS.

( ) A. FIRE AREA BOUNDARY (WALL, ETC.) _____
( ) B. PASSIVE AREA BOUNDARY PENETRATION SEAL ASSEMBLY.
PENETRATION SEAL _____
WALL BLOCKOUT _____
FLOOR PLUG OR HATCH _____
CABLE TRAY OR CONDUIT WRAP _____
RADIANT ENERGY SHIELD _____
( ) C. ACTIVE FIRE AREA BOUNDARY PENETRATION SEAL.
FIRE DOOR _____
FIRE DAMPER _____

6. IF ALL THE ANSWERS IN BLOCKS 4 and 5 ARE "NO", STOP THE EVALUATION HERE, AND ENTER "NO" IN BLOCK 11 OF THE MWO FORM.
IF ANY QUESTIONS WERE ANSWERED "YES", ENTER "YES" IN BLOCK 11 OF THE MWO FORM.
EVALUATOR RRose DATE 3/20/90

POST WORK REVIEW (COMPLETE "A, B, OR C" BELOW)

(A) THE CONDITION IMPACTING THE FIRE PROTECTION COMPONENTS LISTED ABOVE HAS BEEN REMOVED. FPE _____ DATE _____

N/A

(B) THE FIRE PROTECTION COMPONENT IS STILL IMPAIRED.
FPE _____ DATE _____

(C) RESTORATION OF THE IMPAIRMENT HAS BEEN TRANSFERRED (Ref? _____) AND THE FIRE PROTECTION LCO LOG HAS BEEN CHANGED TO REFERENCE THE NEW MWO FOR THIS IMPAIRMENT. FPE _____ DATE _____

FIGURE 1

05-253-90

** COPY ** COPY ** COPY ** COPY ** COPY ** COPY **COPY ** COPY ** COPY ** COPY

NUCLEAR PLANT MAINTENANCE WORK ORDER (1 OF 2)

1. CONTROL NO. 19001537 00 2. DATE 03/25/90 3. UNIT 1 4. SYSTEM 2403

MPL/TAG NO. 12403P5DG4 D/G 1B ENG CNTRL PNL F-A 5A. REPAIR TAG

MPL/TAG(S) ASSOCIATED WITH SPECIAL INDICATORS

6. PROB/WORK REQ. DIESEL GENERATOR 1B HAS HAD INTERMITTENT TRIP PROBLEMS.

ORIGINAL

CONT. N

7. INITIATOR KEN STOKES 8. SUPRV KEN STOKES LOC 1DB1

9. MWO CLASS S EQP CLASS 11J 10. UNIT STAT 1 11. FIRE PROTECT N

12. DCR N 13. NCR/DR N 14. TYPE MAINT P 15. DURATION

16. CRAFT	MECH (EST/ACT)	ELEC (EST/ACT)	I&C (EST/ACT)	CONT (EST/ACT)	HP/OT (EST/ACT)
CREW HRS. EXP.	0 /	0 /	0 /	0 /	0 /
SCHED BEG	/ /	/ /	/ /	/ /	/ /
SCHED END	/ /	/ /	/ /	/ /	/ /
RESP. WORKMAN					

17. CLR # ET 90/5549 18. WELD PERM N RWP PERM N

19. QC HOLD PTS Y 20. PROC 27563 C

QC REVIEWED BY Boyd Hilton 3/25/90 21. PRI 14 22. LCO NA

23. WORK INST.

SEE CONTINUATION SHEET.

CONT. Y

Cooper P.O. # 6002124

24. INITIATE REVIEW 25. SPEC REV REQ N

OPS DATE 3/25/90 MNT DATE 3/25/90 26. MWO RELEASE FOR WORK

HP DATE 3/25/90 ENG DATE 3/25/90 SIG. DATE 3/25/90

27. ACT WORK PERFRMED

SEE Block 27 Continuation Sheets

LOGIC BOARD is in B Storage in the I&C Shop. DJL 3-22-90

FOR INFORMATION ONLY

CONT. N

HIST SUM

28. MTRL REQD MOR# 90-5724

29. PERSON PERFORMING WORK(NAME) DATE 3/27/90 30. MAINTENANCE FOREMAN DATE 3/27/90

31. INSPECTION PERFORMED BY DATE 3/27/90

32. METHOD OF F.T. Ops. Perform 1498-1 Page 3.28-32

33. PROCEDURE # NA 34. PERFORMED BY 35. DATE 3/28/90

36. PROVES OPERABILITY NA 37. METHOD USED TO PROVE OPERABILITY NA

38. SATISFY / UNSATISFY 39. IF UNSAT, CORR. ACTION NA

40. UNIT STATUS AT TIME OF FAILURE N 41. TYPE FAIL N 42. MODE OF FAIL N

43. CAUSE OF FAILURE N 44. DETECT BY N 45. EFFECT ON SYS N

46. EFF ON PLANT N 47. MWO STAT 6D 48. CAUSE N 49. CORR ACT. N

50. NEW MWO NA 51. OPER. ACCEPT BY DATE 3/28/90

52. SOSOS APPROVAL NA DATE / /

53. SPEC REV COMP NA DATE 3/25/90 54. MEET. # NA DATE / /

55. CLOSE OUT APPROVAL BY QC DJ Hillman 3-29-90

B Unit TRAIN

05-253-90

CONTROL NO. 19001537 00

WORK INSTRUCTIONS: PERFORM ENGINE LOGIC TESTING PER PROCEDURE 27563-C, REV 2. COOPER ENERGY SERVICES PERSONNEL WILL BE PERFORMING APPLICABLE PORTIONS OF THE PROCEDURE WITH ASSISTANCE FROM GPC PERSONNEL AS REQUIRED. THE ELECTRICAL PROTIONS OF THE PROCEDURE NEED NOT BE RETESTED. ADDITIONAL INSTRUMENTATION MAY BE CONNECTED BY TEST PERSONNEL TO AID IN TROUBLESHOOTING ANY INSTRUMENTATION CONNECTED OR ADJUSTMENTS MADE SHALL BE DOCUMENTED COMPLETELY ON THIS MWO. DOCUMENT COMPLETELY ANY PROBLEMS ENCOUNTERED WHILE PERFORMING THIS TEST.

FOLLOWING THE LOGIC TEST THE ENGINE WILL BE STARTED IN THE EMERGENCY MODE AND A LEAK TEST PERFORMED ON THEST LINES:

E-10A - TRIP LOW PRESSURE LUBE OIL
B - " " " " "
C - " " " " "
E-16A - TRIP HIGH TEMP JACKET WATER
B - " " " " "
C - " " " " "
E-68 - TRIP HIGH PRESSURE CRANKCASE
E-92 - TRIP LOW PRESSURE TURBO OIL
E-14 - TRIP LOW PRESSURE JACKET WATER
E-23H - TRIP HIGH VIBRATION
E-19 - TRIP HIGH TEMP ENG BEARINGS
E-18 - TRIP HIGH TEMP LUBE OIL

TEST FOR LEAKAGE BY DISCONNECTING TUBING AT CONTROL PANEL BULKHEAD AND CONNECTING PNEUMATIC BUBBLE TESTER. OBSERVE TESTER FOR AIR FLOW WHEN LINE IS PRESSURIZED. RESTORE TUBING CONNECTION AT BULKHEAD AND CONTINUE WITH NEXT INSTRUMENT LINE.

NOTE

THE AREA OF TESTING SHALL BE ROPED AND ENTRANCE LIMITED TO ESSENTIAL PERSONNEL AS DETERMINED BY COOPER REPRESENTATIVES AND GPC ENGINEERING.

GPC ENGINEERING SHALL BE PRESENT FOR ALL TESTING AND QC REPRESENTATIVE PRESENT AS REQUIRED.

Craig A Conklin
FOR KEN STOKES 3/25/90

CONTROL NO. 19001537 00

MPL/TAG NO.	SYSTEM	EQP CLS	DESCRIPTION	LOCATION
12403P5DG4	2403	11J	D/G 1B ENG CNTRL PNL F-A	1DB1
12403G4002	2403	015	DIESEL GENERATOR	1DGB1-

BLK 23:

STEP #1 FOLLOWING THE LOGIC TEST THE ENGINE WILL BE STARTED IN THE EMERGENCY MODE AND A LEAK TEST PERFORMED ON THEST LINES:

E-10A - TRIP LOW PRESSURE LUBE OIL
B - " " " " "
C - " " " " "
E-16A - TRIP HIGH TEMP JACKET WATER
B - " " " " "
C - " " " " "
E-68 - TRIP HIGH PRESSURE CRANKCASE
E-92 - TRIP LOW PRESSURE TURBO OIL
E-14 - TRIP LOW PRESSURE JACKET WATER
E-23H - TRIP HIGH VIBRATION
E-19 - TRIP HIGH TEMP ENG BEARINGS
E-18 - TRIP HIGH TEMP LUBE OIL

TEST FOR LEAKAGE BY DISCONNECTING TUBING AT CONTROL PANEL BULKHEAD AND CONNECTING PNEUMATIC BUBBLE TESTER. OBSERVE TESTER FOR AIR FLOW WHEN LINE IS PRESSURIZED. RESTORE TUBING CONNECTION AT BULKHEAD AND CONTINUE WITH NEXT INSTRUMENT LINE.

STEP #2 NORMAL START

- TRIP BY HI-TEMP LUBE OIL

STEP #3 LOSP START (JUMPER IN GEN. CONTROL PANEL 211 TO 213)

- TRIP BY HIGH VIBRATION

STEP #4 NORMAL START

- TRIP BY HIGH PRESS CRANKCASE

STEP #5 SI START (JUMPER IN GEN. CONTROL PANEL 204 TO 209)

- TRIP BY 2 OF 3 L.O. PRESSURE

NOTE

THE AREA OF TESTING SHALL BE ROPED AND ENTRANCE LIMITED TO ESSENTIAL PERSONNEL AS DETERMINED BY COOPER REPRESENTATIVES AND GPC ENGINEERING.

GPC ENGINEERING SHALL BE PRESENT FOR ALL TESTING AND QC REPRESENTATIVE PRESENT AS REQUIRED.

CJP 3/27/90

VOGTLE ELECTRIC GENERATING PLANT — GEORGIA POWER CO.

MAINTENANCE WORK ORDER REVISION SHEET

1 CONTROL NO.	2 REVISION NO.	3 MPL TAG NO.	4 DATE
1900 1537	1	1-2403-G4-002 1-2403-P5-D64	3/26/90

5 REASON FOR REVISION

Logic Board 1A-2055 In The 1B D/G Control Panel Does Not Extend The Shut Down Cylinder On Command Replace Logic Board With New Logic Board Stk.# 29206-26478 MER#90-5724

Maintain old logic board in Q-Storage. Note location on this MWO. Sys. Engr. will determine analysis to be performed on the old Logic Board.

6 INITIATOR
David Hawkins
David Hawkins

REVIEW SIGNATURES IIJ XCS 3/26/90

7 MAINTENANCE ENG KSheaton 3-26-90	8 OPERATIONS JMC 3-26-90	9 CLEARANCE REQUIRED 1-90-15549
10 QC REVIEW J.C. Harvey 3-21-90	11 HOLD POINTS Yes	
12 HP REVIEW N/A KSH 3-26-90	13 NEW RWP REQUIRED N/A	
14 ANII REVIEW NA, KSH 3-26-90	15 HOLD POINTS NH	
16 WORK PLANNER Gary Combs 3/26/90	17 PROCEDURES 27563-C R/2	
18 FIRE PROTECTION REVIEW NA CAC 3/26/90	19 SHIFT SUPERVISOR WP Stephens 3/26/90	

20 REMARKS

VOGTLE ELECTRIC GENERATING PLANT GEORGIA POWER CO.

MAINTENANCE WORK ORDER REVISION SHEET

1 CONTROL NO.	2 REVISION NO.	3 MPL TAG NO.	4 DATE
19001537	2	12403 PSDG4 12403G4002	3/27/90

5 REASON FOR REVISION

ADDITION OF WORK INSTRUCTIONS

- PERFORM TEST ACCORDING TO STEPS 1 THROUGH 5 ON CONTINUATION SHT.
- RECORD RESULTS IN BLK 27

6 INITIATOR
JEFF PALMER
X3260

REVIEW SIGNATURES

7 MAINTENANCE ENG 3/27/90	8 OPERATIONS 3-27-90	9 CLEARANCE REQUIRED NO
10 QC REVIEW 3-27-90	11 HOLD POINTS NO additional Witness points	
12 HP REVIEW 3-27-90	13 NEW RWP REQUIRED NONE	
14 ANII REVIEW N/A 3/27/90	15 HOLD POINTS N/A 3/27/90	
16 WORK PLANNER 3/27/90	17 PROCEDURES N/A	
18 FIRE PROTECTION REVIEW NO	19 SHIFT SUPERVISOR WP Stapleton	

20 REMARKS

REVISED AS DIRECTED BY PAUL KOCHERY

3/27/90

Quality Control Inspection Report

VOGTLE GENERATING PLANT—UNITS 1 & 2

34153

Georgia Power

MWO/ODR/DR No.	Building	Procedure/Spec. No./Rev.
1900537	Diesel	27563-C R/2
Room No./Level No.	**Sys./Start-Up Designator**	**Tag No.**
B-TRAIN	8403	1-2403-G4-C002
Drawing No./Rev.	**Vendor Manual Log No.**	**Other**
N/A	N/A	N/A

1. Inspector will use separate form for each completed inspection function(s) and insert original with work package, use continuation sheets when needed.
2. Use simple narrative type report procedure. Reference all applicable drawing numbers, specifications, special instructions, etc., connected with your inspection. Use sketches, when applicable, showing dimensions checked, alignment, physical location of defects found, etc. N/A all blocks not used.
3. Upon completion of the inspection activity, enter results below and sign and date.

Remarks: Type of INspection visual.

Started witnessing testing AT 0930 on 3-26-90

① P3, pressure switch was replaced by MWO 1900542 on 3-26-90

② Replacing P3 above did not totally resolve problem with Engine shut down cylinder not extending

③ Witnessed replacement of the Shut down Logic Board: New ~~(3/26/90) Board~~ board; P/N 1A-7055 R/B MER# MAR 26-90-5724

old board P/N 1A-7055 R/B

Sketch

④ On 3/26/90 at 1300 test was resumed

Continued on page 2

Inspection Results

☒ SAT. ☐ UNSAT—ODR/DR NO.(s):

Inspector [signature] Date 3/26/90

7055164 MCS191

WHITE—Work Package CANARY—Q.C. Supv. PINK—Inspector

MWO/ORD No./Other FR 34153

Remarks

M&TE used: Fluke	VP-1-1052	CDD 4-10-90
Fluke	VP-1-1038	CDD 5-5-90
Function Generator	VP-1283	CDD 7-27-90
Recorder	VP-7032	CDD 5-16-90
Pressure gauge	VP-2619	CDD 6-2-90
Pressure gauge	VP-2623	CDD 6-5-90
Pressure gauge	VP-2627	CDD 4-15-90

(5) Visually witnessed the following steps in procedure 27563-k R/2

step 4.2.55 tubing line E-68 reconnected
4.2.55.1 Trip High press. crankcase alarm off
4.2.55.4 Shutdown cy linder not extended
42.57.X tubing E-23-14 reconnected
4.2.57.1 Trip vibration alarm off.
4.2.59 plug to E 14
4.2.59.1 Trip low pressure jacket water alarm off
42.64.1 Unit Available Engr. status Light on
4.2.64.2 Disabled D.C. start power failure alarm off
4.2.66 Emergency stop relay off
4.2.72 E16-A & B reconnected
4.2.74 E16-B + C reconnected
4.2.76 E16-A + C reconnected
4.2.77.1 Group 2 pressure gage < 2.5 PSI
4.2.77.2 Bypass test failure Light off
4.2.77.3.1 Bypass test failure Light ON

(6) Test was suspended at step 4.2.87 and will resume later.

705817 MCS191

Inspector J. C. Harvey Date 3/26/90

WHITE—Work Package CANARY—Q.C. Supv. PINK—Inspector

Quality Control Inspection Report

VOGTLE GENERATING PLANT—UNITS 1 & 2

34124

Georgia Power

MWO/ODR/DR No.	Building	Procedure/Spec. No./Rev.
1900 1537	Diesel Gen. B	27563-C R/2
Room No./Level No.	**Sys./Start-Up Designator**	**Tag No.**
Room #101 Level 2	2403	1 2403 G4002
Drawing No./Rev.	**Vendor Manual Log No.**	**Other**
N/A	N/A	N/A

1. Inspector will use separate form for each completed inspection function(s) and insert original with work package, use continuation sheets when needed.
2. Use simple narrative type report procedure. Reference all applicable drawing numbers, specifications, special instructions, etc., connected with your inspection. Use sketches, when applicable, showing dimensions checked, alignment, physical location of defects found, etc. N/A all blocks not used.
3. Upon completion of the inspection activity, enter results below and sign and date.

Method of all Inspection — Visual.

Remarks

Visually verified step 4.2.36.7 - Relay R35 was de-energized. R35 was not de-energized initially, problem was solved by opening F10. Verified step 4.2.37.1, 4.2.37.2, 4.2.39.2.1

Verified 4.2.41.1 trip alarm was energized. Trip alarm was not energized initially. Problem was solved by closing links TBL-L25 and TBL-L26.

Verified step 4.2.41.3 relay R35 energized.

Verified step 4.2.42.1 trip alarm de-energized. Verified step 4.2.42.3.

Verified voltage per step 4.2.48.1 Verified step 4.2.48.2 ~~(not necessary if per)~~ per 3/26/90

Verified step 4.2.49.1., Verified step 4.2.49.5 starting light energized, was not energized initially - problem was solved by replacing burned out bulb with a new bulb, Verified step ~~4.2.49.6~~ 4.2.49.6., 4.2.49.7, ~~4.2.49.~~ per marked 4.2.50.1, 4.2.51.1, 4.2.52.1

Sketch

VP-1-1052 CDD 4/10/90

VP-1-1038 CDD 3-5-90

VP-1283 CDD 7-27-90

Inspection Results

☑ SAT. ☐ UNSAT—ODR/DR NO.(s):

705516A MCS191

Inspector Patrick R. Coleman

Date 3/26/90

WHITE—Work Package CANARY—Q.C. Supv PINK—Inspector

IR 34124

Quality Control Inspection Report (CONTINUATION SHEET)
VOGTLE GENERATING PLANT—UNITS 1 & 2

Georgia Power

MWO/ORD No./Other 1900 1537 Procedure # 27563-C R/2

Remarks

Method : Z Inspection-Visual

Verified steps 4.2.55, 4.2.55.1, 4.2.55.4

Checkout of Logic on Diesel Generator B was stopped on step 4.2.56.3

705517 MOS191

Inspector Patrick A. Colmer

Date 3/24/90

WHITE—Work Package CANARY—Q.C. Supv. PINK—Inspector

Quality Control Inspection Report

VOGTLE GENERATING PLANT—UNITS 1 & 2

38419

Georgia Power

MWO/ODR/DR No.	Building	Procedure/Spec. No./Rev.
1-90-01537	Diesel Generator	27563-C Rev. 2
Room No./Level No.	**Sys./Start-Up Designator**	**Tag No.**
B Train Diesel / Level 1	2403	1-2403-G4-002 1-2403-P5-DG4
Drawing No./Rev.	**Vendor Manual Log No.**	**Other**
NA	NA	NA

1. Inspector will use separate form for each completed inspection function(s) and insert original with work package, use continuation sheets when needed.
2. Use simple narrative type report procedure. Reference all applicable drawing numbers, specifications, special instructions, etc., connected with your inspection. Use sketches, when applicable, showing dimensions checked, alignment, physical location of defects found, etc. N/A all blocks not used.
3. Upon completion of the inspection activity, enter results below and sign and date.

Remarks M+TE VP-1-1038 Cal due date 5-5-90
VP-1283 7-27-90

Visually verified 61 psi (4.1.13), ~~120~~ B. 3-25-90 132.6 vdc (4.1.14), 132.6 vdc (4.2.24.1), contact closure (4.2.24.3), relays energized (4.2.24.4), contact closure (4.2.24.5), energized safety injection light (4.2.24.6), de-energized shut down system active light (4.2.24.7), no voltage (4.2.24.8), shutdown cylinder not extended (4.2.26.2), tubing reconnected at E-18 (4.2.27), 60 psi (4.2.27.1), de-energized trip high temp lube oil alarm (4.2.27.2), energized stopping light (4.2.28.1), energized trip low pressure turbo oil alarm (4.2.28.2), extended shutdown cylinder (4.2.28.5), reinstalled plug on E-92 and jumpers installed (4.2.30), energized R-11B (4.2.30.1), energized ready to load light (4.2.30.1.4), de-energized ready to load light (4.2.30.2.4), no voltage (4.2.31.1), energized R5B (4.2.31.2), energized R23B (4.2.32.1), energized R35 (4.2.32.12), energized R35 (4.3.32.12.1.1), de-energized disabled non-reset of emergency trip alarm (4.2.32.12.1.2), de-energized overspeed trip alarm (4.2.35.2), de-energized R23B (4.2.36.1), de-energized emergency stop light (4.2.36.5), de-energized stopping light (4.2.36.6).

Sketch

Inspection Results

☑ SAT. ☐ UNSAT– ODR/DR NO.(s):

705516A MCS1/J1

Inspector Roy S. Whitaker Date 3-25-90

WHITE—Work Package CANARY—Q.C. Supv. PINK—Inspector

IR # 38419

Quality Control Inspection Report (CONTINUATION SHEET)
VOGTLE GENERATING PLANT—UNITS 1 & 2

Georgia Power

MWO/ORD No./Other
1-90-01537

Remarks
Note: Sensing lines for "Jacket Water High Temperature" were capped due to 2 out of 3 sensors leaking air. The test is being conducted without this circuit. According to Ken Stokes it will be checked after the problems are corrected.

705617 MC6191

Inspector Roy S. Whitaker

Date 3-25-90

WHITE—Work Package CANARY—Q.C. Supv. PINK—Inspector

Quality Control Inspection Report

VOGTLE GENERATING PLANT—UNITS 1 & 2

34156

Georgia Power

Page 1 of 2

MWO/ODR/DR No. 19001537	Building Diesel	Procedure/Spec. No./Rev. 27563-C R/2
Room No./Level No. B-TRAIN	Sys./Start-Up Designator 2403	Tag No. 1-2403-P5-DG4
Drawing No./Rev. N/A	Vendor Manual Log No. N/A	Other N/A

1. Inspector will use separate form for each completed inspection function(s) and insert original with work package, use continuation sheets when needed.
2. Use simple narrative type report procedure. Reference all applicable drawing numbers, specifications, special instructions, etc., connected with your inspection. Use sketches, when applicable, showing dimensions checked, alignment, physical location of defects found, etc. N/A all blocks not used.
3. Upon completion of the inspection activity, enter results below and sign and date.

Remarks

① at approximately 0950 I witnessed the Diesel Engine trip test, performed by ~~Don Pesout~~ Robert Johnson.
The plant control system in normal run status.
By disconnecting the appropriate sensing lines, a proper shutdown actuation occured.

Signed top of MWO continuation sheet to acknowledge witness of test.
This test was requested by Ken Stokes.

② at approximately 1030 hrs. test was reimplemented and again all events was correct.

Sketch

Inspection Results

☑ SAT. ☐ UNSAT—ODR/DR NO.(s):

705516A MCS191

Inspector J. C. Harvey / R. Gore Date 3-27-90

WHITE—Work Package CANARY—Q.C. Supv. PINK—Inspector

Quality Control Inspection Report (CONTINUATION SHEET)
VOGTLE GENERATING PLANT—UNITS 1 & 2

Georgia Power

IR 34156

MWO/ORD No./Other 19001537

Remarks

③ Witnessed links recorded on Lifted lead data sheet ~~pt 3/27/90~~ page 1 thru 12 closed and jumpers removed

④ Witnessed the reconnection of tubing at following locations E10A, E70B, E-10C, E92, E1-14 steps 4.2.8.2.1 - 4.2.9.1

⑤ Notified at approximately 1630 hrs prior to Starting Diesel. And preparing for leak test using Bubble tester. step #1 Block 23

E10-A Trip Low pressure lube oil - SAT.
E18 Trip High Temp lube oil - SAT.
E10-B Trip Low pressure lube oil - SAT.
E23-H Trip High vibration - SAT.
E10-C Trip Low pressure lube oil - SAT.
E14 Trip Low pressure Jacket water - SAT.
E19 Trip High Temp Eng. Bearings - SAT.
E92 Trip Low Pressure Turbo Oil - SAT.
E68 Trip High Pressure Crankcase - SAT.
E16A Trip High Temp. JACKET WATER SAT.
E16B Trip High Temp Jacket Water
E16C Trip High Temp Jacket Water
E16A & E16B lines SHUT DOWN ENGINE FOR 2 out of 3 Logic Trip while in EMERGENCY MODE - SAT.
Loosened fitting to demonstrate BUBBLE TESTER WORKING

08617 MC5191

Inspector J. C. Harvey / R. Gore Date 3/31/90

WHITE—Work Package CANARY—Q.C. Supv. PINK—Inspector

1 of 2

EQ EVALUATION CHECKLIST

FOR USE ON PROJECT CLASSES Q111, Q212, Q313, Q013, Q015, Q11E, Q11J, Q12E, 61J

MWO NO. 1900153?

SECTION I

PART A ORIGINAL PART	PART B REPLACEMENT PART
1. DESCRIPTION DIESEL 1B	1. DESCRIPTION
2. TAG NO. 1-24C3-64-002	2. MER NO.
3. PROJECT CLASS 015	3. STOCK NO.
4. SPECIFICATION (EQDP) NO. X4AK01	4. SPECIFICATION (EQDP) NO.
5. MANUFACTURER DELAVAL	5. MANUFACTURER
6. MODEL NO. NA	6. MODEL NO. N/A
7. PART NO.	7. PART NO. N/A
	8. PO NO.

COMMENTS NO PARTS USED

SECTION II WORK PLANNING

1. ARE PROCEDURES, VENDOR MANUALS, DRAWINGS OR INSTRUCTIONS AVAILABLE TO DISASSEMBLE/REWORK COMPONENT? ___ YES ___ NO
CA / 3/25/90
(Init. Date)

2. ARE SPECIFICATION NUMBERS FOR ORIGINAL AND REPLACEMENT ITEMS THE SAME? ___ YES ___ NO

3. ARE MANUFACTURER MODEL/PART NUMBERS OF THE ORIGINAL AND REPLACEMENT PARTS THE SAME? ___ YES ___ NO

4. IS BULK MATERIAL LISTED ON ATTACHMENT ACCEPTABLE? ___ YES N/A ___ NO
LIST ITEM NO. FROM ATTACHMENT IF "NO" IS CHECKED.
NA / (Item No.)
/ (Init. Date)

NOTE

If items 2, 3, or 4 are checked No, the Checklist must be reviewed by the EQ Group.

[N] PART(S) ARE ACCEPTABLE FOR USE
[A] SEND TO EQ GROUP

RS Weston 3-28-90
WPG DATE

SECTION III EQ GROUP EVALUATION

[ ] PART IS ACCEPTABLE FOR USE [ ] PART IS UNACCEPTABLE FOR USE

JUSTIFICATION FOR ACCEPTANCE:

N/A

/
EQ ENGINEER DATE

FIGURE 3

2 of 2

EQ EVALUATION CHECKLIST

FOR USE ON PROJECT CLASSES Q111, Q212, Q313, Q013, Q015, Q11E, Q11J, Q12E, 61J

MWO NO. 19001537

SECTION I

PART A ORIGINAL PART		PART B REPLACEMENT PART	
1. DESCRIPTION	DIESEL 1B LOGIC BD	1. DESCRIPTION	LOGIC BOARD
2. TAG NO.	1-270-P2-DG4	2. MER NO.	5724
3. PROJECT CLASS	Q11S	3. STOCK NO.	29260-26978
4. SPECIFICATION (EQDP) NO.	X4AK01	4. SPECIFICATION (EQDP) NO.	X4AK01
5. MANUFACTURER	DELAVAL	5. MANUFACTURER	DELAVAL
6. MODEL NO.	NA	6. MODEL NO.	NA
7. PART NO.	IA7055	7. PART NO.	IA7055
		8. PO NO.	GO 14399

COMMENTS

SECTION II WORK PLANNING

1. ARE PROCEDURES, VENDOR MANUALS, DRAWINGS OR INSTRUCTIONS AVAILABLE TO DISASSEMBLE/REWORK COMPONENT? ✓ YES ___ NO
   CAR / 3/25/90 (Init. Date)
2. ARE SPECIFICATION NUMBERS FOR ORIGINAL AND REPLACEMENT ITEMS THE SAME? ✓ YES ___ NO
3. ARE MANUFACTURER MODEL/PART NUMBERS OF THE ORIGINAL AND REPLACEMENT PARTS THE SAME? ✓ YES ___ NO
4. IS BULK MATERIAL LISTED ON ATTACHMENT ACCEPTABLE? LIST ITEM NO. FROM ATTACHMENT IF "NO" IS CHECKED NA (Item No.) NA YES ___ NO / / (Init. Date)

NOTE

If items 2, 3, or 4 are checked No, the Checklist must be reviewed by the EQ Group.

[✓] PART(S) ARE ACCEPTABLE FOR USE
[ ] SEND TO EQ GROUP

[signature] 13 APR 90
WPG DATE

SECTION III EQ GROUP EVALUATION

[ ] PART IS ACCEPTABLE FOR USE [ ] PART IS UNACCEPTABLE FOR USE

JUSTIFICATION FOR ACCEPTANCE:

N/A

/
EQ ENGINEER DATE

FIGURE 3

Material/Equipment Request—NUCLEAR OPERATIONS
VOGTLE ELECTRIC GENERATING PLANT

QA/CH 3-26-90

COPY 2

Department/Contractor	Design Change No.	Date	Stores Register No.
Maint		3-26-90	2500005724

Description/Tag	Stock Number	Location	Quantity			P.O. No.	MIR No.	Maint. Work Order	Unit	Account Number	Resp. Center	Anly Code
			Ord.	Filled	U/M							
Logic Boards, 56657	29200-26478	0-68-T	1	1	EA	G 043379	88 1489	1900 1537	1	8251-530-0	0210	5441

Ordered By	Approved By	Filled By	Received By	Date
J. B. Holcomb	Vaughn Howard	Tony McLemore	J. B. Holcomb	3-26-90

Form MCSY22

VEGP FIRE PROTECTION CHECKLIST

1. MWO NO. 1960537 2. MPL/TAG NO. see MWO
3. LOCATION 06 18

4. WILL THE WORK INSTALL, IMPAIR, MODIFY, ISOLATE, DEFEAT, OR REMOVE ANY OF THE FOLLOWING? IF THE ANSWER IS "YES" CHECK THE BOX, AND INDICATE APPROPRIATE DETAILS.

