


ANNUAL REPORT  
Water Year -- November 1, 1963 to October 31, 1964

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Clearing and sorting of plans and specifications in the old construction file was started during November, 1963. This work was continued during the following months as time permitted. The sorting and indexing of these old plans were completed late in February, and all plans of value were microfilmed.

During March a start was made on recording plans and specifications on file in an attempt to develop an administrative list of all dams to reflect inspection results and to provide a quick source of information on the condition and progress of repairs. In past seasons, "follow-up" corrective work has not been completely satisfactory.

To avoid confusion and loss of time in approving plans and specifications for dam construction on Forest Service land, the procedure of requiring engineers to submit plans and specifications to the Forest Service for approval before submitting them to this office for final acceptance, was instituted. To date, this procedure has proven to be satisfactory.

Several preliminary sets of plans have been presented for review before formal sets were submitted for final acceptance. In the case of large dams of complex design, this has proved to be a time-saving procedure in that questions could be resolved and corrections could be made while the final drawings were being prepared.

A total of 57 sets of plans and specifications were reviewed and accepted this season, including 10 sets for improvements of existing dams. These

plans and specifications were divided, as follows:

Construction of new dams . . . . .	39	sets
Reconstruction of existing dams . . . . .	4	"
Repairs " " " . . . . .	6	"
Enlargement " " " . . . . .	6	"
Changes in filed plans . . . . .	2	"
Total Plans and Specifications Accepted . . . . .	57	"

The reservoirs created by these dams were for the following uses:

<u>Purpose</u>	<u>Number of Reservoirs</u>	<u>Total Storage in Acre Feet</u>	<u>Total Area of Reservoirs in Acres</u>
Irrigation	17	49,216.0	1,777.0
Recreation	15	14,067.1	914.8
Flood Control	11	3,955.0	413.1
Municipal	8	51,408.7	950.8
Industrial	6	12,794.2	330.0
	<u>57</u>	<u>131,441.0</u>	<u>4,385.7</u>

A complete listing of the plans and specifications accepted this year is attached. In addition to the plans listed, three sets of preliminary plans were also reviewed, but the final plans had not been received by the end of the season.

Field travel was curtailed this year mainly because of increased demand in the office. Considerable time was spent in discussions with consulting engineers regarding design requirements for six (6) large dams. Two of these dams, Great Western and Standley Lake, involved complicated investigations to determine the extent and cause of previous failures and to establish a basis for the planning of the required rehabilitation.

Reconstruction of Standley Lake Dam was started late in October. The first stage of repair consisted of excavating a trench along the downstream toe of the main dam through the toe blanket into sound undisturbed foundations. When excavations of the toe trench at the right of the outlet conduit removed the support provided by the toe blanket, an extension slip occurred in the

downstream face of the dam for a distance of about 150 feet. An estimated 16,000 cubic yards of material had to be removed. When all of the unstable materials had been removed, an area of springs was revealed which required the installation of tile drain pipes in gravel back-fill to prevent build-up of water pressure in this area.

Although an agreement ~~was reached~~ on the procedure to be followed in the repair of Great Western Dam was reached late in the season, formal plans and specifications had not been prepared by the end of the water year. Start of this rehabilitation is scheduled for next spring.

Work was started on five new large dams during the year. These dams are:

Cabin Creek (Hydro-electric Project of the Public Service Company) with two dams.

The Lower Urad Dam of the American Metal Climax Company.

Aurora-Rampart Dam of the City of Aurora.

Homestake Dam with the City of Aurora and the City of Colorado Springs as joint owners.

The Upper Blue Dam, being constructed by the City of Colorado Springs, was still under construction during this season, and was visited three times to observe the progress of foundation clean-up and work progress.

The foundation conditions encountered at the Upper Blue and at the Homestake damsites are quite similar. Both are located in an extensively ice-gouged, hard granite outcropping. These sites have deep pockets that had to be cleared of debris and glacial till to insure a sound foundation for the rock-fill. The restricted work areas resulted in considerable lost time because very little rock-fill could be placed. Neither dam was in ideal condition at the end of the construction season.

On May 20, 1964, the failure of Lake Brennard Dam, completed last season on Anthracite Creek, was reported to this office. The first report indicated that a twenty foot wall of water rushed down Anthracite Creek washing out bridges and roads. The final investigation disclosed that the dam had not failed but that an ice jam some place downstream from the dam had gone out and produced a flash flood. The extent of damage was substantially less than first reported and the flood had nearly dissipated by the time it reached Somerset.

