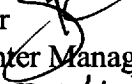




LOGISTICS MEMORANDUM

07-07

May 24, 2007

TO: Honorable Mayor Kathleen M. Novak and City Council Members

FROM: A.J. Krieger, City Manager 
Kurt Kowar, Logistics Center Manager 
Amy Ward, Civil Engineer II 

SUBJECT: CR-48-Wastewater Treatment Plant (WWTP) Expansion Construction Contract, Change Order 64, GeoExchange HVAC Upgrade

RECOMMENDATION:

Attached to this memorandum is a Resolution which, if approved, would authorize the Mayor to execute Change Order 64 to the contract between the City of Northglenn and Glacier Construction Company for an amount of \$20,000 to upsize the Geoexchange system pump motors. Staff recommends approval of the proposed Resolution.

BACKGROUND:

On May 13, 2004, the City Council approved Staff Report No. 04-18 that executed a contract between the City and Glacier Construction Company to construct the Wastewater Treatment Plant Expansion project. The project included construction of three aeration basins, two secondary clarifiers, a UV disinfection building, and a secondary pump building with an electrical room and a blower room. Also included in the project was a Geoexchange system which functions as the HVAC unit for the new buildings.

During the course of the construction it was determined that several of the Geoexchange system pumps were undersized. Following that determination, Integra Engineering directed Glacier Construction Company to replace the existing pumps with larger capacity pumps. Integra requested that the City pay for a portion of the upsizing of the motors, due to the added benefit the City is receiving for the use of the larger pumps.

The Change Order attached to the Resolution addresses the City's portion of additional costs incurred by Glacier Construction Company for the upgrading of the HVAC system.

POTENTIAL OBJECTION:

City Staff is not aware of any specific opposition to the proposed Resolution.

BUDGET/TIME IMPLICATIONS:

The cost of Change Order No. 64 for the GeoExchange HVAC Upgrade as proposed is \$20,000. Adequate funding for this amendment is available in the existing Wastewater Treatment Plant Expansion Supplemental Appropriation CB 1550.

STAFF REFERENCE:

Please contact Kurt Kowar, Logistics Center Manager at kkowar@northglenn.org, or (303) 349-3772.

SPONSORED BY: COUNCIL MEMBER MONROE

COUNCILMAN'S RESOLUTION

RESOLUTION NO.

No. CR-48
Series of 2007

Series of 2007

A RESOLUTION APPROVING CHANGE ORDER NO. 64 TO THE CONTRACT BETWEEN THE CITY OF NORTHGLENN AND GLACIER CONSTRUCTION COMPANY FOR THE WASTEWATER TREATMENT PLANT EXPANSION PROJECT.

WHEREAS, the City of Northglenn entered into an Agreement dated May 13, 2004 with Glacier Construction Company for the Wastewater Treatment Plant expansion project; and

WHEREAS, Change Order No. 64 to the Agreement addresses the City's portion of additional costs incurred by Glacier Construction Company for the upgrading of the GeoExchange HVAC system.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF NORTHGLENN, COLORADO, THAT:

Change Order No. 64 to the Agreement between the City of Northglenn and Glacier Construction Company for the City's portion of the costs for the upgrading of the GeoExchange HVAC system is hereby approved and the Mayor is authorized to execute same on behalf of the City of Northglenn.

DATED, at Northglenn, Colorado, this _____ day of _____, 2007.

KATHLEEN M. NOVAK
Mayor

ATTEST:

DIANA L. LENTZ, CMC
City Clerk

APPROVED AS TO FORM:

COREY Y. HOFFMANN
City Attorney



Integra Engineering

Since 1995

1095 South Monaco Parkway ♦ Denver, CO 80224
Main 303 825 1802 ♦ Fax 303 825 2322

May 16, 2007

Mr. Kurt Kowar, Logistics Center Manager
City of Northglenn
PO Box 330061
11701 Community Center Drive
Northglenn, Colorado 80233-8061

Northglenn Wastewater Treatment Plant Geoexchange System Pump Settlement

Dear Mr. Kowar:

As requested, this letter summarizes the proposed settlement of costs to replace some of the water circulation pumps in the geoexchange heating and cooling system.