( ) SPRINKLER SYSTEM _____
( ) INTERIOR HOSE STATION _____
( ) HALON SYSTEM _____
( ) DETECTION SYSTEM _____
( ) EMERGENCY LIGHTING SYSTEM _____
( ) PERMANENT COMBUSTIBLES (CABLE, WOOD, PLASTIC, ETC.) _____
( ) STRUCTURAL STEEL, OR RACEWAY FIREPROOFING _____
( ) FIRE SUPPRESSION SUPPLY SYSTEM (PUMPS, TANKS, ETC.) _____
( ) CONDUIT SEALS OR EQUIPMENT ENCLOSURE (CABINET HOUSING) _____
( ) FIRE EXTINGUISHER _____
( ) COMMUNICATIONS SYSTEM _____
( ) RCP OIL COLLECTION SYSTEM _____
( ) SEISMIC STANDPIPE SYSTEM _____

5. WILL THE WORK DEFEAT, MODIFY OR IMPAIR ANY OF THE FOLLOWING FIRE SEPARATION FEATURES? IF THE ANSWER IS "YES" CHECK THE BOX, AND INDICATE APPROPRIATE DETAILS.

( ) A. FIRE AREA BOUNDARY (WALL, ETC.) _____
( ) B. PASSIVE AREA BOUNDARY PENETRATION SEAL ASSEMBLY.
PENETRATION SEAL _____
WALL BLOCKOUT _____
FLOOR PLUG OR HATCH _____
CABLE TRAY OR CONDUIT WRAP _____
RADIANT ENERGY SHIELD _____
( ) C. ACTIVE FIRE AREA BOUNDARY PENETRATION SEAL.
FIRE DOOR _____
FIRE DAMPER _____

6. IF ALL THE ANSWERS IN BLOCKS 4 and 5 ARE "NO", STOP THE EVALUATION HERE, AND ENTER "NO" IN BLOCK 11 OF THE MWO FORM.
IF ANY QUESTIONS WERE ANSWERED "YES", ENTER "YES" IN BLOCK 11 OF THE MWO FORM.
EVALUATOR _____ DATE 2/25/90

POST WORK REVIEW (COMPLETE "A, B, OR C" BELOW)

(A) THE CONDITION IMPACTING THE FIRE PROTECTION COMPONENTS LISTED ABOVE HAS BEEN REMOVED. FPE _____ DATE _____

(B) THE FIRE PROTECTION COMPONENT IS STILL IMPAIRED.
FPE _____ DATE _____

(C) RESTORATION OF THE IMPAIRMENT HAS BEEN TRANSFERRED (Ref: _____) AND THE FIRE PROTECTION LCO LOG HAS BEEN CHANGED TO REFERENCE THE NEW MWO FOR THIS IMPAIRMENT. FPE _____ DATE _____

FIGURE 1

IMPORTANT

EXTREME CAUTION MUST BE TAKEN TO ENSURE THAT THE WORK PERFORMED BY THIS MWO DOES NOT IN ANY WAY CAUSE A LOSS OF INFORMATION CONCERNING THE CAUSE OR CAUSES THAT LED TO THE TRIPS OF EDG 1A ON MARCH 20, 1990 OR THE LOW JACKET WATER PRESSURE AND LOW TURBO OIL PRESSURE ALARMS FOR EDG 1B ON MARCH 23, 1990.

CARE SHOULD BE TAKEN TO PRESERVE THE AS FOUND CONDITION OF REPLACED COMPONENTS (E.G., PREVENTION OF DAMAGE DUE TO JARRING OR DROPPING), AND TO CAREFULLY DOCUMENT ANY ABNORMAL OR UNUSUAL CONDITIONS THAT COULD POTENTIALLY AFFECT COMPONENT OPERATION. ALL TESTING OR CALIBRATION ACTIVITIES SHOULD BE CAREFULLY OBSERVED AND ANY ABNORMAL OPERATION OR MALFUNFTION OF EDG PARTS SHOULD BE CAREFULLY AND THOROUGHLY DOCUMENTED.

Nuclear Plant Maintenance Work Order Continuation Sheet

MPL No. _____ MWO No. 19001537

Work Description Block 26 cont) WP stephens 3-26-90

Nuclear Plant Maintenance Work Order Continuation Sheet

MPL No. 1-2403-G4-002 MWO No. 1900 1537

Work Description BLOCK 27 PROCEDURE VEGP 27563-C

DON PESOUT 3/25/90

INSTALLED 0-100 PSIG TEST GAUGE TO MONITOR P3, VP-2619 CAL 6-2-90. TUBING REMOVED TO INSTALL GAUGE IS IN PLASTIC BAG ON GAUGE.

STEP 4.1.5.1 CAPPED OFF .006 ORIFICE SUPPLY LINE E10-A

4.1.5.2 E10-B

4.1.5.3 E10-C

4.1.6.1 E92

4.1.7.1 CAPPED OFF .006 ORIFICE SUPPLY LINE E14

4.1.12 CB-8 LEFT OPEN

4.1.13 CONTROL AIR PRESSURE GAUGE READS 61 PSIG

4.1.14 CB1-CB2 READS 132.6 VDC

4.1.14 CB3-CB4 READS 132.6 VDC

LIFTED WIRE #402 ON R15 TO DISABLE HORN (ACROSS FROM WIRE 401A)

CAPPED LINES E16-A, B, C AT BULKHEAD. APPEARS LINES E16-A & B ARE LEAKING.

4.2.36.7 OPENED F10 TO ALLOW R-35 TO DE-ENERGIZE

4.2.41.1 CLOSED L25 & L26 TO ENABLE "DISABLED NON-RESET OF EMERGENCY TRIP ALARM

4.2.56.3 WOULD NOT EXTEND SHUTDOWN CYLINDER, P3 WOULD NOT RESET ON TRIP.

3/25/90

Nuclear Plant Maintenance Work Order Continuation Sheet

MPL No. 1-2403-G4-002 MWO No. 1900 1537

Work Description BLOCK 27 (CONT.) PROCEDURE VEGP 27563-C

DATE SENT 3/26/90

RECONNECTED WIRE # 402 ON R15 TO REENABLE HORN (ACROSS FROM WIRE 401A)

REPLACED SHUTDOWN LOGIC BOARD 1A-7055 BECAUSE OF NOT ABLE TO PRODUCE A TRIP SIGNAL WHEN SENSING TRIP SENSOR OPERATION

* ~~PNEU~~ PNEUMATIC PILOT VALVE P3 OF DELAVAL DWG 09-500-76021 SHEET 1 OF 9 REPLACED.

DISCONNECTED 0-100 PSIG TEST GAUGE MONITORING P3, TUBING REINSTALLED.

LIFT #206 OF PS-9N2 N.O. TO ALLOW ALARM WINDOWS TO BE SEEN CONTINUOUSLY. LAYED #206 BACK DOWN.

ADJUSTED TIMER NOT 11 OF NEW 1A-7055 TO ALLOW AND14 TO FIRE PRIOR TO THE TIMING OUT OF TIMER NOT 11

Rework 3/26/90

* PNEUMATIC PILOT VALVE P3 REPLACED UNDER MWO# 1900542 BY I&C ON 3/27/90. IT IS IN LEVEL B STORAGE IN I&C SHOP.

Polaroid QC 3/27/90

Nuclear Plant Maintenance Work Order Continuation Sheet

MPL No. 1-2403-G4-002 MWO No. 19001537

Work Description BLOCK 27 (CONT.) PROCEDURE VEGP 27563-C

DOW RESULT 3/27/90

PLACE CONTROL SYSTEM IN NORMAL RUN STATUS; BRACE FOLLOWING PNEUMATIC LINES TO SHUT ENGINE DOWN:

E-18 TRIP HIGH TEMP LUBE OIL

E-19 ↓ ↓ " ENG BEARINGS

E-23H ↓ ↓ VIBRATION RIGHT BANK TURBO

↓ ↓ ↓ ↓ Left B~~ank~~ Turbo

↓ ↓ ↓ ↓ RIGHT ~~BANK~~ REAR BLOCK

↓ ↓ ↓ ↓ Left BANK FRONT BLOCK

E-11 ↓ LOW PRESS JACKET WATER

E-92 ↓ Low Press Turbo Lube O.I

E-68 ↓ High Press CRANKCASE

E-16A Malfunction Jaket Water Temp Sensor

E-16A + E-16B Trip - High Temp Jacket Water

E-16B Malfunction Jacket Water Temp Sensor

E-16B + E-16C Trip - High Temp Jacket Water

E-10A Malfunction Low Press Lube O.I Sensor

E-10A + E-10B Trip - Low Press Lube O.I

E-10B ~~+ E-10C~~ FAT 3-27-90 Malfunction Low Press Lube O.I Sensor

E-10B + E-10C Trip - Low Press Lube O.I

All above signals provided proper shutdown actuation.

Vented E-16A, initiated LOCA signal, after annunciator time out got sensor malfunction signal with unit running, vented E-16B and got emergency stop - OK 3/27/90

Nuclear Plant Maintenance Work Order Continuation Sheet

MPL No. 1-2403-64-002 MWO No. 19001537

Work Description BLOCK 27 (CONT.) PROCEDURE VEGP 27563-C

DOWNRESULT 3/27/90 1730 HRS

WHEN ENGINE RUNNING IN EMERGENCY MODE (AFTER LOGIC TEST) A LEAK TEST PERFORMED ON THE FOLLOWING PNEUMATIC LINES:

E10-A TRIP LOW PRESSURE LUBE OIL - SATISFACTORY

"1B TRIP HIGH TEMP LUBE OIL - SATISFACTORY

E10-B TRIP LOW PRESSURE LUBE OIL - SATISFACTORY

E23-H TRIP HIGH VIBRATION - SATISFACTORY

E10-C TRIP LOW PRESSURE LUBE OIL - SATISFACTORY

E14 TRIP LOW PRESSURE JACKET WATER - SATISFACTORY

E19 TRIP HIGH TEMP ENG BEARINGS - SATISFACTORY

E92 TRIP LOW PRESSURE TURBO OIL - SATISFACTORY

E68 TRIP HIGH PRESSURE CRANKCASE - SATISFACTORY

E16-A TRIP HIGH TEMP JACKET WATER - SATISFACTORY

E16-B ↓ ↓ ↓ ↓ ↓ = SATISFACTORY

E16-C ↓ ↓ ↓ ↓ ↓ - SATISFACTORY - LOOSEN FITTING TO DEMONSTATE BUBBLE TESTER WORKING.

E16-A & E16-B LINES ~~BROKE~~ DR 3-27-9 SHUT DOWN ENGINE FOR 2 OUT OF 3 LOGIC TRIP WHILE IN EMERGENCY MODE - SATISFACTORY

~~DOWNRESULT~~ 3/27/90 2013 HRS

NORMAL START AND TRIP BY HIGH TEMP LUBE OIL - PNEUMATIC LINE VENTED AT SENSOR - SATISFACTORY

LOSP START AND TRIP BY HIGH VIBRATION - PNEUMATIC LINE VENTED AT SENSOR - SATISFACTORY

NORMAL START AND TRIP BY HIGH PRESS CRANKCASE - PNEUMATIC LINE VENTED AT SENSOR - SATISFACTORY

SI START AND TRIP BY 2 OUT OF 3 LOW PRESS LUBE OIL - PNEUMATIC LINES VENTED AT SENSORS - SATISFACTORY

DOWNRESULT 3/27/90 2110 HRS

MAINTAINED ZONE IN housekeeping 03-27-90

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POWER AND SIGNAL REMOVAL/REPLACEMENT DATA SHEET

[X] Safety Related/QC Holdpoints [ ] Non-Safety Related

NOTES

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e. If holdpoints do not apply, NA QC Verification block.

f. If applicable, tags shall remain intact and will only be removed by the independent verifier.

	REMOVAL				RECONNECTION		QC HOLD POINT
IDENTIFY LEADS LIFTED, JUMPERS INSTALLED, LINES OPEN, ETC.	LOCATION PANEL OR JUNCTION BOX	PERFORMED BY/DATE	INDEPENDENT VERIFICATION BY/DATE	QC VERIF. BY/DATE	PERFORMED BY/DATE	INDEPENDENT VERIFICATION BY/DATE	QC VERIF. BY/DATE
OPEN LINK E5-4	1-2403-P5-004	DJP 3/25/90	SL 3-25-90		TAJ 3-27-90	DJP 3/27/90	MCH 3/27/90
E4-2						DJP 3/27/90	
L5-105						DJP 3/27/90	
L4-102						DJP 3/27/90	
E19-53				NA		DJP 3/27/90	
E22-56						DJP 3/27/90	
E17-51				DBR 3-25-90			
E21-55							
E23-57							
E18-52	1-2403-P5-004 SL 3-25-90	DJP 3/25/90	SL 3-25-90		TAJ 3-27-90	DJP 3/27/90	MCH 3/27/90

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POWER AND SIGNAL REMOVAL/REPLACEMENT DATA SHEET

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IDENTIFY LEADS LIFTED, JUMPERS INSTALLED, LINES OPEN, ETC.	LOCATION PANEL OR JUNCTION BOX	PERFORMED BY/DATE	INDEPENDENT VERIFICATION BY/DATE	QC VERIF. BY/DATE	PERFORMED BY/DATE	INDEPENDENT VERIFICATION BY/DATE	QC VERIF. BY/DATE
OPEN LINK E24-59	1-2403-P5-DG4	DJP 3/25/90	SJ 3-25-90		RAJ 3-27-90	DJP 3/27/90	JCH 3-27-90
E5-77						DJP 3/27/90	
E6-78						DJP 3/27/90	
E57-46						DJP 3/27/90	
E58-47				N/A			
E59-48							
E60-49				N/A			
F1-73				3-25-90			
F2-74							
F3-75	1-2403-P5-DG4	DJP 3/25/90	SJ 3-25-90		RAJ 3-27-90	DJP 3/27/90	JCH 3-27-90

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POWER AND SIGNAL REMOVAL/REPLACEMENT DATA SHEET

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IDENTIFY LEADS LIFTED, JUMPERS INSTALLED, LINES OPEN, ETC.	LOCATION PANEL OR JUNCTION BOX	PERFORMED BY/DATE	INDEPENDENT VERIFICATION BY/DATE	QC VERIF. BY/DATE	PERFORMED BY/DATE	INDEPENDENT VERIFICATION BY/DATE	QC VERIF. BY/DATE
OPEN LINK F9-76	1-2403-P5-D64	DR 3/25/90	[illegible] 3-25-90		[illegible] 3-27-90	DSP 3/27/90	[illegible] 3-27-90
L30-170							
L31-171							
L32-172							
L33-173				NA			
L23-153							
L20-141				[illegible]			
L21-144				3-25-90			
L24-155							
L51-159	1-2403-P5-D64	DR 3/25/90	[illegible] 3-25-90		[illegible] 3-27-90	D.S.P 3/27/90	[illegible] 3-27-90

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POWER AND SIGNAL REMOVAL/REPLACEMENT DATA SHEET

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REMOVAL					RECONNECTION		Q.C. HOLD POINT
IDENTIFY LEADS LIFTED, JUMPERS INSTALLED, LINES OPEN, ETC.	LOCATION PANEL OR JUNCTION BOX	PERFORMED BY/DATE	INDEPENDENT VERIFICATION BY/DATE	QC VERIF. BY/DATE	PERFORMED BY/DATE	INDEPENDENT VERIFICATION BY/DATE	QC VERIF. BY/DATE
OPEN LINK L52-160	1-2403-P5-D64	DSP 3/25/90	[illegible] 3-25-90		[illegible] 3-27-90	DSP 3/27/90	[illegible] 3-27-90
L53-164							
L54-165							
L55-166							
L56-167				NA			
L57-168							
L58-169				[illegible]			
L59-179				3-25-90			
L60-180							
L35-175	1-2403-P5-D64	DSP 3/25/90	[illegible] 3-25-90		[illegible] 3-27-90	DSP 3/27/90	[illegible] 3-27-90

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POWER AND SIGNAL REMOVAL/REPLACEMENT DATA SHEET

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IDENTIFY LEADS LIFTED, JUMPERS INSTALLED, LINES OPEN, ETC.	LOCATION PANEL OR JUNCTION BOX	PERFORMED BY/DATE	INDEPENDENT VERIFICATION BY/DATE	QC VERIF. BY/DATE	PERFORMED BY/DATE	INDEPENDENT VERIFICATION BY/DATE	QC VERIF. BY/DATE
OPEN LINK L36-176	1-2403-P5-D6.4	DSP 3/25/90	[illegible] 3-25-90		[illegible] 3-27-90	DSP 3/27/90	[illegible] 3-27-90
L9-137							
L10-138							
L11-139							
L12-140				N/A			
L14-336							
L15-337				[illegible] 3-25-90			
L49-54B1							
L50-54B2					[illegible] 3-27-90	DSP 3/27/90	
L25-79/180	1-2403-P5-D44	DSP 3/25/90	[illegible] 3-25-90		[illegible] 3-25-90	DSP 3/25/90	[illegible] 3-27-90

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POWER AND SIGNAL REMOVAL/REPLACEMENT DATA SHEET

[X] Safety Related/QC Holdpoints [ ] Non-Safety Related

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IDENTIFY LEADS LIFTED, JUMPERS INSTALLED, LINES OPEN, ETC.	LOCATION PANEL OR JUNCTION BOX	PERFORMED BY/DATE	INDEPENDENT VERIFICATION BY/DATE	QC VERIF. BY/DATE	PERFORMED BY/DATE	INDEPENDENT VERIFICATION BY/DATE	QC VERIF. BY/DATE
OPEN LINK LZ6 - 20/180	1-2403-P2-DG4	DSP 3/25/90	[illegible] 3-25-90		[illegible] 3-25-90	DSP 3/25/90	[illegible] 3-27-90
C3 - 244					TAT 3-27-90	DSP 3/27/90	
C4 - 245							
C5 - 246							
C11 - 247				N/A			
C7 - 239							
C8 - 240				[illegible]			
G3 - 253				3-25-90			
G4 - 254	↓	↓	↓		↓	↓	
G5 - 255	1-2403-P5-DG4	DSP 3/25/90	[illegible] 3-25-90		TAT 3-27-90	DSP 3/27/90	[illegible] 3-27-90

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POWER AND SIGNAL REMOVAL/REPLACEMENT DATA SHEET

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IDENTIFY LEADS LIFTED, JUMPERS INSTALLED, LINES OPEN, ETC.	LOCATION PANEL OR JUNCTION BOX	PERFORMED BY/DATE	INDEPENDENT VERIFICATION BY/DATE	QC VERIF. BY/DATE	PERFORMED BY/DATE	INDEPENDENT VERIFICATION BY/DATE	QC VERIF. BY/DATE
OPEN LINE G6-256	1-2403-P5-DG4	DJP 3/25/90	[illegible] 3-25-90		TRAT 3-27-90	DJP 3/27/90	[illegible] 3-27-90
G7-257							
G8-258							
G9-259							
G10-260				NA			
G11-261 2 DJP 3/25/90							
G12-262				[illegible]			
G13-263				3-25-90			
G14-264							
G15-265	1-2403-P5-DG4	DJP 3/25/90	[illegible] 3-25-90		TRAT 3-27-90	DJP 3/27/90	[illegible] 3-27-90

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POWER AND SIGNAL REMOVAL/REPLACEMENT DATA SHEET

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IDENTIFY LEADS LIFTED, JUMPERS INSTALLED, LINES OPEN, ETC.	LOCATION PANEL OR JUNCTION BOX	PERFORMED BY/DATE	INDEPENDENT VERIFICATION BY/DATE	QC VERIF. BY/DATE	PERFORMED BY/DATE	INDEPENDENT VERIFICATION BY/DATE	QC VERIF. BY/DATE
OPEN LEADS G16-266	1-2403-PS-D64	DJP 3/25/90	[illegible] 3-25-90		TAT 3-27-90	DJP 3/27/90	[illegible] 3-27-90
G17-267							
G18-268							
G19-269							
G20-270				N/A			
G21-271							
G22-272				[illegible]			
G23-273				3-25-90			
G24-274							
H1-275	1-2403-PS-D64	DJP 3/25/90	[illegible] 3-25-90		TAT 3-27-90	DJP 3/27/90	[illegible] 3-27-90

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d. If the worker leaves the immediate proximity of the work or the work is interrupted, complete and install a "Jumper and Lifted Wire" tag per 00306-C, "Temporary Jumper And Lifted Wire Control". Instead of Control Number use the Procedure number on the tag.

e. If holdpoints do not apply, NA QC Verification block.

f. If applicable, tags shall remain intact and will only be removed by the independent verifier.

	REMOVAL				RECONNECTION		Q.C. HOLD POINT
IDENTIFY LEADS LIFTED, JUMPERS INSTALLED, LINES OPEN, ETC.	LOCATION PANEL OR JUNCTION BOX	PERFORMED BY/DATE	INDEPENDENT VERIFICATION BY/DATE	QC VERIF. BY/DATE	PERFORMED BY/DATE	INDEPENDENT VERIFICATION BY/DATE	QC VERIF. BY/DATE
OPEN LINK H2-276	1-2403-P5-P64	DSP 3/25/90	[illegible] 3-25-90		TRAJ 3-27-90	DSP 3/27/90	[illegible] 3-27-90
H19-298							
H20-299							
H3-277							
H4-278				N/A			
H7-281							
H8-282				182			
H9-283				3-25-90			
H10-284							
H11-285	1-2403-P5-P64	DSP 3/25/90	[illegible] 3-25-90		TRAJ 3-27-90	DSP 3/27/90	[illegible] 3-27-90

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POWER AND SIGNAL REMOVAL/REPLACEMENT DATA SHEET

[X] Safety Related/QC Holdpoints [ ] Non-Safety Related

NOTES

a. To install jumpers and/or lift wires, other than those directly associated with the equipment tag(s)/scheme number(s) listed on the Work Order, notify the Shift Supervisor and comply with his instructions.

b. Ensure that each lead (wire) is marked so it can be uniquely identified with its termination point.

c. Independent verification is only required on safety related equipment. Place N/A in independent verification block for non-safety related equipment.

d. If the worker leaves the immediate proximity of the work or the work is interrupted, complete and install a "Jumper and Lifted Wire" tag per 00306-C, "Temporary Jumper And Lifted Wire Control". Instead of Control Number use the Procedure number on the tag.

e. If holdpoints do not apply, NA QC Verification block.

f. If applicable, tags shall remain intact and will only be removed by the independent verifier.

	REMOVAL				RECONNECTION		Q.C. HOLD POINT
IDENTIFY LEADS LIFTED, JUMPERS INSTALLED, LINES OPEN, ETC.	LOCATION PANEL OR JUNCTION BOX	PERFORMED BY/DATE	INDEPENDENT VERIFICATION BY/DATE	QC VERIF. BY/DATE	PERFORMED BY/DATE	INDEPENDENT VERIFICATION BY/DATE	QC VERIF. BY/DATE
OPEN LINK H12-286	1-2403-P5-DG4	DSP 3/25/90	SL 3-25-90		TRAJ 3-27-90	DSP 3/27/90	QC 3-27-90
H13-287							
H14-288							
H15-289							
H16-290				NA			
H17-296							
H18-297				[illegible]			
A35-617 SL 3-25-90				3-25-90			
A36-16-613							
F7-79	1-2403-P5-DG4	DSP 3/25/90	SL 3-25-90		TRAJ 3-27-90	DSP 3/27/90	QC 3-27-90

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POWER AND SIGNAL REMOVAL/REPLACEMENT DATA SHEET

[X] Safety Related/QC Holdpoints [ ] Non-Safety Related

NOTES

a. To install jumpers and/or lift wires, other than those directly associated with the equipment tag(s)/scheme number(s) listed on the Work Order, notify the Shift Supervisor and comply with his instructions.

b. Ensure that each lead (wire) is marked so it can be uniquely identified with its termination point.

c. Independent verification is only required on safety related equipment. Place N/A in independent verification block for non-safety related equipment.

d. If the worker leaves the immediate proximity of the work or the work is interrupted, complete and install a "Jumper and Lifted Wire" tag per 00306-C, "Temporary Jumper And Lifted Wire Control". Instead of Control Number use the Procedure number on the tag.

e. If holdpoints do not apply, NA QC Verification block.

f. If applicable, tags shall remain intact and will only be removed by the independent verifier.

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		REMOVAL			RECONNECTION		Q.C. HOLD POINT
IDENTIFY LEADS LIFTED, JUMPERS INSTALLED, LINES OPEN, ETC.	LOCATION PANEL OR JUNCTION BOX	PERFORMED BY/DATE	INDEPENDENT VERIFICATION BY/DATE	QC VERIF. BY/DATE	PERFORMED BY/DATE	INDEPENDENT VERIFICATION BY/DATE	QC VERIF. BY/DATE
OPEN LINK F8-80	1-2407-P5-DG4	DJP 3/25/90	[illegible] 3-25-90		JAJ 3-27-90	DJP 3/27/90	[illegible] 3-27-90
LIFTED LEAD 4	EJBA	DJP 3/25/90	[illegible] 3-25-90		DJP 3/27/90	JAJ 3-27-90	[illegible] 3-27-90
LIFTED LEAD 105	EJBB	DJP 3/25/90	[illegible] 3-25-90		DJP 3/27/90	JAJ 3-27-90	[illegible] 3-27-90
JUMPER E49-E50	1-2403-P5-DG4	[illegible] 3-25-90	DJP 3/25/90		JAJ 3-27-90	DJP 3/27/90	[illegible] 3-27-90
JUMPER L37-L92	1-2403 P5-DG4	[illegible] 3-25-90	DJP 3/25/90	NA	JAJ 3-27-90	DJP 3/27/90	[illegible] 3-27-90
LIFTED LEAD #602 ON R15	1-2603-P5-DG4	[illegible] 3-25-90	DJP 3/25/90		[illegible] 3/26/90	DJP 3/26/90	[illegible] 3-27-90
OPEN LINK F10-89	1-2603-P5-DG4	[illegible] 3-25-90	DJP 3/25/90	[illegible]	JAJ 3-27-90	DJP 3/26/90	[illegible] 3-27-90
OPEN LINK 229	1-2403P5DG3	[illegible] 3/26/90	[illegible] 3/26/90	3-25-90	[illegible] 3/27/90	[illegible] 3/27/90	[illegible] 3/27/90
" 233	"	[illegible] 3/26/90	[illegible] 3/26/90		[illegible] 3/27/90	[illegible] 3/27/90	[illegible] 3/27/90
" 211	"	[illegible] 3/26/90	[illegible] 3/26/90		[illegible] 3/27/90	[illegible] 3/27/90	[illegible] 3/27/90

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POWER AND SIGNAL REMOVAL/REPLACEMENT DATA SHEET

[X] Safety Related/QC Holdpoints [ ] Non-Safety Related

NOTES

a. To install jumpers and/or lift wires, other than those directly associated with the equipment tag(s)/scheme number(s) listed on the Work Order, notify the Shift Supervisor and comply with his instructions.

b. Ensure that each lead (wire) is marked so it can be uniquely identified with its termination point.

c. Independent verification is only required on safety related equipment. Place N/A in independent verification block for non-safety related equipment.

d. If the worker leaves the immediate proximity of the work or the work is interrupted, complete and install a "Jumper and Lifted Wire" tag per 00306-C, "Temporary Jumper And Lifted Wire Control". Instead of Control Number use the Procedure number on the tag.

e. If holdpoints do not apply, NA QC Verification block.

f. If applicable, tags shall remain intact and will only be removed by the independent verifier.