In addition to the dam inspections, one trip was made to the vicinity of Conifer to arbitrate the controversy over the location of the Jefferson-Park County line, and one field visit was made to gather information on the controversy over the measurement of water for the Model and Johns Flood Ditches.

A total of 18 field trips were made resulting in 8,056 miles travel during which 133 inspections were made. The larger dams accounted for 21 of these trips, leaving a total of 92 dams inspected during the season. A complete list of the dams inspected is attached.

I wish to express my appreciation for the continued fine cooperation and help extended to me by the Division Engineers and their Water Commissioners during the season.

Respectfully submitted,

L. Rees Brooks  
Supervising Water Resource Engineer

DAMS INSPECTED DURING 1963-64 WATER YEAR

<u>NAME OF RESERVOIR DAM</u>	<u>DATE OF INSPECTION</u>	<u>REASON FOR VISIT</u>
<u>WATER DISTRICT NO. 1</u>		
Latham	11-19-63	Cavity under grouted riprap - Repaired
<u>WATER DISTRICT NO. 2</u>		
Klug	3-29-64	Check repair work and investigate report of illegal work downstream -- Okay
Great Western	4-20-64	To discuss required repair
	4-27-64	Request for increased storage-Not allowed
	8-24-64	Report on proposed repairs
	9-18-64	Meeting in Broomfield
	8- 1-64	Inspect foundation test pits
	10-26-64	Check on report of work started at filter plant
Standley Lake	5-14-64	Check inlet flumes
	10-20-64	Start of repairs
	10-26-64	Work on inlet pipes
	10-28-64	Slide in downstream face. Outlined necessary corrections
<u>WATER DISTRICT NO. 3</u>		
Cameron Pass (Joe Wright)	11- 4-63	Check outlet condition
	7- 3-64	Check outlet - No work done
Chambers Lake	11- 4-63	Routine - Okay
Watson Lake	2-17-64	Check improvements
Fairway Estates	3-30-64	Acceptance. Found sub-standard illegal dam upstream. Ordered plans and specifications and corrections
<u>WATER DISTRICT NO. 6</u>		
Base Line	2-11-64	Access damage from cracks. No immediate changes. Must be checked next season
Eckholt	5-14-64	Acceptance
Graham	5-14-64	Acceptance
Katz	9- 9-64	Check report of illegal dam - Okay
<u>WATER DISTRICT NO. 7</u>		
Cabin Creek Project	11- 1-63	Inspect damsite
	6- 7-64	Formal ground breaking
	8-18-64	Construction progress
	8-20-64	Foundation at both dams
	9-23-64	Construction progress

Dams Inspected During 1963-64 Water Year - (Continued)

<u>NAME OF RESERVOIR DAM</u>	<u>DATE OF INSPECTION</u>	<u>REASON FOR VISIT</u>
<u>WATER DISTRICT NO. 7 (Continued)</u>		
Lower Urad	8-20-64	Foundation cleaning
	9-11-64	Progress on foundation
	9-23-64	" " "
<u>WATER DISTRICT NO. 8</u>		
Franktown-Parker Water Shed	4- 6-64	Acceptance of seven flood control dams
Englewood	5-15-64	Acceptance
Aurora-Rampart	5-29-64	Foundation
	8-19-64	Work progress
	10-28-64	Check season's work
Franktown-Parker FP-R1	9-29-64	Check report of illegal storage - None
West Creek Lake	7- 1-64	Spillway improvement
West Creek	8-19-64	Evaluate leakage
J. O. Hill	8-19-64	" "
<u>WATER DISTRICT NO. 10</u>		
Calahan	12- 9-63	Acceptance of repairs
Valley No. 1 and No. 2	2- 4-64	To determine necessary repairs
F. M. Houck	6- 9-64	To determine condition of four dams and recommend necessary repairs
Woodland Park	8-19-64	Reported leakage
<u>WATER DISTRICT NO. 11</u>		
Boss Lake	7- 6-64	Further inspection of condition Change in leakage pattern indicated Need of extension repair of outlet No further storage to be allowed
<u>WATER DISTRICT NO. 12</u>		
Kederick Stock Pond	6- 9-64	Check report of unsafe condition This dam on main draw. Unsatisfactory
Mt. Pisgah	7-10-64	Safety inspection - Okay
<u>WATER DISTRICT NO. 16</u>		
Horseshoe	12-10-63	Check wave erosion. Additional riprap placed
Cucharas Creek	12-10-63	Check illegal dams reported. Turned out to be highway gravel borrow
" "	8-11-64	Check illegal diversions

Dams Inspected During 1963-64 Water Year - (Continued)