Executive Summary

Some of the small water circulation pumps that had been installed in the geoexchange system were found to have low flow or low discharge pressure and were replaced with larger capacity pumps and motors. Integra Engineering agreed to pay 74 percent (\$57,988.85) of the cost to replace these pumps and motors. The City acknowledged that it had received an increased benefit and agreed to pay 26 percent (\$20,000.00) of the construction cost.

Geoexchange System Function

All of the buildings in the new facility are heated and cooled by geothermal heat exchange system. The system extracts heat from water in the aeration basins in the winter and dissipates excess heat to the water in the basins in the summer. The geothermal heat exchange system uses no external fuel for heating or cooling and reduces net operating costs by approximately 40 percent compared with conventional heating and cooling systems. This innovative system is the first application of geoexchange technology to use wastewater as a heating and cooling source.

Geoexchange System Pump Modifications

In June 2006, some of the small water circulation pumps that had been installed in the geoexchange system were found to have low flow or low discharge pressure. Two circulation pumps (P-5242, P-5243) were modified by installing larger impellers to increase the discharge flow and larger motor starters (size 1) in the motor control center. Five circulation pumps (P-5244, P-5247, P-5255, P-6142 and P-6143) were replaced with larger capacity pumps. Two larger motor starters (size 1) were installed in the motor control centers for two pumps (P-6142 and P-6143). One motor circuit protector in an existing motor starter unit was upsized from 3 to 7-amperes (for Pump P5247). Five pump motors were upsized (2 motors upsized to 1 horsepower, 1 motor upsized to 1.5 horsepower, and 2 motors upsized to 3 horsepower).

Cost of Construction Modifications

The total cost of \$77,988.85 to construct the modifications to the geoexchange system was negotiated with the Contractor as summarized in Table 1. Integra Engineering agreed to pay the cost of \$57,988.85 to replace the pumps and motors (summarized in Change Order 63). The City acknowledged that the larger 3-phase electrical motor starters and associated conduit and conductors constituted an upgrade that had not been included as part of the original bid for the project. The City agreed to pay \$20,000 of the construction cost (summarized in Change Order 64) for the electrical upgrade.

Table 1 Summary of Construction Change Orders for Effluent Pipeline and Service Building

Change Order	Description	Date Executed	Amount, dollars
63	Geoexchange Pump and Motor Upsizing	Pending	57,988.85
64	Geoexchange Pump Electrical Upgrade	Pending	20,000.00
Total			77,988.85


Engineering Costs

Integra Engineering absorbed the costs of all engineering services required to modify the geoexchange system.

We believe that the settlement described in this letter provides a fair and equitable allocation of responsibilities and costs between the City and Integra Engineering for the modifications to the geoexchange system pumps.

Thank you for your assistance in resolving this matter. If you have any questions or concerns, please call me.

Sincerely,
Integra Engineering



Michael P. Lutz, P.E.
Principal

City of Northglenn

11701 Community Center Dr.

Northglenn, CO 80233

Phone: (303) 450-8774

Fax: (303) 450-8708

CHANGE ORDER

No. 00064

TITLE: HVAC Pump Elec. Modifications

DATE: 3/28/2007

PROJECT: WWTP Expansion

JOB:

TO: Attn: Steve P Stephenson
Glacier Construction Company
7302 South Altan Way, Suite 4 I
Englewood, CO 80112
Phone: 3032215383 Fax: 3032215385

CONTRACT NO: 4

RE:

To:

From:

Number:

DESCRIPTION OF CHANGE

Reason For Change Order

The items listed in this Change Order are required to upgrade existing electrical gear to accomodate the upgraded HVAC pumps provided under Change Order 63.

Item	Description	Stock#	Quantity	Units	Unit Price	Tax Rate	Tax Amount	Net Amount
00001	Electrical Upgrades - HVAC Pumps P5244 and P5245		1		\$6,000.00	0.00%	\$0.00	\$6,000.00

a. Provide a size 1, FVNR motor starter unit in motor control center 5001A, space 6K to serve pump P5244. Provide a size 1, FVNR motor starter unit in motor control center 5001B, space 6J to serve pump P5245. Motor starters shall be in accordance with specification 16920 and Figure 1 attached.

b. Feeder circuits and control circuits associated with pumps P5244 and P5245 shall be configured in accordance with Figure 2. The disconnect switches shall be located within sight of the pumps in the Secondary Pump Station pump room.