	REMOVAL				RECONNECTION		QC HOLD POINT
IDENTIFY LEADS LIFTED, JUMPERS INSTALLED, LINES OPEN, ETC.	LOCATION PANEL OR JUNCTION BOX	PERFORMED BY/DATE	INDEPENDENT VERIFICATION BY/DATE	QC VERIF. BY/DATE	PERFORMED BY/DATE	INDEPENDENT VERIFICATION BY/DATE	QC VERIF. BY/DATE
OPEN LINK 213	1-2403-P5-DG3	KCJ 3/26/90	WJF 3/26/90		WJF 3/27/90	KSB 3/27/90	JWJ 3-27-90
Jumper 211 to 213	1-2403-P5-DG3	WJF 3/27/90	KSB 3/27/90		WJF 3/27/90	KSB 3/27/90	JWJ 3-27-90
Jumper 204 to 209	1-2403-P5-DG3	WJF 3/27/90	KSB 3/27/90		WJF 3/27/90	KSB 3/27/90	JWJ 3-27-90
				NA			
				2892			
				3-25-90			

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COMPLETION SHEET

PROCEDURE	REVISION	SHEET
27563-C	2	1 OF 30
TAG NO.	DESCRIPTION	
1-2403-G4-002	DIESEL GENERATOR 1B	
SERIAL NO.	MANUFACTURER	MODEL
76028-2879	ENTERPRISE	DSRV-16-4
TEST EQUIPMENT USED	M&TE #	[X] Safety Related/QC Hold Point
REF. BLOCK 27		[ ] Non-Safety Related

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.1.1	Prerequisites met	~~RAJ~~ 3/25/90	No	RSW 3-25-90
4.1.2	Shift Supervisor notified	~~RAJ~~ 3/25/90		/
4.1.5.1	Tubing E-10A disconnected	RAJ 3/25/90		/
4.1.5.2	Tubing E-10B disconnected	RAJ 3/25/90		/
4.1.5.3	Tubing E-10C disconnected	RAJ 3/25/90		/
4.1.6.1	Tubing E-92 disconnected	RAJ 3/25/90		/
4.1.7.1	Tubing E-14 disconnected	RAJ 3/25/90		/
4.1.8.1	A-Bank Starting Air Valve. Terminals E5 (4) and E4 (2).	RAJ 3-25-90		/
4.1.8.2	B-Bank Starting Air Valve. Terminals L5 (105) and L4 (102).	RAJ 3-25-90	No	RSW 3-25-90

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.1.8.3	Field Flash, Exciter Reg Enable. Terminals E19 (53), E22 (56), E17 (51), and E21 (55).	RAJ 3-25-90	No	RSW 3-25-90
4.1.8.4	Preset V.R. and Gov.: Terminals E23 (57), E18 (52), and E24 (59).	RAJ 3-25-90		/
4.1.8.5	Ready to Load, DG Brkr.: Terminals F5 (77) and F6 (78).	RAJ 3-25-90		/
4.1.8.6	Ready to Load, HVAC Sys.: Terminals E57 (46) and E58 (47).	RAJ 3-25-90		/
4.1.8.7	Ready to Load, Spare. Terminals E59 (48) and E60 (49).	RAJ 3-25-90		/
4.1.8.8	Start, Spare. Terminals F1 (73) and F2 (74).	RAJ 3-25-90		/
4.1.8.9	Stop, Spare. Terminals F3 (75) and F4 (76).	RAJ 3-25-90		/
4.1.8.10	Pre-position Gov and V.R. Terminals L30 (170) and L31 (171).	RAJ 3-25-90		/
4.1.8.11	186C Trip Delay Terminals L32 (172) and L33 (173).	RAJ 3-25-90		/
4.1.8.12	Field Flash, Exciter Reg Enable. Terminals L23 (153), L20 (141), L21 (144), and L24 (155).	RAJ 3-25-90		/
4.1.8.13	Trip 52G. Terminals L51 (159) and L52 (160).	RAJ 3-25-90		/
4.1.8.14	Emergency Stop. Terminals L53 (164) and L54 (165).	RAJ 3-25-90	No	RSW 3-25-90

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.1.8.15	Running, Spare. Terminals L55 (166) and L56 (167).	RAJ 3-25-90	No	RSW 3-25-90
4.1.8.16	Running, Spare. Terminals L57 (168) and L58 (169).	RAJ 3-25-90		/
4.1.8.17	Overspeed, Spare. Terminals L59 (179) and L60 (180).	RAJ 3-25-90		/
4.1.8.18	Running W/Delay. Terminals L35 (175) and L36 (176).	RAJ 3-25-90		/
4.1.8.19	Ready to Load - HVAC System. Terminals L9 (137) and L10 (138).	RAJ 3-25-90		/
4.1.8.20	Ready to Load - Spare. Terminals L11 (139) and L12 (140).	RAJ 3-25-90		/
4.1.8.21	Emergency Stop. Terminals L14 (336) and L15 (337).	RAJ 3-25-90		/
4.1.8.22	ERF Computer. Terminals L49 (S4B1) and L50 (S4B2).	RAJ 3-25-90		/
4.1.8.23	Emergency Stop Annunciation. Terminals L25 (79-180) and L26 (90-180).	RAJ 3-25-90		/
4.1.8.24	CC Fan #1. Terminals C3 (244) and C9 (245).	RAJ 3-25-90		/
4.1.8.25	CC Fan #2. Terminals C5 (246) and C11 (247).	RAJ 3-25-90		/
4.1.8.26	Generator Space Heater Control. Terminals C7 (239) and C8 (240).	RAJ 3-25-90		/
4.1.8.27	Running Contacts. Terminals G3 (253), G4 (254), G5 (255), G6 (256), G7 (257), G8 (258), G9 (259), G10 (260), G11 ~~(161)~~ 261, and G12 ~~(162)~~ 262.	RAJ 3-25-90 RAJ 3-25-90 RAJ 3/28/90	No	RSW 3-25-90

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.1.8.28	Running W/Delay Contacts. Terminals G13 (263), G14 (264), G15 (265), G16 (266), G17 (267), G18 (268), G19 (269), G20 (270), G21 (271), G22 (272), G23 (273) and G24 (274).	RAJ 3-25-9	No	RJW 3-25-90
4.1.8.29	Loss of DC Annunciation. Terminals H1 (275) and H2 (276).	RAJ 3-25-90		/
4.1.8.30	Mechanical Trouble Alarm. Terminals H19 (298) and H20 (299).	RAJ 3-25-90		/
4.1.8.31	Lockout Alarm. Terminals H3 (277) and H4 (278).	RAJ 3-25-90		/
4.1.8.32	Failed to Start. Terminals H7 (281) and H8 (282).	RAJ 3-25-90		/
4.1.8.33	Unit Available Local Control. Terminals H9 (283) and H10 (284).	RAJ 3-25-90		/
4.1.8.34	Unit Available. Terminals H11 (285), H12 (286), H13 (287), H14 (288), H15 (289), and H16 (290).	RAJ 3-25-90		/
4.1.8.35	Alarm. Terminals H17 (296) and H18 (297).	RAJ 3-25-90		/
4.1.8.36	Loss of DC Power. Terminals A35 (612) and A36 (613).	RAJ 3-25-90		/
4.1.8.37	DG Brkr Inop. Terminals F7 (79) and F8 (80).	RAJ 3-25-90		/
4.1.9	Toggle switches to hourmeter open.	RAJ 3-25-90	No	RJW 3-25-90

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.1.10.1	At on-engine "EJBA" Junction Box, disconnect engine wire number 4 and tape wire end.	RAJ 3-25-90	No	RJW 3-25-90
4.1.11.1	At on-engine "EJBB" Junction Box, disconnect engine wire number 105 and tape wire end.	RAJ 3-25-90		
4.1.12	Verify that all circuit breakers are closed.	DSP 3/25/90	No	RJW 3-25-90
4.1.13	Verify 60 psi at control air pressure gauge.	DSP 3/25/90	Q.C. HOLD POINT	RJW 3-25-90
4.1.14	Verify 125 vdc across circuit breakers CB-1 and CB-2, CB-3 and CB-4.	DSP 3/25/90	Q.C. HOLD POINT	RJW 3-25-90
4.2.1	Jumper terminals L45 (101) and L48 (129), Control Room perrissive for maintenance mode.	/		/
4.2.2.1	Disconnect jumper across terminals H4 (278) and H12 (286) and verify:	/		/
4.2.2.2	Open contact across terminals H3 (277) and H4 (278).	/		/
4.2.2.3	Contact OPEN	N/A RLT 3-25-90		/
4.2.2.4	Contact OPEN	/		N/A RJW 3-25-90
4.2.2.5	Contact CLOSED	/		/
4.2.2.6	Contact CLOSED	/		/
4.2.3.1	Shutdown Cylinder EXTENDED	/		/
4.2.3.2	Lockout alarm ENERGIZED	/		/

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.3.3	Light De-Energized	N/A RAJ 3-25-90		/
4.2.3.4	Gauge indicates 0 PSI	/		/
4.2.3.5	Lockout Pin REMOVED	/		/
4.2.3.6	STOPPING light ENERGIZED	/		/
4.2.3.7	Contact CLOSED	/		/
4.2.3.8	Contact CLOSED	/		/
4.2.3.9	Contact CLOSED	/		/
4.2.3.10	Contact CLOSED	/		/
4.2.3.11	Contact OPEN	/	N/A	/
4.2.3.12	Contact OPEN	/		RSW 3-25-90
4.2.4	Jumper Removed	/		/
4.2.5.1	125VDC present	/		/
4.2.6.1	No voltage present	/		/
4.2.6 2	No voltage present	/		/
4.2.7	Wire disconnected	/		/
4.2.7.1	Relay R-35 De-energized	/		/
4.2.7.2	Contact OPEN	/		/
4.2.7.3	Lockout alarm de-energized	/		/
4.2.8	Barring device engaged alarm ENERGIZED	N/A RAJ 3-25-90		/

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.8.2	Contact CLOSED	N/A TRAJ 3-25-90		/
4.2.8.3	Relay R-35 ENERGIZED	/		/
4.2.9.1.1	125VDC Present	/		/
4.2.9.2.1	No voltage present	/		/
4.2.9.2.2	No voltage present	/		/
4.2.10.1	Barring device engaged alarm ENERGIZED	/		/
4.2.10.2	Contact OPEN	/		/
4.2.10.3	Relay R-35 DE-ENERGIZED	/		/
4.2.11	Wire Reconnected	/		/
4.2.11.1	Relay R-35 DE-ENERGIZED	/	N/A RJW 3-25-90	/
4.2.11.2	Lockout alarm ENERGIZED	/		/
4.2.12.1	Shutdown cylinder RETRACTED	/		/
4.2.12.2	Pressure Gauge reads 60PSI	/		/
4.2.12.3	Lockout alarm DE-ENERGIZED	/		/
4.2.12.4	Emergency status light ENERGIZED	/		/
4.2.12.5	Lockout pin in LOCKED position	/		/
4.2.12.6	STOPPING light DE-ENERGIZED	N/A TRAJ 3-25-90		/

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.12.7	BARRING device RETRACTED	N/A TRAJ 3-25-90		/
4.2.12.8	Locking pin INSTALLED	/		/
4.2.13.1	No voltage PRESENT	/		/
4.2.14.1	No voltage PRESENT	/		/
4.2.14.2	"A" power light DE-ENERGIZED	/		/
4.2.14.3	Panel "A" failure alarm ENERGIZED	/		/
4.2.14.4	Contact CLOSED	/		/
4.2.15	Timer REMOVED	/		/
4.2.16.1	125VDC PRESENT	/	NA	/
4.2.16.2	Alarm ENERGIZED	/		RJN 3/25/90
4.2.16.3	Relay DE-ENERGIZED	/		/
4.2.16.4	Contact CLOSED	/		/
4.2.16.5	Contact CLOSED	/		/
4.2.16.6	Relay R-35 ENERGIZED	/		/
4.2.16.7	Horn ENERGIZED	/		/
4.2.17.1	Horn DE-ENERGIZED	/		/
4.2.17.2	Contact OPEN	/		/
4.2.17.3	Relay R-35 DE-ENERGIZED	N/A TRAJ 3-25-90		/

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.17.4	Failed to start alarm DE-ENERGIZED	N/A TRAJ 3-25-90		
4.2.18.1	Contact CLOSED			
4.2.18.2	Contact CLOSED			
4.2.18.3	No voltage PRESENT			
4.2.18.4	Contact CLOSED			
4.2.18.5	Contact CLOSED			
4.2.18.6	Running light ENERGIZED			
4.2.18.7	Failed to start alarm DE-ENERGIZED			
4.2.18.8	Contact CLOSED			
4.2.18.9	Contact OPEN		N/A	
4.2.18.10	Contact CLOSED			RSW 3-25-90 RSW 3-25-90
4.2.18.11	Relay R 1 ENERGIZED			
4.2.18.12	Contact CLOSED			
4.2.18.13	Contact CLOSED			
4.2.18.14	Contact CLOSED			
4.2.18.15	Contact CLOSED			
4.2.18.16	Contact OPEN			
4.2.18.17	Contact OPEN			
4.2.18.18	Contact OPEN			
4.2.18.19	Contact CLOSED			
4.2.18.20	Contact CLOSED	N/A TRAJ 3-25-90		

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.18.21	Contact CLOSED	N/A RAJ 3-25-90		/
4.2.18.22	Contact OPEN	/		/
4.2.18.23	Contact OPEN	/		/
4.2.18.24	Contact OPEN	/		/
4.2.19	Maintenance Button Pushed	/		/
4.2.19.1	Maintenance mode alarm DE-ENERGIZED	/		/
4.2.20.1	Contact OPEN	/		/
4.2.20.2	Shutdown cylinder EXTENDED	/		/
4.2.20.3	Cylinder retracted and VENTED	/		/
4.2.20.4	Contact OPEN	/	N A	RSW 3-25-90
4.2.20.5	Contact CLOSED	/		/
4.2.20.6	Unit running light DE-ENERGIZED	/		/
4.2.20.7	Contact OPEN	/		/
4.2.20.8	Contact OPEN	/		/
4.2.20.9	Contact OPEN	/		/
4.2.21.1	Maintenance mode alarm ENERGIZED	/		/
4.2.22.1	Maintenance mode alarm DE-ENERGIZED	N/A RAJ 3-25-90		/
4.2.24.1	125VDC PRESENT	DSR 3/25/90	Q.C. HOLD POINT	RSW 3-25-90
4.2.24.2.1	Maintenance mode alarm DE-ENERGIZED	DSR 3/25/90	No	RSW 3-25-90

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.24.3	Contact CLOSED	DSP 13/25/90	Q.C. HOLD POINT	RSW 3-25-90
4.2.24.4	Relays ENERGIZED	DSP 13/25/90	Q.C. HOLD POINT	RSW 3-25-90
4.2.24.5	Contact CLOSED	DSP 13/25/90	Q.C. HOLD POINT	RSW 3-25-90
4.2.24.6	Safety injection signal light ENERGIZED	DSP 13/25/90	Q.C. HOLD POINT	RSW 3-25-90
4.2.24.7	Shutdown light DE-ENERGIZED	DSP 13/25/90	Q.C. HOLD POINT	RSW 3-25-90
4.2.24.8	No voltage on solenoid	DSP 13/25/90	Q.C. HOLD POINT	RSW 3-25-90
4.2.24.9	Jumper REMOVED	DSP 13/25/90	No	RSW 3-25-90
4.2.24.10	EMERGENCY start alarm ENERGIZED	DSP 13/25/90	No	RSW 3-25-90
4.2.24.11	Contact CLOSED	N/A TRAJ 3-25-90		A RSW 3-25-90 N
4.2.24.12	Contact CLOSED	N/A TRAJ 3-25-90		
4.2.25.1	Stopping light DE-ENERGIZED	DSP 13/25/90	No	RSW 3-25-90
4.2.26.1	Pressure gauge below 25 PSI	DSP 13/25/90	No	RSW 3-25-90
4.2.26.2	Shutdown cylinder NOT EXTENDED	TRAJ 3/25/90	Q.C. HOLD POINT	RSW 3-25-90
4.2.26.3	Hi temp lube oil alarm ENERGIZED	DSP 13/25/90	No	RSW 3-25-90
4.2.26.4	Stopping light NOT ENERGIZED	DSP 13/25/90	No	RSW 3-25-90
4.2.26.5	Contact CLOSED	N/A TRAJ 3-25-90		A RSW 3-25-90 N
4.2.26.6	Contact CLOSED annunciator "ON"	N/A TRAJ 3-25-90		
4.2.27	Tubing E-18 RECONNECTED	DSP 13/25/90	Q.C. HOLD POINT	RSW 3-25-90

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.27.1	Group 1 pressure gauge 60 PSI	DSP 13/25/90	QC HOLD POINT	RSW 3-25-90
4.2.27.2	Hi temp alarm DE-ENERGIZED	DSP 13/25/90	QC HOLD POINT	RSW 3-25-90
4.2.27.3	Contact OPEN	N/A TRAJ 3-25-90		N/A RSW 3-25-90
4.2.27.4	Contact OPEN	N/A TRAJ 3-25-90		
4.2.28.1	Stopping light ENERGIZED	DSP 13/25/90	QC HOLD POINT	RSW 3-25-90
4.2.28.2	Lo pressure alarm ENERGIZED	DSP 13/25/90	QC HOLD POINT	RSW 3-25-90
4.2.28.3	Contact CLOSED	N/A TRAJ 3-25-90		N/A RSW 3-25-90
4.2.28.4	Contact CLOSED	N/A TRAJ 3-25-90		
4.2.28.5	Engine shutdown Cylinder EXTENDED	DSP 13/25/90	QC HOLD POINT	RSW 3-25-90
4.2.29.1	Maintenance mode alarm DE-ENERGIZED	DSP 13/25/90	No	RSW 3-25-90
4.2.30	Plug installed on E-92	DSP 13/25/90	QC HOLD POINT	RSW 3-25-90
4.2.30.1	Relay R11B ENERGIZED	DSP 13/25/90	QC HOLD POINT	RSW 3-25-90
4.2.30.1.1	Contact CLOSED	N/A TRAJ 3-25-90		N/A RSW 3-25-90
4.2.30.1.2	Contact CLOSED	↓ / ↓		
4.2.30.1.3	Contact CLOSED	N/A TRAJ 3-25-90		
4.2.30.1.4	Ready to load light ENERGIZED	DSP 13/25/90	QC HOLD POINT	RSW 3-25-90
4.2.30.2	Jumper Removed	DSP 13/25/90	No	RSW 3-25-90
4.2.30.2.1	Contact OPEN	N/A TRAJ 3-25-90		N/A RSW 3-25-90
4.2.30.2.2	Contact OPEN	N/A TRAJ 3-25-90		

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.30.2.3	Contact OPEN	N/A TRAJ 3-25-90	NA	RSW 3-25-90
4.2.30.2.4	Ready to load light DE-ENERGIZED	DSP 13/25/90	Q.C. HOLD POINT	RSW 13-25-90
4.2.31.1	No voltage PRESENT	DSP 13/25/90	Q.C. HOLD POINT	RSW 13-25-90
4.2.31.2	Relay R-5B ENERGIZED	DSP 13/25/90	Q.C. HOLD POINT	RSW 13-25-90
4.2.32.1	Relay R-23B ENERGIZED	DSP 13/25/90	HOLD POINT	RSW 13 25-90
4.2.32.2	Contact CLOSED	N/A TRAJ 3-25-90		/
4.2.32.3	Contact CLOSED	/		/
4.2.32.4	Contact CLOSED	/		N/A RSW 3-25-90
4.2.32.5	Contact CLOSED	N/A TRAJ 3-25-90		/
4.2.32.6	Emergency Stop ENERGIZED	DSP 13/25/90	Q.C. ~~HOLD POINT~~ No	RSW 13 25-90
4.2.32.7	Stopping light ENERGIZED	DSP 13/25/90	RSW 3-25-90	/
4.2.32.8	Pressure at Solenoid 3B	DSP 13/25/90		/
4.2.32.9	Unit available light DE-ENERGIZED	DSP 13/25/90		/
4.2.32.9.1	No change in status light	DSP 13/25/90		/
4.2.32.10	Overspeed alarm ENERGIZED	DSP 13/25/90	No	RSW 13-25-90
4.2.32.11	Contact CLOSED	N/A TRAJ 3-25-90	NA	RSW 3-25-90
4.2.32.12	Relay R-35 ENERGIZED	DSP 13/25/90	Q.C. HOLD POINT	RSW 13-25-90
4.2.32.12.1.1	Relay R-35 ENERGIZED	DSP 13/25/90		RSW 13 25-90
4.2.32.12.1.2	Emergency trip DE-ENERGIZED	DSP 13/25/90	Q.C. HOLD POINT	RSW 13-25-90

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.32.13.1	No voltage present	DSP 13/25/90	No	RSW 3-25-90
4.2.32.13.2	No voltage present	DSP 13/25/90	No	RSW 3-25-90
4.2.33	Cover INSTALLED	DSP 13/25/90	No	RSW 3-25-90
4.2.35.1	Contact OPEN	N/A TRAJ 3-25-90	NA	RSW 3 25 90
4.2.35.2	Overspeed trip DE-ENERGIZED	DSP 13/25/90	Q.C. HOLD POINT	RSW 3-25-90
4.2.35.3	Contact OPEN	N/A TRAJ 3-25-90	NA	RSW 3 25 90
4.2.36.1	Relay R23B DE-ENERGIZED	DSP 13/25/90	Q.C. HOLD POINT	RSW 3-25-90
4.2.36.2	Contact OPEN	N/A TRAJ 3-25-90		/
4.2.36.3	Contact OPEN	/		NA RSW 3-25-90
4.2.36.4	Contact OPEN	N/A TRAJ 3-25-90		/
4.2.36.5	Emergency stop light DE-ENERGIZED	DSP 13/25/90	Q.C. HOLD POINT	RSW 3 25 90
4.2.36.6	Stopping light DE-ENERGIZED	DSP 13/25/90	Q.C. HOLD POINT	RSW 3-25-90
4.2.36.7	Relay R-35 DE-ENERGIZED	DSP 13/25/90	Q.C. HOLD POINT	FC 3/25/90
4.2.37.1	125VDC present	DSP 13/25/90	Q.C. HOLD POINT	FC 3/25/90
4.2.37.2	DG Auto start signal ENERGIZED	DSP 13/25/90	Q.C. HOLD POINT	FC 3/25/90
4.2.38.1	No voltage present	DSP 13/25/90	No	RSW 3-25-90
4.2.38.2	DG Auto start signal DE-ENERGIZED	DSP 13/25/90	No	RSW 3-25-90
4.2.39.1	Contact CLOSED	N/A TRAJ 3-25-90	NA	RSW 3-25-90
4.2.39.2.1	Relay R23B ENERGIZED	DSP 13/25/90	Q.C. HOLD POINT	FC 3/25/90
4.2.39.2.2	Contact CLOSED	N/A TRAJ 3-25-90	NA	RSW 3-25-90

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.39.2.3	Contact CLOSED	N/A / RAJ 3-25-90	NA	RSW 3-25-90
4.2.41.1	Emergency trip alarm is ENERGIZED	DSP 3/25/90	Q.C. HOLD POINT	PC 3/25/90
4.2.41.2	Contact CLOSED	N/A / RAJ 3-25-90	NA	RSW 3-25-90
4.2.41.3	Relay R-35 ENERGIZED	DSP 3/25/90		PC 3/25/90
4.2.42.1	Emergency trip alarm DE-ENERGIZED	DSP 3/25/90		PC 3/25/90
4.2.42.2	Contact OPEN	N/A / RAJ 3-25-90	NA	RSW 3-25-90
4.2.42.3	Relay R-35 DE-ENERGIZED	DSP 3/25/90	Q.C. HOLD POINT	PC 3/29/90
4.2.44	Jumper Disconnected	DSP 3/25/90	No	RSW 3-25-90
4.2.45.1	125VDC across solenoid 202-6A	N/A / RAJ 3-25-90		/
4.2.45.2	Power available light ENERGIZED	/		/
4.2.45.3	Annunciator DE-ENERGIZED	/		/
4.2.45.4	Contact OPEN	N/A / RAJ 3-25-90		/
4.2.46.1	No voltage across solenoid 202-6B	DSP 3/25/90	No	RSW 3-25-90
4.2.46.2	Power available light DE-ENERGIZED	DSP 3/25/90	No	RSW 3-25-90
4.2.46.3	Power "B" failure ALARM ENERGIZED	DSP 3/25/90	No	RSW 3-25-90
4.2.46.4	CONTACT CLOSED	N/A / RAJ 3-25-90	NA	RSW 3-25-90
4.2.48.1	125VDC PRESENT	DSP 3/25/90	Q.C. HOLD POINT	PC 3/25/90
4.2.48.2	FAILURE TO START ALARM ENERGIZED	DSP 3/25/90	Q.C. HOLD POINT	PC 3/25/90

N/A RSW 3-25-90

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.49.1	No voltage present	DSR 3/25/90	Q.C. HOLD POINT	FC 3/25/90
4.2.49.2	CONTACT CLOSED	N/A TRAJ 3-25-90		/
4.2.49.3	OPEN CIRCUIT	/		N/A RSW 3-25-90
4.2.49.4	CONTACT CLOSED	N/A TRAJ 3-25-90		/
4.2.49.5	STARTING LIGHT ENERGIZED	DSR 3/25/90	Q.C. HOLD POINT	FC 3/25/90
4.2.49.6	Relay R1 ENERGIZED	DSR 3/25/90	Q.C. HOLD POINT	3/25/90
4.2.49.7	RUNNING LIGHT ENERGIZED	DSR 3/25/90		FC 3/25/90
4.2.50.1	SHUTDOWN CYLINDER EXTENDED	DSR 3/25/90	Q.C. HOLD POINT	FC 3/25/90
4.2.50.2	Contact Closure	N/A TRAJ 3-25-90	NA	RSW 3-25-90
4.2.50.3	High Temperature trip ENERGIZED	DSR 3/25/90	No	RSW 3-25-90
4.2.50.4	OPEN CIRCUIT	N/A TRAJ 3-25-90	NA	RSW 3-25-90
4.2.50.5	Relay R1, R1AUX, and R2 are reset	DSR 3/25/90	No	RSW 3-25-90
4.2.50.6	Contact Closed	N/A TRAJ 3-25-90	NA	RSW 3-25-90
4.2.50.7	Contact closed	N/A TRAJ 3-25-90	NA	RSW 3-25-90
4.2.50.8	Unit running light DE-ENERGIZED	DSR 3/25/90	No	RSW 3-25-90
4.2.50.9	Stopping light ENERGIZED	DSR 3/25/90	No	RSW 3-25-90
4.2.50.10	Contact CLOSED	N/A TRAJ 3-25-90	NA	RSW 3-25-90
4.2.50.11	CONTACT CLOSED	N/A TRAJ 3-25-90	NA	RSW 3-25-90
4.2.51.1	Hi bearing temp ALARM DE-ENERGIZED	DSR 3/25/90	Q.C. HOLD POINT	FC 3/25/90

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.51.2	CONTACT OPEN	N/A / TRAJ 3-25-90		/
4.2.51.3	CONTACT OPEN	N/A / TRAJ 3-25-90	N	A / RSW 3-25-90
4.2.53.1	125V DC PRESENT	DJP 13/25/90	Q.C. HOLD POINT	PC 13/25/90
4.2.53.2	CONTACT CLOSED	N/A / TRAJ 3-25-90	NA	RSW 3-25-90
4.2.53.3	RELAYS R1, R1A R2, ENERGIZED	DJP 13/25/90	No	RSW 3-25-90
4.2.53.4	SHUTDOWN SYSTEM ACTIVE Light DE-ENERGIZED	DJP 13/25/90		/
4.2.53.5	NO VOLTAGE PRESENT	DJP 13/25/90		/
4.2.53.6	Jumper Removed	DJP 13/25/90	No	RSW 3-25-90
4.2.53.7	Contact CLOSED	N/A / TRAJ 3-25-90	N/A	RSW 3-25-90
4.2.54.1	Hi Pressure Alarm ENERGIZED	DJP 13/25/90	No	RSW 3-25-90
4.2.54.2	ENGINE SHUTDOWN CYLINDER NOT EXTENDED	DJP 13/25/90	No	RSW 3-25-90
4.2.54.3	CONTACT CLOSED	N/A / TRAJ 3-25-90		A / RSW 3-25-90
4.2.54.4	CONTACT CLOSED	N/A / TRAJ 3-25-90		/
4.2.55	TUBING E-68 RECONNECTED	DJP 13/25/90	Q.C. HOLD POINT	PC 13/25/90
4.2.55.1	Hi Pressure Alarm DE-ENERGIZED	DJP 13/25/90	Q.C. HOLD POINT	PC 13/25/90
4.2.55.2	CONTACT OPEN	N/A / TRAJ 3-25-90		/
4.2.55.3	CONTACT OPEN	N/A / TRAJ 3-25-90		N A / RSW 3-25-90
4.2.55.4	SHUTDOWN CYLINDER NOT EXTENDED	DJP 13/25/90	Q.C. HOLD POINT	PC 13/25/90
4.2.56.1	No voltage present	DJP 13/25/90	No	RSW 3-25-90

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PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.56.2	CONTACT CLOSED	N/A RAJ 3-25-90	NA	RSW 3-25-90
4.2.56.3	SHUTDOWN CYLINDER EXTENDED	DSP 3/26/90	No	RSW 3-25-90
4.2.56.4	VIBRATION AL RM ENERGIZED	DSP 3/26/90	No	RSW 3-25-90
4.2.56.5	CONTACT CLOSED	N/A RAJ 3-25-90		
4.2.56.6	CONTACT CLOSED			NA RSW 3-25-90
4.2.56.7	CONTACT OPEN	N/A RAJ 3-25-90		
4.2.57	TUBING E-23-H RECONNECTED	DSP 3/26/90	Q.C. HOLD POINT	[illegible] 3/26/90
4.2.57.1	VIBRATION ALARM DE-ENERGIZED	DSP 3/26/90	Q.C. HOLD POINT	ER 34153 [illegible] 3-26-90
4.2.57.2	CONTACT OPEN	N/A RAJ 3-25-90	NA	RSW 3-25-90
4.2.57.3	CONTACT OPEN	N/A RAJ 3-25-90	NA	RSW 3-25-90
4.2.58.1	Jacket Water Lo PRESSURE ENERGIZED	DSP 3/26/90	No	RSW 3-25-90
4.2.58.2	ENGINE SHUTDOWN CYLINDER EXTENDED	DSP 3/26/90	No	RSW 3-25-90
4.2.58.3	CONTACT CLOSED	N/A RAJ 3-25-90		
4.2.58.4	CONTACT CLOSED			
4.2.58.5	CONTACT CLOSED			NA RSW 3-25-90
4.2.58.6	CONTACT CLOSED			
4.2.58.7	CONTACT CLOSED	N/A RAJ 3-25-90		
4.2.59	TUBING E-14 RECONNECTED	DSP 3/26/90	Q.C. HOLD POINT	[illegible] 3/26/90
4.2.59.1	JACKET WATER ALARM DE-ENERGIZED	DSP 3/26/90		ER 34153 [illegible] 3-26-90

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.59.2	CONTACT OPEN	N/A TAJ 3-25-90		/
4.2.59.3	CONTACT OPEN	/		/
4.2.60.1	RELAY R-11A ENERGIZED	/		/
4.2.60.2	CONTACT CLOSED	/		/
4.2.60.3	CONTACT CLOSED	/		/
4.2.60.4	READY TO LOAD LIGHT ENERGIZED	/		/
4.2.60.5	CONTACT OPEN	/		/
4.2.60.6	CONTACT OPEN	/		/
4.2.60.7	READY TO LOAD LIGHT DE-ENERGIZED	/		N/A RSW 3-25-90
4.2.60.8	JUMPER REMOVED	/		/
4.2.61.1	125VDC PRESENT	/		/
4.2.61.2	CONTACT CLOSED	/		/
4.2.61.3	AUTO START LIGHT ENERGIZED	/		/
4.2.62	REMOVE JUMPER	/		/
4.2.62.1	NO VOLTAGE PRESENT	/		/
4.2.62.2	CONTACT OPEN	/		/
4.2.62.3	AUTO START	/		/
4.2.63.1	UNIT AVAILABLE LIGHT DE-ENERGIZED	/		/
4.2.63.2	POWER FAILURE ALARM ENERGIZED	/		/
4.2.63.3	CONTACT CLOSED	N/A TAJ 3-25-90		/

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.64.1	UNIT AVAILABLE STATUS LIGHT ENERGIZED	DSP 3/26/90		RLH 3/26/90
4.2.64.2	START POWER FAILURE ALARM DE-ENERGIZED	DSP 3/26/90		RLH 3/26/90
4.2.64.3	CONTACT OPEN	N/A TRAJ 3-25-90	NA	RSW 3-25-90
4.2.65.1	PRESSURE SENSOR MALFUNCTION ALARM ENERGIZED	DSP 3/26/90	No	RSW 3-25-90
4.2.65.2	CONTACT CLOSED	N/A TRAJ 3-25-90	NA	RSW 3-25-90
4.2.65.3	TUBING E-10B DISCONNECTED	DSP 3/26/90	No	RSW 3-25-90
4.2.65.4	LUBE OIL ALARM ENERGIZED	DSP 3/26/90		
4.2.65.5	PRESSURE SENSOR MALFUNCTION ALARM DE-ENERGIZED	DSP 3/26/90	No	RSW 3-25-90
4.2.65.6	CONTACT CLOSED	N/A TRAJ 3-25-90		
4.2.65.7	CONTACT CLOSED			NA RSW 3-25-90
4.2.65.8	CONTACT OPEN	N/A TRAJ 3-25-90		
4.2.65.9	RELAY R23B ~~DEENERGIZED~~ TRAJ 3-25-90 DSP 3/26/90	DSP 3/26/90	No	RSW 3-25-90
4.2.66.1	RELAY R23B DEENERGIZED TRAJ 3-25-90	DSP 3/26/90	D.C. HOLD POINT	RLH 3/26/90
4.2.66.2	CONTACT OPEN	N/A TRAJ 3-25-90	NA	RSW 3-25-90
4.2.66.3	CONTACT OPEN	N/A TRAJ 3-25-90	NA	RSW 3-25-90
4.2.67.1	MALFUNCTION ALARM ENERGIZED	DSP 3/26/90	No	RSW 3-25-90
4.2.67.2.	PLUG REMOVED FROM TUBING E-10C	DSP 3/26/90	No	RSW 3-25-90

