Address to the Oregon Reclamation Congress

Madras, Oregon -- November 6, 1958

By G. C. Stamm

The opportunity to meet with the Oregon Reclamation Congress is indeed a privilege, and, of course, it is always a pleasure to visit central Oregon. The broad expanse of fertile irrigated land against the backdrop of the magnificent Cascade range is an inspiration to see any season of the year.

Your President, Mr. Carlos Randolph, asked me to occupy a few minutes time at your noon luncheon today but assigned no topic. Obviously, I would like to talk about Reclamation since that has been close to my heart as well as my work for a good many years. However, our Regional Director, Mr. Harold T. Nelson, was on the program ahead of me and has already told you about Reclamation plans, programs, construction jobs, and operating problems relating to the Pacific Northwest and specifically to the State of Oregon.

There is, however, something to say about the life, qualifications, and tribulations of irrigation people which the Regional Director did not cover, and it is in that field that I will confine my remarks.

First, let's consider for a moment the primary objective of reclamation. Reclamation means many things to many people. It has multiple functions and some of its features and structures are spectacular, but when you brush away the glamour of reclamation and get down to its heart you find that the primary objective is to deliver irrigation water to the farmer's headgate, in amounts and at times required for successful
production of crops. Concurrently of course this service must be performed at a cost for water that is reasonably within the farmer's ability to pay.

The irrigation managers are the anchor men in the reclamation program. Planning, designing, and construction activities come and go, but operation and maintenance of constructed facilities go on and on. Irrigation managers must meet the challenge, deliver the water, listen to criticism, correct mistakes, restore irrigation capacities, and pour oil on the troubled waters, frequently without thanks or appreciation. To emphasize this point, I would like to run hurriedly through the chronology of an irrigation manager's experience during a twelve-month period.

Starting about October 1 to 15, the irrigation manager becomes concerned about the irrigation water supply for the following year and he, or whoever is responsible for the storage facilities, must take steps to fill the reservoir or reservoirs serving his project. As soon as the irrigation season has ended all release from the reservoir is usually cut off. Obviously, if there are any prior downstream rights, water must be passed to satisfy them. Normally, however, this is not the case after the end of the irrigation season. The manager feels obligated to close the gates and store all inflow because he does not know whether it will rain or snow as much as usual and therefore he must save all inflow against the possibility of a short water year. He usually must follow this assumption until actual precipitation demonstrates what kind of a water year is in prospect.

When he shuts the reservoir outlet gates he is likely to receive complaints from several sources and frequently the claim is
made that fish are being damaged. The irrigation managers I know have nothing against fish, in fact, most of them are ardent fishermen themselves, but the manager's job depends upon managing storable inflow to fill the irrigation storage space. In no case in Oregon has any of the reservoir space been allocated to fish, and usually no part of the project construction cost has been assigned to fish benefits; therefore the manager has no right to pass storable irrigation water for any other purpose at least until he is assured that there is more water to come off the watershed than is required to fill the reservoir. There are eleven reclamation storage reservoirs in Oregon serving six Federal projects which have no allocation of space or cost to either fish benefits or flood control; five reservoirs, existing or under construction, serving two projects do have an allocation to flood control on the basis of joint use of space. In any case, as soon as the irrigation water supply for the coming year is assured, the manager can make releases for fish or other purposes.

After a few months the reservoir operation problem may shift and frequently does. In my hypothetical yet typical situation, the manager often finds that it has rained and snowed more than usual; filling the reservoir has thus become assured. In fact, the manager finds he needs to evacuate space if he is to catch the runoff peak and control the streamflow below the reservoir. The alternative would be simply to fill the reservoir and thereafter to spill all inflow. This would mean that the peak inflow at the time of maximum runoff would be passed through the reservoir and the channel would have no benefit from opportunities for flood control. Remembering that in most cases no part of the reservoir space has been allocated, either exclusively or jointly, to flood control
and, therefore that the manager has no legal obligation to do otherwise than to fill and spill, nevertheless, he feels a responsibility to accomplish as much flood control benefit as possible without reducing the yield of water for irrigation purposes. So he begins to evacuate space in advance of the flood peak, conscious all of the time that he had better end up with a full reservoir or be ready to go looking for a new job.

He has done this before and has accomplished much good for many people. Peak stream flows below the dam have been held to an amount substantially less than the peak inflows to the reservoir. Because of past control, however, landowners adjacent to the stream below the dam have allowed the channel to become restricted, they have encroached on the stream with their bridge piers and fences so that now the stream will not carry nearly as much flow without flooding as it would have before the dam was built.