The Original Contract Sum was	\$11,149,000.00
Net Change by Previously Authorized Requests and Changes	\$1,811,600.25
The Contract Sum Prior to This Change Order was	\$12,960,600.25
The Contract Sum Will be Increased	\$20,000.00
The New Contract Sum Including This Change Order	\$12,980,600.25
The Contract Time Will Not Be Changed	
The Date of Substantial Completion as of this Change Order Therefore is	...

ACCEPTED:

Glacier Construction Company

City of Northglenn

Integra Engineering

By: Steve P Stephenson

By: Kathleen M. Novak

By: Patrick D. Radabaugh

Date: 4/11/07

Date: _____

Date: 4/11/07

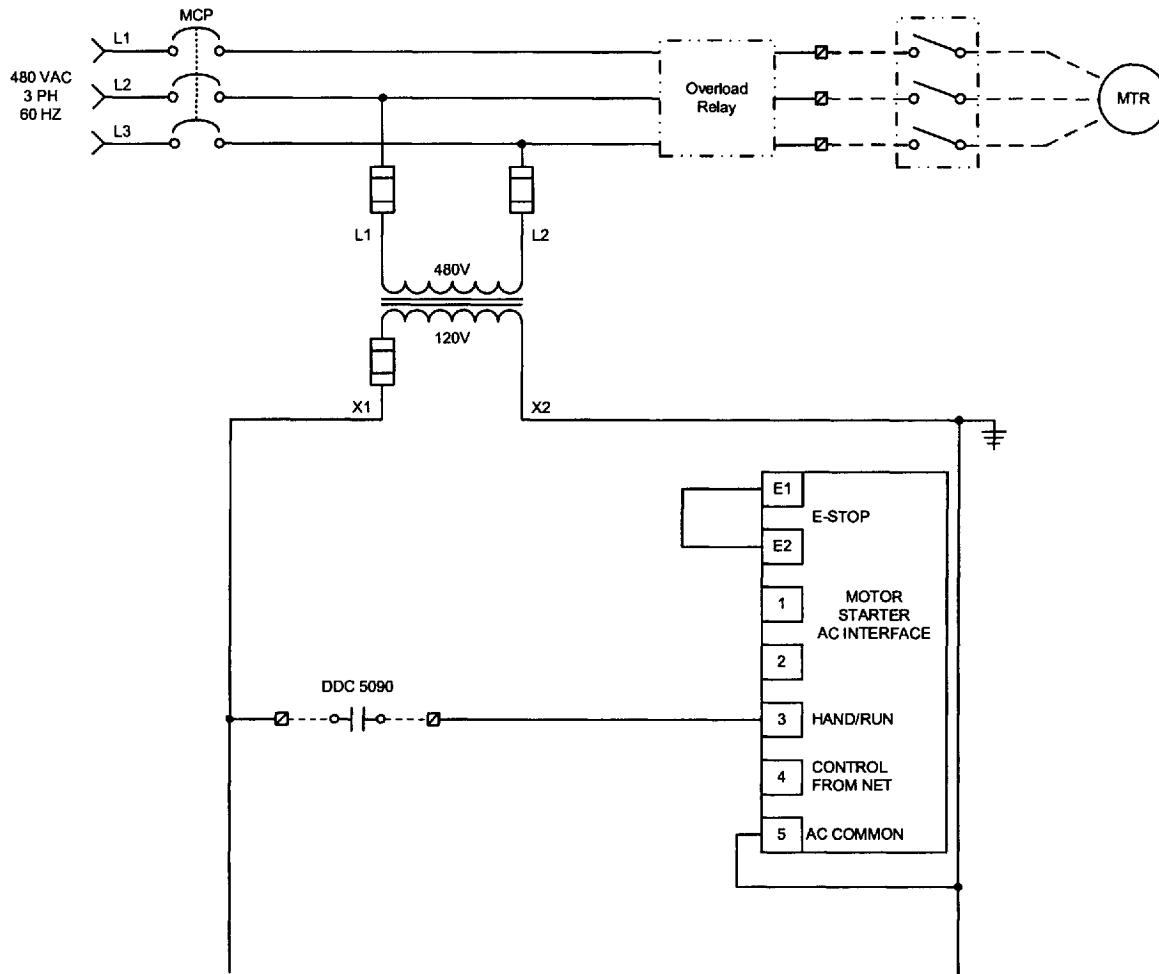
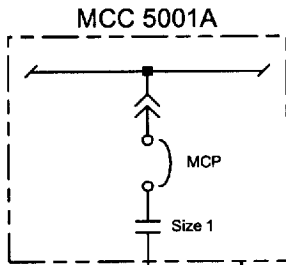