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.67.2.1	LO OIL PRESSURE ALARM DE-ENERGIZED	DSP 13/26/90	No	RSW 13-25-90
4.2.67.2.2	LUBE OIL SHUTDOWN ALARM ENERGIZED	DSP 13/26/90	No	RSW 13-25-90
4.2.67.2.3	CONTACT CLOSED	N/A RAJ 3-25-90	NA	RSW 13-25-90
4.2.69.1	MALFUNCTION ALARM ENERGIZED	DSP 13/26/90	No	RSW 13-25-90
4.2.69.2	PLUG E-10A DISCONNECTED	DSP 13/26/90		/
4.2.69.2.1	LUBE OIL SHUTDOWN ALARM [illegible]IZED	DSP 13/26/90		/
4.2.70	PLUGS RECONNECTED TO TUBING E10A and E10C	DSP 13/26/90		/
4.2.71.1	JACKET WATER TEMP SENSOR MALFUNCTION ALARM ENERGIZED	DSP 13/26/90	No	RSW 13-25-90
4.2.71.2	CONTACT CLOSED	N/A RAJ 3-25-90	NA	RSW 13-25-90
4.2.71.3	Disconnect Tubing E-16B	DSP 13/26/90	No	RSW 13-25-90
4.2.71.3.1	TEMP SENSOR MALFUNCTION ALARM DE-ENERGIZED	DSP 13/26/90		/
4.2.71.3.2	JACKET WATER TEMP SHUTDOWN ALARM ENERGIZED	DSP 13/26/90	No	RSW 13-25-90
4.2.71.3.3	CONTACT CLOSED	N/A RAJ 3-25-90	NA	RSW 13-25-90
4.2.71.3.4	CONTACT ~~OPEN~~ CLOSED RAJ 3-25-90	N/A RAJ 3-25-90	NA	RSW 13-25-90
4.2.72	TUBING E-16A and B RECONNECTED RAJ 3-26-90	DSP 13/26/90	Q.C. HOLD POINT	SR334153 JCH 13/26/90
4.2.73	E16-B Disconnected	DSP 13/26/90	No	RSW 13-25-90

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.73.1	Hi Temp. JACKET WATER ALARM DE-ENERGIZED	DSP 3/26/90	No	RSW 3-25-90
4.2.73.2	CONTACT OPEN	N/A 3-25-90	NA	RSW 3-25-90
4.2.73.3	CONTACT OPEN	N/A 3-25-90	NA	RSW 3-25-90
4.2.73.4	TEMP. SENSOR MALFUNCTION ALARM	DSP 3/26/90	No	RSW 3-25-90
4.2.73.5	TUBING E16-C Disconnected	DSP 3/26/90		
4.2.73.5.1	Jacket Water Shutdown ALARM ENERGIZED	DSP 3/26/90	No	RSW 3-25-90
4.2.74	TUBING LINES E16-B AND C RECONNECTED	DSP 3/26/90	Q.C. HOLD POINT	SR 3415 3 3/26/90
4.2.75	Disconnect Tubing E16-C	DSP 3/26/90	No	RSW 3-25-90
4.2.75.1	SENSOR MALFUNCTION ALARM	DSP 3/26/90		
4.2.75.2	TUBING E16-A Disconnected	DSP 3/26/90		
4.2.75.2.1	JACKETWATERS SHUTDOWN ALARM	DSP 3/26/90	No	RSW 3-25-90
4.2.76	TUBING E16-A and C RECONNECTED	DSP 3/26/90	Q.C. HOLD POINT	SR 3415 3 3/26/90
4.2.77.1	PRESSURE GAUGE READING LESS THAN 25PSI	DSP 3/26/90	Q.C. HOLD POINT	3/26/90
4.2.77.2	BYPASS TEST FAILURE LIGHT DE-ENERGIZED	DSP 3/26/90	Q.C. HOLD POINT	3/26/90
4.2.77.3.1	BYPASS TEST FAILURE LIGHT ENERGIZED	DSP 3/26/90	Q.C. HOLD POINT	3/26/90
4.2.78.1	SUMP TANK READING O.K.	N/A 3-25-90	NA	RSW 3-25-90

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.79.1	DAY TANK READING O.K.	N/A TRAT	3-25-90	/
4.2.80.1	ALARMS ENERGIZED	/		/
4.2.80.2	Horn Disconnected	/		/
4.2.82.1	LUBE OIL FILTER DIFFERENTIAL HIGH FUNCTIONS	/		/
4.2.82.1.1	ALARM FUNCTIONS Correctly	/		/
4.2.82.1.2	RELAY R38 ENERGIZED	/		/
4.2.82.1.3	CONTACT CLOSED	/		/
4.2.82.2.1	ALARM FUNCTIONS CORRECTLY	/		/
4.2.82.2.2	RELAY R38 ENERGIZED	/		/
4.2.82.3.1	ALARM FUNCTIONS CORRECTLY	/		N/A RAT 3-25-90
4.2.82.3.2	RELAY R38 ENERGIZED	/		/
4.2.82.4.1	ALARM FUNCTIONS CORRECTLY	/		/
4.2.82.4.2	RELAY R38 ENERGIZED	/		/
4.2.82.5.1	ALARM FUNCTIONS CORRECTLY	/		/
4.2.82.6.1	ALARM FUNCTION CORRECTLY	/		/
4.2.82.7.1	ALARM FUNCTIONS CORRECTLY	/		/
4.2.82.8.1	ALARM FUNCTIONS CORRECTLY	N/A TRAT	3-25-90	/

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.82.9.1	ALARM FUNCTIONS CORRECTLY	N/A RAT 3-25-90		/
4.2.82.9.2	RELAY R38 ENERGIZED	/		/
4.2.82.10.1	ALARM FUNCTIONS CORRECTLY	/		/
4.2.82.10.2	RELAY R38 ENERGIZED	/		/
4.2.82.11.1	ALARM FUNCTIONS CORRECTLY	/		/
4.2.82.11.2	RELAY R38 ENERGIZED	/		/
4.2.82.12.1	ALARM FUNCTIONS CORRECTLY	/		/
4.2.82.12.2	RELAY R38 ENERGIZED	/		/
4.2.82.13.1	ALARM FUNCTIONS CORRECTLY	/	N/A RSW 3-25-90	/
4.2.82.14.1	ALARM FUNCTIONS CORRECTLY	/		/
4.2.82.15.1	ALARM FUNCTIONS CORRECTLY	/		/
4.2.82.16.1	ALARM FUNCTIONS CORRECTLY	/		/
4.2.82.17.1	ALARM FUNCTIONS CORRECTLY	/		/
4.2.82.17.2	RELAY R35 ENERGIZED	/		/
4.2.82.18.1	ALARM FUNCTIONS CORRECTLY	N/A RAT 3-25-90		/

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.82.40.1	ALARM FUNCTIONS CORRECTLY	N/A TRAJ 3-25-90		/
4.2.82.41.1	ALARM FUNCTIONS CORRECTLY	/		/
4.2.82.42	RELAYS INSTALLED	/		/
4.2.83	RELAY RESET	/		/
4.2.84.1	NO PRESSURE AT L.B. GAUGE	/		/
4.2.84.2.1	120 VDC PRESENT	/		/
4.2.84.3.1	120 VDC PRESENT	/		/
4.2.85.1	PRESSURE AT R.B.GAUGE	/		N/A RJW 3-25-90
4.2.85.2	NO PRESSURE AT LB GAUGE	/		/
4.2.85.3.1	NO VOLTAGE PRESENT	/		/
4.2.85.4.1	NO VOLTAGE PRESENT	/		/
4.2.87.1	CONTACT CLOSED	/		/
4.2.87.2	CONTACT CLOSED	/		/
4.2.88.1	CONTACT OPEN	/		/
4.2.88.2	CONTACT OPEN	N/A TRAJ 3-25-90		/
4.2.89.1	TUBING RECONNECTED	12-27-90	Q.C. HOLD POINT	RW 12-27-90
4.2.89.2	TUBING RECONNECTED	/	Q.C. HOLD POINT	RW 12-27-90
4.2.89.3	TUBING RECONNECTED	/	Q.C. HOLD POINT	RW 12-27-90
4.2.90	TUBING RECONNECTED	/	Q.C. HOLD POINT	RW 12-27-90
4.2.91	TUBING RECONNECTED	12-29-90	Q.C. HOLD POINT	RW 12-27-90 IV 34156

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.92.1	LINKS CLOSED	DSP 13/27/90	No	RJV 13-25-90
4.2.92.2	LINKS CLOSED	DSP 13/27/90		/
4.2.92.3	LINKS CLOSED	DSP 13/27/90		/
4.2.92.4	LINKS CLOSED	DSP 13/27/90		/
4.2.92.5	LINKS CLOSED	DSP 13/27/90		/
4.2.92.6	LINKS CLOSED	DSP 13/27/90		/
4.2.92.7	LINKS CLOSED	DSP 13/27/90		/
4.2.92.8	LINKS CLOSED	DSP 13/27/90		/
4.2.92.9	LINKS CLOSED	DSP 13/27/90		/
4.2.92.10	LINKS CLOSED	DSP 13/27/90		/
4.2.92.11	LINKS CLOSED	DSP 13/27/90		/
4.2.92.12	LINKS CLOSED	DSP 13/27/90		/
4.2.92.13	LINKS CLOSED	DSP 13/27/90		/
4.2.92.14	LINKS CLOSED	DSP 13/27/90		/
4.2.92.15	LINKS CLOSED	DSP 13/27/90		/
4.2.92.16	LINKS CLOSED	DSP 13/27/90		/
4.2.92.17	LINKS CLOSED	DSP 13/27/90		/
4.2.92.18	LINKS CLOSED	DSP 13/27/90		/
4.2.92.19	LINKS CLOSED	DSP 13/27/90		/
4.2.92.20	LINKS CLOSED	DSP 13/27/90		/
4.2.92.21	LINKS CLOSED	DSP 13/27/90		/
4.2.92.22	LINKS CLOSED	DSP 13/27/90	No	RJV 13-25-90

QC WITNESS POINT For 4.2.92

M/A 3-29-90

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.92.23	LINKS CLOSED	DSP 13/27/90	No	RSW 3-25-90
4.2.92.24	LINKS CLOSED	DSP 13/27/90		1
4.2.92.25	LINKS CLOSED	DSP 13/27/90		1
4.2.92.26	LINKS CLOSED	DSP 13/27/90		1
4.2.92.27	LINKS CLOSED	DSP 13/27/90		1
4.2.92.28	LINKS CLOSED	DSP 13/27/90		1
4.2.92.29	LINKS CLOSED	DSP 13/27/90		1
4.2.92.30	LINKS CLOSED	DSP 13/27/90		1
4.2.92.31	LINKS CLOSED	DSP 13/27/90		1
4.2.92.32	LINKS CLOSED	DSP 13/27/90		1
4.2.92.33	LINKS CLOSED	DSP 13/27/90		1
4.2.92.34	LINKS CLOSED	DSP 13/27/9		1
4.2.92.35	LINKS CLOSED	DSP 13/27/90		1
4.2.92.36	LINKS CLOSED	DSP 13/27/90		1
4.2.92.37	LINKS CLOSED	DSP 13/27/90		1
4.2.93	TOGGLE SWITCHES ~~OPEN~~ CLOSED RAJ 3-25-90	RAJ 13-27-90	No	RSW 13-25-90
4.2.94	ENGINE WIRE RECONNECTED	DSP 13/27/90	Q.C. HOLD POINT	RSW 13-27-90
4.2.95	ENGINE WIRE RECONNECTED	DSP 13/27/90	Q.C. HOLD POINT	RSW 13-2-90
4.2.96	WIRE 402 RECONNECTED	N/A RAJ 3-25-90	N	RSW 3-25-90
4.2.97	JUMPER REMOVE	RAJ 13-27-90	No	RSW 13-25-90

PROCEDURE STEP	DESCRIPTION	MAINT INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.98	JUMPER REMOVE	RAJ 3-27-90	No	RBW 3-25-90
4.2.99	FREQUENCY GENERATOR REMOVED	RAJ 3-27-90	No	RBW 3-25-90
4.2.100	EQUIPMENT RESTORED TO OPERATIONAL CONDITION	RAJ 3-27-90	QC HOLD POINT	* I R 33515 TWS 27-90
4.2.101	SHIFT SUPERVISOR NOTIFIED	RAJ 3-27-90	No	RBW 3-25-90

Comments/Additional Hold Points IR# 38419

* STEP 4.2.100 TEMPORARY PROC TEMP-90-12 R TEMP LIFT VOLTAGE TEST HOOK TEMPORARY INSTRUMENT CONNECTED THAT WILL BE REMOVED UNDER IR TWS 3-27-90

QC has reviewed this procedure for Hold Points Roy S. Whitaker
SIGNATURE 3-25-90

APPROVED (X) DISAPPROVED ( ) FOREMAN	DATE
Mark Bryan	3-27-90

COMPLETED BY	DATE
	3-27-90

GEORGIA POWER COMPANY
VEGP QUALITY CONTROL

QC HOLD / WITNESS POINTS

85010-C FIG. 1
PAGE 1 OF 1

MWO NO: 19001537

PROCEDURE & REV NO: SEE BELOW

NOTIFY QUALITY CONTROL PRIOR TO PERFORMING THE WORK ACTIVITY OR STEP ASSOCIATED WITH THE HOLD (H) OR WITNESS (W) POINT

DO NOT BYPASS QC HOLD OR WITNESS POINTS

STEP NO.	H/W	HOLD POINT / WITNESS POINT DESCRIPTION	ASSIGNED BY INIT	ASSIGNED BY DATE	NOTIFIED INIT	NOTIFIED DATE	QC ACTION INIT	QC ACTION I-W-N/A
	H	CONTACT Q.C. AT THE HOLD POINTS IN THE FOLLOWING PROCEDURES: 27563-C	RSW	3-25-90	JCH	3-26-90	JCH	I
		Note: QC to verify the operation of the control circuits for starting and running.						
	H	Notify QC prior to starting the diesel.	RSW	3-25-90	JCH	3-27-90	JCH	W
	H	Notify QC prior to installing pneumatic bubble tester	RSW	3-25-90	JCH	3-27-90	JCH	W
	H	Notify QC prior to reinstalling tubing.	RSW	3-25-90	JCH	3-27-90	JCH	I

COMMENTS & IR NUMBERS: (Initial and date entries)

IR# 38119 RSW 3-25-90

(1) IR 34153 JCH 3-26-90 (2) IR 34156 JCH 3-27-90

I.R. 33515 GD 3-27-90

THIS FORM TO BE COMPLETED BY QUALITY CONTROL PERSONNEL ONLY

Quality Control Inspection Report

Georgia Power

VOGTLE GENERATING PLANT—UNITS 1 & 2

33515

Page 1 of 1

MWO/ODR/DR No.	Building	Procedure/Spec. No./Rev.
1990537 Rev 2	"B" DIESEL GEN	See Below
Room No./Level No.	Sys./Start-Up Designator	Tag No.
101 / 1	2403	1-2403-PS-DG3
Drawing No./Rev.	Vendor Manual Log No.	Other
N/A	N/A	N/A

1. Inspector will use separate form for each completed inspection function(s) and insert original with work package, use continuation sheets when needed.
2. Use simple narrative type report procedure. Reference all applicable drawing numbers, specifications, special instructions, etc., connected with your inspection. Use sketches, when applicable, showing dimensions checked, alignment, physical location of defects found, etc. N/A all blocks not used.
3. Upon completion of the inspection activity, enter results below and sign and date.

Remarks: Visually VERIFIED STEP #2 DK-3 NORMAL START TRIP By HI TEMP LUBE OIL By Loosening Fitting AT ITEM #153 AND RETightening OF FITTING. STEP #3 LOSP START By PLACING JUMPER BETWEEN TB 211 AND 213 IN PANEL 1-2403-PS-DG3 THEN TRIP By Loosening FITTING ON VIBRATION SWITCH. VERIFIED JUMPER REMOVED. STEP #4 NORMAL START TRIP By Loosening FITTING ON HIGH CRANKCASE PRESSURE SWITCH VERIFIED RETightening OF FITTING. STEP #5 SI START By PLACING JUMPER BETWEEN TB 204 AND 209 IN PANEL 1-2403-PS-DG3, TRIP By 2 OF 3 LUBE OIL LOW PRESSURE By Loosening FITTING ON E/P THEN

Sketch: E-I-C-B VERIFIED RECONNECTION OF FITTING AND REMOVAL OF JUMPER. VISUALLY VERIFIED NO LIFTED LEADS OPEN LINKS OR JUMPERS INSTALLED IN PANELS DG3, DG4 PER STEP 4.2.15 OF PROC 27563-C REV 2 EXCEPT THOSE COVERED By T-ENG-90-R FOR B TRAIN UNDER VOLTAGE TEST.

Inspection Results

☑ SAT. ☐ UNSAT—ODR/DR NO.(s):

7055.16A MOS191	Inspector	Date
	Terry Williams	3-27-90

WHITE—Work Package / CANARY—Q.C. Supv. PINK—Inspector

Quality Control Inspection Report Georgia Power

VOGTLE GENERATING PLANT—UNITS 1 & 2 33514 Page 1 of 1

MWO/ODR/DR No. MO1537	Building B Train Diesel	Procedure/Spec. No./Rev. N/A
Room No./Level No. 101 / 1	Sys./Start-Up Designator 2403	Tag No. 1-2403-P5-DG4
Drawing No./Rev. 1X4DC01-44 Rev 10	Vendor Manual Log No. N/A	Other N/A

1. Inspector will use separate form for each completed inspection function(s) and insert original with work package, use continuation sheets when needed.
2. Use simple narrative type report procedure. Reference all applicable drawing numbers, specifications, special instructions, etc., connected with your inspection. Use sketches, when applicable, showing dimensions checked, alignment, physical location of defects found, etc. N/A all blocks not used.
3. Upon completion of the inspection activity, enter results below and sign and date.

Remarks: Visually verified: adjustment of timer not 11 on 1A-2055, adjusted 3/4 of a turn clockwise. There are no instructions to perform this in MWO. This is mfg. calibrated board per ENG. No instructions available, per Paul Kochery.

Sketch

N/A

Inspection Results

N/A ☒ SAT T.W. 3-27-90 ☐ UNSAT—ODR/DR NO.(s): NA T.W. 3-27-90

For information only.

705516A MCS191

Inspector	Date
Tony Williams	3-27-90

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.82.19.1	ALARM FUNCTIONS CORRECTLY	N/A IRAJ 3-25-90		
4.2.82.20.1	ALARM FUNCTIONS CORRECTLY			
4.2.82.20.2	RELAY R38 ENERGIZED			
4.2.82.21.1	ALARM FUNCTIONS CORRECTLY			
4.2.82.22.1	ALARM FUNCTIONS CORRECTLY			
4.2.82.22.2	RELAY R38 ENERGIZED			
4.2.82.23.1	ALARM FUNCTIONS CORRECTLY			
4.2.82.23.2	RELAY R38 ENERGIZED			
4.2.82.24.1	ALARM FUNCTIONS CORRECTLY		N/A RJW 3-25-90	
4.2.82.25.1	ALARM FUNCTIONS CORRECTLY			
4.2.82.26.1	ALARM FUNCTIONS CORRECTLY			
4.2.82.26.2	RELAY R38 ENERGIZED			
4.2.82.27.1	ALARM FUNCTIONS CORRECTLY			
4.2.82.27.2	RELAY R38 ENERGIZED			
4.2.82.28.1	ALARM FUNCTIONS CORRECTLY			
4.2.82.28.2	RELAY R38 ENERGIZED	N/A IRAJ 3-25-90		

NORMS 05-254-90

** COPY ** COPY ** COPY ** COPY ** COPY ** COPY ** COPY ** COPY ** COPY ** COPY

NUCLEAR PLANT MAINTENANCE WORK ORDER (1 OF 3)

1. CONTROL NO. 19001576 00 2.DATE 03/28/90 3.UNIT 1 4.SYSTEM LIST
C/TAG NO. LIST 5A.REPAIR TAG ____
MPL/TAG(S) ASSOCIATED WITH SPECIAL INDICATORS
6.PROB/ WORK REQ. DIESEL GENERATOR 1A TRIPPED TWICE FOLLOWING TWO ACTUAL LOSS OF OFFSITE START CONDITIONS. THE TRIPS ACCURRED AFTER APPROXIMATELY 80 SECONDS AND 70 SECONDS OF OPERATION.

NPRD

ORIGINAL

CONT. N

7.INITIATOR KEN STOKES 8.SUPRV JP REDDING LOC LIST
9.MWO CLASS S EQP CLASS LIST 10.UNIT STAT 1R 11.FIRE PROTECT N
12.DCR N 13.NCR/DR N 14.TYPE MAINT P 15.DURATION 1 0

16.CRAFT	MECH(EST/ACT)	ELEC(EST/ACT)	I&C(EST/ACT)	CONT(EST/ACT)	HP/OT(EST/ACT)
CREW	0	0	0	0	0
HRS.	1	16	1	24	1
EXP.	0	0	0	0	0
SCHED BEG	1/1/00	1/1/00	1/1/00	1/1/00	1/1/00
SCHED END	1/1/00	1/1/00	1/1/00	1/1/00	1/1/00
RESP FOREMAN					

17.CIR Y 19001576-67 18.WELD PERM N RWP PERM N
19.QC HOLD TAGS HOLD POINT ATTACHED 20.PROC
QC REVIEWED BY JC Haney 3/28/90 21.PRI 14 22.LCO 1903511
23.WORK INST. T.S. 3.8.1.1/3.8.1.2
SEE CONTINUATION SHEET
COOPER ENERGY TO PERFORM WORK UNDER P.O #6002124.

T. Y

24.INITIATE REVIEW 25.SPEC REV REQ N
OPS NA DATE 3/28/90 MNT COR DATE 3/28/90 26.MWO RELEASE FOR WORK 3/29/90
HP NA DATE 3/28/90 ENG NA DATE 3/28/90 SIG. Larry Mobley DATE 3/29/90

27.ACT WORK PERFRMED See Blocks 7 & Continuation Sheets
Ken Stokes Was Notified @ 1600 EST That Testing Was Ready To Begin And Was Approved For Test To Be Done. Work Awaiting 3/29/90
Maintained Zone III housekeeping Throughout. R.W.L.

CONT. N

FOR INFORMATION ONLY

HIST SUM
28.MTRL REQD NA
29.PERSON PERFORMING WORK(NAME) DATE 30.MAINTENANCE FOREMAN DATE
Mark Dawson 3/1/90 TR Newton 4/1/90
31.INSPECTION PERFORMED BY Tony Williams DATE 4/5/90
32.METHOD OF F.T. Does Perform 14780-1 Sect 4-2-90
33.PROCEDURE # 14780.1 34.PERFORMED BY [illegible] 35.DATE 4/1/90
36.PROVES OPERABILITY NA 37.METHOD USED TO PROVE OPERABILITY NA
38.SATISFY./UNSATISFY 39.IF UNSAT .CORR. ACTION
40.UNIT STATUS AT TIME OF FAILURE 41.TYPE FAIL 42.MODE OF FAIL
43.CAUSE OF FAILURE 44.DETECT BY 45.EFFECT ON SYS
46 EFF ON PLANT 47.MWO STAT 6D 48.CAUSE 49.CORR ACT.
EW MWO NA 51.OPER. ACCEPT BY [illegible] DATE 4/3/90
OSOS APPROVAL NA DATE / /
53.SPEC REV COMP DATE / / 54.MEET.# NA DATE / /
55.CLOSE OUT APPROVAL BY QC Tim O'Grady 4-5-90

A TRAIN
3-28-90

CONTROL NO. 19001576 00

MPL/TAG NO.	SYSTEM	EQP CLS	DESCRIPTION	LOCATION
12403G4001	2403	015	DIESEL GENERATOR	1DGB1-
12403P5DG2	2403	11J	DG 1A ENGINE CNTRL PNL	1DGB1

CONTROL NO. 19001576 00

3/30/90

WORK INSTRUCTIONS: PERFORM ENGINE LOGIC TESTING PER PROCEDURE 27563-C, REV 2. COOPER ENERGY SERVICES PERSONNEL WILL BE PERFORMING APPLICABLE PROTIONS OF THE PROCEDURE WITH ASSISTANCE FROM GPC PERSONNEL, AS REQUIRED. THE ELECTRICAL PORTIONS OF THE PROCEDURE NEED NOT BE RETESTED. ADDITIONAL INSTRUMENTATION MAY BE CONNECTED BY TEST PERSONNEL TO AID IN TROUBLESHOOTING ANY INSTRUMENTATION CONNECTED OR ADJUSTMENTS MADE SHALL BE DOCUMENTED COMPLETELY ON THIS MWO. DOCUMENT ANY PROBLEMS ENCOUNTERED WHILE PERFORMING THIS TEST.

STEP 1: FOLLOWING THE LOGIC TEST THE ENGINE WILL BE STARTED IN THE EMERGENCY MODE AND A LEAK TEST PERFORMED ON THESE LINES:

E-10A - TRIP LOW PRESSURE LUBE OIL
B - " " " " "
C - " " " " "
E-16A - TRIP HIGH TEMPERATURE JACKET WATER
B - " " " " "
C - " " " " "
E-68 - TRIP HIGH PRESSURE CRANKCASE
E-92 - TRIP LOW PRESSURE TURBO OIL
E-14 - TRIP LOW PRESSURE JACKET WATER
E-23H - TRIP HIGH VIBRATION
E-19 - TRIP HIGH TEMPERATURE ENGINE BEARINGS
E-18 - TRIP HIGH TEMPERATURE LUBE OIL.

TEST FOR LEAKAGE BY DISCONNECTING TUBING AT CONTROL PANEL BULKHEAD AND CONNECTING PNEUMATIC BUBBLE TESTER. OBSERVE TESTER FOR AIR FLOW WHEN LINE IS PRESSURIZED. RESTORE TUBING CONNECTION AT BULKHEAD AND CONTINUE WITH NEXT INSTRUMENT LINE.

STEP #2 NORMAL START
-TRIP BY HI-TEMP LUBE OIL

STEP #3 LOSP START (JUMPER IN GEN CONTROL PANEL 211 TO 213)
-TRIP BY HIGH VIBRATION

STEP #4 NORMAL START
-TRIP BY HIGH PRESS CRANKCASE

STEP #5 SI START (JUMPER IN GEN. CONTROL PANEL 204 TO 209)
-TRIP BY 2 OF 3 L.O. PRESSURE

NOTE

THE AREA OF TESTING SHALL BE ROPED AND ENTRANCE LIMITED TO ESSENTIAL PERSONNEL AS DETERMINED BY COOPER REPRESENTATIVES AND GPC ENGINEERING.

GPC ENGINEERING SHALL BE PRESENT FOR ALL TESTING AND QC REPRESENTATIVE PRESENT AS REQUIRED.

3/28/90

VOGTLE ELECTRIC GENERATING PLANT — GEORGIA POWER CO.

MAINTENANCE WORK ORDER REVISION SHEET

1 CONTROL NO.	2 REVISION NO.	3 MPL TAG NO.	4 DATE
19001576	1	1-2403-G4-001 1-2403-P5-DG2	3/30/90

5 REASON FOR REVISION

BLOCK 23: SEE NEW WORK INSTRUCTIONS. (ATTACHED.) Pages 3 of 4 & 4 of 4.

Released to Work — 3/30/90

6 INITIATOR: Billy Smith — Billy Smith 4203

REVIEW SIGNATURES

7 MAINTENANCE ENG	8 OPERATIONS	9 CLEARANCE REQUIRED
[illegible] 3-30-90	3-30-90	NO
10 QC REVIEW: DWillman	11 HOLD POINTS: no additional hold pts. required	
12 HP REVIEW: 3-30-90	13 NEW RWP REQUIRED: NONE	
14 ANI REVIEW: NA 3-30-90	15 HOLD POINTS: NA	
16 WORK PLANNER: Billy Smith 3/30/90	17 PROCEDURES: NONE	
18 FIRE PROTECTION REVIEW: NO Billy Smith 3/30/90	19 SHIFT SUPERVISOR: 3/30/90	

20 REMARKS

CONTROL NO. 19001576 00

WORK INSTRUCTIONS:

CAUTION

ALL PERSONNEL INVOLVED IN THE TESTING MUST READ AND UNDERSTAND THE ATTACHED CAUTION STATEMENT. DURING THE ENGINE START AND SUBSEQUENT TESTING IF ANY TRIPS OCCUR OTHER THAN PLANNED TRIPS OR OBSERVE OTHER SIGNIFICANT MALFUNCTION, STOP THE TEST AND NOTIFY IIT TEAM. TEST WILL NOT CONTINUE WITHOUT THE CONCURRENCE FROM IIT TEAM MEMBER. ANY PORTION OF THE TESTING THAT COULD IMPACT THE RELIABILITY AND SAFETY OF THE D/G SYSTEMS MUST BE EVALUATED BY GA POWER COMPANY PRIOR TO TESTING. IF A TEST NEEDS TO BE STOPPED, ENSURE ALL EQUIPMENT IS PLACED IN A SAFE POSITION.

PERFORM ENGINE LOGIC TESTING PER PROCEDURE 27563-C, REV 2. COOPER ENERGY SERVICES PERSONNEL WILL BE PERFORMING APPLICABLE PROTIONS OF THE PROCEDURE WITH ASSISTANCE FROM GPC PERSONNEL, AS REQUIRED. THE ELECTRICAL PORTIONS OF THE PROCEDURE NEED NOT BE RETESTED. ADDITIONAL INSTRUMENTATION MAY BE CONNECTED BY TEST PERSONNEL TO AID IN TROUBLESHOOTING ANY INSTRUMENTATION CONNECTED OR ADJUSTMENTS MADE SHALL BE DOCUMENTED COMPLETE ON THIS MWO. DOCUMENT ANY PROBLEMS ENCOUNTERED WHILE PERFORMING THIS TEST.

NOTE:

PRELUBE THE TUROCHARGER PRIOR TO EACH START. TURN ALL 3 VIEDO CAMERAS AND RECORDERS TO RECORD THE ANNUNCIATORS AND OTHER ENGINE & GENERATOR PARAMETERS.

STEP 1: FOLLOWING THE LOGIC TEST THE ENGINE WILL BE STARTED IN THE EMERGENCY MODE AND A LEAK TEST PERFORMED ON THESE LINES.

E-10A - TRIP LOW PRESSURE LUBE OIL
B " " " " "
C " " " " "
E-16A - TRIP HIGH TEMPERATURE JACKET WATER
B - " " " " "
C - " " " " "
E-68 - TRIP HIGH PRESSURE CRANKCASE
E-92 - TRIP LOW PRESSURE TURBO OIL
E-14 - TRIP LOW PRESSURE JACKET WATER
E-23H - TRIP HIGH VIBRATION
E-19 - TRIP HIGH TEMPERATURE ENGINE BEARINGS
E-18 - TRIP HIGH TEMPERATURE LUBE OIL.

AFTER RECONNECTING THE LINES FOLLOWING THE TEST, PERFORM LEAK DETECTION BY SNOOP DETECTOR AND FIX ANY LEAKS.

TEST FOR LEAKAGE BY DISCONNECTING TUBING AT CONTROL PANEL BULKHEAD AND CONNECTING PNEUMATIC BUBBLE TESTER. OBSERVE TESTER FOR AIR FLOW WHEN LINE IS PRESSURIZED. RESTORE TUBING CONNECTION AT BULKHEAD AND CONTINUE WITH NEXT INSTRUMENT LINE.

STARTING TIME BETWEEN EACH START MUST BE AT LEAST 10 MIN. RECORD THE TIME IN WORKORDER.

CONTROL NO. 19001576 00

WORK INSTRUCTIONS: ---------- PRIOR TO PERFORM MULTIPLE START TURN BOTH AIR COMPRESSORS OFF AND NOTE IN WORKORDER. AFTER THE MULTIPLE START IS COMPLETED TURN THE AIR COMPRESSORS ON & PLACE IN AUTO AND RECORD IN WORKORDER. NOTE THE STARTING AIR PRESSURE AT THE BEGINNING OF EACH MULTIPLE START AND AFTER EACH STOPPING/TRIPPING.