<u>NAME OF RESERVOIR DAM</u>	<u>DATE OF INSPECTION</u>	<u>REASON FOR VISIT</u>
<u>WATER DISTRICT NO. 18</u>		
Seven Lakes	5- 5-64	Check on report of dangerous condition at diversion gate. Reconstruction required
<u>WATER DISTRICT NO. 19</u>		
North Lake	11-15-63	Work progress
Trinidad Flood Control	4- 6-64	Acceptance of two dams
<u>WATER DISTRICT NO. 20</u>		
Commonwealth Diversion	11-29-63	Make recommendations for correction of structures
Beaver Park	6-10-64	Outline required repairs with Game, Fish and Parks engineer
Fuchs	6-10-64	Safety of spillway
Rito Hondo	7-31-64	Progress of spillway deterioration
Hermit Lakes Group	7-31-64	Inspect seven dams for safety - three in poor shape
Brown's Lakes	7-31-64	Two dams require repair. Game, Fish and Parks Commission propose a new dam to include both lakes in one reservoir
Lohr Lake	9- 2-64	Routine - Okay
<u>WATER DISTRICT NO. 23</u>		
Antero	11-27-63	Outline investigations
	3-31-64	Check outlet levels
Green Valley Association	5- 6-64	Investigate report of illegal dam Small community dam 8' high - Okay
Camp Alexander	7-10-64	Work progress
East Portal Roberts Tunnel	7-17-64	Official opening
Harris Park No. 1	7-30-64	Condition of repairs
Harris Park No. 2	7-30-64	Check on work - None
Wagon Tongue	7-30-64	Found no work had been done since last year
Montgomery	9-15-64	Set Parshall flume stakes above reservoir
<u>WATER DISTRICT NO. 30</u>		
Haviland	11-14-63	Acceptance of reconstruction

Dams Inspected During 1963-64 Water Year - (Continued)

<u>NAME OF RESERVOIR DAM</u>	<u>DATE OF INSPECTION</u>	<u>REASON FOR VISIT</u>
<u>WATER DISTRICT NO. 36</u>		
Dillon	1-10-64	Acceptance
	7-14-64	Study crack pattern above outlet near spillway - Not serious
Upper Blue	7-14-64	Foundation condition
	8-18-64	Work progress
	9-23-64	Work progress
<u>WATER DISTRICT NO. 37</u>		
Homestake	7-17-64	Foundation condition
	8-28-64	Foundation clean-up progress
	9-23-64	Fault in right abutment area
	10-15-64	Work progress
<u>WATER DISTRICT NO. 38</u>		
Rudi	7-19-64	Ground breaking
Aspen	8-27-64	Repair work
<u>WATER DISTRICT NO. 39</u>		
Grass Valley	7-20-64	Routine inspection
<u>WATER DISTRICT NO. 40</u>		
Bald Mountain	9-25-64	Acceptance
Kiser	10-16-64	Safety - No further storage allowed until satisfactorily repaired
Deep Slough	10-16-64	Safety - Outlet in poor condition Letter written
<u>WATER DISTRICT NO. 44</u>		
Fortification	12-12-63	Acceptance
<u>WATER DISTRICT NO. 47</u>		
Pole Mountain	11-21-63	Evaluate relocated axis
	7- 3-64	Cut-off trench
	9-10-64	Work progress
North Michigan Creek	11-18-63	Completion inspection by Water Commissioner Geer



Dams Inspected During 1963-64 Water Year - (Continued)

<u>NAME OF RESERVOIR DAM</u>	<u>DATE OF INSPECTION</u>	<u>REASON FOR VISIT</u>
<u>WATER DISTRICT NO. 47 - (Continued)</u>		
North Michigan Creek	7- 3-64	Check reported leaks - Not serious
Wade	9-15-64	For possible enlargement
McFarlane	9-10-64	Check condition of repairs - Okay
<u>WATER DISTRICT NO. 50</u>		
Hinman	7-22-64	Safety Inspection
Matheson	9-11-64	Check reported leaks. Leaks through natural foundation. No danger
<u>WATER DISTRICT NO. 51</u>		
Hankinson	7-22-64	Near failure caused by spillway crest too high. Letter outlining corrections
Cottonwood	7-22-64	Determine adequacy. This dam built without plans and specifications. As built, plans to be submitted. Appears okay
<u>WATER DISTRICT NO. 53</u>		
Ed Harper	7-21-64	Routine inspection
Steiner	7-21-64	" "
Toponas	7-21-64	" "
McElroy	7=21-64	" "
<u>WATER DISTRICT NO. 58</u>		
Steamboat	11-12-63	Inspect extent of reported failure Failed due to improper compaction along outlet conduit
	12-11-63	Inspect adequacy of repairs - Okay
<u>WATER DISTRICT NO. 62</u>		
Moro Point	9-25-64	Discuss problems with U.S.B.R. engineers Routine inspection