DIAGRAM E55B

EQUIPMENT	DESCRIPTION	LOCATION
P5240	Geo. Exchange Pump	SEC PUMP STATION
P5241	Geo. Exchange Pump	SEC PUMP STATION
P5242	Source Water Pump	SEC PUMP STATION
P5243	Source Water Pump	SEC PUMP STATION
P5244	Load Water Pump	SEC PUMP STATION
P5245	Load Water Pump	SEC PUMP STATION
P5246	Heat Coil Pump	SEC PUMP STATION
P5247	Chilled Coil Pump	SEC PUMP STATION
P6142	Load Water Pump	DISINFECTION BUILDING
P6143	Load Water Pump	DISINFECTION BUILDING

DESCRIPTION

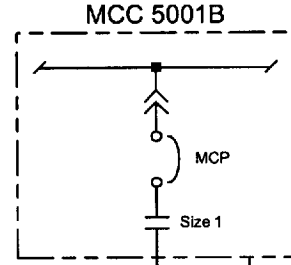


3#12, #12G, 3/4" C

HVAC Load Water Pump,
P5244

2#14, #14G, 3/4" C

DDC 5090



3#12, #12G, 3/4" C

HVAC Load Water Pump,
P5245

2#14, #14G, 3/4" C

DDC 5090

NOTES:

1. RS 485 communication circuit between VFDs. Provide 3#22 twisted shielded cable in 3/4 inch conduit. Cable shall be Belden 3106A or equivalent.
2. VFD furnished with non-potable water pumping system.
3. Pressure transmitter furnished with non-potable water pumping system.
4. System discharge pressure signal derived from VFD 5501 is 0 to 10 volt DC. Provide a signal converter in a NEMA 4X enclosure adjacent to the VFD to generate a 4-20 mA DC signal proportional to the discharge pressure signal. Signal converter shall be Phoenix Contact, MCR-C or equivalent.

DESCRIPTION

FIGURE 2

City of Northglenn

11701 Community Center Dr.

Northglenn, CO 80233

Phone: (303) 450-8774

Fax: (303) 450-8708

CHANGE ORDER

No. 00064

TITLE: HVAC Pump Elec. Modifications

DATE: 3/28/2007

PROJECT: WWTP Expansion

JOB:

TO: Attn: Steve P Stephenson
Glacier Construction Company
7302 South Altan Way, Suite 4 I
Englewood, CO 80112
Phone: 3032215383 Fax: 3032215385

CONTRACT NO: 4

RE:

To:

From:

Number:

DESCRIPTION OF CHANGE

Item	Description	Stock#	Quantity	Units	Unit Price	Tax Rate	Tax Amount	Net Amount
00002	Electrical Upgrades HVAC Pump P5247 a. The 3-ampere motor circuit protector in the existing motor starter unit serving this pump shall be replaced with 7-ampere motor circuit protector.		1		\$6,000.00	0.00%	\$0.00	\$6,000.00
00003	Electrical Upgrades - HVAC Pumps P6142 and P6143 a. Provide a size 1, FVNR motor starter unit in motor control center 6001, space 2C to serve pump P6142. Provide a size 1, FVNR motor starter unit in motor control center 6001, space 2E to serve pump P6143. Motor starters shall be in accordance with specification 16920 and Figure 1 attached. b. Feeder circuits and control circuits associated with pumps P6142 and P6143 shall be configured in accordance to Figure 3.		1		\$6,000.00	0.00%	\$0.00	\$6,000.00

The Original Contract Sum was	.....	\$11,149,000.00
Net Change by Previously Authorized Requests and Changes	.....	\$1,811,600.25
The Contract Sum Prior to This Change Order was	.....	\$12,960,600.25
The Contract Sum Will be Increased	.....	\$20,000.00
The New Contract Sum Including This Change Order	.....	\$12,980,600.25
The Contract Time Will Not Be Changed	.....
The Date of Substantial Completion as of this Change Order Therefore is	.....