STEP #2 NORMAL START
-TRIP BY HI-TEMP LUBE OIL

STEP #3 LOSP START (JUMPER IN GEN CONTROL PANEL 211 TO 213)
-TRIP BY HIGH VIBRATION

STEP #4 NORMAL START
-TRIP BY HIGH PRESS CRANKCASE

STEP $5 SI START (JUMPER IN GEN. CONTROL PANEL 204 TO 209)
-TRIP BY 2 OF 3 L. O. PRESSURE

AFTER RECONNECTING THE LINES FOLLOWING THE BUBBLER TEST PERFORM LEAK DETECTION BY SNOOP DETECTOR AND FIX ANY LEAKS.

NOTE

THE AREA OF TESTING SHALL BE ROPED AND ENTRANCE LIMITED TO ESSENTIAL PERSONNELAS DETERMINED BY COOPER REPRESENTATIVES AND GPC ENGINEERING.

GPC ENGINEERING SHALL BE PRESENT FOR ALL TESTING AND QC REPRESENTATIVE PRESENT AS REQUIRED.

Nuclear Plant Maintenance Work Order Continuation Sheet Pg # 1 OF 5

MPL No. 1-2403-P5-DG2 MWO No. 19001576

Work Description BLOCK 27 PROCEDURE VEGP 27563-C

CAP LINES E-16A, B, C AND E18 TO ALLOW SENSORS TO BE CALIBRATED.

OPEN LINK F10 TO DEENERGIZE DISABLED DG CKT BRKR

INOPERABLE ANNUNCIATOR WINDOW

4.1.14 131.8 VOLTS DC READ

DISCONNECTED HORN WIRE # 402 [signature] 3/29/90

4.2.31 Per request from Engineering, timed group II lockout signal from when start was initiated 63 seconds, satisfactory.

4.2.37 Repeated group II lockout time, 65 sec.s, satisfactory. Repeated one more time, 63 seconds, satisfactory. Group II lockout timer is consistant. [signature] 3-29-90

4.2.42.1 CLOSED LINKS L25 & L26 TO PERFORM STEP

RECONNECTED TUBING TO E-16A, B, C AND E-18.

[signature] 3-29-90

Block 23 cont) Maintain Zone II Housekeeping. [signature] 4-1-90

Nuclear Plant Maintenance Work Order Continuation Sheet pg.# 2 OF 5

MPL No. 1-2403-P5-DG2 MWO No. 19001576

Work Description BLOCK 27 PROCEDURE YEGP 27563-C

WHILE ENGINE RUNNING IN EMERGENCY MODE A BUBBLE TEST WAS CONDUCTED ON THE PNEUMATIC LINES LISTED BELOW. AFTER RECONNECTING PNEUMATIC LINES, A SNOOP TEST WAS CONDUCTED ON FITTING. ONE HIGH TEMP JACKET WATER SENSOR TRIPPED AFTER ENGINE STARTED ~~E-16B~~ DP 3750-90

		BUBBLE TEST	SNOOP TEST
E-10A	TRIP LOW PRESSURE LUBE OIL	SATISFACTORY	SATISFACTORY
E-10B	TRIP LOW PRESSURE LUBE OIL	SATISFACTORY	SATISFACTORY
E-10C	TRIP LOW PRESSURE LUBE OIL	SATISFACTORY	SATISFACTORY
E-68	TRIP HIGH PRESSURE CRANKCASE DP 3750-93	SATISFACTORY	SATISFACTORY
E-92	TRIP LOW PRESSURE TURBO OIL	≈ 1 BUBBLE/SECOND	WEEPS
E-14	TRIP LOW PRESSURE JACKET WATER	SATISFACTORY	HAS BUBBLES
E-23H	TRIP HIGH VIBRATION	2 BUBBLES/SECOND	WEEPS
E-19	TRIP HIGH TEMP ENG BRGS	1 BUBBLE/SECOND	SATISFACTORY
E-18	TRIP HIGH TEMP LUBE OIL	SATISFACTORY	WEEPS
E-16C	TRIP HIGH TEMP JACKET WATER	TRIPPED ENGINE 3 BUBBLES/SECOND	DID NOT PERFORM
E-16A	TRIP HIGH TEMP JACKET WATER	SATISFACTORY	DID NOT PERFORM

ADDED PRESSURE GAUGES AT SENSORS OF LINES E-16A, B, C FOR TROUBLESHOOTING TO OBSERVE SENSOR OPERATION DURING ENGINE STARTING. FOUND SENSOR A MOVEMENT SLUGISH.

			SNOOP TEST
STEP # 2	TRIP BY HI-TEMP LUBE OIL	SATISFACTORY	SATISFACTORY
STEP # 3	TRIP BY HIGH VIBRATION	SATISFACTORY	SATISFACTORY
STEP # 4	TRIP BY HIGH PRESS CRANKCASE	SATISFACTORY	SATISFACTORY
STEP # 5	TRIP BY 2 of 3 L.O. PRESSURE	SATISFACTORY	SATISFACTORY

LINES E-16A, E-16B & E-16C REQUIRE BUBBLE TESTING

Donald O Pruett 3/31/90 1246 Am

705476 MCS38

Nuclear Plant Maintenance Work Order Continuation Sheet

 4 DJP 3/31/90

MPL No. 12403G4001/12304P5PG2. MWO No. 19001276

Work Description Block 27 Multiple starts with Air Compressers off

Air Comp #1 off Time 22:30 Air Comp #2 off Time 22:30

Starting Air Pressure

	Time	Air Receiver #1 PI-9060	Air Receiver #2 PI-9064
Step # 2			
Start	22:35	240 PSI	240 PSI
Stop	22:42	220 PSI	220 PSI
Step # 3			
Start	22:55	220 PSI	220 PSI
Stop	23:00	200 PSI	200 PSI
Step # 4			
Start	23:13	200 PSI	200 PSI
Stop	23:17	185 PSI	185 PSI
Step # 5			
Start	23:29	185 PSI	185 PSI
Stop	23:34	170 PSI	170 PSI

Air Comp #1 start Time 23:36 Air Comp #2 start Time 23:36

Recorded by N. Dumas 3/31/90

Block 26 cont) WP ~~State~~ 3/31/90

Nuclear Plant Maintenance Work Order Continuation Sheet

MPL No. 1-2403-P5-D62 MWO No. 19001576

Work Description BLOCK 27 PROCEDURE VEGP 27563-C

PRESSURE GAUGE INSTALLED TO MONITOR PILOT PRESSURE OF PILOT VALVE P3. THIS WAS DONE IN CONJUCTION WITH MWO 19001684 TO MONITOR PRESSURE DURING SENSOR TRIP TEST. DP 3/31/90 1900 HRS

PILOT PRESSURE 66.2PSI REACHED WITH TWO JACKET WATER HIGH TEMP SENSORS. ↓ ↓ 56PSI ↓ ↓ LOW PRESSURE IN JACKET WATER SENSOR DP 3/31/90

DISCONNECTED. DP 3/31/90 2024 HRS

HIGH TEMP JACKET WATER SENSORS A&B CHANGED OUT. DP 3/31/90

WHILE ENGINE SHUTDOWN A BUBBLER TEST WAS CONDUCTED ON THE FOLLOWING PNEUMATIC LINES.

E-16A TRIP HIGH TEMP JACKET WATER : 1 BUBBLE/SECOND

E-16B ↓ ↓ ↓ ↓ ↓ : SATISFACTORY

E-16C : SATISFACTORY

WHILE ENGINE RUNNING IN ~~EMERGENCY~~ NORMAL MODE DP 3/31/90 A BUBBLER TEST WAS CONDUCTED ON THE FOLLOWING PNEUMATIC LINES. A SNOOP TEST WAS DONE ON THE FITTING BROKE FOR BUBBLER TEST.

		BUBBLER TEST	SNOOP TEST
E-16A	TRIP HIGH TEMP JACKET WATER	1 BUBBLE/SECOND	SAT
E-16B	↓ ↓ ↓ ↓ ↓	1 BUBBLE/3 SECONDS	SAT
E-16C		SATISFACTORY	SAT

Dan Pruett 3/31/90

Pg # 1 5 of 5

Nuclear Plant Maintenance Work Order Continuation Sheet

MPL No. 1-2403-6+C01 / 1-2403-P5-D12 MWO No. 19001576

Work Description BK 26) Barry Moore 3-30-90

GEORGIA POWER COMPANY
VEGP QUALITY CONTROL

QC HOLD / WITNESS POINTS

85010-C FIG. 1
PAGE 1 OF 1

WWO NO: 19001576

PROCEDURE & REV NO: ~~257~~ 27563-C 7/2

NOTIFY QUALITY CONTROL PRIOR TO PERFORMING THE WORK ACTIVITY OR STEP ASSOCIATED WITH THE HOLD (H) OR WITNESS (W) POINT

DO NOT BYPASS QC HOLD OR WITNESS POINTS

STEP NO.	H/W	HOLD POINT / WITNESS POINT DESCRIPTION	ASSIGNED BY INIT	ASSIGNED BY DATE	NOTIFIED INIT	NOTIFIED DATE	QC ACTION INIT	QC ACTION I-W-N/A
	H	Notify QC at the hold points in procedure 27563-C	JCH	3/28/90	JCH	3-29-90	JCH	I
	H	Notify QC prior to starting the diesel			PC	3/31/90	PC	I
	H	Notify QC prior to performing leak test			PC	3/31/90	PC	I
	H	Notify QC prior to performing the following steps						
		Step #2 Normal Start			(PC)	3-29-90	PC	I
		Step #3 Loop Start						
		Step #4 Normal Start						
		Step #5 SI Start			(PC)	3-29-90	PC	I
		Note: Steps 2, 3, 4, 5 are witness points for QC only. No inspection required.						

COMMENTS & IR NUMBERS: (initial and date entries)

IR 34189 JCH 3/29/90 * I.R. 34174 F.C.O. 9-31-90

I.R. 34128 (PC 3/31/90

THIS FORM TO BE COMPLETED BY QUALITY CONTROL PERSONNEL ONLY

Quality Control Inspection Report

VOGTLE GENERATING PLANT—UNITS 1 & 2

34128

Georgia Power

Page 1 of 1

WO/ODR/DR No.	Building	Procedure/Spec. No./Rev.
19021576	Diesel Generator	27563-CR/2
Room No./Level No.	**Sys./Start-Up Designator**	**Tag No.**
Rm# 103 Level 1	2403	1-2403-P5-DG2
Drawing No./Rev.	**Vendor Manual Log No.**	**Other**
N/A	N/A	N/A

1. Inspector will use separate form for each completed inspection function(s) and insert original with work package, use continuation sheets when needed.
2. Use simple narrative type report procedure. Reference all applicable drawing numbers, specifications, special instructions, etc., connected with your inspection. Use sketches, when applicable, showing dimensions checked, alignment, physical location of defects found, etc. N/A all blocks not used.
3. Upon completion of the inspection activity, enter results below and sign and date.

Remarks

Visually verified checking for leaks in Engine Control Panel 1-2403-P5-DG2. Lines E-16A, E-16B and E-16C were checked. During Bubble Test results were as follows.

E-16A 1 Bubble/sec

E-16B 1 Bubble/3sec

E-16C no leakage detected.

Visually verified snoop test for leaks on Lines in Engine Control Panel 1-2403-P5-DG2. Results were

E-16A - no leakage visible

E-16B - some leakage detected this problem was solved by tightening #1

E16C - no leakage visible

Sketch

Inspection Results

☑ SAT. ☐ UNSAT—ODR/DR NO.(s):

705516A WCS191

Inspector: [signature] Date: 3/31/90

WHITE—Work Package CANARY—Q.C. Supv. PINK—Inspector

Quality Control Inspection Report

VOGTLE GENERATING PLANT—UNITS 1 & 2

34174

Georgia Power

WO/ODR/DR No.	Building	Procedure/Spec. No./Rev.
1900576	"A" TRAIN DIESEL	N/A
Room No./Level No.	**Sys./Start-Up Designator**	**Tag No.**
103 / 1	2403	1-2403-B5-DG2
Drawing No./Rev.	**Vendor Manual Log No.**	**Other**
N/A	N/A	N/A

1. Inspector will use separate form for each completed inspection function(s) and insert original with work package, use continuation sheets when needed.
2. Use simple narrative type report procedure. Reference all applicable drawing numbers, specifications, special instructions, etc., connected with your inspection. Use sketches, when applicable, showing dimensions checked, alignment, physical location of defects found, etc. N/A all blocks not used.
3. Upon completion of the inspection activity, enter results below and sign and date.

Remarks VISUALLY VERIFIED: PERFORMANCE OF LEAK TEST ON THE FOLLOWING LINES PER STEP 1 OF Pg 3 OF WORK ORDER.

LINE	RESULTS	SNOOP TEST
E-10A TRIP LOW PRESSURE LUBE OIL	NO BUBBLES	NO LEAKS
E-10B "	NO BUBBLES	NO LEAKS
E-10C "	NO BUBBLES	NO LEAKS
E-68 TRIP High PRESSURE CRANKCASE	NO BUBBLES	VISIBLE BUBBLES
E-92 TRIP LOW PRESSURE TURBO OIL	LEAK ≈ 1 BUBBLE PER SEC.	VISIBE BUBBLES
E-14 TRIP LOW PRESSURE JACKET WATER	NO BUBBLES	VISIBLE BUBBLES
E23H TRIP HIGH VIBRATION	LEAK ≈ 3 BUBBLES PER SEC	VISIBLE BUBBLES
E-19 TRIP HIGH TEMPERATURE ENGINE BEARINGS	LEAK ≈ 1 BUBBLE PER SEC	VISIBE BUBBLES
E-12 TRIP HIGH TEMPERATURE LUBE OIL	NO BUBBLES	VISIBE BUBBLES

Sketch (A LEAKS ABOVE HAVE NOT BEEN CORRECTED! PER MWO) SEE CONT SHT.

Inspection Results

☐ SAT. ☒ UNSAT—ODR/DR NO.(S): * 1-90-C1154 D.C (4)

705516A MC5191

Inspector [signature]

Date 3-5-90

WHITE—Work Package CANARY—Q.C. Supv. PINK—Inspector

Quality Contr. l Inspection Report (CONTINUATION SHEET)
VOGTLE GENERATING PLANT—UNITS 1 & 2

Georgia Power

WO/ORD No./Other
1900576 T.P. 34174

Remarks
Visually verified performance of multiple starts per following step's per Pg 4 of MWO.
Step #2 Normal start, trip by high temp lube oil by loosening fitting at 1TSH 9146, also retightening of fitting.
Step #3 LOSP start by placing jumper in Gen control panel across T.P. 211 and 213. Then trip by loosening fitting on vibration switch. Verified jumper removed and fittings tightened.
Step #4 Normal start, trip by loosening fitting on high crankcase pressure switch, verified retightening of fittings.
Step #5 SI start by placing jumper in Gen control panel across T.P. 204 and 209. Then trip by loosening of fittings on 2 of the 3 low oil pressure switches, verified removal of jumper and fittings tightened. All connection of fittings were snoop tested and acceptable.
*E16A, E16B, E16C are not being tested. TSH 9111 and 9112 were not functioning properly will be repaired. This was noticed on start of Diesel when high temperature jacket water malfunction light came on so to determine which switch was initiating alarm 3 guages, one for each temp switch was connected in line to watch pressure. Pressure guage for 9111 did not increase as rapidly as the other two guages so Cooper Rep. crimped closed tubing line to 1TSH 9111 and pressure increased rapidly at guage he then released tubing and pressure fell back down. This was repeated a couple of times, then pressure started to increase until it reached operating pressure.

706517 MCS191

Inspector: [signature] Date: 3-31-90

WHITE—Work Package CANARY—Q.C. Supv. PINK—Inspector

Quality Control Inspection Report

Georgia Power

VOGTLE GENERATING PLANT—UNITS 1 & 2

34172

WO/ODR/DR No.	Building	Procedure/Spec. No./Rev.
1900576	"A" TRAIN DIESEL	27563-C R2
Room No./Level No.	Sys./Start-Up Designator	Tag No.
163 / 1	2403	1-2403-P5-D-2
Drawing No./Rev.	Vendor Manual Log No. AX4AE01-509 R11	Other
		NP

1. Inspector will use separate form for each completed inspection function(s) and insert original with work package, use continuation sheets when needed.
2. Use specific descriptive type report procedure. Reference all applicable drawing numbers, specifications, special instructions connected with your inspection. Use sketches, when applicable, showing dimensions checked, location of defects found, etc. N/A all blocks not used.
3. Upon completion of inspection activity, enter results below and sign and date.

VERIFIED: RECONNECTION OF TUBINE B-4 CAP LINE PER STEP 4.2.59 AND DE-ENERGIZATION OF SOLS. PER STEP 4.2.59.1 UNIT MUST BE ENTERING STARTUP & ENERGIZED PER STEP 4.2.64.1 AND DISABLED DC START POWER FAILURE ALARM DE-ENERGIZED PER STEP 4.2.64.2. RELAY R-23B DE-ENERGIZED PER STEP 4.2.66.1 INCORRECT ON DATA SHT. SHOWS R-23D. EMERGENCY GENERATOR OFF AND TURBINE EIGA & B RECAPED PER STEP 4.2.72 DATA SHT DOES NOT SHOW A & B 4.2.74 TURBINE LINES EIGA & AND EIGB. RECAPPED 4.2.76 TURBINE LINES EIGA AND EIGB RECAPPED. 4.2.77.1 GROUP I PRESSURE < 25 PSIG. THERE IS NO I.D on GAUGE STATING IT IS GROUP I GAUGE ENG. PAUL KOCHEKY VERIFIED THIS GAUGE IS PROPER GAUGE. PER VENDOR MANUAL AX4AE01-509 R11 PRESSURE GAUGE IS CORRECT

Sketch

NP

Inspection Results

☑ SAT. ☐ UNSAT—ODR/DR NO.(s)

705516A MCS1/91

Inspector: Roy Williams

Date: 5-29-92

WHITE—Work Package CANARY—Q.C. Supv. PINK—Inspector

Quality Control Inspection Report (CONTINUATION SHEET)
VOGTLE GENERATING PLANT—UNITS 1 & 2

Georgia Power

MWO/ORD No./Other
1900576 I.R. 34172

Remarks
4.2.77.2 BY PASS TEST FAILURE LIGHT DEENERGIZED
4.2.77.3.1 BY PASS TEST FAILURE LIGHT ENERGIZED.
4.2.89.1 TUBING RECONNECTED AT FITTING E10A
4.2.89.2 E10B
4.2.89.3 E10C
4.2.90 E92
4.2.91 E14
4.2.94 REPINNING OF LIFTED WIRE PER LIFTED LEAD DATA SHT.
4.2.95
VERIFIED ALSO LINK 5 CLOSED PER LIFTED LEAD DATA SHT AND JUMPERS REMOVED AND LIFTED LEADS REHOOKED.
CABLE 1ACBHG03A SR FOR STEP 4.2.94 TB: EJ3A
CABLE 1ACBHG03A ST FOR STEP-4.2.95 TB: E4B3

705517 MCS191

Inspector [signature]

Date 3-29-90

WHITE—Work Package CANARY—Q.C. Supv. PINK—Inspector

Quality Control Inspection Report

VOGTLE GENERATING PLANT--UNITS 1 & 2 34189 Page 1 of 3

Georgia Power

MWO/ODR/DR No.	Building	Procedure/Spec. No./Rev.
19001576	Diesel	27563-C R/2
Room No./Level No.	**Sys./Start-Up Designator**	**Tag No.**
TRAIN A	2403	12403P5DG2
Drawing No./Rev.	**Vendor Manual Log No.**	**Other**
N/A	N/A	N/A

1. Inspector will use separate form for each completed inspection function(s) and insert original with work package, use continuation sheets when needed.
2. Use simple narrative type report procedure. Reference all applicable drawing numbers, specifications, special instructions, etc., connected with your inspection. Use sketches, when applicable, showing dimensions checked, alignment, physical location of defects found, etc. N/A all blocks not used.
3. Upon completion of the inspection activity, enter results below and sign and date.

Remarks

① Started witnessing Engine Logic Testing at approximately 1500CST using 27563-C R/2

M+TE used

Function Generator	VP 1283	CDD 7-27-90
Fluke	VP 1028	CDD 4-9-90
Fluke	VP1-1044	CDD 4-8-90

② Visually witnessed the following steps performed in procedure 27563-C R/2

step 4.1.13 60 PSI at Control air pressure gauge

4.1.14 125 VDC across circuit breakers CB-1 & 2 CB 3 & 4

Sketch

4.2.24.1 125 volts present

4.2.24.3 contact closed

4.2.24.4 Relays energized

4.2.24.5 Contact closed

4.2.24.6 SI signal light Energized

4.2.24.7 Shutdown light De-Energized

4.2.24.8 NO voltage on solenoid

continued on page 2

Inspection Results

[X] SAT. [ ] UNSAT—ODR/DR NO.(s):

Inspector	Date
J. C. Harvey	3-29-90

Quality Control Inspection Report (CONTINUATION SHEET)
VOGTLE GENERATING PLANT—UNITS 1 & 2

Georgia Power

MWO/ORD No./Other 1001576 IR 34189

Remarks

4.2.26.2 Shutdown cylinder not extended
4.2.27 Tubing E-18 RECONNected
4.2.27.1 Group 1 pressure guage 60 PSI
4.2.27.2 Hi temp alarm de-energized
4.2.28.1 Stopping light Energize
4.2.28.2 Low pressure alarm energized
4.2.26.5 Engine Shutdown Cylinder Extended
4.2.30 E-42 plug installed
4.2.30.1.1 Relay 11B Energized
4.2.30.1.4 Ready to load light energized
4.2.30.2.4 Ready to load light de-energized
4.2.31.1 No voltage present
4.2.31.2 Relay R-5B Energized
4.2.32.1 Relay R-23B Energized
4.2.32.12 Relay R-35 Energized
4.2.32.12.1.1 Relay R-35 Energized
4.2.32.12.1.2 Emergency trip De-Energized
4.2.35.2 Overspeed trip deenergized
4.2.36.1 Relay R23B De-Energized
4.2.36.5 Emergency stop light De-energize
4.2.36.6 Stopping light De-energize
4.2.36.7 Relay R-35 De-energized
4.2.37.1 125 VDC present
4.2.37.2 DG Auto Start signal Energize
4.2.39.2.1 Relay R23B Energize
4.2.41.1 Emergency trip Alarm is Energize
4.2.41.3 Relay R-35 Energized
4.2.42.3 Relay R-35 De-Energized
4.2.48.1 125 VDC present
4.2.48.2 Failure to start ALARM Energized
4.2.49.1 NO Voltage present
4.2.49.5 Starting Light Energized
4.2.49.6 Relay R1 ENERGIZED
4.2.49.7 Running Light Energized

SS CONTINUED from pg 3

705517 MCS191

Inspector J.C. Harvey

Date 3-29-90

WHITE—Work Package CANARY—Q.C. Supv. PINK—Inspector

MWO/OPD No./Other
1900/576 IR 34189

Remarks

~~step 4.2.44 pf 3/29/90~~
step 4.2.50.1 Shutdown cylinder Extended
4.2.51.1 Hi bearing temp Alarm De-Energized
4.2.53.1 125V DC Present
4.2.55 Tubing E-68 Reconnected
4.2.55.1 Hi Pressure Alarm De-Energized
4.2.55.4 Shutdown Cylinder Not extended
4.2.57 Tubing E-23-14 Reconnected
4.2.57.1 Vibration Alarm De-energized

~~All km~~ pf 3-29-90

All steps were performed as required by procedure 77563-C 4/2

N
A

Inspector J. C. Harvey Date 3-29-90

WHITE—Work Package CANARY—Q.C. Supv. PINK—Inspector

1a/1

EQ EVALUATION CHECKLIST

FOR USE ON PROJECT CLASSES Q111, Q212, Q313, Q013, Q015, Q11E, Q11J, Q12E, 61J

MWO NO. 19001576

SECTION I

PART A ORIGINAL PART

1. DESCRIPTION DIESEL GEN
2. TAG NO. 1-2403-G4-001
3. PROJECT CLASS Q15
4. SPECIFICATION (EQDP) NO. X4AK01
5. MANUFACTURER DELAVAL
6. MODEL NO. NA
7. PART NO. |

PART B REPLACEMENT PART

1. DESCRIPTION
2. MFR NO.
3. STOCK NO.
4. SPECIFICATION (EQDP) NO.
5. MANUFACTURER
6. MODEL NO. N/A
7. PART NO.
8. PO NO.

COMMENTS NO PARTS USED

SECTION II WORK PLANNING

1. ARE PROCEDURES, VENDOR MANUALS, DRAWINGS OR INSTRUCTIONS AVAILABLE TO DISASSEMBLE/REWORK COMPONENT?

   ✓ YES ___ NO

   CJC 12/28/90
   (Init. Date)

2. ARE SPECIFICATION NUMBERS FOR ORIGINAL AND REPLACEMENT ITEMS THE SAME? ___ YES ___ NO
3. ARE MANUFACTURER MODEL/PART NUMBERS OF THE ORIGINAL AND REPLACEMENT PARTS THE SAME? ___ YES ___ NO
4. IS BULK MATERIAL LISTED ON ATTACHMENT ACCEPTABLE? LIST ITEM NO. FROM ATTACHMENT IF "NO" IS CHECKED. ___ YES N/A ___ NO

   N/A
   (Item No.)

   (Init. / Date)

NOTE

If items 2, 3, or 4 are checked No, the Checklist must be reviewed by the EQ Group.

[N] PART(S) ARE ACCEPTABLE FOR USE
[A] SEND TO EQ GROUP

KWeaton 1-4-90
WPC DATE

SECTION III EQ GROUP EVALUATION

[ ] PART IS ACCEPTABLE FOR USE [ ] PART IS UNACCEPTABLE FOR USE

JUSTIFICATION FOR ACCEPTANCE:

N/A

EQ ENGINEER / DATE

FIGURE 3

VEGP FIRE PROTECTION CHECKLIST

1. MWO NO. 19921576 2. MPL/TAG NO. 1240364001
3. LOCATION D.G. BLDG. "A" TRAIN

4. WILL THE WORK INSTALL, IMPAIR, MODIFY, ISOLATE, DEFEAT, OR REMOVE ANY OF THE FOLLOWING? IF THE ANSWER IS "YES" CHECK THE BOX, AND INDICATE APPROPRIATE DETAILS.

( ) SPRINKLER SYSTEM
( ) INTERIOR HOSE STATION
( ) HALON SYSTEM
( ) DETECTION SYSTEM
( ) EMERGENCY LIGHTING SYSTEM
( ) PERMANENT COMBUSTIBLES (CABLE, WOOD, PLASTIC, ETC.)
( ) STRUCTURAL STEEL, OR RACEWAY FIREPROOFING
( ) FIRE SUPPRESSION SUPPLY SYSTEM (PUMPS, TANKS, ETC.)
( ) CONDUIT SEALS OR EQUIPMENT ENCLOSURE (CABINET HOUSING)
( ) FIRE EXTINGUISHER
( ) COMMUNICATIONS SYSTEM
( ) RCP OIL COLLECTION SYSTEM
( ) SEISMIC STANDPIPE SYSTEM

5. WILL THE WORK DEFEAT, MODIFY OR IMPAIR ANY OF THE FOLLOWING FIRE SEPARATION FEATURES? IF THE ANSWER IS "YES" CHECK THE BOX, AND INDICATE APPROPRIATE DETAILS.

( ) A. FIRE AREA BOUNDARY (WALL, ETC.)
( ) B. PASSIVE AREA BOUNDARY PENETRATION SEAL ASSEMBLY.
PENETRATION SEAL
WALL BLOCKOUT
FLOOR PLUG OR HATCH
CABLE TRAY OR CONDUIT WRAP
RADIANT ENERGY SHIELD
( ) C. ACTIVE FIRE AREA BOUNDARY PENETRATION SEAL.
FIRE DOOR
FIRE DAMPER

6. IF ALL THE ANSWERS IN BLOCKS 4 and 5 ARE "NO", STOP THE EVALUATION HERE, AND ENTER "NO" IN BLOCK 11 OF THE MWO FORM.
IF ANY QUESTIONS WERE ANSWERED "YES", ENTER "YES" IN BLOCK 11 OF THE MWO FORM.
EVALUATOR [signature] DATE 3/28/95

POST WORK REVIEW (COMPLETE "A, B, OR C" BELOW)

(A) THE CONDITION IMPACTING THE FIRE PROTECTION COMPONENTS LISTED ABOVE HAS BEEN REMOVED. FPE _____ DATE _____

N/A

(B) THE FIRE PROTECTION COMPONENT IS STILL IMPAIRED.
FPE _____ DATE _____

(C) RESTORATION OF THE IMPAIRMENT HAS BEEN TRANSFERRED (Ref: _____) AND THE FIRE PROTECTION LCO LOG HAS BEEN CHANGED TO REFERENCE THE NEW MWO FOR THIS IMPAIRMENT. FPE _____ DATE _____

FIGURE 1

USE WITH CONTROL NO. 19041560

Procedure No.	Revision	Page No.
VEGP 27563-C	2	45 of 75

POWER AND SIGNAL REMOVAL/REPLACEMENT DATA SHEET

Sheet 1 of 1
1 of 12

[X] Safety Related/QC Holdpoints [ ] Non-Safety Related

NOTES

a. To install jumpers and/or lift wires, other than those directly associated with the equipment tag(s)/scheme number(s) listed on the Work Order, notify the Shift Supervisor and comply with his instructions.

b. Ensure that each lead (wire) is marked so it can be uniquely identified with its termination point.

c. Independent verification is only required on safety related equipment. Place N/A in independent verification block for non-safety related equipment.

d. If the worker leaves the immediate proximity of the work or the work is interrupted, complete and install a "Jumper and Lifted Wire" tag per 00306-C, "Temporary Jumper And Lifted Wire Control". Instead of Control Number use the Procedure number on the tag.

e. If holdpoints do not apply, NA QC Verification block.

f. If applicable, tags shall remain intact and will only be removed by the independent verifier.

REMOVAL					RECONNECTION		QC HOLD POINT
IDENTIFY LEADS LIFTED, JUMPERS INSTALLED, LINES OPEN, ETC.	LOCATION PANEL OR JUNCTION BOX	PERFORMED BY/DATE	INDEPENDENT VERIFICATION BY/DATE	QC VERIF. BY/DATE	PERFORMED BY/DATE	INDEPENDENT VERIFICATION BY/DATE	QC VERIF. BY/DATE
OPEN LINK E5-4	1-2403-P5-DG2	TAJ 3/29/90	DSP 3/29/90		DSP 3/29/90	TAJ 3-29-90	TAJ 3-29-90
E9-2							
L5-105							
L9-102							
E19-53				N/A			
E22-56							
~~3-29-90~~ E9-E17-51							
E21-55							
E23-57							
E18-52		TAJ 3-29-90	DSP 3/29/90		DSP 3/29/90	TAJ 3-29-90	TAJ 3-29-90

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POWER AND SIGNAL REMOVAL/REPLACEMENT DATA SHEET

[X] Safety Related/QC Holdpoints [ ] Non-Safety Related

NOTES

a. To install jumpers and/or lift wires, other than those directly associated with the equipment tag(s)/scheme number(s) listed on the Work Order, notify the Shift Supervisor and comply with his instructions.

b. Ensure that each lead (wire) is marked so it can be uniquely identified with its termination point.

c. Independent verification is only required on safety related equipment. Place N/A in independent verification block for non-safety related equipment.

d. If the worker leaves the immediate proximity of the work or the work is interrupted, complete and install a "Jumper and Lifted Wire" tag per 00306-C, "Temporary Jumper And Lifted Wire Control". Instead of Control Number use the Procedure number on the tag.

e. If holdpoints do not apply, NA QC Verification block.

f. If applicable, tags shall remain intact and will only be removed by the independent verifier.