As the irrigation manager begins to evacuate space he may draw fire from the farmers for passing water that they believe may be needed for irrigation; he may also draw fire from those interested in flood control because they believe he is not evacuating enough space for the expected runoff. He tiptoes between these two interests with an eye on the watershed, the temperatures, the weather forecast and the advancing spring season. Finally, the snow is largely gone, he has space enough to catch the runoff expected from say a week of hot weather, and so he believes once again he has operated a single-purpose irrigation reservoir for multiple-purpose benefits. This, however, is really the critical time.

During this critical period - usually coming in May or June - one of several things can happen. It may turn hot for say two weeks instead of one and the manager is caught, late in the filling season, without enough
space to catch the peak runoff, or the watershed might get an unseasonal, unpredictable rain that upsets the manager's best intentions and calculations and results in the necessity for passing more water than the restricted channel below the reservoir can carry without flooding.

Needless to say, if either occurs, the manager is again bombarded with criticism and complaints from those damaged or threatened with damage.

Nobody seems to understand that the irrigation manager couldn't foresee an unseasonal rain nor an extended hot spell, but he nevertheless did reduce the peak flow substantially even though he could not maintain complete control of the river in the circumstances; neither do they realize that he probably did what he did on his own initiative without the backing of law or a cost allocation to operate for flood control.

In the usual case, the manager does an excellent job. For example, Paul House operated the Owyhee Dam this year so as to coast into a full reservoir with complete control of flow in the channel below.

The irrigation season is now well underway. Water users have long since been notified of water charges for the season and have paid the minimum charge. And, incidentally in so doing, perhaps complained bitterly because of an increase in operation and maintenance costs. They claim that such costs are twice what they were in the early 1940's and farmers are sure that the manager is spending more than is necessary. What farmers may not realize is that in terms of 1940 dollars the O&M costs may actually be no more, perhaps even less than was the cost 20 years ago. Very likely the manager has mechanized his operation and is actually performing his water service job more efficiently now than ever before.
Next almost invariably comes a prolonged hot spell during the summer when most farmers want more water than the irrigation system can deliver. In the middle of this it may happen, although it seldom does, that a break occurs in the main canal and all deliveries are cut off for say 36 hours. In either case the manager may again be criticized either because the farmers believe that lack of maintenance of the system has resulted in insufficient capacity to meet peak season needs or because the canal break in some way is related to negligence on the part of the operator.

Thus, this little recitation of events in the life of an irrigation manager demonstrates that he is plagued with problems around the calendar. He is expected to foretell the weather, control floods, preserve fish, conserve water, expand ditch capacities, and work miracles in providing better water service at lower costs. He must be a good technician, a good administrator, a prophet, and a diplomat.

He is usually underpaid, overworked, underappreciated, and overcriticized. He inherits all of the unsolved problems of project design and construction. He does not share in the spectacular and glorious aspects of construction, yet I want to emphasize that without him the reclamation program would fall flat on its face.

In conclusion, I would like to offer a few suggestions as to how the irrigation manager might ease his lot. (1) When he finds it necessary to shut off the streamflow, he should let the people know by one means or another what he is doing and why it is necessary.

In the fall of 1956, Arrowrock Reservoir was almost drained at the end of the irrigation season. Since it periodically is necessary
to do some work on the sluicegates and since no opportunity for
inspection or work on those gates had been available since 1952,
the sluicegates were opened to take advantage of the then present
opportunity. In so doing, some silt was washed downstream as the
reservoir drained. The next day a four-column picture appeared on
the front page of the local newspaper depicting a large number of
dead fish stranded on the sand bars of the reservoir. The claim was
also made that many fish downstream were killed by the muddy water.
The implication of course was that all of the fish so killed were
tROUT. Our crews working on the gates made a careful examination
of the dead fish both in the reservoir and for 1-1/2 miles below the
reservoir and found that only about one percent of the dead fish were
tROUT. I mention this not in justification of the operation nor do I
mean to imply that no game fish were killed, but what I want to bring
out is that occasionally it is necessary to follow some unusual operating
procedure at a dam and the question then arises, "what should you do in
those circumstances." I called the State Director of Game and Fish,
explained what we were doing, why we were doing it, and asked for his
suggestions as to what we might have done differently. He said that
one mistake we made was in not informing him or the public in advance
as to our plans and the necessity therefor. He had received numerous
phone calls about a situation of which he had no knowledge, he was not
able to give the people any satisfactory explanation, as a matter of fact
all he could say was he had not been consulted, he knew nothing about the
reservoir operation plans.
Had he had advance information, and had he been convinced that there was no other alternative in the circumstances, he could have answered the questions with full knowledge of the situation, could have satisfied many inquiries, and could have prevented in a large measure the adverse publicity that resulted. Since that time we have followed the practice, without exception, of keeping the Fish Department fully informed of all unusual operations, the times at which they will occur, the duration of the unusual operation and the reasons therefor. Also since that time we have had no adverse publicity in the local paper and the complaints have been reduced to an insignificant minimum. In other words, careful attention to advance public information will go a long way toward reducing criticism. I could cite many other examples where conflicts with the railroad, logging companies, fish interests, farmers, and others have been avoided merely by adopting a policy of letting people know whenever an unusual operation is required and the reasons for it.