ACCEPTED:

Glacier Construction Company
By: Steve P Stephenson
Date: 4/11/07

City of Northglenn
By: Kathleen M. Novak
Date: _____

Integra Engineering
By: Patrick D. Radabaugh
Date: 4/11/07

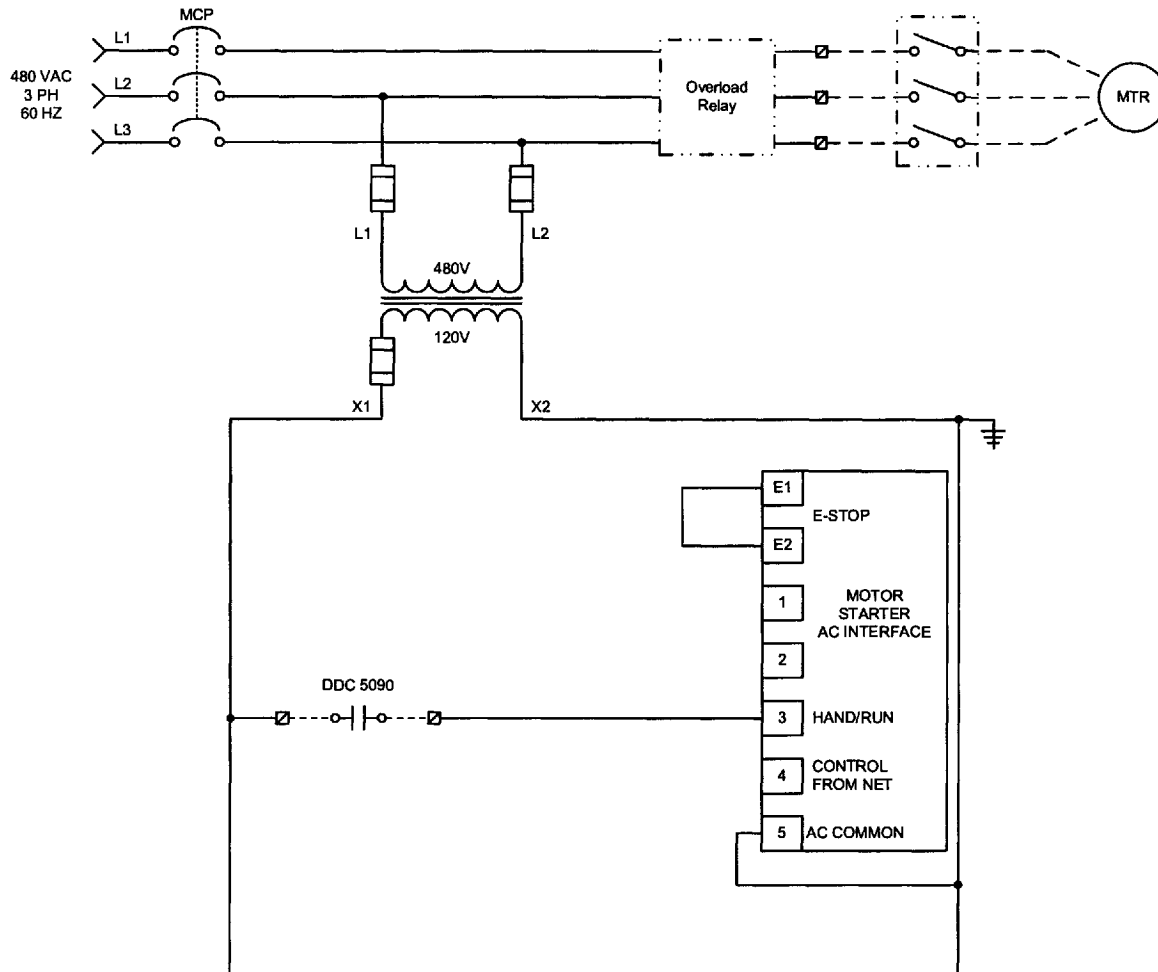
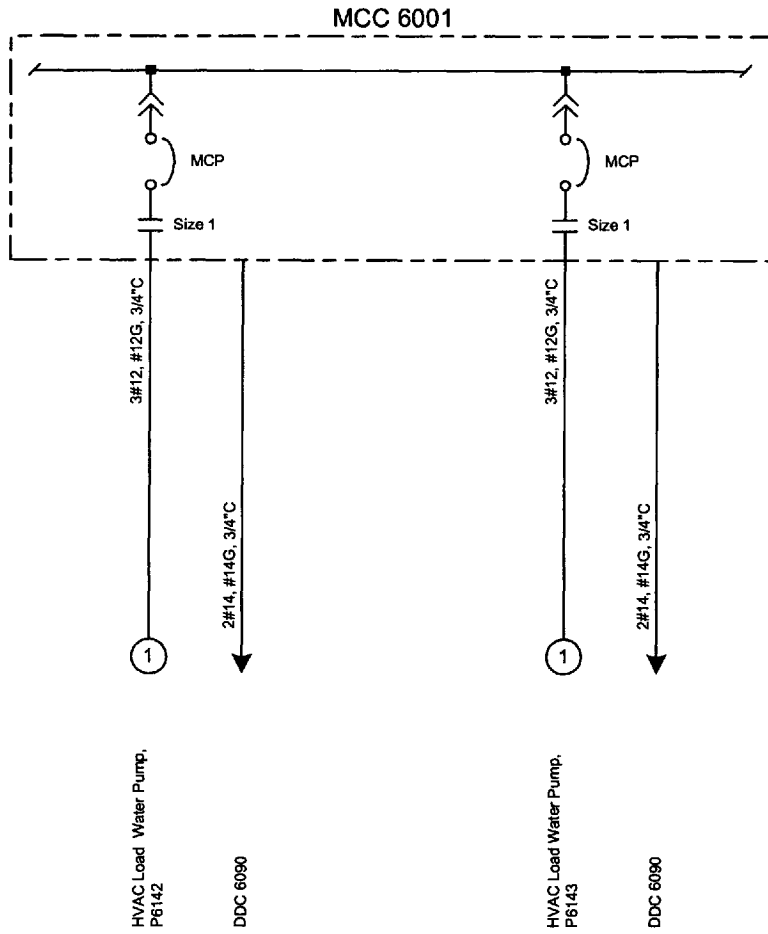