		REMOVAL			RECONNECTION		QC HOLD POINT
IDENTIFY LEADS LIFTED, JUMPERS INSTALLED, LINES OPEN, ETC.	LOCATION PANEL OR JUNCTION BOX	PERFORMED BY/DATE	INDEPENDENT VERIFICATION BY/DATE	QC VERIF. BY/DATE	PERFORMED BY/DATE	INDEPENDENT VERIFICATION BY/DATE	QC VERIF. BY/DATE
OPEN LINK E24-59	1-2403-P5-DG2	RAJ 3/29/90	DSP 3/29/90		DSP 3/29/90	RAJ 3-29-90	TEW 3-29-90
E5-77							
E6-78							
E57-46							
E58-47							
E59-48							
E60-49							
F1-73							
F2-74							
F3-75		RAJ 3/29/90	DSP 3/29/90		DSP 3/29/90	RAJ 3-29-90	TEW 3-29-90

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POWER AND SIGNAL REMOVAL/REPLACEMENT DATA SHEET

[X] Safety Related/QC Holdpoints [ ] Non-Safety Related

NOTES

a. To install jumpers and/or lift wires, other than those directly associated with the equipment tag(s)/scheme number(s) listed on the Work Order, notify the Shift Supervisor and comply with his instructions.

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e. If holdpoints do not apply, NA QC Verification block.

f. If applicable, tags shall remain intact and will only be removed by the independent verifier.

		REMOVAL			RECONNECTION		QC HOLD POINT
IDENTIFY LEADS LIFTED, JUMPERS INSTALLED, LINES OPEN, ETC.	LOCATION PANEL OR JUNCTION BOX	PERFORMED BY/DATE	INDEPENDENT VERIFICATION BY/DATE	QC VERIF. BY/DATE	PERFORMED BY/DATE	INDEPENDENT VERIFICATION BY/DATE	QC VERIF. BY/DATE
OPEN LINK F9-76	1-2403-P5-DG2	RAJ 3/29/90	DJP 3/29/90		DJP 3/29/90	RAJ 3-29-90	T.W. 3-29-90
L30-170							
L31-171							
L32-172							
L33-173				N/A			
L23-153							
L20-141							
L21-144							
L24-155							
L51-159		RAJ 3/29/90	DJP 3/29/90		DJP 3/29/90	RAJ 3-29-90	T.W. 3-29-90

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POWER AND SIGNAL REMOVAL/REPLACEMENT DATA SHEET

[X] Safety Related/QC Holdpoints [ ] Non-Safety Related

NOTES

a. To install jumpers and/or lift wires, other than those directly associated with the equipment tag(s)/scheme number(s) listed on the Work Order, notify the Shift Supervisor and comply with his instructions.

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e. If holdpoints do not apply, NA QC Verification block.

f. If applicable, tags shall remain intact and will only be removed by the independent verifier.

	REMOVAL				RECONNECTION			QC HOLDPOINT
IDENTIFY LEADS LIFTED, JUMPERS INSTALLED, LINES OPEN, ETC.	LOCATION PANEL OR JUNCTION BOX	PERFORMED BY/DATE	INDEPENDENT VERIFICATION BY/DATE	QC VERIF. BY/DATE	PERFORMED BY/DATE	INDEPENDENT VERIFICATION BY/DATE	QC VERIF. BY/DATE	
OPEN LINK L52-160	1-2403-P5-DG2	RAJ 3/29/90	DSP 3/29/90		DSP 3/29/90	RAJ 3-29-90	RW 3-29-90	
L53-169								
L54-165								
L55-166								
L56-167				N/A				
L57-168								
L58-169								
L59-179								
L60-180								
L35-175		RAJ 3/29/90	DSP 3/29/90		DSP 3/29/90	RAJ 3-29-90	RW 3-29-90	

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POWER AND SIGNAL REMOVAL/REPLACEMENT DATA SHEET

[X] Safety Related/QC Holdpoints [ ] Non-Safety Related

NOTES

a. To install jumpers and/or lift wires, other than those directly associated with the equipment tag(s)/scheme number(s) listed on the Work Order, notify the Shift Supervisor and comply with his instructions.

b. Ensure that each lead (wire) is marked so it can be uniquely identified with its termination point.

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d. If the worker leaves the immediate proximity of the work or the work is interrupted, complete and install a "Jumper and Lifted Wire" tag per 00306-C, "Temporary Jumper And Lifted Wire Control". Instead of Control Number use the Procedure number on the tag.

e. If holdpoints do not apply, NA QC Verification block.

f. If applicable, tags shall remain intact and will only be removed by the independent verifier.

	REMOVAL				RECONNECTION		QC HOLD POINT
IDENTIFY LEADS LIFTED, JUMPERS INSTALLED, LINES OPEN, ETC.	LOCATION PANEL OR JUNCTION BOX	PERFORMED BY/DATE	INDEPENDENT VERIFICATION BY/DATE	QC VERIF. BY/DATE	PERFORMED BY/DATE	INDEPENDENT VERIFICATION BY/DATE	QC VERIF. BY/DATE
OPEN LINK L36-176	1-2403-P5-DG2	RAJ 3/29/90	DJP 3/29/90		DJP 3/29/90	RAJ 3-29-90	TW 3-29-90
L9-137							
L10-138							
L11-139							
L12-140							
L19-336							
L15-337							
L49-59B1							
L50-59B2					DJP 3/29/90		
L25-79-180		RAJ 3/29/90	DJP 3/29/90		3-29-90	RAJ 3-29-90	TW 3-29-90

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POWER AND SIGNAL REMOVAL/REPLACEMENT DATA SHEET

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[X] Safety Related/QC Holdpoints [ ] Non-Safety Related

NOTES

a. To install jumpers and/or lift wires, other than those directly associated with the equipment tag(s)/scheme number(s) listed on the Work Order, notify the Shift Supervisor and comply with his instructions.

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e. If holdpoints do not apply, NA QC Verification block.

f. If applicable, tags shall remain intact and will only be removed by the independent verifier.

	REMOVAL				RECONNECTION		QC HOLD POINT
IDENTIFY LEADS LIFTED, JUMPERS INSTALLED, LINES OPEN, ETC.	LOCATION PANEL OR JUNCTION BOX	PERFORMED BY/DATE	INDEPENDENT VERIFICATION BY/DATE	QC VERIF. BY/DATE	PERFORMED BY/DATE	INDEPENDENT VERIFICATION BY/DATE	QC VERIF. BY/DATE
OPEN LINK L26 - 90-190	1-2403-P5-DG2	TAJ 3/29/90	DSP 3/29/90		DSP 3-29-90	TAJ 3-29-90	[illegible] 3-29-90
C8 - 244					DSP 3/29/90		
C9 - 245							
C5 - 246							
C11 - 247				N/A			
C7 - 239							
C8 - 240							
G3 - 253							
G4 - 254							
G5 - 255		TAJ 3/29/90	DSP 3/29/90		DSP 3/29/90	TAJ 3-29-90	[illegible] 3-29-90

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POWER AND SIGNAL REMOVAL/REPLACEMENT DATA SHEET

[X] Safety Related/QC Holdpoints [ ] Non-Safety Related

NOTES

a. To install jumpers and/or lift wires, other than those directly associated with the equipment tag(s)/scheme number(s) listed on the Work Order, notify the Shift Supervisor and comply with his instructions.

b. Ensure that each lead (wire) is marked so it can be uniquely identified with its termination point.

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d. If the worker leaves the immediate proximity of the work or the work is interrupted, complete and install a "Jumper and Lifted Wire" tag per 00306-C, "Temporary Jumper And Lifted Wire Control". Instead of Control Number use the Procedure number on the tag.

e. If holdpoints do not apply, NA QC Verification block.

f. If applicable, tags shall remain intact and will only be removed by the independent verifier.

		REMOVAL			RECONNECTION		QC HOLD POINT
IDENTIFY LEADS LIFTED, JUMPERS INSTALLED, LINES OPEN, ETC.	LOCATION PANEL OR JUNCTION BOX	PERFORMED BY/DATE	INDEPENDENT VERIFICATION BY/DATE	QC VERIF. BY/DATE	PERFORMED BY/DATE	INDEPENDENT VERIFICATION BY/DATE	QC VERIF. BY/DATE
OPEN LINK G6-256	1-2403-P5-DG2	RAJ 3/24/90	DJP 3/29/90		DJP 3/29/90	RAJ 3-29-90	[illegible] 3-29-90
G7-257							
G8-258							
G9-259							
G10-260				N/A			
G11-~~261~~ 261 RAJ 3-29-90							
G12-~~262~~ 262 RAJ 3-29-90							
G13-263							
G14-264							
G15-265		RAJ 3/24/90	DJP 3/29/90		DJP 3/29/90	RAJ 3-29-90	[illegible] 3-29-90

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POWER AND SIGNAL REMOVAL/REPLACEMENT DATA SHEET

[X] Safety Related/QC Holdpoints [ ] Non-Safety Related

NOTES

a. To install jumpers and/or lift wires, other than those directly associated with the equipment tag(s)/scheme number(s) listed on the Work Order, notify the Shift Supervisor and comply with his instructions.

b. Ensure that each lead (wire) is marked so it can be uniquely identified with its termination point.

c. Independent verification is only required on safety related equipment. Place N/A in independent verification block for non-safety related equipment.

d. If the worker leaves the immediate proximity of the work or the work is interrupted, complete and install a "Jumper and Lifted Wire" tag per 00306-C, "Temporary Jumper And Lifted Wire Control". Instead of Control Number use the Procedure number on the tag.

e. If holdpoints do not apply, NA QC Verification block.

f. If applicable, tags shall remain intact and will only be removed by the independent verifier.

		REMOVAL			RECONNECTION		
IDENTIFY LEADS LIFTED, JUMPERS INSTALLED, LINES OPEN, ETC.	LOCATION PANEL OR JUNCTION BOX	PERFORMED BY/DATE	INDEPENDENT VERIFICATION BY/DATE	QC VERIF. BY/DATE	PERFORMED BY/DATE	INDEPENDENT VERIFICATION BY/DATE	QC VERIF. BY/DATE QC HOLD POINT
CHAN H10K G16 - 266	1-2403-P5-DG2	TRAJ 3/29/90	DSP 3/29/90		DSP 3/29/90	TRAJ 3-29-90	TRAJ 3-29-90
G17 - 267							
G18 - 268							
G19 - 269							
G20 - 270							
G21 - 271							
G22 - 272							
G23 - 273							
G24 - 274							
H1 - 275		TRAJ 3/29/90	DSP 3/29/90		DSP 3/29/90	TRAJ 3-29-90	TRAJ 3-29-90

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POWER AND SIGNAL REMOVAL/REPLACEMENT DATA SHEET

[X] Safety Related/QC Holdpoints [ ] Non-Safety Related

NOTES

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d. If the worker leaves the immediate proximity of the work or the work is interrupted, complete and install a "Jumper and Lifted Wire" tag per 00306-C, "Temporary Jumper And Lifted Wire Control". Instead of Control Number use the Procedure number on the tag.

e. If holdpoints do not apply, NA QC Verification block.

f. If applicable, tags shall remain intact and will only be removed by the independent verifier.

		REMOVAL			RECONNECTION		QC HOLD POINT
IDENTIFY LEADS LIFTED, JUMPERS INSTALLED, LINES OPEN, ETC.	LOCATION PANEL OR JUNCTION BOX	PERFORMED BY/DATE	INDEPENDENT VERIFICATION BY/DATE	QC VERIF. BY/DATE	PERFORMED BY/DATE	INDEPENDENT VERIFICATION BY/DATE	QC VERIF. BY/DATE
CRD LINK H2 - 276	1-2403-P5-062	RAJ 3/29/90	DJP 3/29/90		DR 3/29/90	RAJ 3-29-90	LL 3-29-90
H19 - 298							
H20 - 299							
H3 - 277							
H4 - 278				N/A			
3/29/90 H7 - H2 - 281							
H8 - 282							
H9 - 283							
H10 - 284							
H11 - 285		RAJ 3/29/90	DJP 3/29/90		DR 3/29/90	RAJ 3-29-90	LL 3-29-90

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POWER AND SIGNAL REMOVAL/REPLACEMENT DATA SHEET

[X] Safety Related/QC Holdpoints [ ] Non-Safety Related

NOTES

a. To install jumpers and/or lift wires, other than those directly associated with the equipment tag(s)/scheme number(s) listed on the Work Order, notify the Shift Supervisor and comply with his instructions.

b. Ensure that each lead (wire) is marked so it can be uniquely identified with its termination point.

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e. If holdpoints do not apply, NA QC Verification block.

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		REMOVAL			RECONNECTION		QC HOLD POINT
IDENTIFY LEADS LIFTED, JUMPERS INSTALLED, LINES OPEN, ETC.	LOCATION PANEL OR JUNCTION BOX	PERFORMED BY/DATE	INDEPENDENT VERIFICATION BY/DATE	QC VERIF. BY/DATE	PERFORMED BY/DATE	INDEPENDENT VERIFICATION BY/DATE	QC VERIF. BY/DATE
OPEN H11 - H12 - 286	1-2203-P5-DG2	ZAJ 3/29/90	DSP 3/29/90		DSP 3/29/90	ZAJ 3-29-90	ACCEPTED 3/29/90
H13 - 287							
H14 - 288							
H15 - 289							
H16 - 290							
H17 - 296							
H18 - 297							
A35 - 612							
A36 - 613							
E7 - 79		ZAJ 3/29/90	DSP 3/29/90		DSP 3/29/90	ZAJ 3-29-90	ACCEPTED 3/29/90

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POWER AND SIGNAL REMOVAL/REPLACEMENT DATA SHEET

[X] Safety Related/QC Holdpoints [ ] Non-Safety Related

NOTES

a. To install jumpers and/or lift wires, other than those directly associated with the equipment tag(s)/scheme number(s) listed on the Work Order, notify the Shift Supervisor and comply with his instructions.

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e. If holdpoints do not apply NA QC Verification block.

f. If applicable, tags shall remain intact and will only be removed by the independent verifier.

		REMOVAL			RECONNECTION		QC HOLD POINT
IDENTIFY LEADS LIFTED, JUMPERS INSTALLED, LINES OPEN, ETC.	LOCATION PANEL OR JUNCTION BOX	PERFORMED BY/DATE	INDEPENDENT VERIFICATION BY/DATE	QC VERIF. BY/DATE	PERFORMED BY/DATE	INDEPENDENT VERIFICATION BY/DATE	QC VERIF. BY/DATE
OPEN LINK F8-80	1-2403-P5-DG2	RAJ 3/29/90	DJP 3/29/90	N/A	DJP 3/29/90	RAJ 3-29-90	[illegible] 3-29-90
LIFTED LEAD 4 Term 2 Cable 1ACBAGO3A 3A Black	EJBA	↓	DJP 3/29/90		↓	↓	↓
LIFTED LEAD 105 Cable 1ACBAGO3A5F Term No. 2 Black	EJBB	RAJ 3/29/90	DJP 3/29/90				
Jumper E49-E50	1-2403-P5-DG2	[illegible] 3-29-90	DJP 3/29/90				
Jumper L37-L42	1-2403-P5-DG2	[illegible] 3-29-90	DJP 3/29/90				
OPEN LINK F10-89	1-2403-P5-DG2	[illegible] 3-29-90	DJP 3/29/90		↓	↓	
LIFTED LEAD 402 - Relay 15 Across 401A	1-2403-P5-DG2	RAJ 3/29/90	[illegible] 3-29-90		DJP 3/29/90	RAJ 3-29-90	[illegible] 3-29-90

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POWER AND SIGNAL REMOVAL/REPLACEMENT DATA SHEET

[X] Safety Related/QC Holdpoints [ ] Non-Safety Related

NOTES

a. To install jumpers and/or lift wires, other than those directly associated with the equipment tag(s)/scheme number(s) listed on the Work Order, notify the Shift Supervisor and comply with his instructions.

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f. If applicable, tags shall remain intact and will only be removed by the independent verifier.

	REMOVAL				RECONNECTION		QC HOLD POINT
IDENTIFY LEADS LIFTED, JUMPERS INSTALLED, LINES OPEN, ETC.	LOCATION PANEL OR JUNCTION BOX	PERFORMED BY/DATE	INDEPENDENT VERIFICATION BY/DATE	QC VERIF. BY/DATE	PERFORMED BY/DATE	INDEPENDENT VERIFICATION BY/DATE	QC VERIF. BY/DATE
				N/A			

COMPLETION SHEET

MWO 19900157

PROCEDURE	REVISION	SHEET
27563-C	2	1 OF 30
TAG NO.	DESCRIPTION	
1-2403-G4-001	DIESEL GENERATOR	
SERIAL NO.	MANUFACTURER	MODEL
76021	ENTERPRISE	DSRV-16-4
TEST EQUIPMENT USED	M&TE #	[X] Safety Related/QC Hold Point
See Block 27	See Block 27	[ ] Non-Safety Related

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.1.1	Prerequisites met	OK 3-29-90	NO	[illegible] 3/28/90
4.1.2	Shift Supervisor notified	RAJ 3-29-90		
4.1.5.1	Tubing E-10A disconnected	[illegible] 3-29-90		
4.1.5.2	Tubing E-10B disconnected	"		
4.1.5.3	Tubing E-10C disconnected	"		
4.1.6.1	Tubing E-92 disconnected	"		
4.1.7.1	Tubing E-14 disconnected	[illegible] 3-29-90		
4.1.8.1	A-Bank Starting Air Valve. Terminals E5 (4) and E4 (2).	RAJ 3/29/90		
4.1.8.2	B-Bank Starting Air Valve. Terminals L5 (105) and L4 (102).	RAJ 3/29/90		

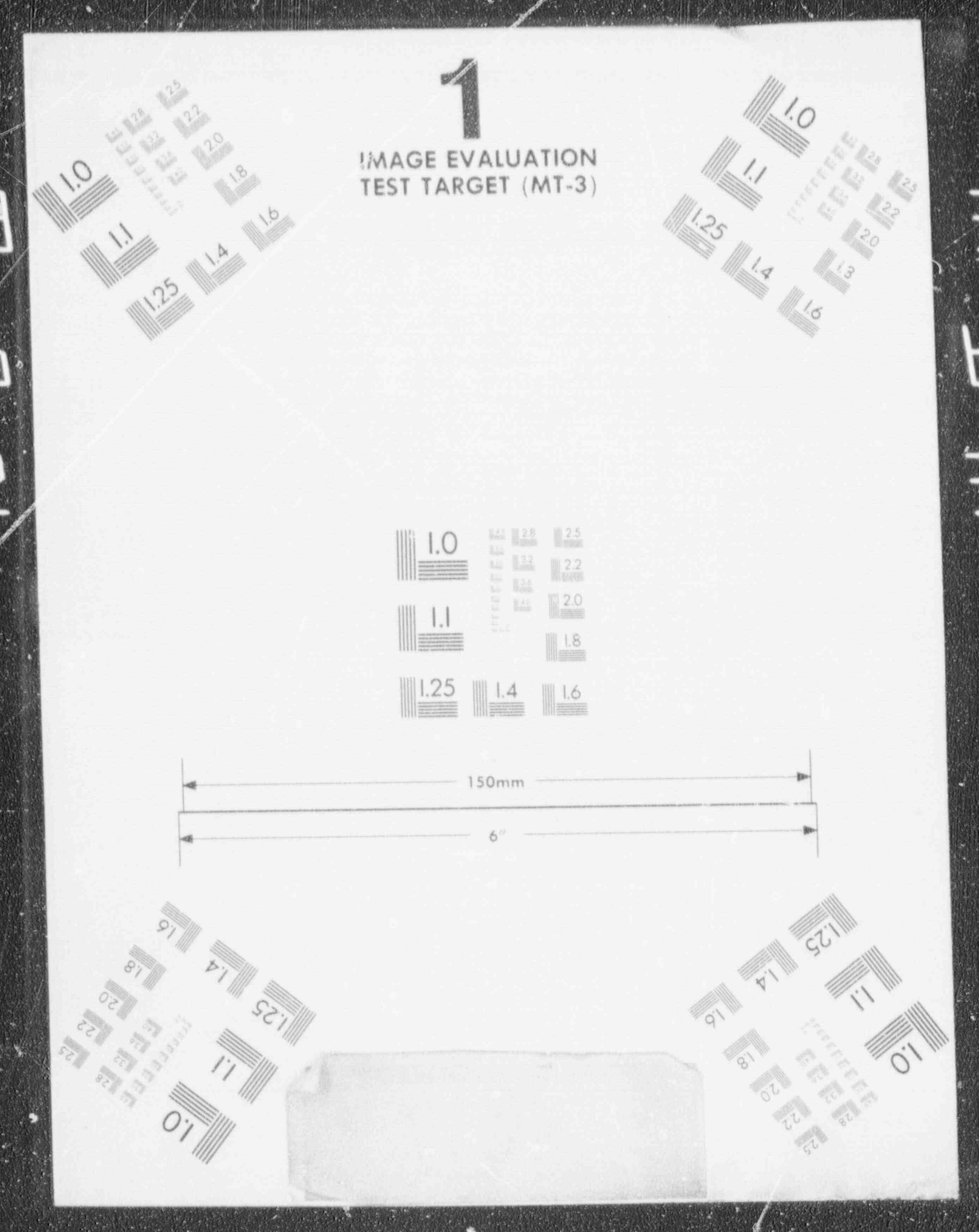
PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.1.8.3	Field Flash, Exciter Reg Enable. Terminals E19 (53), E22 (56), E17 (51), and F21 (55).	RAT 3/29/90	No	RCH 3/28/90
4.1.8.4	Preset V.R. and Gov.: Terminals E23 (57), E18 (52), and E24 (59).			
4.1.8.5	Ready to Load, DG Brkr.: Terminals F5 (77) and F6 (78).			
4.1.8.6	Ready to Load, HVAC Sys.: Terminals E57 (46) and E58 (47).			
4.1.8.7	Ready to Load, Spare. Terminals E59 (48) and E60 (49).			
4.1.8.8	Start, Spare. Terminals F1 (73) and F2 (74).			
4.1.8.9	Stop, Spare. Terminals F3 (75) and F4 (76).			
4.1.8.10	Pre-position Gov and V.R. Terminals L30 (170) and L31 (171).			
4.1.8.11	186C Trip Delay Terminals L32 (172) and L33 (173).			
4.1.8.12	Field Flash, Exciter Reg Enable. Terminals L23 (153), L20 (141), L21 (144), and L24 (155).			
4.1.8.13	Trip 52G. Terminals L51 (159) and L52 (160).			
4.1.8.14	Emergency Stop. Terminals L53 (164) and L54 (165).	RAT 3/29/90		

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.1.8.15	Running, Spare. Terminals L55 (166) and L56 (167).	RAJ 3/29/90	No	CH 3/29/90
4.1.8.16	Running, Spare. Terminals L57 (168) and L58 (169).	/	/	/
4.1.8.17	Overspeed, Spare. Terminals L59 (179) and L60 (180).	/	/	/
4.1.8.18	Running W/Delay. Terminals L35 (175) and L36 (176).	/	/	/
4.1.8.19	Ready to Load - HVAC System. Terminals L9 (137) and L10 (138).	/	/	/
4.1.8.20	Ready to Load - Spare. Terminals L11 (139) and L12 (140).	/	/	/
4.1.8.21	Emergency Stop. Terminals L14 (336) and L15 (337).	/	/	/
4.1.8.22	ERF Computer. Terminals L49 (S4B1) and L50 (S4B2).	/	/	/
4.1.8.23	Emergency Stop Annunciation. Terminals L25 (79-180) and L26 (90-180).	/	/	/
4.1.8.24	CC Fan #1. Terminals C3 (244) and C9 (245).	/	/	/
4.1.8.25	CC Fan #2. Terminals C5 (246) and C11 (247).	/	/	/
4.1.8.26	Generator Space Heater Control. Terminals C7 (239) and C8 (240).	/	/	/
4.1.8.27	Running Contacts. Terminals G3 (253), G4 (254), G5 (255), G6 (256), G7 (257), G8 (258), G9 (259), G10 (260), G11 (161), and G12 (162).	RAJ 3/29/90	/	/

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.1.8.28	Running W/Delay Contacts. Terminals G13 (263), G14 (264), G15 (265), G16 (266), G17 (267), G18 (268), G19 (269), G20 (270), G21 (271), G22 (272), G23 (273) and G24 (274).	RAJ 13/24/90	No	JCH-13/25/90
4.1.8.29	Loss of DC Annunciation. Terminals H1 (275) and H2 (276).			
4.1.8.30	Mechanical Trouble Alarm. Terminals H19 (298) and H20 (299).			
4.1.8.31	Lockout Alarm. Terminals H3 (277) and H4 (278).			
4.1.8.32	Failed to Start. Terminals H7 (281) and H8 (282).			
4.1.8.33	Unit Available Local Control. Terminals H9 (283) and H10 (284).			
4.1.8.34	Unit Available. Terminals H11 (285), H12 (286), H13 (287), H14 (288), H15 (289), and H16 (290).			
4.1.8.35	Alarm. Terminals H17 (296) and H18 (297).			
4.1.8.36	Loss of DC Power. Terminals A35 (612) and A36 (613).			
4.1.8.37	DC Brkr Inop. Terminals F7 (79) and F8 (80).	RAJ 3/24/90		
4.1.9	Toggle switches to hourmeter open.	RAJ 13/29/90		

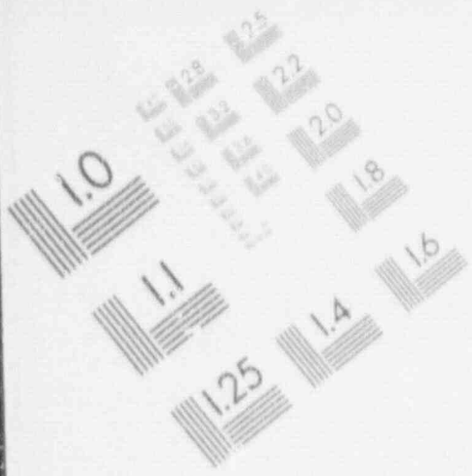
PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.1.10.1	At on-engine "EJBA" Junction Box, disconnect engine wire number 4 and tape wire end.	RAJ 3/29/90	No	JCH 3/28/90
4.1.11.1	At on-engine "EJBB" Junction Box, disconnect engine wire number 105 and tape wire end.	RAJ 3/29/90		
4.1.12	Verify that all circuit breakers are closed.	RAJ 3/29/90		
4.1.13	Verify 60 psi at control air pressure gauge.	RAJ 3/29/90	QC HOLD POINT	JCH 3/28/90
4.1.14	Verify 125 vdc across circuit breakers CB-1 and CB-2, CB-3 and CB-4.	RAJ 3/29/90	QC HOLD POINT	JCH 3/28/90
4.2.1	Jumper terminals L45 (101) and L48 (129), Control Room permissive for maintenance mode.	N/A CWP 3/28/90		
4.2.2.1	Disconnect jumper across terminals H4 (278) and H12 (286) and verify:			
4.2.2.2	Open contact across terminals H3 (277) and H4 (278).			
4.2.2.3	Contact OPEN			N/A JCH 3/28/90
4.2.2.4	Contact OPEN			
4.2.2.5	Contact CLOSED			
4.2.2.6	Contact CLOSED			
4.2.3.1	Shutdown Cylinder EXTENDED			
4.2.3.2	Lockout alarm ENERGIZED			

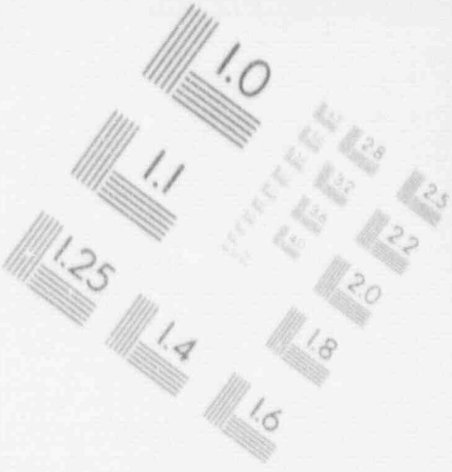
PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.3.3	Light De-Energized	N/A CSP 13/24/82		/
4.2.3.4	Gauge indicates 0 PSI	/		/
4.2.3.5	Lockout Pin REMOVED	/		/
4.2.3.6	STOPPING light ENERGIZED	/		/
4.2.3.7	Contact CLOSED	/		/
4.2.3.8	Contact CLOSED	/		/
4.2.3.9	Contact CLOSED	/		/
4.2.3.10	Contact CLOSED	/		/
4.2.3.11	Contact OPEN	/		/
4.2.3.12	Contact OPEN	/		/ 3/27/83
4.2.4	Jumper Removed	/		/
4.2.5.1	125VDC present	/		/
4.2.6.1	No voltage present	/		/
4.2.6.2	No voltage present	/		/
4.2.7	Wire disconnected	/		/
4.2.7.1	Relay R-35 De-energized	/		/
4.2.7.2	Contact OPEN	/		/
4.2.7.3	Lockout alarm de-energized	/		/
4.2.8.1	Barring device engaged alarm ENERGIZED	/		/

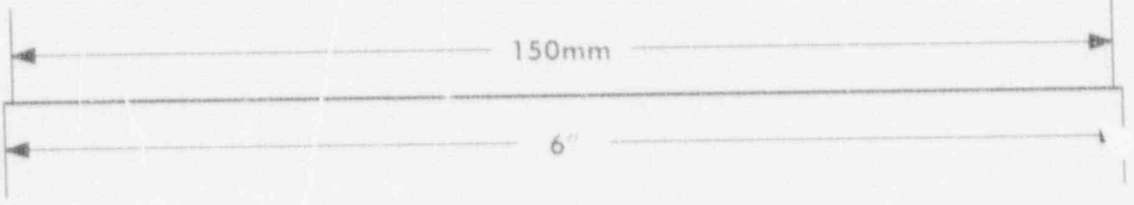

1
IMAGE EVALUATION
TEST TARGET (MT-3)
1.0
1.1
1.25
1.4
1.6
1.8
2.0
2.2
2.5
2.8
3.2
3.4
4.0
150mm
6"

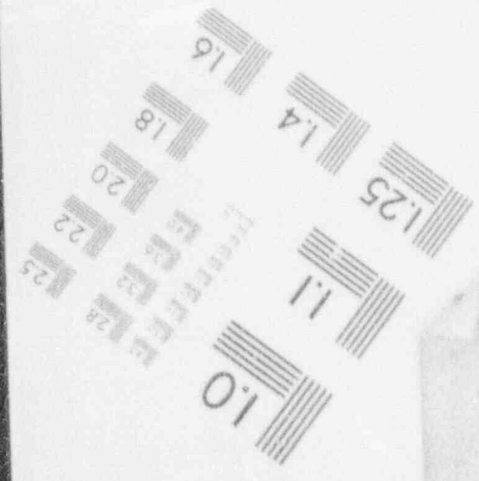
1

IMAGE EVALUATION TEST TARGET (MT-3)