PLANS AND SPECIFICATIONS REVIEWED AND ACCEPTED DURING  
THE 1963 - 64 WATER YEAR

FILE NO.	NAME OF RESERVOIR DAM	NAME OF OWNER	RESERVOIR CAPACITY AC. FT.	RESERVOIR AREA ACRES	USE	EXTENT OF WORK
<u>IRRIGATION DIVISION NO. 1</u>						
<u>Water District No. 2</u>						
C-1070A	Standley Lake	Farmers Res. & Irrig. Co.	42,380	1,200	Irrig. & Mun.	Reconstruction
<u>Water District No. 3</u>						
C-1089	Skyview	Harmony Homes, Inc.	3	0.5	Recreation	Construction
C-1090	Watson Lake	Colo. Game, Fish & Parks Com.	Diversion for fish raising		"	"
<u>Water District No. 4</u>						
C-1084	Charles Wilson Det. No. 1	Charles W. Wilson	9.6	2	Flood Control	Construction
<u>Water District No. 5</u>						
C-1095	Akers and Tarr	Wade Gaddis	170.5	60	Irrigation	Repair
<u>Water District No. 6</u>						
C-1082	Caribou	Caribou Country Club Ranch	133	14	Recreation	Construction
C-781B	Silver Lake	City of Boulder	3,987.4	103.9	Municipal	2nd Enlargement
<u>Water District No. 7</u>						
C-1111	Cabin Creek Hydroelectric Project	(Pump storage to generate power for peak demand)				
	Upper Dam	Public Service of Colo.	1,402.0	25.9	Power	Construction
	Lower Dam	" " "	1,826.9	61.1	"	"
C-1113	Lower Urad	American Metal Climax	252	20	Industrial	"

FILE NO.	NAME OF RESERVOIR DAM	NAME OF OWNER	RESERVOIR CAPACITY AC. FT.	RESERVOIR AREA ACRES	USE	EXTENT OF WORK
C-1125	Braecher Ranch No. 1 <u>Water District No. 8</u>	Braecher Ranch Co.	35	10	Recreation	Construction
C-1103	Franktown-Parker FP-E3	Douglas Co. Soil Conserv.	365.7	36.5	Flood Control	Construction
C-1104	" " FP-E8	" " " "	677.6	55.4	" "	"
C-1109	" " FP-E2	" " " "	106.3	15.8	" "	"
C-1115	Haystack	Marjorie M. Buell	31.8	7	Recreation	"
C-1116	Aurora-Rampart	City of Aurora	1,200	66	Municipal	"
C-1119	Circle 2 Ranch	F. Burr Betts	70	8.8	Flood Control	"
	<u>Water District No. 9</u>					
C-1081	Willow Springs <u>Water District No. 23</u>	Stanley Harwood	70	10	Irrigation	Enlargement
C-1094	Harris Park No. 2	Harris Park Water & Sanitation District	21.4	5	Recreation	Reconstruction
C-1094A	" " " "	" " " "	(Revision)			
C-1105	Joe Wilson	Joseph E. Wilson	56.1	5.5	Recreation	Construction
C-1121	Woodland Park	City of Woodland Park	60	3.	Municipal	"
	<u>Water District No. 47</u>					
C-895A	Petry	N. R. Petry	81.7	10	Irrigation	Spillway Improvement
C-1088	Pole Mountain	Wamsley Cattle Co.	1,905	102.7	Irrigation	Construction
	<u>IRRIGATION DIVISION NO. 2</u> <u>Water District No. 10</u>					
C-1097	Patty Jewett	City of Colo. Springs	60	6	Municipal	Construction