DIAGRAM E55B

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P5247	Chilled Coil Pump	SEC PUMP STATION
P6142	Load Water Pump	DISINFECTION BUILDING
P6143	Load Water Pump	DISINFECTION BUILDING

DESCRIPTION



Partial One-Line Diagram

DESCRIPTION

FIGURE 3

City of Northglenn

CHANGE ORDER

11701 Community Center Dr.

No. 00064

Northglenn, CO 80233

Phone: (303) 450-8774

Fax: (303) 450-8708

TITLE: HVAC Pump Elec. Modifications

DATE: 3/28/2007

PROJECT: WWTP Expansion

JOB:

TO: Attn: Steve P Stephenson
Glacier Construction Company
7302 South Altan Way, Suite 4 I
Englewood, CO 80112
Phone: 3032215383 Fax: 3032215385

CONTRACT NO: 4

RE:

To:

From:

Number:

DESCRIPTION OF CHANGE

Item	Description	Stock#	Quantity	Units	Unit Price	Tax Rate	Tax Amount	Net Amount
00004	All abandoned electrical equipment shall be removed including motor starters and conduit.		1		\$2,000.00	0.00%	\$0.00	\$2,000.00

Unit Cost: \$20,000.00

Unit Tax: \$0.00

Total: \$20,000.00

The Original Contract Sum was	\$11,149,000.00
Net Change by Previously Authorized Requests and Changes	\$1,811,600.25
The Contract Sum Prior to This Change Order was	\$12,960,600.25
The Contract Sum Will be Increased	\$20,000.00
The New Contract Sum Including This Change Order	\$12,980,600.25
The Contract Time Will Not Be Changed	
The Date of Substantial Completion as of this Change Order Therefore is	...

ACCEPTED:

Glacier Construction Company

City of Northglenn

Integra Engineering

By: [Signature]
Steve P Stephenson

By: [Signature]
Kathleen M. Novak

By: [Signature]
Patrick D. Radabaugh

Date: 4/11/07

Date: _____

Date: 4/11/07