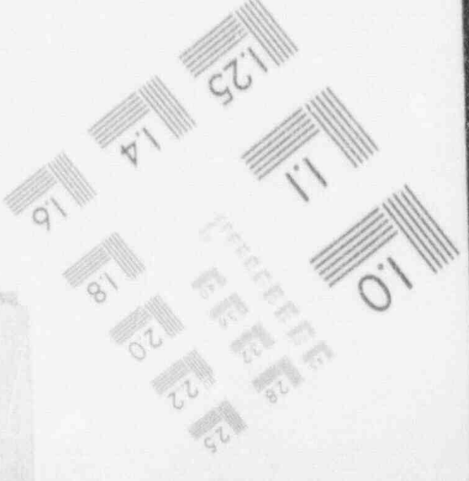


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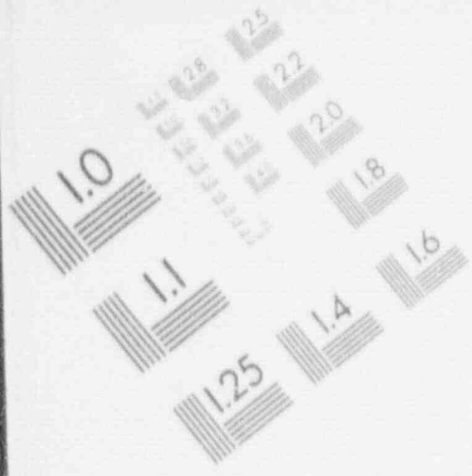
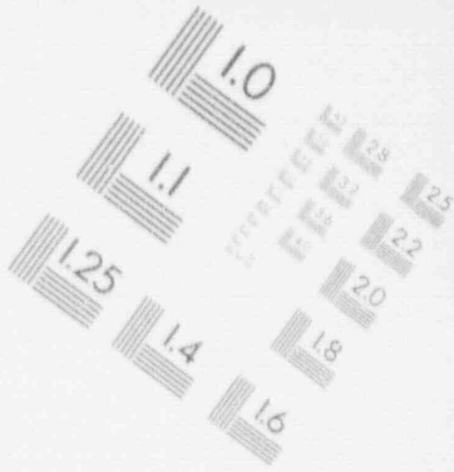
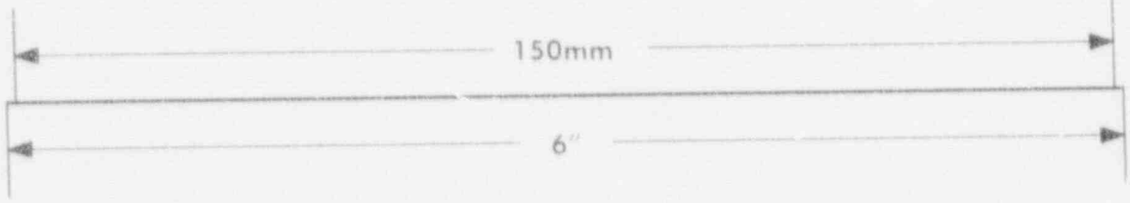
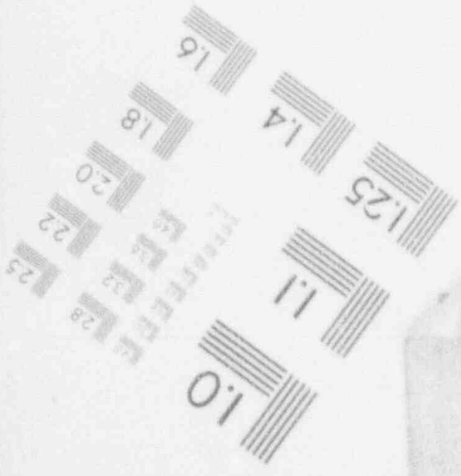
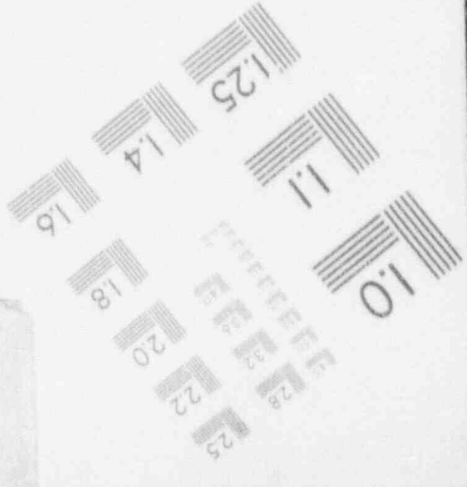
IMAGE EVALUATION TEST TARGET (MT-3)











PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.8.2	Contact CLOSED	N/A CSP/3/28/90		/
4.2.8.3	Relay R-35 ENERGIZED	/		/
4.2.9.1.1	125VDC Present	/		/
4.2.9.2.1	No voltage present	/		/
4.2.9.2.2	No voltage present	/		/
4.2.10.1	Barring device engaged alarm ENERGIZED	/		/
4.2.10.2	Contact OPEN	/		/
4.2.10.3	Relay R-35 DE-ENERGIZED	/		/
4.2.11	Wire Reconnected	/	N/A	ICH 3/28/90
4.2.11.1	Relay R-35 DE-ENERGIZED	/		/
4.2.11.2	Lockout alarm ENERGIZED	/		/
4.2.12.1	Shutdown cylinder RETRACTED	/		/
4.2.12.2	Pressure Gauge reads 60PSI	/		/
4.2.12.3	Lockout alarm DE-ENERGIZED	/		/
4.2.12.4	Emergency status light ENERGIZED	/		/
4.2.12.5	Lockout pin in LOCKED position	/		/
4.2.12.6	STOPPING light DE-ENERGIZED	/		/

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.12.7	BARRING device RETRACTED	N/A CJP 3/28/90		/
4.2.12.8	Locking pin INSTALLED	/		/
4.2.13.1	No voltage PRESENT	/		/
4.2.14.1	No voltage PRESENT	/		/
4.2.14.2	"A" power light DE-ENERGIZED	/		/
4.2.14.3	Panel "A" failure alarm ENERGIZED	/		N/A JCH 3/28/90
4.2.14.4	Contact CLOSED	/	N/A	/
4.2.15	Timer REMOVED	/		/
4.2.16.1	125VDC PRESENT	/		/
4.2.16.2	Alarm ENERGIZED	/		/
4.2.16.3	Relay DE-ENERGIZED	/		/
4.2.16.4	Contact CLOSED	/		/
4.2.16.5	Contact CLOSED	/		/
4.2.16.6	Relay R-35 ENERGIZED	/		/
4.2.16.7	Horn ENERGIZED	/		/
4.2.17.1	Horn DE-ENERGIZED	/		/
4.2.17.2	Contact OPEN	/		/
4.2.17.3	Relay R-35 DE-ENERGIZED	/		/

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.17.4	Failed to start alarm DE-ENERGIZED	N/A [illegible]		/
4.2.18.1	Contact CLOSED	/		/
4.2.18.2	Contact CLOSED	/		/
4.2.18.3	No voltage PRESENT	/		/
4.2.18.4	Contact CLOSED	/		/
4.2.18.5	Contact CLOSED	/		/
4.2.18.6	Running light ENERGIZED	/		/
4.2.18.7	Failed to start alarm DE-ENERGIZED	/		/
4.2.18.8	Contact CLOSED	/		/
4.2.18.9	Contact OPEN	/		/
4.2.18.10	Contact CLOSED	/		N/A [illegible]
4.2.18.11	Relay R 1 ENERGIZED	/		/
4.2.18.12	Contact CLOSED	/		/
4.2.18.13	Contact CLOSED	/		/
4.2.18.14	Contact CLOSED	/		/
4.2.18.15	Contact CLOSED	/		/
4.2.18.16	Contact OPEN	/		/
4.2.18.17	Contact OPEN	/		/
4.2.18.18	Contact OPEN	/		/
4.2.18.19	Contact CLOSED	/		/
4.2.18.20	Contact CLOSED	/		/

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.18.21	Contact CLOSED	N/A CSP 3/29/90		
4.2.18.22	Contact OPEN			
4.2.18.23	Contact OPEN			
4.2.18.24	Contact OPEN			
4.2.19	Maintenance Button Pushed			
4.2.19.1	Maintenance mode alarm DE-ENERGIZED			
4.2.20.1	Contact OPEN			
4.2.20.2	Shutdown cylinder EXTENDED			
4.2.20.3	Cylinder retracted and VENTED			
4.2.20.4	Contact OPEN			
4.2.20.5	Contact CLOSED			
4.2.20.6	Unit running light DE-ENERGIZED			
4.2.20.7	Contact OPEN			
4.2.20.8	Contact OPEN			
4.2.20.9	Contact OPEN			
4.2.21.1	Maintenance mode alarm ENERGIZED			
4.2.22.1	Maintenance mode alarm DE-ENERGIZED			
4.2.24.1	125VDC PRESENT	DR 13/29/90	QC HOLD POINT	3/28/90
4.2.24.2.1	Maintenance mode alarm DE-ENERGIZED	RAJ 3/29/90	No	3/28/90

3/29/90

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PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.24.3	Contact CLOSED	RAJ 3/29/90	QC HOLD POINT	JCH 3/29/90
4.2.24.4	Relays ENERGIZED	RAJ 3/29/90	QC HOLD POINT	JCH 3/29/90
4.2.24.5	Contact CLOSED	RAJ 3/29/90	QC HOLD POINT	JCH 3/29/90
4.2.24.6	Safety injection signal light ENERGIZED	RAJ 3/29/90	QC HOLD POINT	JCH 3/29/90
4.2.24.7	Shutdown light DE-ENERGIZED	RAJ 3/29/90	QC HOLD POINT	JCH 3/29/90
4.2.24.8	No voltage on solenoid	RAJ 3/29/90	QC HOLD POINT	JCH 3/29/90
4.2.24.9	Jumper REMOVED	RAJ 3/29/90	NO	JCH 3/29/90
4.2.24.10	EMERGENCY start alarm ENERGIZED	RAJ 3/29/90		
4.2.24.11	Contact CLOSED	N/A RAJ 3/29/90		
4.2.24.12	Contact CLOSED	N/A RAJ 3/29/90		
4.2.25.1	Stopping light DE-ENERGIZED	RAJ 3/29/90		
4.2.26.1	Pressure gauge below 25 PSI	RAJ 3/29/90		
4.2.26.2	Shutdown cylinder NOT EXTENDED	RAJ 3/29/90	QC HOLD POINT	JCH 3/29/90
4.2.26.3	Hi temp lube oil alarm ENERGIZED	RAJ 3/29/90	NO	JCH 3/29/90
4.2.26.4	Stopping light NOT ENERGIZED	RAJ 3/29/90		
4.2.26.5	Contact CLOSED	N/A RAJ 3/29/90		
4.2.26.6	Contact CLOSED annunciator "ON"	N/A RAJ 3/29/90		
4.2.27	Tubing E-18 RECONNECTED	RAJ 3/29/90	QC HOLD POINT	JCH 3/29/90

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.27.1	Group 1 pressure gauge 60 PSI	RAJ 13/29/90	QC HOLD POINT	CW 13/29/90
4.2.27.2	Hi temp alarm DE-ENERGIZED	RAJ 13/29/90	QC HOLD POINT	CW 13/29/90
4.2.27.3	Contact OPEN	N/A CSP 13/29/90	NO	CW 13 28 90
4.2.27.4	Contact OPEN	N/A CSP 13/29/90	↓	↓
4.2.28.1	Stopping light ENERGIZED	RAJ 13/29/90	QC HOLD POINT	CW 13/29/90
4.2.28.2	Lo pressure alarm ENERGIZED	RAJ 13/29/90	QC HOLD POINT	CW 13/29/90
4.2.28.3	Contact CLOSED	N/A CSP 13/29/90	NO	CW 13 28 90
4.2.28.4	Contact CLOSED	N/A CSP 13/29/90	↓	↓ -1
4.2.28.5	Engine shutdown Cylinder EXTENDED	RAJ 13/29/90	QC HOLD POINT	CW 13 29 90
4.2.29.1	Maintenance mode alarm DE-ENERGIZED	RAJ 13/29/90	NO	CW 13 28 90
4.2.30	Plug installed on E-92	RAJ 13/29/90	QC HOLD POINT	CW 13 29 90
4.2.30.1	Relay R11B ENERGIZED	RAJ 13/29/90	QC HOLD POINT	CW 13 29 90
4.2.30.1.1	Contact CLOSED	N/A CSP 13/29/90	NO	CW 13 28 90
4.2.30.1.2	Contact CLOSED	↓	↓	↓
4.2.30.1.3	Contact CLOSED	↓	↓	↓
4.2.30.1.4	Ready to load light ENERGIZED	RAJ 13/29/90	QC HOLD POINT	CW 13 29 90
4.2.30.2	Jumper Removed	RAJ 13/29/90	NO	CW 13 28 90
4.2.30.2.1	Contact OPEN	RAJ 13/29/90	↓	↓
4.2.30.2.2	Contact OPEN	RAJ 13/29/90	↓	↓

Sheet 13 of 30

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.30.2.3	Contact OPEN	N/ACSP 3/28/90	No	[illegible] 3/28/90
4.2.30.2.4	Ready to load light DE-ENERGIZED RAJ 3-29-90	RAJ 3/29/90	QC HOLD POINT	[illegible] 3-29-90
4.2.31.1	No voltage PRESENT	RAJ 3/29/90		[illegible] 3-29-90
4.2.31.2	Relay R-5B ENERGIZED	RAJ 3/29/90		[illegible] 3-29-90
4.2.32.1	Relay R-23B ENERGIZED	RAJ 3/29/90		[illegible] 3-29-90
4.2.32.2	Contact CLOSED	N/ACSP 3/28/90	No	[illegible] 3/28/90
4.2.32.3	Contact CLOSED	1		
4.2.32.4	Contact CLOSED	1		
4.2.32.5	Contact CLOSED	1		
4.2.32.6	Emergency Stop ENERGIZED	RAJ 3/29/90		
4.2.32.7	Stopping light ENERGIZED	RAJ 3/29/90		
4.2.32.8	Pressure at Solenoid 3B	RAJ 3/29/90		
4.2.32.9	Unit available light DE-ENERGIZED	RAJ 3/29/90		
4.2.32.9.1	No change in status light	RAJ 3/29/90		
4.2.32.10	Overspeed alarm ENERGIZED	RAJ 3/29/90		
4.2.32.11	Contact CLOSED	N/ACSP 3/28/90		
4.2.32.12	Relay R-35 ENERGIZED	RAJ 3/29/90		[illegible] 3-29-90
4.2.32.12.1.1	Relay R-35 ENERGIZED	RAJ 3/29/90		[illegible] 3-29-90
4.2.32.12.1.2	Emergency trip DE-ENERGIZED	RAJ 3/29/90		[illegible] 3-29-90

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.32.13.1	No voltage present	RAJ 3-24-90	No	[illegible]
4.2.32.13.2	No voltage present	RAJ 3-24-90		
4.2.33	Cover INSTALLED	RAJ 3-29-90		
4.2.35.1	Contact OPEN	N/A CSP 3/29/90		
4.2.35.2	Overspeed trip DE-ENERGIZED	RAJ 3-29-90		[illegible]
4.2.35.3	Contact OPEN	N/A CSP 3/29/90	No	[illegible]
4.2.36.1	Relay R23B DE-ENERGIZED	RAJ 3-29-90		[illegible]
4.2.36.2	Contact OPEN	N/A CSP 3/29/90	No	[illegible]
4.2.36.3	Contact OPEN	"	"	"
4.2.36.4	Contact OPEN	"	"	"
4.2.36.5	Emergency stop light DE-ENERGIZED	RAJ 3/29/90		[illegible]
4 2.36.6	Stopping light DE-ENERGIZED	RAJ 3/29/90		[illegible]
4.2.36.7	Relay R-35 DE-ENERGIZED	RAJ 3/29/90		[illegible]
4.2.37.1	125VDC present	RAJ 3/29/90		[illegible]
4.2.37.2	DG Auto start signal ENERGIZED	RAJ 3/29/90		[illegible]
4.2.38.1	No voltage present	RAJ 3/29/90	No	[illegible]
4.2.38.2	DG Auto start signal DE-ENERGIZED	RAJ 3/29/90		
4.2.39.1	Contact CLOSED	N/A CSP 3/29/90		
4.2.39.2.1	Relay R23B ENERGIZED	DSP 3/29/90		[illegible]
4.2.39.2.2	Contact CLOSED	N/A CSP 3/29/90	No	[illegible]

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.39.2.3	Contact CLOSED	N/A CSP 3/29/90	NO	JCU 3/29/90
4.2.41.1	Emergency trip alarm is ENERGIZED	DSP 3/29/90		JCU 3-29-90
4.2.41.2	Contact CLOSED	N/A CSP 3/29/90	NO	JCU 3/29/90
4.2.41.3	Relay R-35 ENERGIZED	DSP 3/29/90		JCU 3-29-90
4.2.42.1	Emergency trip alarm DE-ENERGIZED	DSP 3/29/90		JCU 3-29-90
4.2.42.2	Contact OPEN	N/A CSP 3/29/90	NO	JCU 3/29/90
4.2.42.3	Relay R-35 DE-ENERGIZED	DSP 3/29/90		JCU 3-29-90
4.2.44	Jumper Disconnected	DSP 3/29/90	NO	JCU 3/29/90
4.2.45.1	125VDC across solenoid 202-6A	N/A CSP 3/29/90		
4.2.45.2	Power available light ENERGIZED			
4.2.45.3	Annunciator DE-ENERGIZED			
4.2.45.4	Contact OPEN			
4.2.46.1	No voltage across solenoid 202-6B	DSP 3/29/90		
4.2.46.2	Power available light DE-ENERGIZED	DSP 3/29/90		
4.2.46.3	Power "B" failure ALARM ENERGIZED	DSP 3/29/90		
4.2.46.4	CONTACT CLOSED	N/A CSP 3/29/90		
4.2.48.1	125VDC PRESENT	DSP 3/29/90		JCU 3-29-90
4.2.48.2	FAILURE TO START ALARM ENERGIZED	DSP 3/29/90		JCU 3-29-90

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.49.1	No voltage present	DJP 3/29/90		[illegible] 3-29-90
4.2.49.2	CONTACT CLOSED	N/A CJP 3/28/90		/
4.2.49.3	OPEN CIRCUIT	/		N/A [illegible] 3/28/90
4.2.49.4	CONTACT CLOSED	/		/
4.2.49.5	STARTING LIGHT ENERGIZED	DJP 3/29/90		[illegible] 3-29-90
4.2.49.6	Relay R1 ENERGIZED	DJP 3/29/90		[illegible] 3-29-90
4.2.49.7	RUNNING LIGHT ENERGIZED	DJP 3/29/90		[illegible] 3-29-90
4.2.50.1	SHUTDOWN CYLINDER EXTENDED	DJP 3/29/90		[illegible] 3-29-90
4.2.50.2	Contact Closure	N/A CJP 3/28/90	NO	[illegible] 3/28/90
4.2.50.3	High Temperature trip ENERGIZED	DJP 3/29/90		/
4.2.50.4	OPEN CIRCUIT	N/A CJP 3/28/90		/
4.2.50.5	Relay R1, R1AUX, and R2 are reset	DJP 3/29/90		/
4.2.50.6	Contact Closed	N/A CJP 3/28/90		/
4.2.50.7	Contact closed	/		/
4.2.50.8	Unit running light DE-ENERGIZED	DJP 3/29/90		/
4.2.50.9	Stopping light ENERGIZED	DJP 3/29/90		/
4.2.50.10	Contact CLOSED	N/A CJP 3/28/90		/
4.2.50.11	CONTACT CLOSED	/		/
4.2.51.1	Hi bearing temp ALARM DE-ENERGIZED	DJP 3/29/90		[illegible] 3/29/90

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.51.2	CONTACT OPEN	N/A CVP 3/29/90	No	JCW 3/29/90
4.2.51.3	CONTACT OPEN	↓	↓	↓
4.2.53.1	125V DC PRESENT	DSP 3/29/90		JCW 3-29-90
4.2.53.2	CONTACT CLOSED	N/A CVP 3/29/90	No	JCW 3/29/90
4.2.53.3	RELAYS R1, R1A R2, ENERGIZED	DSP 3/29/90		↓
4.2.53.4	SHUTDOWN SYSTEM ACTIVE Light DE-ENERGIZED	DSP 3/29/90		↓
4.2.53.5	NO VOLTAGE PRESENT	DSP 3/29/90		↓
4.2.53.6	Jumper Removed	DSP 3/29/90		↓
4.2.53.7	Contact CLOSED	N/A CVP 3/29/90		↓
4.2.54.1	Hi Pressure Alarm ENERGIZED	DSP 3/29/90		↓
4.2.54.2	ENGINE SHUTDOWN CYLINDER NOT EXTENDED	DSP 3/29/90		↓
4.2.54.3	CONTACT CLOSED	N/A CVP 3/29/90		↓
4.2.54.4	CONTACT CLOSED	↓	↓	↓
4.2.55	TUBING E-68 RECONNECTED	DSP 3/29/90		JCW 3-29-90
4.2.55.1	Hi Pressure Alarm DE-ENERGIZED	DSP 3/29/90		JCW 3-29-90
4.2.55.2	CONTACT OPEN	N/A CVP 3/29/90	No	JCW 3/29/90
4.2.55.3	CONTACT OPEN	↓	↓	↓
4.2.55.4	SHUTDOWN CYLINDER NOT EXTENDED	DSP 3/29/90		JCW 3-29-90
4.2.56.1	No voltage present	DSP 3/29/90	No	JCW 3/29/90

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.56.2	CONTACT CLOSED	N/A CSP 3/28/90	No	[illegible] 3/29/90
4.2.56.3	SHUTDOWN CYLINDER EXTENDED	DSP 3/29/90		/
4.2.56.4	VIBRATION ALARM ENERGIZED	DSP 3/29/90		/
4.2.56.5	CONTACT CLOSED	N/A CSP 3/28/90		/
4.2.56.6	CONTACT CLOSED	/		/
4.2.56.7	CONTACT OPEN	/		/
4.2.57	TUBING E-23-H RECONNECTED	DSP 3/29/90		[illegible] 3/29/90
4.2.57.1	VIBRATION ALARM DE-ENERGIZED	DSP 3/29/90		[illegible] 3/29/90
4.2.57.2	CONTACT OPEN	N/A CSP 3/28/90	No	[illegible] 3/28/90
4.2.57.3	CONTACT OPEN	/		/
4.2.58.1	Jacket Water Lo PRESSURE ENERGIZED	DSP 3/29/90		/
4.2.58.2	ENGINE SHUTDOWN CYLINDER EXTENDED	DSP 3/29/90		/
4.2.58.3	CONTACT CLOSED	N/A CSP 3/28/90		/
4.2.58.4	CONTACT CLOSED	/		/
4.2.58.5	CONTACT CLOSED	/		/
4.2.58.6	CONTACT CLOSED	/		/
4.2.58.7	CONTACT CLOSED	/		/
4.2.59	TUBING E-14 RECONNECTED	DSP 3/29/90		[illegible] 3/29/90
4.2.59.1	JACKET WATER ALARM DE-ENERGIZED	DSP 3/29/90		[illegible] 3/29/90

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.59.2	CONTACT OPEN	N/A CJP 1/3/2842		/
4.2.59.3	CONTACT OPEN	/		/
4.2.60.1	RELAY R-11A ENERGIZED	/		/
4.2.60.2	CONTACT CLOSED	/		/
4.2.60.3	CONTACT CLOSED	/		/
4.2.60.4	READY TO LOAD LIGHT ENERGIZED	/		/
4.2.60.5	CONTACT OPEN	/		/
4.2.60.6	CONTACT OPEN	/		/
4.2.60.7	READY TO LOAD LIGHT DE-ENERGIZED	/		/
4.2.60.8	JUMPER REMOVED	/		/
4.2.61.1	125VDC PRESENT	/		/
4.2.61.2	CONTACT CLOSED	/		/
4.2.61.3	AUTO START LIGHT ENERGIZED	/		/
4.2.62	REMOVE JUMPER	/		/
4.2.62.1	NO VOLTAGE PRESENT	/		/
4.2.62.2	CONTACT OPEN	/		/
4.2.62.3	AUTO START	/		/
4.2.63.1	UNIT AVAILABLE LIGHT DE-ENERGIZED	/		/
4.2.63.2	POWER FAILURE ALARM ENERGIZED	/		/
4.2.63.3	CONTACT CLOSED	Y /		/

NVT JCP 1/3/2842

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.64.1	UNIT AVAILABLE STATUS LIGHT ENERGIZED	DJP 3/29/90		TC 15 2990
4.2.64.2	START POWER FAILURE ALARM DE-ENERGIZED	DJP 3/29/90		TC 15 2990
4.2.64.3	CONTACT OPEN	N/A CJP 3/28/90	No	CJP 3/28/90
4.2.65.1	PRESSURE SENSOR MALFUNCTION ALARM ENERGIZED	DJP 3/29/90		
4.2.65.2	CONTACT CLOSED	N/A CJP 3/28/90		
4.2.65.3	TUBING E-10B DISCONNECTED	DJP 3/29/90		
4.2.65.4	LUBE OIL ALARM ENERGIZED	DJP 3/29/90		
4.2.65.5	PRESSURE SENSOR MALFUNCTION ALARM DE-ENERGIZED	DJP 3/29/90		
4.2.65.6	CONTACT CLOSED	N/A CJP 3/28/90		
4.2.65.7	CONTACT CLOSED	↓		
4.2.65.8	CONTACT OPEN	↓		
4.2.65.9	RELAY R23B DEENERGIZED	DJP 3/29/90 DJP 3/29/90		
4.2.66.1	RELAY R23B DEENERGIZED	DJP 3/29/90 DJP 3/29/90		
4.2.66.2	CONTACT OPEN	DJP 3/29/90		TC 15 2990
4.2.66.3	CONTACT OPEN	N/A CJP 3/28/90	No	CJP 3/28/90
4.2.67.1	MALFUNCTION ALARM ENERGIZED	↓		
4.2.67.2.	PLUG REMOVED FROM TUBING E-10C	DJP 3/29/90		

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.67.2.1	LO OIL PRESSURE ALARM DE-ENERGIZED	DJP 13/29/90	No	[illegible] 13/28/90
4.2.67.2.2	LUBE OIL SHUTDOWN ALARM ENERGIZED	DJP 13/29/90		
4.2.67.2.3	CONTACT CLOSED	N/A CJC 13/29/90		
4.2.69.1	MALFUNCTION ALARM ENERGIZED	DJP 13/29/90		
4.2.69.2	PLUG E-10A DISCONNECTED	DJP 13/29/90		
4.2.69.2.1	LUBE OIL SHUTDOWN ALARM ENERGIZED	DJP 13/29/90		
4.2.70	PLUGS RECONNECTED TO TUBING E10A and E10C	DJP 13/29/90		
4.2.71.1	JACKET WATER TEMP SENSOR MALFUNCTION ALARM ENERGIZED	DJP 13/29/90		
4.2.71.2	CONTACT CLOSED	N/A CJC 13/29/90		
4.2.71.3	Disconnect Tubing E-16B	DJP 13/29/90		
4.2.71.3.1	TEMP SENSOR MALFUNCTION ALARM DE-ENERGIZED	DJP 13/29/90		
4.2.71.3.2	JACKET WATER TEMP SHUTDOWN ALARM ENERGIZED	DJP 13/29/90		
4.2.71.3.3	CONTACT CLOSED	N/A CJC 13/28/90		
4.2.71.3.4	CONTACT OPEN	DJP 3/29/90		
4.2.72	TUBING E-16A and E-16B RECONNECTED	DJP 13/29/90	QC HOLD POINT	CJC 13-29-90
4.2.73	E16-B Disconnected	DJP 3/29/90	No	[illegible] 13/28/90

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.73.1	Hi Temp. JACKET WATER ALARM DE-ENERGIZED	DJP 13/29/90	NO	[illegible] 13/29/90
4.2.73.2	CONTACT OPEN	N/A DJP 13/29/90		
4.2.73.3	CONTACT OPEN	↓		
4.2.73.4	TEMP. SENSOR MALFUNCTION ALARM	DJP 13/29/90		
4.2.73.5	TUBING E16-C Disconnected	DJP 13/29/90		
4.2.73.5.1	Jacket Water Shutdown ALARM ENERGIZED	DJP 13/29/90	↓	↓
4.2.74	TUBING LINES E16-B AND C RECONNECTED	DJP 13/29/90	[illegible]	[illegible] 13-29-90
4.2.75	Disconnect Tubing E16-C	DJP 13/29/90	NO	[illegible] 13/28/90
4.2.75.1	SENSOR MALFUNCTION ALARM	DJP 13/29/90		
4.2.75.2	TUBING E16-A Disconnected	DJP 13/29/90		
4.2.75.2.1	JACKETWATERS SHUTDOWN ALARM	DJP 13/29/90	↓	↓
4.2.76	TUBING E16-A and C RECONNECTED	DJP 13/29/90	[illegible]	[illegible] 13-29-90
4.2.77.1	PRESSURE GAUGE READING LESS THAN 25PSI	DJP 13/29/90		[illegible] 13-29-90
4.2.77.2	BYPASS TEST FAILURE LIGHT DE-ENERGIZED	DJP 13/29/90		[illegible] 13-29-90
4.2.77.3.1	BYPASS TEST FAILURE LIGHT ENERGIZED	DJP 13/29/90	[illegible]	[illegible] 13-29-90
4.2.78.1	SUMP TANK READING O.K.	N/A DJP 13/29/90	NO	[illegible] 13/28/90

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.79.1	DAY TANK READING O.K.	N/A CJP 3/23/90		
4.2.80.1	ALARMS ENERGIZED			
4.2.80.2	Horn Disconnected			
4.2.82.1	LUBE OIL FILTER DIFFERENTIAL HIGH FUNCTIONS			
4.2.82.1.1	ALARM FUNCTIONS Correctly			
4.2.82.1.2	RELAY R38 ENERGIZED			
4.2.82.1.3	CONTACT CLOSED			
4.2.82.2.1	ALARM FUNCTIONS CORRECTLY			
4.2.82.2.2	RELAY R38 ENERGIZED			
4.2.82.3.1	ALARM FUNCTIONS CORRECTLY			
4.2.82.3.2	RELAY R38 ENERGIZED			
4.2.82.4.1	ALARM FUNCTIONS CORRECTLY			
4.2.82.4.2	RELAY R38 ENERGIZED			
4.2.82.5.1	ALARM FUNCTIONS CORRECTLY			
4.2.82.6.1	ALARM FUNCTION CORRECTLY			
4.2.82.7.1	ALARM FUNCTIONS CORRECTLY			
4.2.82.8.1	ALARM FUNCTIONS CORRECTLY			