(2) The irrigation managers again through public information channels should inform the people living adjacent to the streams below the reservoirs of the maximum flows that might be expected, and should repeatedly caution them against encroachment on the channel with bridges, fences, buildings, or any other structures that might reduce the channel capacity or be subjected to flooding if the flow gets high. I could cite an example in Oregon that happened during the spring of this year wherein some damage was done to landowners below McKay Reservoir largely because landowners had, over the years, encroached on the stream channel until it would not carry the natural flow in higher runoff years. The problem this year resulted from an unseasonal heavy rain which occurred after
virtually all snow had gone from the reservoir's watershed and therefore the reservoir was nearly full when the rain came.

(3) To relieve the peak season water demands and the crop losses that occur where the system has limited capacity, the irrigation managers and their boards might encourage the farmers to get and keep their fields well wet up before the expected hot summer season so as to reduce the intensity of the peak season demand.

(4) The manager should take his board members on a trip over the project works including all distribution facilities once or twice a year to keep them acquainted with the problems that contribute to farmer complaints and with unusual or chronic situations that contribute to increased operating costs.

(5) He should develop an immunity to ulcers.

These few remarks are intended to focus attention on the debt we owe to operation and maintenance men who year after year face a lot of problems and through it all provide a far greater service than they get credit for in preserving fish, conserving water, controlling floods, and meeting reclamation's primary objective which I repeat, is that of delivering water to the farmers' headgates in amounts and at the times required for successful crop production.
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The opportunity to meet with this State-wide organization of irrigation people is indeed a pleasure, and, of course, it is always a pleasure to visit central Oregon. The broad expanse of fertile irrigated lands in this area against the backdrop of the magnificent Cascade range is an inspiration any season of the year and is unequalled anywhere.

Your President, Mr. Carlos Randolph, asked me to occupy a few minutes time at your noon luncheon today but assigned no topic. Obviously, I would like to talk about Reclamation since that has been close to my heart as well as my work for a good many years. However, our Regional Director, Mr. Harold T. Nelson, was on the program ahead of me and has already told you about Reclamation plans, programs, construction jobs, and operating problems relating to the Pacific Northwest and specifically to the State of Oregon. I believe Carlos thought this situation would leave me little to say and therefore I would say it quickly and sit down.

There is, however, something to say about the life, qualifications, and tribulations of irrigation people which the Regional Director did not cover, and it is in that field that I will confine my remarks.

First, let's consider for a moment the primary objective of reclamation. Reclamation means many things to many people. It has multiple functions and some of its features and structures are spectacular, but when you brush away the glamour of reclamation and get down to its heart you find that the primary objective is to deliver irrigation water to the farmer's headgate, in amounts and at times required for successful
production of crops. Concurrently of course this service must be performed at a cost for water that is reasonably within the farmer's ability to pay.

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Starting about October 1 to 15, the irrigation manager becomes concerned about the irrigation water supply for the following year and takes steps to fill the reservoir or reservoirs serving his project. As soon as the irrigation season has ended he usually cuts off all release from the reservoir. Obviously, if there are any prior downstream rights, he must pass water to satisfy them. Normally, however, this is not the case after the end of the irrigation season. The manager feels obligated to close the gates and store all inflow because he does not know whether it will rain or snow as much as usual and therefore he must save all inflow against the possibility of a short water year. He usually must follow this assumption until actual precipitation demonstrates what kind of a water year is in prospect.