FILE NO.	NAME OF RESERVOIR DAM	NAME OF OWNER	RESERVOIR CAPACITY AC. FT.	RESERVOIR AREA ACRES	USE	EXTENT OF WORK
<u>Water District No. 16</u>						
C-1107	J. O. Smith No. 1	Ellis & J. O. Smith, Partners	28.4	3.9	Irrigation	Construction
<u>Water District No. 19</u>						
C-1123	Walton Detention No. 1	Millard Walton	39.3	4.4	Flood Control	"
<u>Water District No. 49</u>						
C-1117	Flager	Colo. Game, Fish & Parks Com.	1,250	145	Recreation	"
<u>Water District No. 67</u>						
C-1083	Dingwall Ditch Regulating	Gerold W. Verhoeff	461	55	Irrigation	"
C-1093	Lake Creek	Colo. Game, Fish & Parks Com.	78.9	13.3	Recreation	"
C-1099	Limon Watershed L-1	High Plains Water Cons. Dist.	1,200.2	143.6	Flood Control	"
C-1100	" " L-2	" " " " "	351.6	51.6	" "	"
C-1100	" " L-2	" " " " "	Amended dam height		" "	"
C-1102	" " L-3	" " " " "	344.5	46.8	" "	"
<u>IRRIGATION DIVISION NO. 3</u>						
<u>Water District No. 20</u>						
C-1085	Love Lake	U. S. Forest Service	24.4	5.1	Recreation	Repair
C-1091	Brown's Lake	Colo. Game, Fish & Parks Com.	1,249.3	257.2	"	Enlargement
C-1050A	Big Meadow	" " " " "	2,436.7	114.6	"	Spillway Change
<u>IRRIGATION DIVISION NO. 4</u>						
<u>Water District No. 40</u>						
C-1086	Granby No. 6	Granby Ditch & Res. Co.	50	11	Irrigation	Repair

FILE NO.	NAME OF RESERVOIR DAM	NAME OF OWNER	RESERVOIR CAPACITY AC. FT.	RESERVOIR AREA ACRES	USE	EXTENT OF WORK
<u>IRRIGATION DIVISION NO. 4 (Continued)</u>						
<u>Water District No. 40</u> "						
C-1087	Granby No. 7	Granby Ditch & Res. Co.	76.1	15	Irrigation	Repair
C-1078A	Sackett	Sackett Reservoir Co.	102.1	9.5	"	Enlargement
C-1120	Pitcairn	City of Delta	105	8.5	Municipal	Repair
<u>Water District No. 41</u>						
C-1101	Roatcap Wash RW-1	Shavano Soil Conserv. Dist.	790.2	48.2	Flood Control	Construction
<u>Water District No. 59</u>						
C-983A	Ferris Creek	Thomas R. Ellinwood	1,161.8	60	Irrigation	Enlargement
<u>IRRIGATION DIVISION NO. 5</u>						
<u>Water District No. 37</u>						
C-1098	Whittaker	Whittaker Land & Livestock Co.	227.9	15	Irrigation	Construction
C-1106	Climax Molybdenum No. 4	Climax Molybdenum Co.	8,300	170	Industrial	"
C-1106A	"           "           "					Spillway Change
C-1112	Homestake	City of Aurora and City of Colo. Springs	45,000	240	Municipal	Construction
<u>Water District No. 38</u>						
C-1118	Aspen	City of Aspen	9.8	1.5	"	Reconstruction
<u>Water District No. 51</u>						
C-1127	Little Muddy Creek	G. Harold Reini	139.1	20.7	Irrigation	1st Enlargement
<u>Water District No. 53</u>						
C-1108	Kelly Irrigation	Kelly Klumker	143.2	23.3	Irrigation	Construction

FILE NO.	NAME OF RESERVOIR DAM	NAME OF OWNER	RESERVOIR CAPACITY AC. FT.	RESERVOIR AREA ACRES	USE	EXTENT OF WORK
<u>IRRIGATION DIVISION NO. 6</u>						
<u>Water District No. 43</u>						
C-1122	Big Beaver Creek	Colo. Game, Fish & Parks Commission	7,658	263.3	Recreation	Construction
<u>Water District No. 44</u>						
C-1114	Loper	Forrest Loper	12	5.3	Irrigation	Construction
<u>Water District No. 57</u>						
C-656A	Sheriff	Town of Oak Creek	986.5	421.9	Municipal	Reconstruction
C-1126	Hayden Station Assoc.	Colo. Ute Electric Assoc.	1,013.3	53.0	Industrial	Construction
<u>Water District No. 58</u>						
C-1110	Upper Stillwater	Colo. Game, Fish & Parks Commission	619.6	46.7	Recreation	Construction
<u>IRRIGATION DIVISION NO. 7</u>						
<u>Water District No. 29</u>						
C-1092	Squaw Canyon	Colo. Game, Fish & Parks Commission	469.9	27.6	Recreation	Construction
C-1096	Hatcher	Calvin Perkins	1,734.8	133.5	Irrigation	New dam 200' downstream from present dam
<u>Water District No. 30</u>						
C-1124	Turner	John W. Turner II	472.4	42.1	Irrigation	Construction