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.82.9.1	ALARM FUNCTIONS CORRECTLY	N/A CJP 3/25/93		/
4.2.82.9.2	RELAY R38 ENERGIZED	/		/
4.2.82.10.1	ALARM FUNCTIONS CORRECTLY	/		/
4.2.82.10.2	RELAY R38 ENERGIZED	/		/
4.2.82.11.1	ALARM FUNCTIONS CORRECTLY	/		/
4.2.82.11.2	RELAY R38 ENERGIZED	/		/
4.2.82.12.1	ALARM FUNCTIONS CORRECTLY	/		N/A PCH 3/25/93
4.2.82.12.2	RELAY R38 ENERGIZED	/		/
4.2.82.13.1	ALARM FUNCTIONS CORRECTLY	/		/
4.2.82.14.1	ALARM FUNCTIONS CORRECTLY	/		/
4.2.82.15.1	ALARM FUNCTIONS CORRECTLY	/		/
4.2.82.16.1	ALARM FUNCTIONS CORRECTLY	/		/
4.2.82.17.1	ALARM FUNCTIONS CORRECTLY	/		/
4.2.82.17.2	RELAY R35 ENERGIZED	/		/
4.2.82.18.1	ALARM FUNCTIONS CORRECTLY	/		/

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.82.19.1	ALARM FUNCTIONS CORRECTLY			
4.2.82.20.1	ALARM FUNCTIONS CORRECTLY			
4.2.82.20.2	RELAY R38 ENERGIZED			
4.2.82.21.1	ALARM FUNCTIONS CORRECTLY			
4.2.82.22.1	ALARM FUNCTIONS CORRECTLY			
4.2.82.22.2	RELAY R38 ENERGIZED			
4.2.82.23.1	ALARM FUNCTIONS CORRECTLY			
4.2.82.23.2	RELAY R38 ENERGIZED			
4.2.82.24.1	ALARM FUNCTIONS CORRECTLY			
4.2.82.25.1	ALARM FUNCTIONS CORRECTLY			
4.2.82.26.1	ALARM FUNCTIONS CORRECTLY			
4.2.82.26.2	RELAY R38 ENERGIZED			
4.2.82.27.1	ALARM FUNCTIONS CORRECTLY			
4.2.82.27.2	RELAY R38 ENERGIZED			
4.2.82.28.1	ALARM FUNCTIONS CORRECTLY			
4.2.82.28.2	RELAY R38 ENERGIZED			

Sheet 26 of 30

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.82.29.1	ALARM FUNCTIONS CORRECTLY	N/A CJF 3/3/90		/
4.2.82.29.2	RELAY R38 ENERGIZED	/		/
4.2.82.30.1	ALARM FUNCTIONS CORRECTLY	/		/
4.2.82.31.1	ALARM FUNCTIONS CORRECTLY	/		/
4.2.82.31.2	RELAY R20 ENERGIZED CONTACT CLOSED	/		/
4.2.82.32.1	ALARM FUNCTIONS CORRECTLY	/		/
4.2.82.33.1	ALARM FUNCTIONS CORRECTLY	/		/
4.2.82.33.2	EMERGENCY STATUS LIGHT DE-ENERGIZED	/		N/A CJF 3/3/90
4.2.82.34.1	ALARM FUNCTIONS CORRECTLY	/		/
4.2.82.35.1	ALARM FUNCTIONS CORRECTLY	/		/
4.2.82.35.2	CONTACT CLOSED	/		/
4.2.82.36.1	ALARM FUNCTIONS CORRECTLY	/		/
4.2.82.36.2	ALARM FUNCTIONS CORRECTLY	/		/
4.2.82.37.1	ALARM FUNCTIONS CORRECTLY	/		/
4.2.82.38.1	ALARM FUNCTIONS CORRECTLY	/		/
4.2.82.39.1	ALARM FUNCTIONS CORRECTLY	/		/

Sheet 27 of 30

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.82.40.1	ALARM FUNCTIONS CORRECTLY	N/A CJP 3/28/90		/
4.2.82.41.1	ALARM FUNCTIONS CORRECTLY	/		/
4.2.82.42	RELAYS INSTALLED	/		/
4.2.83	RELAY RESET	/		/
4.2.84.1	NO PRESSURE AT L.B. GAUGE	/		/
4.2.84.2.1	120 VDC PRESENT	/		/
4.2.84.3.1	120 VDC PRESENT	/		/
4.2.85.1	PRESSURE AT R.B.GAUGE	/		/
4.2.85.2	NO PRESSURE AT LB GAUGE	/		/
4.2.85.3.1	NO VOLTAGE PRESENT	/		/
4.2.85.4.1	NO VOLTAGE PRESENT	/		/
4.2.87.1	CONTACT CLOSED	/		/
4.2.87.2	CONTACT CLOSED	/		/
4.2.88.1	CONTACT OPEN	/		/
4.2.88.2	CONTACT OPEN	/		/
4.2.89.1	TUBING RECONNECTED	3-29-90		3-29-90
4.2.89.2	TUBING RECONNECTED	/		3-29-90
4.2.89.3	TUBING RECONNECTED	/		3-29-90
4.2.90	TUBING RECONNECTED	/		3-29-90
4.2.91	TUBING RECONNECTED	3-29-90		3-29-90

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.92.1	LINKS CLOSED	DJP 1/29/90	NP	[illegible] 1/29/90
4.2.92.2	LINKS CLOSED	/		
4.2.92.3	LINKS CLOSED	/		
4.2.92.4	LINKS CLOSED	/		
4.2.92.5	LINKS CLOSED	/		
4.2.92.6	LINKS CLOSED	/		
4.2.92.7	LINKS CLOSED	/		
4.2.92.8	LINKS CLOSED	/		
4.2.92.9	LINKS CLOSED	/		
4.2.92.10	LINKS CLOSED	/		
4.2.92.11	LINKS CLOSED	/		
4.2.92.12	LINKS CLOSED	/		
4.2.92.13	LINKS CLOSED	/		
4.2.92.14	LINKS CLOSED	/		
4.2.92.15	LINKS CLOSED	/		
4.2.92.16	LINKS CLOSED	/		
4.2.92.17	LINKS CLOSED	/		
4.2.92.18	LINKS CLOSED	/		
4.2.92.19	LINKS CLOSED	/		
4.2.92.20	LINKS CLOSED	/		
4.2.92.21	LINKS CLOSED	/		
4.2.92.22	LINKS CLOSED	/		

Q.C. WITNESS POINT

JCH for T. Williams per IR 34172

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.92.23	LINKS CLOSED	DDP 3/29/90	NO	[illegible] 3/28/90
4.2.92.24	LINKS CLOSED			
4.2.92.25	LINKS CLOSED			
4.2.92.26	LINKS CLOSED			
4.2.92.27	LINKS CLOSED			
4.2.92.28	LINKS CLOSED			
4.2.92.29	LINKS CLOSED			
4.2.92.30	LINKS CLOSED			
4.2.92.31	LINKS CLOSED			
4.2.92.32	LINKS CLOSED			
4.2.92.33	LINKS CLOSED			
4.2.92.34	LINKS CLOSED			
4.2.92.35	LINKS CLOSED			
4.2.92.36	LINKS CLOSED			
4.2.92.37	LINKS CLOSED			
4.2.93	TOGGLE SWITCHES OPEN	[illegible] 3/29/90	NO	[illegible] 3/28/90
4.2.94	ENGINE WIRE RECONNECTED	DDP 3/29/90		[illegible]
4.2.95	ENGINE WIRE RECONNECTED	DDP 3/29/90		[illegible]
4.2.96	WIRE 402 RECONNECTED	N/A [illegible] 3/29/90	NO	[illegible] 3/28/90
4.2.97	JUMPER REMOVE	DDP 3/29/90		

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.2.98	JUMPER REMOVE	DSP 3/29/90	NO	[illegible] 3/23/90
4.2.99	FREQUENCY GENERATOR REMOVED	DSP 3/29/90		
4.2.100	EQUIPMENT RESTORED TO OPERATIONAL CONDITION	RAJ 3-29-90		
4.2.101	SHIFT SUPERVISOR NOTIFIED	RAJ 3-29-90		

Comments/Additional Hold Points T.R. 2-1-72

QC has reviewed this procedure for Hold Points [illegible] 3.28.90
SIGNATURE

APPROVED (✓) DISAPPROVED ( ) FOREMAN	DATE
[signature]	3-29-90

COMPLETED BY	DATE
[signature]	3-29-90

05-255-90

** COPY ** COPY ** COPY ** COPY ** COPY ** COPY **COPY ** COPY ** COPY ** COPY ** COPY

NUCLEAR PLANT MAINTENANCE WORK ORDER △ NORMS (1 OF 2)

1.CONTROL NO. 1900168 00 2.DATE 03/31/90 3.UNIT 1 4.SYSTEM 2403
MPL/TAG NO. 12403G4001 DIESEL GENERATOR 5A.REPAIR TAG ____
MPL/TAG(S) ASSOCIATED WITH SPECIAL INDICATORS
6.PROB/ WORK REQ. TO VERIFY TIMING OF TWO TRIPS DURING LOSP, THE FOLLOWING STEPS (SEE ATTACHED COPY) NEED TO BE PERFORMED.

CONT. N

FOR INFORMATION ONLY

ORIGINAL

7.INITIATOR HASSAN DIANATI 8.SUPRV HASSAN DIANATI LOC 1DGB1-
9.MWO CLASS S EQP CLASS 015/010.UNIT STAT LKT 11.FIRE PROTECT NO
12.DCR N 13.NCR/DR N 14.TYPE MAINT P 15.DURATION 6

16.CRAFT	MECH(EST/ACT)		ELEC(EST/ACT)		I&C(EST/ACT)		CONT(EST/ACT)		HP/OT(EST/ACT)	
CREW	0		0		2.0 MHG 3/31/90	2.0	0		0	
HRS.					12	20.0				
EXP.	0		0		0		0		0	
SCHED BEG	/ /		/ /		/ /		/ /		/ /	
SCHED END	/ /		/ /		/ /		/ /		/ /	
RESP FOREMAN										

17.CLR N 18.WELD PERM N RWP PERM N
19 ~~HOLD POINT ATTACHED~~ 20.PROC 20429-C
QC REVIEWED BY [signature] 3/31/90 21.PRI 14 22.LCO 190353I
23.WORK * [signature] SR 3/31/90
△ INST. * REQUIRES ~~RELA~~ RELEASE FOR WORK BY K STOKES OR P. KOCHERY SR 3/31/90

CONT. Y

** SEE CONTINUATION SHEET ** Y

24.INITIATE REVIEW 25.SPEC REV REQ N/A [signature] 3/31/90
OPS [signature] DATE 3/31/90 MNT MHG DATE 3/31/90 26.MWO RELEASE FOR WORK
HP [signature] DATE 3/31/90 ENG KH DATE 3/31/90 SIG. [signature] DATE 3/31/90
27.ACT WORK PERFRMED Hooked up Recorder Channels #697, 6 to 86 breaker T.P., and 7 to Air Start Solenoids, Recorder #11 7032 JR 3-31-90

See Cont Sheet

CONT. N

HIST SUM
28.MTRL REQD NA
29.PERSON PERFORMING WORK(NAME) [signature] DATE 3/31/90 30.MAINTENANCE FOREMAN [signature] DATE 4/1/90
31.INSPECTION PERFORMED BY [signature] [signature] DATE 4/2/90
32.METHOD OF F.T. None Required due to work performed - WS 4/1/90
33.PROCEDURE # NA 34.PERFORMED BY See Block 29 35.DATE / /
36.PROVES OPERABILITY NA 37.METHOD USED TO PROVE OPERABILITY NA
38.SATISFY/UNSATISFY 39.IF UNSAT .CORR. ACTION NA
40.UNIT STATUS AT TIME OF FAILURE N 41.TYPE FAIL N 42.MODE OF FAIL N
43.CAUSE OF FAILURE N 44.DETECT BY N 45.EFFECT ON SYS N
46.EFF ON PLANT N 47.MWO STAT 6D 48.CAUSE N 49.CORR ACT. N
50.NEW MWO NA 51.OPER. ACCEPT BY [signature] DATE 4/2/90
52.SOSOS APPROVAL NA DATE N/A
53.SPEC REV COMP N/A DATE N/A 54.MEET # N/A DATE N/A
55.CLOSE OUT APPROVAL BY QC [signature] 4-2-90

A TRAIN
3-31-90

CONTROL NO. 19001684 00

~~WORK INSTRUCTIONS~~: **CAUTION** ALL PERSONNEL INVOLVED IN THE TESTING MUST READ AND UNDERSTAND THE ATTACHED CAUTION STAEMENT. DURING THE EN GINE START AND SUBSEQUENT TESTING IF ANY TRIPS OCCUR OTHER THAN PLANNED TRIPS OR OBSERVE OTHER SIGNIFICANT MALFUNCTION. STOP THE TEST AND NOTIFY IIT TEAM. TEST WILL NOT CONTINUE WITHOUT THE CONCURRENCE FROM IIT TEAM MEMBER. ANY PROTION OF THE TESTING THAT COULD IMPACT THE RELIABILITY AND SAFETY OF THE D/G SYSTEMS MUST BE EVALUATED BY GA POWER COMPANY PRIOR TO TESTING. IF A TEST NEEDS TO BE STOPPED, ENSURE ALL EQUIPMENT IS PLACED IN A SAFE POSITION.

NOTE:

TURN ALL 3 VIDEO CAMERAS AND RECORDERS TO RECORD THE ANNUNCIATORS AND OTHER ENGINE & GENERATOR PARAMETERS AS IN UV TEST.

WORK INSTRUCTIONS:

A. ALL DG STARTS MAY BE PRECEEDED BY TURBOCHARGER PRELUDE.

B. STARTS MAY BE INITIATED FROM CONTROL ROOM OR LOCALLY (MANUAL OR AUTOMATIC) AS DIRECTED BY STYEM ENGINEER.

C. DG STOPS MAY BE INITIATE FROM CONTROL ROOM OR LOCALLY (MANUAL OR AUTOMATIC) AS DIRECTED BY SYSTEM ENGINEER.

1. CONNECT CHART RECORDER IN DG1A ENGINE CONTROL PANEL 1-2403-P5-DG2 AS FOLLOWS:
   A. ONE CHANNEL ACROSS AIR START SOLENOIDS AT TERMINALS E5(+) AND E4(-). 0-250VDC F.5.
   ~~B. ONE CHANNEL ACR 3S B3 BREAKER TRIP PRESSURE SWITCH PS-9B1 AT TERMINAL L51 AND L52 -125 -0 + 125 VDC P5~~
2. WITH ORIGINAL SENSORS INSTALLED, START DG1A
3. STOP DG1A.
4. DISCONNECT TWO JACKET WATER HIGH TEMPERTURE SENSORS.
5. START DG1A, DIESEL TRIP EXPECTED TIME DG START TO PS-9B1 ACTUATION.
6. RECONNECT JACKET WATER HIGH TEMPERATURE SENSOR LINES.
7. DISCONNECT LOW PRESSURE JACKET WATER SENSOR.
8. START DG1A. TRIP EXPECTED. TIME DG START TO PS-9B1 ACTUATION.
9. RECONNECT LOW PRESSURE JACKET WATER SENSOR LINE.

AFTER RECONNECTING THE LINES FOLLOWING THE TEST PERFORM LEAK DETECTION BY SNOOP LEAK DETECTOR AND FIX ANY LEAKES DETECTED.

VOGTLE ELECTRIC GENERATING PLANT — GEORGIA POWER CO.

MAINTENANCE WORK ORDER REVISION SHEET

1 CONTROL NO.	2 REVISION NO.	3 MPL TAG NO.	4 DATE
19001689	1	1240315 DG2 1240364001	3/31/90

5 REASON FOR REVISION

CHANGE STEP IN WORK INSTRUCTIONS:

BLOCK 23: STEP 1B - DELETE ORIGINAL INSTRUCTIONS AND ADD

"Open Link L51 and L52. ~~Determine which is (+) voltage. Connect recorder to either L51 or L52 that has no voltage. Close link L51 and L52. Connect other side of recorder to ground.~~" BEH 3/31/90

BEH 3/31/90

BEH 3/31/90

BEH 3/31/90

CONNECT CHART RECORDER ACROSS TERMINALS L51 AND L52. ADD POWER SUPPLY IN SERIES WITH ONE CHART RECORDER LEAD.

SPAN CHANNEL - 125 - 0 + 125 VDC

6 INITIATOR: Mark Goldman 3/31/90

REVIEW SIGNATURES

7 MAINTENANCE ENG: 3/31/90	8 OPERATIONS: E.M. 3/31/90	9 CLEARANCE REQUIRED: NO
10 QC REVIEW: 3/31/90	11 HOLD POINTS: HOLD POINT ATTACHED	
12 HP REVIEW: 3/31/90	13 NEW RWP REQUIRED: NONE	
14 ANII REVIEW: N/A MHG 3/31/90	15 HOLD POINTS: NONE	
16 WORK PLANNER: Mark Goldman 3/31/90	17 PROCEDURES: N/A 3/31/90 MHG	
18 FIRE PROTECTION REVIEW: N/A MHG 3/31/90	19 SHIFT SUPERVISOR: E.M. 3/31/90	

20 REMARKS

Nuclear Plant Maintenance Work Order Continuation Sheet

MPL No. _____ MWO No. 19001687

Work Description Block 27 (cont)

1) Start No. 1 had all sensors in place. Performed a Normal Control Room start to see if J.W. sensor malfunction alarm comes in.
J.W sensor malfunction did not alarm.

2) Start No 2 had High J.W. Sensors A and C vented. The following alarms came in as Groups:
Group 1: Low Pressure Starting Air
Generator Underfrequency - Cleared
Group 2: Low Pressure Jacket Water Trip
Low Turbo Oil Pressure Trip
Group 3: Malfunction J.W Temperature Sensor
Trip High J.W. Temperature
High Temperature Lube Oil
High Temperature J.W.

3) Start No. 3: Everything was initially the same as Start 2 and results were exactly the same

4) Start No. 4: Had High Jacket Water Sensors B and C ~~vented~~ 3/31/90 vented. Results were exactly as in Starts No. 2 and 3.

(Whole Page) KCS 3/31/90

Nuclear Plant Maintenance Work Order Continuation Sheet

MPL No. _____ MWO No. 19001684

Work Description: Block 27 (cont)

Start No. 5; High J.W. Temperature sensors were re-connected. Low Pressure Jacket Water Sensor line was disconnected.

Performed a normal Control Room start. Engine Tripped after second time delay.

Alarms were Trip Low Pressure J.W. (1st JW) followed by Trip Low Turbo Oil Pressure.

Spurious alarms came in simultaneously with trip alarms. They were; High temp. L.O. and High Temp J.W.

R. Stoltz 3/31/90

SNOOP TEST DONE ON JACKET WATER HIGH TEMP LINE CONNECTIONS AT SENSOR. SENSORS A & C SATISFACTORY. SENSOR B HAS SLOW WEEPING CONDITION.

Dressout 3/31/90

BLOCK 27 (CONT'D): DETERMINATED RECORDER CHANNELS AS DIRECTED. LIFTED LEADS WERE DOCUMENTED PER PROCEDURE 20929-C. MAINTAINED GOOD HOUSEKEEPING IN WORK AREAS. NRB 3-31-90

FOR USE WITH CONTROL NO. 19001684

IMPORTANT

EXTREME CAUTION MUST BE TAKEN TO ENSURE THAT THE WORK PERFORMED BY THIS MWO DOES NOT IN ANY WAY CAUSE A LOSS OF INFORMATION CONCERNING THE CAUSE OR CAUSES THAT LED TO THE TRIPS OF EDG 1A ON MARCH 20, 1990 OR THE LOW JACKET WATER PRESSURE AND LOW TURBO OIL PRESSURE ALARMS FOR EDG 1B ON MARCH 23, 1990.

CARE SHOULD BE TAKEN TO PRESERVE THE AS FOUND CONDITION OF REPLACED COMPONENTS (E.G., PREVENTION OF DAMAGE DUE TO JARRING OR DROPPING), AND TO CAREFULLY DOCUMENT ANY ABNORMAL OR UNUSUAL CONDITIONS THAT COULD POTENTIALLY AFFECT COMPONENT OPERATION. ALL TESTING OR CALIBRATION ACTIVITIES SHOULD BE CAREFULLY OBSERVED AND ANY ABNORMAL OPERATION OR MALFUNFTION OF EDG PARTS SHOULD BE CAREFULLY AND THOROUGHLY DOCUMENTED.

FOR USE WITH CONTROL NO. 1900684

Procedure No.	Revision	Page No
VEGP 20429-C	5	5 of 6

Sheet 1 of 1

POWER AND SIGNAL REMOVAL/REPLACEMENT DATA SHEET

[X] Safety Related/QC Holdpoints [ ] Non-Safety Related

NOTES

a. To install jumpers and/or lift wires, other than those directly associated with the equipment tag(s)/scheme number(s) listed on the Work Order, notify the Shift

b. Ensure that each lead (wire) is marked so it can be uniquely identified with its termination point.

c. Independent verification is only required on safety related equipment. Place N/A in independent verification block for non-safety related equipment.

d. If the worker leaves the immediate proximity of the work or the work is interrupted, complete and install a "Jumper and Lifted Wire" tag per 00305-C, "Temporary Jumper And Lifted Wire Control". Instead of Control Number use the Procedure number on the tag.

e. If holdpoints do not apply, NA QC Verification block.

f. If applicable, tags shall remain intact and will only be removed by the independent verifier.

		REMOVAL			RECONNECTION		QC HOLD POINT
IDENTIFY LEADS LIFTED, JUMPERS INSTALLED, LINES OPEN, ETC.	LOCATION PANEL OR JUNCTION BOX	PERFORMED BY/DATE	INDEPENDENT VERIFICATION BY/DATE	QC VERIF. BY/DATE	PERFORMED BY/DATE	INDEPENDENT VERIFICATION BY/DATE	QC VERIF. BY/DATE
Lift TB1-51	1H43-P5-002	[illegible] 3-31-90	WHZ 3-31-90		DLW 3-31-90	[illegible] 3-31-90	RC 3/31/90
Lift TB1-52	1H43-P5-002	[illegible] 3-31-90	WHZ 3-31-90		DLW 3-31-90	[illegible] 3-31-90	RC 3/31/90

IR 3112?

COMPLETION SHEET

PROCEDURE	REVISION	SHEET
20429-C	5	1 of 1

TAG NO. DESCRIPTION
Short Term Documentation of
Temporary Jumpers and Lifted Wires

SERIAL NO. MANUFACTURER MODEL

TEST EQUIPMENT USED M&TE # (X) Safety Related/QC Hold Point
( ) Non-Safety Related

PROCEDURE STEP	DESCRIPTION	MAINT. INIT/DATE	HOLD POINT (Yes/No)	QC INIT/DATE
4.1	Notify Shift Supervisor	[illegible] 13390	No	[illegible] 13/90
4.2 -	Clearance and Tagging	[illegible]		[illegible]
4.10	Tighten Connections	[illegible] 13390		[illegible]
4.12	Notify Shift Supervisor	[illegible] 13390	No	[illegible] 13/90

Comments/additional hold points: NONE

QC has reviewed this procedure for hold points [illegible] 3/31/90
Signature

APPROVED (X) DISAPPROVED ( ) FOREMAN	DATE
R. Lemley	4-1-90

COMPLETED BY	DATE
[illegible]	3-31-90

GEORGIA POWER COMPANY
VEGP QUALITY CONTROL

QC HOLD / WITNESS POINT

ASQC-C FIG. 1
PAGE 1 OF 1

M&O NO: 1900684	PROCEDURE & REV NO: 20429-C Revision 5

NOTIFY QUALITY CONTROL PRIOR TO PERFORMING THE WORK ACTIVITY OR STEP ASSOCIATED WITH THE HOLD (H) OR WITNESS (W) POINT

DO NOT BYPASS QC HOLD OR WITNESS POINTS

STEP NO.	H/W	HOLD POINT / WITNESS POINT DESCRIPTION	ASSIGNED BY INIT	ASSIGNED BY DATE	NOTIFIED INIT	NOTIFIED DATE	QC ACTION INIT	QC ACTION I-W-N/A
1.	H	Contact QC prior to relanding safety related conductors	MJB	3/30/90	PC	3/31/90	PC	I
1	H	Notify QC Prior To Start Leak Test	TOC	3/31/90	PC	3/31/90	PC	I

COMMENTS & IR NUMBERS: (initial and date entries)

IR 34127 PC 3/31/90

Quality Control Inspection Report

VOGTLE ELECTRIC GENERATING PLANT—UNITS 1 & 2

34127

Georgia Power

MWO/MCAR/DR No. 19201684	Building Diesel Generator	Procedure/Spec. No./Rev. 20479-C R/5
Room/Level No. Rm# 103 Level 1	Sys./Start-Up Designator 2403	Tag No. 12403 G4001
Drawing No./Rev. n/a	Vendor Manual Log No. n/a	Other n/a

1. Inspector will use separate form for each completed inspection function(s) and insert original with work package, use continuation sheets when needed.
2. Use simple narrative type report procedure. Reference all applicable drawing numbers, specifications, special instructions, etc., connected with your inspection. Use sketches, when applicable, showing dimensions checked, alignment, physical location of defects found, etc. N/A all blocks not used.
3. Upon completion of the inspection activity, enter results below and sign and date.

Remarks: Visually verified reconnection of links TBL-51 and TBL-52 in Engine Control Panel 12403-P5-DG2. Connections were snug tight. Verified proper leak test was performed and considered satisfactory.

Sketch

Inspection Results

☑ SAT ☐ UNSAT—ODR/DR NO.(s)

705516A MCS191

Inspector: Patrick L. [signature] Date: 3/31/92

WHITE—Work Package CANARY—QC Supv. PINK—Inspector

EQ EVALUATION CHECKLIST

FOR USE ON PROJECT CLASSES Q111, Q212, Q313, Q013, Q015, Q11E, Q11J, Q12E, 61J

MWO NO. M001684

SECTION I

PART A ORIGINAL PART

1. DESCRIPTION DG 1A
2. TAG NO. 1240364001
3. PROJECT CLASS Q015
4. SPECIFICATION (EQDP) NO. X4AK01
5. MANUFACTURER DELAVAL
6. MODEL NO. N/A
7. PART NO. N/A

PART B REPLACEMENT PART

1. DESCRIPTION
2. MER NO.
3. STOCK NO.
4. SPECIFICATION (EQDP) NO.
5. MANUFACTURER N/A
6. MODEL NO.
7. PART NO.
8. PO NO.

COMMENTS * No Parts Used.

SECTION II WORK PLANNING

1. ARE PROCEDURES, VENDOR MANUALS, DRAWINGS OR INSTRUCTIONS AVAILABLE TO DISASSEMBLE/REWORK COMPONENT? ✓ YES ____ NO
   DHE 1 3/24/90 (Init. Date)
2. ARE SPECIFICATION NUMBERS FOR ORIGINAL AND REPLACEMENT ITEMS THE SAME? ____ YES ____ NO
3. ARE MANUFACTURER MODEL/PART NUMBERS OF THE ORIGINAL AND REPLACEMENT PARTS THE SAME? ____ YES ____ NO
4. IS BULK MATERIAL LISTED ON ATTACHMENT ACCEPTABLE? ____ YES ____ NO
   LIST ITEM NO. FROM ATTACHMENT IF "NO" IS CHECKED. N/A (Item No.) / (Init. Date)

NOTE

If items 2, 3, or 4 are checked No, the Checklist must be reviewed by the EQ Group.

[ ] PART(S) ARE ACCEPTABLE FOR USE
[ ] SEND TO EQ GROUP

WPG 4/2/90 DATE

SECTION III EQ GROUP EVALUATION

[ ] PART IS ACCEPTABLE FOR USE [ ] PART IS UNACCEPTABLE FOR USE

JUSTIFICATION FOR ACCEPTANCE:

/
EQ ENGINEER DATE

VEGP FIRE PROTECTION CHECKLIST

1. MWO NO. 1900684 2. MPL/TAG NO. 1240364001
3. LOCATION

4. WILL THE WORK INSTALL, IMPAIR, MODIFY, ISOLATE, DEFEAT, OR REMOVE ANY OF THE FOLLOWING? IF THE ANSWER IS "YES" CHECK THE BOX, AND INDICATE APPROPRIATE DETAILS.

( ) SPRINKLER SYSTEM
( ) INTERIOR HOSE STATION
( ) HALON SYSTEM
( ) DETECTION SYSTEM
( ) EMERGENCY LIGHTING SYSTEM
( ) PERMANENT COMBUSTIBLES (CABLE, WOOD, PLASTIC, ETC.)
( ) STRUCTURAL STEEL, OR RACEWAY FIREPROOFING
( ) FIRE SUPPRESSION SUPPLY SYSTEM (PUMPS, TANKS, ETC.)
( ) CONDUIT SEALS OR EQUIPMENT ENCLOSURE (CABINET HOUSING)
( ) FIRE EXTINGUISHER
( ) COMMUNICATIONS SYSTEM
( ) RCP OIL COLLECTION SYSTEM
( ) SEISMIC STANDPIPE SYSTEM

5. WILL THE WORK DEFEAT, MODIFY OR IMPAIR ANY OF THE FOLLOWING FIRE SEPARATION FEATURES? IF THE ANSWER IS "YES" CHECK THE BOX, AND INDICATE APPROPRIATE DETAILS.

( ) A. FIRE AREA BOUNDARY (WALL, ETC.)
( ) B. PASSIVE AREA BOUNDARY PENETRATION SEAL ASSEMBLY.
PENETRATION SEAL
WALL BLOCKOUT
FLOOR PLUG OR HATCH
CABLE TRAY OR CONDUIT WRAP
RADIANT ENERGY SHIELD
( ) C. ACTIVE FIRE AREA BOUNDARY PENETRATION SEAL.
FIRE DOOR
FIRE DAMPER

6. IF ALL THE ANSWERS IN BLOCKS 4 and 5 ARE "NO", STOP THE EVALUATION HERE, AND ENTER "NO" IN BLOCK 11 OF THE MWO FORM.
IF ANY QUESTIONS WERE ANSWERED "YES", ENTER "YES" IN BLOCK 11 OF THE MWO FORM.
EVALUATOR M Holdaway DATE 3/31/90

POST WORK REVIEW (COMPLETE "A, B, OR C" BELOW)

(A) THE CONDITION IMPACTING THE FIRE PROTECTION COMPONENTS LISTED ABOVE HAS BEEN REMOVED. FPE _____ DATE _____

(B) THE FIRE PROTECTION COMPONENT IS STILL IMPAIRED.
FPE _____ DATE N/A

(C) RESTORATION OF THE IMPAIRMENT HAS BEEN TRANSFERRED (Ref: _____)
AND THE FIRE PROTECTION LCO LOG HAS BEEN CHANGED TO REFERENCE THE NEW MWO FOR THIS IMPAIRMENT. FPE _____ DATE _____

FIGURE 1