When he shuts the outlet gates at the reservoir he is likely to receive complaints from several sources and frequently the claim is made that he is damaging fish. The irrigation managers I know have nothing
against fish, in fact, most of them are ardent fishermen themselves, but the manager's job depends upon managing storable inflow to fill his irrigation storage space. In no case has any of the reservoir space been allocated to fish, and usually no part of the project construction cost has been assigned to fish benefits; therefore the manager has no legal right to pass storable irrigation water for any other purpose at least until he is assured that there is more water to come off the watershed than is required to fill the reservoir. There are eleven reclamation storage reservoirs in Oregon serving six Federal projects which have no allocation of space or cost to either fish benefits or flood control; five reservoirs, existing or under construction, serving two projects do have an allocation to flood control on the basis of joint use of space. As soon as the water supply for the coming year is assured, the manager can make releases for fish or other purposes.

After a few months the problem may shift and frequently does. In my hypothetical yet typical situation, the manager finds that it has rained and snowed more than usual; filling the reservoir has thus become assured. In fact, the manager finds he needs to evacuate space to catch the flood peak and control the streamflow below the reservoir. The alternative would be simply to fill the reservoir and thereafter to spill all inflow. This would mean that the peak inflow at the time of maximum runoff would be passed through the reservoir and the channel would have no benefit from opportunities for flood control. Remembering that in most cases no part of the reservoir space has been allocated, either exclusively or jointly, to flood control and, therefore that the manager has no legal obligation to do otherwise than to fill and spill, nevertheless, he feels a responsibility to accomplish as much flood control benefit as possible.
without reducing the yield of water for irrigation purposes, so he begins to evacuate space in advance of the flood peak, conscious all of the time that he had better end up with a full reservoir or be ready to go looking for a new job.

He has done this before and has accomplished a lot of good for a lot of people. Peak stream flows below the dam have been held to an amount substantially less than the peak inflows to the reservoir. Because of past control, however, landowners adjacent to the stream below the dam have allowed the channel to become restricted, they have encroached on the stream with their bridge piers and fences so that now the stream will not carry much more than one-half as much flow without flooding as it would have before the dam was built.

As the irrigation manager begins to evacuate space he may draw fire from the farmers for passing water that may be needed for irrigation; he may also draw fire from those interested in flood control because they believe he is not evacuating enough space for the impending runoff. He tiptoes between these two interests with an eye on the watershed, the temperatures, the weather forecast and the advancing spring season. As time passes he holds less and less vacant space because the runoff season is growing shorter and the volume of peak runoff that he may have to catch becomes less. Finally, the snow is largely gone, he has space enough to catch the runoff expected from say a week of hot weather, and so he believes once again he has operated a single-purpose irrigation reservoir for multiple-purpose benefits.

About that time one of two things may and sometimes does happen. Either it turns hot for say two weeks instead of one and the manager is caught, late in the filling season, without enough space to catch the peak
runoff, or the watershed gets an unseasonal, unpredictable rain that upsets the manager's best intentions and calculations and results in the necessity for passing more water than the restricted channel below the reservoir can carry without flooding.

Needless to say, the manager is again bombarded with criticism and complaints from those damaged or threatened with damage.

Nobody seems to understand that the irrigation manager is only human, he couldn't foresee an unseasonal rain or an extended hot spell but he nevertheless did reduce the peak flow substantially even though he could not maintain complete control of the river in the circumstances; neither do they realize that he did what he did on his own initiative without the backing of law or a cost allocation to operate for flood control.

In the usual case, however, the manager does an excellent job. For example, Paul House operated the Owyhee Dam last year so as to coast into a full reservoir with complete control of flow in channel below.

The irrigation season is now underway. Water users have previously been notified of water charges for the season and have paid the minimum charge. And, incidentally in so doing, complained bitterly because of an increase in operation and maintenance costs. They claim that such costs are twice what they were in the early 1940's and farmers are sure that the manager is spending more than is necessary. What farmers may not realize is that in terms of 1940 dollars the O&M costs may actually be no more, perhaps even less than was the cost 20 years ago. Very likely the manager has mechanized his operation and is actually performing his water service job more efficiently now than ever before.

Next comes a prolonged hot spell during the summer when most farmers want more water than the irrigation manager can deliver during a
season of peak irrigation demand. In the middle of this it may happen, although it doesn't very often, that a break occurs in the main canal and all deliveries are cut off for say 36 hours. In either case the manager may again be criticized either because the farmers believe the system has insufficient capacity to meet peak season needs or because the canal break in some way is related to negligence on the part of the operator.

When one of these situations arises and a self-styled canal bank engineer undertakes the job of telling the irrigation manager how the ditch break should be repaired, and this short course in ditch repair comes to the irrigation manager after he has already lost 24 hours sleep, no wonder the manager's patience becomes a little short and he punctuates his replies with what might be considered undue emphasis. These situations do occur, and the President of your organization is not completely unfamiliar with them.

Thus, this little recitation of events in the life of an irrigation manager demonstrates that he is plagued with problems around the calendar. He is expected to foretell the weather, control floods, preserve fish, conserve water, expand ditch capacities, and work miracles in providing better water service at lower costs. He must be a good technician, a good administrator, a prophet, and a diplomat.

He is usually underpaid, overworked, underappreciated, and over-criticized. He inherits all of the unsolved problems and errors of project design and construction. He does not share in the spectacular and glorious aspects of construction, yet I want to emphasize that without him the reclamation program would fall flat on its face.

In conclusion, I would like to offer a few suggestions as to how the irrigation manager might ease his lot. (1) When he finds it necessary
to shut off the streamflow, he should let the people know by one means or another what he is doing and why it is necessary.

In Boise Valley not long ago, Arrowrock Reservoir was almost drained at the end of the irrigation season. Periodically it is necessary to do some work on the sluicegates and since no opportunity for inspection or work on those gates had been available since 1952, the sluicegates were opened to take advantage of the then present opportunity for inspection and repair. In so doing, some silt was washed downstream as the reservoir drained. The next day a four-column picture appeared on the front page of the local newspaper depicting a large number of dead fish stranded on the sand bars of the reservoir. The claim was also made that many fish downstream were killed by the muddy water. The implication of course was that all of the fish so killed were trout. Our crews working on the gates made a careful examination of the dead fish both in the reservoir and for 1-1/2 miles below the reservoir and found that only about one percent of the dead fish were trout. I mention this not in justification of the operation nor do I mean to imply that no game fish were killed, but what I want to bring out is that occasionally it is necessary to follow some unusual operating procedures at a dam and the question then arises, what should you do in those circumstances. I called the State Director of Game and Fish, explained what we were doing, why we were doing it, and asked for his suggestions as to what we might have done differently. He said the biggest mistake we made was in not informing him in advance as to our plans and the necessity therefor. He had received numerous phone calls about a situation of which he had no knowledge, he was not able to give the people any satisfactory explanation, as a matter of fact all he could say was he had not been consulted, he knew nothing about the reservoir operation plans,
Had he had advance information, and had he been convinced that there was no other alternative in the circumstances, he could have answered the questions with full knowledge of the situation, could have satisfied many inquiries, and could have prevented in a large measure the adverse publicity that resulted. Since that time we have followed the practice, without exception, of keeping the Fish Department fully informed of all unusual operations, the times at which they will occur, the duration of the unusual operation and the reasons therefor. Since that time we have had no adverse publicity in the local paper and the complaints have been reduced to an insignificant minimum. In other words, a little bit of advance public information will go a long way toward reducing criticism. I could cite many other examples where conflicts with the Railroad, logging companies, fish interests, farmers, and others have been avoided merely by adopting a policy of letting people know whenever an unusual operation is required and the reasons therefor.

(2) As suggestion number 2, the irrigation manager might inform the people living adjacent to the stream channel below the reservoir of the maximum flows that might be expected and repeatedly caution them against encroachment on the channel with bridges, fences, buildings, or any other structures that might reduce the channel capacity or be subjected to flooding if the flow gets out of the channel. I could cite an example in Oregon that happened during the spring of this year wherein some damage was done to landowners below McKay Reservoir largely because landowners had, over the years, encroached on the stream channel until it would not carry the natural flow in high runoff higher runoff years. The problem this year resulted from an unseasonal heavy rain which occurred after virtually all snow had gone off of the reservoir's watershed.
(3) To relieve the peak season water demands and the crop losses that occur where the system has limited capacity, the irrigation managers and their boards might encourage the farmers to get their fields well wet up before the expected hot summer season so as to reduce the intensity of the peak season demand.

(4) The manager should take his board members on a trip over the project works including all distribution facilities once or twice a year to keep them acquainted with the problems that contribute to farmer complaints and unusual or increased operating costs.

(5) He should develop an immunity to ulcers.

These few remarks are intended to focus attention on the debt we owe to operation and maintenance men who year after year face a lot of problems and through it all provide a far greater service than they get credit for in preserving fish, conserving water, controlling floods, and meeting reclamation's primary objective which I repeat, is that of delivering water to the farmers' headgates in amounts and at the times required for successful crop production.